# Master Notes

Reference:

* Matt Speake video course on O'Reilly:

<https://learning.oreilly.com/videos/apache-maven-a/9781800203297/>

* …

**Maven Installation**

* Get zip installation file from maven apache website
* Unzip using jar command into the installation folder you want (xvf = execute verbose filespecified) and delete the zip file:

*$jar xvf <maven\_zipped\_file\_name>*

*$del <maven\_zipped\_file\_name>*

* Set (system) environment variable M2\_HOME to point to the maven folder and Path to the bin folder inside it:

A screenshot of a computer program

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**CLI**

***$mvn archetype:generate -Dfilter=org.apache.maven.archetypes:***

Generate a maven project based on maven archetypes (templates). Select the one you want.

-Dxxx: passing switches parameter to the maven command.

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$ mvn archetype:generate -DgroupId=com.rtaylor02 -DartifactId=appsInAWS -DarchetypeArtifactId=maven-archetype-quickstart -DarchetypeVersion=1.4 -DinteractiveMode=false

***$mvn package***

Generate a package (jar or war file as specified in the <packaging> of pom) of the project. Default location: target folder. Target folder is created when maven project is built. ***$mvn clean*** will delete this folder along with other temp files created during build.

2.4: jar (default-jar) @ myapp 
Building jar: 

***$mvn pmd:check***

Check the level of complexity of the code

***$jar tvf <jar\_file\_name.jar>***

Type the contents of the jar/war file. See here: [Java](onenote:Code.one#Java&section-id={814e03f8-7c96-448a-bbfc-3ef78608397d}&page-id={dc2999ea-7a3a-49dd-a445-474200b11527}&end) ([Web view](https://iairgroup-my.sharepoint.com/personal/rod_taylor_iaggbs_com/_layouts/15/Doc.aspx?sourcedoc=%7bb23b0177-db20-414a-8e01-b1c3cbb3783d%7d&action=edit&wd=target%28Code.one%7C814e03f8-7c96-448a-bbfc-3ef78608397d%2FJava%7Cdc2999ea-7a3a-49dd-a445-474200b11527%2F%29&wdorigin=703&wdpreservelink=1))

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***$mvn [-s / --settings <location of your settings.xml>] clean***

Clean the project from previous build and temp files associated with the process.

&/Deve Lopment/myapp $ mvn clean 
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Scanning for projects... 
Building myapp 1.0-SNAPSHOT 
maven—clean—plugin: 2.5: clean (default—clean) @ myapp 
Deleting /Users/matthewspeake/Development/myapp/target 
BUILD SUCCESS 
Total time: 0.299 s 
Finished at: 
Final Memory: 6M/123M 

A blue screen with white text

Description automatically generated

***$mvn -s C:\Users\u228616\.m2\settings.xml -Dmaven.repo.local=C:\Users\u228616\.m2\repository clean install***

Clean and install project using settings file specified and local repository as specified.

***$mvn test***

Run the test project.

IadDevelopment/myapp $ mvn test 
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Building myapp 1. O-SNAPSHOT 
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TESTS 
Press Esc to exit full screen 
maven—resources—plugin:2.6: resources (default—resources) @ myapp 
Using 'UTF—8' encoding to copy filtered resources. 
Skip non existing resourceDirectory /Users/matthewspeake/Development/myapp/src/main/resources 
compile (default—compile) @ myapp 
Changes detected 
— recompiling the module! 
Compiling 1 source file to /Users/matthewspeake/Development/myapp/target/classes 
testResources (default—testResources) @ myapp 
Using 'UTF—8' encoding to copy filtered resources. 
Skip non existing resourceDirectory /Users/matthewspeake/Development/myapp/src/test/resources 
testCompile (default—testCompile) @ myapp 
Changes detected 
— recompiling the module! 
Compiling 1 source file to /Users/matthewspeake/Development/myapp/target/test—classes 
(default—test) @ myapp 
Surefire report directory: /Users/matthewspeake/Development/myapp/target/surefire—reports 

***$mvn compile***

Compile the source code and download any non-existing (in .m2/repository) jar & pom files from the repository.

yv/Development/myapp $ mvn compile 
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Scanning for projects... 
Building myapp 1. O—SNAPSHOT 
resources (default—resources) @ myapp 
Using 'UTF—8' encoding to copy filtered resources. 
Skip non existing resourceDirectory /Users/matthewspeake/Development/myapp/src/main/resources 
I: compile (default—compile) @ myapp 
Nothing to compile — all classes are up to date 
BUILD SUCCESS 
Total time: 0.829 s 
Finished at: 2017-04-17T18:48: 19+01:00 
Final Memory: 8M/155M 

***$mvn test-compile***

Compile the test source code.

