SCJA Exercises Day 4

- Installing J2EE Middleware – Application Server and Database

- Playing with and understanding the installed application

Installing J2EE Middleware

Installing JBOSS

Download the JBoss application server from here:
http://sourceforge.net/projects/jboss/files/JBoss/JBoss-5.0.1.GA/jboss-5.0.1.GA.zip/download

Extract the contents of the downloaded file (it doesn't really matter where – although its best if there are no spaces in the directory path).
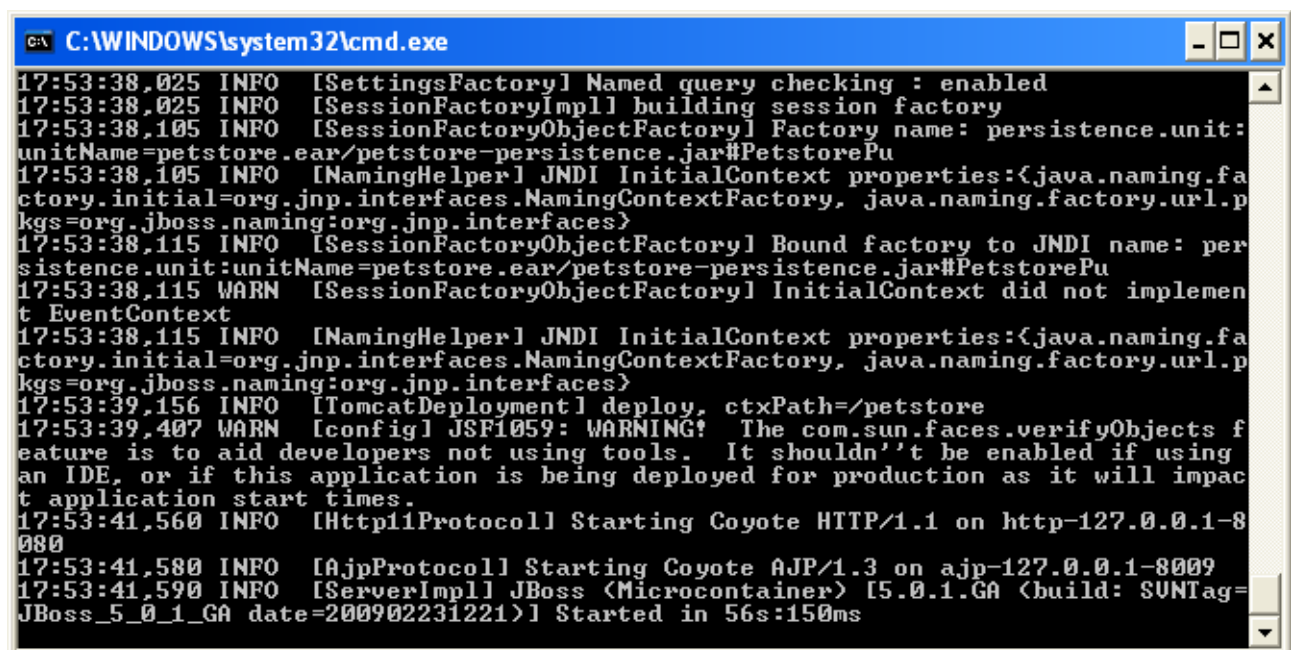
e.g. I extracted to C:\jboss-5.0.1.GA on a windows machine

Navigate to C:\jboss-5.0.1.GA\bin

Execute the startup script (on windows this is run.bat and you can simply double click, on Linux it is run.sh and you can run it from a terminal window)

This will start the JBoss application server – check that your console is error free.
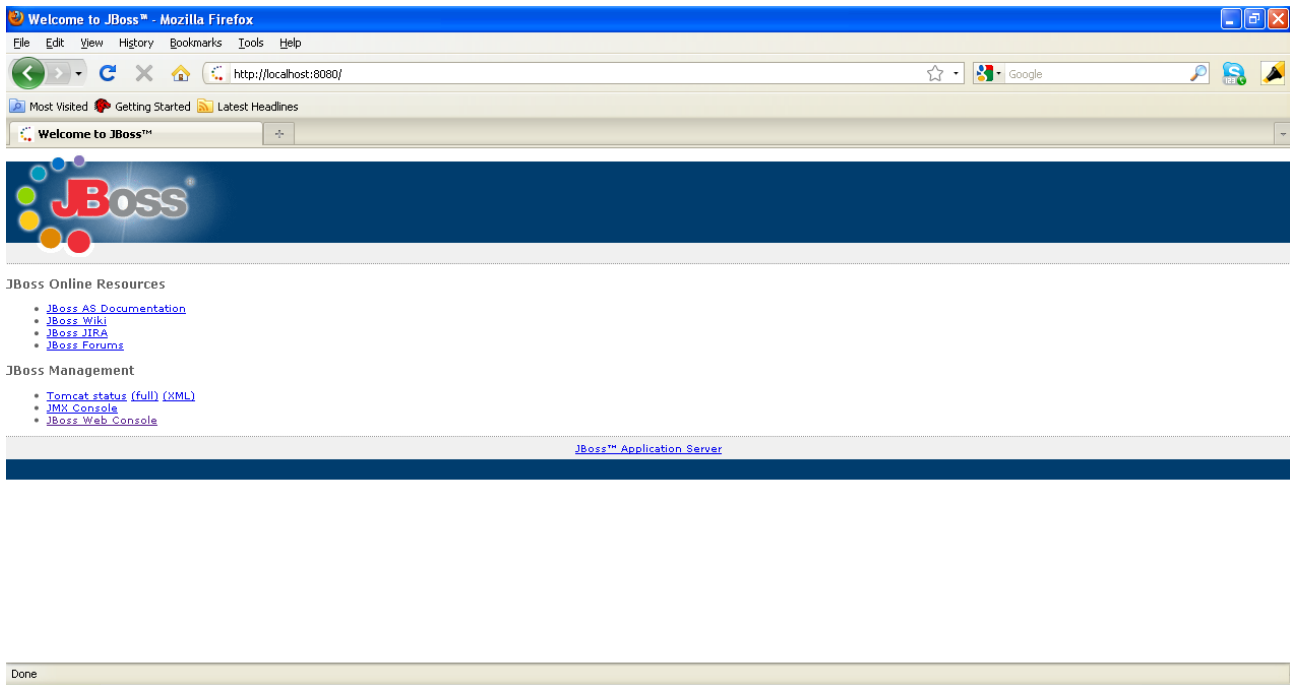
JBoss is fully started when a message like "INFO [ServerImpl] JBoss (Microcontainer) [5.0.1.GA .... Started in 47s:983ms" appears

