Building Your Own Open Source Development Environment

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Agenda

- What is Open Source?
- How does Open Source work?
- What products are available?
- What is the basic structure?
Agenda (Continued)

How do I install and configure:

- Eclipse?
- MySql?
- JBoss?
- Maven?

- Questions
What Is Open Source?

To the community Open Source is:

- “The **basic idea behind open source** is very simple: When programmers can read, redistribute, and modify the source code for a piece of software, the software evolves. People improve it, people adapt it, people fix bugs. And this can happen at a speed that, if one is used to the slow pace of conventional software development, seems astonishing.”

  [http://www.opensource.org](http://www.opensource.org)

- Try [http://www.sunsource.net/](http://www.sunsource.net/)
What Is Open Source? *(Continued)*

- To me Open Source is about freedom of choice, freedom to collaborate, and freedom to share knowledge.
  - This empowers me to make educated choices, trade knowledge with my peers, and better myself in my chosen craft.
  - Better align with "emerging standards".
What Is Open Source? (Continued)

- To my company and our customers, Open Source is about minimizing risks, reducing costs, and increasing time to market.
  - Share risk with community of peers.
  - Reduce licensing costs.
  - Lower maintenance costs.
  - Don’t reinvent the wheel if it’s already been done.
What Products Are Available?

- Operating Systems
- Database
- Office Productivity
- Web Servers
- Email Servers and Clients
- Browsers
Products? (Continued)

- IDEs
- J2EE Application Servers
- Code Repositories
- Coding Frameworks
- Pre-built Components/Widgets
- Other:
  - Music, movies, politics, teaching, ...
Operating Systems

- Try [http://www.freeos.com/](http://www.freeos.com/) for a large listing. Some examples include:
Databases

- MySqI
- PostgreSQL
- Firebird
- Borland Interbase
- Apache Derby (formerly IBM Cloudscape)
- Hypersonic SQL
- Berkeley DB
- mSQL
Office Productivity

- Open Office
- OpenOSX Office
Web Servers

- Apache HTTP Server
- Darwin Streaming
- Zope
- Savant Web Server
- JBoss
Email Servers and Clients

- **Servers:**
  - Sendmail
  - James

- **Clients:**
  - Thunderbird
  - Ximian Evolution
  - eMailman
  - ICEmail
  - Pooka
Browsers

- Mozilla
- Firefox
- Camino
- Amaya – W3C project
- Netscape
- Avant
- Opera
IDEs

- Eclipse
  - Many useful plugins are also available
- NetBeans
- SharpDevelop (C sharp)
J2EE Application Servers

- JBoss
- Apache Geronimo (in future)
- Enhydra
- Resin
- Zope
Code Repositories

- CVS
- Subversion
- OpenCM
Coding Frameworks

- These are too numerous to name, but this list of websites hits quite a few:
  - http://www.apache.org
  - http://jakarta.apache.org
  - http://www.tigris.org
  - http://www.opensymphony.com
  - http://solutions.objectweb.org
  - http://www.sunsource.net
Other

• Other:
  – Music, movies, politics, teaching, ...
  – OpenCoke
  – Wikipedia
What Is the Basic Structure?

- Here is a basic directory structure to support the environment.

![Directory Structure Image]
How to for Eclipse?

- Download and Unzip Eclipse 3.0
  ✓ into /java/develop/tools

- Adjust Basic Settings: Window/Preferences
  ✓ For example, you can adjust the key settings to emulate other tools that you may be more comfortable with.
  ✓ Under java, build path, classpath variable add a new MAVEN_REPO variable that points to /java/develop/repository

- Additional Plugins
  • Most plugins are downloaded and unzipped into the /{eclipse_home}/plugins directory
Eclipse Plugins (downloaded)

- JadClipse (Decompiler)
- Jalopy (Code Formatter)
- QuantumDB (Database)
- DBEdit (Database)
- Jasper Assistant (Jasper Report Builder)
- XMLBuddy (XML Editor)
- TomcatPlugin (Integrate w/ Tomcat)
Eclipse Plugins (Live Update)

- You can perform live updates, including new plugins by
  - **Menu:** Help/Software Updates/Find and Install
- Jboss IDE ([http://jboss.sourceforge.net/jbossid/updates](http://jboss.sourceforge.net/jbosside/updates))
- Maven Workshop ([http://www.binamics.com/mavenworkshop/eclipse3](http://www.binamics.com/mavenworkshop/eclipse3))
- Hibernate Sync ([http://www.binamics.com/hibernatesync](http://www.binamics.com/hibernatesync))
- Visual Editor (eclipse)
How to for MySql? (Linux)

- Download and Unzip the MySql 4.1 tar file
  - into /java/develop/tools

- Choose 1 of 5 files, small, medium, large, huge, innodb_heavy to use as your base configuration.
  - located in {mysql_home}/support-files
  - edit the file to point to a socket file created each time mysql starts:
    - [mysqld]
      - socket=/var/tmp/mysql.sock
    - [client]
      - socket=/var/tmp/mysql.sock
How to for MySql? (Linux)

- Run these commands as root
  - `shell> groupadd mysql`
  - `shell> useradd -g mysql mysql`
  - `shell> gunzip < /path/to/mysql-VERSION-OS.tar.gz | tar xvf -`
  - `shell> ln -s full-path-to-mysql-VERSION-OS /usr/local/mysql`
  - `shell> cd /usr/local/mysql`
  - `shell> scripts/mysql_install_db --user=mysql`
  - `shell> chown -R root .`
  - `shell> chown -R mysql data`
  - `shell> chgrp -R mysql .`
  - `shell> cp support_files/mysql.server /etc/init.d/mysql`
  - `shell> cp support_files/my-small.cnf /etc/my.cnf`
    - *** if you used something other than my-small in the screen before, change the name appropriately
  - `shell> chmod +x /etc/init.d/mysql`
  - `shell> chkconfig --add mysql`
  - `shell> /etc/init.d/mysql start`
Once Installed...

