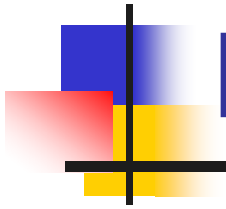
Building Your Own Open Source Development Environment



Gary Ashley Jr.

CTA, Inc.

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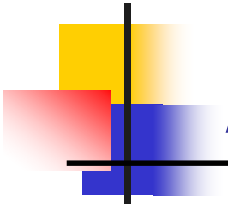
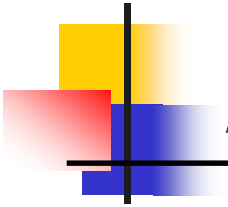


Agenda

- What is Open Source?
- How does Open Source work?
- What products are available?
- What is the basic structure?

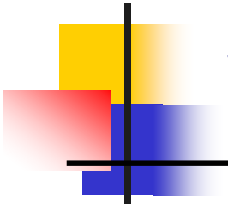


Agenda *(Continued)*

How do I install and configure:

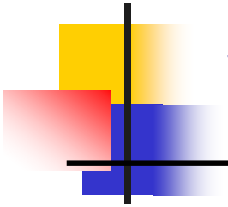
- Eclipse?
- MySql?
- JBoss?
- Maven?

- Questions



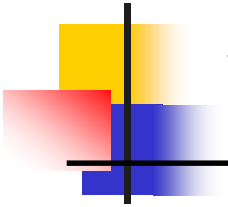
What Is Open Source?

- 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
  - Try http://www.sunsource.net/



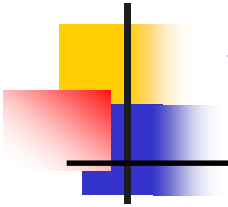
What Is Open Source? *(Continued)*

- 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".



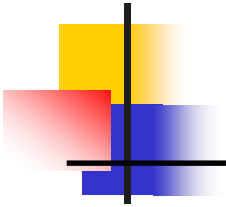
What Is Open Source? *(Continued)*

- 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.



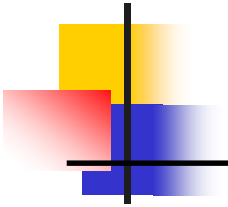
What Products Are Available?

- Operating Systems
- Database
- Office Productivity
- Web Servers
- Email Servers and Clients
- Browsers



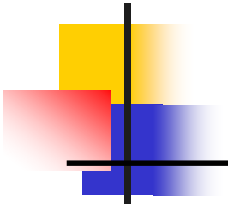
Products? *(Continued)*

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



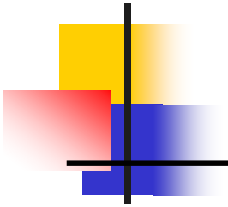
Operating Systems

- Try http://www.freeos.com/ for a large listing. Some examples include:
  - Linux – http://www.linux.org/
  - Darwin – http://developer.apple.com/darwin/
  - BEOS – http://www.beunited.org/
  - OpenBSD – http://www.openbsd.org/
  - Handhelds – http://www.handhelds.org
  - Wireless Embedded Sensor Networks – http://www.tinyos.net/



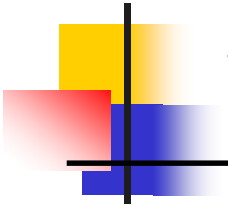
Databases

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



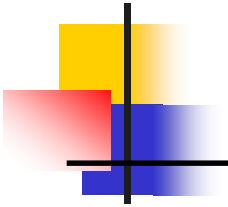
Office Productivity

- Open Office
- OpenOSX Office



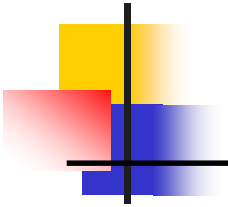
Web Servers

- Apache HTTP Server
- Darwin Streaming
- Zope
- Savant Web Server
- JBoss



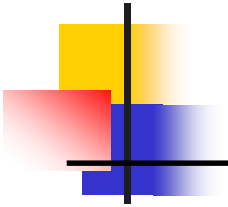
Email Servers and Clients

- Servers:
  - Sendmail
  - James
- Clients:
  - Thunderbird
  - Ximian Evolution
  - eMailman
  - ICEmail
  - Pooka



