

Maven

brief introduction

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Build Process

Standard tools:

- javac (compile java + libs)
- jar (packaging)

IDE (Eclipse):

- wizards —> a lot of clicking

Maven:

- build automation
- dependency management

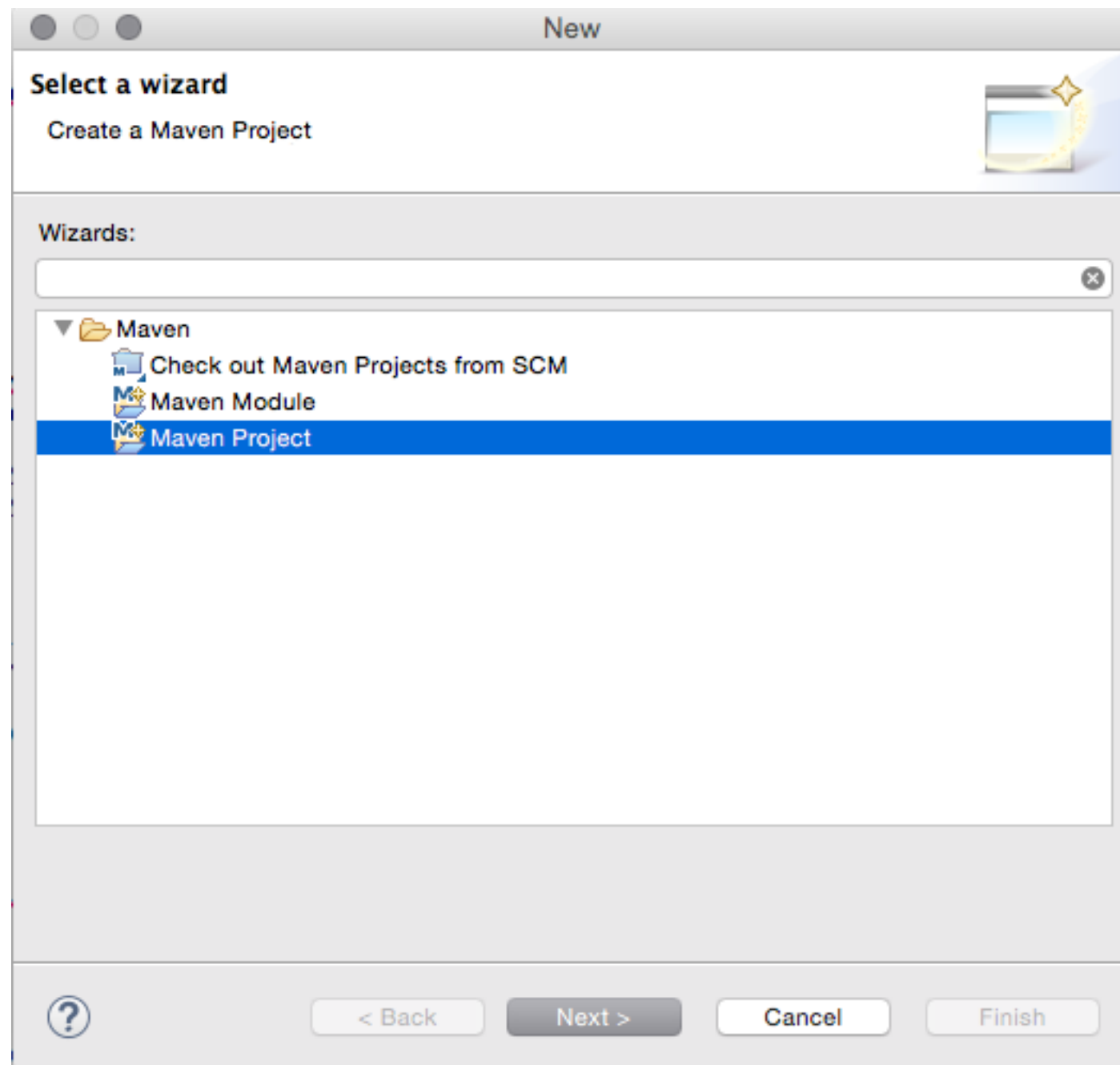
Setup

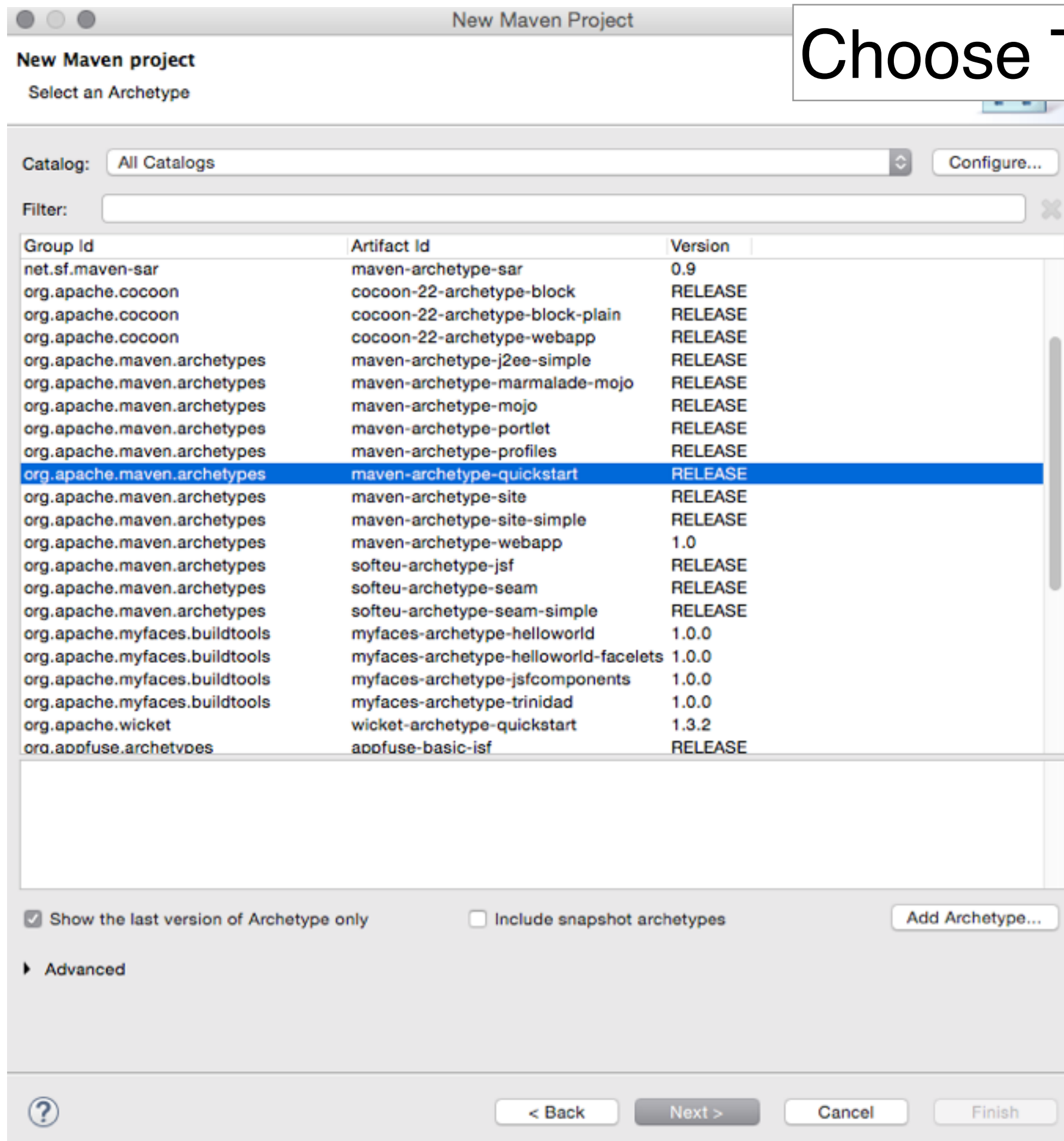


Eclipse IDE for Java EE Developers



Apache Maven Project
<http://maven.apache.org/>





Choose Template

Name Project

[illegible]

