Getting Started with JBoss Developer Studio

ISBN: Publication date: April 2008

Getting Started with JBoss Developer Studio

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Getting Started with JBoss Developer Studio

1.1. What is JBDS?

JBoss Developer Studio is a set of eclipse-based development tools that are pre-configured for JBoss Enterprise Middleware Platforms and Red Hat Enterprise Linux. Developers are not required to use JBoss Developer Studio to develop on JBoss Enterprise Middleware and/or Red Hat Linux. But, many find these pre-configured tools offer significant time-savings and value, making them more productive and speeding time to deployment.

1.2. Configuring Your Java Environment

You must have a working installation of JDK 5 before you install JBoss Developer Studio. Currently it will only fully work with a 32-bit JVM, not a 64-bit JVM. On a 64-bit JVM the visual editor fails to launch. Thus in this guide we will show you how to install a 32-bit Sun JDK 5.0 on a Linux Platform and Microsoft Windows Platform.

1.2.1. Installing and Configuring 32-bit Sun JDK 5.0 on Linux

To install 32-bit Sun JDK 5.0 on Linux and configure it, you should follow the next steps:

- Download the Sun JDK 5.0 (Java 2 Development Kit) [http://java.sun.com/javase/downloads/ index_jdk5.jsp] from Sun's website. Choose "JDK 5.0 Update <x>" (where "x" is the latest update number) for download and then select "RPM in self-extracting" file for Linux. Read the instructions on Sun's website for installing the JDK.
- If you don't want to use SysV service scripts you can install the "self-extracting file" for Linux instead of choosing the "RPM in self-extracting" file. In that case you can skip the next step mentioned here. But it is recommended to use the SysV service scripts for production servers.
- Download and install the appropriate -compat RPM from JPackage *here* [ftp://jpackage.hmdc.harvard.edu/JPackage/1.7/generic/RPMS.non-free/]. Please ensure you choose a matching version of the -compat package to the JDK you've installed.
- Create an environment variable that points to the JDK installation directory and call it JAVA_HOME. Add *\$JAVA_HOME/bin* to the system path to be able to run java from the command line. You can do this by adding the following lines to the .bashrc file in your home directory.

#In this example /usr/java/jdk1.5.0_11 is the JDK installation directory. export JAVA_HOME=/usr/java/jdk1.5.0_11 export PATH=\$PATH:\$JAVA_HOME/bin



Note:

When you add \$JAVA_HOME/bin to \$PATH, you should add it **before** the old \$PATH not after it. This way, the machine will pick up the new JVM first. You only need to run "alternative" as a safe guard for the right JVM.

Set this variable for your account doing the installation and also for the user account that will run the server.

 If you have more than one version of JVM installed on your machine, make sure you are using the JDK 1.5 installation as the default java and javac. You can do this using the alternatives system. The alternatives system allows different versions of Java from different sources to coexist on your system.

1.2.1.1. Select alternatives for java, javac and java_sdk_1.5.0

• As a root user, type the following command at the shell prompt and you should see something like this:

[root@vsr ~]\$ /usr/sbin/alternatives --config java There are 2 programs that provide 'java'. Selection Command

1 /usr/lib/jvm/jre-1.4.2-gcj/bin/java

*+ 2 /usr/lib/jvm/jre-1.5.0-sun/bin/java

Enter to keep the current selection[+], or type selection number:

Make sure the Sun version [jre-1.5.0-sun in this case] is selected (marked with a '+' in the output), or select it by entering its number as prompted.

• Repeat the same for javac and java_sdk_1.5.0.

[root@vsr ~]\$ /usr/sbin/alternatives --config javac There is 1 program that provides 'javac'. Selection Command

*+ 1 /usr/lib/jvm/java-1.5.0-sun/bin/javac Enter to keep the current selection[+], or type selection number:

[root@vsr ~]\$ /usr/sbin/alternatives --config java_sdk_1.5.0 There is 1 program that provide 'java_sdk_1.5.0'.

Installing and Configuring 32-bit Sun JDK 5.0 on Microsoft Windows

Selection Command

*+ 1 /usr/lib/jvm/java-1.5.0-sun

Enter to keep the current selection[+], or type selection number:

You should verify that java, javac and java_sdk_1.5.0 all point to the same manufacturer and version.



Note:

You can always override this step by setting the JAVA_HOME environment variable as explained in the previous step.

• Make sure that the java executable is in your path and that you are using an appropriate version. To verify your Java environment, type "java -version" at the shell prompt and you should see something like this:

[root@vsr ~]\$ java -version java version "1.5.0_11" Java(TM) 2 Runtime Environment, Standard Edition (build 1.5.0_11-b03) Java HotSpot(TM) Client VM (build 1.5.0_11-b03, mixed mode, sharing)

1.2.2. Installing and Configuring 32-bit Sun JDK 5.0 on Microsoft Windows

To install and configure 32-bit Sun JDK 5.0 on Microsoft Windows, follow these steps:

- Download the Sun JDK 5.0 (Java 2 Development Kit) [http://java.sun.com/javase/downloads/ index_jdk5.jsp] from Sun's website. Choose "JDK 5.0 Update <x>" (where "x" is the latest update number) for download and then select your Windows Platform options to perform the installation.
- Create an environment variable called JAVA_HOME that points to the JDK installation directory, for example:

C:\Program Files\Java\jdk1.5.0_11\

In order to run java from the command line, add the *jre\bin* directory to your path, for example:

C:\Program Files\Java\jdk1.5.0_11\jre\bin

To do this, open the Control Panel from the Start Menu, switch to Classic View if necessary, open the System Control Panel applet (System), select the Advanced Tab, and click on the Environment Variables button.

Now, when 32-bit Sun JDK 5.0 has been successfully installed, we can pass on to the next step.

1.3. JBoss Developer Studio Installation

This chapter will provide you with detailed information on how to install JBoss Developer Studio and all the JBoss Tools modules.

1.3.1. Installing from the downloaded version

Let's start with the JBDS installation.

JBDS comes with a simple installer, bundled with tested/pre-configured versions of Eclipse, WTP, JBossEAP, Seam, and SpringIDE. Thus, to start perform the next steps:

- Download the appropriate installation file for your platform from *Red Hat website* [http:// www.jboss.com/products/devstudio].
- Run in console:

java -jar jbdevstudio-linux-gtk-1.1.0.CR1.jar

· Follow the instructions presented by the installation wizard

ł	JBoss Developer Studio GA	×
	Introduction Step 1 of 10	
	Please read the following information:	1
	This installer will guide you through the installation of JBoss Developer Studio GA.	
	It is strongly recommended that you quit all programs before continuing with this installation.	
	Click the "Next" button to proceeded to the next screen. If you want to change something on a previous screen, click the "Previous" button.	
	You may stop this installation at any time by clicking the "Quit" button.	
	JBoss, a division of Red Hat	-
	🜍 Next 😡 Quit	

Figure 1.1. JBoss Developer Studio Installation Wizard

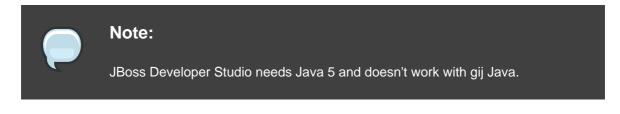
- Provide the installation path
- Select Java VM

	JBoss Developer Studio	GA	
Select Java VM Step 4 of 10			JESS DEVELOPER STUDIO
JBoss Developer Studio needs Java S	5 and does not work with gij java.		
 Specific Java VM 			
/usr/java/jdk1.5.0_12/jre			😭 Browse
JBoss, a division of Red Hat			
		O Previous	t 😡 Quit

Figure 1.2. Select Java VM

Selecting *Default Java VM* you set default Java VM of your system (to verify your Java environment, type "java -version" in console).

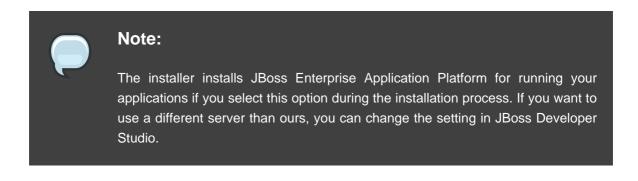
Selecting Specific Java VM you can provide the path to non-default Java VM.



• Installation process includes *JBoss Enterprise Application Platform* [http://www.jboss.com/ products/platforms/application]. Select Yes to use it in JBoss Developer Studio.

JBoss Developer Studio GA	- ×
JBoss Enterprise Application Platform Step 5 of 10	ABORS DEVELOPER STUDIO
Do you want to install the JBoss Enterprise Application Platform that comes with JBoss Developer Studio ?	
○ No	
JBoss, a division of Red Hat	xt 😡 Quit

Figure 1.3. JBoss Enterprise Application Platform Installing



• Check your installation paths and see the components to install. If you'd like to change something, press *Previous* button. Click *Next* to start installation.

What is the difference between JBoss

Developer Studio and JBoss Tools

8	JBoss Developer St	udio GA	_ X
Summary Informat Step 7 of 10	on		JESSE DEVELOPER STUDIO
Ready to install. Important dat	a are listed below. Press "Next" to	start installation.	
Installation path /opt/work/jbds_ga Java VM path: /usr/java/jdk1.5.0_12 Following components v JBoss Developer Studio Eclipse JBoss Enterprise Appli Disk Space: Available Disk Space: (vill be installed: GA cation Platform 1.28 GB		
JBoss, a division of Red Hat			
		O Previous O No	ext 😡 Quit

Figure 1.4. Summary Information

1.3.2. What is the difference between JBoss Developer Studio and JBoss Tools

This release of JBoss Tools is what went into our JBoss Developer Studio which provides an easyto-install Eclipse based IDE fully configured and ready to run with the bundled JBoss Enterprise Application Platform.

In short JBoss Tools are just a set of Eclipse plugins and JBoss Developer Studio adds:

- An installer
- Eclipse and Web Tools preconfigured
- JBoss EAP with JBoss AS and Seam preconfigured
- 3rd party plugins bundled and configured
- Access to RHEL and Red Hat Network
- · Access to the JBoss/Red Hat supported software

For additional information see *JBoss.com* [http://www.jboss.com/products/devstudio]

1.3.2.1. JBoss Tools Installation

Here, let's consider the installation of the JBoss Tools modules.

JBoss Tools is an umbrella project for the JBoss developed plugins that will make it into JBoss Developer Studio. The JBoss Tools modules are:

- JBoss AS Tools
- Seam Tools
- Hibernate Tools
- Visual Page Editor
- JST Tools
- JBPM Tools

To install the JBoss Tools plugins for Eclipse, you need the following:

• Get Eclipse 3.3.1 and Web Tools 2.0.1

The quickest way to get a WTP version is to download "Eclipse IDE for Java EE Developers" via *www.eclipse.org* [http://www.eclipse.org].



• Get the JBoss Tools build [http://labs.jboss.com/tools/download/index.html]

You can also find the latest development release of JBossTools from *JBossTools Stable Update Site* [http://download.jboss.org/jbosstools/updates/stable/]

• Finally, install the build

Unzip the file(s) directly into your Eclipse *plugins/features* directory and it will be readily available. It might be necessary to start Eclipse with eclipse -clean to make sure it starts clean and rereads the new list of plugins.

If you need to install any standalone plug-in from JBoss Tools visit a *JBoss Tools Wiki* [http:// labs.jboss.com/wiki/InstallingJBossTools] page to read about dependencies between standalone plug-ins.

1.4. Welcome to JBoss Developer Studio

In this section we'll show you how to work with the welcome page of the JBoss Developer Studio.

The welcome page is the first page you see when you first launch JBoss Developer Studio.

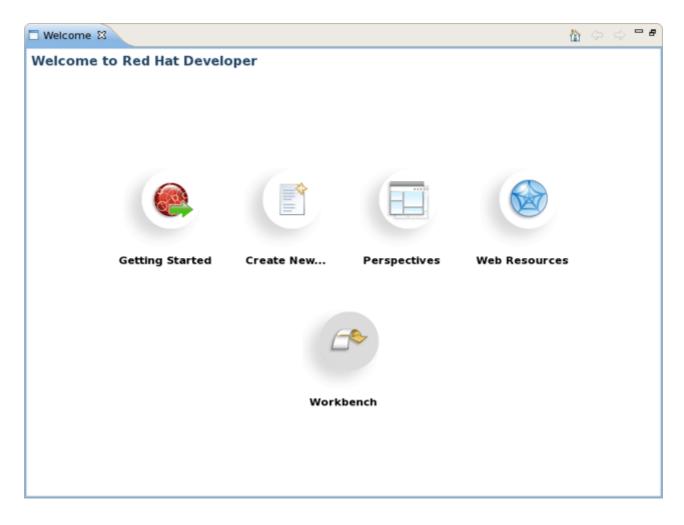


Figure 1.5. Welcome to JBoss Developer Studio

With the help of its page you will be able:

• to get quick access to Getting Started Documentation (guides, tutorials and viewlets)

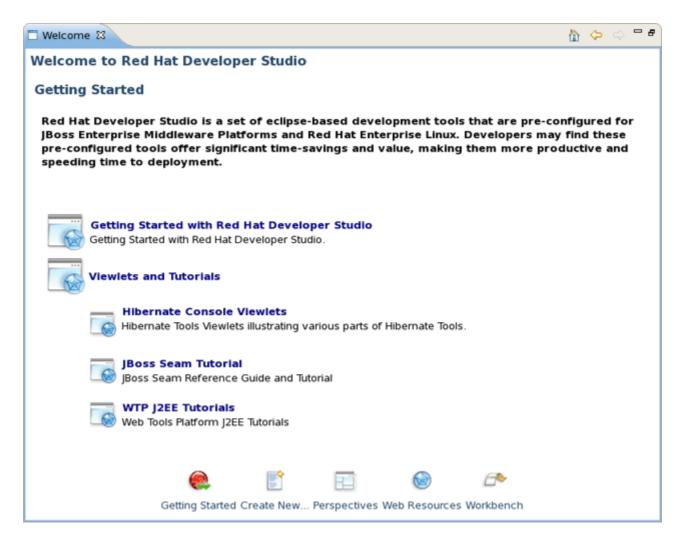


Figure 1.6. Getting Started Documentation

• to create new Seam projects, jBPM Process, JSF or Struts projects using JBDS wizards

U Welcom	e 🔀	🟠 🗢 🗢 🖻				
Welcom	e to Red Hat Developer					
Create	New					
Start u	sing Red Hat Developer Studio					
	Create Seam Project Red Hat Developer Studio includes a New Seam Project Wizard that allows you to setup proj featured web application in Seam. You can use any combination of Java EE frameworks inte Seam.					
	Create jBPM Process Project Red Hat Developer Studio includes a New jBPM Process Project that allows you to creat using jBPM Framework	te applications				
1	Create JSF Project Red Hat Developer Studio allows you to create brand new JSF projects. A new JSF project will have all JSF libraries, tag libraries and a JSF configuration file. Red Hat Developer Studio comes with a number of predefined project templates. These templates are flexible and easily customizable.					
S	Create Struts Project Red Hat Developer Studio includes a New Struts Project Wizard that radically simplifies the p getting started with a new Struts project.	rocess for				
	Getting Started Create New Perspectives Web Resources Workbench					

Figure 1.7. Create New...

• to get short description of perspectives that JBDS offers for more productive development

□ Welcome 🛛	🚡 🗢 🗢 🖷
Welcome to Red Hat Developer	
Available	
Red Hat Developer Studio offers a number of perspectives making the development productive	more
Java EE Perspective The Java EE perspective includes workbench views that you can use when developing res enterprise applications, EJB modules, Web modules, application client modules, and conne modules.	
Seam Perspective The Seam perspective helps you to use all advantages of Seam Framework in your applica	ations.
Database Development perspective The Database Development perspective allows you to create, modify, and execute databa SQL files.	ase objects and
Hibernate Console perspective The Hibernate Console perspective allows you to configure database connections, provide of classes and their relationships and allows you to execute HQL queries interactively again database and browse the query results.	
Getting Started Create New Perspectives Web Resources Workbench	

Figure 1.8. Perspectives

• to visit JBoss Developer Studio web resources.

