Getting Started with JBoss Developer Studio

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1. Getting Started with JBoss Developer Studio	. 1
1.1. What is JBDS?	1
1.2. Key Features of JBoss Developer Studio and Requirements	1
1.3. Configuring Your Java Environment	2
1.3.1. Installing and Configuring 32-bit Sun JDK 5.0 on Linux	3
1.3.2. Installing and Configuring 32-bit Sun JDK 5.0 on Microsoft Windows	5
1.4. JBoss Developer Studio Installation	. 5
1.5. JBoss Developer Studio and JBoss Tools	11
1.5.1. What is the difference?	11
1.5.2. JBoss Tools Installation and Update	12
1.6. Welcome to JBoss Developer Studio	15
1.7. Upgrading	20
1.8. Uninstalling	20
1.9. Support	20
1.10. Other relevant resources on the topic	20
2. Manage JBoss AS from JBoss Developer Studio	21
2.1. How to Manage the JBoss AS Bundled in JBDS	21
2.1.1. Starting JBoss Server	22
2.1.2. Stopping JBoss Server	24
2.1.3. Server Container Preferences	24
2.2. How to Use Your Own JBoss AS Instance with JBDS	25
2.2.1. JBoss AS Installation	25
2.2.2. Adding and Configuring JBoss Server	26
3. Write Your First Project with JBoss Developer Studio	31
3.1. Create a Seam Application	31
3.1.1. Start Development Database	31
3.1.2. Create and deploy Seam Web Project	31
3.1.3. Start JBoss Application Server	42
3.1.4. Workshop Project Code Overview	43
3.2. Seam Action Development	45
3.2.1. Create a New Seam Action	46
3.2.2. Test Seam Action	46
3.2.3. Modify Seam Action User Interface	49
3.3. Declarative Security	51
3.3.1. Edit Login Authentication Logic	51
3.3.2. Secure Seam Page Component	51
3.4. Browsing Workshop Database	53
3.4.1. Database Connectivity Setup	53
3.4.2. Browse Workshop Database	54
3.5. Database Programming	56
3.5.1. Reverse Engineer CRUD from a Running Database	56
3.5.2. Use Hibernate Tools to Query Data via JPA	59
3.5.3. Use Hibernate Tools to visualize the Data Model	65
3.6. Rich Components	66

3.6.1. Add a Richfaces component to the CRUD Application	. 67
4. Developing a simple JSP web application	. 71
4.1. Setting Up the Project	. 71
4.2. Creating JSP Page	. 73
4.2.1. Editing a JSP Page	. 74
4.2.2. web.xml file	. 76
4.2.3. Deploying the project	. 77
4.2.4. JSP Page Preview	. 81
4.2.5. Launch JSP Project	. 81
5. RAD development of a simple JSF application	. 83
5.1. Setting up the project	. 83
5.2. Creating JSP Pages	. 84
5.3. Creating Transition between two views	. 86
5.4. Creating Resource File	. 87
5.5. Creating Java Bean	. 91
5.6. Editing faces-config.xml File	. 96
5.7. Editing the JSP View Files	. 97
5.7.1. Editing inputnumber.jsp page	. 97
5.7.2. Editing success.jsp page	104
5.8. Creating index.jsp page	106
5.9. Running the Application	107
6. Project Examples	111
6.1. User Sites	111
6.2. Downloading a Project Example	112
6.3. Quick Fixes	116
7. FAQ	119
7.1. What should I do if Visual Page Editor does not start under Linux	119
7.2. Do I need to have JBoss Server installed to run JBoss Developer Studio?	120
7.3. I have an existing Seam 1.2.1 project. Can I migrate/import the project to a JBDS	
Seam project?	120
7.4. I have an existing Struts or JSF project. Can I open the project in JBDS?	
7.5. Can I import a .war file?	
7.6. Is it possible to increase the performance of Eclipse after installing your product?	
7.7. How can I add my own tag library to the JBoss Tools Palette?	121
7.8. How to get Code Assist for Seam specific resources in an externally generated	
project?	
7.9. How to import an example Seam project from jboss-eap directory?	
7.10. Is a cross-platform project import possible for JBDS?	122
8. Further Reading	123

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.

This guide covers the first steps to get started working with JBoss Developer Studio. You will learn how to install and configure necessary software for your OS (currently Linux, Microsoft Windows or Mac OSX).

Thus this guide will provide you with detailed info on how to start JDK, JBDS and JBoss Tools.

1.2. Key Features of JBoss Developer Studio and Requirements

For a start, we propose you to look through the table of main features of JBoss Developer Studio:

Feature	Benefit
JBoss Enterprise Application Platform	JBoss Developer Studio includes and integrates JBoss Enterprise Application Platform, the same version of the middleware platform that Red Hat supports in production for 5 years.
New Seam Tools	JBoss Developer Studio includes brand new tools for Seam. They provide wizards for creating new Seam projects, validation tools, expression language code completion, testing tools, and wizards for generating entity objects.
Visual Page Editor	JBoss Developer Studio includes a Visual Page Editor for combined visual and source editing of Web pages. The Visual Page Editor even renders AJAX-enabled RichFaces components.
AJAX Capabilities	JBoss Developer Studio includes a Technology Preview of JBoss RichFaces. RichFaces provides nearly 70 skinnable components, including calendar, tree, dropdown menu, drag- and-drop components, and more. JBoss Developer Studio's Visual Page Editor can render RichFaces components.

Table 1.1. Key Functionality of JBoss Developer Studio

Feature	Benefit
JBoss Tools Palette	The JBoss Tools Palette contains a developer's project tag libraries and enables inserting tags into a JSP with one click. The Tools Palette supports custom and 3rd party tags.
JBoss jBPM Tools	JBoss Developer Studio includes jBPM tooling for defining Seam page flows.
Spring Tools	JBoss Developer Studio includes Spring IDE for developing Spring applications.
Struts Tools	JBoss Developer Studio includes Struts tools for Struts 1.x applications.
Optimized JBoss Application Server adapter	JBoss Developer Studio's advanced JBoss AS adapter includes features like incremental deployment for fast development and is pre-configured for the included JBoss Application server.
Red Hat Enterprise Linux and RHN Access	JBoss Developer Studio includes access to Red Hat Enterprise Linux, Linux development tools, and Red Hat Network for development purposes.
Project Examples	Tooling for easy installation of Examples.
JBossWeb Service	JBoss WS is a web service framework developed as a part of the JBoss Application Server. It implements the JAX-WS specification that defines a programming model and run-time architecture for implementing web services in Java, targeted at the Java Platform, Enterprise Edition 5 (Java EE 5).

JBDS requires JDK 5+ (JDK 6 in case of EAP 5.0). Also it's important that the JVM's architecture matches the particular JBDS build, i.e. if you're on a 64-bit system and use the 64-bit JVM, you need the 64-bit JBDS.

For the 32-bit version of JBDS use the 32-bit JVM or just use -vm flag to tell JBDS to use 32-bit java if the 64-bit one is found as the default.