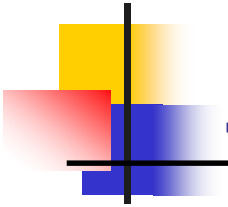
Browsers

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



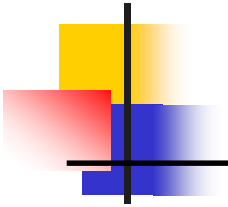
IDEs

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



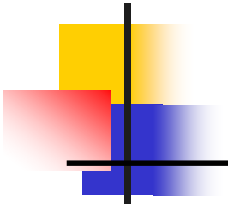
J2EE Application Servers

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



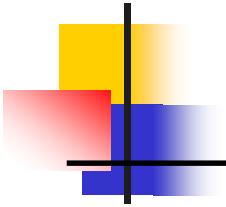
Code Repositories

- 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.sourceforge.net
  - http://www.tigris.org
  - http://www.opensymphony.com
  - http://solutions.objectweb.org
  - http://www.sunsource.net

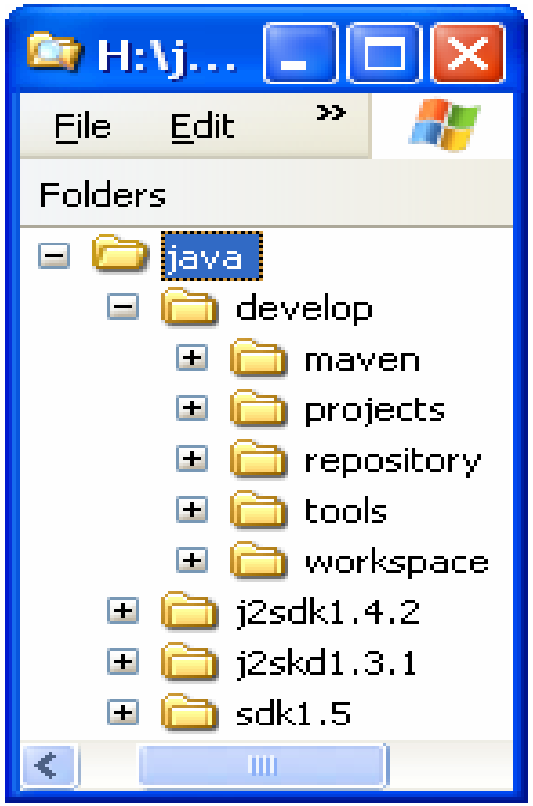


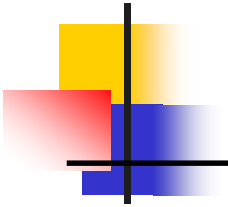
Other

- Other:
  - Music, movies, politics, teaching, …
    - OpenCoke
    - Wikipedia

What Is the Basic Structure?

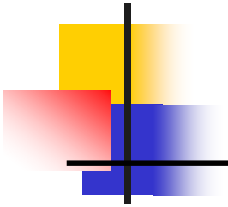
- Here is a basic directory structure to support the environment.





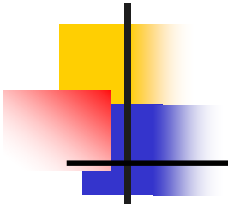
How to for Eclipse?