POM.xml

```
1 <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
2   xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
3   <modelVersion>4.0.0</modelVersion>
4
5   <groupId>com.mycompany.myteam</groupId>
6   <artifactId>myproject</artifactId>
7   <version>0.0.1-SNAPSHOT</version>
8   <packaging>jar</packaging>
9
10  <name>myproject</name>
11  <url>http://mycompany.com</url>
12
13  <properties>
14    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
15  </properties>
16
17  <dependencies>
18    <dependency>
19      <groupId>junit</groupId>
20      <artifactId>junit</artifactId>
21      <version>3.8.1</version>
22      <scope>test</scope>
23    </dependency>
24  </dependencies>
25 </project>
```

Project

Props

Dependencies

a:"spring-webmvc"

<http://search.maven.org>

[New: About Central](#)

[Advanced Search](#) | [API Guide](#) | [Help](#)

Browse Central For [org.springframework : spring-webmvc : 4.2.1.RELEASE](#)

Click on a link above to browse the repository.

Project Information

GroupId:

ArtifactId:

Version:

Dependency Information

Apache Maven

```
<dependency>
  <groupId>org.springframework</groupId>
  <artifactId>spring-webmvc</artifactId>
  <version>4.2.1.RELEASE</version>
</dependency>
```

[Apache Bundler](#)

[Apache Ivy](#)

[Groovy Grape](#)

[Gradle/Grails](#)

[Scala SBT](#)

[Leiningen](#)

Project Object Model (POM)

```
<?xml version="1.0" encoding="UTF-8"?><project xmlns="http://maven.apache.org/POM/4.0.0" xml
  <modelVersion>4.0.0</modelVersion>
  <groupId>org.springframework</groupId>
  <artifactId>spring-webmvc</artifactId>
  <version>4.2.1.RELEASE</version>
  <name>Spring Web MVC</name>
  <description>Spring Web MVC</description>
  <url>https://github.com/spring-projects/spring-framework</url>
  <organization>
    <name>Spring IO</name>
    <url>http://projects.spring.io/spring-framework</url>
  </organization>
  <licenses>
    <license>
      <name>The Apache Software License, Version 2.0</name>
      <url>http://www.apache.org/licenses/LICENSE-2.0.txt</url>
      <distribution>repo</distribution>
    </license>
  </licenses>
  <developers>
    <developer>
      <id>jhoeller</id>
      <name>Juergen Hoeller</name>
      <email>jhoeller@pivotal.io</email>
    </developer>
```

Name	Last Modified	Size	SHA1 Checksum
spring-webmvc-4.2.1.RELEASE.pom	01-Sep-2015	11.7 K	bce59814f1dce9588781b53119ac24e2ecbcd9af
spring-webmvc-4.2.1.RELEASE.pom.asc	01-Sep-2015	183 B	9ed2740fc101588270f3abcbcd109c522b53b4f7
spring-webmvc-4.2.1.RELEASE.jar	01-Sep-2015	846.6 K	6f8db100285e16eff3e413d2fba4f3557c09a07a
spring-webmvc-4.2.1.RELEASE.jar.asc	01-Sep-2015	183 B	8e1d445f6d5e29ba883165c32beff4fb5da86399

```

1 <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
2   xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
3   <modelVersion>4.0.0</modelVersion>
4
5   <groupId>com.mycompany.myteam</groupId>
6   <artifactId>myproject</artifactId>
7   <version>0.0.1-SNAPSHOT</version>
8   <packaging>jar</packaging>
9
10  <name>myproject</name>
11  <url>http://mycompany.com</url>
12
13  <properties>
14    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
15  </properties>
16
17  <dependencies>
18    <dependency>
19      <groupId>junit</groupId>
20      <artifactId>junit</artifactId>
21      <version>3.8.1</version>
22      <scope>test</scope>
23    </dependency>
24
25    <dependency>
26      <groupId>org.springframework</groupId>
27      <artifactId>spring-webmvc</artifactId>
28      <version>4.2.1.RELEASE</version>
29    </dependency>
30
31  </dependencies>
32 </project>