You can check that it is running by going to http:/localhost:8080/

You should get JBoss page with links to the JMX console and documentation etc.

Installing a Database

Download Derby database from here: http://archive.apache.org/dist/db/derby/db-derby-10.5.3.0/db-derby-10.5.3.0-bin.zip

Extract the contents of the zip file you downloaded (e.g. I extracted to C:\db-derby-10.5.3.0-bin)

Install Ant

Next we install Ant (a build tool for installing the J2EE application)

Go to http://archive.apache.org/dist/ant/binaries/apache-ant-1.7.1-bin.zip to download Ant

Extract the contents of the zip file. (I extracted to C:\apache-ant-1.7.1)

Set up some environment variables

You need to set the following environment variables (see "setting up the environment" in the java introduction slides from day 1 for accessing the environment variables – you will need to create the following User properties mentioned below)

1. JAVA_HOME – you need to set this to the home directory of the JDK install (for me this was C:\Program Files\Java\jdk1.6.0_12 i.e. where the jdk was installed)
2. ANT_HOME – the install directory for ANT (for me this was C:\apache-ant-1.7.1)
3. JBOSS_HOME – the install directory for JBoss (for me this was C:\jboss-5.0.1.GA)
4. DERBY_HOME – the install directory for Derby (for me this was C:\db-derby-10.5.3.0-bin)
5. You need to modify the path variable to include the ANT_HOME/bin directory (I added C:\apache-ant-1.7.1\bin to my PATH variable)

Some links for setting environment variables:
How to set the system PATH variable: http://www.java.com/en/download/help/path.xml
How to set environemnt variables (windows):
http://www.microsoft.com/resources/documentation/windows/xp/all/proddocs/en-us/environment_variables.mspx?mfr=true

Installing PetStore

Obtain and install the J2EE tutorial code from
http://wookie.ucd.ie/comp40010/downloads/java_ee_sdk-5_07-nojdk.zip

Extract the zip (I extracted to C:\java_ee_sdk-5_07-mac-ojdk)

Open file C:\java_ee_sdk-5_07-mac-ojdk\package\samples\bp-project\build.properties in an editor

1. Modify the javaee.home property to point to your JBoss installation directory (on my machine C:\\jboss-5.0.1.GA), and save

Open file C:\java_ee_sdk-5_07-mac-ojdk /package/samples/bp-project/app-server.properties in an editor

1. Modify the javaee.home property to point to your JBoss installation directory (on my machine C:\\jboss-5.0.1.GA), and save
2. Modify the db.home property to point to your db-derby installation directory (on my machine C:\\db-derby-10.5.3.0-bin), and save

Start up the Derby Database (*in a different command window*)

1. Start up a new Terminal using the Terminal menu (start menu -> run -> then type "cmd" and press enter)
2. Type "cd c:\db-derby-10.5.3.0-bin" (or to where you installed derby)
3. The type "java -jar lib/derbyrun.jar server start"
4. Leave the database running until you finish the lab. To stop the database (CTL + C)

Return to the previous terminal; type "cd c:\java_ee_sdk-5_07-mac-nojdk \package\blueprints\petstore"
Compile and deploy the customized version of Sun Petstore 2.0 example:

1. Make sure any old class files are deleted
    1. Type "ant clean"
2. Integrate the petstore with JBOSS
    1. Type "ant jboss-integration"
    2. Ignore notes about unchecked or unsafe operations
3. Test your installation by opening a web browser on http:/localhost:8080/petstore
    1. Then click the link Enter the store

Linux/Mac environment

If you are running linux/mac this resource might be of use http://wookie.ucd.ie/comp40010/scjp-setup-system.html

Playing with and understanding the installed application

You can now play around with the PetStore application, buy some pets etc,

Petstore 2.0 Reference Application: The Petstore 2.0 shows real-world examples of technologies such as AJAX, RSS and client-side/server-side mashups that can be used with Java EE 5 technologies like JavaServer Faces (JSF) and Java Persistence APIs. This reference application shows how to put it all together and build a web application on the Java EE 5 platform.

To understand what is happening under the hood you can look at some of these resources:

http://java.sun.com/developer/technicalArticles/J2EE/petstore/

or

http://blogs.oracle.com/basler/entry/the_java_blueprints_petstore_2

For more reading on J2EE see:

http://java.sun.com/blueprints/guidelines/designing_enterprise_applications_2e/index.html

Also another sample application that is similar to Petstore is Duke's Bank – its a less sophisticated application that Petstore and uses Servlet/JSP/EJB technology extensively. You can read about it here:
http://java.sun.com/j2ee/tutorial/1_3-fcs/doc/Ebank.html