

How to use SBT in a scala project as external tool in Eclipse (JUNO 4.2) ?

HelloWorld example, with a generation of a standalone executable jar.

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1. Pre-requires

(November , 2012)

Tested with Eclipse JUNO 4.2

This install is described for a Windows box. There is no difficulty to adapt to a Linux Box

1.1. Install scala-Ide for JUNO :

<http://download.scala-ide.org/nightly-update-juno-master-29x>

when the stable release will be ready, switch to it

1.2. Install sbt for your box

Download **sbt.msi** from :

<http://www.scala-sbt.org/release/docs/Getting-Started/Setup.html>

For the Linux box, the page explain how to install it (download of sbt-launch.jar and create a script to launch it)

I install it in **d:\opt\sbt**

sb	classes	26/10/2012 16:53	Dossier de fichiers	
scalaMXConnect	jansi.jar	03/10/2012 13:34	Fichier JAR	111 Ko
scala2.8	jansi-license.txt	03/10/2012 13:34	Document texte	12 Ko
scala-2.9.2	sbt	03/10/2012 13:34	Fichier	1 Ko
scala291	sbt.bat	03/10/2012 13:34	Fichier de comma...	1 Ko
scalaConfig	sbt-launch.jar	03/10/2012 13:34	Fichier JAR	1 078 Ko

For the first launch, you need an internet connection.

Go to `d:\opt\sbt` and launch : `.\sbt`

If you don't get errors, you can continue

2. Create a new Scala project, and customize it for sbt

2.1. Create a project with src source in src/main/scala

New Scala Project

Create a Java project in the workspace or in an external location.

Project name:

☒ Use default location

Location: [Browse...](#)

JRE

☒ Use an execution environment JRE:

☐ Use a project specific JRE:

☐ Use default JRE (currently 'jdk1.6.0_37') [Configure JREs...](#)

Project layout

☒ Use project folder as root for sources and class files

☐ Create separate folders for sources and class files [Configure default...](#)