□ Welcome 🛙					h 🌣 🖒 🗖 🗗
Welcome to Red Hat Developer Stu	dio				
Related Links					
Red Hat Developer Studio Web Resourc	es				
Forum Red Hat Developer Studio Users Forun	n				
News News on Red Hat Developer Studio					
0	*			6	
Getting Started	Create New	Perspectives	Web Resources	s Workbench	

Figure 1.9. Web Resources

Start work with JBoss Developer Studio by clicking on *Workbench* button or simply close the welcome page.

1.5. Upgrading

To upgrade, just uninstall your current version and install the new one.

1.6. Uninstalling

- Make sure JBoss Developer Studio is not running
- Uninstall your current version of JBoss Developer Studio by running uninstaller

1.7. Support

If you have comments or questions, you can discuss them at our *JBoss Developer Studio Forum* [http://www.jboss.com/index.html?module=bb&op=viewforum&f=258].

When writing to the forum for questions, please include the following information:

- 1. JBoss Developer Studio version
- 2. Exact error message
- 3. Steps to reproduce the issue

1.8. FAQ

For easy reference to JBoss Developer Studio related questions, our FAQ provides answers to the most "popular" questions. The sections of questions are organized by type.

1.8.1. Installation Issues

Visual Editor does not start under Linux

Linux users may need to do the following to get the visual editor to work correctly on their machines.

- 1. On Red Hat based Linux distributions install the xpLib.i386 package
- 2. Type

In -s libstdc++.so.5.0.7 libstdc++.so.5

3. and/or use

yum install libXp

- 4. Open the JBDS perspective. If you see the Help view open, close it and restart JBDS
- 5. If none of these work, do the following:
 - Clear the Eclipse log file, <workspace>\.metadata\.log
 - Start Eclipse with the -debug option:

eclipse -debug

• Post the Eclipse log file (<workspace>\.metadata\.log) on the forums.

Do I need to have JBoss server installed to run JBoss Developer Studio?

No. JBoss Developer Studio already comes bundled with JBoss server. We bundle it together so that you don't need to download any additional software and can test your application in a Web browser right away.

If you want to use a different JBoss server installation, after JBoss Developer Studio is installed open Servers View (select *Window > Show View > Others > Server > Servers)*, then right click on this *view > New > Server* and follow the wizards steps to point to another Jboss server installation.

JBoss Developer Studio works with any servlet container, not just JBoss. For more information on deployment, please see the Deploying Your Application section.

1.8.2. Importing Projects

I have an existing Seam 1.2.1 project. Can I migrate/import the project to a JBDS Seam project?

We highly recommend you to create Seam 1.2.1 project using the JBDS. In other case try to do manually:

• Create a Seam Web project to get the JBoss tools structure

Then from your Seam 1.2.1 seam-gen project start doing the following:

- Copy src to src
- Copy view to Web content
- Copy resources individual files to where they are in the seam web project etc.

I have an existing Struts or JSF project. Can I open the project in JBDS?

Yes. From main menu select *File > Import > Other > JSF Project (or Struts Project)* and follow wizards steps.

Can I import a .war file?

Yes. Select File > Import > Web > WAR file, then follow importing steps.

1.8.3. Troubleshooting, Problems, Configuration, Error Messages

Is it possible to increase the performance of Eclipse after installing your product?

JBoss Developer Studio preconfigures eclipse via the eclipse.ini file to allocate extra memory, but if you for some reason need more memory then by default, you can manually make adjustments in this file. For example:

-vmargs -Xms128m -Xmx512m -XX:MaxPermSize=128m

How can I add my own tag library to the JBoss Tools Palette?

See Adding Tag Libraries [../../jsf/html_single/ index.html#AddingCustomJSFTagsToTheRedHatPalette7433] in Visual Web Tools Guide.

1.9. Other relevant resources on the topic

JBDS on JBoss: JBoss Developer Studio [http://labs.jboss.com/rhdevstudio/]

Forum: JBoss Forum [http://www.jboss.com/index.html?module=bb&op=viewforum&f=258]

Download: JBDS Download [http://www.jboss.com/products/devstudio]

Manage JBoss AS from JBoss Developer Studio

In this chapter we'll focus more on how to operate the JBoss AS from JBoss Developer Studio.

JBoss Developer Studio ships with JBoss EAP v.4.2 bundled. When you followed the default installation of JBoss Developer Studio, you should already have a JBoss 4.2 server installed and defined. To run JBoss AS 4.2 you need JDK 1.5, JDK 6 is not formally supported yet, although you may be able to start the server with it.

2.1. How to Manage the JBoss AS Bundled in JBDS

This section covers the basics of working with the JBoss server supported directly by JBDS via bundled AS plug-in. To read more about AS plug-in, read *Server Manager guide* [../../as/ html_single/index.html].

2.1.1. Starting JBoss server

Starting JBoss server is quite simple. JBoss Developer Studio allows you to control its behaviour with the help of a special toolbar: where you could start it in a regular or debug mode, stop it or restart it.

• To launch the server click the green-with-white-arrow icon on the JBoss Server View or right click server name in this view and select *Start*. If this view is not open, select *Window > Show View > Other > Server > JBoss Server View*



Figure 2.1. Starting from Icon

🖹 Problems 🔕 Tasks	🕖 Seam Com	npo 🚱 JBoss Server 😫 🕒 Console 🖱 🗖
		🏇 🔾 🖉 🖩 🌮
Server	State	Status
🤯 JBoss 4.2 Server	👫 Stopped	🕆 New Server
		🔀 Delete
		Start
 Modules i Event Log XML Configuration File Filters Inactive Categorie JMX Console 		 Debug Stop Publish Clean Twiddle Server Edit Launch Configuration Add and Remove Projects

Figure 2.2. Starting from JBoss Server View

While launching, server output is written to the Console view:

🖹 Problems 🙆 Tasks	🤪 JBoss Server View 🕒 Console 🕴	- 8
JBoss-server 4.2 [JBoss	Application Server] /usr/java/jdk1.5.0_12/bin/java (Jul 11, 2007 4:31:14 PM)	
🔳 🗶 🔆 🕞 🚮		
16:31:17,324 INF0	[Server] Starting JBoss (MX MicroKernel)	^
16:31:17,370 INF0	[Server] Release ID: JBoss [EAP] 4.2.0.GA (build: SVNTag=JBPAPP_4_2_0_G	A d
16:31:17,373 INF0	[Server] Home Dir: /opt/work/rhds_beta/jboss-eap/jboss-as	
16:31:17,373 INF0	[Server] Home URL: file:/opt/work/rhds_beta/jboss-eap/jboss-as/	
16:31:17,377 INF0	[Server] Patch URL: null	
16:31:17,378 INF0	[Server] Server Name: default	
16:31:17,379 INF0	[Server] Server Home Dir: /opt/work/rhds_beta/jboss-eap/jboss-as/server	/de
16:31:17,381 INF0	[Server] Server Home URL: file:/opt/work/rhds_beta/jboss-eap/jboss-as/s	erv
16:31:17,382 INF0	[Server] Server Log Dir: /opt/work/rhds_beta/jboss-eap/jboss-as/server/	def
16:31:17,384 INF0	[Server] Server Temp Dir: /opt/work/rhds_beta/jboss-eap/jboss-as/server	/de
16:31:17,396 INF0	[Server] Root Deployment Filename: jboss-service.xml	
16:31:19,103 INFO	[ServerInfo] Java version: 1.5.0_12, Sun Microsystems Inc.	
16:31:19,107 INFO	[ServerInfo] Java VM: Java HotSpot(TM) Client VM 1.5.0_12-b04, Sun Micro	sys 🗏
16:31:19,110 INF0	[ServerInfo] OS-System: Linux 2.6.18-8.el5xen,i386	
16:31:20,559 INFO	[Server] Core system initialized	
16:31:29,515 INF0	[WebService] Using RMI server codebase: http://127.0.0.1:8083/	
16:31:29,534 INF0	[Log4jService\$URLWatchTimerTask] Configuring from URL: resource:jboss-l	og4
16:31:32,045 INF0	[TransactionManagerService] JBossTS Transaction Service (JTA version) -	JB
16:31:32,049 INF0	[TransactionManagerService] Setting up property manager MBean and JMX l	aye
16:31:32,829 INF0	[TransactionManagerService] Starting recovery manager	
16:31:33,323 INF0	[TransactionManagerService] Recovery manager started	
16:31:33,325 INFO	[TransactionManagerService] Binding TransactionManager JNDI Reference	
GI		
<u>e</u>		

Figure 2.3. Console Output

When the server is started you should see *Started* right to its name in JBoss Server View (column "Status").

🖹 Problems 🧟 Task	s 📮 Console 📢	🤉 JBoss Server View 🛿				6	• 0
			参	0	${\not\!\!\!D}^1$		6 <mark>0</mark>
Server	State	Status					
🤯 JBoss-server 4.2	🖡 Started	Synchronized					
1	111						•

Figure 2.4. Server is Started

To see event log after the server is started, expand Event Log branch beneath JBoss Server View:

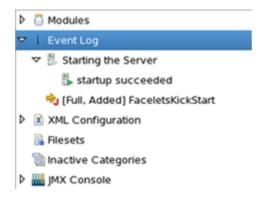


Figure 2.5. Event Log

2.1.2. Stopping JBoss Server

To stop the server, click the *Stop* icon in JBoss Server View or right click the server name and press *Stop*.



Figure 2.6. Stopping Server

When the server is stopped you will see Stopped next to its name in the Status column.

2.1.3. Server Container Preferences

You can control how JBoss Developer Studio interacts with servlet containers in Preferences. Select *Window > Preferences > JBoss Tools > JBoss Servers* and switch to the desired server:

9	Preferences X
type filter text	JBoss Servers 😓 🗧 🗇 🗸
type filter text General Ant Connectivity FreeMarker Editor Help HQL editor Install/Update Install/Update Java JBoss JBPM JBoss Tools ✓ JBoss Servers View Packaging Archives View Packaging Archives View Packaging Archives Ø XDoclet JPA Plug-in Development Red Hat Ren/Debug Server Spring SQL Development Team Validation	JBoss Servers
Web and XML Web Services XDoclet	Restore <u>D</u> efaults <u>A</u> pply
0	OK Cancel

Figure 2.7. Server Preferences

Also you can double click the server name in JBoss Server View and open an overview of the server. Here you can specify some common settings: host name, server name, runtime and so on.

🔊 faces-config.xr	ml 🥥 JBoss-server 4.2 🕴	° 0
🗄 Overview		
General Infor Specify the host	mation t name and other common settings.	Automatic Publishing
Server name:	JBoss-server 4.2	
Host name:	localhost	
Runtime:	JBoss 4.2 Runtime	
Open launch o	configuration	
Deployment	t	
Login Crede	entials	
Overview	111	•
Overview		

Figure 2.8. Server Overview

2.2. How to Use Your Own JBoss AS Instance with JBDS

Although JBoss Developer Studio works closely with JBoss EAP 4.2 we do not ultimately tie you to any particular server for deployment. There are some servers that Studio supports directly (via the bundled Eclipse WTP plug-ins). In this section we discuss how to manage self-installed JBoss AS. Suppose you want to deploy the application to JBoss 4.2.1 server. First of all you need to install it.

2.2.1. JBoss AS Installation

- Download the binary package of JBoss 4.2.1 and save it on your computer: http:// labs.jboss.com/jbossas/downloads
- It does not matter where on your system you install JBoss server.



Note:

The installation of JBoss server into a directory that has a name containing spaces provokes problems in some situations with Sun-based VMs. Try to avoid using installation folders that have spaces in their names.

There is no requirement for root access to run JBoss Server on UNIX/Linux systems because none of the default ports are within the 0-1023 privileged port range.

• After you have the binary archive you want to install, use the JDK jar tool (or any other ZIP extraction tool) to extract the jboss-4.2.1.zip archive contents into a location of your choice.

The jboss-4.2.1.tgz archive is a gzipped tar file that requires a gnutar compatible tar which can handle the long pathnames in the archive. The extraction process will create a jboss-4.2.1 directory.

2.2.2. Adding and configuring JBoss server

Now we should add just installed server into server manager in JBoss Developer Studio.

- Open the JBoss Server View by selecting Window > Show View > Other > Server > JBoss Server View. You will see JBoss Server view.
- Right click anywhere in this view and select New Server.
- Select *JBoss, a division of Red Hat > JBoss v4.2* and click the *Installed Runtimes* button to select a new installed runtime.

Sever New Server
Define a New Server
Choose the type of server to create
Server's <u>h</u> ost name: localhost
Download additional server adapters
Select the server type:
type filter text
V 🗁 JBoss, a division of Red Hat
🤪 JBoss AS 3.2
JBoss AS 4.0
🤯 JBoss AS 4.2
🤪 JBoss System Copy Server
Macromedia
D 🗁 Mort Bay
DijectWeb
JBoss Application Server 4.2
Server runtime: JBoss 4.2 Runtime
(?) < Back Next > Enish Cancel

Figure 2.9. Selecting Server Type

• Click Add button to add a new jboss runtime.

9	Pre	ferences (Filte	red)		×
type filter text	Installed Ser	ver Runtime En	vironments		⇔* ⇔*
▽ Server	Add, remove, o	r edit installed se	rver runtime defin	itions.	
Installed Runtimes	Installed server	runtimes:			
	Name		Туре		<u>A</u> dd
	🤯 JBoss 4.2 Se	erver Adapter Rur	JBoss 4.2 Runtim	e	Edit
					<u>R</u> emove
					<u>S</u> earch
	/opt/work/rhds]	1/jboss-eap/jboss	s-as		
0			[ОК	Cancel

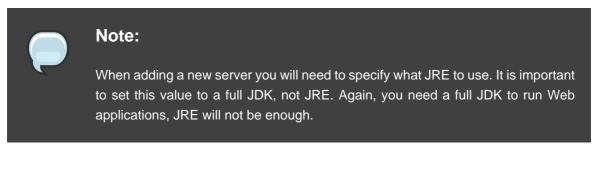
• Select JBoss, a division of Red Hat > JBoss v4.2 and press Next.

Figure 2.10. Installed Runtimes

• In the next step make JBoss Developer Studio to know where you have installed the server and define JRE.

9	New	Server Runt	ime		×
Create a new JB	oss Server F	Runtime		Bo	SS 4.2
A JBoss Server run It can be used to s as well as by a "se JBoss.	set up classpat	hs for project	s which depend	on this runti	ime,
Name (unique ide	ntifier)				
JBoss-runtime					
Home Directory					
/opt/work/jboss-	as 4.2.1			Brows	e)
IRE					_
jdk1.5.0_12			÷	Installed JF	RES
Configuration				,	
🤹 default					
all					ţ.
China					
0	< <u>B</u> ack	Next >	Einish	Cancel	

Figure 2.11. Defining JBoss Runtime



• In the following window leave all settings default or give your name to a new jboss server and press *Finish*.

😔 New Server Runtime 🗙
Create a new JBoss Server
Add a JBoss Server and have great fun
A JBoss Server manages starting and stopping instances of JBoss. It manages command line arguments and keeps track of which modules have been deployed.
If the information below is incorrect, please press back, Installed Runtimes, and then Add to create a new runtime from a different location.
Name (unique identifier)
JBoss-server 4.2.1
Runtime Information
Home Directory
/opt/work/jboss-as 4.2.1
JRE jdk1.5.0_12 +
Configuration
default
(?) < Back

Figure 2.12. Adding New Runtime

A new runtime will now appear in the *Preferences > Server > Installed Runtimes* dialog.

(Preferences (Filt	ered)	×
type filter text	Installed Server Runtime E	nvironments	(>* <>*
	Add, remove, or edit installed s	erver runtime definitions.	
Installed Runtimes	Installed server runtimes:		
	Name	Туре	<u>A</u> dd
	🤪 JBoss 4.2 Server Adapter Ru	-	Edit
	🤯 JBoss-runtime	JBoss 4.2 Runtime	Bemove
			Bennote
			<u>S</u> earch
	/opt/work/jboss-as 4.2.1		
0		ОК	Cancel

Figure 2.13. Runtime is Added

• Click *OK*. Then select a new added runtime in Server runtime drop down list and click *Next* button twice.

