Configure for Lab

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https://github.com/swacademy/Spring5

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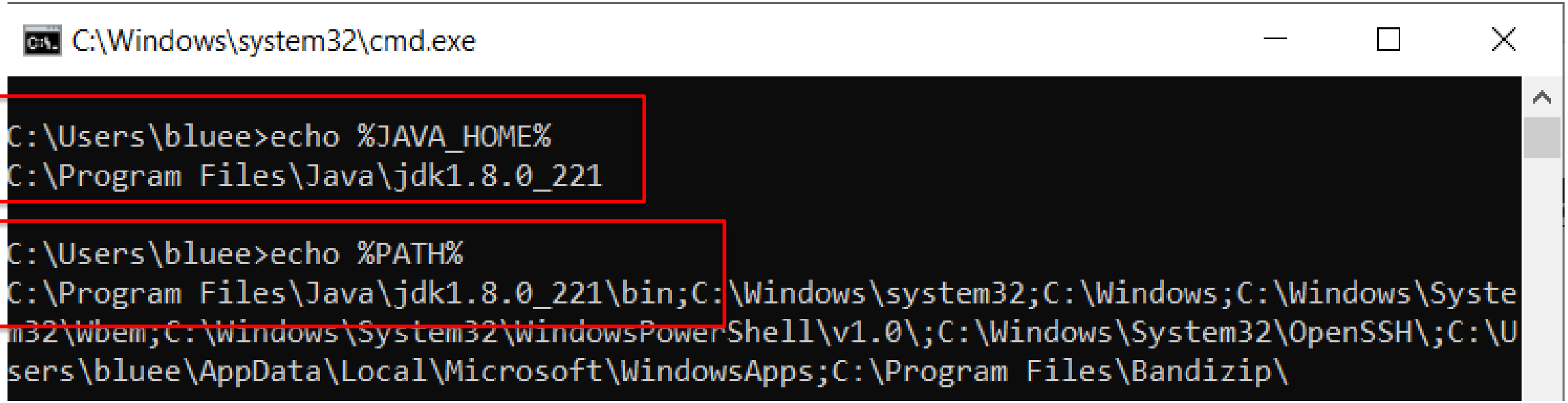
I. JDK 1.8.0_221

JDK 1.8.x Installation and Configuration

- JDK : https://www.oracle.com/technetwork/java/javase/downloads/index.html
- Documentation : https://docs.oracle.com/javase/8/docs/
- API : https://docs.oracle.com/javase/8/docs/api/

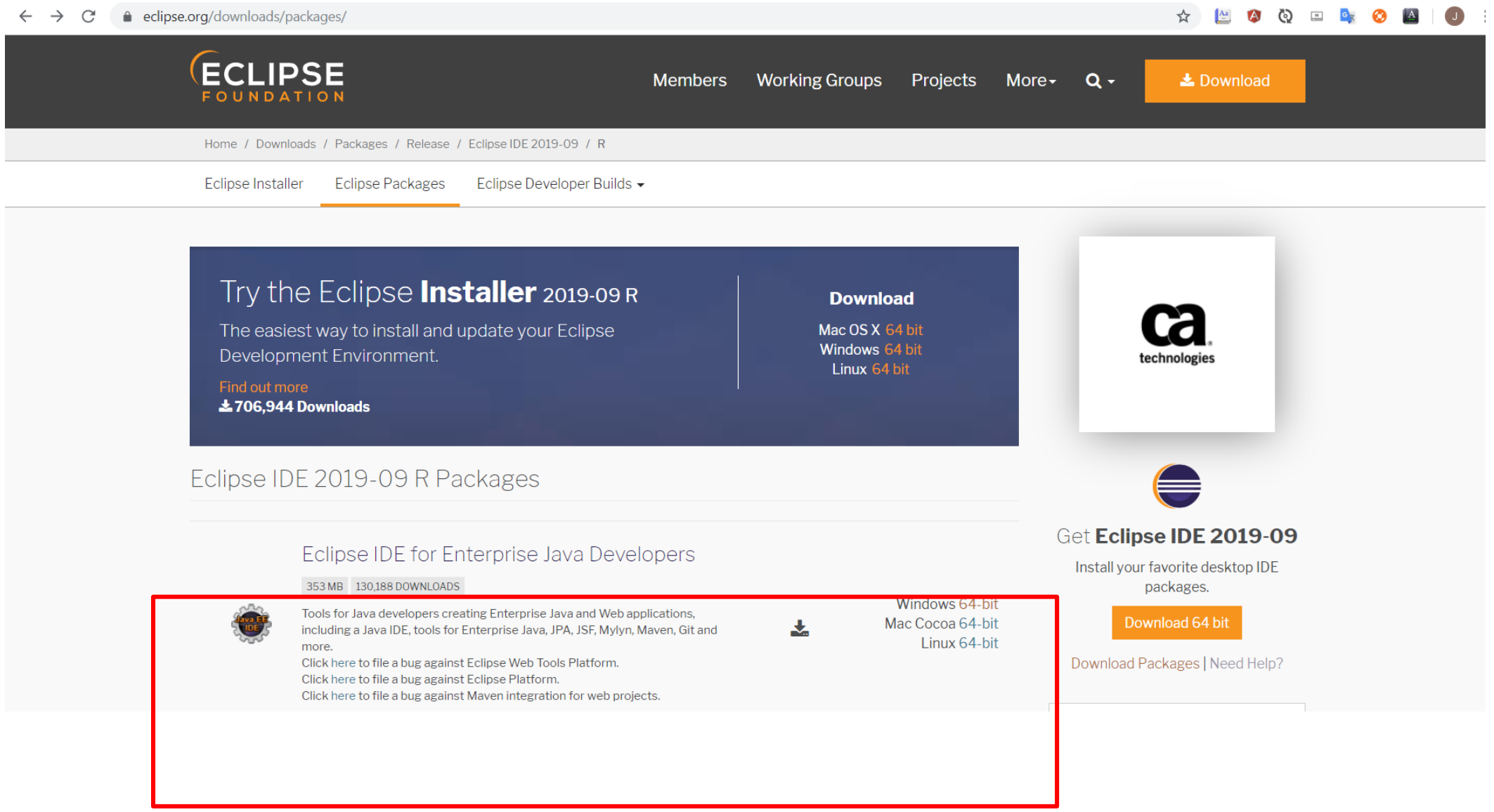
JDK 1.8.x Installation and Configuration (Cont.)

- JAVA_HOME
- PATH

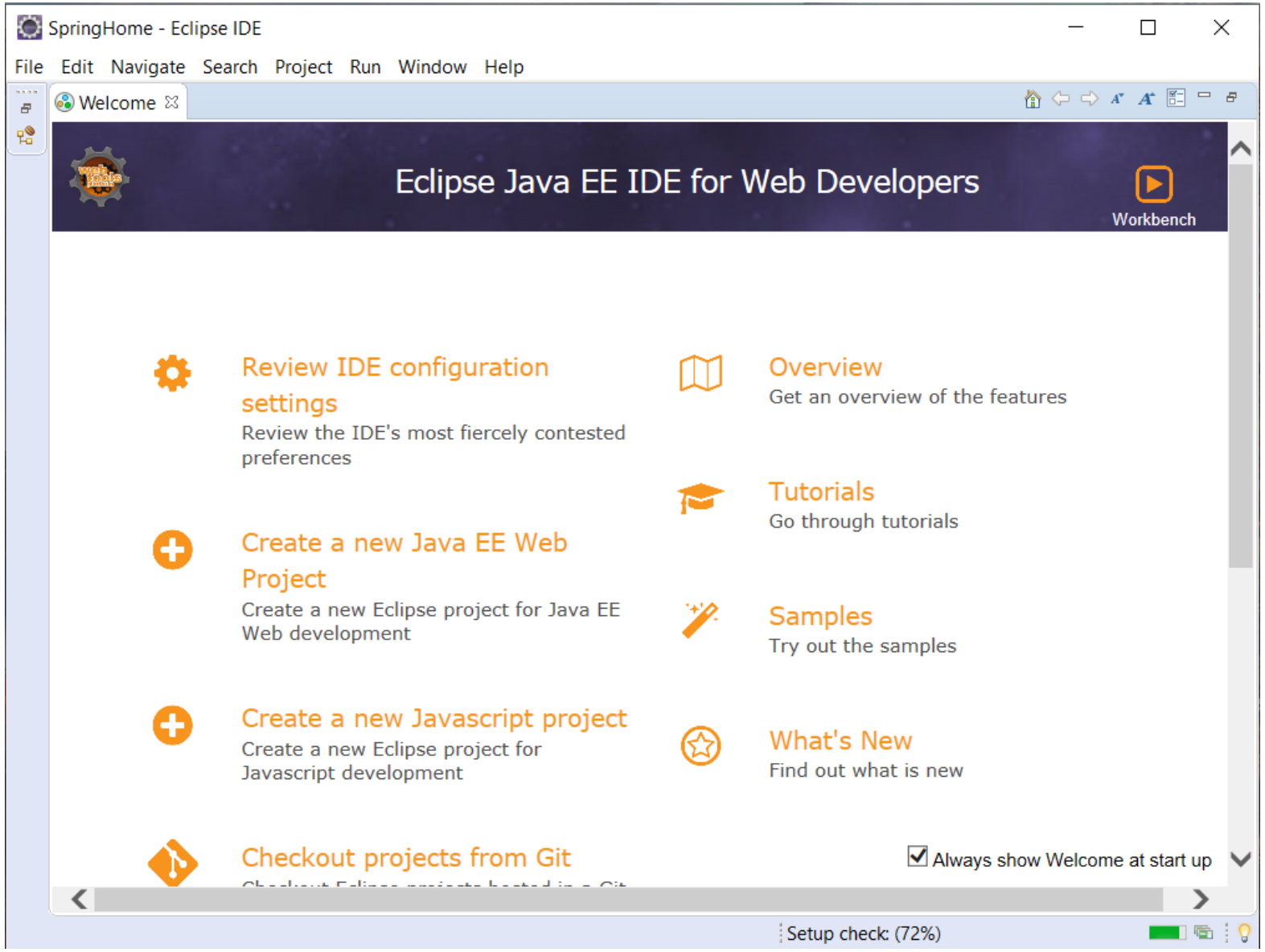


II. Eclipse JEE

Eclipse JEE Download and Configuration



Eclipse JEE Download and Configuration (Cont.)



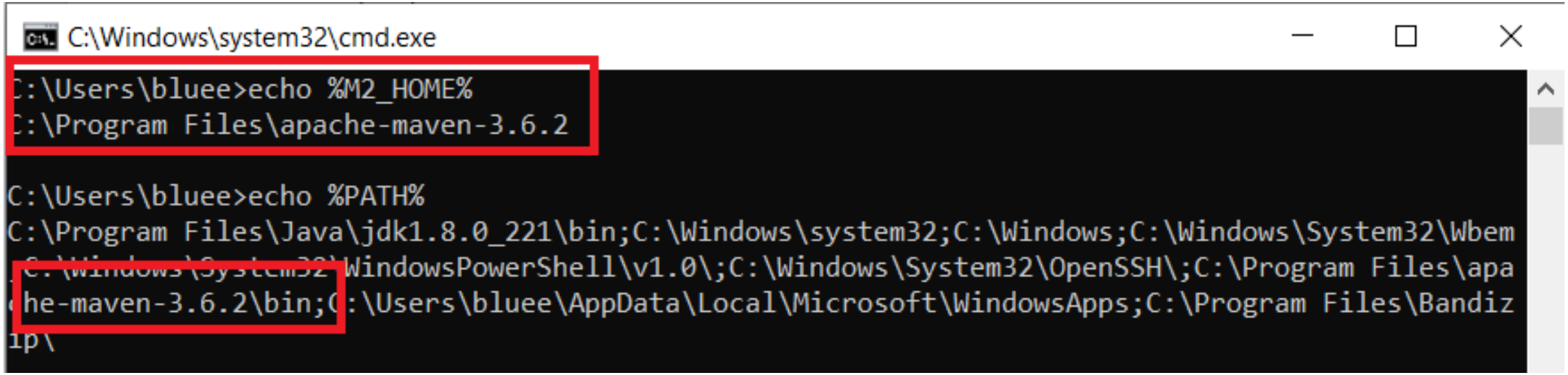
III. Maven 3.6.2

Maven 3.6.x Configuration

- http://maven.apache.org/
- Refer to : http://javacan.tistory.com/entry/MavenBasic
- Download
  - http://maven.apache.org/download.cgi
  - Binary zip archive : apache-maven-3.6.2-bin.zip

Maven 3.6.x Configuration (Cont.)

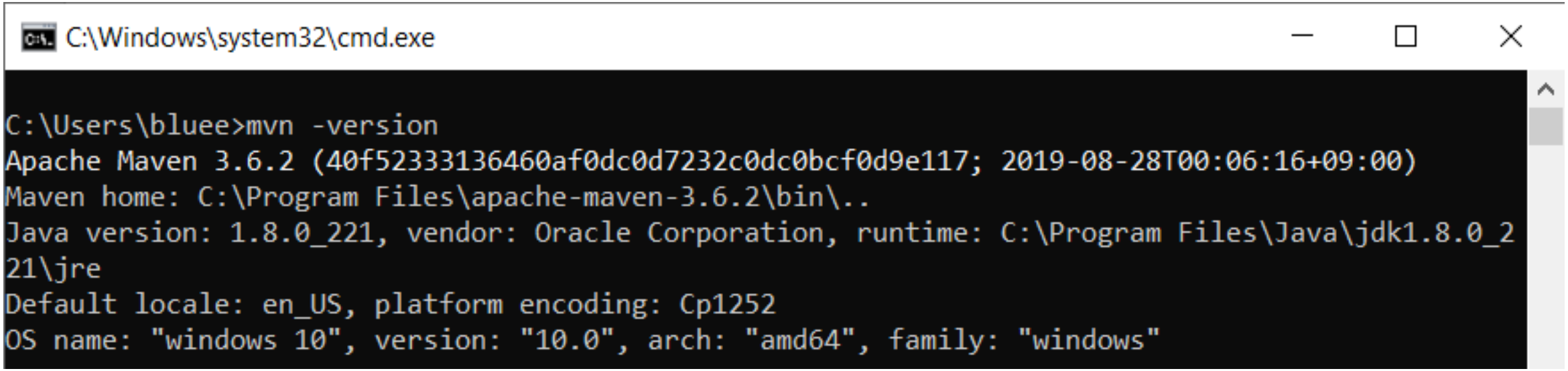
- M2_HOME(C: \ Program Files \ apache-maven-3.6.2) 설정
- PATH에 (%M2_HOME% \ bin) 추가



Maven 3.6.x Configuration (Cont.)