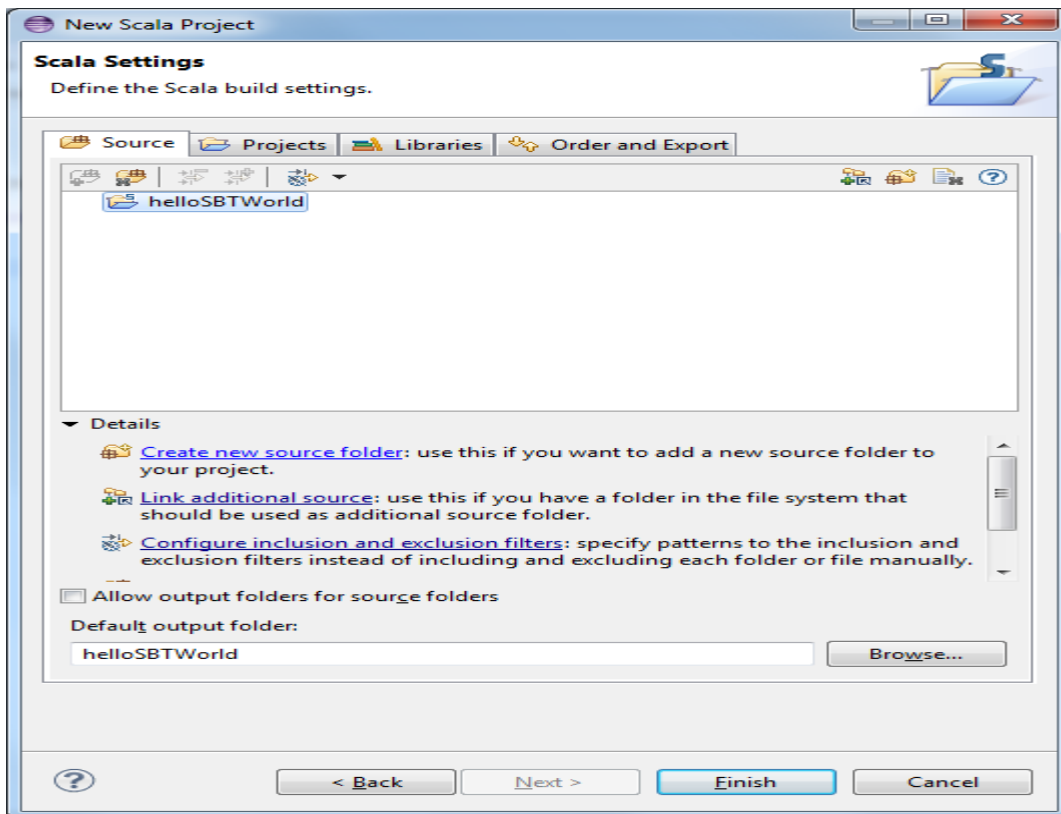
Working sets

☐ Add project to working sets

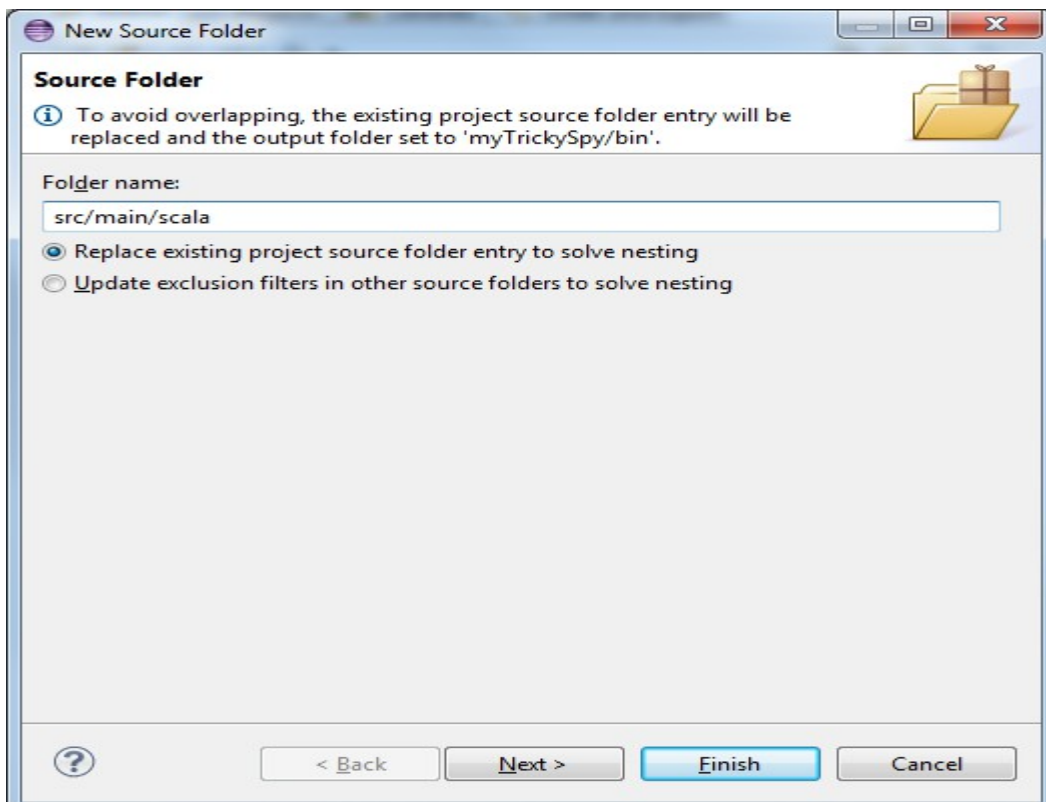
Working sets: [Select...](#)

[? < Back](#) [Next >](#) [Finish](#) [Cancel](#)