9	New Server
Define a New S	jerver 📃
Choose the type	of server to create
Server's <u>h</u> ost nar	me: localhost
	Download additional server adapters
Select the server	
type filter text	
Boss	
	vision of Red Hat
JBoss A	
JBoss A	
🤯 JBoss A	
😲 JBoss Sj	ystem Copy Server
Boss Application	Server 4.2
,	
Server runtime:	JBoss 4.2 Server Adapter Runtime [Installed Runtimes
	JBoss-runtime
0	< Back Next > Finish Cancel

Figure 2.14. Choosing Runtime

• In the next dialog verify a JBoss runtime information and if something is unfair go back and correct it.

9	New Server
Create a new JBoss Server	
A JBoss Server manages starting an It manages command line argumen Name	d stopping instances of JBoss. ts and keeps track of which modules have been deploye
JBoss 4.2 Server	
Runtime Information	
and then Add to create a new runti Home Directory /opt/work/jboss-4.2	2.0.GA
JRE /usr/java/jdk1.5.0_ Configuration default	12 (Jdk1.5.0_12)
Login Credentials JMX Console Access User Name Password	
Deployment Deploy Directory /opt/work/jboss-4	4.2.0.GA/server/default/deploy Browse
•	< Back Next > Finish Cancel

Figure 2.15. Configuring Projects

• In the last wizard's dialog modify the projects that are configured on the server and click *Finish*.

•	New Server		Þ
Add and Remove Projects Modify the projects that are confi	gured on the server		
Move projects to the right to confi	igure them on the server		
Available projects:		Configured projects:	
🚡 JSFKickStart	A <u>d</u> d >		
	< <u>R</u> emove		
	Add All >>)	
	<< Remove All		
0	< Back Next :	Einish	Cancel

Figure 2.16. Configuring Projects

A new JBoss server should now appear in JBoss Server View.

🙆 Tasks 觽 Data Source E	xplorer 📮 Cons	iole 🤪 JBoss Server View 🛿	莽	0	ø	8	ep.	° C
Server	State	Status						
🚆 JBOSS 4.2.1	👫 Stopped	Synchronized						
JBoss-server 4.2.0	指 Stopped	Synchronized						
		,						

Figure 2.17. New JBoss Server

Now, we are ready to create the first web application.

Write Your First Project with JBoss Developer Studio

This chapter is a set of hands-on labs. You get step-by-step information about how the JBoss Developer Studio can be used during the development process.

3.1. Create a Seam Application

In this section you get to know how to create a Seam project in JBDS, how to start the server and what a structure your project has after creating.

3.1.1. Start Development Database

Before opening the JBoss Developer studio you need to *download* [../.././database.zip] and start a Workshop Database.

To start the database just run ./runDBServer.sh or runDBServer.bat from the database directory.

The end result should be a console window that looks like:

	Terminal	
<u>File Edit View Te</u>	erminal Ta <u>b</u> s <u>H</u> elp	
<pre>[Server@la758cb]: [Server@la758cb]: [Server@la758cb]: perties] [Server@la758cb]: [Server@la758cb]: [Server@la758cb]: ssfully in 930 ms [Server@la758cb]: [Server@la758cb]: [Server@la758cb]:</pre>	<pre>: [Thread[main,5,main]]: checkRunning(false) entered : [Thread[main,5,main]]: checkRunning(false) exited : Startup sequence initiated from main() method : Loaded properties from [/opt/work/database/database/server.p : Initiating startup sequence : Server socket opened successfully in 19 ms. : Database [index=0, id=0, db=file:employee, alias=] opened successfully in 19 ms.</pre>	

Figure 3.1. Starting DataBase

3.1.2. Create and deploy Seam Web Project

Minimize the terminal window and run the JBoss Developer Studio from Applications Menu or from the desktop icon.

First of all you get the Workspace Launcher. Change the default workspace location if it's needed. Click on Ok.

۲	Workspace Launcher	
Select a wo	rkspace	
JBoss Develo workspace.	oper Studio stores your projects in a folder called a	
<u>W</u> orkspace:	/root/workspace	<u>B</u> rowse
□ <u>U</u> se this a	as the default and do not ask again	Cancel

Figure 3.2. Workspace Launcher Dialog

After startup, you see the welcome page. You could read how to work with welcome pages in *previous* chapter. Now select Create New... icon and then press on Create Seam Project link.

The New Seam Project wizard is started. You need to enter a name (e.g., "workshop") and a location directory for your new project. The wizard has an option for selecting the actual Server (and not just WTP runtime) that will be used for the project. This allow the wizard to correctly identify where the needed datasource and driver libraries need to go. All settings are already specified. Click on Next.

eam Web Project Create standalone Seam Web Project Project name: workshop Project contents:	
Project name: workshop Project contents:	(JE
Project contents:	
Project contents:	
✓ Use default	
Directory: //opt/work/workspace_jbds/workshop	Browse
Target Runtime	
JBoss 4.2 Runtime	\$ New
Target Server	
JBoss 4.2 Server	\$ New
C	
Configurations	
Dynamic Web Project with Seam 1.2	\$

Figure 3.3. New Seam Project Wizard

Next, you will be asked to select the "features" you want to use in your project. This allows JBoss Developer Studio to setup the appropriate tooling for your project. Since JBoss Seam integrates all popular Java EE frameworks, you can select any combination of technologies from the list. Here, for this project, we will select Dynamic Web Module, Java, JavaServer Faces (JSF), and Seam Facet for a typical database-driven web application. The default project facets should suffice, click on Next.

😸 New Seam Project 🛛 🗙				
Project Facets Select the facets that should be enabled for this project.				
Configurations:	Dynamic Web Project with Seam 1.2	ete		
Project Facet	Version			
🕨 🗉 🙆 Axis2 V	/eb Services			
🗹 💑 Dynam	ic Web Module 2.5	•		
🗹 🔬 Java	5.0	•		
🗆 🚸 Java Pe	rsistence 1.0			
🗹 🔊 JavaSer	ver Faces 1.2	-		
🗹 🔊 Seam	1.2	•		
🗆 📄 WebDo	clet (XDoclet) 1.2.3			
	< Show <u>B</u> untim	ies		
0	< <u>B</u> ack <u>N</u> ext > <u>F</u> inish Cance	21		

Figure 3.4. Project Facets Specifying

In this screen you can also bring up server runtimes panel by clicking Show Runtimes in the bottom right corner. This panel shows available server runtimes. Then this button will be changed into Hide Runtimes one.

Click Next to proceed further.

9	New Sear	n Projec	st 🗙	
Project Facets Select the facets that should be enabled for this project.				
Configurations:	Dynamic Web Project with S		♦ <u>S</u> ave <u>D</u> elete	
Project Facet		Version	Runtimes:	
🕨 🗏 🙆 Axis2 We	b Services		🗹 蘮 JBoss 4.2 Runtime	
🗹 💑 Dynamic	Web Module	2.5		
🗹 🔬 Java		5.0		
🗆 🚸 Java Pers	istence	1.0		
🗹 🔬 JavaServ	er Faces	1.2		
🗹 🔬 Seam		1.2		
🗆 📄 WebDocl	et (XDoclet)	1.2.3	Show all runtimes	
			Make Primary New	
			Runtime Composition:	
			<no runtime="" selected=""></no>	
4		Þ		
			Hide <u>B</u> untimes >>	
0	< <u>B</u> ack	Next	t > <u>F</u> inish Cancel	

Figure 3.5. Runtimes Selecting

A dynamic web application contains both web pages and Java code. The wizard will ask you where you want to put those files. You can just leave the default values or choose another folder.

•	New Seam Project	
Web Module		-0
Configure web module setting	gs.	
Context Root:		
workshop		
Content Directory:		
WebContent		
Java Source Directory:		
src		
Generate Deployment Des	scriptor	
Generate Deployment Des	scriptor	

Figure 3.6. Web Module Settings

On the next form, you will be able to select where those library JARs come from. The easiest is just to select the JARs provided by the JBoss AS runtime associated with this project. That is why it is important to chose the right JBoss AS 4.2 runtime in the project setup window.

- Check Server Supplied JSF Implementation. We will use JSF implementation [../../seam/ html_single/index.html#addJSFCapab] that comes with JBoss server
- Click Next

😣 New Seam Project 🗙			
JSF Capabilities Add JSF capabilities to this Web Project			
JSF Libraries:	Server Supplied JSF Implementation		
	Component Libraries Deploy Library Name >>		
JSF Configuration File:	/WEB-INF/faces-config.xml		
JSF <u>S</u> ervlet Name:	Faces Servlet		
JSF Servlet Classname:	javax.faces.webapp.FacesServlet		
<u>U</u> RL Mapping Patterns:	*.seam		
0	< Back Next > Finish Cancel		

Figure 3.7. JSF Capabilities Adding

Next wizard step needs more settings that previous. Let's start with General section.

Leave the default Seam runtime and check a WAR deployment.

9	New Seam Project	X
Seam Facet		and a
Configure Seam l	Facet Settings	
l		
General		
Seam Runtime:	Seam 1.2.AP	\$ Add
Deploy as:		

Figure 3.8. Seam Facet Setting

Next Database section is a little tricky. The Connection Profile needs to be edited so that the new project works properly with the external HSQLDB server. By default the project wizard tries to use

the JBoss embedded HSQLDB, but the tutorial uses an external database to replicate a more real world development scenario. Click on Edit to modify the Connection Profile.

Database	
Database Type:	HSQL \$
Connection profile:	Default 🗘 Edit New
Database Schema Name:	
Database Catalog Name:	
DB Tables already exists in database:	
Recreate database tables and data on deploy:	

Figure 3.9. DataBase Setting

Select JDBC Connection Properties. Make sure the URL is set to jdbc:hsqldb:hsql://localhost:1701

	Properties for		
type filter text	JDBC Connection Properties	, , , , , , , , , , , , , , , , , , ,	
Common Default Schema Filter Default Stored Procedure Filter Default Table Filter	Select a driver from the drop-down: Hypersonic DB Database: SAMPLE	•	
JDBC Connection Properties Version	URL: jdbc:hsqldb:hsql://localhost:1701 User name: sa Password: Save Password		

Figure 3.10. JDBC Connection Properties

Try click on Test Connection button. It probably won't work. This happens if the hsql jdbc driver is not exactly the same. This can be worked around by modifying the HSQLDB database driver settings. To modify the settings, click the "..." next to the drop-down box.

The proper Driver JAR File should be listed under Driver File(s). Select the hsqldb.jar file found in the database/lib directory and click on Ok.

😣 Edit Driver Definit	ion	×	
Provide Driver Details			
Modify details in the fields below to provide a unique nan set any available and applicable property values.	ne, a list of required	jars, and	
Driver Name			
Hypersonic DB			
Driver Type:			
Hypersonic DB			
Driver File(s):			
/opt/work/jbds/jboss-eap/jboss-as/server/default/lib/hsq	idb.jar	Add Jar/Zip	
		Edit Jar/Zip	
		Remove Jar/Zip	
		Clear All	
Properties:		1	
Property	Value		
▼ General			
Connection URL	jdbc:hsqldb:MyD	В	
Database Name	SAMPLE		
User ID	sa		
(III		Þ	
0	ОК	Cancel	

Figure 3.11. Driver Details

Select Hypersonic DB and click on Ok. Again, this only happens if the selected hsqldb.jar is different from the running database.

Oriver Definitions		×
Available Driver Definitions		
Add, edit, or remove driver definitions to manage available driver definitions.		
🗢 🖼 Derby	•	Add
G 10.0		Edit
G 10.1		
G 10.2		Remove
👒 Generic JDBC Driver		Сору
▽ 👒 Hypersonic DB		
▽ 🕞 1.8		
Hypersonic DB		
🗢 🖼 Informix		
G 10.0	=	
G 9.2		
G 9.3		
G 9.4		
🗢 🖼 MySQL		
G 4.0		
G 4.1		
G 5.0		
G 5.1		
🗢 🖼 Oracle		
G 10	•	
0 ок		Cancel
U OK		Cancer

Figure 3.12. Hypersonic DB Selecting

Now, the Test Connection should succeed. After testing the connection, click on Ok.

@	Propert	des for X
type filter text	JDBC Conne	ection Properties $(r + c) +$
Common Default Schema Filter		er from the drop-down:
Default Stored Procedure Filter	Hypersonic	DB 🔷 🗘
Default Table Filter	Database:	SAMPLE
JDBC Connection Properties	URL:	jdbc:hsqldb:MyDB
Version	User name:	sa
	Password:	
	Save Pas	sword
3	S	uccess
Ping succee	ded!	dd Jp
		OK pwn
		Clear All
		Test Connection
0		OK Cancel

Figure 3.13. Connection Testing

You can leave the Code Generation section as is. It refers to Java packages in which the generated code will be placed.

Code Generation	
Session Bean Package Name:	org.domain.workshop.session
Entity Bean Package Name:	org.domain.workshop.entity
Test Package Name:	org.domain.workshop.test
0	< Back Next > Finish Cancel

Figure 3.14. Code Generation Setting

Click on Finish button. Now, there should be a new Seam project called "workshop" listed in Package Explorer view.

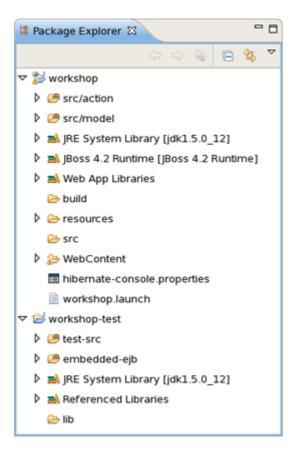


Figure 3.15. "worskhop" Project in the Package Explorer

3.1.3. Start JBoss Application Server

The complete information on how to manage JBoss AS from JBoss Developer Studio you can read in a *corresponding chapter*.

Now you just need to start the server by clicking on green circle/triangle icon in the JBoss Server View.

🤪 JBoss Server View δ	3		参 🤇	2 🖉 🔳 😰 🗖 🖸
Server	State	Status		Start the server
🤯 JBoss 4.2 Server	👫 Stopped	Synchronized		

Figure 3.16. Starting the Server

Then run the project by selecting the project and use Run As... > Run on Server.

Note:
If the project does not show up, then you can use a normal browser and use <i>http://localhost:8080/workshop/home.seam</i> as the url.

Your project looks like this:

Se workshop St		- 8
🗢 🔿 🗃 🗞 http://localhost:8080/workshop/home.seam	•	> 🎐
workshop: Home	Lo	gin
Welcome!		
This empty shell application includes: Ant build script Deployment to JBoss AS Integration testing using TestNG and JBoss Embeddable EJB3 EJB 3.0 Seam components Templated Facelets views HSQL (or MySQL) Datasource Default CSS stylesheet Internationalization support		
Powered by <u>Seam</u> . Generated by seam-gen.		

Figure 3.17. "workshop" Project Started

3.1.4. Workshop Project Code Overview

Now let's examine the project and its structure. Go back to the Package Explorer view in JBoss Developer Studio.

It seems like it's not much for project but this shell application contains a login screen with default login logic, a menu template that can be further modified, and other layout templates.

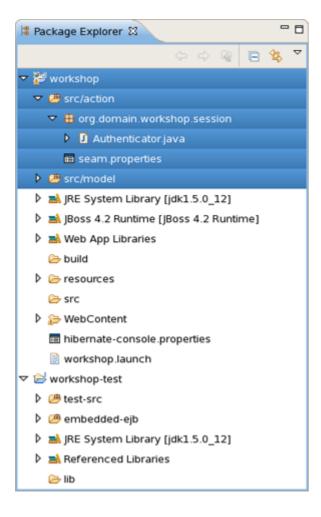


Figure 3.18. Project Structure

It's important to note that the business logic will reside in the *src/action* folder, by default. And, the package naming conventions that were used in Seam project setup wizard could have been changed to something different from *org.domain.workshop.session*. Also, notice that there is a default Authenticator. java file. This is where custom security logic can be added. Seam has a nice declarative security model that we will explore in a bit more detail later on. The *src/model* folder will store the project's JPA entity beans. The view tier of the application is also important. Seam uses facelets and there is a built-in facelets GUI editor that has some nice WYSIWYG and component drag/drop functionality. Try this out by opening home.xhtml from WebContent folder.