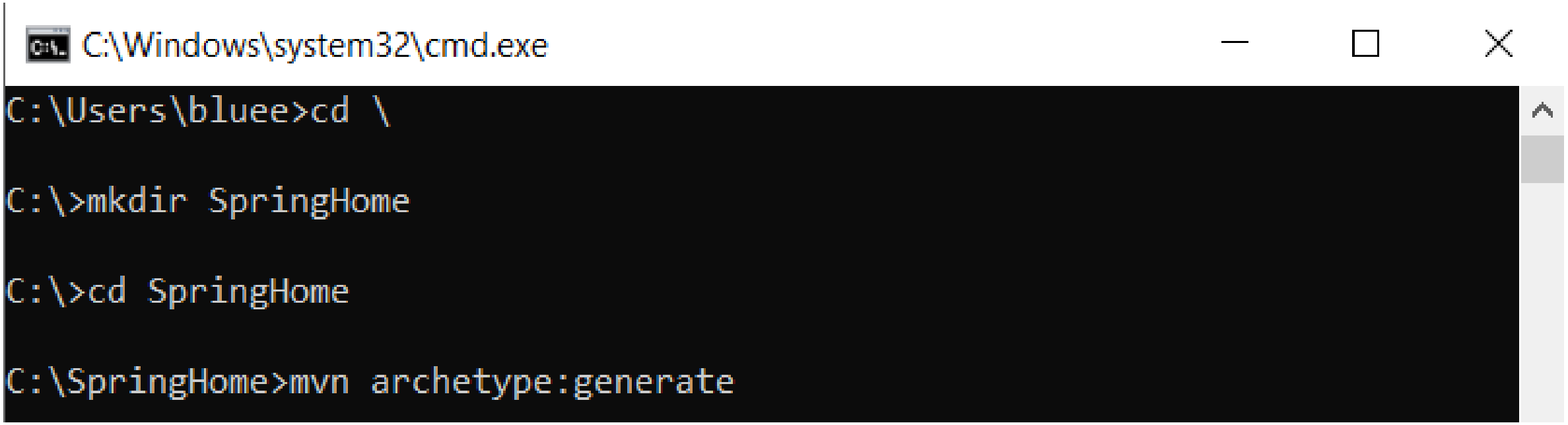
- 설치 확인

  $ **mvn -version**

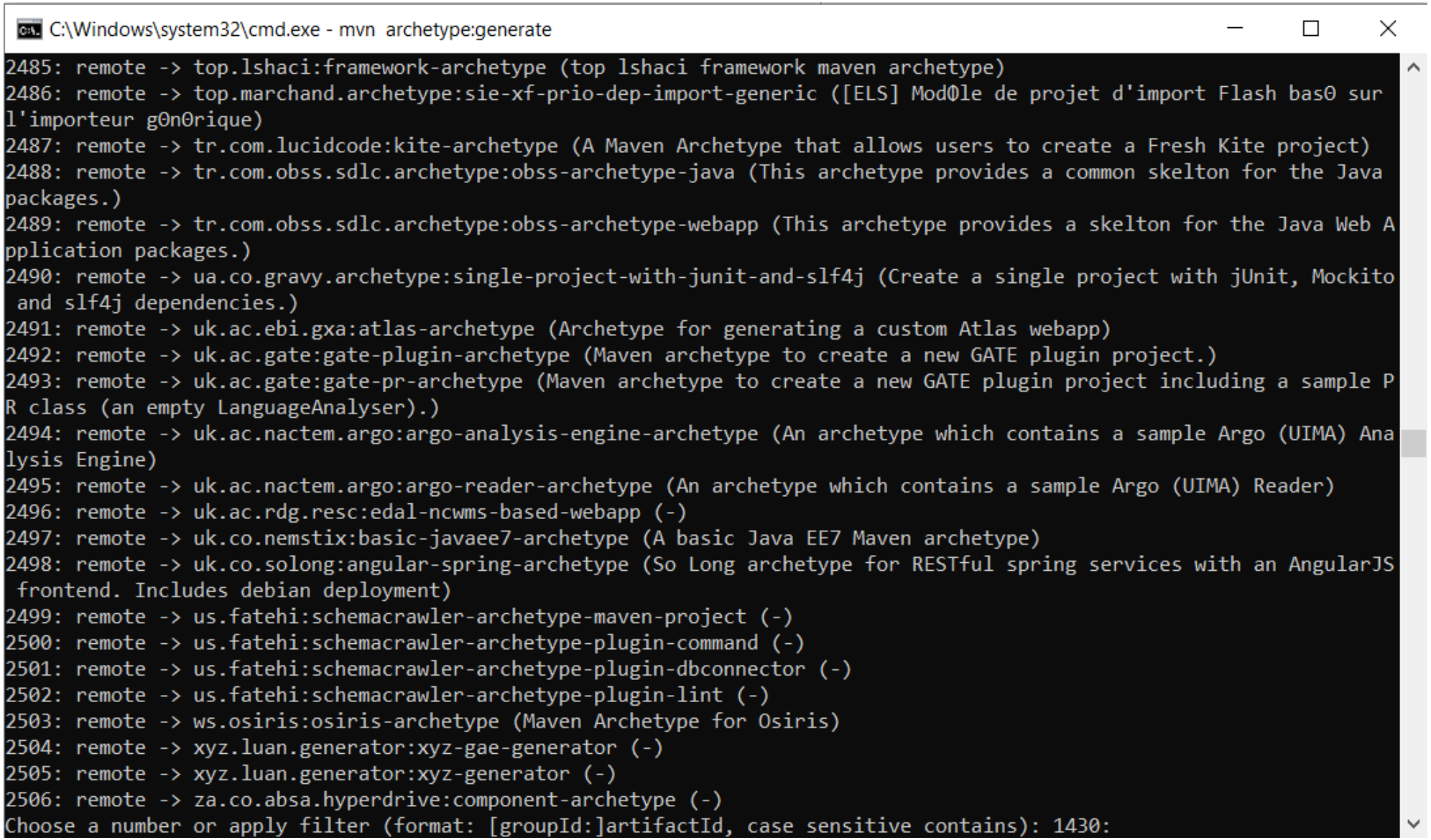


Maven Project

$ **mvn archetype:generate**



Maven Project (Cont.)



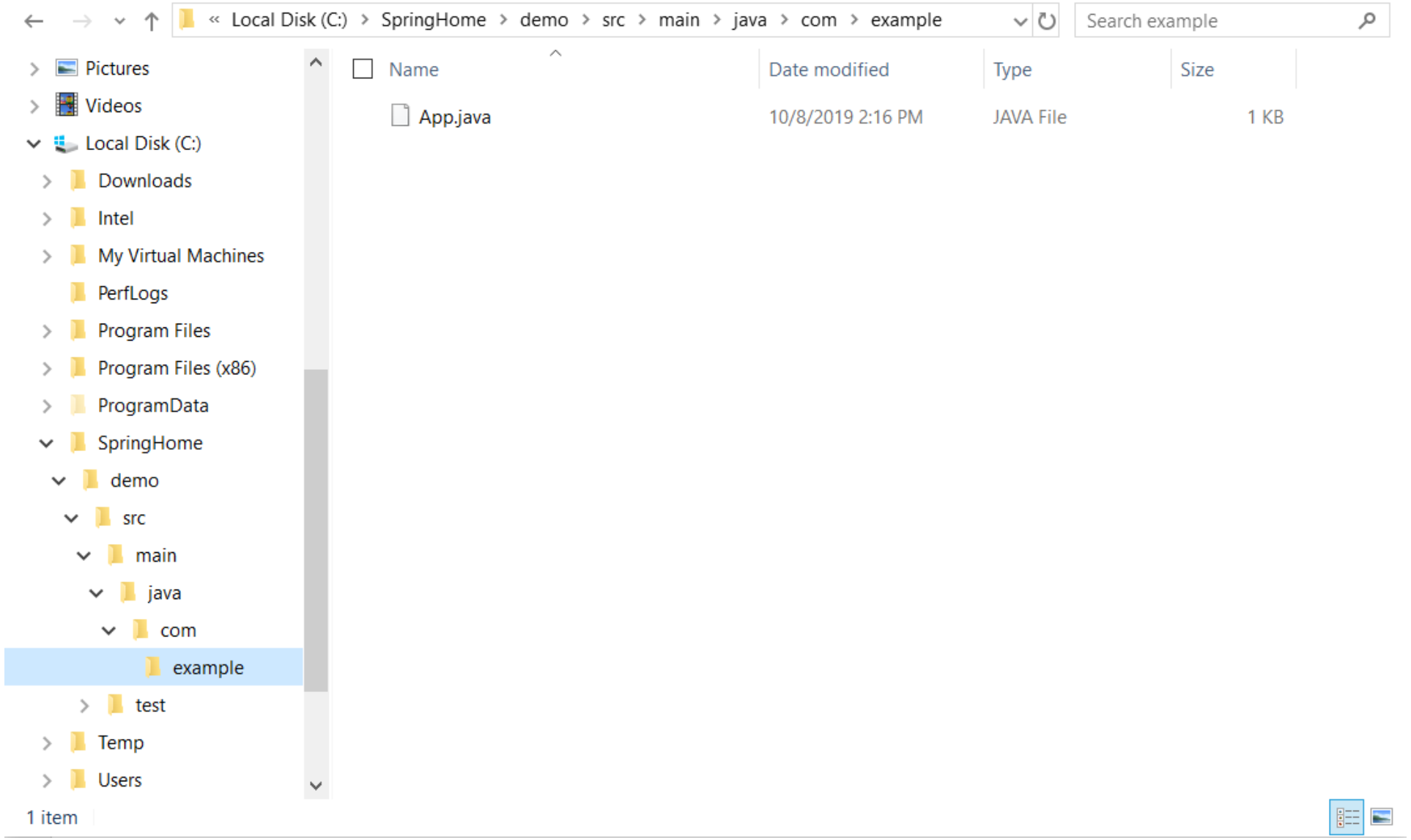
Maven Project (Cont.)

```
Choose a number or apply filter (format: [groupId:]artifactId, case sensitive contains): 1430:
Choose org.apache.maven.archetypes:maven-archetype-quickstart version:
1: 1.0-alpha-1
2: 1.0-alpha-2
3: 1.0-alpha-3
4: 1.0-alpha-4
5: 1.0
6: 1.1
7: 1.3
8: 1.4
Choose a number: 8:
```

Maven Project (Cont.)

```
Choose a number: 8:
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-quickstart/
1.4/maven-archetype-quickstart-1.4.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-quickstart/1
.4/maven-archetype-quickstart-1.4.pom (1.6 kB at 4.7 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-bundles/1.4
/maven-archetype-bundles-1.4.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-bundles/1.4/
maven-archetype-bundles-1.4.pom (4.5 kB at 13 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-quickstart/
1.4/maven-archetype-quickstart-1.4.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/archetypes/maven-archetype-quickstart/1
.4/maven-archetype-quickstart-1.4.jar (7.1 kB at 19 kB/s)
Define value for property 'groupId': com.example
Define value for property 'artifactId': demo
Define value for property 'version' 1.0-SNAPSHOT: :
Define value for property 'package' com.example: :
Confirm properties configuration:
groupId: com.example
artifactId: demo
version: 1.0-SNAPSHOT
package: com.example
 Y: :
```

Maven Project (Cont.)



Maven Project (Cont.)

$ **mvn compile**

```
C:\SpringHome>cd demo

C:\SpringHome\demo>mvn compile
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------------< com.example:demo >------------------------
[INFO] Building demo 1.0-SNAPSHOT
[INFO] --------------------------------[ jar ]---------------------------------
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-resources-plugin/3.0.2/m
```

```
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-javac/2.8.4/plexus-c
ompiler-javac-2.8.4.jar (21 kB at 16 kB/s)
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to C:\SpringHome\demo\target\classes
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  39.171 s
[INFO] Finished at: 2019-10-08T14:29:01+09:00
[INFO] ------------------------------------------------------------------------

C:\SpringHome\demo>
```

Maven Project (Cont.)

$ **mvn test**

```
C:\SpringHome\demo>mvn test
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------------< com.example:demo >------------------------
[INFO] Building demo 1.0-SNAPSHOT
[INFO] --------------------------------[ jar ]---------------------------------
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-surefire-plugin/2.22.1/m
aven-surefire-plugin-2.22.1.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-junit4/2.22.1/surefir
e-junit4-2.22.1.jar (85 kB at 247 kB/s)
[INFO]
[INFO] -------------------------------------------------------
[INFO]  T E S T S
[INFO] -------------------------------------------------------
[INFO] Running com.example.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.032 s - in com.example.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  21.830 s
[INFO] Finished at: 2019-10-08T14:34:56+09:00
[INFO] ------------------------------------------------------------------------

C:\SpringHome\demo>
```

Maven Project (Cont.)

$ **mvn package**

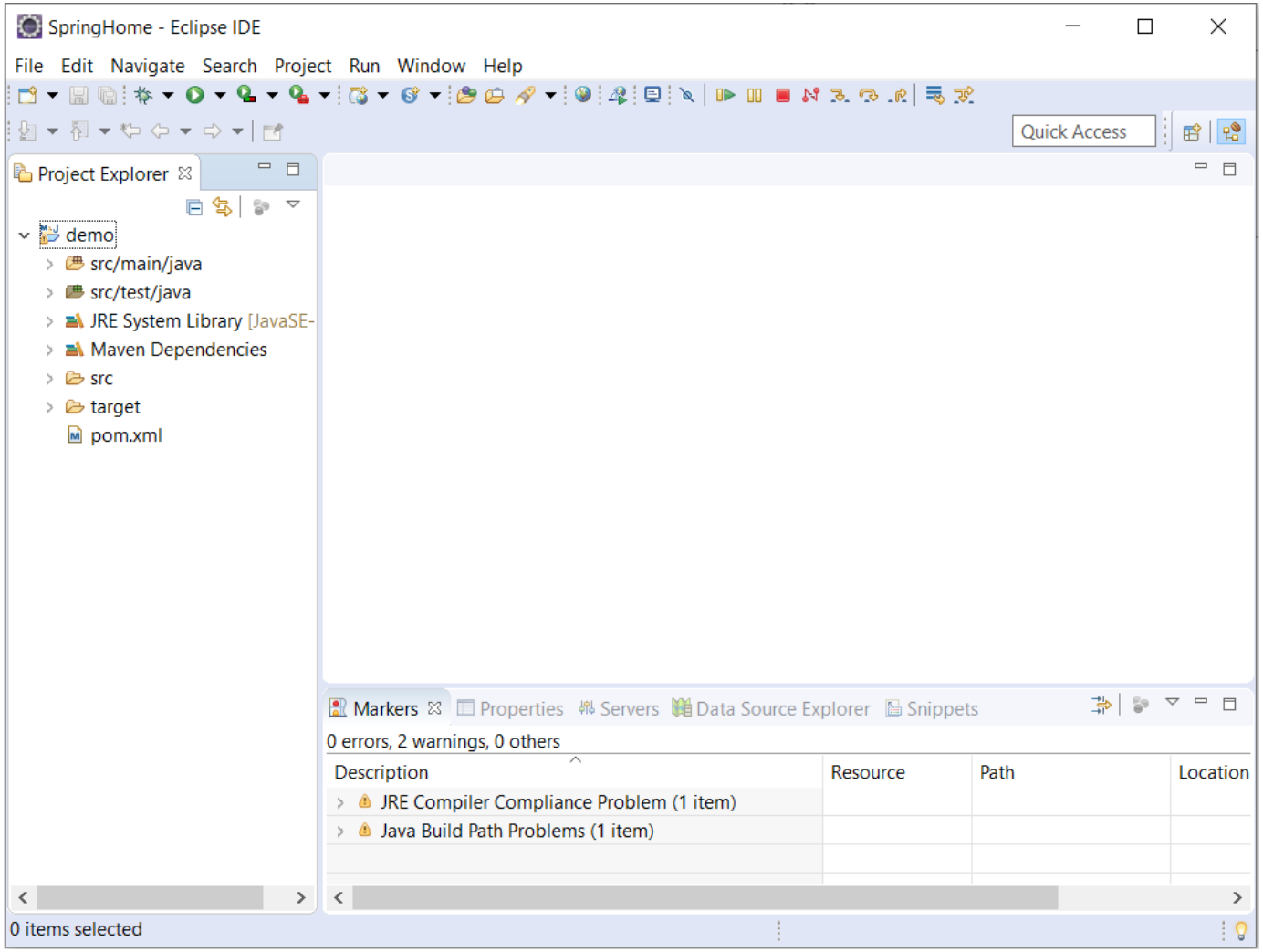
```
C:\SpringHome\demo>mvn package
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------------< com.example:demo >------------------------
[INFO] Building demo 1.0-SNAPSHOT
[INFO] --------------------------------[ jar ]---------------------------------
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-jar-plugin/3.0.2/maven-j
```

```
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-compress/1.11/commons-compres
s-1.11.jar (426 kB at 245 kB/s)
[INFO] Building jar: C:\SpringHome\demo\target\demo-1.0-SNAPSHOT.jar
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  10.342 s
[INFO] Finished at: 2019-10-08T14:39:01+09:00
[INFO] ------------------------------------------------------------------------

C:\SpringHome\demo>
```

Maven Project (Cont.)

- Eclipse에서 Maven Project Import 하기



Maven Project (Cont.)