Note:

On Linux system with 64-bit JVM the visual editor may fail to start. In this case you need the libstdc++.so.5 library. See also the <u>FAQ</u>.

1.3. Configuring Your Java Environment

You must have a working installation of JDK before you install JBoss Developer Studio. 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.

1.3.1. 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 <u>Sun JDK 5.0 (Java 2 Development Kit)</u> from Sun's website. Choose "JDK 5.0 Update <x>" (where "x" is the latest update number) for download and then select "Red Hat Package Manager 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 <u>here</u>. 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:

If you have JDK already installed and added in your system path, you should add *\$JAVA_HOME/bin* before the old *\$PATH* (not after it) so that the new version of JDK can be found first, i. e. export PATH=\$JAVA_HOME/bin:\$PATH 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.

1.3.1.1. 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:

There a	sr ~]\$ /usr/sbin/alternativesconfig java re 2 programs that provide 'java'. n Command
Selectio	n Commanu
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

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'. 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)

1.3.2. 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 <u>Sun JDK 5.0 (Java 2 Development Kit)</u> 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.

1.4. JBoss Developer Studio Installation

This chapter will provide you with detailed information on how to install JBoss Developer Studio.

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:

- First of all you need the appropriate installation file for your platform from <u>Red Hat website</u>.
- Then run in console:

java -jar jbdevstudio-eap-linux-gtk-2.1.0.GA.jar

• Follow the instructions presented by the installation wizard:

JBoss Developer Studio 2.1.0.GA	×
Introduction Step 1 of 10	
🔥 Please read the following information:	
This installer will guide you through the installation of JBoss Developer Studio 2.1.0.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	9

Figure 1.1. JBoss Developer Studio Installation Wizard

- Provide the installation path
- Select Java VM

JBoss Developer Studio 2.1.0.G	A
Select Java VM Step 4 of 10	ABSS DEVELOPER STUDIO
JBoss Developer Studio needs Java 5 and does not work with gij java. O Default Java VM Specific Java VM	
/usr/lib/jvm/java-1.5.0-sun-1.5.0.16/jre	😭 Browse
JBoss, a division of Red Hat	🕞 Previous 💽 Next 😣 Quit

Figure 1.2. Select Java VM

	Tip:
	By selecting <i>Default Java VM</i> 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.
	Note: JBoss Developer Studio needs Java 5 and "gij" isn't available on every platform.

• Installation process includes <u>JBoss Enterprise Application Platform</u>. Select Yes to use it in JBoss Developer Studio.

Note:

JBDS 2.0.0.GA comes integrated with JBoss EAP 4.3, while the current 2.1.0.GA release of JBDS comes with JBoss EAP 5 that support EAP 5 adapter and Seam 2.2.

This step lets you configure locally available JBoss Application Servers:

3	JBoss Develop	er Studio 2.1.0.GA	
JBoss Enterprise Step 5 of 10	e Application Platf	orm	JESSE DEVELOPER STUDIO
 Yes, and have it re No 	udes JBoss Enterprise Applica eady for use in Developer Stu t to be configured in Develop		
Name	Type Version	Location	Find
			Add
			Edit
			Remove
JBoss, a division of Red Hat -			
		O Previous	🔾 Next 😡 Quit

Figure 1.3. JBoss Enterprise Application Platform Installing

• You can fill the list automatically using the *Find* button: click *Find*, select a folder where search of available JBoss Application Servers should be started and click on *Ok*:

	Select JBoss AS	Installation Root Fo	lder
Look <u>i</u> n: 📔 u	ser	•	💿 🛧 📑 💷
🖹 Desktop		📄 Pictures	E
🔁 Documents		🔁 Public	
🖹 Eclipse		📄 Templates	E
🔁 Examples		🔁 Videos	E
🔁 jbdevstudio)	🔁 work	6
🔁 maven-2.0	.1	🖹 workspace	E
🔁 Music		🔁 workspace 1	6
🖹 NewFolder		🔁 workspace_23	6
•)
File <u>N</u> ame:	/home/user		
Files of <u>Ty</u> pe:	All Files		-
			Ok Cancel

Figure 1.4. Finding Servers in the Selected Directory

- All available servers in the selected directory will be added to the list with the following information specified: Name, Type, Version and Location.
- You can also add servers one by one using the *Add* button:

	Add Server	×
Server Add Serve		Ś
Location: Name: Type: Version:	○ EAP ○ SOA-P ○ AS	Browse
		Ok Cancel

Figure 1.5. Add Server to be Configured

Click on *Browse* and select the server location. Fields Name, Type and Version will be filled in automatically:

	Add Server	×
Server Add Server		6
Location: Name: Type: Version:	/opt/jboss-4.2.3.GA Jboss-4.2.3.GA O EAP O SOA-P O AS 4.2 V	Browse
		Ok Cancel

Figure 1.6. Specify Server Location

Click on Ok. The server is added to the list with the details on its type, version and location.

The *Remove* button will the remove the selected server from the list. If necessary, you can edit the server details clicking on the *Edit* button:

	Edit Server	×
Server Edit Selecte	ed Server	?
Location: Name: Type: Version:	/opt/jboss-4.2.3.GA jboss-4.2.3.GA O EAP O SOA-P O AS 4.2 V	Browse
		Ok Cancel

Figure 1.7. Edit Server

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

JBoss Developer Studio 2.1.	0.GA -
Summary Information Step 7 of 10	Jitoss DEVELOPER STUDIO
Ready to install. Important data are listed below. Press "Next" to start in	istallation,
Installation path	
/opt/jbdevstudio	
Java VM path:	
/usr/lib/jvm/java-1.5.0-sun-1.5.0.16/jre	
Following components will be installed: JBoss Developer Studio 2.1.0.GA	
Eclipse	
Disk Space:	
Available Disk Space: 1.16 GB	
Required Disk Space: 510.6 MB	
JBoss, a division of Red Hat	
	O Previous Next 😡 Quit
	V Previous Vext

Figure 1.8. Summary Information

1.5. JBoss Developer Studio and JBoss Tools

This section uncovers the points on the differences between JBoss Developer Studio and JBoss Tools and provides the steps on JBoss Tools installation as well.

1.5.1. What is the difference?

JBoss Tools is what went into our JBoss Developer Studio which comes as an easy-to-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 <u>JBoss.com</u>

1.5.2. JBoss Tools Installation and Update

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 and Web Tools (make sure you have the appropriate version of Eclipse)

The current version of JBoss Tools (3.1.M2) targets at Eclipse 3.5/Galileo which is available from *eclipse.org*

Tip:

We recommend you do not use Eclipse.org update site to go from old version of Eclipse to new one. Instead we suggest that you download the full binary from <u>here</u>.

If you can only use Eclipse 3.3 use <u>JBoss Tools 2.1.2</u>, but JBoss Tools 2.x will not have any of the new features.

Note:

Remember to choose the download that matches your OS and use Java 5 when you run it.

• Get the *latest JBoss Tools build*

Some of our newer plugins, like TPTP and BIRT, need additional drivers. On the left side of the download page you can find all of the required drivers for chosen build and their versions.