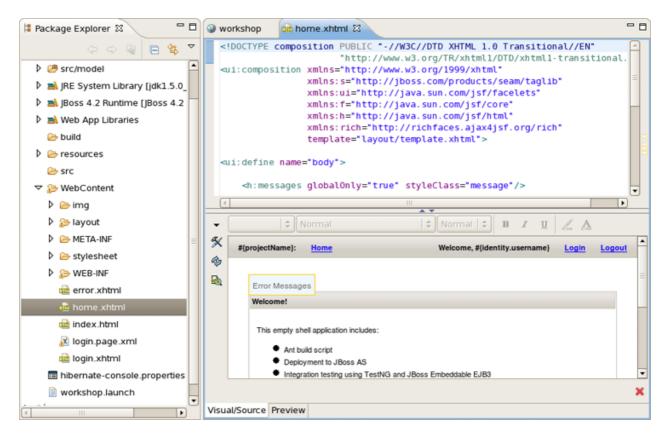


Figure 3.19. Facelets GUI Editor

Notice that the templates reside in the *WebContent/layout* folder. There is a stylesheet in the *WebContent/stylesheet* folder. There is also a login and default error page. The Facelet editor will be explored in more detail later in the lab.

The project already has a datasource that was created per the Seam project wizard database settings. And, obviously all of the Seam specific configuration files and JAR dependencies are included and placed in the proper locations. On last noteworthy line item is related to the build script. There isn't a build script because the Eclipse WTP(Web Tools Project) plugin is used to publish web application changes. As you can see, JBoss Developer Studio is removing a great deal of complexity from the enterprise Java project setup/deployment process. The end result is a developer that is writing code, not spending days/weeks trying to figure out how to get a decent development environment and project build process.

3.2. Seam Action Development

Now, it's time to write some code. The good news is that JBoss Developer Studio can also help out in this respect. In this section, we will create a new Seam Action POJO and facelet with some custom business logic and some GUI changes.

3.2.1. Create a New Seam Action

Go to main menu bar and click on *File > New > New Seam Action* to start the New Seam Action wizard.

Specify a Seam component name (e.g., "myAction"). The other properties will be auto-completed for you so there is no need to change them. Click on Finish.

	New Seam Action
Seam Action Create a new Seam actior	
create a new Searn action	
Seam Project:	workshop Browse Settings
Seam component name:	myAction
POJO class name:	MyAction
Bean name:	MyActionBean
Method name:	myAction
Page name:	myAction
Package name:	org.domain.workshop.session Browse
0	Einish Cancel

Figure 3.20. New Seam Action Wizard

Now, open the MyAction.java file and replace the "myAction" method with this logic:

public void myAction() {
Calendar cal = Calendar.getInstance();
log.info("myAction.myAction() action called");
facesMessages.add("MyAction Executed on:" + cal.getTime());
}

You also need to import the java.util.Calendar class by clicking CTRL + Shift + O.

3.2.2. Test Seam Action

The new action can be tested by browsing the workshop-test project. JBoss Developer Studio has already created a TestNG test case for you.

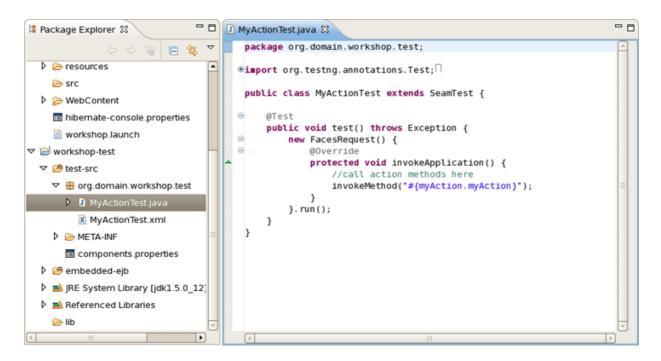


Figure 3.21. "workshop-test" Project

The test case simulates a Seam component/method execution for the MyAction.myAction() logic.

To run the test case, right click on MyActionTest.xml and click *Run As > TestNG Suite* or use the Run As... toolbar shortcut as shown below.

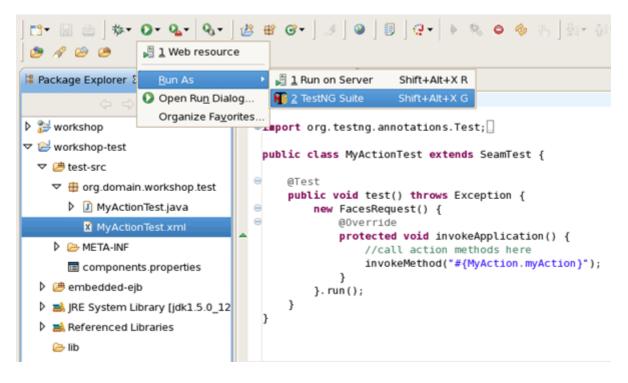


Figure 3.22. TestNG Running

With any luck, the test case will pass. Look at the TestNG view.

D MyActionTest.java 😫	コ 🚿 jBoss Tool 🛛 🗖 🗖
package org.domain.workshop.test;	× 5 Q
<pre>@import org.testng.annotations.Test;[]</pre>	🗁 JBoss Ajax4jsf
<pre>public class MyActionTest extends SeamTest {</pre>	Boss RichFaces
 Construction of the second se Second second sec second second sec	JBoss Seam JSF HTML
<pre>@Test public void test() throws Exception {</pre>	Jor mine
e new FacesRequest() {	
e @Override	Se Outline 22 -
<pre>protected void invokeApplication() { //call action methods here</pre>	- Oddine to
<pre>invokeMethod("#{myAction.myAction}");</pre>	t ^a z & x ^s ● x ^r ▽
} }.run():	🗰 org.domain.worl 📮
🖹 Problems 🤕 Tasks 💯 Seam Component 😲 JBoss Server Vie 🛛 🗮 Servers 📮 Console 📭 Tes	tNG 🕱 🖉 Progress 🗖 🗖
	-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0
Tests. 1/1 Methods. 1/1 (5876 ms) Passed. 1 Failed. 0	Skipped. 0
E ^t All Tests B ^B Failed Tests E Failure Exception	gB
マ 🖟 MyAction Test (1/0/0/0) 🛛	
🗸 org.domain.workshop.test.MyActionTest.test	

Figure 3.23. TestNG Results

Now, it's safe to test the new Seam Action in a web browser. The fastest way to do that is to right click on myAction.xhtml and use *Run As... > Run On Server* which will show the appropriate url in the browser. Alternatively you can manually enter *http://localhost/workshop/myAction.seam* into a browser.

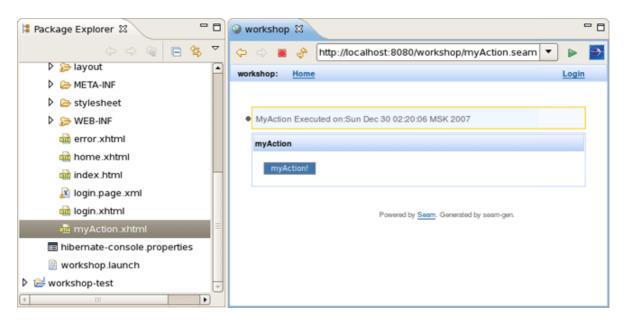


Figure 3.24. Seam Action in a Web Browser

3.2.3. Modify Seam Action User Interface

Browse to *http://localhost:8080/workshop/myAction.seam* and click on myAction. This executes the "myAction" method. This looks pretty good, but we could make this page look a little better.

myAction.	xhtml 🕴		- 0
<ui:comp< td=""><td>E composition PUBLIC "-//W3C//DTG "http://www. osition xmlns="http://www.w3.org/ xmlns:s="http://jboss.com xmlns:ui="http://java.sun xmlns:f="http://java.sun xmlns:h="http://java.sun xmlns:nich="http://richfa xmlns:a="https://ajax4jst template="layout/template ne name="body"></td><td>.w3.org/TR/xhtml1/DTD/xhtml1-tr /1999/xhtml" n/products/seam/taglib" n.com/jsf/facelets" .com/jsf/core" .com/jsf/html" aces.ajax4jsf.org/rich" f.dev.java.net/ajax"</td><td>ansitional.c</td></ui:comp<>	E composition PUBLIC "-//W3C//DTG "http://www. osition xmlns="http://www.w3.org/ xmlns:s="http://jboss.com xmlns:ui="http://java.sun xmlns:f="http://java.sun xmlns:h="http://java.sun xmlns:nich="http://richfa xmlns:a="https://ajax4jst template="layout/template ne name="body">	.w3.org/TR/xhtml1/DTD/xhtml1-tr /1999/xhtml" n/products/seam/taglib" n.com/jsf/facelets" .com/jsf/core" .com/jsf/html" aces.ajax4jsf.org/rich" f.dev.java.net/ajax"	ansitional.c
-	\$ Normal \$	Normal 🗘 B I 🖳 🦾	
	ctName}: Home	Welcome, #{identity.username}	Login Logout
	or Messages Action myAction!		
			×
Visual/Source	Preview		

Open WebContent/myAction.xhtml in JBoss Developer Studio to use the nice facelets editor.

Figure 3.25. Open Seam Action with Editor

Right click on the "myAction!" button in the visual part of editor and select <h:commandButton> Attributes.

-	¢ Nor	mal	🗘 Nor	mal 🕴	в	I	<u>u</u>	Ζ Δ			
%	#{projectName}:	lome		W	Velcome,	#{ider	ntity.u	username}	Login	Logout	ŕ
à	Error Messages										=
	myAction										
	myAction	<pre>P </pre> A:commandButton> A									_
		Parent Tag	,								-
	mposition ui:defin	Insert Around Insert Before	•	ndBut	ton						×
visua	Il/Source Preview	Insert After	•								
		Cut Copy Paste									
		Re <u>m</u> ove									

Figure 3.26. Seam Action Editing

Change the value of the button to something different. If desired, you can change any other text on the page. Then, type CTRL + S to save the facelet.

<h:commandbutton> name value rendered style styleClass </h:commandbutton>	
rendered style styleClass	^
style styleClass	
styleClass	
tabindex	
title	
type	=
value Click on My Action Button	🔻

Figure 3.27. Attributes Dialog

Refresh http://localhost:8080/workshop/myAction.seam and now you should see your changes.

Notice that you did not have to publish the application. JBoss Developer Studio auto-published it for you.

📾 myAction.xhtml 🕴		•	٥
#{projectName}: <u>Home</u>	Welcome, #{identity.username} Login	Logout	
Error Messages myAction Click on My Action Button			
	Powered by <u>Seam</u> . Generated by seam-gen.		
Visual/Source Preview			

Figure 3.28. Seam Action Is Modified

3.3. Declarative Security

In this section you will see how it's easy to secure the facelets and facelet components in Seam. Let's go ahead and secure the action button, then we will secure the entire page.

3.3.1. Edit Login Authentication Logic

There is a class called Authenticator.java. The login page will execute the Authenticator.authenticate() method by default, so we'll start by adding some custom login logic.

Open Authenticator.java in JBoss Developer Studio and replace the authenticate() method with this code:

```
public boolean authenticate() {
  if (identity.getUsername().equals("admin")
  && identity.getPassword().equals("password")) {
    identity.addRole("admin");
    return true;
  }
  else
  return true;
}
```

3.3.2. Secure Seam Page Component

Open myAction.xhtml and add a new secured command button:

<h:commandButton id="myActionSecured" value="Secured Action Button" action="#{myAction.myAction}" rendered="#{s:hasRole('admin')}"/>

Refresh *http://localhost:8080/workshop/myAction.seam* If you are not logged in you will only see one button. If you are logged in, there will be two buttons.

🚺 Auti	hentica	ator.ja	va	de myAction.xhtml	⊗ workshop 🕱		•	٥
\$) 	Ŷ	http://	localhost:8080/work	shop/myAction.seam	•	▶	•
works	hop:	Home					Login	
_								
m	yAction	1						
	Click	on My /	Action B	utton				
				Powered by <u>Se</u>	am. Generated by seam-gen.			

Figure 3.29. One Button on a Page

The secured button is not visible because the user isn't logged in as "admin".

Authenticator.java	imi myAction.xhtml	🎯 workshop 🛙		- 8
🗢 🔿 🔳 🤣 htt	p://localhost:8080/worksh	op/myAction.seam	•	▶ 🄮
workshop: <u>Home</u>			Welcome, admin	Logout
myAction				
Click on My Actio	on Button Secured Action Bu	utton		
	Powered by Seam	. Generated by seam-gen.		

Figure 3.30. Secured Button is Visible

The user is logged in as "admin". Securing components is easy but securing pages is pretty simple as well.

Open *WebContent/WEB-INF/pages.xml*. Then add this markup directly underneath the <pages> element:

<page view-id="/myAction.xhtml" login-required="true"/>

Refresh *http://localhost:8080/workshop/myAction.seam* If you are not logged in you will get bounced back to the login page.

Authenticator.java	amyAction.xhtml	🥥 workshop 🕴 🎰 pages.xml		1	- 8
🗢 🗢 🔳 🖑 http://	localhost:8080/worksho	op/login.seam?cid=62&clr=true	•		€
workshop: Home				Login	
 Please log in first 					
Login					
Please login using any u	sername and password				
Username					
Password					
Remember me	V				
Login	Powered by Seam	. Generated by seam-gen.			

Figure 3.31. Login Page

Thus, if you enter login credentials for the "admin" user, you will be re-directed to the secured page and secured component. If you enter different login credentials, page access will be granted, but the secured component will not be displayed.

Congratulations! You have secured your new action both at the facelet component and page level. You also added custom authentication logic to the login action.

3.4. Browsing Workshop Database

In this section you get to know how to use the workshop database that was started at the beginning of the lab.

3.4.1. Database Connectivity Setup

The workshop data can be browsed inside of JBoss Developer Studio.

To open the Data Source Explorer, click on *Window > Open Perspective > Other > Database Development.*

In the Data Source Explorer, expand a Databases node and select a Default database. Right click on it, select Connect from the context menu.

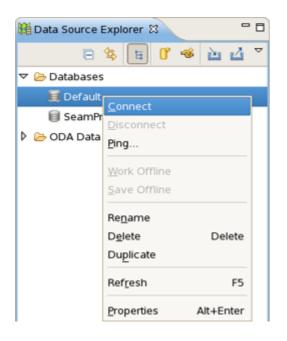


Figure 3.32. Data Source Explorer

3.4.2. Browse Workshop Database

Then in the current view, drill down to the CUSTOMERS table.

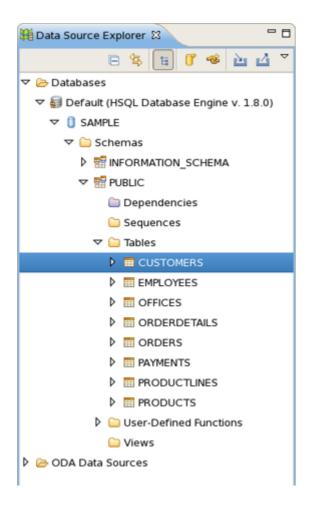


Figure 3.33. "CUSTOMERS" Table

Right click on CUSTOMERS, select *Data > Sample Contents* to view the data in the table.

There should be a SQL Results view on the workbench, but it could be hidden. Click on the "Result1" tab in the right side and you should see the data in the CUSTOMERS table.