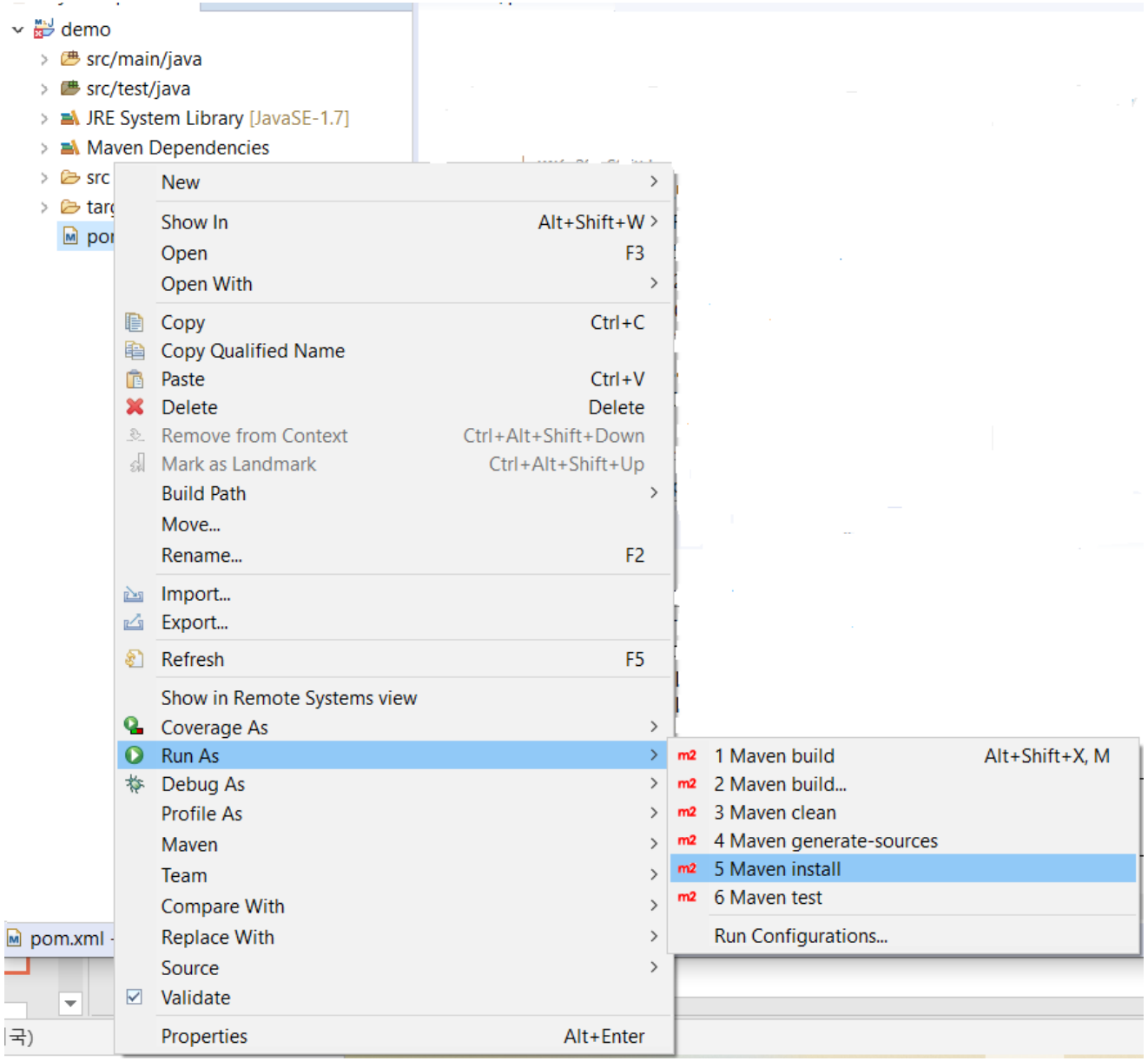
- Eclipse에서 Maven Project Import 하기

demo/pom.xml

```
22  <dependencies>
23    <dependency>
24      <groupId>junit</groupId>
25      <artifactId>junit</artifactId>
26      <version>4.12</version>
27      <scope>test</scope>
28    </dependency>
29    <!-- https://mvnrepository.com/artifact/org.springframework/spring-core -->
30    <dependency>
31      <groupId>org.springframework</groupId>
32      <artifactId>spring-context</artifactId>
33      <version>5.2.0.RELEASE</version>
34    </dependency>
35  </dependencies>
36
37  <build>
38    <pluginManagement>
39      <plugins>
40        <plugin>
41          <artifactId>maven-compiler-plugin</artifactId>
42          <configuration>
43            <source>1.8</source>
44            <target>1.8</target>
45            <encoding>${project.build.sourceEncoding}</encoding>
46          </configuration>
47        </plugin>
```

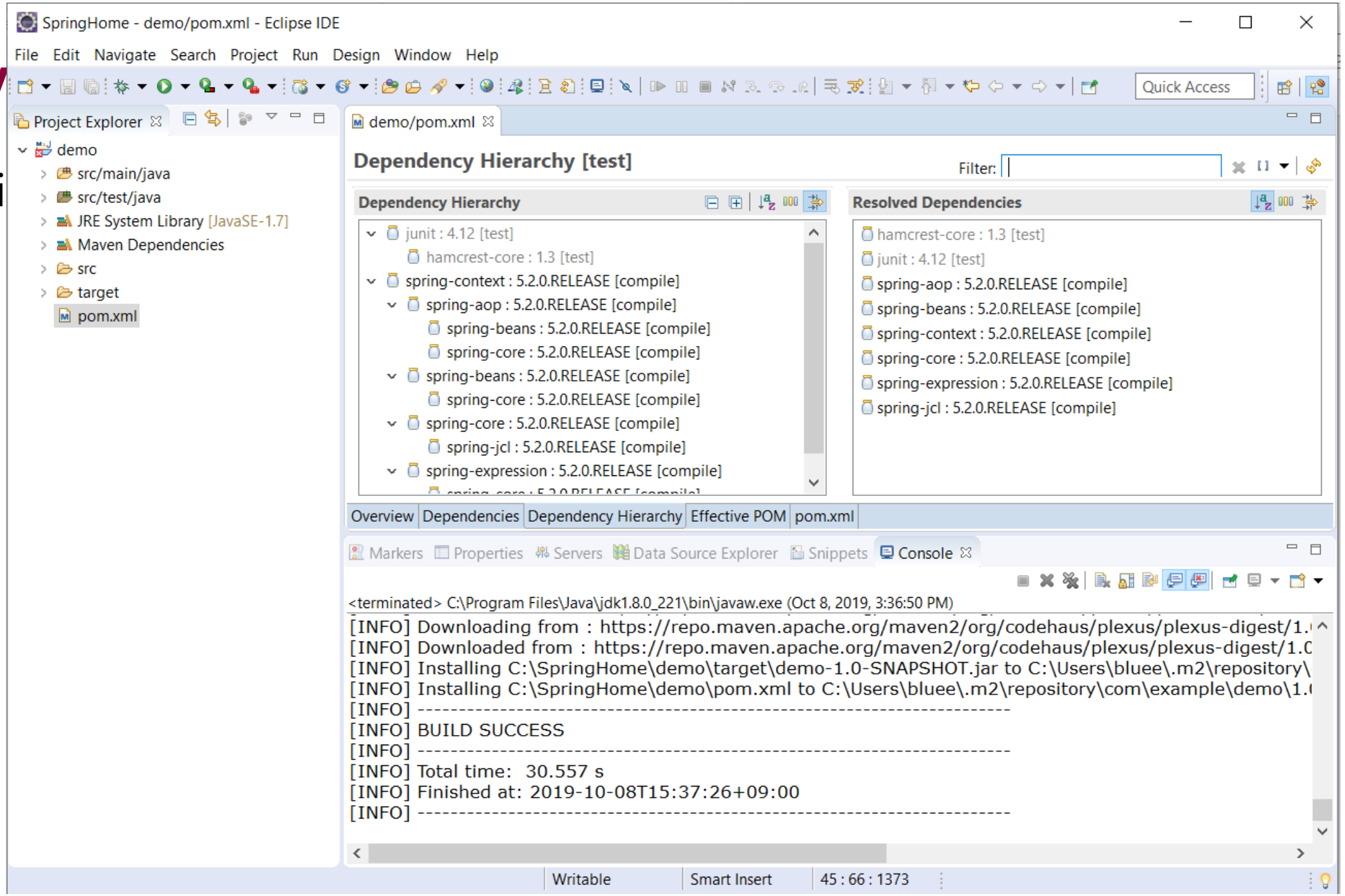
Maven Project (Cont.)

- Eclipse에서 Maven Project Import 하기



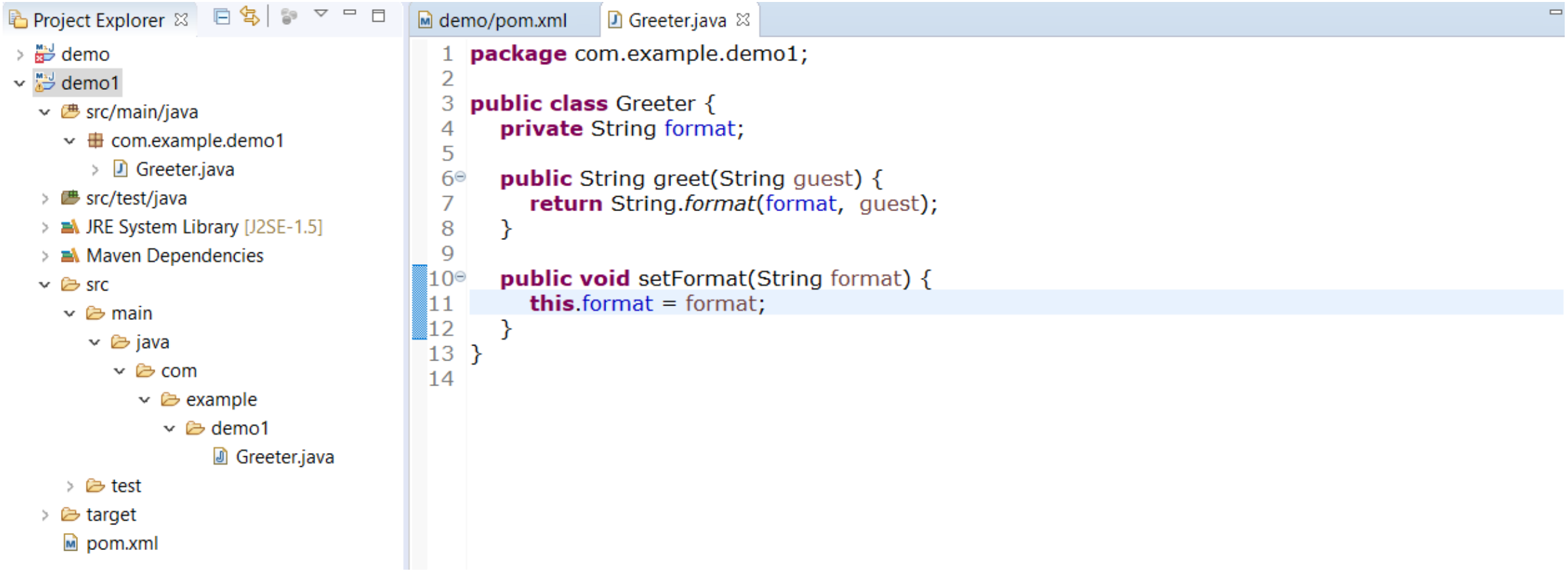
Mav

- Ecli

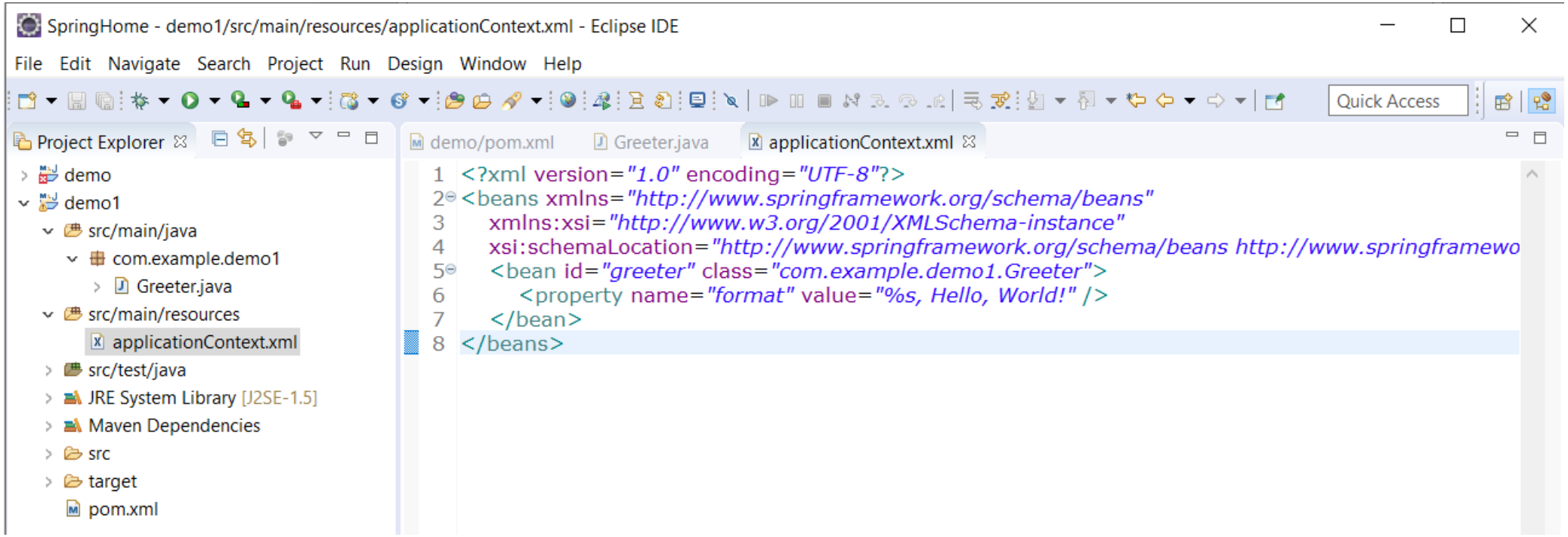

SpringHome - demo/pom.xml - Eclipse IDE
File Edit Navigate Search Project Run Design Window Help
Quick Access
Project Explorer
demo
src/main/java
src/test/java
JRE System Library [JavaSE-1.7]
Maven Dependencies
src
target
pom.xml
demo/pom.xml
Dependency Hierarchy [test]
Filter:
Dependency Hierarchy
junit : 4.12 [test]
hamcrest-core : 1.3 [test]
spring-context : 5.2.0.RELEASE [compile]
spring-aop : 5.2.0.RELEASE [compile]
spring-beans : 5.2.0.RELEASE [compile]
spring-core : 5.2.0.RELEASE [compile]
spring-beans : 5.2.0.RELEASE [compile]
spring-core : 5.2.0.RELEASE [compile]
spring-core : 5.2.0.RELEASE [compile]
spring-jcl : 5.2.0.RELEASE [compile]
spring-expression : 5.2.0.RELEASE [compile]
Resolved Dependencies
hamcrest-core : 1.3 [test]
junit : 4.12 [test]
spring-aop : 5.2.0.RELEASE [compile]
spring-beans : 5.2.0.RELEASE [compile]
spring-context : 5.2.0.RELEASE [compile]
spring-core : 5.2.0.RELEASE [compile]
spring-expression : 5.2.0.RELEASE [compile]
spring-jcl : 5.2.0.RELEASE [compile]
Overview Dependencies Dependency Hierarchy Effective POM pom.xml
Markers Properties Servers Data Source Explorer Snippets Console
<terminated> C:\Program Files\Java\jdk1.8.0_221\bin\javaw.exe (Oct 8, 2019, 3:36:50 PM)
[INFO] Downloading from : https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-digest/1.
[INFO] Downloaded from : https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-digest/1.0
[INFO] Installing C:\SpringHome\demo\target\demo-1.0-SNAPSHOT.jar to C:\Users\bluee\.m2\repository\
[INFO] Installing C:\SpringHome\demo\pom.xml to C:\Users\bluee\.m2\repository\com\example\demo\1.
[INFO] --
[INFO] BUILD SUCCESS
[INFO] --
[INFO] Total time: 30.557 s
[INFO] Finished at: 2019-10-08T15:37:26+09:00
[INFO] --
Writable
Smart Insert
45 : 66 : 1373

