

## Lab 3 - Building with Maven Tycho

The goal of this lab is to set up a build process for the application based on Maven Tycho.

Start by pointing Eclipse at the `webapps/root/labs/lab-3` folder contained in the tutorial root. Import the projects into the workspace.

*Make sure that there are no spaces in the path to this workspace. A bug in the Maven Tycho publishing process will cause problems if you have spaces in your path.*

In this lab you will do the following:

1. Build the bootstrapper application using using Tycho.
2. Build the additional feature using Tycho.

## Build the core application using using Tycho.

### Prepare Maven and repositories for the lab.

Verify that Maven is correctly installed by entering `mvn -version` at a command prompt. Check that you get a valid response and that the version of Maven is 3.0 or greater.

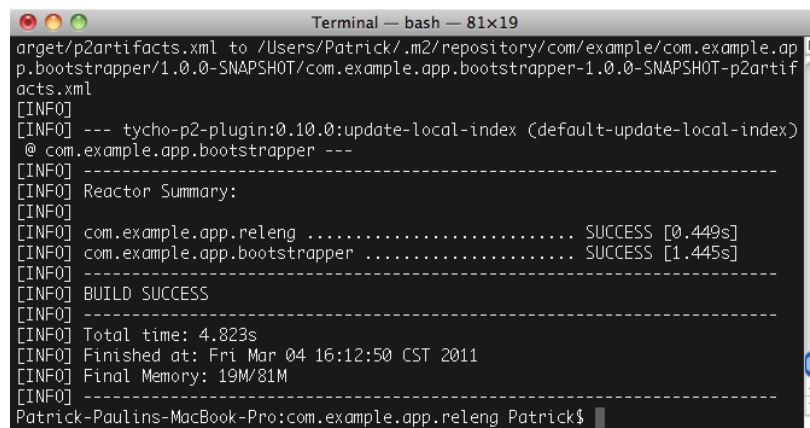
If Maven is not correctly installed, you may need to install Maven 3 or configure your path so that it's on your system path. An archive containing Maven 3 can be found in the `webapps/root/maven-dist` folder. You can also download it directly from the index page of this Tutorial's web server.

### Create a release engineering project and build the bootstrapper bundle.

Note that we have modified the `eclipse.product` file to enable it to work with Maven and p2 repositories. Start-level and auto-start information has been added on the product **Configuration** page. Without this Maven Tycho will not create a proper `config.ini` file.

1. Select **File > New > Project..** from the main menu. Select **General > Project** from the list of wizards and click **Next**.
2. On the first page of the wizard, enter `com.example.app.releng` as the **Project name**. Leave everything else as is and click **Finish**.
3. Copy the file `com.example.app.releng.pom.xml` from the `extra-files` project into the new project. Rename it to `pom.xml`.

4. Locate the configuration element for the `target-platform-configuration` plugin. Comment out the environments that are not appropriate for your machine. Note that you may need to add `_64` to the end of the `arch` element if you're running a 64 bit JVM. This has been done for the Mac OS X environment already.
5. Copy the file `com.example.app.bootstrapper.pom.xml` into the `com.example.app.bootstrapper` bundle. Rename it to `pom.xml`.
6. We can now build the bootstrapper bundle. From a command prompt, move to the `com.example.app.releng` folder in your workspace. Enter `mvn clean package` and verify that the build completes successfully.

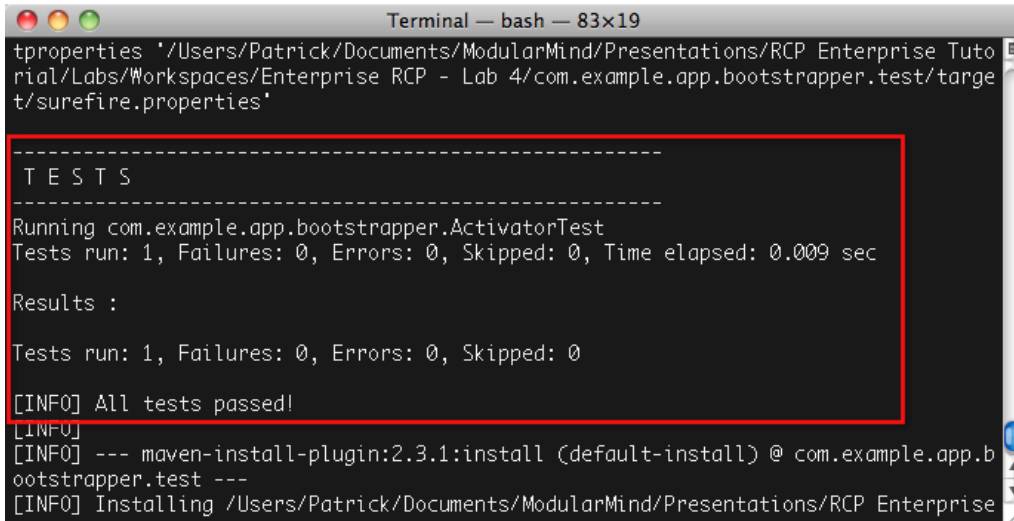


```
Terminal — bash — 81x19
target/p2artifacts.xml to /Users/Patrick/.m2/repository/com/example/com.example.ap
p.bootstrapper/1.0.0-SNAPSHOT/com.example.app.bootstrapper-1.0.0-SNAPSHOT-p2artif
acts.xml
[INFO] --- tycho-p2-plugin:0.10.0:update-local-index (default-update-local-index)
@ com.example.app.bootstrapper ---
[INFO] -----
[INFO] Reactor Summary:
[INFO] com.example.app.releng ..... SUCCESS [0.449s]
[INFO] com.example.app.bootstrapper ..... SUCCESS [1.445s]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 4.823s
[INFO] Finished at: Fri Mar 04 16:12:50 CST 2011
[INFO] Final Memory: 19M/81M
[INFO] -----
Patrick-Paulins-MacBook-Pro:com.example.app.releng Patrick$
```

## Add the test fragment to the build.

1. Copy the file `com.example.app.bootstrapper.test.pom.xml` into the `com.example.app.bootstrapper.test` project and rename it to `pom.xml`.
2. Open the parent `pom.xml` file in the `com.example.app.releng` project. Locate the `modules` element and add a new module sub-element that references the `com.example.app.bootstrapper.test` fragment.