Instead of downloading the nightly build version manually, it's also possible to get the latest release of JBoss Tools from one of our update sites:

- Stable Updates: <u>http://download.jboss.org/jbosstools/updates/stable</u>
- Development Updates: <u>http://download.jboss.org/jbosstools/updates/development</u>
- 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 <u>JBoss Tools Wiki</u> page to read about dependencies between standalone plug-ins.

You can update Jboss Tools and install a new version with the help of "Install" wizard (Help > Install New Software...)

3	Install
Available Software	
Check the items that you wish to insta	II B
Work with Development Heddeter. It	the Walanda and these are the set of a fundation of the set of a set
	ttp://download.jboss.org/jbosstools/updates/deve v Add
Find mor	re software by working with the <u>'Available Software Sites'</u> preferences
type filter text	
Name	Version
)34(
🗆 🍫 FreeMarker IDE	1.1.0.v200909110340M-H277-M3
🗌 🍫 Hibernate Tools	3.3.0.v200909110340M-H277-M3
🗌 🍫 JBoss Archives Tools	3.1.0.v200909110340M-H277-M3
🗌 🖗 JBoss BPEL Editor	1.0.0.v200909110340M-H277-M3
🗌 🍫 JBoss Drools Core	5.1.0.v200909110340M-H277-trunk
🗌 🍫 JBoss Drools Guvnor	5.1.0.v200909110340M-H277-trunk
🗌 🍫 JBoss Drools Task	5.1.0.v200909110340M-H277-trunk
🗆 🍫 JBoss ESB Tools	1.3.0.v200909110340M-H277-M3
🗌 🍫 JBoss Portlet	1.1.0.v200909110340M-H277-M3
☐ ♦ JBoss Tools RichFaces	3.1.0.v200909110340M-H277-M3
🗌 🍫 JBoss WebServices Tools	1.1.0.v200909110340M-H277-M3
🗌 🍫 JBossAS Tools	2.1.0.v200909110340M-H277-M3
🗌 🍫 jBPM 4 Tools	4.0.0.v200909110340M-H277-M3
🗌 🍫 jBPM Convert	1.1.0.v200909110340M-H277-M3
BPM jPDL Tools	3.1.7.v200909110340M-H277-GA
🗌 🍫 JMX Console	1.1.0.v200909110340M-H277-M3
🗌 🍫 Project Examples	1.1.0.v200909110340M-H277-M3
🗆 🍲 Seam Tools	3.1.0.v200909110340M-H277-M3
Details	
	(
7 Show only the latest versions of ava	ilable software 🔲 Hide items that are already installed
Group items by category	What is <u>already installed</u> ?
<u>Contact all update sites during instal</u>	ll to find required software
?	< Back Next > Cancel Einish
<u> </u>	

Figure 1.9. Updating Jboss Tools

In "Work with" field add the path to the source to update from (e.g. http://download.jboss.org/ jbosstools/updates/development), check the necessary software to install, more information about chosen software can be found in "Details" section.

Follow "Available Software Sites" link to find more site to update from

		Preferences		
ype filter text	Available Software Sites			
General				
Ant	type filter text			
Drools Drools Task	Name ^	Location http://download.eclipse.org/releases/galileo	Enabled Enabled	Add
FreeMarker Editor		http://download.ecilpse.org/jeleases/gailleo http://download.jboss.org/jbosstools/updates/developmer	Enabled	Edit
Guvnor Help	🐗 The Eclipse Project Updat	http://download.eclipse.org/eclipse/updates/3.5 http://download.eclipse.org/eclipse/updates/3.5	Enabled Disabled	Bemove
Install/Update Automatic Updates	4	http://download.eclipse.org/modeling/emf/updates/	Disabled	Test <u>C</u> onnection
Available Software Sites Java	4	http://download.eclipse.org/modeling/emft/updates/ http://download.eclipse.org/modeling/mdt/updates/	Disabled Disabled	Disable
Java EE IBoss jBPM		http://download.eclipse.org/tools/gef/updates/releases/sit http://download.eclipse.org/webtools/updates	Disabled Disabled	Export
JBoss Tools				
Plug-in Development Project Archives				
Run/Debug				
Server				
Team				
Validation Web				
Web Services				
XDoclet				
XML				
	<	III)

Figure 1.10. Available Software Sites

Note:

While installing JBoss Tools on GNU/Linux (64-bit) through the eclipse installation manager you may run into some problems which can interrupt your installation process. Please, read the *Manual installation of JBoss Tools 3.1.x on Eclipse 3.5* on GNU/Linux (64-bit) wiki article which provides you with the necessary steps to do it correct.

1.6. 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.

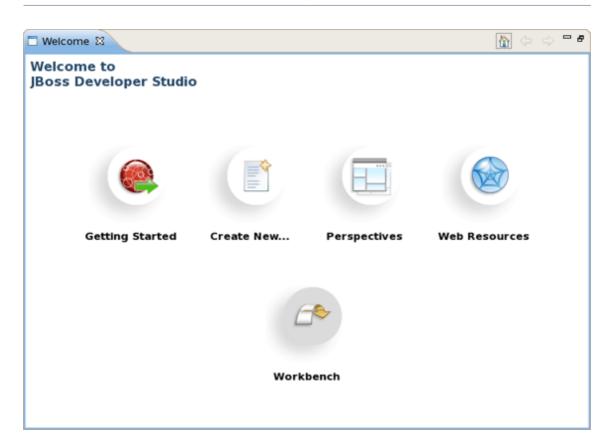


Figure 1.11. Welcome to JBoss Developer Studio

With the help of its page you will be able:

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

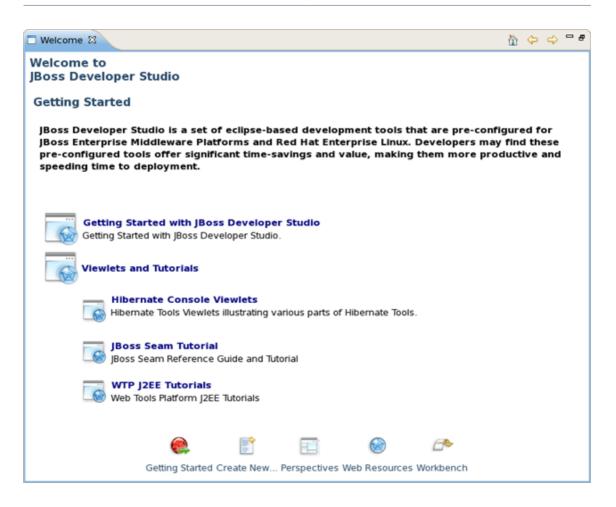


Figure 1.12. Getting Started Documentation

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

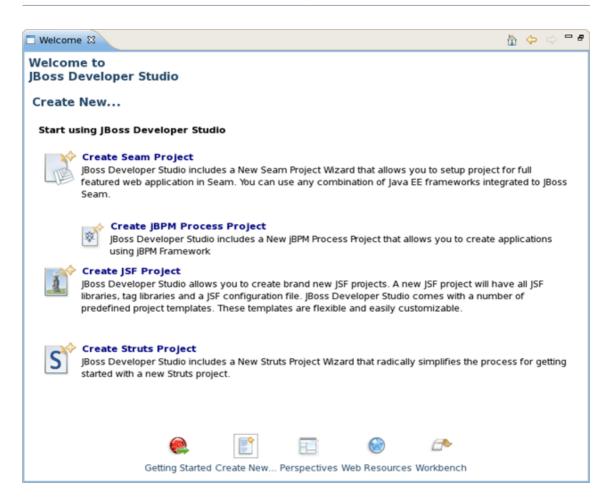


Figure 1.13. Create New...