```

Depends on:

spring-core
spring-context-support
spring-beans
groovy-all

Build profile

```
205<profiles>
206  <profile>
207    <id>jetty</id>
208    <activation>
209      <activeByDefault>>true</activeByDefault>
210    </activation>
211    <build>
212      <plugins>
213        <plugin>
214          <groupId>org.mortbay.jetty</groupId>
215          <artifactId>maven-jetty-plugin</artifactId>
216          <version>6.1.26</version>
217          <configuration>
218            <useTestClasspath>>true</useTestClasspath>
219            <contextPath>/Skeleton</contextPath>
220            <stopKey>1</stopKey>
221            <stopPort>9999</stopPort>
222          </configuration>
223          <executions>
224            <execution>
225              <id>start-jetty</id>
226              <phase>pre-integration-test</phase>
227              <goals>
228                <goal>run</goal>
229              </goals>
230              <configuration>
231                <daemon>true</daemon>
232              </configuration>
233            </execution>
234            <execution>
235              <id>stop-jetty</id>
236              <phase>post-integration-test</phase>
237              <goals>
238                <goal>stop</goal>
239              </goals>
240            </execution>
241          </executions>
242        </plugin>
243      </plugins>
244    </build>
245  </profile>
246</profiles>
```

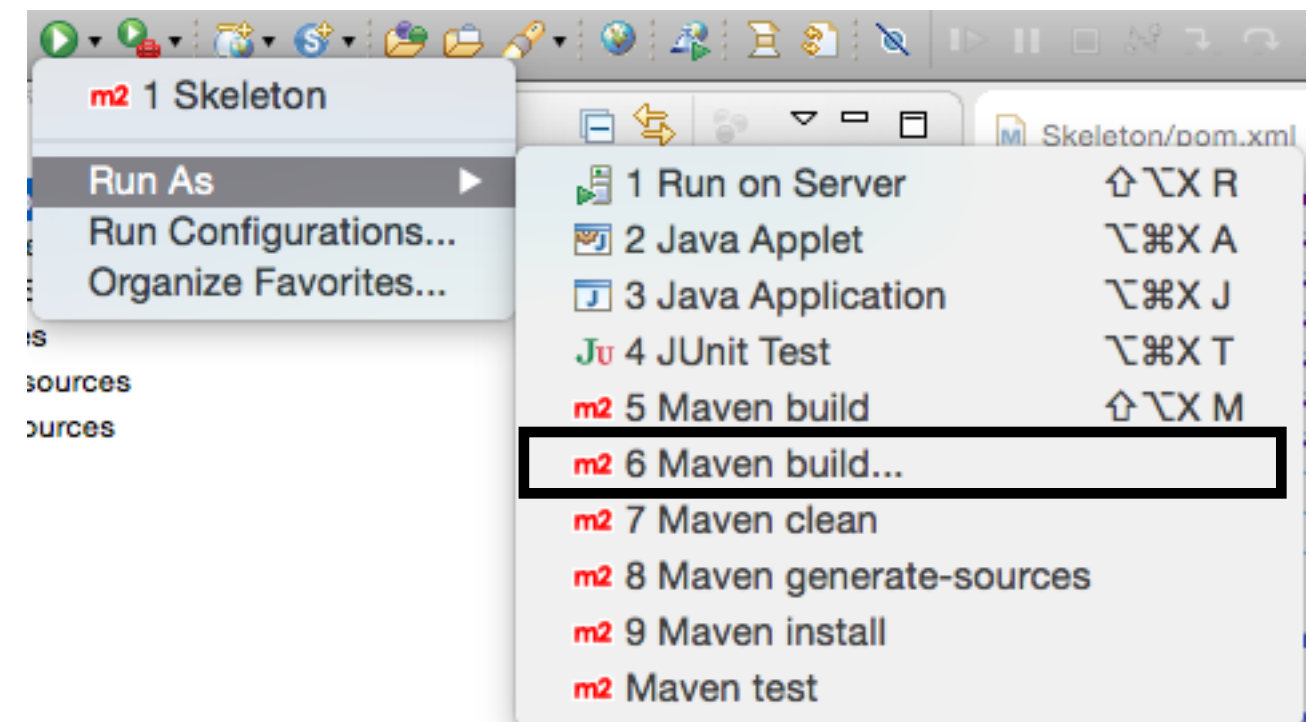
Build

POM.xml

src

Maven

Artifact
(Jar / War)



```
1  ...
2  [INFO] -----
3  [INFO] BUILD SUCCESSFUL
4  [INFO] -----
5  [INFO] Total time: 2 seconds
6  [INFO] Finished at: Thu Jul 07 21:34:52 CEST 2011
7  [INFO] Final Memory: 3M/6M
8  [INFO] -----
```