Type quer	y expression I	nere	Statu	us Result1						
Status	Operation	Date		CUSTOMER	CUSTOMERNAME	CONTACTLAST	CONTACT	PHONE	ADDRESSLINE1	Α
🖌 Suce	ce	12/30/0	1	237	ANG Resellers	Camino	Alejandra	(91)74	Gran V\u005cu	C
			2	242	Alpha Cognac	Roulet	Annette	61.77.6	1 rue Alsace-Lo	,
			з	206	Asian Shopping N	Walker	Brydey	+612 %	Suntec Tower T	18
			4	103	Atelier graphique	Schmitt	Carine	40.32.2	54, rue Royale	
			5	144	Volvo Model Repli	Berglund	Christina	0921-1	Berguvsv\u005	¢
			6	189	Clover Collections	Cassidy	Dean	+353 1;	25 Maiden Lane	F
			7	141	Euro+ Shopping C	Freyre	Diego	(91) 55	C/ Moralzarzal,	
			8	216	Enaco Distributors	Saavedra	Eduardo	(93) 20	Rambla de Cat	
			9	201	UK Collectables, L	Devon	Elizabeth	(171) 5?	12, Berkeley Ga	3
			10	148	Dragon Souvenie	Natividad	Eric	+65 22	Bronz Sok.	В
			11	209	Mini Caravy	Citeaux	Fr\u005cu	88.60.1	24, place Kl\u00	3
			12	240	giftsbymail.co.uk	Bennett	Helen	(198) 53	Garden House	c
			13	223	Nat\u005cu005cu	Kloss	Horst	0372-5	Taucherstra\u0	5
			14	169	Porto Imports Co.	de Castro	Isabel	(1) 356	Estrada da sa\u	F.
			15	119	La Rochelle Gifts	Labrune	Janine	40.67.8	67, rue des Cin	¢
			16	112	Signal Gift Stores	King	Jean	702555	8489 Strong St.	
										Þ

Figure 3.34. SQL Results View



Congratulations! You just connected to the workshop database and queried the content using Database Explorer tools.

3.5. Database Programming

Now, it's time to reverse engineer the workshop database into a fully functioning Seam CRUD(Create Read Update Delete) application.

3.5.1. Reverse Engineer CRUD from a Running Database

In JBoss Developer Studio, switch to Seam perspective and click on *File > New > Seam Generate Entities.*

In the Seam Generate Entities wizard, select "workshop" project using the Browse button. There is no need to change something more, click on Finish.

Senerat Generat	te Seam Entities 🛛 🗙
Generate Seam Entities	
Seam Project: Hibernate Console Configuration: Generation Mode	
Ø	Einish Cancel

Figure 3.35. Generate Seam Entities

After running the Generate Entities action, you will see new *org.domain.workshop.entity* classes. These classes represent insert/update/delete/query logic.

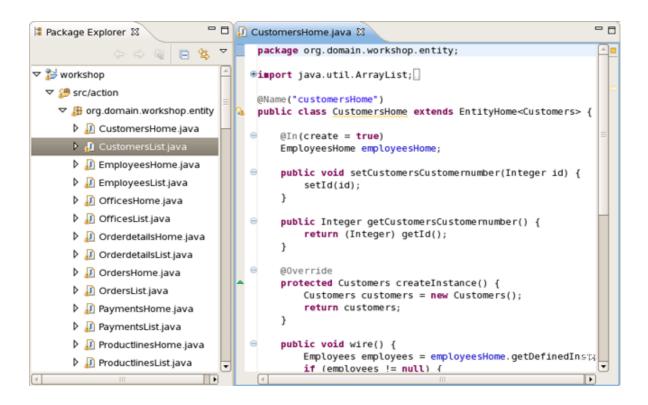


Figure 3.36. org.domain.workshop.entity Classes

There are also *org.domain.workshop.entity* package that contains the JPA classes. These are the entity beans that are mapped to database tables.

Last, but not least, there are facelets for all of the CRUD screens. The best way to get a feel for the generated code is to open a browser and play around with the application. Go to *http://localhost:8080/workshop* and insert/update/delete/query a few records. There is quite a bit of AJAX in this application, but which we will explore further later on in the lab. For now, take note of the page tabs, required field logic and data table sorting in the list pages.

CustomersList.xht	mi 🛙				
{projectName}: H	ome Offices List	Customers List	Employees List	Products List	Orderde
Error Messages Customers search	parameters				α
customername	#{customersLis	t.customer			
contactlastnam	e #{customersLis	t.customer			
contactfirstnam	#{customersLis	t.customer			
phone	#{customersLis	t.customer			
addressline1	#{customersLis	t.customer			
addressline2	#{customersLis	t.customer			
city	#{customersLis	t.customer			
state	#{customersLis	t.customer			
postalcode	#{customersLis	t.customer			
country	#{customersLis	t.customer			
Search					
Customers search	results				
No customers exis	sts				
ual/Source Previe					1

Figure 3.37. CustomersList.xhtml in the Editor

Congratulations! You now have a fully functioning CRUD application that is already AJAX enabled.

3.5.2. Use Hibernate Tools to Query Data via JPA

Now, it's time to write some JPA queries using the Hibernate Tools perspective in JBoss Developer Studio.

In the upper right corner of the workbench there is a small >>, click on it and choose Hibernate.

_ •) x
🗈 💿 Seam	**
🔓 Database Development	
💲 Hibernate	
🎯 Web Development	
😤 Java EE	

Figure 3.38. Hibernate Perspective

Look at the Hibernate Configurations view. In the "workshop" project, drill down on the Session Factory and notice that the JPA entities/attributes are listed in a nice tree view.

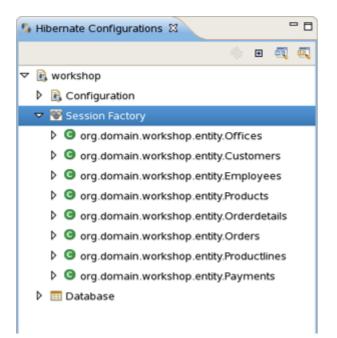


Figure 3.39. Hibernate Configurations View

Right click on the Session Factory and select HQL Editor. This will open a JPA query scratch pad window.

Write your query and click on the "Hibernate Dynamic SQL Preview" tab. You should see the SQL that will be executed if this JPA query is run.

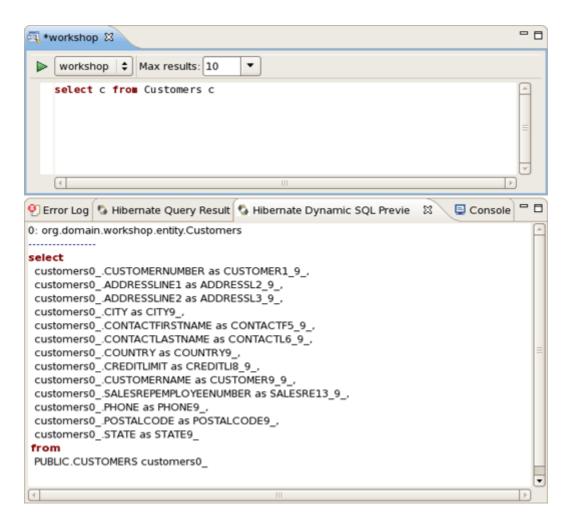


Figure 3.40. JPA Query Editor

Run the query by clicking on the green run icon.

The results are listed in the "Hibernate Query Result" tab. There is a "Properties" tab in the workbench that can be used to see a specific JPA result. These results represent the JPA objects because our query did not specify column names.

🔲 Pr	roperties 🛿		*workshop 🛙	- 8
Prop	erty	Value	▶ workshop 🗘 Max results: 10 💌	
⊽ lo	dentifier		select c from Customers c	A
	customernumbe	103		
▽ P	roperties			=
	addresslinel	54, rue Royale		*
	addressline2			Þ
	city	Nantes	Error Log 🥵 Hibernate Query Result 🕱 💊 Hibernate Dyn	namic SQL Pr 📮 Console 🗖 🗖
	contactfirstnam€	Carine		x×
	contactlastname	Schmitt		
	country	France		-
	creditlimit	21000.0	rg.domain.workshop.entity.Customers@c9fc25	=
	customername	Atelier graphique	rg.domain.workshop.entity.Customers@841423	
Þ	employees		rg.domain.workshop.entity.Customers@1463027	
⊳	orderses		rg.domain.workshop.entity.Customers@1038048	
⊳	paymentses		rg.domain.workshop.entity.Customers@db0d07	
	phone	40.32.2555	rg.domain.workshop.entity.Customers@134817a	
	postalcode	44000	rg.domain.workshop.entity.Customers@207655	
	state		rg.domain.workshop.entity.Customers@138d8fa	
			rg.domain.workshop.entity.Customers@12d2db8	
			rg.domain.workshop.entity.Customers@11499ff	•
1	III		lect c from Custom select c from Custom select c from Cus	stom 🕱 "9

Figure 3.41. Hibernate Query Result View

The query can be refined, and take note that there is nice code completion in the JPA query editor.

्य *workshop ध	- 8
<pre>workshop \$ Max results: 10 \$ select c.customername, c.employees. from Customers c</pre>	
 Setect C. Customer Hame, C. emptoyees. Customerses - Employees email - Employees employeenumber - Employees extension - Employees firstname - Employees jobtitle - Employees jobtitle - Employees lastname - Employees officecode - Employees officecode - Employees reportsto - Employees reportsto - Employees 	
org.domain.workshop.entity.Customers@841423 org.domain.workshop.entity.Customers@1463027 org.domain.workshop.entity.Customers@1038048 org.domain.workshop.entity.Customers@db0d07 select c from Custom	V

Figure 3.42. Code Completion

A refined query will return results that are more ResultSet oriented. Notice the join logic that JPA supports.

🕨 workshop 😫 Max r	esults: 10 💌	
select c.customern	aame, c.employees.extension from Customers	c
•		>
Error Log 😘 Hibernate (Query Result 🖾 💊 Hibernate Dynamic SQL Prev	🖳 Console 🗖
		x 8
0	1	
Atelier graphique	x2028	
Signal Gift Stores	x4065	
Australian Collectors, Co.	x101	
La Rochelle Gifts	x2028	
La Rochelle Gifts		
Baane Mini Imports	x102	
Baane Mini Imports		
Baane Mini Imports Mini Gifts Distributors Ltd.	x3291	
Baane Mini Imports Mini Gifts Distributors Ltd. Blauer See Auto, Co.	x3291 x102	

Figure 3.43. The Results

There was no need to specify an Employees table in the from part of the JPA query because JPA supports reference traversal via Java class attribute references. Not only are JPA and HQL queries fully supported, but Criteria based queries can also be written in the Criteria Editor. You should spend some time tinkering with different queries and possibly Criteria based queries, even though the instructions are not provided in this lab.

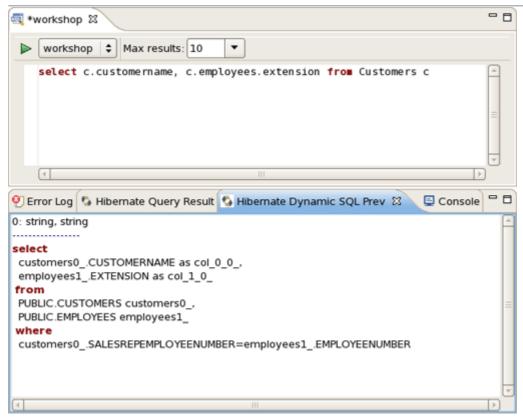


Figure 3.44. Criteria Editor

3.5.3. Use Hibernate Tools to visualize the Data Model

Now, it's time to view the data model for the workshop database.

In the Hibernate Configurations view, select "workshop" project and expand the Configuration node. Select the Customers entity, right click on it, choose Open Mapping Diagram.

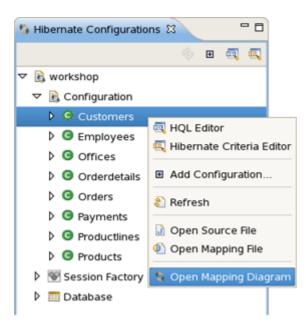


Figure 3.45. Mapping Diagram Opening

You see a Diagram tab for the CUSTOMERS table and any tables that have FK references. This is a handy way to view the data model and JPA mappings. Now, you've got access to something that the Erwin Data Modeler can't do.

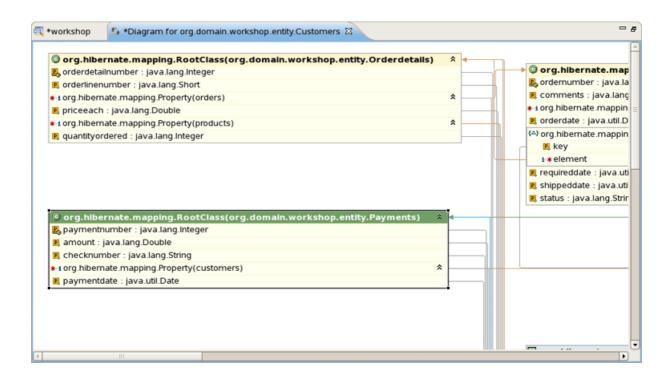


Figure 3.46. Diagram Tab

3.6. Rich Components

This lab will conclude with one last AJAX twist. In this section we add a RichFaces inputNumberSlider to the Order Details edit screen.

3.6.1. Add a Richfaces component to the CRUD Application

Switch to Seam perspective, open WebContent/OrderdetailsEdit.xhtml in JBoss Developer Studio.

Change the form field values using the visual editor. Seam has generated the form field names that match the database column names. This is not ideal for business users.

n Or	rderdetailsEdit.xhtml 😫	- 8
	<s:decorate id="orderlinenumberDecoration" template="layout/edit.xhtml"></s:decorate>	
	<pre><ui:define name="label">orderlinenumber</ui:define></pre>	
	<pre><h:inputtext <="" id="orderlinenumber" pre=""></h:inputtext></pre>	
	required="true"	
	<pre>value="#{orderdetailsHome.instance.orderlinenumber}"></pre>	
	<a:support event="onblur" rerender="orderlinenumberDecoration"></a:support>	
	<div style="clear:both"></div>	•
4		•
	A ¥	
-	↓ Normal ↓ Normal ↓ B Z U ▲ ▲	
×	orderdetailnumber #{orderdetailsHome.instat}	-
🧇 🖳	quantityordered * #{orderdetailsHome.Instat; Error Messages	
-	priceeach * #{orderdetailsHome.instat; Error Messages	_
	prderlinenumber #{orderdetailsHome.instat} Error Messages	=
	* required fields	
	Save Save Delete Done Cancel	
	products * orders *	-
		•
Visua	al/Source Preview	

Figure 3.47. Form Fields Editing

Also, replace the QTY Ordered input field with a inputNumberSlider. You can use the JBoss Developer Studio palette or right click on the form and insert the RichFaces component.