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

Welcome 🕴	h 🔶 🗅 🗗
Welcome to JBoss Developer Studio	
Available	
JBoss Developer Studio offers a number of perspectives making the develop	oment more productive
The Java EE Perspective The Java EE perspective includes workbench views that you can use when devel enterprise applications, EJB modules, Web modules, application client modules, a modules.	
Seam Perspective The Seam perspective helps you to use all advantages of Seam Framework in yo	our applications.
Database Development perspective The Database Development perspective allows you to create, modify, and exect SQL files.	ute database objects and
Hibernate Console perspective The Hibernate Console perspective allows you to configure database connection of classes and their relationships and allows you to execute HQL queries interact database and browse the query results.	
i i i i i i i i i i i i i i i i i i i	•
Getting Started Create New Perspectives Web Resources Workbe	ench

Figure 1.14. Perspectives

• to visit JBoss Developer Studio web resources.

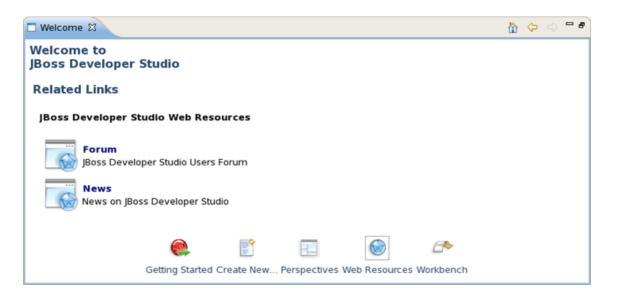


Figure 1.15. Web Resources

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

1.7. Upgrading

To upgrade, of course you can uninstall your current version and install the new one.

Now it's possible to upgrade from JBDS 2.0 to 2.1 using the update site which is available at <u>http://</u> <u>devstudio.jboss.com/updates/2.1</u>. This is described more fully in the <u>JBDS Update Guide</u>.

1.8. Uninstalling

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

1.9. Support

If you have comments or questions, you can discuss them at our <u>JBoss Developer Studio Forum</u>.

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

JBDS subscribers can get necessary support on our Support Portal.

1.10. Other relevant resources on the topic

JBDS on RedHat: JBoss Developer Studio

Forum: JBoss Forum

Wiki: JBossToolsWiki

Subscription: JBDS Subscription

The latest documentation builds are available here.

Matrix of supported platforms, runtimes and technologies in JBossTools/JBDS

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 2.1.0.GA is shipped with JBoss EAP 5. When you followed the default installation of JBoss Developer Studio, you should already have a JBoss EAP 5 Server installed and defined. To run JBoss AS 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. The server points to the JBoss Enterprise Application Platform 5.0 Runtime shipped with JBDS.