- Apache Tomcat
- Eclipse Application
- Eclipse Data Tools
- Generic Server
- Generic Server(External Laur
- GlassFish Application Server
- HTTP Preview
- J2EE Preview
- Java Applet
- Java Application
- JUnit
- JUnit Plug-in Test
- ▼ m2 Maven Build
 - m2 Skeleton**
- OSGi Framework
- Task Context Test
- XSL

Name: Skeleton

Main

JRE

Refresh

Source

Environment

Common

Base directory:

/Users/caracciolo/Current/Teaching/ESE/ESE2015/github/Skeleton

Browse Workspace...

Browse File System...

Variables...

Goals:

jetty:stop jetty:run

Select...

Profiles:

User settings:

File...

☐ Offline☐ Update Snapshots☐ Debug Output☐ Skip Tests☐ Non-recursive☐ Resolve Workspace artifacts

1



Threads

Parameter Name

Value

Add...

Edit...

Remove

Maven Phases

- **validate**: validate the project is correct and all necessary information is available
- **compile**: compile the source code of the project

—> fetch dependencies

- **test**: test the compiled source code using a suitable unit testing framework
- **package**: take the compiled code and package it in its distributable format, such as a JAR.

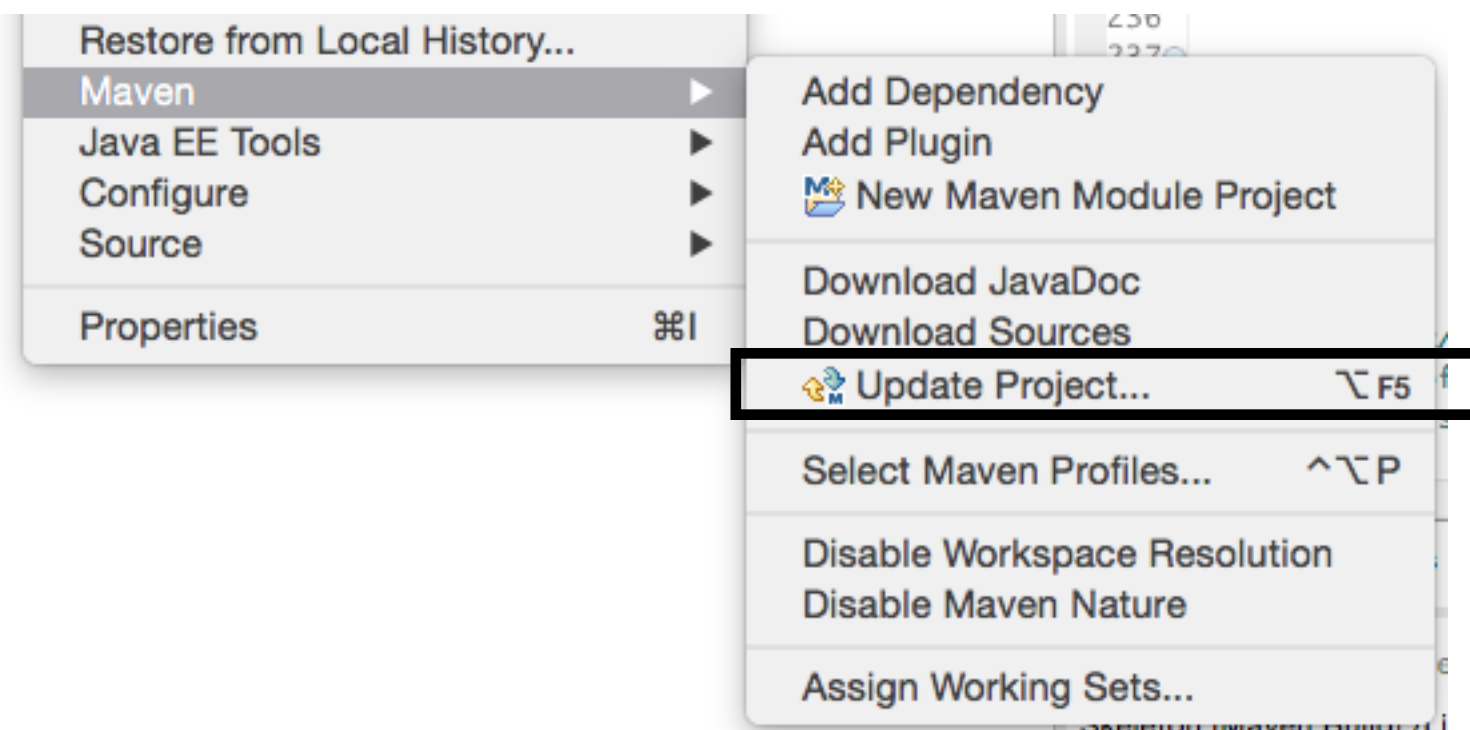
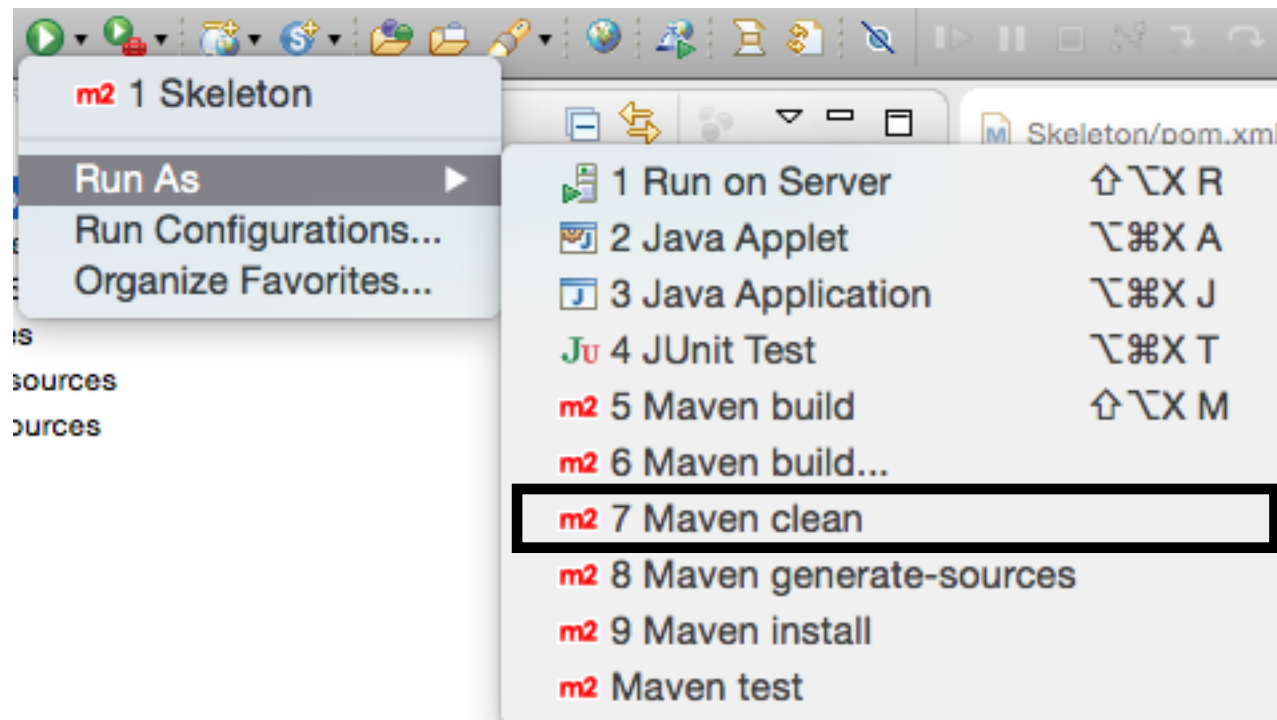
—> WAR

- **integration-test**: process and deploy the package if necessary into an environment where integration tests can be run
- **verify**: run any checks to verify the package is valid and meets quality criteria
- **install**: install the package into the local repository, for use as a dependency in other projects locally
- **deploy**: done in an integration or release environment, copies the final package to the remote repository for sharing with other developers and projects.

