

Java Spring & AWS

Sep 7, 2021 - Oct 8, 2021

Monday to Friday

9:30 AM ET - 4:30 PM ET



Agenda

✓ Maven

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Maven

- A Java project management and integration build tool.
- Based on the concept of XML Project Object Model (POM).
- Originally developed for building Turbine.

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- pom will be in base directory
- source code in a diff folder
- resources are in diff folder
- test cases are in specific folder
- target folder is used to for final jar file

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A project model includes:

- A project description, a unique set of coordinates, project attributes,
- the project's license information. The project version, any authors or contributors to the project,
- and a list of project dependencies

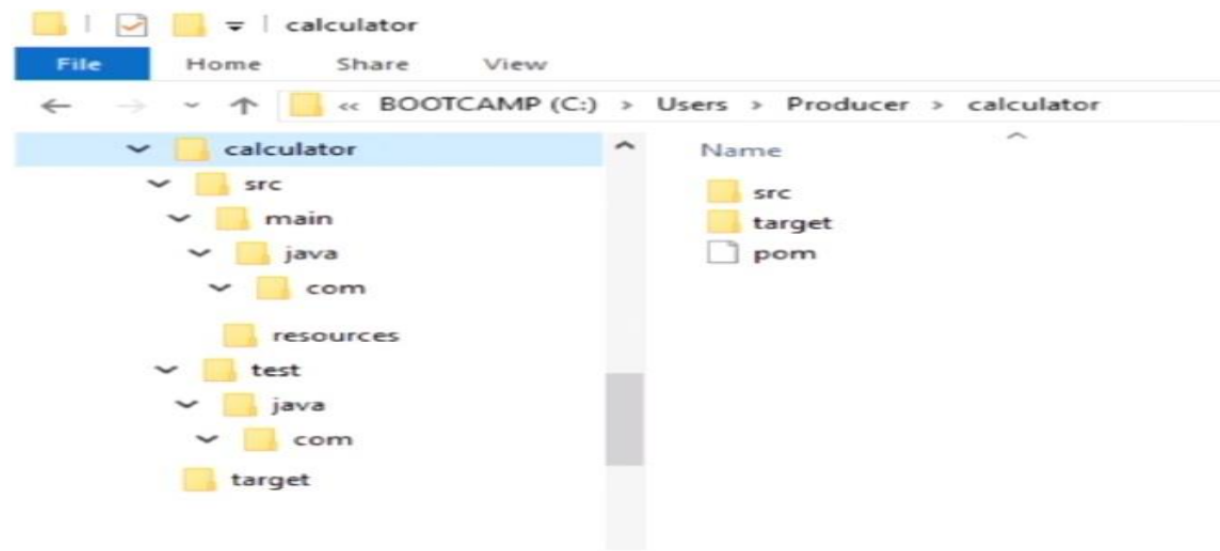
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Folder structure

Review the maven web project structure.