 General Add, remove, or edit server runtime environments. Server runtime environments: Server runtime environments: Server runtime environments: Name Type Add Server runtime environments: Name Type Add Server runtime environments: Server runtime environment Server runtime environment Server runtime environment Server runtime environment Server Audio Launching Feat Server Audio Launching Verbibeverues XML Verbibeverues Verbibeverues Verbibeverues Verbibeverues Verbibeverues Verbibeverues Verbibeverue <	9			Preferences	
 Ant Data Management Drools FreeMarker Editor Guvnor Help HQL editor Install/Update Java Java JavaGript JBoss JBPM Server Audio Launching Run/Debug Server Audio Launching Run/Debug Service Policies Spring Team TestNG Validation Web Web Services XDoclet XML Vopt/bdevstudio/jboss-eap/jboss-as 	b	pe filter text	Server Runtime Envi	ronments	\$~\$~ ~
 Data Management Drools FreeMarker Editor Guvnor Help HQL editor Install/update Java JavaScript JBoss jBPM Java jBPM JBoss jBPM JBoss jBPM Java jBPM<	Þ	General	Add, remove, or edit se	rver runtime environments.	
▷ Drools FreeMarker Editor Guvnor ▷ Help HQL editor ▷ Install/Update ▷ JavaScript ▷ JavaScript ▷ JavaScript ▷ JavaScript ▷ JBoss Tools JPA ▷ Plug-in Development Project Archives ▷ Run/Debug ♡ Server Audio Launching Run/Debug ♡ Server Audio Launching Run/Debug ♡ Server Audio Launching Run/Debug ♡ Server Audio Launching Putime Environment TestTNG Validation ▷ Web ▷ Web > Web Services ▷ XDoclet ▷ XML ♥ Vot/jbdevstudio/jboss-eap/jboss-as	Þ	Ant	Server runtime environm	ments:	
 Drools FreeMarker Editor Guvnor Help Help HQL editor Install/update Java JavaScript Jaoss iBPM JBoss iBPM JBoss iBPM JBoss iBPM JBoss iBPM Plug-in Development Project Archives Run/Debug Service Policies Spring Team TestNG Validation Web Validation Validation	Þ	Data Management	Name	Туре	Add
FreeMarker Editor Guvnor b Help HQL editor b Install/update b Java b JavaScript b JBoss jBPM b JBoss Tools jPA b Plug-in Development Project Archives b Run/Debug Team Service Policies b Spring b Team TestNG Validation b Web b Web Services b XDoclet b XML v /pt/jbdevstudio/jboss-eap/jboss-as	Þ	Drools	🤯 įboss-eap Runtime		
b Help HQL editor install/Update java javaScript jBoss jBPM jBoss jBPM jBoss Tools jPA Plug-in Development Project Archives Run/Debug Server Audio Launching Runtime Environment Service Policies Spring Team TestNG Validation Web Web Web Web Web Web jour (pt/jbdevstudio/jboss-eap/jboss-as		FreeMarker Editor			<u>E</u> dit
HQL editor b Install/Update b Java b JavaScript b JBoss jBPM b JBoss Tools jPA b Plug-in Development Project Archives b Run/Debug ▼ Server Audio Launching Runtime Environment Service Policies b Spring b Team TestNG Validation b Web b Web b Web b Web b Web c MuL valioution(boss-eap/boss-as		Guvnor			Bemove
 Install/Update java javaScript jBoss jBPM jBoss jBPM jBoss jBPM jBoss jBPM playaScript jBoss jBPM playaScript playaScri	Þ	Help			
 java javaScript jBoss Tools jPA Plug-in Development Project Archives Run/Debug Server Audio Launching Runtime Environment Service Policies Spring Team TestNG Validation Web Web Services XML Vopt/jbdevstudio/jboss-eap/jboss-as 		HQL editor			Search
 javaScript jBoss jBPM jBoss Tools jPA Plug-in Development Project Archives Run/Debug Server Audio Launching Runtime Environment Service Policies Spring Team TestNG Validation Web Ynll Image: Note that the service of the service	Þ	Install/Update			
 ▷ JBoss jBPM ▷ JBoss Tools JPA ▷ Plug-in Development Project Archives ▷ Run/Debug ▽ Server Audio Launching Runtime Environment Service Policies ▷ Spring ▷ Team TestNG Validation ▷ Web ▷ Web ▷ Web ▷ Web ▷ XML ✓ /opt/jbdevstudio/jboss-eap/jboss-as 	Þ	Java			
 ▷ JBoss Tools JPA ▷ Plug-in Development Project Archives ▷ Run/Debug ▽ Server Audio Launching Puntime Environment Service Policies ▷ Spring ▷ Team TestNG Validation ▷ Web ▷ Web ▷ Web ▷ Web ▷ Web ▷ Web ▷ XML ✓ /opt/jbdevstudio/jboss-eap/jboss-as 	Þ	JavaScript			
jPA Plug-in Development Project Archives Run/Debug Server Audio Launching Runtime Environment Service Policies Spring Team TestNG Validation Validation Web Web Web Services XDoclet XML /opt/jbdevstudio/jboss-eap/jboss-as	Þ	JBoss jBPM			
 Plug-in Development Project Archives Run/Debug Server Audio Launching Runtime Environment Service Policies Spring Team TestNG Validation Web Web Web Web Web XDoclet XML ✓ 	Þ	JBoss Tools			
Project Archives ▶ Run/Debug ▼ Server Audio Launching Runtime Environment Service Policies ▶ Spring ▶ Team TestNG Validation ▶ Web ▶ Web ▶ Web ▶ Web ▶ Web ▶ Web ▶ XML ✓ III ▶ //pt//bdevstudio/jboss-eap/jboss-as		JPA			
 Run/Debug Server Audio Launching Runtime Environment Service Policies Spring Team TestNG Validation Web Web Web Services XDoclet Valla /opt/jbdevstudio/jboss-eap/jboss-as 	Þ	Plug-in Development			
 Server Audio Launching Runtime Environment Service Policies Spring Team TestNG Validation Web Web Web XML /opt/jbdevstudio/jboss-eap/jboss-as 		Project Archives			
Audio Launching Runtime Environment Service Policies Spring TestNG Validation Web Web Web Validation Validation Output/jbdevstudio/jboss-eap/jboss-as	Þ	Run/Debug			
Launching Runtime Environment Service Policies Spring TestNG Validation Web Web Web Services XDoclet XML /opt/jbdevstudio/jboss-eap/jboss-as	V	Server			
Runtime Environment Service Policies > Spring > Team TestNG Validation > Web > Web Services > XDoclet > XML		Audio			
Service Policies Service Policies Service Policies Service Policies Team TestNG Validation Web Web Web Services XDoclet SML (opt/jbdevstudio/jboss-eap/jboss-as		Launching			
 Spring Team TestNG Validation Web Web Services XDoclet XML /opt/jbdevstudio/jboss-eap/jboss-as 		Runtime Environment			
▶ Team TestNG Validation ▷ Web ▷ Web Services ▷ XDoclet ▷ XML ✓ /opt/jbdevstudio/jboss-eap/jboss-as		Service Policies			
TestNG Validation	Þ	Spring			
Validation Validation Web Web Services XDoclet XML (opt/jbdevstudio/jboss-eap/jboss-as	Þ	Team			
Web Web Services XDoclet XML (opt/jbdevstudio/jboss-eap/jboss-as)		TestNG			
Web Services XDoclet XML (opt/jbdevstudio/jboss-eap/jboss-as		Validation			
▷ XDoclet ▷ XML ✓ /opt/jbdevstudio/jboss-eap/jboss-as	Þ	Web			
XML /opt/jbdevstudio/jboss-eap/jboss-as	Þ	Web Services			
/opt/jbdevstudio/jboss-eap/jboss-as	Þ	XDoclet			
	_	C	/opt/ibdevstudio/iboss-e	ap/iboss-as	
	3		/optilogevargeio/joosa-e	uninees of	
U Calcer	0	0		ок	Cancel

Figure 2.1. JBoss EAP 5.0 Runtime

To read more about AS plug-in, refer to the Server Manager guide.

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*

🖹 Problems 🤕 Tasks 🛞 Seam Components 😳 JBoss Server View 😫	* 👰 🌮 🗉 😰 ⊽ ⊓ 🗗
🗢 🤯 jboss-eap [Stopped, Synchronized]	Start the server
🔓 JSFKickStart [Synchronized]	
🗟 Filesets	
👂 🗁 Ports	

Figure 2.2. Starting from Icon

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

🖹 Problems 🧔 Tasks	🤪 JBoss Server View 🖃 Console 🕴	- 0
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 INFO	[Server] Release ID: JBoss [EAP] 4.2.0.GA (build: SVNTag=JBPAPP_4_2_0_G	A d
16:31:17,373 INFO	[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 INFO	[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 INFO	[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 INFO	[ServerInfo] OS-System: Linux 2.6.18-8.el5xen,i386	
16:31:20,559 INFO	[Server] Core system initialized	
16:31:29,515 INFO	[WebService] Using RMI server codebase: http://127.0.0.1:8083/	
16:31:29,534 INFO	[Log4jService\$URLWatchTimerTask] Configuring from URL: resource:jboss-l	
16:31:32,045 INF0	[TransactionManagerService] JBossTS Transaction Service (JTA version) -	JB
16:31:32,049 INFO	[TransactionManagerService] Setting up property manager MBean and JMX l	aye
16:31:32,829 INFO	[TransactionManagerService] Starting recovery manager	
16:31:33,323 INFO	[TransactionManagerService] Recovery manager started	
16:31:33,325 INFO	[TransactionManagerService] Binding TransactionManager JNDI Reference	
GI.		TR U
CL		

Figure 2.3. Console Output

When the server is started you should see *Started* in the square brackets right next its name in JBoss Server View.

😰 Problems 🖉 Tasks 📨 Seam Components 记 JBoss Server View 🛿	蓉	0	ø	ŧ₽	~	- 0
🗢 🤣 jboss-eap [Started, Synchronized]						
🐻 JSFKickStart [Synchronized]						
🗎 Filesets						
👂 🗁 Ports						

Figure 2.4. Server is Started

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 2.5. Stopping Server

When the server is stopped you will see *Stopped* in the square brackets next to its name.

2.1.3. Server Container Preferences

You can control how JBoss Developer Studio interacts with server containers in the Server editor. Double-click the server to open it in the editor.