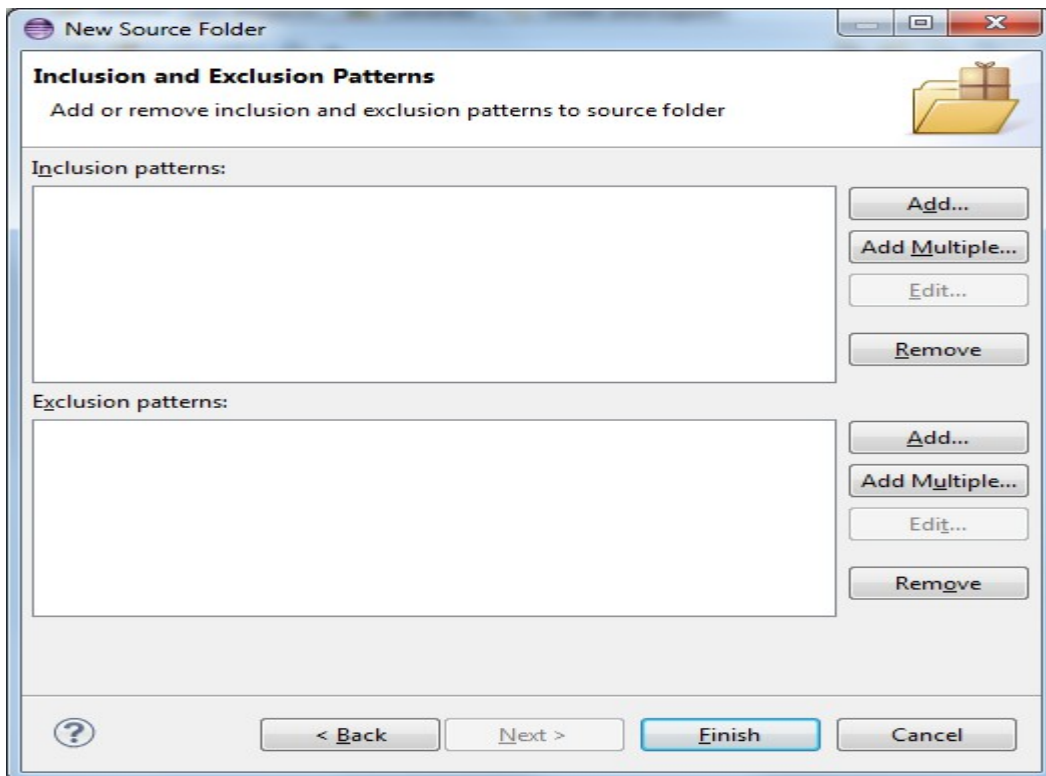
Next =>



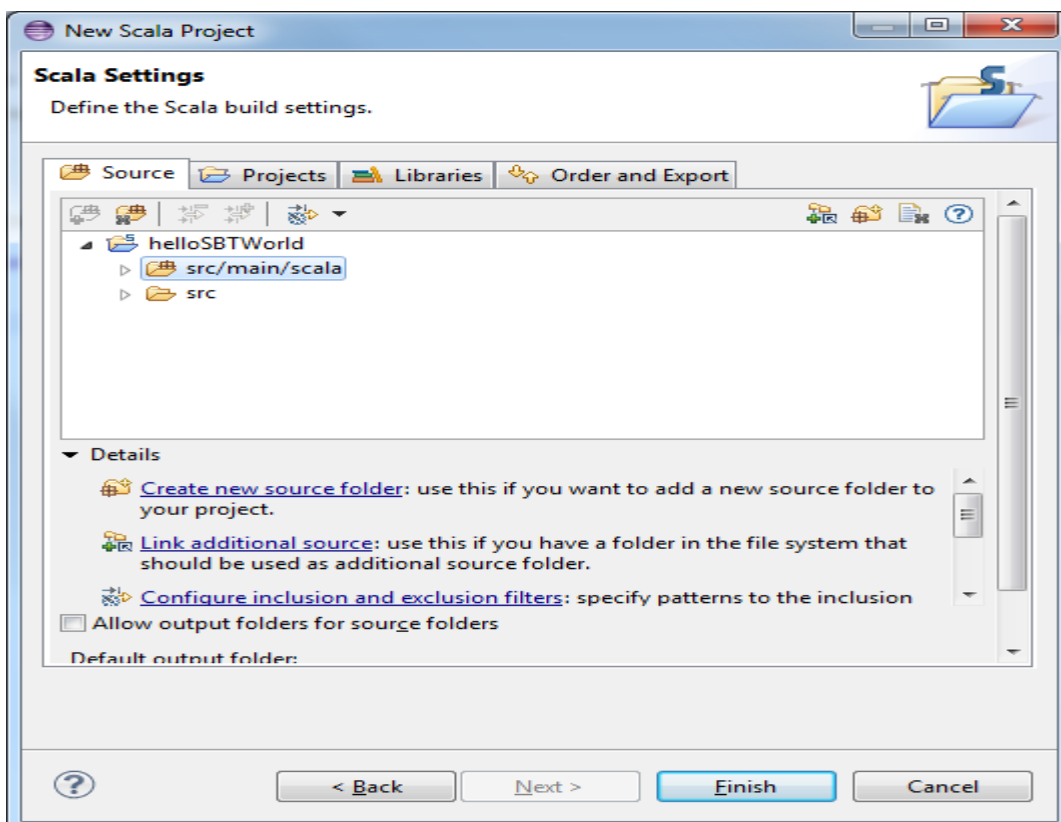
Create new source folder =>



Next =>

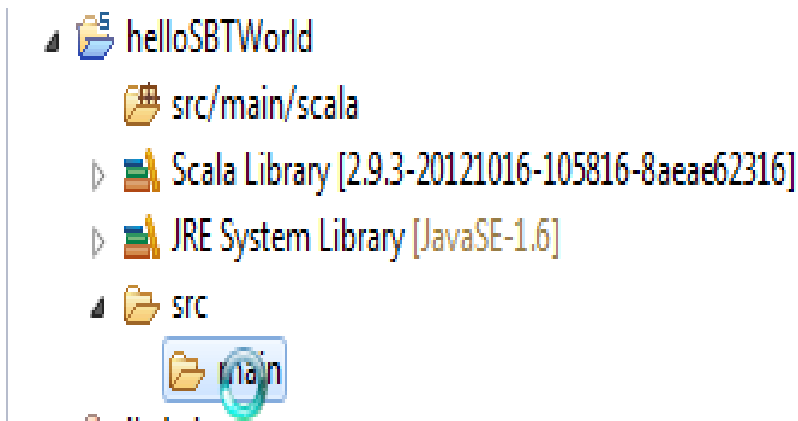


Nothing to fill; Finish =>

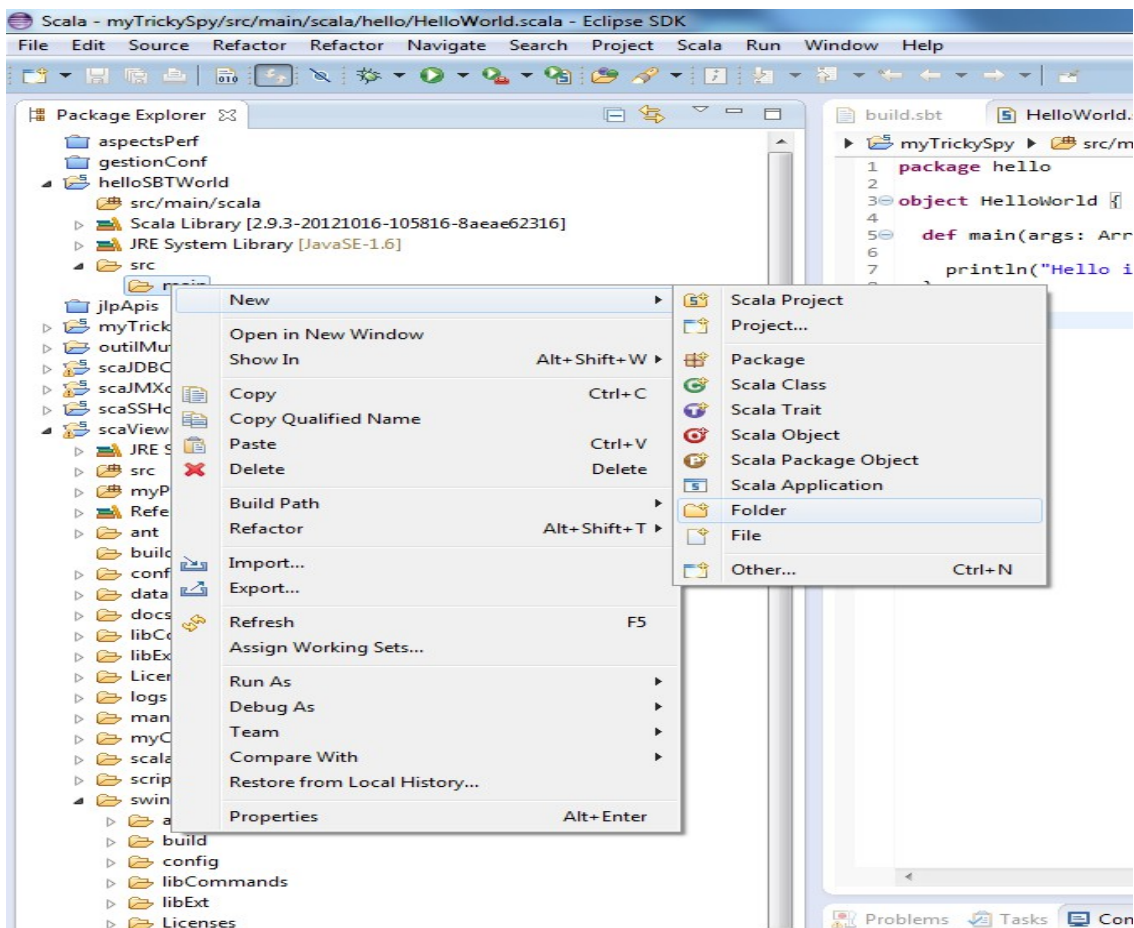


Finish

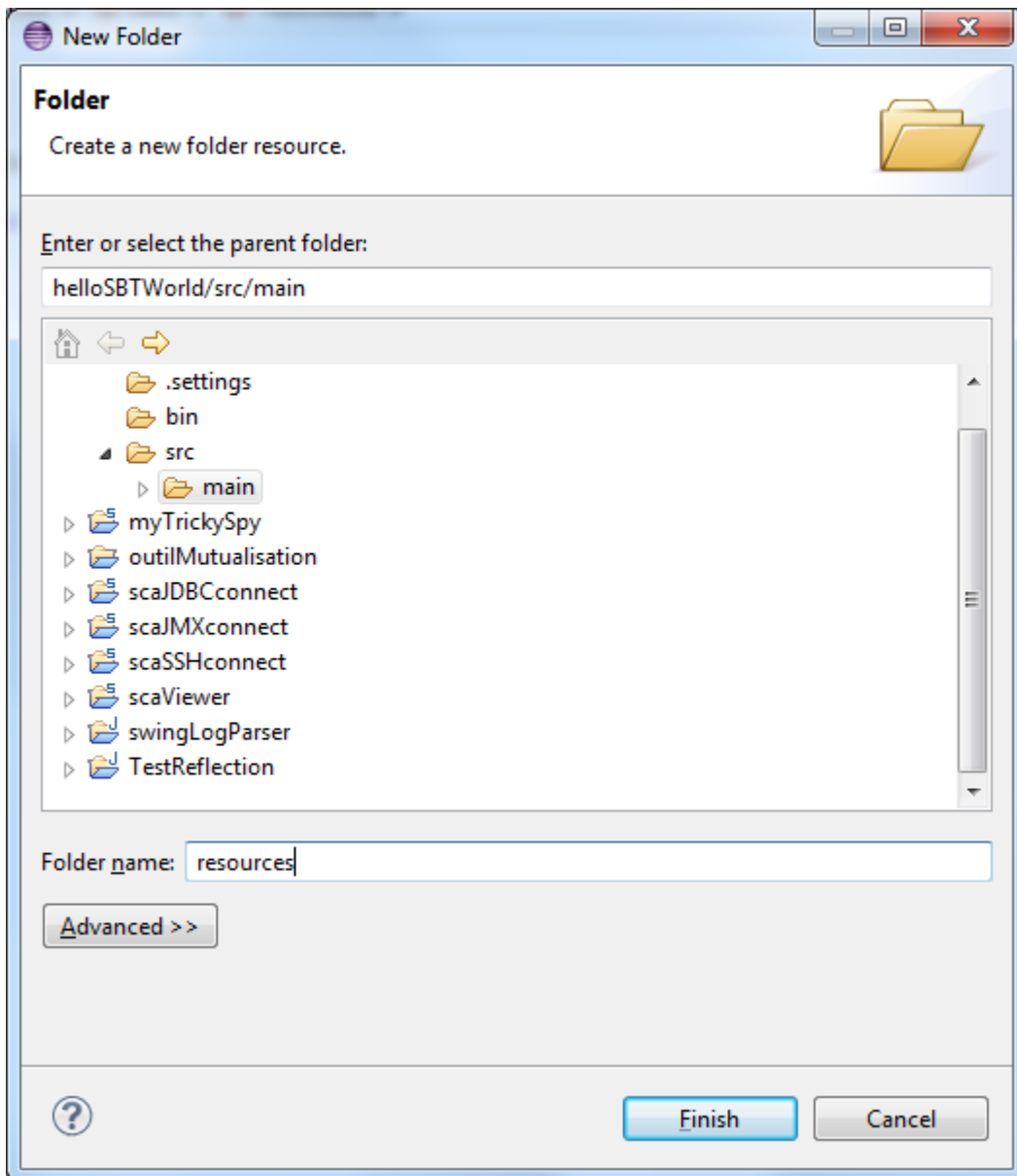
2.2. Create a “resources” folder in src/main/



Right click on **src/main** and add a folder **resources**



Choose New/Folder =>



and name it **resources** => Finish

If you want to test (Junit/TestNG, ScalaTest), you can create the folders below :

src/test/scala

src/test/resources

make src/test/scala as a source folder (in build path)

2.3. Create a folder “project” at the root of the project

Proceed as shown above.

Create a file **plugins.sbt** in the folder **project**.

Fill the file **plugins.sbt** with theses lines :

```
resolvers += Resolver.url("artifactory",  
url("http://scalasbt.artifactoryonline.com/scalasbt/sbt-plugin-  
releases"))(Resolver.ivyStylePatterns)
```

```
addSbtPlugin("com.eed3si9n" % "sbt-assembly" % "0.8.4")
```

This plug-in permits to generate a standalone executable jar.