IV. Maven Project In Eclipse

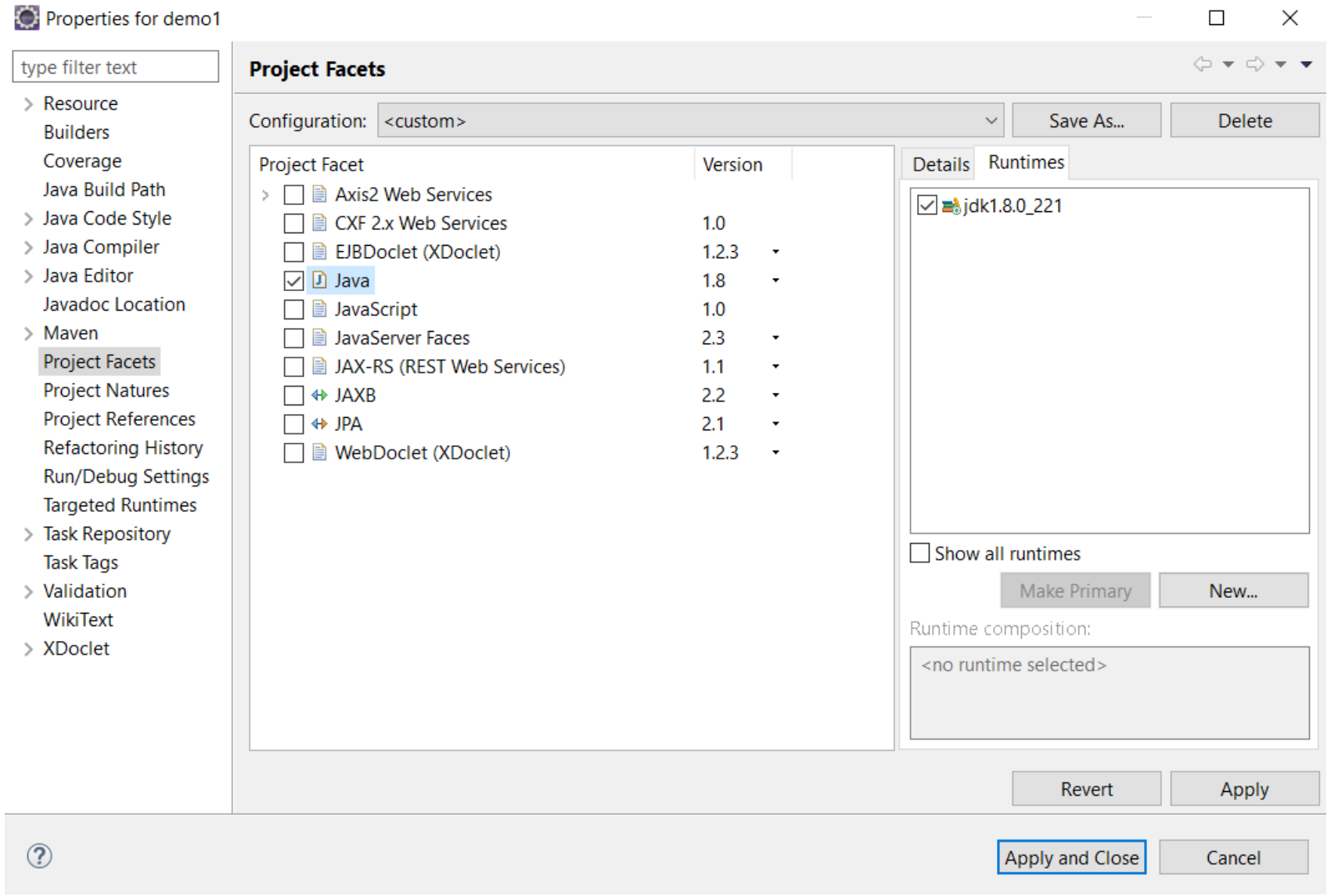
Maven Project in Eclipse



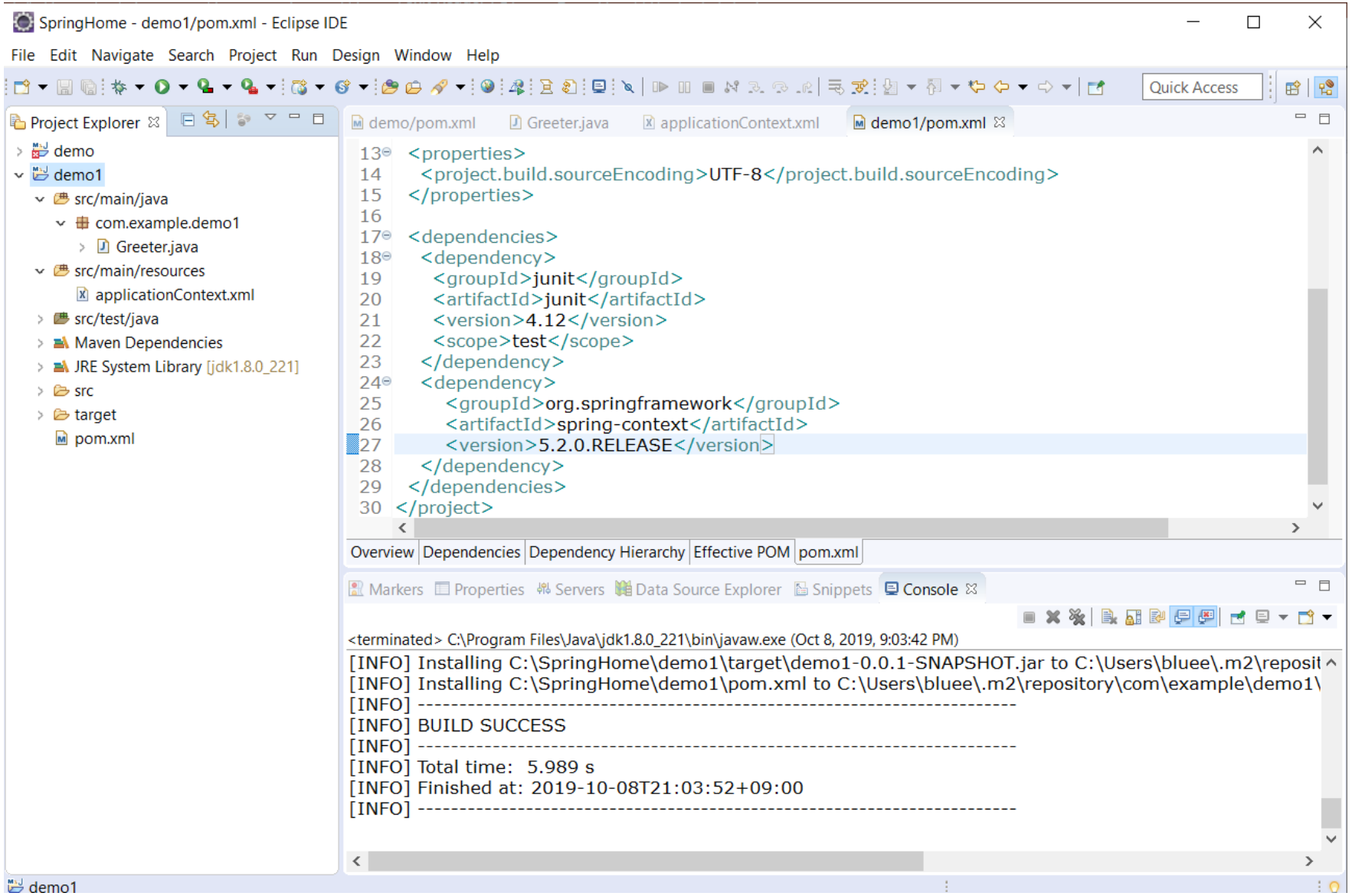
Maven Project in Eclipse (Cont.)



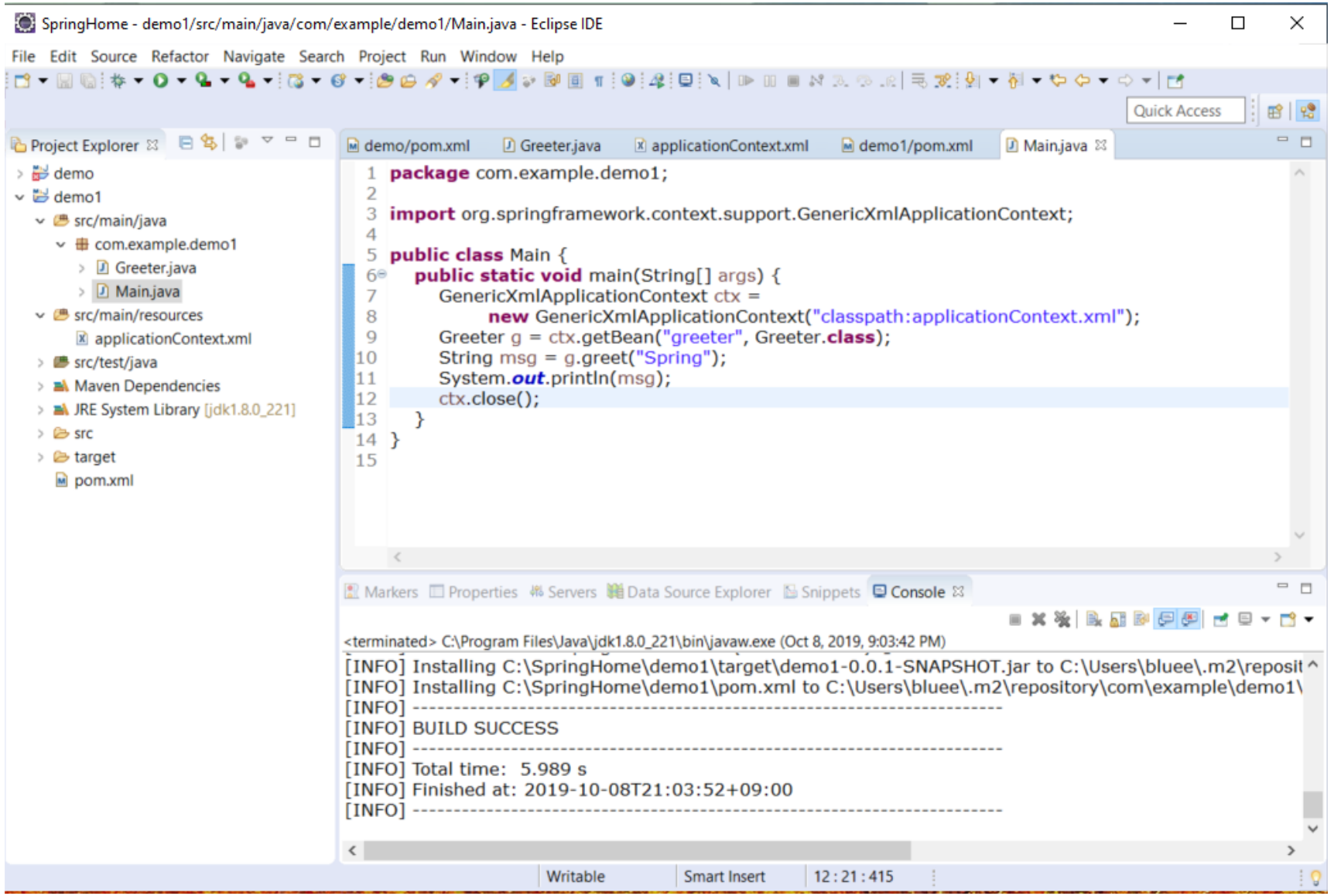
Maven Project in Eclipse (Cont.)



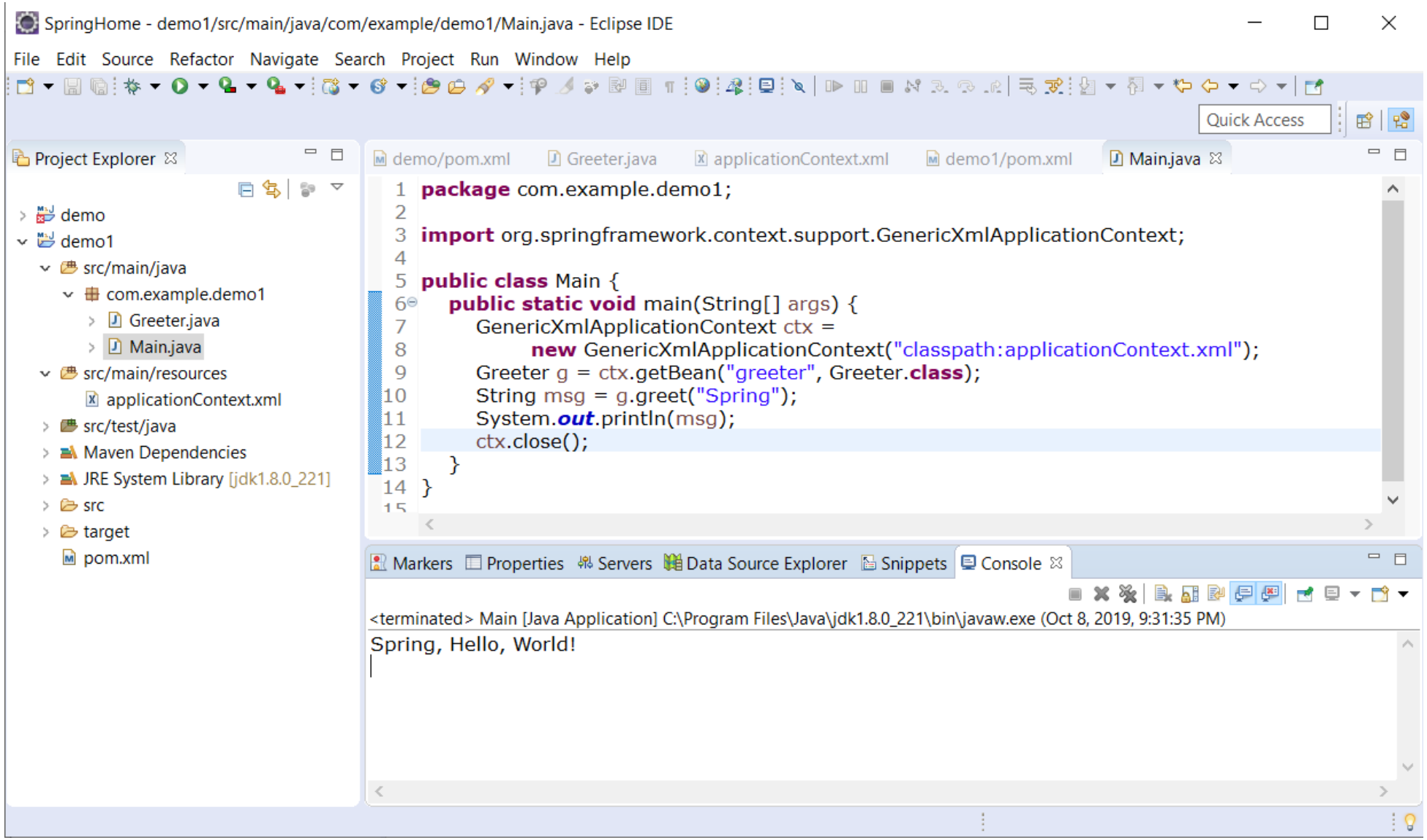
Maven Project in Eclipse (Cont.)



Maven Project in Eclipse (Cont.)



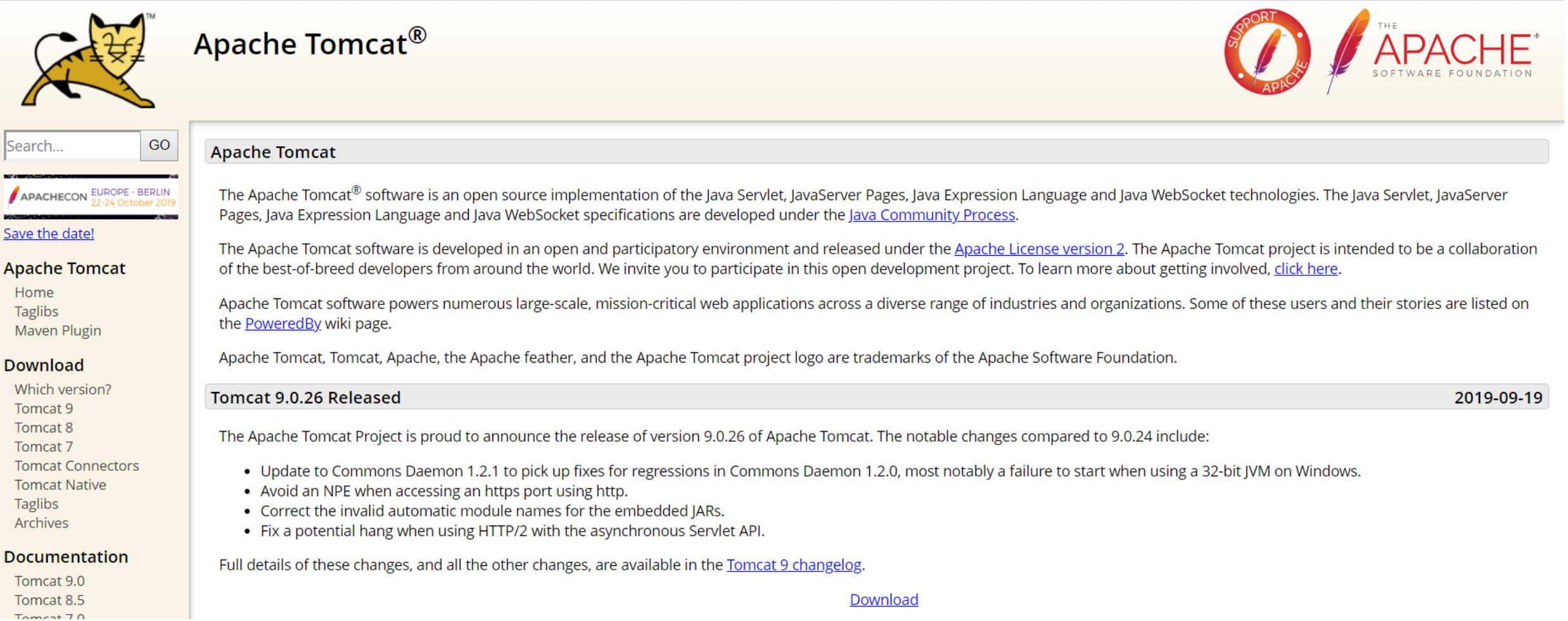
Maven Project in Eclipse (Cont.)