	1	<s:decorate <ui:de< th=""><th><pre>required="true" disabled="#{orderdet value="#{orderdet support event="onblu putText> te> e id="quantityordered fine name="label">gua utText id="quantityor required="true" value="#{orderdet</pre></th><th>ailsHome.inst r" reRender=" Decoration" t ntityordered< dered"</th><th>ance.ord orderdet emplate: /ui:def:</th><th>ailnumber "layout/e ne></th><th>Decorati dit.xhtm</th><th>on*/></th><th><rich: datascroller=""> <rich: dndparam=""> <rich: dragindicator=""> <rich: draglistener=""> <rich: dragsupport=""> <rich: dropdownmenu=""> <rich: droplistener=""> <rich: dropsupport=""> <rich: effect=""></rich:></rich:></rich:></rich:></rich:></rich:></rich:></rich:></rich:></th></ui:de<></s:decorate 	<pre>required="true" disabled="#{orderdet value="#{orderdet support event="onblu putText> te> e id="quantityordered fine name="label">gua utText id="quantityor required="true" value="#{orderdet</pre>	ailsHome.inst r" reRender=" Decoration" t ntityordered< dered"	ance.ord orderdet emplate: /ui:def:	ailnumber "layout/e ne>	Decorati dit.xhtm	on*/>	<rich: datascroller=""> <rich: dndparam=""> <rich: dragindicator=""> <rich: draglistener=""> <rich: dragsupport=""> <rich: dropdownmenu=""> <rich: droplistener=""> <rich: dropsupport=""> <rich: effect=""></rich:></rich:></rich:></rich:></rich:></rich:></rich:></rich:></rich:>
-		🗘 Normal	\$ No	mai 🗘 🖪 🕽	ζ <u>υ</u>	<u>.</u> A			<rich:gmap> <rich:inputnumberslider></rich:inputnumberslider></rich:gmap>
X		Enor wessages	~						<rich:inputnumberspinner></rich:inputnumberspinner>
a,		Edit Orderdetails							<rich:insert></rich:insert>
			(# forderdetaile i on a locked		1				<rich:jquery></rich:jquery>
		orderdetailnumber*	#{orderdetailsHome.instar,	Error Messages					<rich:listshuttle></rich:listshuttle>
		quantityordered *	#{orderdetailsHome.instar	Error Messages					<rich:menugroup></rich:menugroup>
			<s:decorate> Attributes</s:decorate>						<rich:menultem></rich:menultem>
		priceeach*	Parent Tag 🔹 🕨	Error Messages					<rich:menuseparator></rich:menuseparator>
		orderlinenumber*	Insert Around	Error Messages					<rich:message></rich:message>
		* required fields	Insert Before						<rich:messages></rich:messages>
			Insert After	From Palette	IBoss		Ajax4jsf		<rich:modalpanel></rich:modalpanel>
		Save Save [Insert Alter	FIOITIFalette	JSF		RichFace	· ·	<rich:nodeselectlistener></rich:nodeselectlistener>
		products * orders *	Cut		Jar		Seam		<rich:orderinglist></rich:orderinglist>
	1		Сору				Seam		<rich:paint2d></rich:paint2d>
		No products	Paste						<rich:panel></rich:panel>
		productcode	Remove	product	name	products	cale	produ	<rich:panelbar></rich:panelbar>
	4		Strip Tag						<rich:panelbarltem></rich:panelbarltem>
Visua	al/Sou	urce Preview	sulp lag						<rich:panelmenu></rich:panelmenu>

Figure 3.48. RichFaces Component Inserting

One the last option is to use the source view and manually copy the inputNumberSlider markup listed below:

<rich:inputnumberslider <="" id="quantityOrdered" required="true" th=""></rich:inputnumberslider>
value="#{orderdetailsHome.instance.quantityordered}"/>

Add a Richfaces component to the CRUD



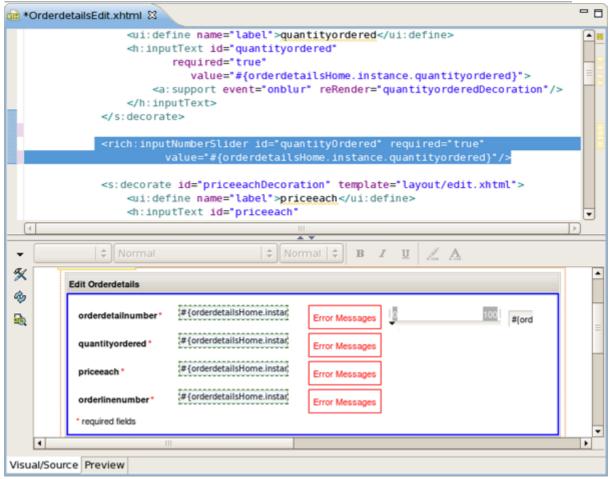


Figure 3.49. Adding the Source

The end result is an edit page that has better form labels and a new RichFaces control.

rkshop: <u>Hon</u> Edit Orderdeta	offices	List Custom	ers List E	mployees List	Products List Orderdetail	s List Orders Li	at Deadure	tlines List			
Edit Orderdets						Unders Li	st produc	tiines Lisi	Pa	yments	L
Edit Orderdets											
Earl Graenaeta	ills										
orderdetailn	umber 0	1	0		100 0						
quantityord	ered •)									
priceeach*		.0									
orderlinenu	mber 0										
 required field 											
	ancel										
products *	orders *										
productcode	productlines productline	productname	productscale	productvendor	productdescriptic	on qu	antityinstock	buyprice	msrp	action	
S18_1749	Vintage Cars	1917 Grand Touring Sedan	1:18	Welly Diecast Productions	This 1:18 scale replica of the 19 Touring car has all the features expect from museum quality reg four doors and bi-fold hood oper engine and instrument panel, ch and tufted upholstery, all topped factory baked-ename! finish.	you would productions: all ning, detailed 27 prome-look trim,	24	86.7	170.0	View	

Figure 3.50. The Result Page

Congratulations! You have completed the JBoss Developer Studio lab.

Developing a simple JSP web application



Note:

We highly recommend developing in Seam. This chapter is for users who for some reason cannot use Seam.

In this chapter you'll find out how to create a simple *JSP* [http://java.sun.com/products/jsp/] application using the JBoss Developer Studio. The application will show a classic "Hello World!" on the page.

We'll assume that you have already launched JBoss Developer Studio and also that the Web Development perspective is the current perspective. If not, make it active by selecting *Window* > *Open Perspective* > *Web Development* from the menu bar or by selecting *Window* > *Open Perspective* > *Other...* from the menu bar and then selecting Web Development from the Select Perspective dialog box.

4.1. Setting Up the Project

The main purpose of this section is to tell you about creation a Dynamic Web Project.

- Go to the menu bar and select File > New > Project ...
- Select Web > Dynamic Web Project in the New Project dialog box
- Click Next
- Enter "jspHello" as a project name
- Leave everything else as is, and click Finish

New Dynamic Web Project ×
Dynamic Web Project
Create a standalone Dynamic Web project or add it to a new or existing Enterprise Application.
Project name: jspHello
Project contents:
Use default
Directory: /root/workspace/jspHello Browse
Target Runtime
JBoss 4.2 Runtime
Configurations
Default Configuration for JBoss 4.2 Runtime
A good starting for working with JBoss 4.2 Runtime runtime. Additional facets can later be installed to add new functionality to the project.
EAR Membership
Add project to an EAR
EAR Project Name: EAR
⑦ Cancel

Figure 4.1. Create New Web Project

A jspHello node should appear in the upper-left Package Explorer view.

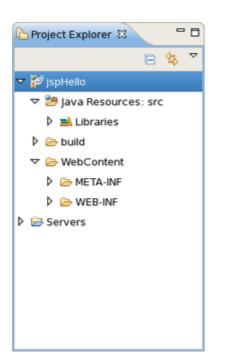


Figure 4.2. New Web Project

4.2. Creating JSP Page

This section covers all the points how to create, edit and then preview JSP page.

In our simple application we need to create only one JSP page which displays a "Hello World!" message.

- Right click WebContent > New > JSP.
- Type "hello.jsp" for a file name and click the Next button.

In the next window you can choose a template for your jsp page and see its preview.

• Select New JSP File (xhtml) template and click Finish button.

	w JavaServer Page
elect JSP Template elect a template as initial content in the JSP pa	age.
Use JSP Template	
emplates are 'New JSP' templates found in the	J <u>SP Templates</u> preference page.
Name	Description
New JSP File (html)	JSP with html markup
New JSP File (xhtml)	JSP with xhtml markup
New JSP File (xhtml, xml syntax)	JSP with xhtml markup and xml style syntax
review	
review	(in m) # . 2n
<pre>?xml version="1.0" encoding="\${encod %@ page language="java" contentType=</pre>	
<pre>?xml version="1.0" encoding="\${encod %@ page language="java" contentType= pageEncoding="\${encoding}"%></pre>	"text/html; charset=\${encoding}"
<pre>?xml version="1.0" encoding="\${encod %@ page language="java" contentType= pageEncoding="\${encoding}"%> !DOCTYPE html PUBLIC "-//W3C//DTD XH html xmlns="http://www.w3.org/1999/x</pre>	<pre>"text/html; charset=\${encoding}" ITML 1.0 Transitional//EN* "http://www.w3.org/TR/x</pre>
<pre>?xml version="1.0" encoding="\${encod %@ page language="java" contentType= pageEncoding="\${encoding}"%> !!DOCTYPE html PUBLIC "-//W3C//DTD XH html xmlns="http://www.w3.org/1999/x head></pre>	<pre>"text/html; charset=\${encoding}" ITML 1.0 Transitional//EN* "http://www.w3.org/TR/x chtml*></pre>
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<pre>?xml version="1.0" encoding="\${encod %@ page language="java" contentType= pageEncoding="\${encoding}"%> !!DOCTYPE html PUBLIC "-//W3C//DTD XH html xmlns="http://www.w3.org/1999/x head> meta http-equiv="Content-Type" conte</pre>	<pre>"text/html; charset=\${encoding}" ITML 1.0 Transitional//EN* "http://www.w3.org/TR/x chtml*></pre>
<pre>?xml version="1.0" encoding="\${encod %@ page language="java" contentType= pageEncoding="\${encoding}"%> ?!DOCTYPE html PUBLIC "-//W3C//DTD XH html xmlns="http://www.w3.org/1999/x head> meta http-equiv="Content-Type" conte ttitle>Insert title here</pre>	<pre>"text/html; charset=\${encoding}" ITML 1.0 Transitional//EN" "http://www.w3.org/TR/x html"> ent="text/html; charset=\${encoding}" /></pre>
<pre>?xml version="1.0" encoding="\${encod %@ page language="java" contentType= pageEncoding="\${encoding}"%> ?!DOCTYPE html PUBLIC "-//W3C//DTD XH html xmlns="http://www.w3.org/1999/x head> meta http-equiv="Content-Type" conte ttitle>Insert title here</pre>	<pre>"text/html; charset=\${encoding}" ITML 1.0 Transitional//EN" "http://www.w3.org/TR/x html"> ent="text/html; charset=\${encoding}" /></pre>
<pre>?xml version="1.0" encoding="\${encod %@ page language="java" contentType= pageEncoding="\${encoding}"%> ?!DOCTYPE html PUBLIC "-//W3C//DTD XH html xmlns="http://www.w3.org/1999/x head> meta http-equiv="Content-Type" conte ttitle>Insert title here</pre>	<pre>"text/html; charset=\${encoding}" ITML 1.0 Transitional//EN" "http://www.w3.org/TR/x html"> ent="text/html; charset=\${encoding}" /></pre>

Figure 4.3. Create JSP Page

Our hello.jsp page will now appear in Project Explorer.

4.2.1. Editing a JSP Page

Let's now make a little change so that a jsp page displays "Hello World!" message.

• Insert this line inside the <body> </body> tag:

```
<% System.out.println("Hello World!"); %>
```

Notice that content assist functionality is always available when you are typing:

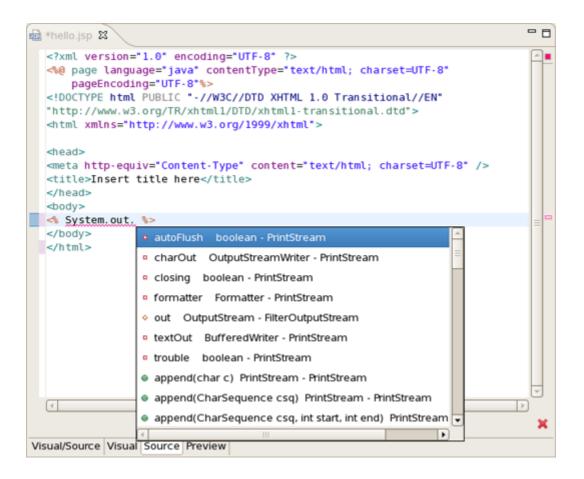


Figure 4.4. Content Assist in JSP Page

After changes made your hello.jsp page should look like this:

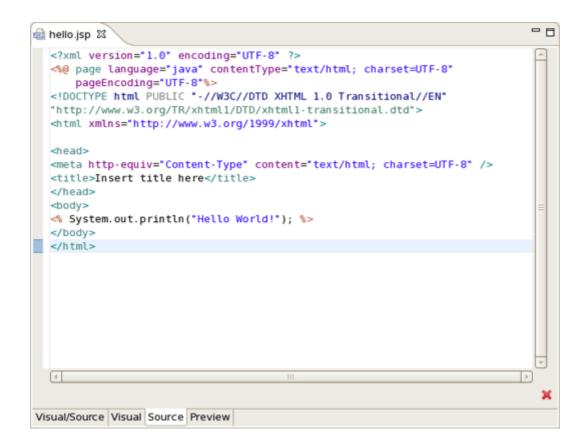


Figure 4.5. Hello.jsp Page

4.2.2. web.xml file

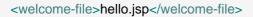
When you are creating web project the wizard creates the web.xml for you automatically. The web.xml file editor provided by JBoss Developer Studio is available in two modes: tree and source.

web		▼ Web Descrip	tor 2.5		^	
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😂 Listeners 🔤	hello.jsp	🗴 web.xml 🛿				-
a Servlets		rsion="1.0" encodin	2			
🗑 session-c			www.w3.org/2001/XML	Schema-instance		
1-1		ttp://java.sun.com/	-			
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Figure 4.6. Web.xml in Design and Source Mode

Both modes are fully synchronized. Let's add mapping to our hello.jsp page in web.xml file.

- Switch to source mode.
- Add the next code into <welcome-file-list> :



If you come back to design mode you will see that the changes made are automatically reflected in that mode.

Actually you don't really need to do any configurations right now. You can clear the web.xml file, save it and you'll still be able to launch your application.

4.2.3. Deploying the project

While creating any web project you could experience a pain writing ant scripts and managing the packaging even if a developer is writing the most trivial web applications. With JBoss Developer

Studio you are saved from such a pain. All you need is to start JBoss server and launch your application in your favorite browser.

You can also create a war archive with JBDS's Archive Tools and export it to any web server.

4.2.3.1. WAR Config

Project archives managing is available through Project archives view.

- Select Window > Show view > Other > JBoss Tools > Project archives from menu bar
- Select a project in Package Explorer you want to be archived

In Project Archives you will see available archive types for the project:

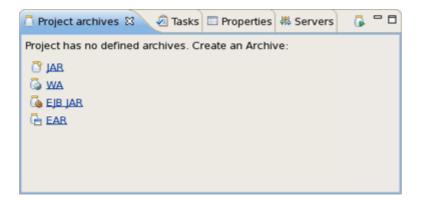


Figure 4.7. Project Archives

• Click, for example, WAR option to create war archive

In the dialog New WAR you can see automatically selected default values

😔 New WAR 🕨
Create a new archive
Create a new archive consisting of filesets in the workspace.
Archive information
Archive name: 🧻 jspHello.war
Destination: 😂 jspHello Workspace Filesystem
Archive type
Standard archive using zip compression
 Exploded archive resulting in a folder (no compression)
⑦ < <u>Back</u> Next > Binish Cancel

Figure 4.8. New WAR Archive

• Click Next to see a stub archive configuration for your project:

New WAR	×
WAR Archive Stub Below is a stub archive configuration for your project.	
You can customize this structure further after pressing finit	sh.
Preview	
🗢 🛅 jspHello.war	A
VEB-INF	
🗢 🗁 lib	
🔜 **/*.jar: jspHello	=
🗟 **/*: classes	
🕞 **/*: WebContent	
() < <u>B</u> ack Next >	inish Cancel

Figure 4.9. Stub Archive Configuration

• Click *Finish.* The *.war* file will appear in Package Explorer and in Project archives view as structure tree:

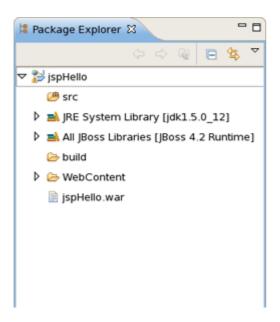


Figure 4.10. Archive is Created

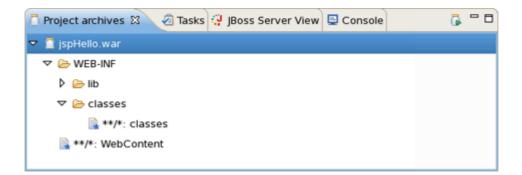


Figure 4.11. Archive in Project Archives View

Via Project archives view you could now edit your archive, add new folders, publish to server, and so on:

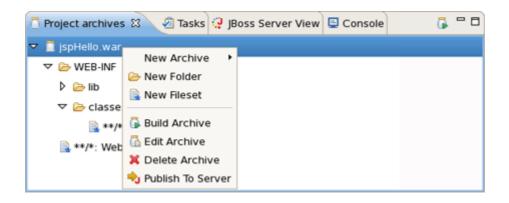


Figure 4.12. Configure Archive

4.2.3.2. Auto redeploy

When you are creating a web application and register it on JBoss server it is automatically deployed into /deploy directory of the server. JBDS comes with the feature of auto-redeploy. It means that you don't need to restart JBoss. Any changes made in the application in exploded format will trigger a redeployment on the server.