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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/maven-v4_0_0.xsd">
3   <modelVersion>4.0.0</modelVersion>
4   <groupId>com.maruthi</groupId>
5   <artifactId>calculator</artifactId>
6   <packaging>jar</packaging>
7   <version>1.0</version>
8   <description>This program does basic math, addition, subtraction, multiplication and
  division</description>
9   <name>calculator</name>
10  <url>http://maven.apache.org</url>
11  <dependencies>
12    <dependency>
13      <groupId>junit</groupId>
14      <artifactId>junit</artifactId>
15      <version>3.8.1</version>
16      <scope>test</scope>
17    </dependency>
18  </dependencies>
19 </project>
```

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Pom.xml

- The artifact ID is used for the name of the program. In our case, calculator. Since it's a Java program, the packaging is going to be to create a JAR file. And the version in this case is 1.0. The description, name, and URL are all optional. Below that are the dependencies. When you create a sample program using Maven, it automatically adds a j unit dependency to allow us to do unit testing for our Java program.

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- group ID, artifact ID, and version. That's because these three fields together, make up what we call the coordinates of the project, and they must be a unique combination. So, if I wanted to create a second version of my calculator project. I'd have to change the version number from 1.0 to 2.0, or 1.1, or something, to make it unique. Features that are enabled by using the POM include dependency management, access to remote repositories, universal reuse of build logic, tool portability and integration, allowing IDEs such as Eclipse, NetBeans, and IntelliJ, to have a common place to find information about a project

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life cycle of maven

- default life cycle phases. One of the phases is **Validate**. Validate is used to validate the project to make sure it is correct and all necessary information is available.
- another phase is **Compile**. We compile the source code of the project.
- **Test** :Test compiles the source code using a suitable unit testing framework. These tests should not require the code be packaged or deployed just yet.