V. Tomcat 9.0.26

Tomcat Installation

- http://tomcat.apache.org/



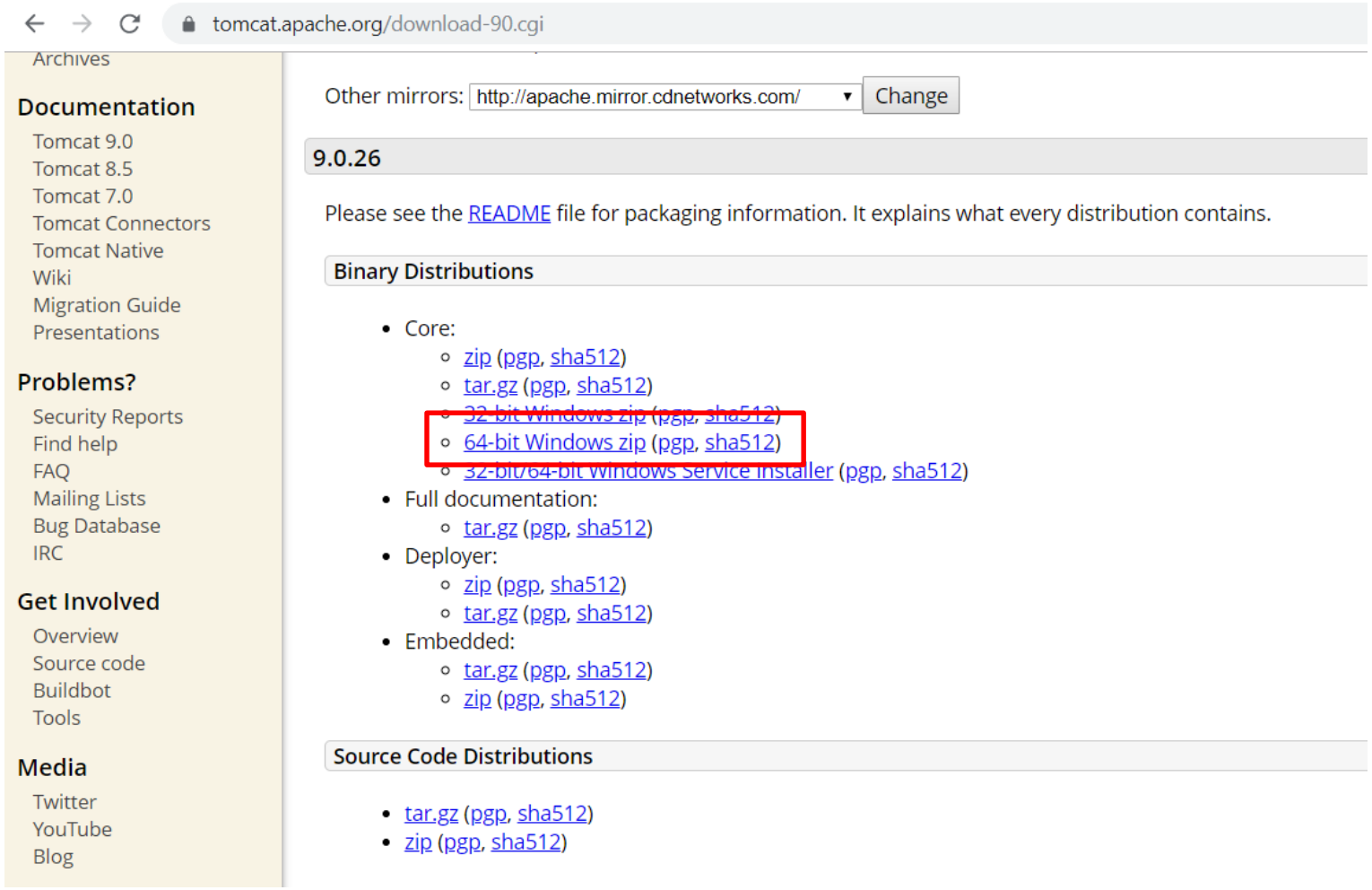
Tomcat Installation (Cont.)

- http://tomcat.apache.org/whichversion.html

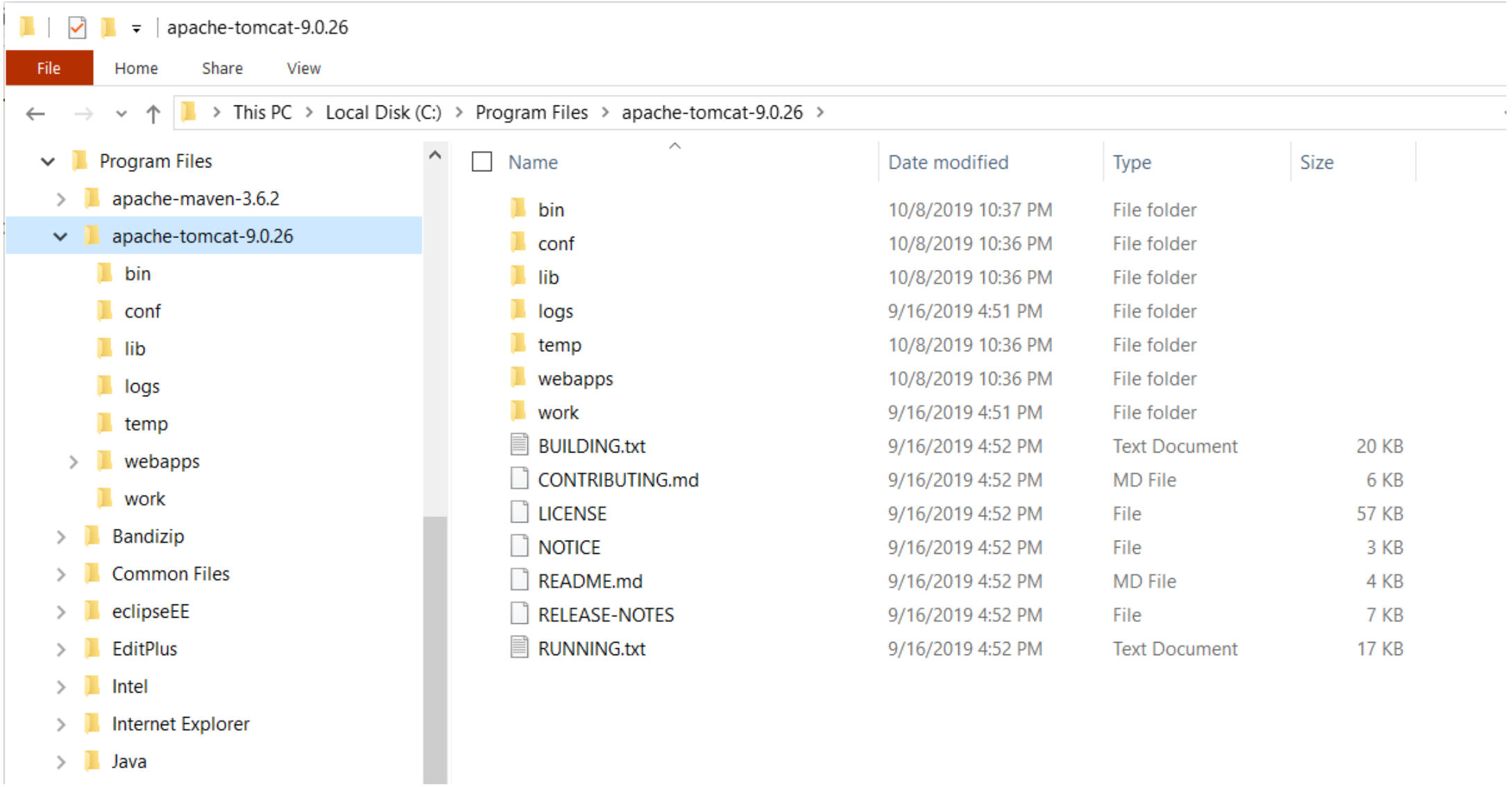
Servlet Spec	JSP Spec	EL Spec	WebSocket Spec	JASPIC Spec	Apache Tomcat Version	Latest Released Version	Supported Java Versions
4.0	2.3	3.0	1.1	1.1	9.0.x	9.0.26	8 and later
3.1	2.3	3.0	1.1	1.1	8.5.x	8.5.46	7 and later
3.1	2.3	3.0	1.1	N/A	8.0.x (superseded)	8.0.53 (superseded)	7 and later
3.0	2.2	2.2	1.1	N/A	7.0.x	7.0.96	6 and later (7 and later for WebSocket)
2.5	2.1	2.1	N/A	N/A	6.0.x (archived)	6.0.53 (archived)	5 and later
2.4	2.0	N/A	N/A	N/A	5.5.x (archived)	5.5.36 (archived)	1.4 and later
2.3	1.2	N/A	N/A	N/A	4.1.x (archived)	4.1.40 (archived)	1.3 and later
2.2	1.1	N/A	N/A	N/A	3.3.x (archived)	3.3.2 (archived)	1.1 and later

Tomcat Installation (Cont.)

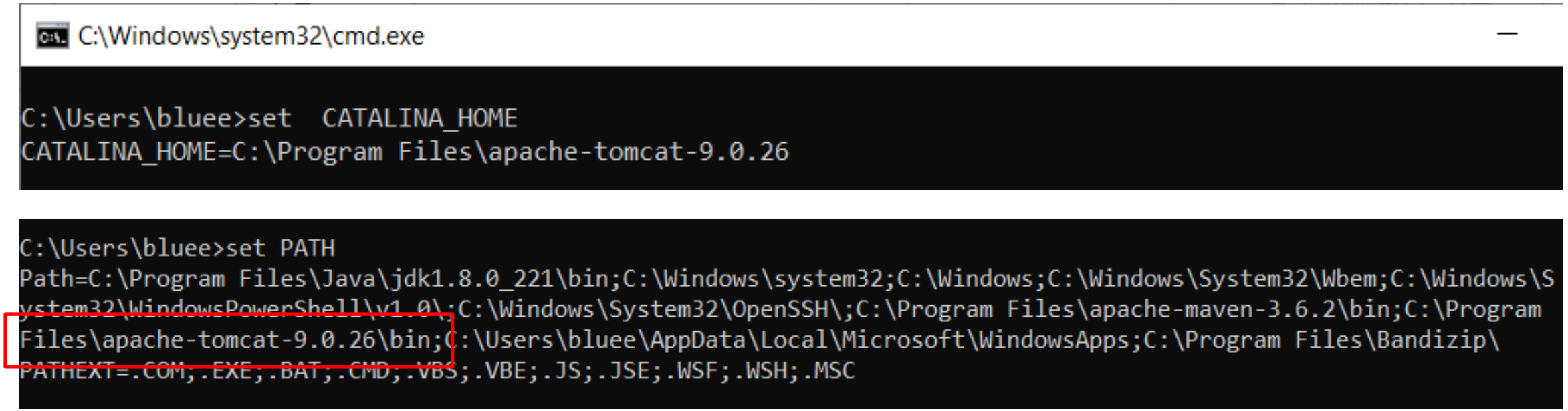
- https://tomcat.apache.org/download-90.cgi



Tomcat Installation (Cont.)



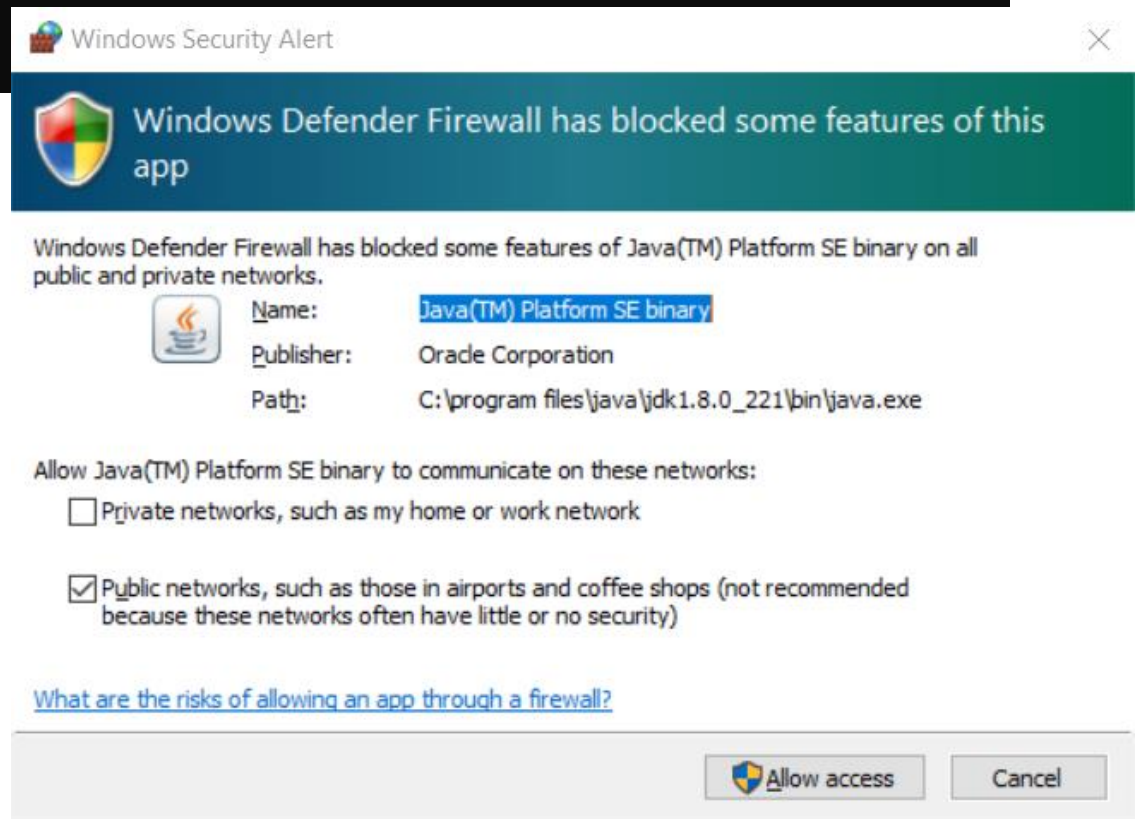
Tomcat Installation (Cont.)



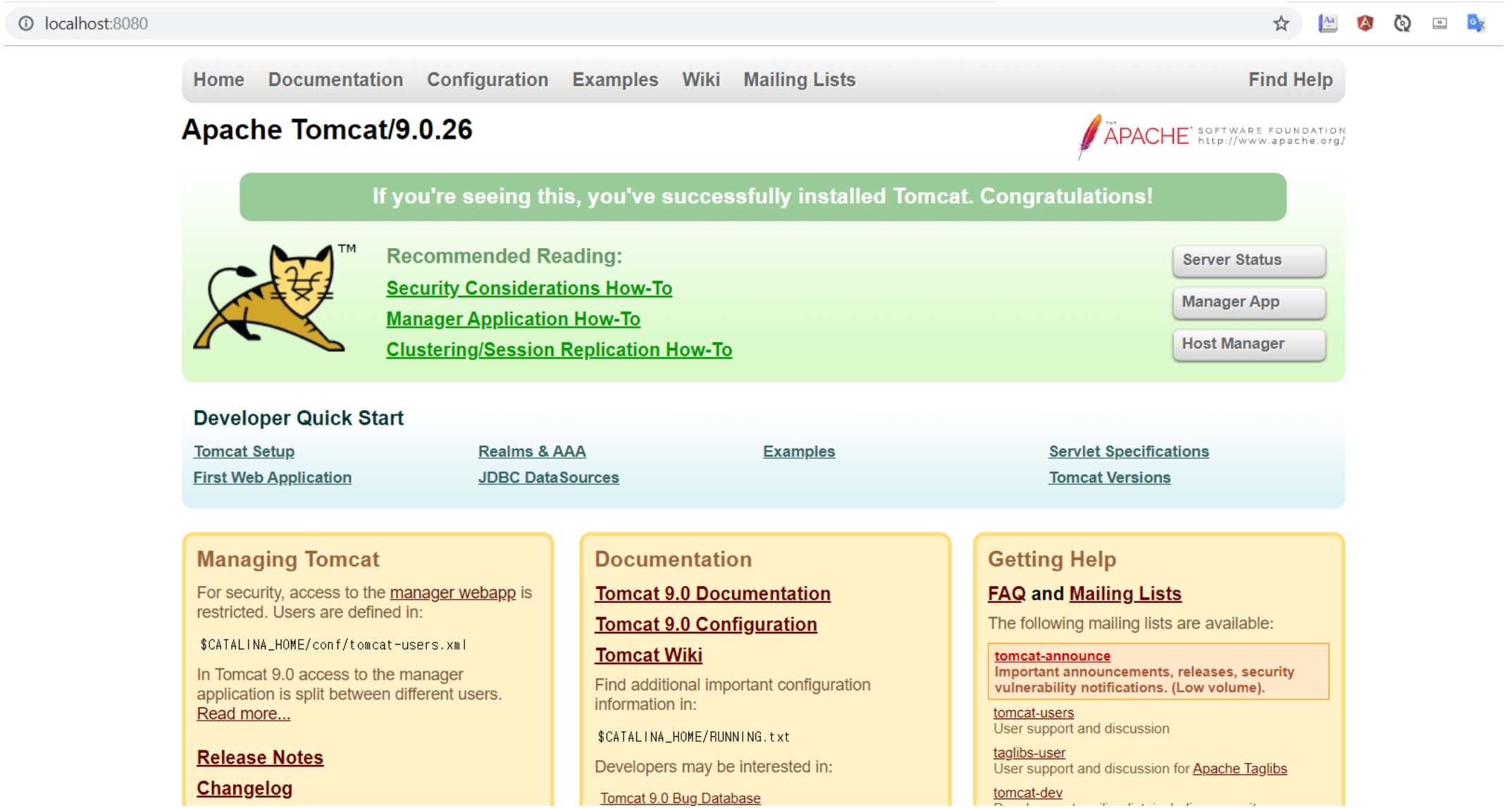
Tomcat Configuration

```
C:\Users\bluee>cd %CATALINA_HOME%\bin

C:\Program Files\apache-tomcat-9.0.26\bin>startup
Using CATALINA_BASE:   "C:\Program Files\apache-tomcat-9.0.26"
Using CATALINA_HOME:   "C:\Program Files\apache-tomcat-9.0.26"
Using CATALINA_TMPDIR: "C:\Program Files\apache-tomcat-9.0.26\temp"
Using JRE_HOME:        "C:\Program Files\Java\jdk1.8.0_221"
Using CLASSPATH:       "C:\Program Files\apache-tomcat-9.0.26\bin\bootstrap.jar;C:\Program Files\apache-tomcat-9
.0.26\bin\tomcat-juli.jar"
C:\Program Files\apache-tomcat-9.0.26\bin>
```



Tomcat Configuration (Cont.)