<https://github.com/sbt/sbt-assembly>

2.4. Prepare a minimal build.sbt for your project

In this minimal configuration, there is no **Ivy/Maven** dependencies with external repositories.

To be add, with the requirement of your project.

build.sbt :

```
import AssemblyKeys._

name := "helloSBTWorld"

version := "1.0"

scalaVersion := "2.9.2"

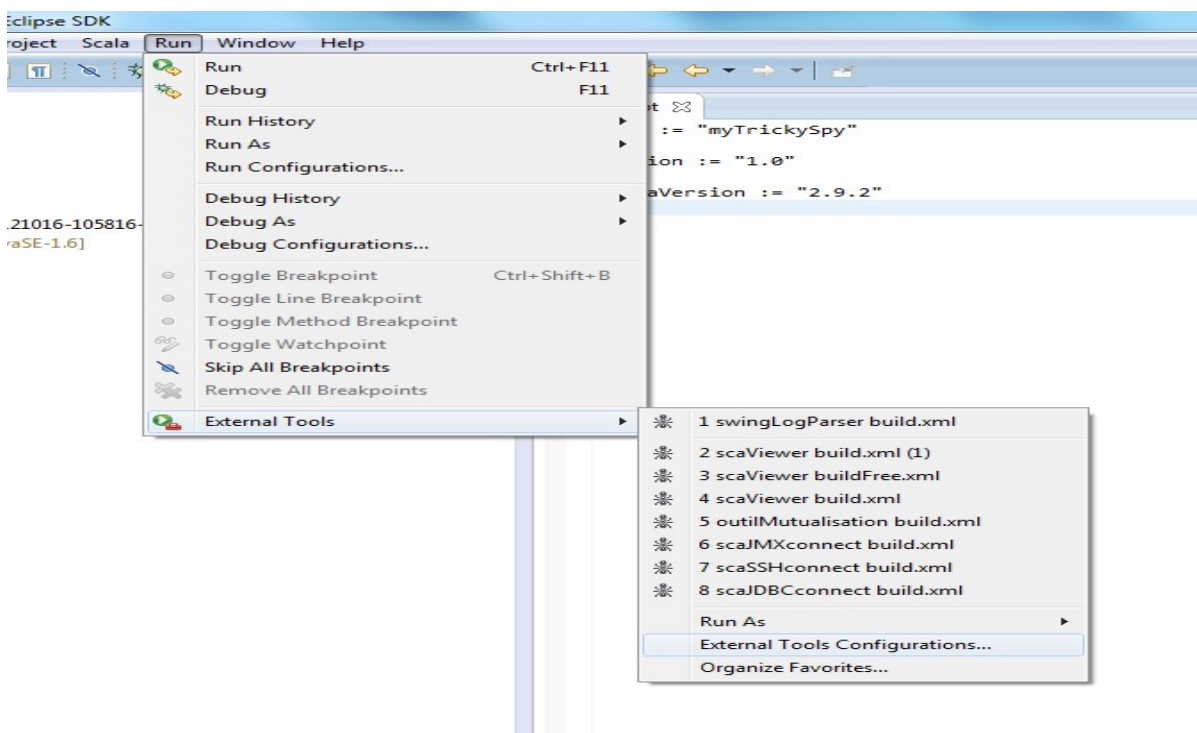
assemblySettings
```

Don't forget the new line after each statement !

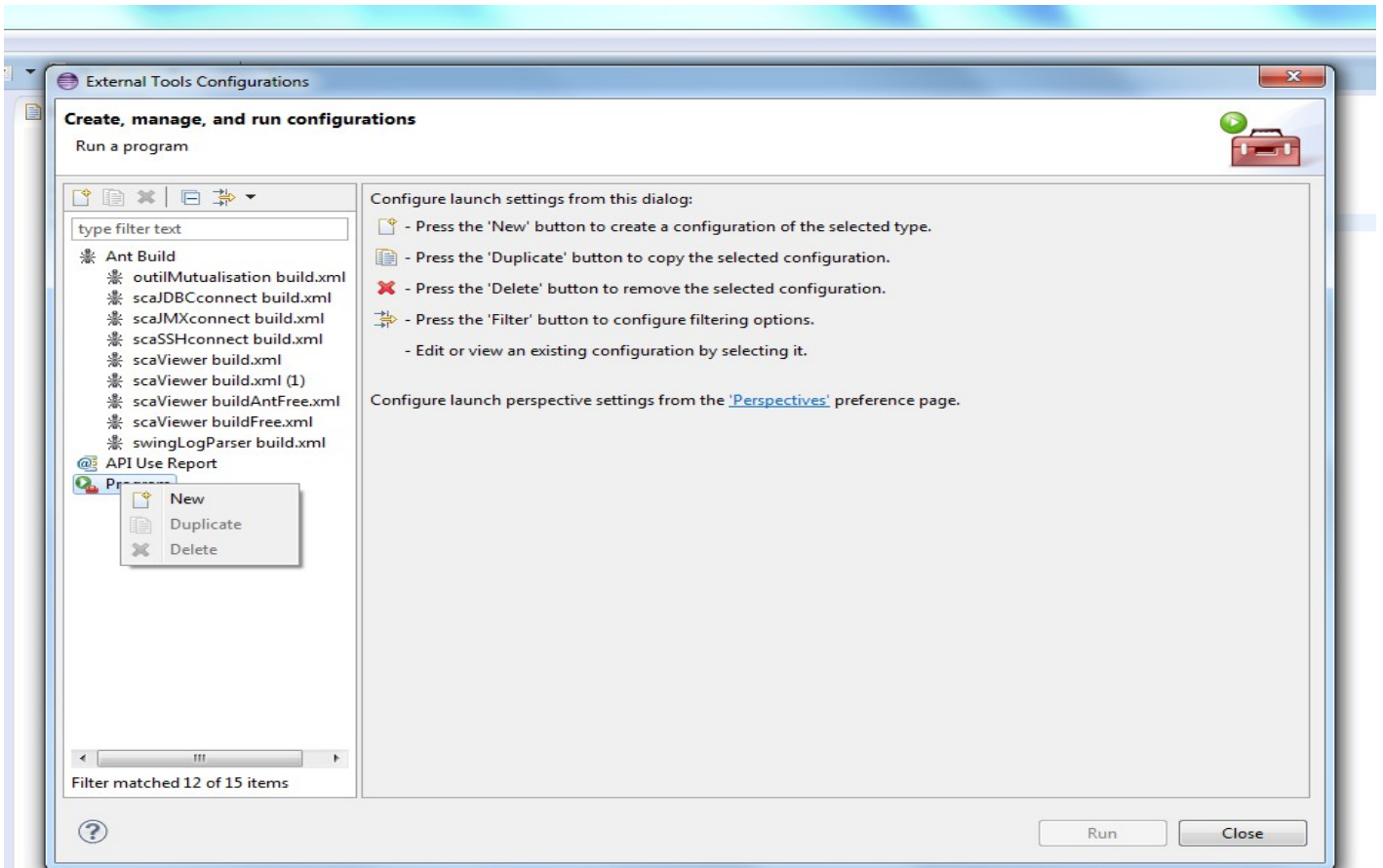
Put this file, in the root of the project directory, in Eclipse Workspace.