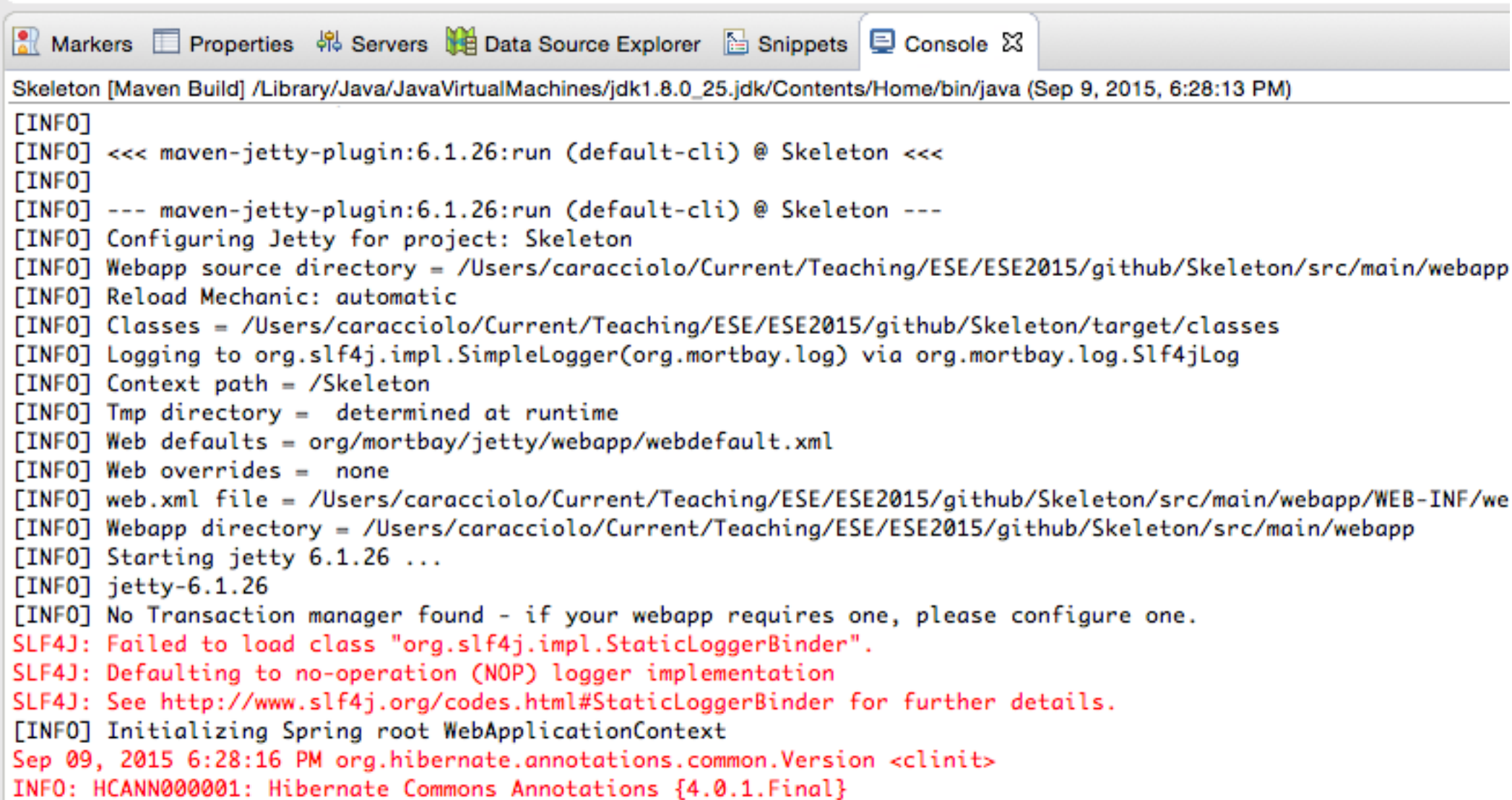
—> Deploy on Jetty/Tomcat/..

