Broadwick Installation Instructions

An overview slide of the tutorial can be found here:

http://ppewww.physics.gla.ac.uk/~tdoherty/BroadwickDemos/Broadwick_Demo.ppt

It is split into nine modules each having associated video(s).

Playing Video Demonstrations:

(1) These videos are available to download here:

http://ppewww.physics.gla.ac.uk/~tdoherty/BroadwickDemos/

There are two formats available. .wmv (windows media video file) can be played on Windows media Player for Windows machines. For Mac machines it is necessary to download the MPlayerX app to be able to play the .avi (audio video interleaved) format.

Download Broadwick framework code:

(1) Download Broadwick (right click link and Save As):
http://ppewww.physics.gla.ac.uk/~tdoherty/BroadwickDemos/code/Broadwick1.zip
(2) Unzip Broadwick1.zip

Download Java Development Environment – Netbeans 7.4:

For this tutorial it is necessary to have the Netbeans IDE and the latest JDK 7 installed (not JDK 8 even though it is available). This link for example has both packaged together:

www.oracle.com/technetwork/java/javase/downloads/jdk-7-netbeans-download-432126.html

Setting up Java environment variables

Windows XP: Go to Control Panel -> System -> Advanced Tab -> Environment Variables

(a) For User variables – click New and enter JAVA_HOME as variable name. Then give the path pointing to your newly downloaded (example C:\Program Files\Java\jdk1.7.0_45)
(b) For System Variables – we must also edit PATH variable so that the path entered for Java points to the JDK bin directory (the bin directory is where the Java development tools are – example example C:\Program Files\Java\jdk1.7.0_45\bin).

Windows 7/8: Go to start -> Computer-> System properties -> Advanced System Settings -> Advanced tab -> Environment Variables – then steps (a) and (b) same as Windows XP

Mac OS X 10.7 or later (it is not possible to install Java 7 for OS X earlier than 10.7.3)

(a) Vim .bash_profile
(b) Export JAVA_HOME=/Library/Java/JavaVirtualMachines/1.7.0.jdk/Contents/Home

Building Broadwick in Netbeans

(a) Run the Netbeans installer to fully install Netbean and then open it.
(b) Go to File -> Open Project in Netbeans and find the Broadwick code that has just been downloaded (when pointing to the project – it will have an icon Ma to show that is a 'Maven' based project. Maven being the build tool preinstalled with Netbeans that we will use throughout the tutorial)
(c) A bug in Netbeans (for windows machines) means that it doesn't properly point to the most up to date JDK you have just installed. This problem will show as a yellow triangle with your project – which signifies and unresolved dependency. To fix this right click on the Broadwick project now

visible in the 'projects' tab in Netbeans and choose 'Properties'. Then choose 'Compile' under the 'Build' Category available on the list. Then choose the 'Manage Java Platforms' button. It will show that it is already pointing to JDK 1.7 (default). We want to add an additional platform to point to our newly installed version of JDK 1.7. To do this click on the 'Add Platform…' button and point to this new version of JDK 1.7 (for example again in C:\Program Files\Java\jdk1.7.0_45)

(d) The first build of Broadwick needs to pull in all of the dependent modules (jars) it needs to compile properly. These dependent jars are defined in the pom.xml file for Broadwick and this file can be viewed by right clicking on the Broadwick project and choosing 'Open POM' on the menu. The significance of using Maven and the Project Object Model (POM) will become apparent later because models that use Broadwick pull in its jar through their pom.xml file also. NOTE: ** Internet Access is crucial for this step as the jars are pulled in from remote repositories. To build do the following:

   a. Right click on the Broadwick project and choose 'Build With Dependencies'
   b. You will know that Broadwick is pulling in the remote jars properly when you see this for example (that it is downloading file):

```
------------------------------------------------------------------------
Building Broadwick 1.1
------------------------------------------------------------------------
Downloading: http://onejar-maven-plugin.googlecode.com/svn/mavenrepo/org/jvnet/jaxb2/maven2/maven-jaxb2-plugin/0.8.3/maven-jaxb2-plugin-0.8.3.pom

And ends with:
Installing C:\Broadwick1\Broadwick1.1\target\broadwick-1.1.jar to C:\Users\Tom\.m2\repository\broadwick\broadwick\1.1\broadwick-1.1.jar
Installing C:\Broadwick1\Broadwick1.1\pom.xml to C:\Users\Tom\.m2\repository\broadwick\broadwick\1.1\broadwick-1.1.pom
Installing C:\Broadwick1\Broadwick1.1\target\broadwick-1.1-sources.jar to C:\Users\Tom\.m2\repository\broadwick\broadwick\1.1\broadwick-1.1-sources.jar
------------------------------------------------------------------------
BUILD SUCCESS
------------------------------------------------------------------------
```

(e) Maven automatically places all installed dependant jars in its local repository. Search for a '.m2' directory name to find this repository. For example 'C:\Users\Tom\.m2\repository'
Once Broadwick is properly built there will be a new broadwick directory in this local repository with new jars built – that can be used by models that are sitting on Broadwick framework functionality. As can be seen in (d) the final steps in the build process is to copy the built jar (like broadwick-1.1.jar) into the local repository. If for any reason the build has failed – this will not happen and you will not have the Broadwick jars available for the next steps in the tutorial.

(f) One reason a build may not work properly – is because of failed unit tests – the video (in folder video 3) called TipForBuildingBroadwick shows how to disable unit tests when building with dependencies – it involves right clicking the Broadwick project. Go to Properties. Choose Actions in the list. And then Build with Dependencies. Then in the Set properties box – right click and choose SkipTests in the drop down list. And now build the project with dependencies to fully build Broadwick.