The statement **assemblySettings** permits to package a standalone executable jar.

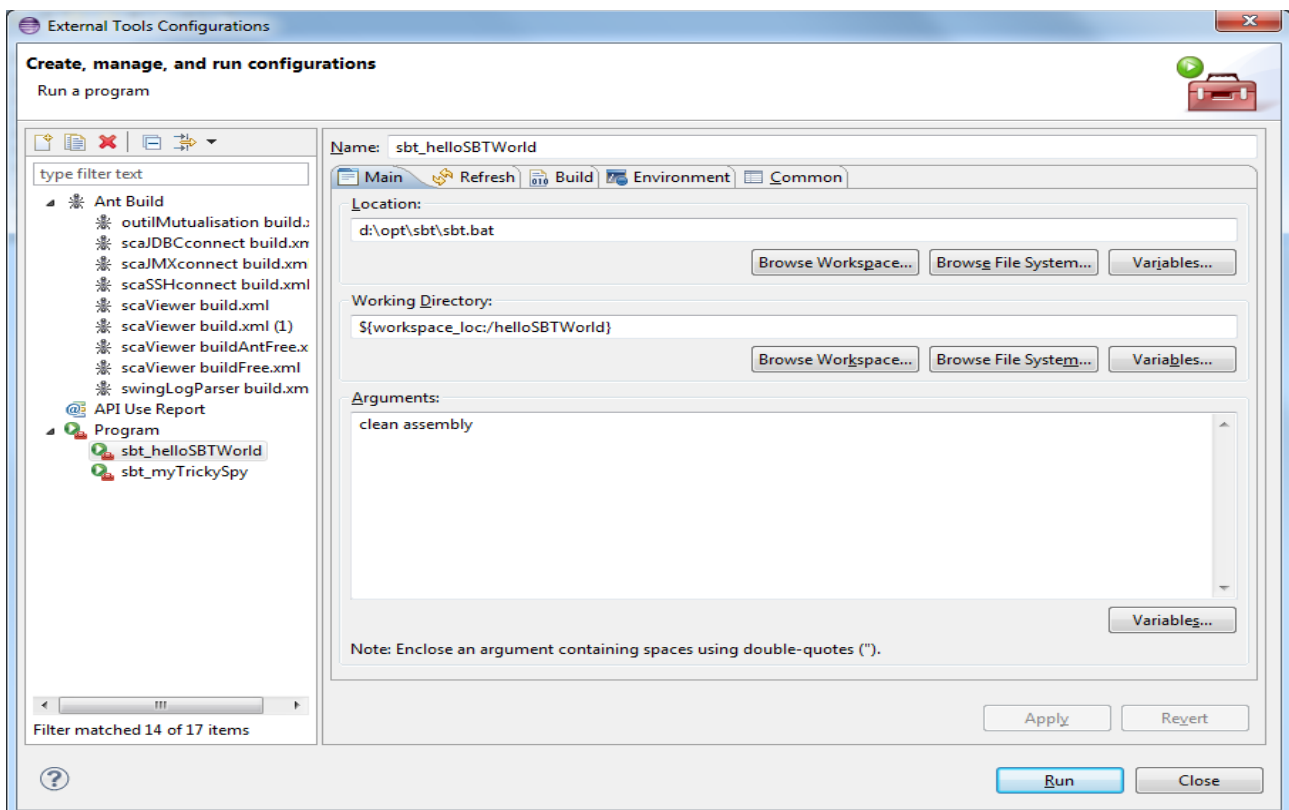
3. Configure sbt as external tool for Eclipse



Choose sub-menu External Tools Configuration =>



Program / Right Click / New =>



Fill the fields :

Name => **sbt_helloSTBWorld** (or what you want)