Once installed, you can use the following command to connect to mysql and grant permissions, *etc.*,:

- `mysql -u root`

  - From here, you can run commands like:
    - “show databases;”
    - “use {databasename};”
    - “show tables;”

To more securely set up mysql:

http://security.linux.com/security/04/08/19/1422204.shtml?tid=2&tid=74

You can download the “Administration” tool from the [mysql.com](http://mysql.com) website.
How to for MySql? (Windows)

- If you'd like to setup MySql in Windows, please find the file in the `{mysql_home}/doc` directory called "manual_toc.html" for instructions specific to Windows.
How to for JBoss?

- Download and Unzip JBoss 4.0 (or 3.2.6)
  - into /java/develop/tools

- After unzipping the download
  - Use run.sh or run.bat from /{jboss_home}/bin to startup.

- Optionally: JBoss IDE
  - In eclipse, goto menu: Window/Show View/ and choose Other. Then find JBoss IDE, and choose Server Navigator. From here, you can right click and choose a new configuration.
JBoss Files

- The following basic configuration files should be changed for your application:
  - `{jboss_home}/server/default/conf/log4j.xml`
    - many examples commented out to help.
  - `{jboss_home}/server/default/conf/login-config.xml`
    - some examples, but great documentation
  - `{jboss_home}/server/default/conf/standardjbosscmp-jdbc.xml`
    <datasource>java:/DefaultDS</datasource>
    <datasource-mapping>mySQL</datasource-mapping>
Mysql Datasource

- Create mysql-ds.xml and place it in {jboss_home}/server/default/deploy

```xml
<?xml version="1.0" encoding="UTF-8"?>
<datasources>
  <local-tx-datasource>
    <jndi-name>DefaultDS</jndi-name>
    <connection-url>jdbc:mysql://127.0.0.1:3306/jboss</connection-url>
    <driver-class>com.mysql.jdbc.Driver</driver-class>
    <user-name>root</user-name>
    <!--password>xxx</password-->
  </local-tx-datasource>
</datasources>
```
Mysql Datasource (Continued)

- Download the mysql jdbc driver from mysql.com and place it in:
  - `{jboss_home}/server/default/lib`

- Create a database in MySql for Jboss (see cmp config file 2 slides back)
  - `shell> mysql -u root`
  - `mysql> create database jboss;`

  ➢ To create a new user, and grant privileges (need to change last mysql-ds.xml file if choose this option):
  - `mysql> GRANT ALL PRIVILEGES ON jboss.* TO jboss@localhost IDENTIFIED BY 'summit04';`
How to for Maven?

- Download and Unzip Maven 1.0
  - into /java/develop/tools
- Set the MAVEN_HOME env variable
  - export MAVEN_HOME=/java/develop/tools/maven-1.0
- Master Project – see source code on CD Rom for Summit04/Maven
  - project.xml, project.properties, and maven.xml
- War File – see source code on CD Rom for Summit04/Web
  - project.xml, project.properties, and maven.xml
Maven Commands

- To build all the projects in the group:
  ```
  /java/develop/projects/summit04/maven> maven build-all
  ```

- To build the website for all the projects in the group:
  ```
  /java/develop/projects/summit04/maven> maven site-all
  ```

- To build and deploy the war file for the example web app:
  ```
  /java/develop/projects/summit04/web> maven war-deploy-tomcat
  ```
On Linux, the hidden file .bashrc is located in your /home/{username} directory

```bash
export MAVEN_HOME=/java/develop/tools/maven-1.0
export JAVA_HOME=/java/jdk
export ANT_HOME=/java/develop/tools/apache-ant-1.6.1
export MYSQL_HOME=/usr/local/mysql
export PATH=:$ANT_HOME/bin:$MAVEN_HOME/bin:$JAVA_HOME/bin:$MYSQL_HOME/bin:$PATH
```

- **NOTE:** a logical link to /java/jdk was created to allow a change in java version, update the link, and not have to change other settings by:
  - `ln -s /java/j2sdk1.4.2 /java/jdk`

- **NOTE:** the same thing was shown in the mysql setup slides to /usr/local/mysql
For maven, a build.properties file can be setup to overwrite all other settings. This should be placed in your home directory:

- `/home/{username}` on linux

```shell
# don't use a drive letter on linux box
win.hack=
# use a drive letter on Windows
#win.hack=C:

maven.home.local=${win.hack}/java/develop/maven/.maven
maven.repo.local=${win.hack}/java/develop/repository
```
Questions

- Now that we've demo'd the various parts of the environment, are there any remaining questions?
  - All source code to the demo will be available on the CD mailed out by Wayne later.
  - A more detailed look into the demo’s source code can be arranged during a BOF session if anyone is interested.
The End

Thank you for coming!

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