## Basics

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|---|---|
| `mvn <plugin>:<goal> [-Doption1 -Doption2 ... ]` | Basic maven invocation of <goal> (multiple goals possible) |
| `mvn <phase> [-Doption1 -Doption2 ... ]` | Execute all maven goals until phase <phase> (multiple phases possible) |
| `mvn -h` | Getting help on command line parameters |
| `mvn install` | Standard mvn call: build the package files (jar, war, etc), run unit and integration tests, submit files to local mvn repository (this call works by default recursively). |
| `mvn -o` | Working offline |
| `mvn -U` | Ignore earlier failures to download latest snapshots (sometimes useful when mvn does not find a snapshot that seems to be present) |
| `mvn -N` | Skip visiting of child artifacts (the given goal or phase will be executed only for the current artifact - no recursive descent) |
| `mvn -DtestFailureIgnore=true <goal>` | To continue the maven build even if a test fails |
| `mvn install -Dmaven.test.skip=true` | To make maven install without launching the tests |
| `mvn test` | To run unit tests |
| `mvn clean` | To clean up |
| `mvn -P<profile>` | Activate a profile |

### Important *phases* of maven (a concatenation of phases is called lifecycle)

- **Build** lifecycle: *validate, compile, test, package, integration-test, verify, install, deploy*
- **Clean** lifecycle: *clean*
- **Site** lifecycle: *site, site-deploy*

### Configuration

| Environment variable | Significance |
|---|---|
| M2_HOME | Root of where the `mvn` executable is located |
| MAVEN_OPTS | Command line options of the JVM launching maven |
| M2_REPO | Location of the local maven repository |

Configuration file for maven: `~/.m2/settings.xml`.

We recommend to set the following parameter on the command line of maven: `-fae` "fail at end" Rationale: (1) you see explicitly what tasks have been run and (2) maven continues until the end (without breaking on intermediate errors) BTW: We added this parameter to the default maven launch script.

## Eclipse Plugin

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| `mvn eclipse:eclipse` | To generate Eclipse project descriptor after configuring the dependencies in pom.xml (see also next point) |
| `mvn eclipse:clean eclipse:eclipse -DdownloadSources=true` | To setup the source versions of all included libraries (for debugging convenience) |

## Cargo Plugin (to deploy artefacts in a WEB or EJB container)

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| `mvn cargo:start` | To start the configured container. By default this is Tomcat 5.5 |
| `mvn cargo:deploy` | To deploy the configured deployable. If the current artifact is of type war this war will be deployed |
| `mvn cargo:undeploy` | To undeploy the configured deployable. If the current artifact is of type war this war will be undeployed |
| `mvn cargo:stop` | To stop the configured container. By default this is Tomcat 5.5 |

### How we recommend to use the cargo plugin

- Start the container (i.e. Tomcat) with `mvn cargo:start` in a separate bash terminal.
- In another bash terminal: Go to the topmost directory where you have applied changes (typically the `web` pom that has the `jar` and the `war` artifacts as its subdirs). Execute `mvn clean install cargo:undeploy cargo:deploy`
- For a redeployment it is mostly enough to execute `mvn install cargo:deploy`
  BTW, executing `mvn cargo:deploy` in a `jar` or `pom` artifact does not result in a failure.

## Launch and init the database with the database plugin

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| `mvn db:prepare db:block` | Initializes and launches the db for the data of the currently active project (indicated via the current directory). It collects recursively the db scripts to launch for all projects this project depends on. **CAVEAT:** `db:prepare` alone does not block (even with db.wait flag) |

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| `mvn db:start db:silentDrop db:create` | Does the same as `db:prepare` (in the currently active directory) |
| `mvn db:prepare cargo:undeploy cargo:deploy cargo:start` | Initialize the database, install the deployable in the web container and start the web container (cd to the correct `war` directory before launching this command) |

## Installing and deploying many libraries in repositories

Have a look at the repohelper plugin http://el4j.sourceforge.net/plugins/maven-repohelper-plugin/index.html BTW, install means update the local repository, deploy means update the local and the remote repository.

## Site generation

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| `mvn site` | To create a complete documentation website containing Javadoc, Checkstyle, JUnit and other report pages for the current artifact. JUnit tests will be directly executed for the current artifact. The generated site can be found at "target/site" |
| `mvn -Dmaven.test.skip=true clean site` | To generate site documentation without running the tests (handy while updating the APTs) |
| `mvn javadoc:javadoc` | To generates Javadoc into directory "target/site/apidocs" |
| `mvn checkstyle:checkstyle` | To check the style of the code by applying the EL4J's Checkstyle rules and generate reports at "target/site/checkstyle.html" |