Tomcat Configuration (Cont.)

- %CATALINA_HOME%/conf/tomcat-users.xml

```
23    NOTE:  By default, no user is included in the "manager-gui" role required
24    to operate the "/manager/html" web application.  If you wish to use this app,
25    you must define such a user - the username and password are arbitrary. It is
26    strongly recommended that you do NOT use one of the users in the commented out
27    section below since they are intended for use with the examples web
28    application.
29  -->
30  <user username="admin" password="tomcatadmin" roles="admin-gui,manager-gui"/>
31  <!--
32    NOTE:  The sample user and role entries below are intended for use with the
33    examples web application. They are wrapped in a comment and thus are ignored
34    when reading this file. If you wish to configure these users for use with the
35    examples web application, do not forget to remove the <!.. ..> that surrounds
36    them. You will also need to set the passwords to something appropriate.
37  -->
```

Tomcat Configuration (Cont.)

- %CATALINA_HOME%/webapps/homecontext.xml 생성

```
<Context path="" docBase="C:/SpringHome" debug="0" reloadable="true"
        crossContext="true" privileged="true" />
```

Tomcat Configuration (Cont.)

- %CATALINA_HOME%/webapps/ROOT/WEB-INF 복사
- C:/SpringHome 하위에 붙여넣기
- C:/SpringHome/WEB-INF/web.xml 수정

```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <web-app xmlns="http://xmlns.jcp.org/xml/ns/javaee"
3    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4    xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
5                        http://xmlns.jcp.org/xml/ns/javaee/web-app_4_0.xsd"
6    version="4.0"
7    metadata-complete="true">
8
9    <display-name>Welcome to Spring Homepage</display-name>
10
11 </web-app>
```

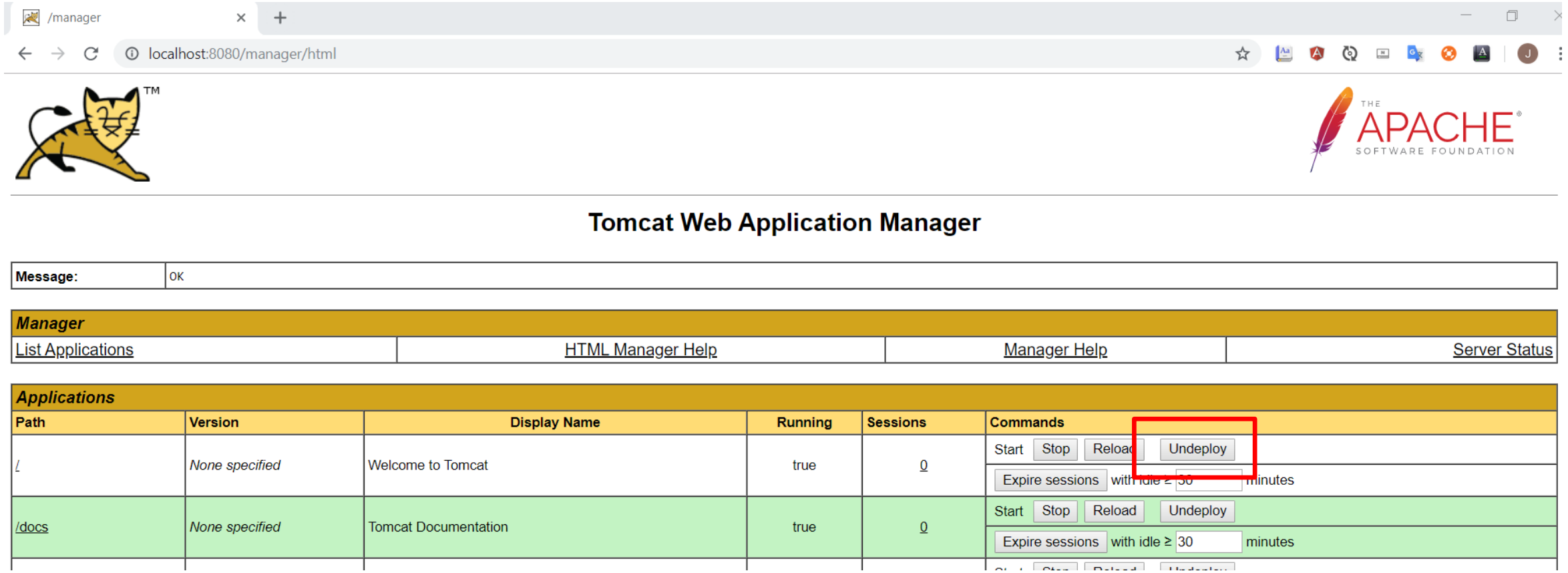
Tomcat Configuration (Cont.)

- C:/SpringHome/index.html 생성

```
<!DOCTYPE html>
<html lang="en">
 <head>
  <meta charset="UTF-8">
  <title>Welcome to Spring Homepage</title>
 </head>
 <body>
    <div><span style="font-size:30pt;color:blue">Welcome Spring 5</span></div>
 </body>
</html>
```

Tomcat Configuration (Cont.)

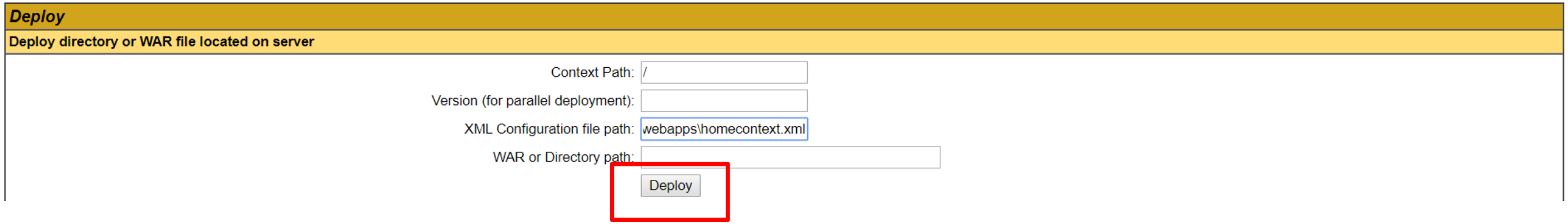
- [Tomcat Web Application Manager]에서 / Path undeploy



Tomcat Configuration (Cont.)

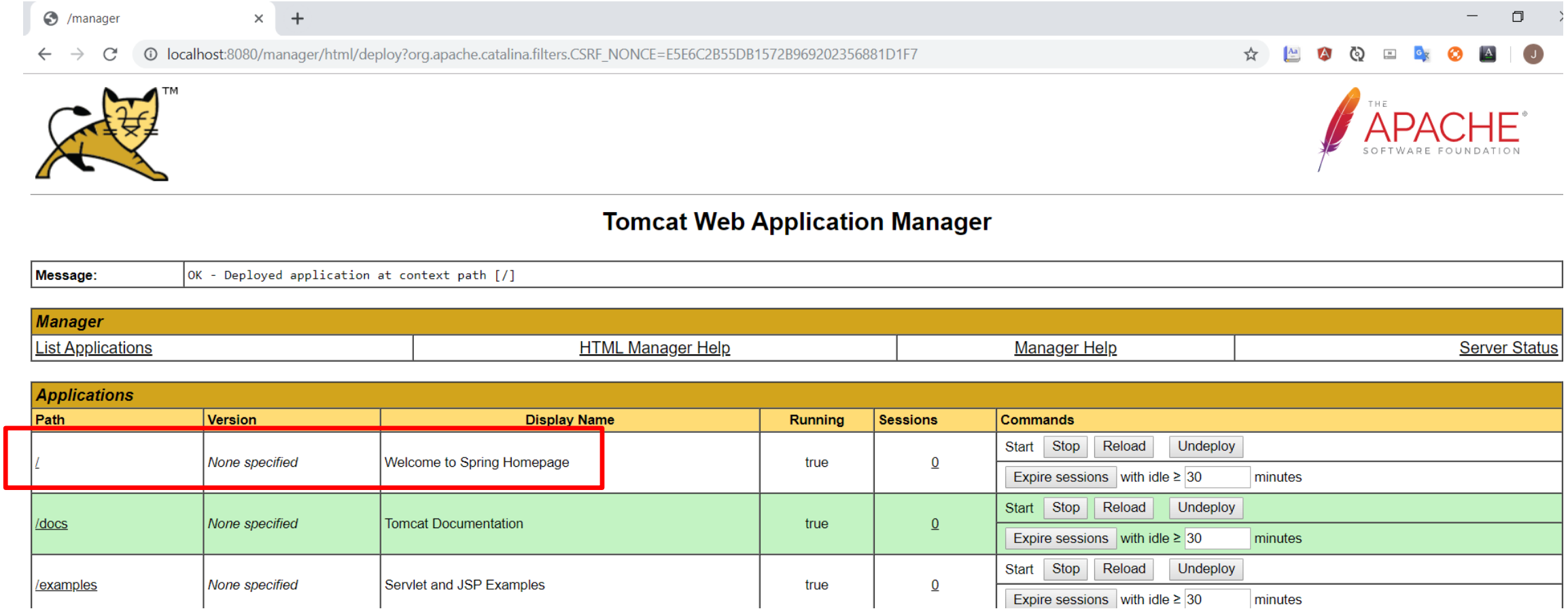
- [Tomcat Web Application Manager]에서 / Path deploy
  - Context Path : /
  - XML Configuration file path :

    C:\Program Files\apache-tomcat-9.0.26\webapps\homecontext.xml

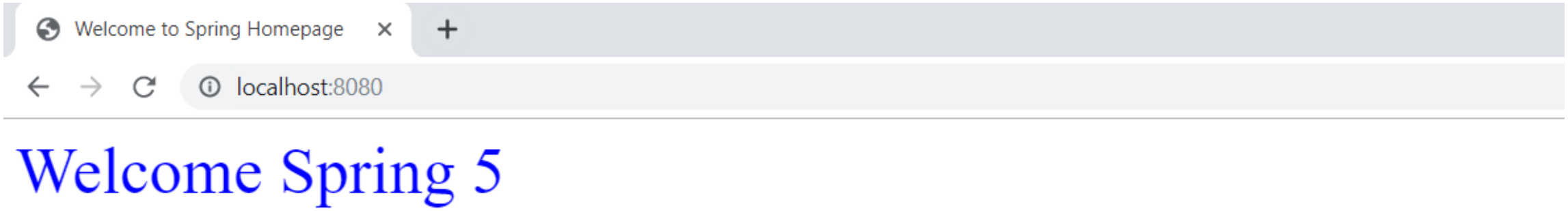


Tomcat Configuration (Cont.)

- [Tomcat Web Application Manager]에서 / Path deploy

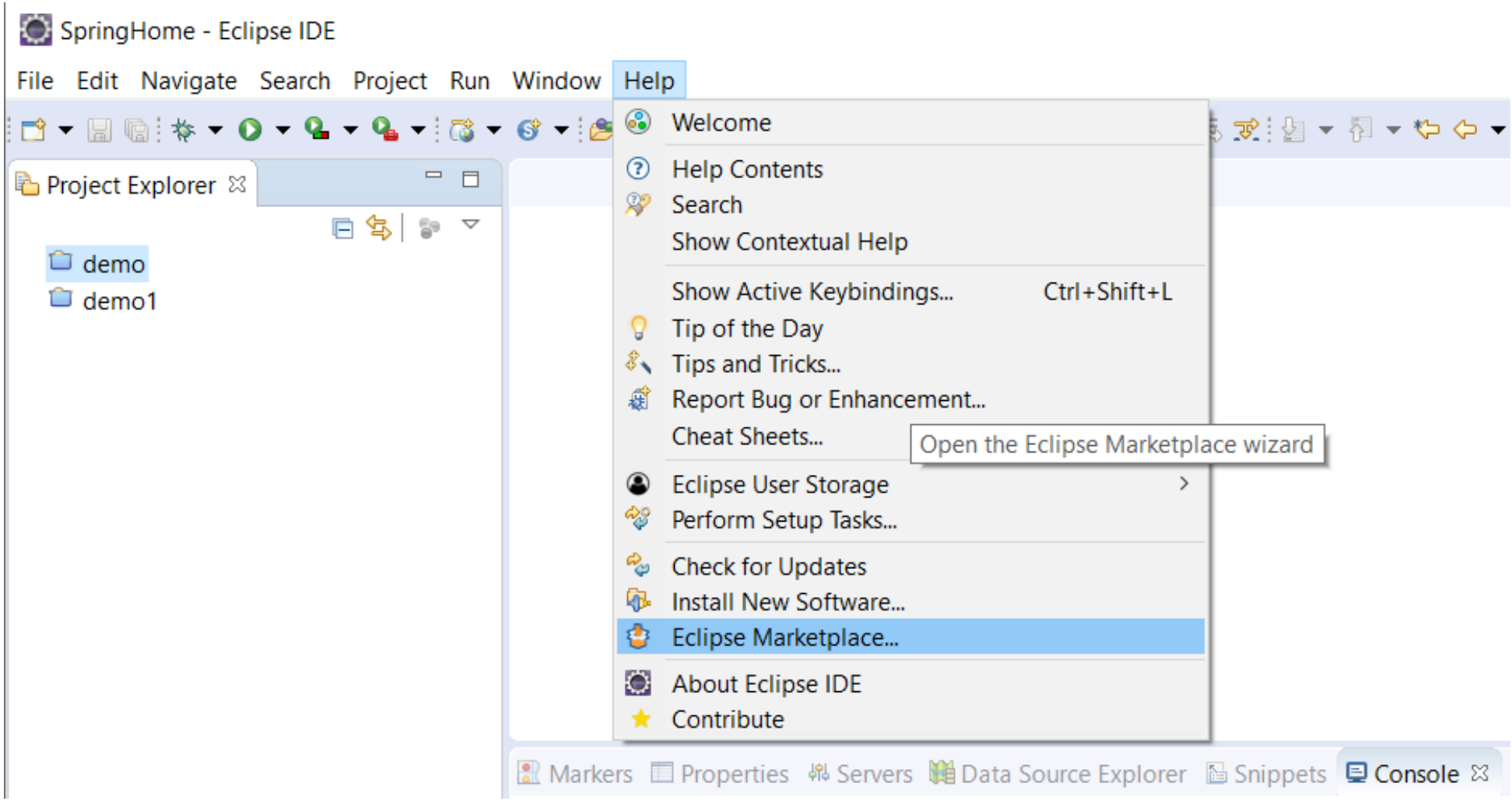


Tomcat Configuration (Cont.)