4.2.4. JSP Page Preview

JBDS comes with JSP design-time preview features. When designing JSP pages you can easily preview how they will look during runtime. You can even attach your stylesheet to the preview.

• Make a little change to hello.jsp page, e.g. put this code snippet:

<%= new java.util.Date() %>

- Click Save button.
- Switch to Preview page by clicking Preview tab at the bottom of the page. You will see how the page will look at runtime.

4.2.5. Launch JSP Project

Let's now launch our project on server. We'll use JBoss server that is shipped with JBoss Developer Studio.

• Start JBoss server from JBoss Server view by clicking the Start icon.



Figure 4.13. Starting Server

• Click the Run icon or right click your project folder and select *Run As > Run on Server*. If you haven't made any changes in web.xml file or cleared it out you can launch the application by right clicking the hello.jsp page and selecting *Run on the Server*.



Figure 4.14. Run Project

You should see the next page in a browser :

🕹 Hello - Mozilia Firefox	
<u>File E</u> dit <u>V</u> iew <u>Go</u> <u>B</u> ookmarks <u>T</u> ools <u>H</u> elp	ं
🧼 - 🍦 - 🥰 💿 🏠 🛴 http://localhost:8080/Some 💌 🛛 Go 💽	
Hello World!	
Done	

Figure 4.15. Running Project

RAD development of a simple JSF application



Note:

We highly recommend developing in Seam. This chapter is for users who for some reason cannot use Seam.

In this chapter you will see how to create a simple JSF application being based on "RAD" philosophy. We will create the familiar Guess Number application. The scenario is the following. You are asked to guess a number between 0 and 100. If the guess is correct, a success page is displayed with a link to play again. If the guess is incorrect, a message is printed notifying that a smaller or a larger number should be entered and the game continues.

We'll show you how to create such an application from scratch, along the way demonstrating powerful features of JBoss Developer Studio such as project templating, Visual Page Editor, code completion and others. You will design the JSF application and then run the application from inside JBoss Developer Studio using the bundled JBoss server.

5.1. Setting up the project

First, you should create a JSF 1.2 project using an integrated JBDS's new project wizard and predefined templates. Follow the next steps:

 In Web Projects View (if it is not open select Window > Show View > Others > JBoss Tools Web > Web Projects View) click Create New JSF Project button.

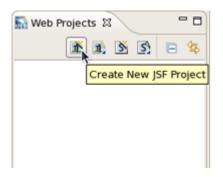


Figure 5.1. Create New JSF Project

- Put GuessNumber as a project name, in JSF Environment drop down list choose JSF 1.2
- Leave everything else as it is and click Finish

Our project will appear in Project Explorer and Web Projects Views. As you can see JBoss Developer Studio has created for us the whole skeleton for the project with all needed libraries, faces-config.xml and web.xml files.

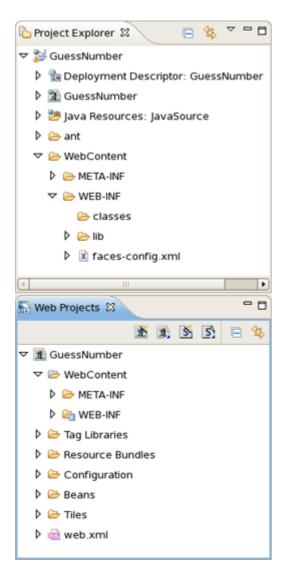


Figure 5.2. New JSF Project

As the project has been set up, new JSP pages should be created now.

5.2. Creating JSP Pages

Here, we are going to add two pages to our application. The first page is inputnumber.jsp. It prompts you to enter a number. If the guess is incorrect, the same page will be redisplayed with a message indicating whether a smaller or a larger number should be tried. The second page is success.jsp. This page will be shown after you guess the number correctly. From this page you also have the option to play the game again.

Now, we will guide you through the steps on how to do this.

- Open faces-config.xml file
- Right click anywhere on the diagram mode
- From the context menu select New View

🔊 faces-config.xml 🛛		- 0
Image: state stat	New View Auto Layout Select Element Verify Paste Ctrl + V Input Methods	
Diagram Tree Source		

Figure 5.3. Create New View

- Type pages/inputnumber as the value for From-view-id
- Leave everything else as is and click Finish
- In the same way create another jsf view. Type pages/success as the value for From-view-id
- Select File > Save

On the diagram you will see two created views.

🏂 faces-cor	nfig.xml 🛿				- 6
		/page s/inputnun	nber.jsp		
			/pages/suc	cess.jsp	
Diagram Tre					

Figure 5.4. New Views

5.3. Creating Transition between two views

Then, we should create connection between jsp pages.

• In the diagram, select the *Create New Connection* icon third from the top along the upper left side of the diagram to get an arrow cursor with a two-pronged plug at the arrow's bottom

5	8	2		
	-	_		

Figure 5.5. Create Connection

• Click on the pages/inputnumber page icon and then click on the pages/success page icon

A transition should appear between the two icons of views.

🔊 faces-config.xml 🛛		- 8
	/pages/inputnumber.jsp	
	/pages/success.jsp	

Figure 5.6. Created Connection

• Select File > Save from the menu bar

5.4. Creating Resource File

A resource file is just a file with a *.properties* extension for collecting text messages in one central place. JBoss Developer Studio allows you to create quickly a resource file. The messages stored in resource file can be displayed to you on a Web page during application execution.

With resource file first, you don't hard code anything into the JSP pages. And second, it makes it easier to translate your application to other languages. All you have to do is to translate all your messages to the other language and save them in a new properties file with a name that ends with the appropriate ISO-639 language code.

It is a good idea to keep your resources inside the *JavaSource* folder, where you keep your .java files. Every time you build the project, all *.properties* files will then be copied to the *classes* folder by default.

- Right click JavaSource folder and select New > Folder
- Type game for Folder name and click Finish

Your resource file and java bean will be stored in this folder.

- Right click on game folder and select New > Properties File
- Type messages as the value for "name" attribute and click Finish

JBoss Developer Studio will automatically open messages.properties file for editing.

🔲 Messag	es.prope	rties 🛙					- 8
Messages.	propertie	s				1	
name		1	/alue	 	 	 Add	1
						Edit	-
						Delet	te
						Цр	
						Dow	n
Properties	Source						

Figure 5.7. Messages.properties File

- Click Add button
- Type how_to_play for "name" and Please pick a number between 0 and 100. for value
- Click Finish
- In such a way add the next properties:

makeguess_button=Make Guess trayagain_button=Play Again? success_text=How cool.. You have guessed the number, {0} is correct! tryagain_smaller=Oops..incorrect guess. Please **try** a smaller number. tryagain_bigger=Oops..incorrect guess. Please **try** a bigger number.

• Click File > Save from the menu bar

Your .properties file should now look like follows:

how_to_play Please pick a number between a 0 and 100. makeguess_button Make Guess tryagain_button Play Again? success_text How cool You have guessed the number, {0} is correct! tryagain_smaller Oops incorrect guess. Please try a smaller number.	🖄 faces-config.xml	linputnumber.jsp III messages.properties 🛙	
how_to_play Please pick a number between a 0 and 100. makeguess_button Make Guess tryagain_button Play Again? success_text How cool You have guessed the number, {0} is correct! tryagain_smaller Oops incorrect guess. Please try a smaller number.	nessages.properties		1
how_to_play Please pick a number between a 0 and 100. makeguess_button Make Guess tryagain_button Play Again? success_text How cool You have guessed the number, {0} is correct! tryagain_smaller Oops incorrect guess. Please try a smaller number.	name	value	Add
make guess Delete tryagain_button Play Again? success_text How cool You have guessed the number, {0} is correct! tryagain_smaller Oops incorrect guess. Please try a smaller number.	how_to_play	Please pick a number between a 0 and 100.	
success_text How cool You have guessed the number, {0} is correct! tryagain_smaller Oops incorrect guess. Please try a smaller number.	makeguess_button	Make Guess	Edit
tryagain_smaller Oops incorrect guess. Please try a smaller number.	tryagain_button	Play Again?	Delete
tryagain_smaller Oops incorrect guess. Please try a smaller number.	success_text	How cool You have guessed the number, {0} is correct!	
tryagain bigger Oops., incorrect guess. Please try a bigger number. Down	tryagain_smaller	Oops incorrect guess. Please try a smaller number.	
	tryagain_bigger	Oops incorrect guess. Please try a bigger number.	Do <u>w</u> n

Figure 5.8. Properties are Added

5.5. Creating Java Bean

In this section you'll see how to create a Java bean that will hold business logic of our application.

- Right click game folder
- Select New > Class
- Type NumberBean for bean name
- A java bean is created.
- Declare the variable of your entered number:

Integer userNumber;

JBDS allows to quickly generate getters and setters for java bean.

- Right click NumberBean.java in Package Explorer
- Select Source > Generate Getters and Setters...
- Check userNumber box and click OK

Generate Getters and Setters	×
Select getters and setters to create:	
マ ☑ → userNumber	Select <u>A</u> ll
 ✓ o getUserNumber() ✓ o setUserNumber(Integer) 	Deselect All Select Getters Select Setters
Allow sette <u>r</u> s for final fields (remove 'final' modifier from fields if necessar Insertion point:	ry)
Last method	\$
Sort by:	
Fields in getter/setter pairs	\$
Access modifier	
Generate method comments	
The format of the getters/setters may be configured on the <u>Code Templates</u>	preference page.
i 2 of 2 selected.	
(?) ОК	Cancel

Figure 5.9. Generate Getters and Setters

• Add the declaration of the second variable

int randomNumber;	
other bean methods:	

public NumberBean ()

```
{
  randomNumber = (int)(Math.random()*100);
  System.out.println ( "Random number: "+randomNumber);
 }
 public String playagain ()
 {
  FacesContext context = FacesContext.getCurrentInstance();
  HttpSession session =
     (HttpSession) context.getExternalContext().getSession(false);
  session.invalidate();
  return "playagain";
 }
 public String checkGuess ()
 {
  // if guessed, return 'success' for navigation
  if ( userNumber.intValue() == randomNumber )
  {
   return "success";
  }
else
 {
   FacesContext context = FacesContext.getCurrentInstance();
   ResourceBundle bundle = ResourceBundle.getBundle("game.messages",
   context.getViewRoot().getLocale());
   String msg = "";
   // if number bigger, get appropriate message
   if ( userNumber.intValue() > randomNumber )
     msg = bundle.getString("tryagain_smaller");
   else // if number smaller, get appropriate message
     msg = bundle.getString("tryagain_bigger");
   // add message to be displayed on the page via <h:messages> tag
   context.addMessage (null, new FacesMessage(msg));
   // return 'tryagain' for navigation
   return "tryagain";
  }
 }
```

· And the import declarations:

import javax.faces.context.FacesContext; import javax.servlet.http.HttpSession; import javax.faces.application.FacesMessage; import java.util.Locale; import java.util.ResourceBundle;

The whole java bean should look as follows:

```
import javax.faces.context.FacesContext;
import javax.servlet.http.HttpSession;
import javax.faces.application.FacesMessage;
import java.util.Locale;
import java.util.ResourceBundle;
public class NumberBean
{
 Integer userNumber;
 int randomNumber; // random number generated by application
public Integer getUserNumber ()
{
  return userNumber;
 }
 public void setUserNumber (Integer value)
 {
   this.userNumber = value;
}
 // constructor, generates random number
 public NumberBean ()
 {
  randomNumber = (int)(Math.random()*100);
  System.out.println (
 "Random number: " + randomNumber);
}
 public String playagain ()
 {
  FacesContext context = FacesContext.getCurrentInstance();
  HttpSession session =
     (HttpSession) context.getExternalContext().getSession(false);
  session.invalidate();
  return "playagain";
}
 // check if user guessed the number
 public String checkGuess ()
```

```
// if guessed, return 'success' for navigation
  if ( userNumber.intValue() == randomNumber )
  {
    return "success";
  }
  // incorrect guess
  else
  {
   // get a reference to properties file to retrieve messages
    FacesContext context = FacesContext.getCurrentInstance();
    ResourceBundle bundle =
      ResourceBundle.getBundle("game.messages",
      context.getViewRoot().getLocale());
    String msg = "";
    // if number is bigger, get appropriate message
    if ( userNumber.intValue() > randomNumber )
     msg = bundle.getString("tryagain_smaller");
    else // if number smaller, get appropriate message
     msg = bundle.getString("tryagain_bigger");
   // add message to be displayed on the page via <h:messages> tag
    context.addMessage (null, new FacesMessage(msg));
   // return 'tryagain' for navigation
    return "tryagain";
  }
 }
}
```

5.6. Editing faces-config.xml File

In this section you know about faces-config.xml file.

This file holds two navigation rules and defines the backing bean used.

- Open faces-config.xml file in a source mode
- Add here one more navigation rule and a managed bean declarations that the content of the file looks like this:

```
<?xml version="1.0" encoding="UTF-8"?>
<faces-config version="1.2" xmlns="http://java.sun.com/xml/ns/javaee
xmlns:xi="http://www.w3.org/2001/XInclude"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
```

```
xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
    http://java.sun.com/xml/ns/javaee/web-facesconfig_1_2_.xsd">
 <navigation-rule>
  <from-view-id>*</from-view-id>
  <navigation-case>
   <from-outcome>playagain</from-outcome>
   <to-view-id>/pages/inputnumber.jsp</to-view-id>
  </navigation-case>
 </navigation-rule>
 <navigation-rule>
  <from-view-id>/pages/inputnumber.jsp</from-view-id>
  <navigation-case>
   <from-outcome>success</from-outcome>
   <to-view-id>/pages/success.jsp</to-view-id>
  </navigation-case>
 </navigation-rule>
 <managed-bean>
  <managed-bean-name>NumberBean</managed-bean-name>
  <managed-bean-class>game.NumberBean</managed-bean-class>
  <managed-bean-scope>session</managed-bean-scope>
 </managed-bean>
</faces-config>
```

The first navigation rule states that from any page (* stands for any page) an outcome of playagain will take you to */pages/inputnumber.jsp*. Outcome values are returned from backing bean methods in this example. The second navigation rule states that if you are at the page */pages/inputnumber.jsp*, and the outcome is success, then navigate to the */pages/success.jsp* page.

5.7. Editing the JSP View Files

Now, we will finish editing the JSP files for our two "views" using Visual Page Editor.

5.7.1. Editing inputnumber.jsp page

First, let's dwell on how to edit inputnumber.jsp.

On this page we will have an output text component displaying a message, a text field for user's number entering and a button for input submission.

• Open inputnumber.jsp by double-clicking on the /pages/inputnumber.jsp icon

The Visual Page Editor will open in a screen split between source code along the top and a WYSIWIG view along the bottom. You can see that some JSF code will be already generated as we choose a template when creating the page.

At the beginning it's necessary to create a **<h:form>** component where all others components are put.

- Place the mouse cursor inside <f:view> </f:view>
- · Go to JBoss Tools Palette and expand JSF HTML folder by selecting it
- Click on <h:form> tag

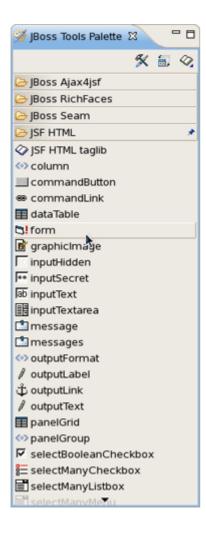


Figure 5.10. Insert h:form

• In the dialog Insert Tag select *id* and click on this line below the value header. A blinking cursor will appear in a input text field inviting to enter a value of id

•	Insert Tag	
<h:form> attribu</h:form>	tes	
Attribute name	Value	
accept		
acceptcharset		
binding		
dir		
enctype		
id	* I	
lang		
onclick		
ondblclick		
onkeydown		
onkeypress		
0		<u>F</u> inish Cancel

Figure 5.11. Define Id of Form

• Type inputNumbers and click Finish

In source view you can see the declaration of a form.