🍹 JBoss 4.2 Server 🖾		•
🖥 Overview		
General Information Specify the host name ar Server name:	nd other common settings. JBoss 4.2 Server	Publishing Timeouts
Host name: <u>Runtime Environment:</u>	localhost JBoss 4.2 Runtime	✓ Server Polling Startup Poller JMX Poller
Open launch configurati	_	Shutdown Poller Process Terminated Poller 🗘
be copied to before bein This folder should be on t as the deploy folder.		The ports entered here are which ports the tools will poll the server on. Changing these fields will not change the ports the server itself listens on. INDI Port
 Use workspace meta Use the JBoss deploy 	adata (does not modify jBoss deploy folder) y folder	Image: Image in the image
 Use a custom deploy 	y folder	
Deploy Directory Temporary Deploy Direct	Diowse	
🝷 Login Credentials		
Set the login and passwo This will ensure it starts a		
User Name admin Password admin		
Overview	III)

Figure 2.6. Server Overview

Here you can specify some common settings: host name, server name, runtime as well as settings related to the publishing, timeouts and server ports.

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

Although JBoss Developer Studio works closely with JBoss EAP 5 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 4.2.3 server. First of all you need to install it.

2.2.1. JBoss AS Installation

• Download the binary package of JBoss AS, e.g. JBoss 4.2.3 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-4.2.3.GA.zip archive contents into a location of your choice. The jboss-4.2.3.GA.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-4.2.3.GA directory.

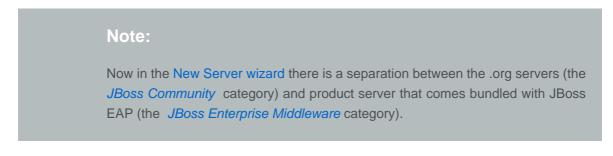
2.2.2. Adding and Configuring JBoss Server

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*
- Right click anywhere in this view and select New Server
- Select JBoss Community > JBoss 4.2 Server

🛞 New Server	×
Define a New Server	
Choose the type of server to create	
Server's <u>h</u> ost name: localhost	
Download additional se	erver adapters
Select the server type:	
type filter text	
D 🗁 IBM	<u>^</u>
▽ 🗁 JBoss Community	
JBoss AS 3.2	
JBoss AS 4.0	
😲 JBoss AS 4.2	=
JBoss AS 5.0	
JBoss Deploy-Only Server	
Boss Enterprise Middleware	-
▷ ➢ ObjectWeb	
JBoss Application Server 4.2 Server name: JBoss AS 4.2 at localhost	
② < Back Next > Finish	Cancel

Figure 2.7. Selecting Server Name and Server Type



- To create a new runtime, which Jboss AS 4.2 matches to, click Next
- In the next step make JBoss Developer Studio to know where you have installed the Server and define JRE.

😔 New Server Runtime Environment	×
Edit a JBoss Runtime	Bocc
JBoss Application Server 4.2	by Red Hat
A JBoss Server runtime references a JBoss installation directory. It can be used to set up classpaths for projects which depend on a as well as by a "server" which will be able to start and stop instance	
Name	
JBoss 4.2 Runtime	
Home Directory	
/opt/jboss-4.2.3.GA	Browse
JRE	
Default JRE	\$ JRE
Configuration	
Directory: server	Browse
🌐 all	Copy
🕡 default	Delete
🌐 minimal	Delecent
? < <u>Back</u> Next > Cancel	Einish

Figure 2.8. Defining JBoss Runtime

Note:

When adding a new server you will need to specify what JRE to use. It is important to set this value to a full JDK, not JRE. Again, you need a full JDK to run Web applications, JRE will not be enough.

• In the next dialog verify the specified information and if something is unfair go back and correct it

•	New Server	
Create a new JBos	s Server	
JBoss Application Se	rver 4.2	
It manages comman Runtime Information If the runtime inform	nation below is incorrect, please press back, Installed Runtimes,	
	ate a new runtime from a different location.	
Home Directory	/opt/jboss-4.2.3.GA /usr/lib/jvm/java-1.5.0-sun-1.5.0.16 (java-1.5.0-sun-1.5.0.16)	
Configuration Locat		
Configuration	default	
?	< <u>B</u> ack Next > Cancel Einish	

Figure 2.9. JBoss Runtime Summary

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

	New Server		
dd and Remove Projects Modify the projects that are config	gured on the server		
love projects to the right to confi	igure them on the server		
vailable projects:		Configured projects:	
💪 JSFKickStart]		
	Add >		
	< <u>R</u> emove		
	Add All >>)	
	<< Remove All	J	
]		
(?)	< Back Next :	Finish	Cancel

Figure 2.10. Configuring Projects

A new JBoss Server should now appear in the JBoss Server view.



Figure 2.11. 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 <u>download</u> 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:

2	Terminal	
<u>File Edit View T</u> e	rminal 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/s Initiating startup sequence Server socket opened successfully in 19 ms. Database [index=0, id=0, db=file:employee, alias=] openet [index=0]</pre>	pened suce

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 allows the wizard to correctly identify where the needed datasource and driver libraries need to go.

Chapter 3. Write Your First Project with JBoss Developer Studio

Geam Web Project Create standalone Seam Web Project Project name: workshop -Contents	
Project name: workshop	
Contents	
☑ Use <u>d</u> efault	
Directory: //opt/workspace_jbds/workshop	Browse
Target Runtime	
JBoss EAP 4.3 Runtime	≎ N <u>e</u> w
Dynamic Web Module version	
2.5	0
Target Server	
JBoss EAP 4.3 Server	\$ New
Configuration	
Dynamic Web Project with Seam 1.2	S Modify
Configures a Dynamic Web application to use Seam v1.2	

Figure 3.3. New Seam Project Wizard

All settings are already specified here, you can just modify the Configuration. Click on the *Modify...* button to configure your custom facets pattern:

	Project Face	ts
Project Facets Select the facets that should be ena	abled for this project.	
Configurations: Dynamic Web Proje	ct with Seam 1.2	≎ <u>S</u> ave As <u>D</u> elete
Project Facet	Version	Details Runtimes
🕨 🔲 🗎 Axis2 Web Services		Axis2 Web Services
🗹 💑 Dynamic Web Module	2.5	Enables Web services generation
🗹 🔬 Java	5.0	through the Axis2 Web services engine.
🗌 🚸 Java Persistence	1.0	
🗌 📄 JavaScript Toolkit	1.0	
🗹 📄 JavaServer Faces	1.2	
🗌 📄 JBoss ESB	4.3	
🕨 📄 JBoss Portlets		
🖓 🔲 📄 JBoss Web Services		
🗹 📄 Seam	1.2	
🗌 📄 WebDoclet (XDoclet)	1.2.3	
0		OK Cancel

Figure 3.4. Project Facets Specifying

On the whole the dialog allows to select the "features" you want to use in your project. Doing this JBoss Developer Studio setups 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 the default configuration, Dynamic Web Module, Java, JavaServer Faces (JSF), and Seam Facet are already selected for a typical database-driven web application. The default project facets should suffice.

In the Project Facets form you can also bring up server runtimes panel by clicking Runtimes tab on the right corner. This panel shows available server runtimes.