## Varia

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|---|---|
| `mvn exec:java -Dexec.args="\"A single argument\""` [-Dexec.executable="maven"] [-Dexec.workingdir="/tmp"] | To execute the default java class of this module |
| `mvn depgraph:fullgraph -Ddepgraph.groupFilter="ch.elca"` | Get a dependency graph. **You must install the Graphviz application first!** See http://www.graphviz.org/ |
| `mvn depgraph:fullgraph -Ddepgraph.groupFilter="(ch.elca.el4j.modules)\|(ch.elca.el4j.demos)\|(ch.elca.el4j.apps)" -Ddepgraph.filterEmptyArtifacts=true -Ddepgraph.dotFile=el4j.dot` | Another dependency graph |
| `mvn assembly:assembly -DdescriptorId=src` | To distribute the source code |
| `mvn install:install-file -Dfile=foo.jar -DgroupId=bar -Dversion=x.y -Dpackaging=jar -DartifactId=blah` | To install a jar file on local repo |
| `mvn install -DperformRelease=true` | Installs all artefacts of the project in the current directory in local repo (includes src, javadoc, tests) |
| `mvn assembly:assembly -DdescriptorId=jar-with-dependencies` | To generate a single jar files with all its dependencies |
| `mvn archetype:create -DarchetypeGroupId=ch.elca.el4j -DarchetypeArtifactId=EL4JArchetypeCore -DarchetypeVersion=1.4 -DgroupId=ch.elca.el4j -DartifactId=myFirstProject -DremoteRepositories=http://el4.elca-services.ch/el4j/maven2repository` | To create a new EL4J project |
| `mvn install:install-file -Dfile=foo.jar -DgroupId=org.foosoft -DartifactId=foo -Dversion=1.2.3 -Dpackaging=jar` | Installing a 3rdParty jar in local repository. |
| `cd $EL4J_ROOT/external ; mvn -N deploy:deploy-file -DgroupId=org.springframework -DartifactId=spring -Dversion=2.0.5 -Dpackaging=jar -Dfile=D:/tools/spring-framework-2.0.5/dist/spring.jar -DrepositoryId=ftpEl4ElcaServices -Durl=ftp://el4.elca-services.ch/htdocs/el4j/maven2repository` | Install 3rdParty jar to remote repository (requires pom.xml in . and requires login/password for repo). |
| `cd $EL4J_ROOT/external ; mvn -N deploy:deploy-file -DgroupId=org.springframework -DartifactId=spring -Dversion=2.0.5 -Dpackaging=source -Dfile=D:/tools/spring-framework-2.0.5/dist/spring-src.zip -DrepositoryId=ftpEl4ElcaServices -Durl=ftp://el4.elca-services.ch/htdocs/el4j/maven2repository` | Install a 3rdParty source zip to remote repository. |

## Debugging mvn pom files, settings and plugins

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| `mvn -X` | Enable debug output |
| `mvn –N help:effective-settings` | Prints the currently effective maven settings on the console |

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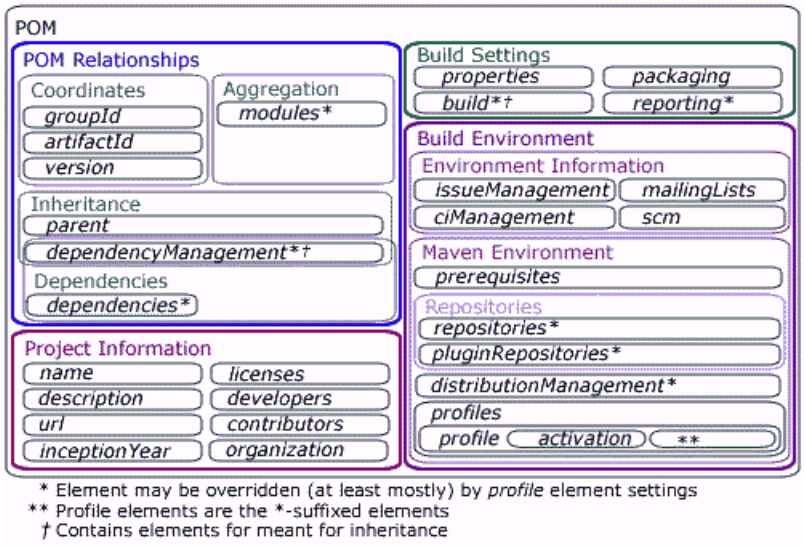
| `mvn -N help:effective-pom` | Prints the effective pom on console (merges all pom sections that currently apply) |
| `mvn -N help:active-profiles (-P.. -D..)` | To test what profiles of the current artifact are currently active. In addition you can set profiles (-P) or system properties (-D) on the command line to see what profiles would be active in that case. |
| `mvn project-info-reports:dependencies` | Makes a report on dependencies. Then refer to target/site/dependencies.html |
| `mvn -N help:describe -DgroupId... -DartifactId... -Dfull=true` | Describes all goals of the given plugin (groupId & artifactId). |
| set `MAVEN_OPTS="-Xmx768M -XX:MaxPermSize=512M -Xdebug -Xrunjdwp:transport=dt_socket,server=y,suspend=y,address=8000"` | To be able to debug a running maven with e.g. eclipse (you need then to connect to the JVM from eclipse) |

## Overview of pom-file structure




## References

- Extensive maven presentation: http://el4j.sourceforge.net/docs/pdf/Maven2Course_v1_2.pdf
- Documentation of standard Maven 2 plugins: http://maven.apache.org/plugins/
- Documentation of Maven 2 plugins at codehaus (a bit out of date): http://docs.codehaus.org/display/MAVEN/Maven+Plugin+Matrix
- Maven book: http://www.mergere.com/m2book_download.jsp
- EL4J: http://el4j.sourceforge.net/
- PluginDatabase
- PluginDepGraph

## History

- In EL4J 1.1.3, db:prepareDB was replaced by db:prepare and db:cleanUpDB was replaced by db:cleanUp

Revision: r1.20 - 19 Nov 2007 - 14:20 - PhilippHOser

EL4J > ComponentsEL4J > MavenBuildSystem > MavenCheatSheet