Location => **full path to sbt.bat**

Working Directory => **the root directory of your Eclipse project**

Arguments => **clean assembly** (clean the target space and generate a jar with compiled classes and jar in src/main/resources). **assembly** is the task from the plugin sbt-assembly

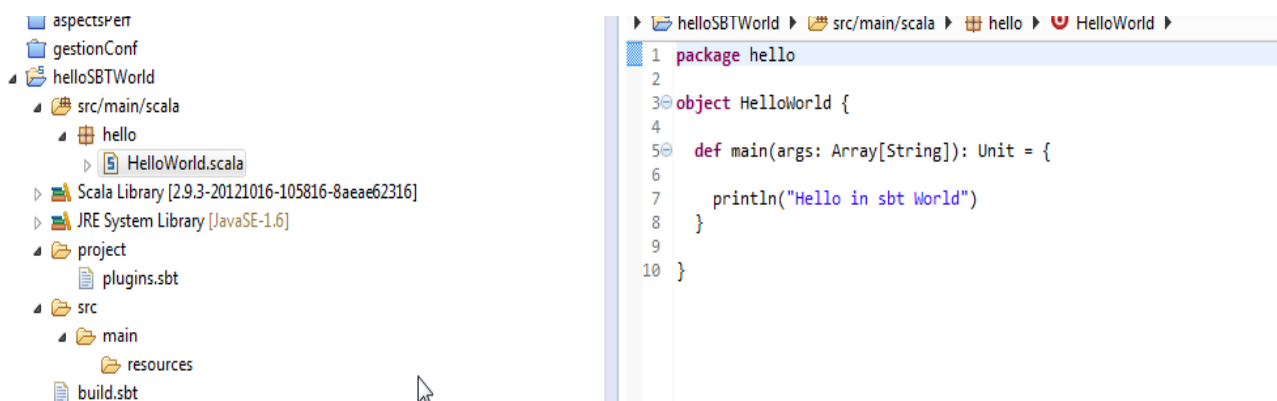
<https://github.com/sbt/sbt-assembly>

Others arguments of sbt-core can be **run, compile, package** (you can create other program with these arguments)

In the tab **Common**, you can select Display in favorites menu / External Tools, so the Menu is permanent in External Tool sub-menu

4. The classic HelloWorld

4.1. Create a Scala Object HelloWorld in package hello :



Choose menu **Run/External Tools/sbt_helloSTBWorld**

The first time, that you launch the sbt programm, you get this trace in the console (sbt and the plugin assembly are loaded from internet as a project itself !) :

```
[info] Loading project definition from D:\eclipse\workspace\helloSBTWorld\project
[info] Updating {file:/D:/eclipse/workspace/helloSBTWorld/project/}default-efb3ad...
[info] Resolving com.eed3si9n#sbt-assembly;0.8.4 ...

M[info] Resolving org.scala-sbt#sbt;0.12.1 ...
M[info] Resolving org.scala-sbt#main;0.12.1 ...
M[info] Resolving org.scala-sbt#actions;0.12.1 ...
M[info] Resolving org.scala-sbt#classpath;0.12.1 ...
M[info] Resolving org.scala-sbt#launcher-interface;0.12.1 ...
M[info] Resolving org.scala-lang#scala-library;2.9.2 ...
M[info] Resolving org.scala-sbt#interface;0.12.1 ...
M[info] Resolving org.scala-sbt#io;0.12.1 ...
M[info] Resolving org.scala-sbt#control;0.12.1 ...
M[info] Resolving org.scala-lang#scala-compiler;2.9.2 ...
```

```

M[info] Resolving org.scala-sbt#completion;0.12.1 ...
M[info] Resolving org.scala-sbt#collections;0.12.1 ...
M[info] Resolving jline#jline;1.0 ...
M[info] Resolving org.scala-sbt#api;0.12.1 ...
M[info] Resolving org.scala-sbt#compiler-integration;0.12.1 ...
M[info] Resolving org.scala-sbt#incremental-compiler;0.12.1 ...
M[info] Resolving org.scala-sbt#logging;0.12.1 ...
M[info] Resolving org.scala-sbt#process;0.12.1 ...
M[info] Resolving org.scala-sbt#compile;0.12.1 ...
M[info] Resolving org.scala-sbt#persist;0.12.1 ...
M[info] Resolving org.scala-tools.sbinary#sbinary_2.9.0;0.4.0 ...
M[info] Resolving org.scala-sbt#classfile;0.12.1 ...
M[info] Resolving org.scala-sbt#compiler-ivy-integration;0.12.1 ...
M[info] Resolving org.scala-sbt#ivy;0.12.1 ...
M[info] Resolving org.apache.ivy#ivy;2.3.0-rc1 ...
M[info] Resolving com.jcraft#jsch;0.1.46 ...
M[info] Resolving commons-httpclient#commons-httpclient;3.1 ...
M[info] Resolving commons-logging#commons-logging;1.0.4 ...
M[info] Resolving commons-codec#commons-codec;1.2 ...
M[info] Resolving org.scala-sbt#run;0.12.1 ...
M[info] Resolving org.scala-sbt#task-system;0.12.1 ...
M[info] Resolving org.scala-sbt#tasks;0.12.1 ...
M[info] Resolving org.scala-sbt#tracking;0.12.1 ...
M[info] Resolving org.scala-sbt#cache;0.12.1 ...
M[info] Resolving org.scala-sbt#testing;0.12.1 ...
M[info] Resolving org.scala-sbt#test-agent;0.12.1 ...
M[info] Resolving org.scala-tools.testing#test-interface;0.5 ...
M[info] Resolving org.scala-sbt#command;0.12.1 ...
M[info] Resolving org.scala-sbt#compiler-interface;0.12.1 ...
M[info] Resolving org.scala-sbt#precompiled-2_8_2;0.12.1 ...
M[info] Resolving org.scala-sbt#precompiled-2_10_0-m7;0.12.1 ...
[info] Done updating.
[info] Set current project to helloSBTWorld (in build file:/D:/eclipse/workspace/helloSBTWorld/)
[success] Total time: 0 s, completed 28 oct. 2012 11:43:00
[info] Updating {file:/D:/eclipse/workspace/helloSBTWorld/}default-d0c9d6...
[info] Resolving org.scala-lang#scala-library;2.9.2 ...
[info] Done updating.
[info] Compiling 1 Scala source to D:/eclipse/workspace/helloSBTWorld/target/scala-2.9.2/classes...
[info] No tests to run for test:test
[info] Including scala-library.jar
[info] Merging 'META-INF/MANIFEST.MF' with strategy 'discard'
[info] Packaging D:/eclipse/workspace/helloSBTWorld/target/helloSBTWorld-assembly-1.0.jar ...
[info] Done packaging.
[success] Total time: 27 s, completed 28 oct. 2012 11:43:27

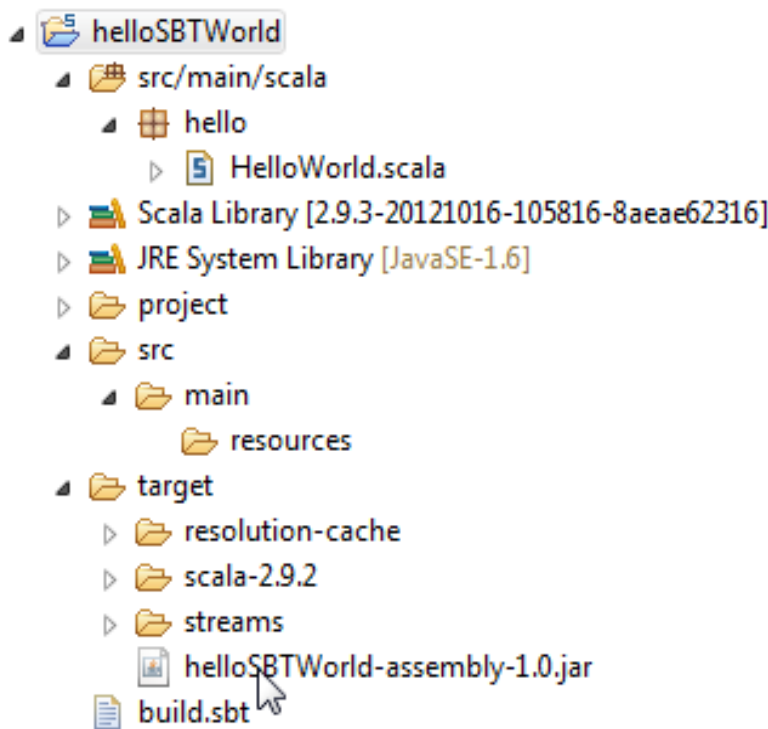
```