	Project Fac	ets
Project Facets Select the facets that should be ena	abled for this project.	
Configurations: Dynamic Web Proje	ct with Seam 1.2	\$ Save As Delete
Project Facet	Version	Details Runtimes
 Axis2 Web Services Dynamic Web Module Java 	2.5	JBoss 4.2 Runtime
 Inva <li< td=""><td>1.0</td><td></td></li<>	1.0	
JavaServer Faces	1.2	
 JBoss Portlets JBoss Web Services 		
 ✓ Seam ✓ WebDoclet (XDoclet) 	1.2 1.2.3	
		Show all runtimes
		Make Primary New Runtime Composition:
		<no runtime="" selected=""></no>
111		
0		OK Cancel

Figure 3.5. Runtimes Selecting

Click on *Ok* and then *Next* to proceed further.

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	
Veb Module		
Configure web module settin	igs.	
Context Root:		
workshop		
Content Directory:		
WebContent		
ava Source Directory:		
src		
🗹 Generate Deployment De	scriptor	
Generate Deployment De	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 <u>JSF implementation</u> that comes with JBoss server
- Click Next

9	New Seam Project 🗙
JSF Capabilities Add JSF capabilities to the	his 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
URL Mapping Patterns:	*.seam
0	< <u>Back</u> <u>Next</u> <u>Finish</u> 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.

۲	New Seam Project	×
Seam Facet		A Com
Configure Seam l	Facet Settings	
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*

8	ies for	×	
type filter text	JDBC Conne	ection Properties	⇔* ⇔*
Common Default Schema Filter	Select a driv Hypersonic	•	
Default Stored Procedure Filter Default Table Filter	Database:	SAMPLE	
JDBC Connection Properties	URL:	jdbc:hsqldb:hsql://localhost:1701	
Version	User name:	sa	
	Password:		
	Save Pas	sword	

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 Definition	
Provide Driver Details	
Modify details in the fields below to provide a unique name, a list of re ars, and set any available and applicable property values.	equired
Name/Type Jar List Properties	
Driver <u>fi</u> les:	
/home/vchukhutsina/jbdevstudio/jboss-eap/jboss-as/server/default/lil	Add JAR/Zip
	Edit JAR/Zip
	Bemove JAR/Zip
	<u>C</u> lear All
О 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.

Driver Definitions)
vailable Driver Definitions		
Add, edit, or remove driver definitions to manage available d	lriver	
definitions.		
マ 👒 Derby	-	Add
G 10.0		Edit
G 10.1		
G 10.2		Remove
👒 Generic JDBC Driver		Сору
マ 👒 Hypersonic DB	_	
▽ 👒 1.8		
Hypersonic DB		
🗢 🖼 Informix		
G 10.0	=	
9.2		
9.3		
9.4		
🗢 🖼 MySQL		
G 4.0		
G 4.1		
G 5.0		
G 5.1		
🗢 🖼 Oracle		
G 10	•	
0	ОК	Cancel

Figure 3.12. Hypersonic DB Selecting

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

ම	Propert	les for X
type filter text	JDBC Conne	action Properties $\diamond \star \star$
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
See Ping succeed		dd Jp OK Dwn nove
0		Clear All Test Connection 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	e: org.domain.workshop.session			
2				
Entity Bean Package Name:	org.domain.workshop.entity			
Test Package Name:	org.domain.workshop.test			
	< Back Next > Einish Cancel			
2				

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.

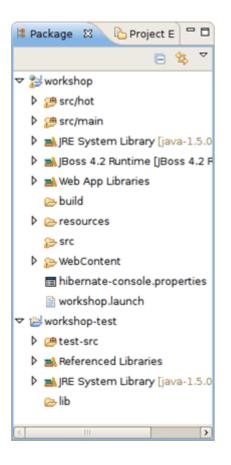


Figure 3.15. "worskhop" Project in the Package Explorer

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 the Start the server icon (

) in the JBoss Server View.

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



Your project looks like this:

🥹 v	vorksl	hop	×			- 0
¢			÷	http://localhost:8080/workshop/home.seam	•	\$
wo	rkshop	:	Home		Login	
	Welc	ome				
	This	 	Ant buil Deployr ntegrat EJB 3.0 Fempla HSQL (Default	II application includes: d script ment to JBoss AS tion testing using TestNG and JBoss Embeddable EJB3) Seam components ted Facelets views (or MySQL) Datasource CSS stylesheet tionalization support		
				Powered by Seam. Generated by seam-gen.		

Figure 3.16. "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.

It's important to note that the business logic will reside in the *src/hot* folder, by default. And, the package naming conventions that were used in New Seam project 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/main* folder is a model directory. It stores the project's JPA entity beans.

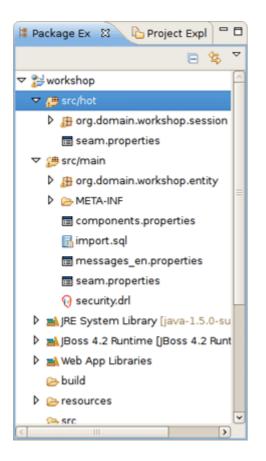


Figure 3.17. Project Structure

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.

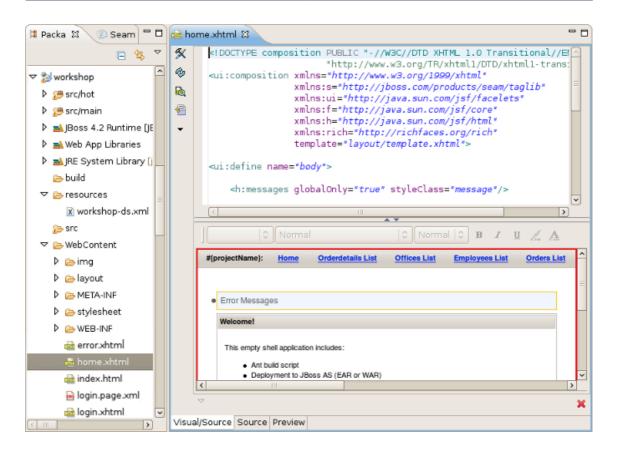


Figure 3.18. Facelets GUI Editor

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.

9	New Seam Action
Seam Action Create a new Seam 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 3.19. 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.

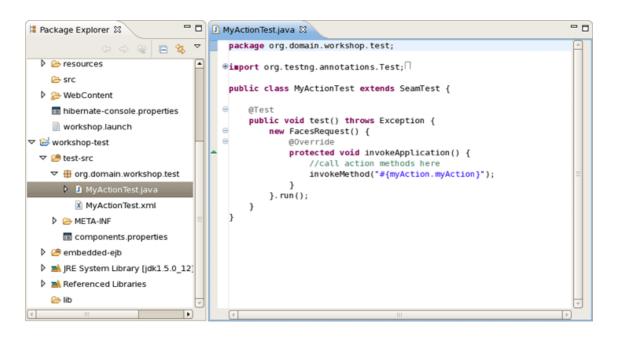


Figure 3.20. "workshop-test" Project

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.

