Java 9 Status tracking

```
------------------------------------------------------------------------
r1720196 | markt | 2015-12-15 18:05:45 +0100 (Tue, 15 Dec 2015) | 1 line
Minor hack to get the unit tests passing on Java 9.
```

JarScanner requires more careful review in light of Java 9 modules.

```
------------------------------------------------------------------------
r1692896 | markt | 2015-07-27 17:18:49 +0200 (Mon, 27 Jul 2015) | 1 line
Add Java 9 support for JSPs
```

Back-ported for 8.5.x and 8.0.x. Can't back-port for 7.0.x as ECJ that supports Java 9 doesn't run on Java 6. Need to decide how to handle this.

Resolved

```
r1809434 | rjung | 2017-09-23 16:45:48 +0200 (Sat, 23 Sep 2017) | 3 lines
Use the correct path when loading the JVMlogging.properties file for Java 9.
```

Already back-ported.

```
------------------------------------------------------------------------
r1806973 | markt | 2017-09-01 17:04:45 +0200 (Fri, 01 Sep 2017) | 1 line
Java 9 allows us to be more selective with the JRE memory leak protection.
```

Back-ports complete

```
------------------------------------------------------------------------
r1806932 | markt | 2017-09-01 13:10:37 +0200 (Fri, 01 Sep 2017) | 1 line
Update comment. We now have features that depend on Java 9.
```

Only applied to trunk.

```
------------------------------------------------------------------------
r1800617 | markt | 2017-07-03 12:19:46 +0200 (Mon, 03 Jul 2017) | 1 line
Add necessary Java 9 configuration options to the startup scripts to prevent
warnings being generated on web application stop.
```

Back-ports complete

```
------------------------------------------------------------------------
r1800614 | markt | 2017-07-03 11:48:01 +0200 (Mon, 03 Jul 2017) | 1 line
Restore the local definition of the web service annotations since the JRE
provided versions are deprecated and Java 9 does not provide them by default.
```

Not back-ported as this change reverted a previous change.

```
------------------------------------------------------------------------
*r1791050 | markt | 2017-04-12 00:36:01 +0200 (Wed, 12 Apr 2017) | 1 line
Refactoring in preparation for Java 9. Refactor to avoid using some methods
that will be deprecated in Java 9 onwards.
```

Back-ports complete

```
------------------------------------------------------------------------
r1791028 | markt | 2017-04-11 23:16:04 +0200 (Tue, 11 Apr 2017) | 1 line
Refactoring in preparation for Java 9. Refactor to avoid using some methods
that will be deprecated in Java 9 onwards.
```

Back-ports complete

```
------------------------------------------------------------------------
r1791027 | markt | 2017-04-11 22:40:36 +0200 (Tue, 11 Apr 2017) | 1 line
Refactoring in preparation for Java 9. Refactor to avoid using some methods
that will be deprecated in Java 9 onwards.
```

Back-ports complete

```
------------------------------------------------------------------------
r1791036 | markt | 2017-04-11 23:40:13 +0200 (Tue, 11 Apr 2017) | 1 line
Java 8 and Java 9 friendly alternative
```

Back-ported to 8.5.x but no further as encoding detector has not been back-ported further.

```
------------------------------------------------------------------------
r1791032 | markt | 2017-04-11 23:34:50 +0200 (Tue, 11 Apr 2017) | 1 line
Revert the Java 9 change that breaks in Java 8
```

Back-ported to 8.5.x but no further as encoding detector has not been back-ported further.

```
------------------------------------------------------------------------
*r1782857 | markt | 2017-02-13 21:39:14 +0100 (Mon, 13 Feb 2017) | 3 lines
Java 9 support for annotation scanningBased
on:http://cr.openjdk.java.net/~mr/jigsaw/spec/lang-vm.html#jigsaw-2.6

------------------------------------------------------------------------

r1779545 | markt | 2017-01-20 01:12:16 +0100 (Fri, 20 Jan 2017) | 2 lines
Adding ALPN support for JSSE with Java 9Enable ALPN and also, therefore,
HTTP/2 for the NIO and NIO2 HTTP connectors when using the JSSE implementation
for TLS when running on Java 9.
```

Back-ported to 8.5.x but not further since 8.0.x and earlier do not support/require ALPN.

```
------------------------------------------------------------------------

r1779313 | markt | 2017-01-18 12:23:17 +0100 (Wed, 18 Jan 2017) | 1 line
ws police (I need to configure my Java 9 dev environment correctly)
```

Related to ALPN and handled as part of those back-ports.

```
------------------------------------------------------------------------
r1778603 | markt | 2017-01-13 15:42:01 +0100 (Fri, 13 Jan 2017) | 2 lines
Adding ALPN support for JSSE with Java 9Add some plumbing to exposed the client
requested application protocols to the method that configures the SSLEngine
```