The next times, the traces are less verbose :

```
Problems Tasks Console Cross References
<terminated> sbt_helloSBTWorld [Program] d:\opt\sbt\sbt.bat
[info] Loading project definition from D:\eclipse\workspace\helloSBTWorld\project
[info] Set current project to helloSBTWorld (in build file:/D:/eclipse/workspace/helloSBTWorld/)
[success] Total time: 0 s, completed 28 oct. 2012 11:50:26
[info] Updating {file:/D:/eclipse/workspace/helloSBTWorld/}default-d0c9d6...
[info] Resolving org.scala-lang#scala-library;2.9.2 ...
[info] Done updating.
[info] Compiling 1 Scala source to D:\eclipse\workspace\helloSBTWorld\target\scala-2.9.2\classes...
[info] No tests to run for test:test
[info] Including scala-library.jar
[info] Merging 'META-INF\MANIFEST.MF' with strategy 'discard'
[info] Packaging D:\eclipse\workspace\helloSBTWorld\target\helloSBTWorld-assembly-1.0.jar ...
[info] Done packaging.
[success] Total time: 24 s, completed 28 oct. 2012 11:50:50
```

If the program compile correctly, you get a console as above.

The generated package jar is located in :



target/helloSBTWorld-assembly-1.0.jar

Browsing this jar, you can see that the scala library is included.

Note : if you have a folder **lib** on the root project, all the jar files in **lib**, are included in the standalone jar

Nom	Taille	Compressé	Modifié le	Créé le
hello	1 275	922	2012-10-28 11:50	
META-INF	55	54		
scala	24 772 020	7 923 433	2012-10-28 11:50	
library.properties	184	135	2012-04-13 03:37	

4.2. Try it as standalone jar file :

```
D:\eclipse\workspace\helloSBTWorld\target>dir
Le volume dans le lecteur D s'appelle Stockage
Le numéro de série du volume est 40CA-646F

Répertoire de D:\eclipse\workspace\helloSBTWorld\target

28/10/2012  11:50    <REP>          .
28/10/2012  11:50    <REP>          ..
28/10/2012  11:50    <REP>  8 944 896 helloSBTWorld-assembly-1.0.jar
28/10/2012  11:50    <REP>          resolution-cache
28/10/2012  11:50    <REP>          scala-2.9.2
28/10/2012  11:50    <REP>          streams
                1 fichier(s)          8 944 896 octets
                5 Rép(s)  641 596 362 752 octets libres

D:\eclipse\workspace\helloSBTWorld\target>java -jar helloSBTWorld-assembly-1.0.j
ar
Hello in sbt World

D:\eclipse\workspace\helloSBTWorld\target>
```