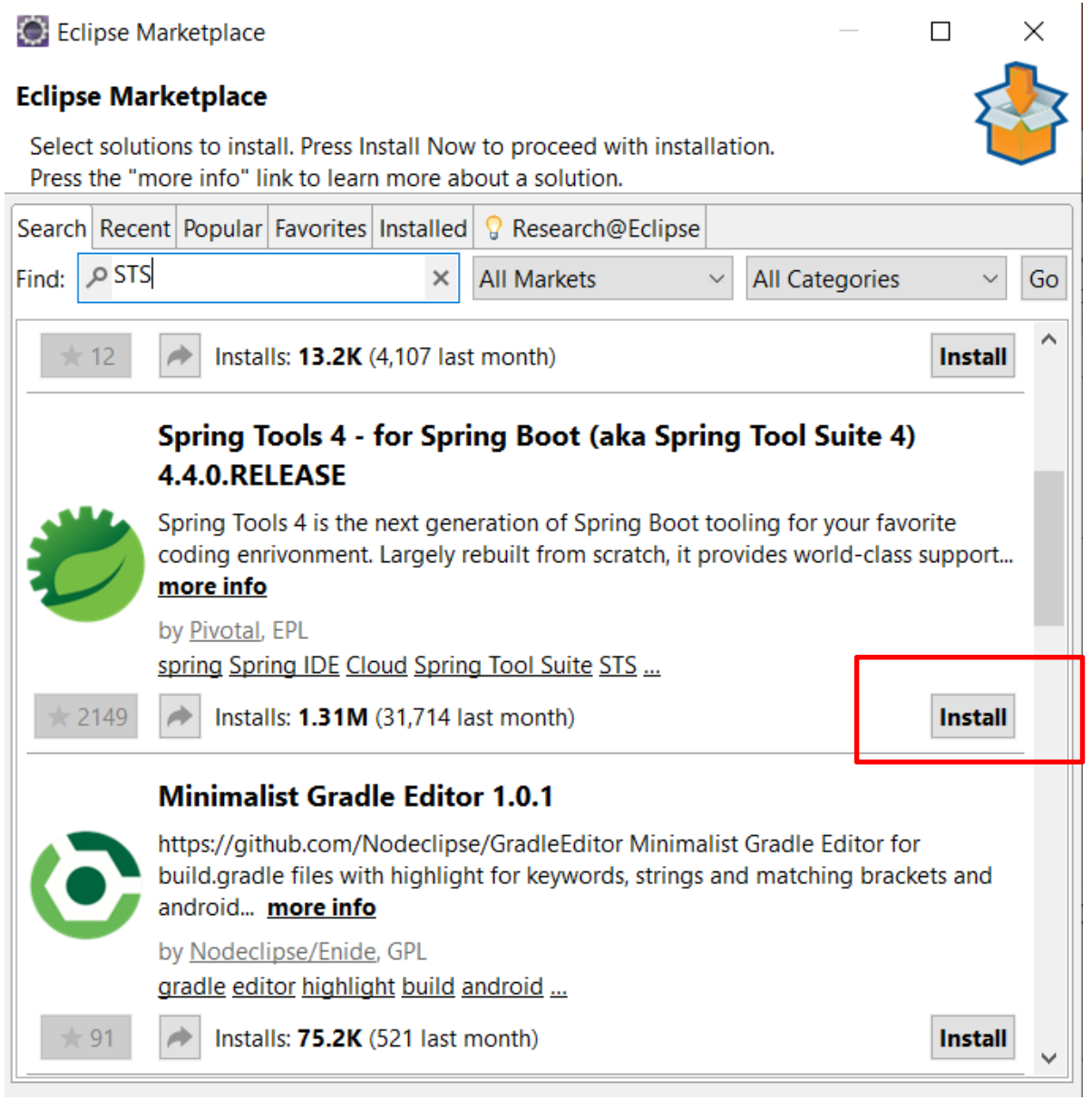


VI. STS 4.4.0.RELEASE

STS Downloads

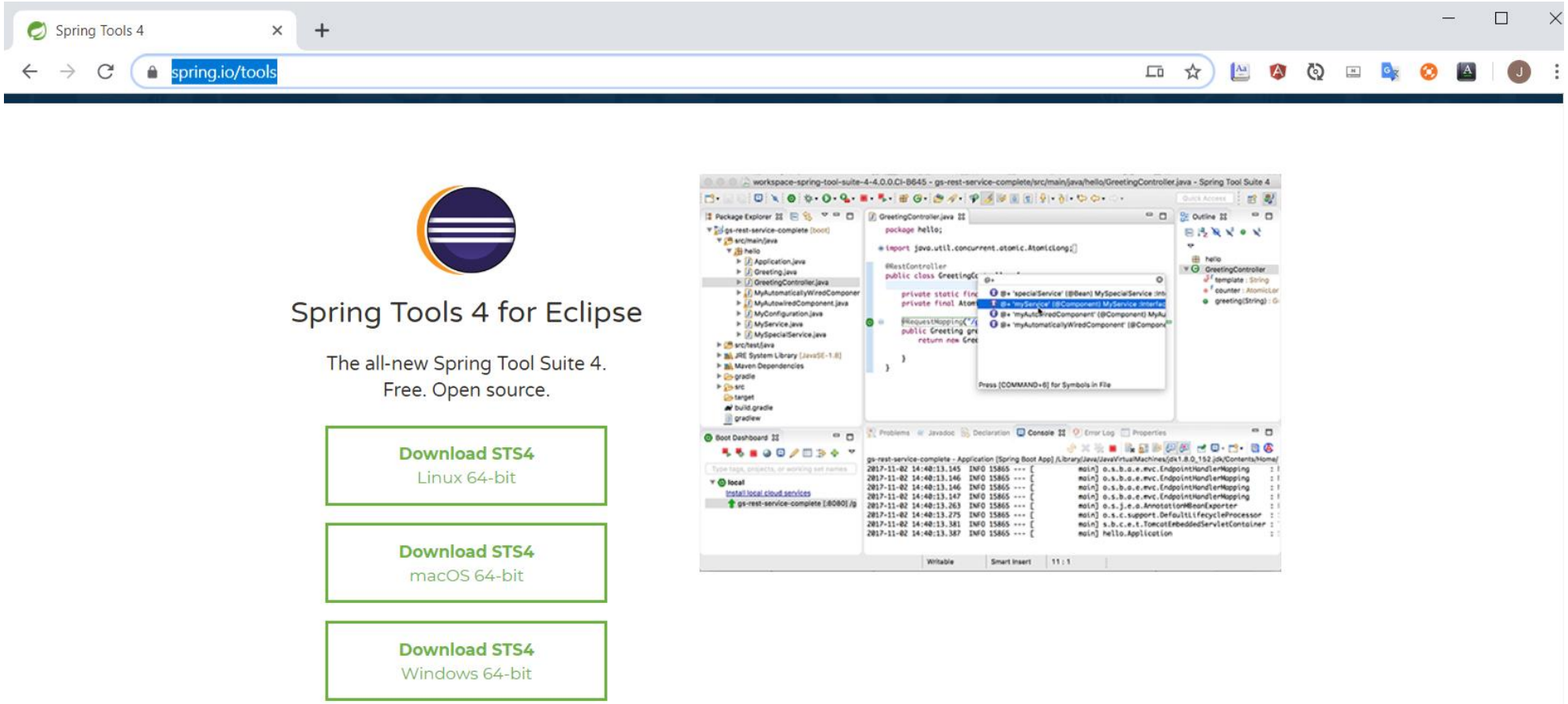


STS Downloads (Cont.)

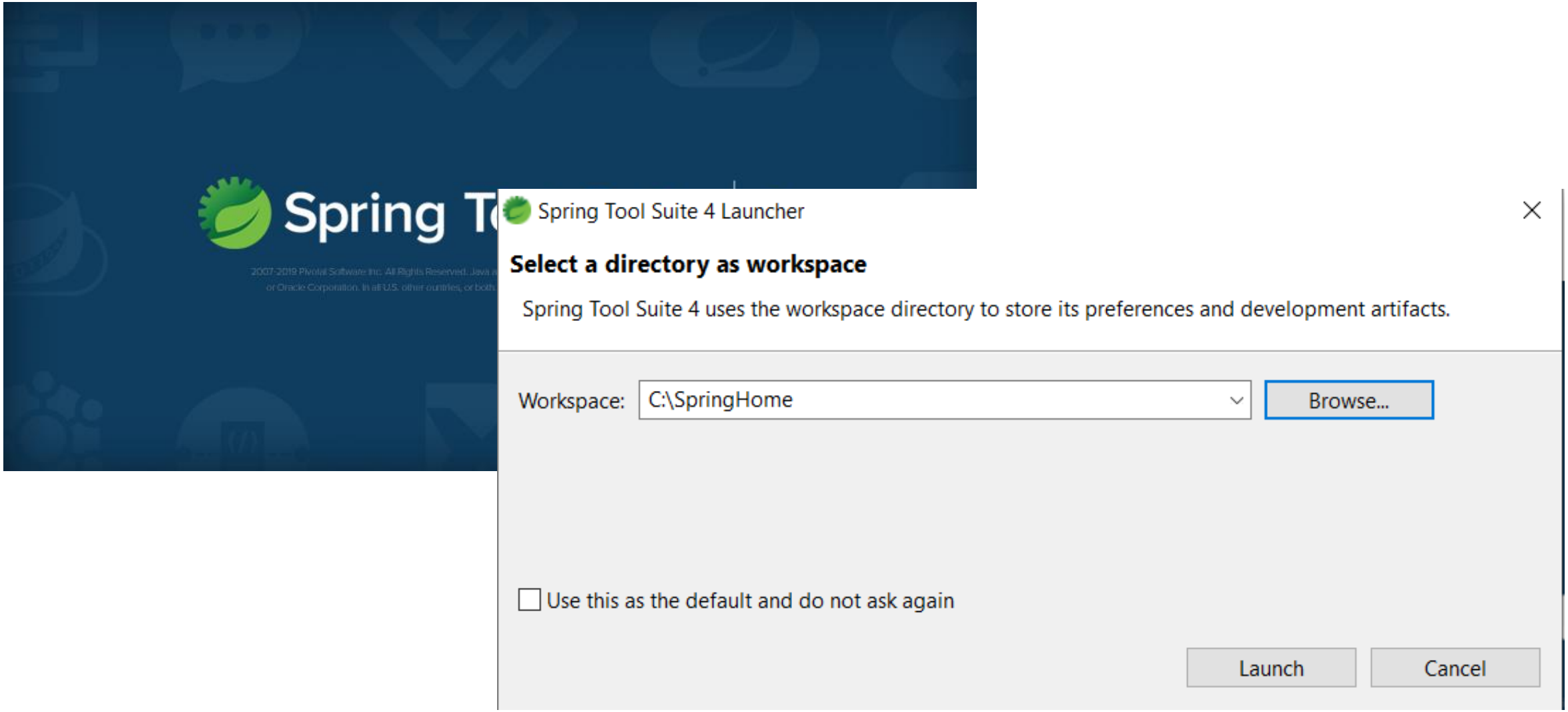


STS Downloads (Cont.)

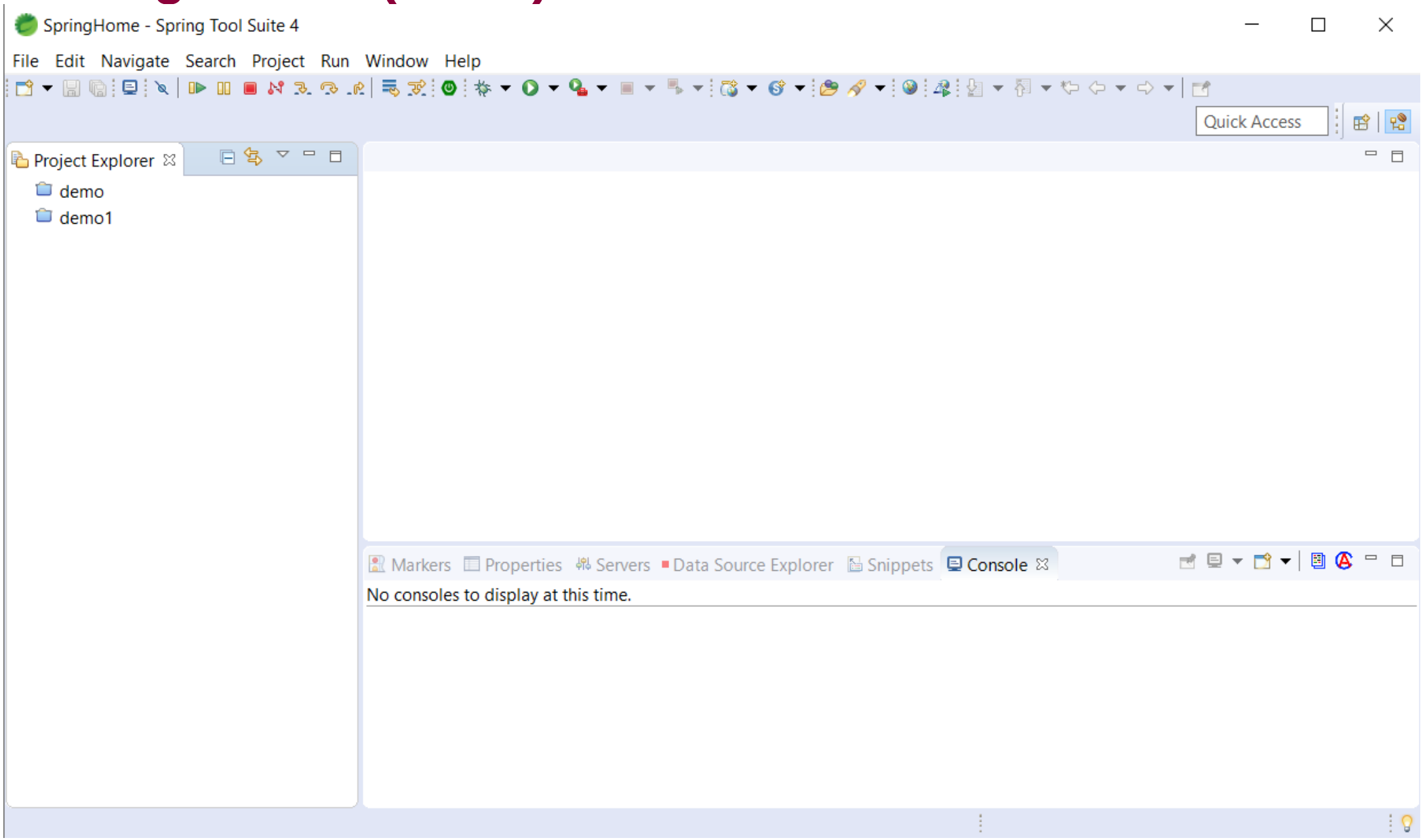
- https://spring.io/tools



STS Configuration

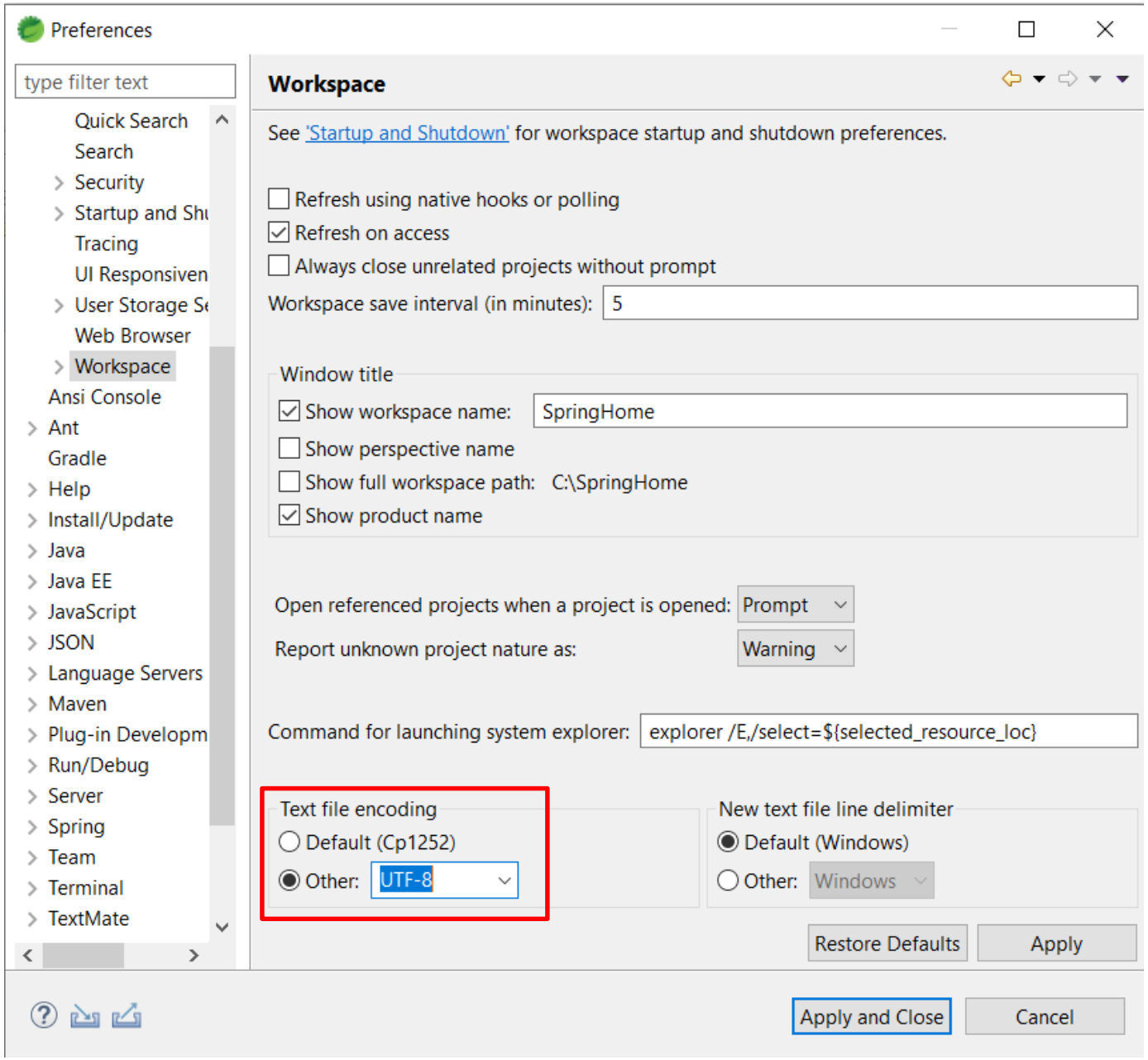


STS Configuration (Cont.)