3. Re-run the build from the command line. The build should complete successfully and you should also see output indicating that the unit test ran successfully.

A screenshot of a macOS Terminal window titled "Terminal — bash — 83x19". The terminal shows the output of a Maven build command. The path is "/Users/Patrick/Documents/ModularMind/Presentations/RCP Enterprise Tutorial/Labs/Workspaces/Enterprise RCP - Lab 4/com.example.app.bootstrap.test/target/surefire.properties". The output includes a section for tests, indicating that one test, "com.example.app.bootstrap.ActivatorTest", was run successfully. The results show 1 test run, 0 failures, 0 errors, and 0 skipped tests, with a time elapsed of 0.009 seconds. The output concludes with "[INFO] All tests passed!".

```
Terminal — bash — 83x19
tproperties '/Users/Patrick/Documents/ModularMind/Presentations/RCP Enterprise Tutorial/Labs/Workspaces/Enterprise RCP - Lab 4/com.example.app.bootstrap.test/target/surefire.properties'

-----
T E S T S
-----
Running com.example.app.bootstrap.ActivatorTest
Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.009 sec

Results :

Tests run: 1, Failures: 0, Errors: 0, Skipped: 0

[INFO] All tests passed!
[INFO]
[INFO] --- maven-install-plugin:2.3.1:install (default-install) @ com.example.app.bootstrap.test ---
[INFO] Installing /Users/Patrick/Documents/ModularMind/Presentations/RCP Enterprise
```

### Add the feature to the build.

1. Copy the file `com.example.app.feature.pom.xml` into the `com.example.app.feature` project and rename it to `pom.xml`.
2. Open the parent `pom.xml` file in the `com.example.app.releng` project. Locate the `modules` element and add a new module sub-element that references the `com.example.app.feature` project.
3. Re-run the build from the command line. The build should complete successfully and you should also see output indicating that the feature was built successfully.

## Add the product to the build.

1. Copy the file `com.example.app.product.pom.xml` into the `com.example.app.product` project and rename it to `pom.xml`.
2. Open the `eclipse.product` file and enter `com.example.app.bootstrapper.product.id` into the **ID** field under **General Information**. This field is necessary for the Maven p2 director plugin to function properly.
3. Open the parent `pom.xml` file in the `com.example.app.releng` project. Locate the `modules` element and add a new `module` sub-element that references the `com.example.app.product` project.
4. Open the `Application` class in the `com.example.app.bootstrapper` bundle. Locate the line where the `UPDATE_SITE_URL` is declared (should be around line 87).
5. We need to modify this variable because Tycho places the generated update site in a sub-folder of the project. Add `/target/site` to the end of the URL.
6. Re-run the build from the command line. The build should complete successfully and you should also see output indicating that the product was built successfully.

## Install and run bootstrapper.

1. Refresh the `com.example.app.product` project and locate the `target/products` folder. In this folder is a zip archive containing the application.
2. Extract this archive somewhere on your local machine.
3. For Mac OS X users only, Maven Tycho does not create a properly configured `eclipse.ini` file. Locate the appropriate INI file in the `extra-files` project and copy it into the extracted application. Rename it to `eclipse.ini`.

In Finder, you will need to right click on the `Eclipse` application bundle and select **Show Package Contents** on the context menu. The INI file is located in the `Contents/MacOS` directory.

For those of you interested in why this is necessary, see the following bug report:

<https://issues.sonatype.org/browse/TYCHO-595>

4. Launch the application if and note that you get an error. The perspective cannot be found because the update site has not been built yet. We'll do that next.

## Build the additional feature using Tycho.

1. Create a project called `com.example.app.perspectives.releng`. Copy the file `com.example.app.perspectives.releng.pom.xml` into the new project and rename it to `pom.xml`.
2. Open the `pom.xml` file and locate the `repository` element. Modify the `url` sub-element so that it points to the `local-p2-repository` folder we created earlier.
3. Copy the file `com.example.app.perspectives.pom.xml` into the `com.example.app.perspectives` project and rename it to `pom.xml`.
4. Copy the file `com.example.app.perspectives.feature.pom.xml` into the `com.example.app.perspectives.feature` project and rename it to `pom.xml`.
5. Copy the file `com.example.app.perspectives.p2.pom.xml` into the `com.example.app.perspectives.p2` project and rename it to `pom.xml`.
6. Before doing a build, we need to repair the `site.xml` file in the `com.example.app.perspectives.p2` project. This file is modified when doing a **PDE Build > Build Site** command, and the change causes the Maven Tycho build process to fail.

To fix the problem, remove `com.example.app.perspectives.feature` from the list in the `site.xml` file and re-add it.

7. In a terminal window, navigate to the `com.example.app.perspectives.releng` directory. Do a `mvn clean package` and the build should complete successfully.

8. Refresh the `com.example.app.perspectives.p2` project. You'll see the update site has been created as both a folder and as an archive.
9. Re-run the application. The new feature should be installed from the update site and the perspective should now appear. Delete the installed application. This lab is now complete.