<http://localhost:8080>

Troubleshooting



Troubleshooting



The screenshot shows an IDE console window with the following tabs: Markers, Properties, Servers, Data Source Explorer, Snippets, and Console. The console title is "Skeleton [Maven Build] /Library/Java/JavaVirtualMachines/jdk1.8.0_25.jdk/Contents/Home/bin/java (Sep 9, 2015, 6:28:13 PM)". The output text is as follows:

```
[INFO]
[INFO] <<< maven-jetty-plugin:6.1.26:run (default-cli) @ Skeleton <<<
[INFO]
[INFO] --- maven-jetty-plugin:6.1.26:run (default-cli) @ Skeleton ---
[INFO] Configuring Jetty for project: Skeleton
[INFO] Webapp source directory = /Users/caracciolo/Current/Teaching/ESE/ESE2015/github/Skeleton/src/main/webapp
[INFO] Reload Mechanic: automatic
[INFO] Classes = /Users/caracciolo/Current/Teaching/ESE/ESE2015/github/Skeleton/target/classes
[INFO] Logging to org.slf4j.impl.SimpleLogger(org.mortbay.log) via org.mortbay.log.Slf4jLog
[INFO] Context path = /Skeleton
[INFO] Tmp directory = determined at runtime
[INFO] Web defaults = org.mortbay/jetty/webapp/webdefault.xml
[INFO] Web overrides = none
[INFO] web.xml file = /Users/caracciolo/Current/Teaching/ESE/ESE2015/github/Skeleton/src/main/webapp/WEB-INF/we
[INFO] Webapp directory = /Users/caracciolo/Current/Teaching/ESE/ESE2015/github/Skeleton/src/main/webapp
[INFO] Starting jetty 6.1.26 ...
[INFO] jetty-6.1.26
[INFO] No Transaction manager found - if your webapp requires one, please configure one.
SLF4J: Failed to load class "org.slf4j.impl.StaticLoggerBinder".
SLF4J: Defaulting to no-operation (NOP) logger implementation
SLF4J: See http://www.slf4j.org/codes.html#StaticLoggerBinder for further details.
[INFO] Initializing Spring root WebApplicationContext
Sep 09, 2015 6:28:16 PM org.hibernate.annotations.common.Version <clinit>
INFO: HCANN000001: Hibernate Commons Annotations {4.0.1.Final}
```


Reference example

247 lines (222 sloc) | 6.238 kB

Raw

Blame

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3     xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd"
4     <modelVersion>4.0.0</modelVersion>
5
6     <groupId>Skeleton</groupId>
7     <artifactId>Skeleton</artifactId>
8     <version>1.0</version>
9     <packaging>war</packaging>
10
11     <properties>
12         <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
13     </properties>
14
15     <repositories>
16         <repository>
17             <id>atlassian</id>
18             <name>Atlassian repo</name>
19             <url>https://maven.atlassian.com/public</url>
20             <snapshots>
21                 <enabled>>false</enabled>
22             </snapshots>
23             <releases>
24                 <enabled>>true</enabled>
25             </releases>
26         </repository>
27     </repositories>
```

<https://github.com/unibe-ese/course-wiki/blob/master/Skeleton/pom.xml>

```
33         </snapshots>
34         <releases>
35             <enabled>>false</enabled>
```

references:

- get started: <http://maven.apache.org/guides/getting-started/>
- archetype: <http://maven.apache.org/guides/introduction/introduction-to-archetypes.html>
- POM: <http://maven.apache.org/guides/introduction/introduction-to-the-pom.html>
- dependencies: <http://maven.apache.org/pom.html>
- plugin: <http://maven.apache.org/plugins/maven-dependency-plugin/>
- concept of repositories: <http://docs.codehaus.org/display/MAVENUSER/Maven+Concepts+Repositories>
- lifecycle: <http://maven.apache.org/guides/introduction/introduction-to-the-lifecycle.html>