Figure 5.12. Created Form

First let's declare the properties file in inputnumber.jsp page using the loadBundle JSF tag.

selectOneListbox

selectOneMenu

×

• Put this declaration on the top of a page, right after the first two lines:

<f:loadbundle <b="">basename="game.messages" va</f:loadbundle>	r="msg "/>	
As always JBDS provides code assist:		
🄊 faces-config.xml 🛛 🖓 •inputnumber.jsp 🕴 📑 messages.pro	operties	🗖 🗖 💓 jBoss Tools Palette 😫 👘 🗖
<pre>de taglib uri="http://java.sun.com/jsf/html" prefix=</pre>	"h" \$>	A
<pre><de prefix="<br" taglib="" uri="http://java.sun.com/jsf/core"><f:l< pre=""></f:l<></de></pre>	err. 4>	Boss Ajax4jsf
S I i loadBundle	Load a resource bundle localized for view, and expose it as a java.util.Mag of the current request under the key the "var" attribute of this tag. The Ma a get() call is made for a key that do literal string ???KEY??? is returned fro the key being looked up in the Map, it MissingResourceException being thro does not exist, a JspException must l	p in the request attributes specified by the value of p must behave such that if es not exist in the Map, the om the Map, where KEY is instead of a own. If the ResourceBundle
		OutputLabel outputLink outputText panelGrid organelGroup F selectBooleanCheckbox selectManyCheckbox selectManyListbox selectManyMenu

Figure 5.13. Code Assist

Visual/Source Visual Source Preview

1

f:L

- Switch to Visual tab, so it could be possible to work with the editor completely in its WYSIWYG mode
- Click on *outputText,* drag the cursor over to the editor, and drop it inside the blue box in the editor
- Select value and click on this line below "value" header
- Click ... button next to the value field

JBDS will nicely propose you to choose within available values:

9	Edit Value	×
<h:outputtext></h:outputtext>		
leans 😂 Managed Beans		
Resource Bundles		
SF Variables		
		Ok Cancel

Figure 5.14. Choose Value

- Expand Resource Bundles > msg
- Select *how_to_play* value and click *Ok.* Then click *Finish*

(9) I	dit Value
<h:outputtext></h:outputtext>	
阔 Managed Beans	-
▽ 🛱 Resource Bundles	
🗢 🛅 msg	
how_to_play	=
makeguess_button	
o success_text	
tryagain_bigger	
tryagain_button	
• tryagain smaller	•
	Ok Cancel

Figure 5.15. Selecting Value

The text will appear on the page:

🙇 fac	es-config.xml 🔯 *inputnumber.jsp 🛛 📼 messages.properties	- 0
• (\$ \$	
×	Please pick a number between a 0 and 100.	
🤣 R		
	body f:view h:form	×
Visua	I/Source Visual Source Preview	

Figure 5.16. Created OutputText Component

- Switch to Source mode and insert
br/> tag after <h:outputText> component to make a new line.
- Click Save button.
- On the Palette click on *inputText,* drag the cursor over to the editor, and drop it inside the editor after the text.
- Switch to a Source mode and insert
 tag after <h:outputText> component to make a new line
- Click Save button
- On the Palette click on *inputText,* drag the cursor over to the editor, and drop it inside the editor after the text
- Select value and click on this line below "value" header
- Click ... button next to the value field
- Expand Managed Beans > NumberBean
- Select userNumber value and click Ok
- Switch Advanced tab
- Select id and click on this line below "value" header
- Type userNumber in text field

- Select required and click on this line below "value" header
- Click ... button next to the value field
- Expand Enumeration and select true as a value

9	Edit Required	×
<h:inputtext></h:inputtext>		
😑 false		
– true		
👂 🍓 Managed Beans		
Resource Bundles		
JSF Variables		
	Ok	Cancel

Figure 5.17. Add "required" Attribute

- Click Ok, then click Finish
- · Go to Source mode
- Add the validation attribute to <f:validateLongRange> for user input validation

<h:inputText id="userNumber" value="#{NumberBean.userNumber}" required="true"> <f:validateLongRange minimum="0" maximum="100"/>

</h:inputText>

- Click Save button
- Again select Visual mode
- On the Palette, click on *commandButton,* drag the cursor over to the editor, and drop it inside the editor after the inputText component.
- In the editing dialog select value and click on this line below "value" header
- Click ... button next to the value field
- Expand Resource Bundles > msg and select makeguess_button as a value

- Click Ok
- · Select action and click on this line below "value" header
- Type NumberBean.checkGuess in text field
- Click Finish
- In Source mode add
tags between <outputText> , <inputText> and
 commandButton> components to place them on different lines

inputnumber.jsp page should look like this:

```
<%@ taglib uri="http://java.sun.com/jsf/html" prefix="h" %>
<%@ taglib uri="http://java.sun.com/jsf/core" prefix="f" %>
<f:loadBundle basename="game.messages" var="msg"/>
<html>
<f:view>
  <h:form id="inputNumbers">
   <h:outputText value="#{msg.how_to_play}"/>
   <br/>br/>
   <h:messages style="color: blue"/>
   <br/>br/>
   <h:inputText id="userNumber" value="#{NumberBean.userNumber}" required="true">
      <f:validateLongRange minimum="0" maximum="100"/>
   </h:inputText>
   <br/><br/>
   <h:commandButton value=
       "#{msg.makeguess_button}" action="#{NumberBean.checkGuess}"/>
 </h:form>
</f:view>
</html>
```

5.7.2. Editing success.jsp page

In the same way like inputnumber.jsp, edit success.jsp page. Its whole source should be the next:

```
<%@ taglib uri="http://java.sun.com/jsf/html" prefix="h" %>
<%@ taglib uri="http://java.sun.com/jsf/core" prefix="f" %>
<f:loadBundle basename="game.messages" var="msg"/>
<html>
<f:view>
```

<h:form id="result"></h:form>
<h:outputformat value="#{msg.success_text}"></h:outputformat>
<f:param value="#{NumberBean.userNumber}"></f:param>
<h:commandbutton value="</td"></h:commandbutton>
"#{msg.trayagain_button}"

Again you can use code assist provided by JBDS when editing jsp page:

aces-config.xml	🖬 messages.properties 🛛 🔞 *success.jsp 🖾 🔭 1	- 0	🧭 JBoss Tools Palette 🛿 🛛 🗖
<pre>40 taglib uri="http://java.sun.com/</pre>		<u>A</u>	🛠 🗐 🧐
<pre><%@ taglib uri="http://java.sun.com/ <f:loadbundle <="" basename="game.message" pre=""></f:loadbundle></pre>			Boss Ajax4jsf
<html></html>	s tur- msg /r		Boss RichFaces
<head></head>		_	🕞 Boss Seam
<title></title>			≥ JSF HTML *
			✓ JSF HTML taglib
<pre><body> <f:view></f:view></body></pre>		6	column
<h:form id="result"></h:form>			
	e="#{msg.success_text}">		@ commandLink
f:param_value=*	#1		ataTable
	(a) msg	E C	cata lable
(Ø NumberBean		graphicImage
			inputHidden
▼ ↓ ↓	applicationScope		** input/idden
X Hannah Van hannah da	(a) cookie		ab inputText
How cool You have quessed the	facesContext		🗄 inputTextarea
	() header		imessage
	③ headerValues		messages
	(a) initParam	L	🐼 outputFormat
	(i) param		/ outputLabel
			t outputLink
	Image:	-	/ outputText
	@ requestScope		🖬 panelGrid
			opanelGroup
html hody fivious hiform hightration	f. n. aram		SelectBooleanCheckbox
html body f:view h:form h:outputFormat	r.param	×	E selectManyCheckbox
Visual/Source Visual Source Preview			selectManyListbox

Figure 5.18. Code Assist for <f:param>

This page, success.jsp, is shown if you correctly guessed the number. The **<h:outputFormat>** tag will get the value of success_text from the properties file. The {0} in success_text will be substituted for by the value of the value attribute within the **<f:param>** tag during runtime.

At the end, you have a button which allows you to replay the game. The action value references a backing bean method. In this case, the method only terminates the current session so that when you are shown the first page, the input text box is clear and a new random number is generated.

• Switch to Preview mode to see how this page will look in a browser:

🔊 faces-config.xml	📾 inputnumber.jsp 🕴 🔳 messages.propertie	es 🛛 📾 success.jsp	"1	- 8
Please pick a nun #{NumberBean.user Make Guess	nber between a 0 and 100. Numbe			
Visual/Source Visual S	ource Preview			

Figure 5.19. Success.jsp in Preview Mode

5.8. Creating index.jsp page

Now you know how to create index.jsp page.

The index.jsp page is the entry point of our application. It's just forwarding to inputnumber.jsp page.

- Right click WebContent > New > JSP File
- Type index for name field and choose JSPRedirect as a template
- · Click Finish
- The source for this page should be like the following:

```
<!doctype html public "-//w3c//dtd html 4.0 transitional//en">
<html>
<body>
<jsp:forward page="/pages/inputnumber.jsf" />
</body>
</html>
```

Note the *.jsf* extension of a page. It means that we trigger the JSF controller servlet to handle the page according the servlet mapping in the faces-config.xml file.

5.9. Running the Application

Finally, we have all the pieces needed to run the application.

- Start up JBoss server by clicking on the *Start* icon in JBoss Server view. (If JBoss is already running, stop it by clicking on the red icon and then start it again. After the messages in the Console tabbed view stop scrolling, JBoss is available)
- Right-click on project Run AS > Run on Server
- Play with the application by entering correct as well as incorrect values

Nozilla Firefox	
<u>File Edit View Go Bookmarks Tools H</u> elp	\diamond
🖕 • 🛶 - 🥰 🙁 😭 🕻 http://localhost:8080/GuessNumber/ 💌 🛛 Go 💽	
Please pick a number between a 0 and 100.	
Make Guess	
Done	

Figure 5.20. You are Asked to Enter a Number Between 0 and 100

🌒 Mozilla Firefox 🗖 🗖
Ele Edit View Go Bookmarks Tools Help
🖕 🗣 🚽 🥵 🛞 🏠 🕻 http://localhost:8080/GuessNumber/pages/inputnumber.jsf 💌 🛽 Go 💽
Please pick a number between a 0 and 100.
• inputNumbers:userNumber: Validation Error: Specified attribute is not between the expected values of 0 and 100.
-6
Make Guess
Done

Figure 5.21. Your Input is Validated and an Error Message is Displayed if Invalid Input was Entered

😢 Mozilia Firefox 📃	
Ele Edit View Go Bookmarks Tools Help	$\langle \rangle$
🔷 • 🍦 - 🤔 💿 😭 🧲 http://localhost:8080/GuessNumber/pages/inputnumber.jsf 💌 🛛 Go	
 Please pick a number between a 0 and 100. Oops incorrect guess. Please try a smaller number. 	
45	
Make Guess	
Done	

Figure 5.22. After You Enter a Guess, the Application Tells You Whether a Smaller or a Larger Number Should be Tried

🕹 Mozilia Firefox		
Eile Edit View Go Bookmarks Tools Help		ं
🖕 🔹 🧼 - 🥰 💿 🏠 🛴 http://localhost:8080/GuessNumber/pages/inputnumber.jsf	🔽 🔘 Go	G,
How cool You have guessed the number, 32 is correct!		
Play Again?		
riay Againt		
Done		

Figure 5.23. Your Guess is Correct

Further Reading

JSF Tools Reference Guide (*html*) [../../jsf_tools_ref_guide/html/index.html] (*html* single) [../../jsf_tools_ref_guide/html_single/index.html] (*PDF*) [../../jsf_tools_ref_guide/pdf/ JSF_Tools_Reference_Guide.pdf]

From this guide you'll discover all peculiarities of work at a JSF project. You'll learn all shades that cover the process of project creation and take a closer look at the JSF configuration file. Also you'll get to know managed beans and how to work with them and find out, how to create and register a custom converter, custom validator and referenced beans in a JSF project.

JSF Tools Tutorial (*html*) [../../jsf_tools_tutorial/html/index.html] (*html single*) [../../jsf_tools_tutorial/html_single/index.html] (*PDF*) [../../jsf_tools_tutorial/pdf/JSF_Tools_Tutorial.pdf]

This tutorial will describe how to deal with classic/old style of JSF development and how to create a simple JSF application using the JBoss Developer Studio.

Struts Tools Reference Guide (*html*) [../../struts_tools_ref_guide/html/index.html] (*html* single) [../../struts_tools_ref_guide/html_single/index.html] (*PDF*) [../../struts_tools_ref_guide/pdf/ Struts_Tools_Reference_Guide.pdf]

In Struts Tools Reference Guide you will learn how to create and work with a new struts project. This guide also provides information about graphical editor for struts configuration files, tiles files, and struts validation files.

StrutsToolsTutorial(html)[../../struts_tools_tutorial/html/index.html](htmlsingle)[../../struts_tools_tutorial/html_single/index.html](PDF)[../../struts_tools_tutorial/pdf/Struts_Tools_Tutorial.pdf]

This tutorial will describe the classical style of Struts development, and will step-by-step show you how to create a simple Struts application in JBoss Developer Studio.

Seam Dev Tools Reference Guide (*html*) [../../seam/html/index.html] (*html single*) [../../seam/ html_single/index.html] (*PDF*) [../../seam/pdf/Seam_Reference_Guide.pdf]

This guide helps you to understand what Seam is and how to install Seam plug-in into Eclipse. It tells you the necessary steps to start working with Seam Framework and assists in a simple Seam Project creation. Also you will learn how to create and run the CRUD Database Application with Seam as well as find out what Seam Editors Features and Seam Components are.

Visual Web Tools Reference Guide (*html*) [../../jsf/html/index.html] (*html single*) [../../jsf/ html_single/index.html] (*PDF*) [../../jsf/pdf/Visual_Web_Tools_Reference_Guide.pdf]

JBoss Server Manager Reference Guide (*html*) [../../as/html/index.html] (*html single*) [../../as/ html_single/index.html] (*PDF*) [../../as/pdf/AS_Reference_Guide.pdf]

This guide covers the basics of working with the JBoss server manager. You will read how to install runtimes and servers and quickly learn how to configure, start, stop the server and know

how deployment and archiving process. You will find out how to manage installed JBoss Servers via JBoss AS Perspective. You will also read how to deploy modules onto the server.

jBPM Tools Reference Guide (*html*) [../../jbpm/html/index.html] (*html single*) [../../jbpm/ html_single/index.html] (*PDF*) [../../jbpm/pdf/jBPM_Reference_Guide.pdf]

With jBPM Tools Reference Guide we'll help you to facilitate a cross-product learning and know how you can speed your development using special editors and visual designers. We'll also guide you through the steps on how to create a simple process and test it within jBPM jPDL perspective.

HibernateToolsReferenceGuide(html)[../../hibernatetools/html/index.html](htmlsingle)[../../hibernatetools/html_single/index.html](PDF)[../../hibernatetools/pdf/Hibernatetools_Reference_Guide.pdf]

Throughout this guide you will learn how to install and use Hibernate Tools bath via Ant and through Eclipse. We'll supply you with the information on how to create mapping files, configuration file as well as a file for controlling reverse engineering by using specific wizards that Hibernate tooling provides. Also you will know about Code Generation and peculiarities of work within Hibernate Console Perspective.

Exadel Studio Migration Guide (*html*) [../../Exadel-migration/html/index.html] (*html* single) [../../Exadel-migration/html_single/index.html] (*PDF*) [../../Exadel-migration/pdf/ Exadel_Studio_Migration_Guide.pdf]

This document is intended to help you to migrate an existing Exadel JSF or Struts projects from Exadel Studio into JBoss Developer Studio.