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life cycle of maven

- **Package**, take the compiled code and package it in its distributable format. For example, a Java program will be packaged as a Java file or a Java archive file. Integration-test.
- Process and deploy the package if necessary into an environment where integration tests can be run.
- Verify runs 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.

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- And finally, **Deploy**. This is done in an integration or release environment. It copies the final package to the remote repository for sharing with other developers and projects. Plugin goals can be attached to each lifecycle phase. As Maven moves through the phases in a lifecycle it will execute the goals attached to each particular phase. Each phase may have zero or more goals bound to it

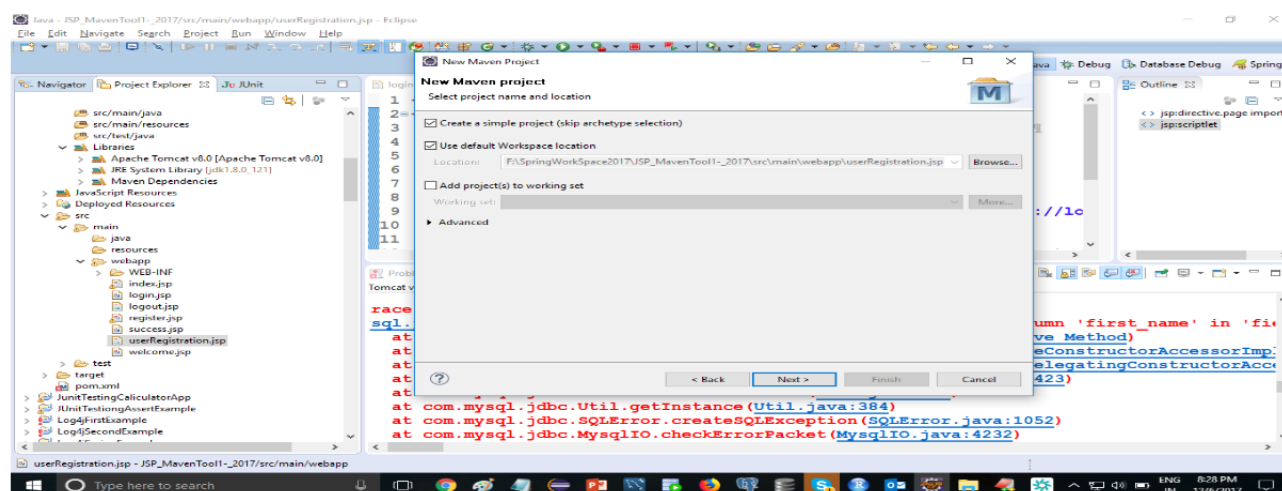
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Maven repository

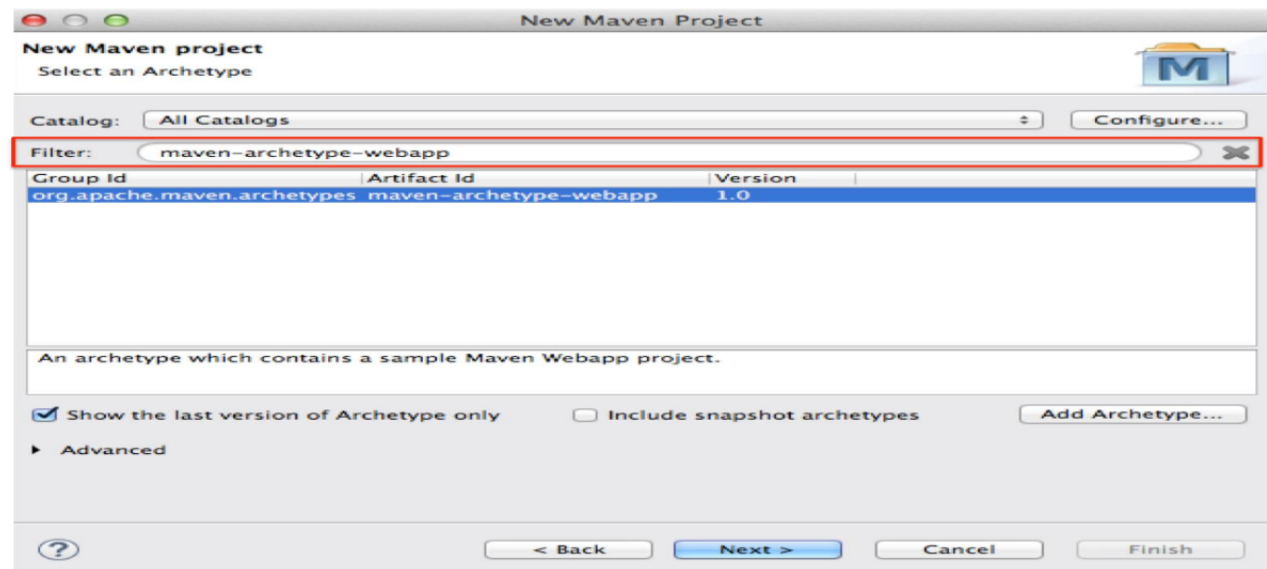
- One of the big benefits of using Maven is you now have access to the Maven repository. There's actually two repositories. The first one is the central Maven repository that contains a large collection of Java and other open-source components. Again, the power of Maven is that these open-source components are available to you but they will not be downloaded unless you need them. That enforces that you have the most recent version of each component. The second repository is a local repository that Maven creates on your computer.
- It's usually located on your home drive in a folder called .m2. This directory contains your Maven repository. When you download a dependency from a remote Maven repository, Maven stores a copy of the dependency in your local repository. In addition, it also places a copy of your jar file and the pom.xml file for each installed project.
- <https://search.maven.org/>

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Create a project using maven

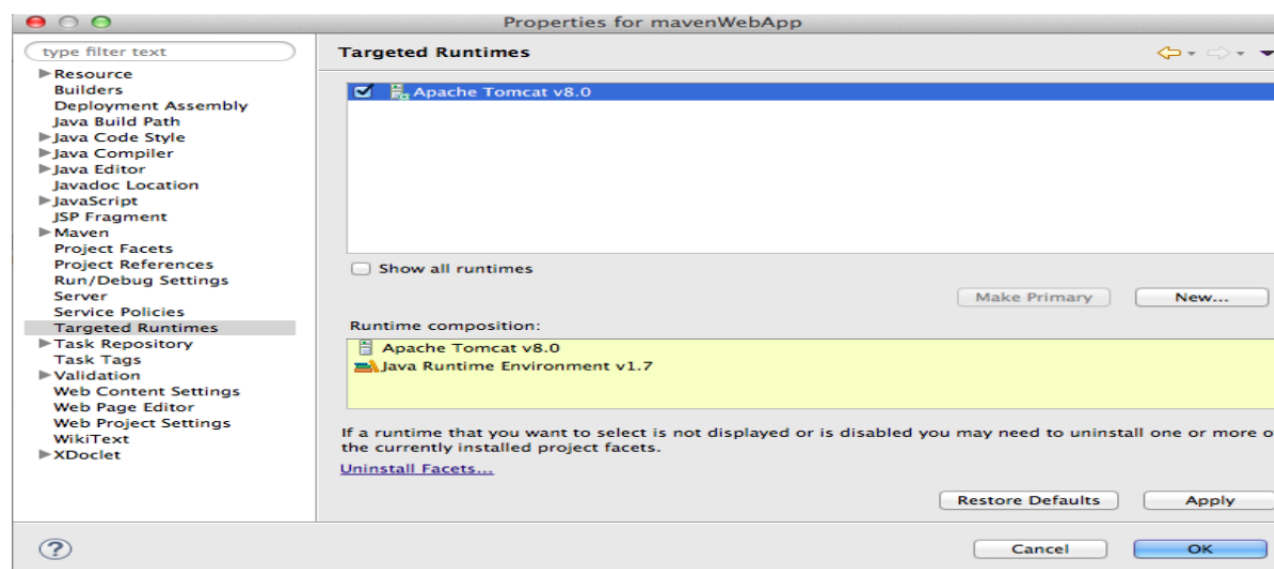


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Add target runtime



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