- 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**



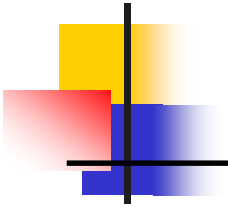
Eclipse Plugins (downloaded)

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



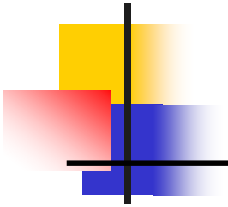
Eclipse Plugins (Live Update)

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



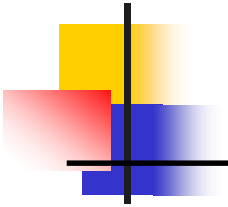
How to for MySql? (Linux)

- 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



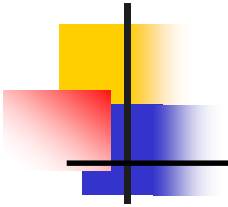
How to for MySql? (Linux)

- 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**



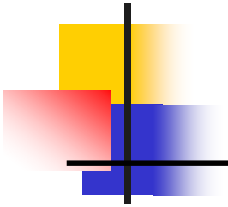
Once Installed…

- 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 website.



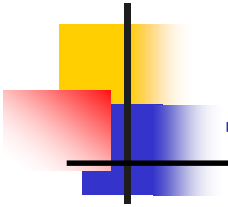
How to for MySql? (Windows)

- 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?

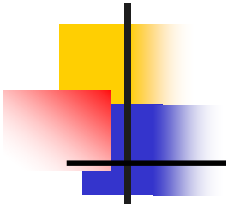
- Download and Unzip JBoss 4.0 (or 3.2.6)
  - into /java/develop/tools
  - After unzipping the download
    - Use run.sh or run.bat from /{jboss_home}/bin to startup.
  - Optionally: JBoss IDE
    - In eclipse, goto menu: Window/Show View/ and choose Other. Then find JBoss IDE, and choose Server Navigator. 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

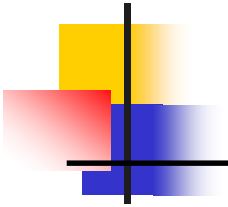
```
<datasource>java:/DefaultDS</datasource>
<datasource-mapping>mySQL</datasource-mapping>
```



Mysql Datasource

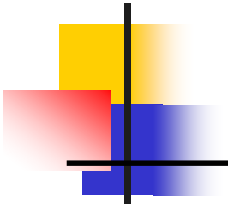
- Create mysql-ds.xml and place it in {jboss_home}/server/default/deploy

```
<?xml 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>
```



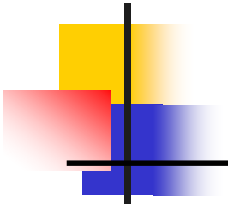
Mysql Datasource *(Continued)*

- 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';



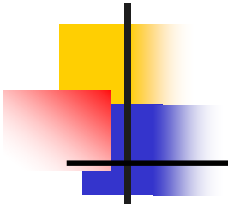
How to for Maven?

- 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

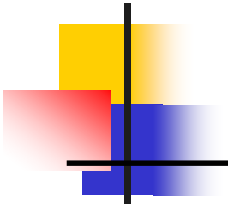


Misc

- On Linux, the hidden file .bashrc is located in your /home/{username} directory

```
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
```

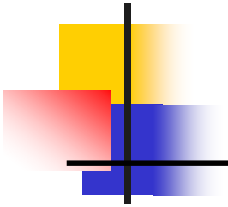
  - NOTE: a logical link to /java/jdk was created to allow a change in java version, update the link, and not have to change other settings by:
    - ln –s /java/j2sdk1.4.2 /java/jdk
  - NOTE: the same thing was shown in the mysql setup slides to /usr/local/mysql



Misc

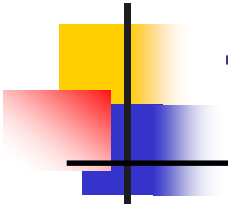
- For maven, a build.properties file can be setup to overwrite all other settings. This should be placed in your home directory:
  - /home/{username} on linux

```
##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
maven.repo.remote=http://ibiblio.org/maven,http://cvs.apache.org/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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