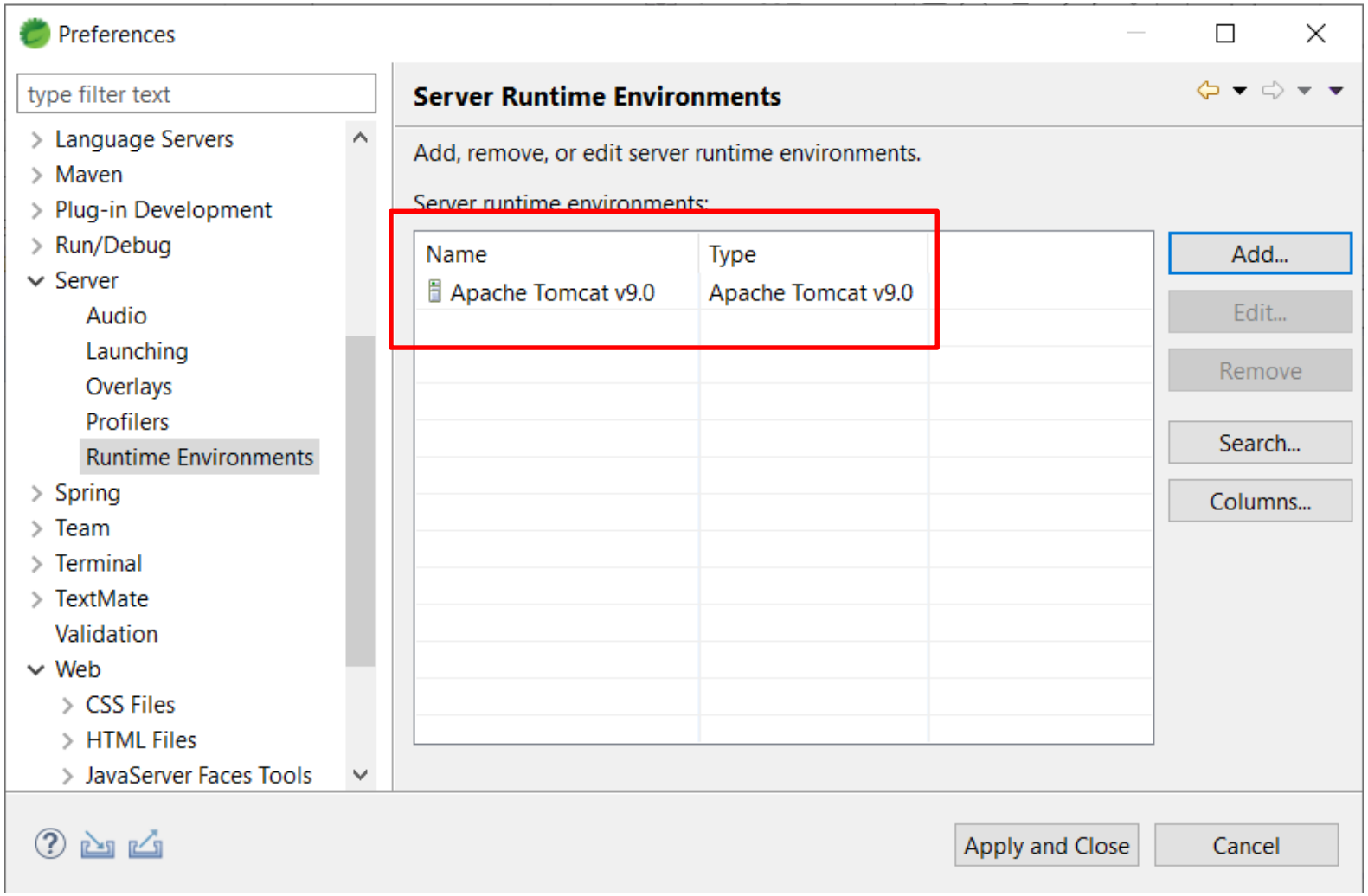
STS Configuration (Cont.)

- Workspace의 UTF-8 설정하기



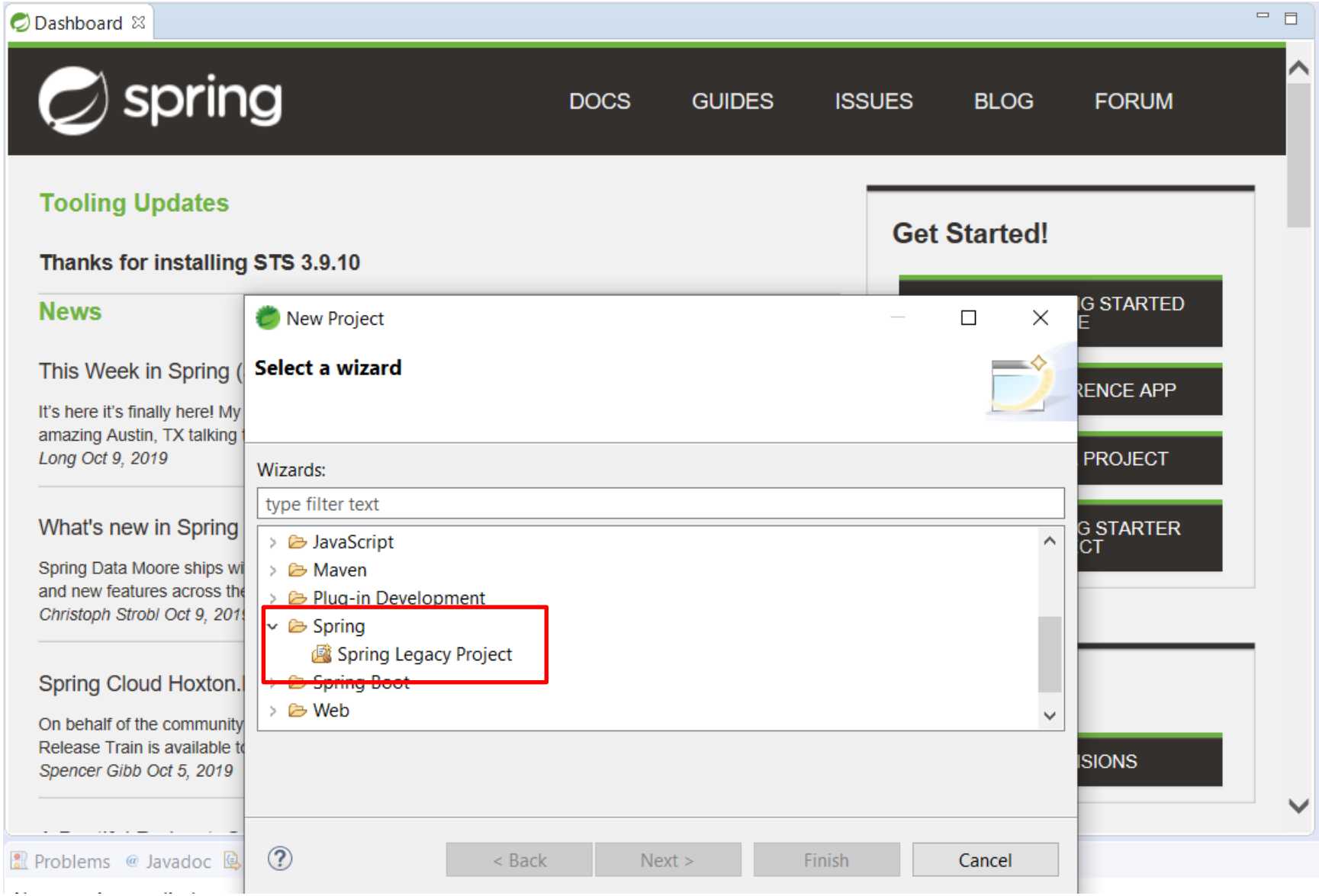
STS Configuration (Cont.)

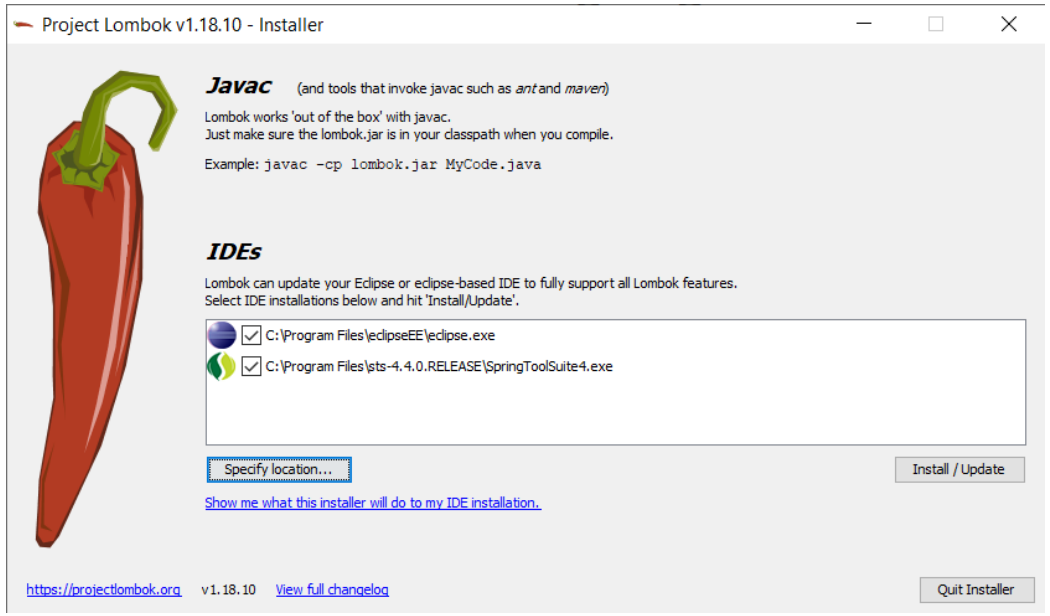
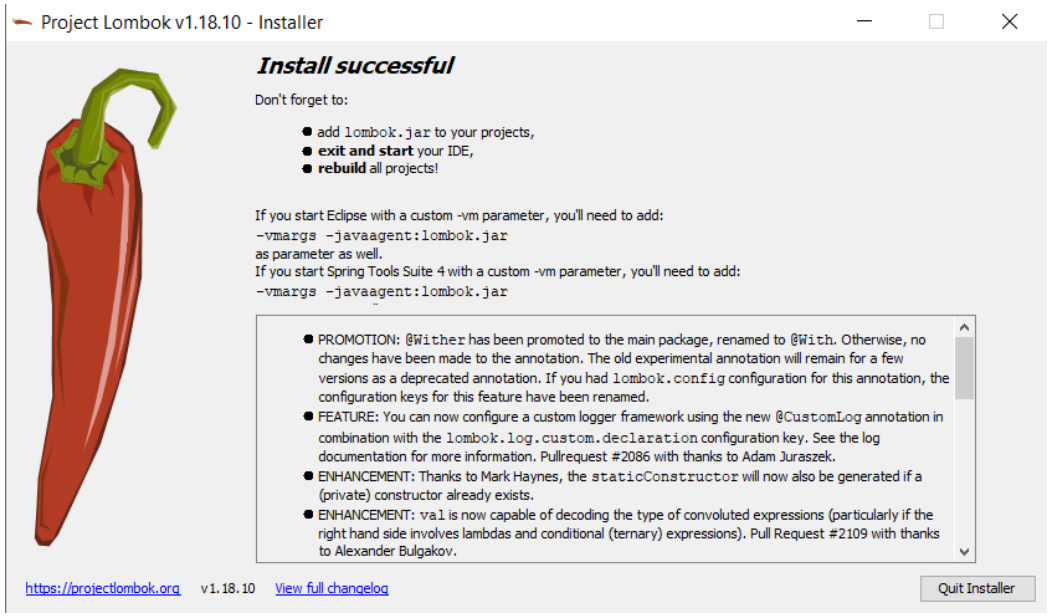
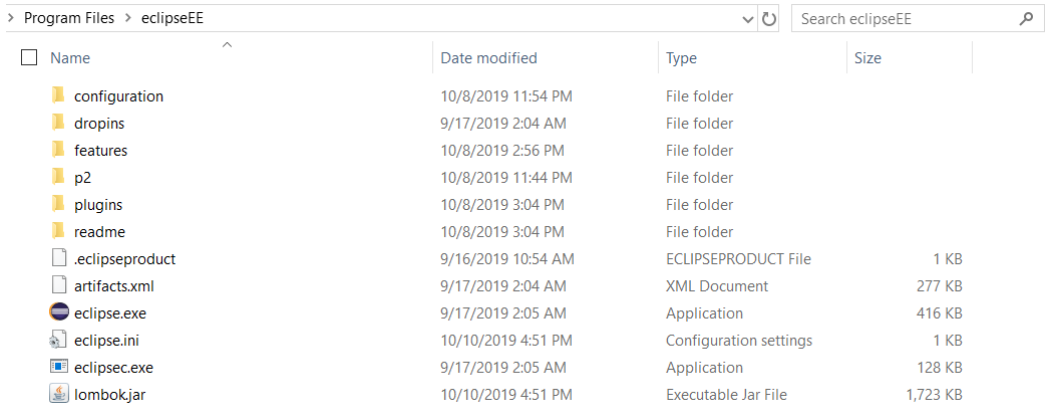
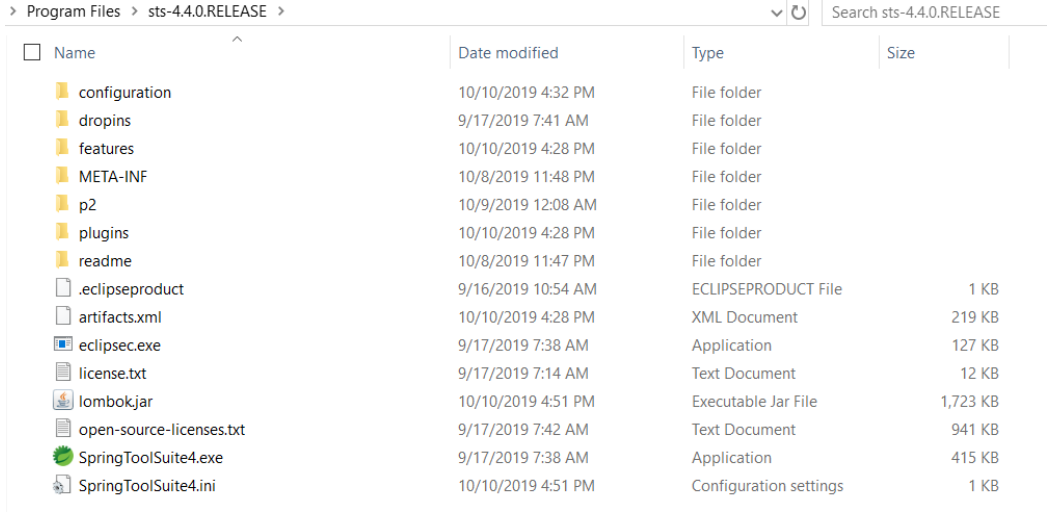
- STS4에 Tomcat 등록하기



STS Configuration (Cont.)

- STS4에 STS3 Add-On Installation



VII. Lombok v1.18.10

Lombok Installation