ßjDeveLopment/myapp $ mvn test—compile 
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Scanning for projects... 
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Building myapp 1.0-SNAPSHOT 
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resources (default—resources) @ myapp 
[INFO] 
Using 'UTF—8' encoding to copy filtered resources. 
[INFO] 
skip non existing resourceDirectory /Users/matthewspeake/DeveIopment/myapp/src/main/resources 
[INFO] 
[INFO] — 
3. I: compile (default—compile) @ myapp 
[INFO] 
Nothing to compile — alt classes are up to date 
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[INFO] — 
(default—testResources) @ myapp 
[INFO] 
Using 'UTF—8' encoding to copy filtered resources. 
[INFO] 
skip non existing resourceDirectory /Users/matthewspeake/Development/myapp/src/test/resources 
[INFO] 
[INFO) — 
testCompile (default—testCompile) @ myapp 
[INFO] 
Nothing to compile — all classes are up to date 
[INFO] 
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BUILD SUCCESS 
[INFO] 
[INFO] 
Total time: 0.843 s 
[INFO] 
Finished at: 
[INFO] 
Final Memory: 9M/155M 
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***$mvn install***

Compile the source code, make the jar/war file, and install the jar/war file into the local maven repository (folder: .m2/repository) for future use. Following execution of this cmd, you will find that the gav coordinate is the actual location of the installed pom.

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(INFO) Installing /Users/matthewspeake/myapp/pom.xmI to /Users/matthewspeake/.m2/repository.com/zention/training/demo/m 
yapp/ 1. Ø-SNAPSHOT/myapp-1. Ø-SNAPSHOT. pom 

***$mvn -s "C:\Users\u228616\.m2\settings.xml" -DskipTests=true clean install***

Clean and install project with a different settings file and skip running the tests.

***$mvn dependency:tree***

Look at the dependency tree of your project.

Mmywebapp $ mvn dependency:tree 
[INFO] 
Scanning for projects... 
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Building mywebapp Maven Webapp I.O—SNAPSHOT 
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(default—cli) @ mywebapp 
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junit:junit:jar:3.8.1:test 
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BUILD SUCCESS 
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[INFO] 
Total time: 1.308 s 
[INFO] 
Finished at: 
[INFO] 
Final Memory: 12M/155M 
[INFO] 

Check by ***$jar tvf <jar/war file>***

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2 maven command invocation modes:

1. phase of the build lifecycle: $mvn <phase>. E.g. $mvn clean

2. goal: $mvn <plugin>:<goal>. E.g. $mvn archetype:generate

**Maven Project Structure**

GAV coordinate in pom (Project object model) file.

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Dependencies are **jar files** that are needed to run the project.

<dependencies> 
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<artifactld>junit</ 
artifactld> 
<version 
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<scope>test</ 
scope> 
dependency> 
dependencies> 

For details on pom file, go to [Maven – POM Reference (apache.org)](https://maven.apache.org/pom.html).

Transitive dependency = a dependency within another dependency that you're using.

<scope>compile</scope> -- default scope when none specified. It is transitive.

**Maven Plugins**

Maven => a plugin execution framework, i.e. **all work is done by plugins**

Maven => a build tool to deploy and distribute a target project.

Lifecycle => clearly-defined process of building and distributing an artifact (project).

3 built-in build lifecycles=> 3 lifecycles: clean (remove previous build files), default (deployment), site (documentation)

Default lifecycle:

く 、 Lifecycle 
0 deploy 
0 Install 
0 package 
0 test 
0 compile 
0 validate 
0 clean 

Lifecycle => phases => (plugin) goals

1 Lifecycle => n phases (stage of a build lifecyle)

1 build phase => n plugin goals. Goals can be bound or unbound to a particular phase.

Goal => specific task

E.g.: below, order of execution:

* clean phase (+ its preceding phases of the clean lifecyle),
* dependency:copy-dependencies goal. Note: goal naming => ***<phase\_name>:<goal\_name>***
* package phase (+ its preceding phases of the default lifecycle)



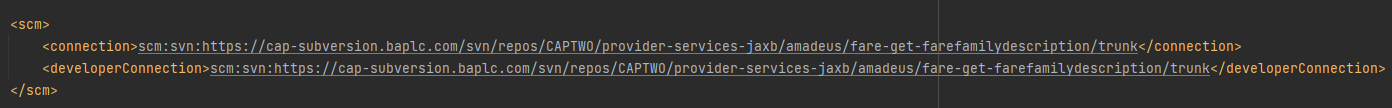
For details: [Maven – Introduction to the Build Lifecycle (apache.org)](https://maven.apache.org/guides/introduction/introduction-to-the-lifecycle.html#Lifecycle_Reference)

Plugins are customisable by adding a configuration. E.g: customising compiler plugin

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**SCM (Source Code Management)**

It points the location of the source code. Useful to look at the original content on subversion.



In IntelliJ, just press **F4** from the pom.xml to go to the pom that a dependency is referring to:

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<dependency> 
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# Work-Solutions

Based on the resolution I discovered in a Team conversation with Offer Team 1 on 22/02/23:

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(This setting is working)

In order for you to use Maven Central (dependency resolved from Maven Central, NOT Nexus), you need to:

1. Change the settings of Maven to non-Captwo settings

You can do this by executing your swap script:

A screenshot of a computer

Description automatically generated

1. Get off VPN. For some reason, maven central is blocked when I'm connected to VPN

# Work-Solutions

To run samples from Spring Guides or spring.io, maven settings:

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(This setting is working)

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1. Change the settings of Maven to non-Captwo settings

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