Back-ported to 8.5.x but not further since 8.0.x and earlier do not support/require ALPN.

```
------------------------------------------------------------------------
r1778575 | markt | 2017-01-13 13:50:01 +0100 (Fri, 13 Jan 2017) | 2 lines
Adding ALPN support for JSSE with Java 9Expand the data extracted from the TLS
client hello to include the client requested ALPN names.
```

Back-ported to 8.5.x but not further since 8.0.x and earlier do not support/require ALPN.

```
------------------------------------------------------------------------
*r1766822 | markt | 2016-10-27 15:59:41 +0200 (Thu, 27 Oct 2016) | 2 lines
ThreadLocal leak detection is now hitting Java 9 module issues.
Catch the error and provide a useful error message if this happens.
```

Back-ports complete.

```
------------------------------------------------------------------------
r1779932 | markt | 2017-01-23 15:16:32 +0100 (Mon, 23 Jan 2017) | 2 lines
Remove unused code, effectively reverting 1779370 and 1779612.
Java 9 is now handled in other branch of if/else.
```

Back-ported to 8.5.x but no further as cleaner has not been back-ported further.

```
------------------------------------------------------------------------

r1779622 | remm | 2017-01-20 14:09:56 +0100 (Fri, 20 Jan 2017) | 1 line
Restore Java 9 direct byte buffer cleanup code, for now. The last way to
access it is through the private Unsafe singleton, which will likely stop
working at some point
```

Back-ported to 8.5.x but no further as cleaner has not been back-ported further.

```
------------------------------------------------------------------------

r1779612 | markt | 2017-01-20 12:58:51 +0100 (Fri, 20 Jan 2017) | 1 line
Log message that includes command line option required when running on Java 9
```

Back-ported to 8.5.x but no further as cleaner has not been back-ported further.

```
------------------------------------------------------------------------

r1779370 | markt | 2017-01-18 19:46:27 +0100 (Wed, 18 Jan 2017) | 1 line
Java 9 can throw a Java 9 specific exception here (InaccessibleObjectException)
so tweak the handling
```

Back-ported to 8.5.x but no further as cleaner has not been back-ported further.

```
------------------------------------------------------------------------

*r1762753 | remm | 2016-09-29 12:20:27 +0200 (Thu, 29 Sep 2016) | 1 line
Java 9 compatibility for direct ByteBuffer cleaner.
```

Back-ported to 8.5.x but no further as cleaner has not been back-ported further.

```
------------------------------------------------------------------------
*r1758556 | markt | 2016-08-31 11:09:47 +0200 (Wed, 31 Aug 2016) | 1 line
The latest Java 9 early access builds have fixed some more memory leaks.
```

Back-ports complete

```
------------------------------------------------------------------------

*r1744323 | markt | 2016-05-17 22:36:54 +0200 (Tue, 17 May 2016) | 1 line
Make checking for RMI Target memory leaks optional and log a warning if running
on Java 9 without the necessary command line options
```

Back-ports complete

```
------------------------------------------------------------------------
r1744149 | markt | 2016-05-16 23:36:39 +0200 (Mon, 16 May 2016) | 1 line
Tomcat needs to know if it is running on Java 9 since the reflection used by
the RMI memory leak detection will break unless the right command line option
is specified.
```

Back-ports complete

```
------------------------------------------------------------------------
r1739492 | markt | 2016-04-16 21:08:19 +0200 (Sat, 16 Apr 2016) | 2 lines
Java 9 The JRE class loaders no longer extend URLClassLoader
```

Back-ports complete

```
------------------------------------------------------------------------
r1705771 | markt | 2015-09-28 22:45:08 +0200 (Mon, 28 Sep 2015) | 1 line
No need for LogManager when using stop. Can't use the Tomcat config anyway since
that would resut in two processes trying to write to the same file. This was also
causing an ugly stack trace on stop with Java 9 as it tried to find a logging
configuration to use.
```

No longer an issue after r1809434 and back-ports

```
------------------------------------------------------------------------
r1633595 | markt | 2014-10-22 13:04:31 +0200 (Wed, 22 Oct 2014) | 1 line
Java 9 Javadoc issues
```

Building with Java 9 generates warnings for Tomcat 8.0.x. 7.0.x always uses Java 7 for Javadoc. Added to optional further work.

```
------------------------------------------------------------------------
r1653475 | markt | 2015-01-21 11:39:59 +0100 (Wed, 21 Jan 2015) | 1 line
Remove use of java.endorsed.dirs since causes errors when starting with Java 9.
Users that need to can still use this via setenv.sh
```

Not back-ported because Rainer has provided an improved fix for this (which has been back-ported)

Optional additional tasks

Fix Javadoc warnings when building with Java 9 for all versions.
Refactor Tomact 7 build so Java 7 or later is used fro all parts if available.
Backport direct byte buffer clean-up to 8.0.x and 7.0.x