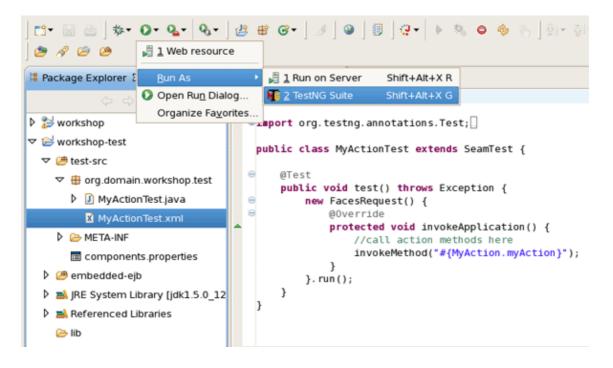


Figure 3.21. TestNG Running

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

MyAction.java		- 8
<pre>package org.domain.workshop.test;</pre>		A
<pre>@import org.testng.annotations.Test;</pre>		
<pre>public class MyActionTest extends SeamTest {</pre>		_
<pre>@Test public void test() throws Exception {</pre>		_
new FacesRequest() { @ @0verride		
<pre>protected void invokeApplication()</pre>	{	
<pre>//call action methods here</pre>		
invokeMethod("#{myAction.myActi	.on }") ;	
1		•
Console 😲 JBoss Server View 🎢 TestNG 🕴	₽ ↔	💊 🧐 🔍 🗢 🗖
Tests: 1/1 Methods: 1/1 (12112 ms) Passed: 1	B Failed: 0	Skipped: 0
E ^t All Tests	Failure Exception	67
マ 🚋 workshop-test (1/0/0/0)		
🗢 🚝 org.domain.workshop.test.MyActionTest (1/0/0/0)		
🕫 test		Þ
	CI III	O

Figure 3.22. 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:8080/workshop/myAction.seam* into a browser.

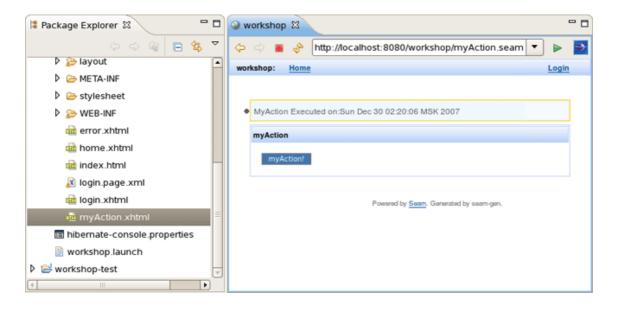


Figure 3.23. Seam Action in a Web Browser

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.

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

📾 myA	Action.xhtml 😫	- 8
父 ゆ 電	<pre><!DOCTYPE composition PUBLIC "-//W3C//DTD XHTML 1.0 TM</th> <th>tm = am</th></pre>	tm = am
_		>
	♦ Normal ♦ Normal ♦ 18	»
	Error Messages myAction myAction!	
	Powered by Seam. Generated by seam-gen.	>
	7	×
Visual/	Source Source Preview	

Figure 3.24. Open Seam Action with Editor

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

	ି - Font	Name -	Font Size ·	• 0 B I	u 🔏 🗛	
lecosmex.	NUME OTHERS LINE	CONTRACTS LIST	EINDROVECS LISE	PLOQUELS LIST	OF OCTOCIMINAL FRAME	VIUCIS LISE
Error Me	issages					
ryAction						
0 0	_0					
c myArtion	commandButton> At	tributor				
	rent Tag (h:form)	unbutes				
< Pd	renciag (n:rorm)					
	ert around	>	(h			
un: Ins	ert before	>	h:commandButtor	J		
al/Sour Ins	ert after	>				
Ins	ert into	>				
Re	place with	>				
Str	ip Tag					
Cu	t	Ctrl+X				
Co	ру	Ctrl+C				
Day	ste	Ctrl+V				

Figure 3.25. 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.

•	Attributes	×
<h:commandb< th=""><th>utton></th><th>0</th></h:commandb<>	utton>	0
name	value	A
rendered		
style		
styleClass		
tabindex		
title		
type		=
value	Click on My Action Button	
		Close

Figure 3.26. 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.

{projectName}: <u>Home</u>	Welcome, #{identity.username} Login	Logou
Error Messages		
myAction		
Click on My Action Button		
Click on My Action Button		
	Beneral he Consolid he area and	
	Powered by Seam. Generated by seam-gen.	

Figure 3.27. 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.

] A	uthentic	ator.ja	va	myAction.xht	ml	⊗ workshop 🕱	c.	- 0
¢	⇔ ∎	Ŷ	http://	localhost:8080/w	orksł	nop/myAction.seam	• •	•
wor	rkshop:	Home					Login	
	myActio	n						
	Clic	c on My /	Action B	utton				
				Powered I	by <u>Sea</u>	m. Generated by seam-gen.		

Figure 3.28. One Button on a Page

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

Authenticator.java	amyAction.xhtml	🎯 workshop ଅ		- 8
🗢 🔿 🔳 🦑 http:/	/localhost:8080/worksh	op/myAction.seam	•	۵ 🍝
workshop: <u>Home</u>			Welcome, admin	Logout
myAction				
Click on My Action B	Secured Action B	utton		
	Powered by Sean	n, Generated by seam-gen.		

Figure 3.29. 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.

🕽 Aut	hentica	tor.ja	va	🖮 myActi	on.xhtml	left worksh	iop 🛙	💼 pages.	.xml		1	- 8
\$	> =	₽ B	http://	ocalhost:8	080/worksh	op/login.sea	m?cid=6	52&clr=true		•		Э
works	hop:	Home									Login	
• P	lease log	g in fir	st									
L	ogin											
1	Please log	gin usir	ng any us	ername and p	bassword							
	Usernar	ne										
	Passwo	rd]						
	Remem	ber m	8	~								
	Login											
					Powered by Seam	, Generated by se	vam-gen.					

Figure 3.30. 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.

🙀 Data Source I	Explorer 🛙	- 8
8	🕸 🖪 🗗 🕫	≱ ⊉ ⊿ ▽
🗢 🗁 Databases		
🧮 Default	Connect	
🗐 SeamPr	Disconnect	
👂 🗁 ODA Data	Ping	
	Work Offline	
	<u>S</u> ave Offline	
	Re <u>n</u> ame	
	D <u>e</u> lete	Delete
	Duplicate	
	Refresh	F5
	Properties	Alt+Enter

Figure 3.31. Data Source Explorer

3.4.2. Browse Workshop Database

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

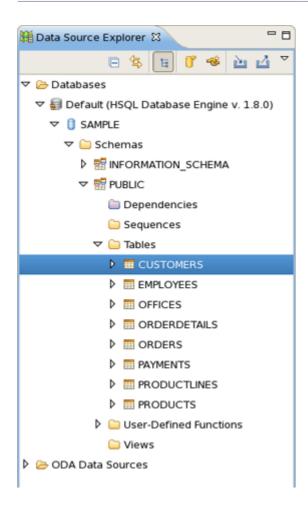


Figure 3.32. "CUSTOMERS" Table

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.

astin bisan			C1 -1							_
Type quer	y expression I	here	Stati	us Result1						-
Status	Operation	Date		CUSTOMER	CUSTOMERNAME	CONTACTLAST	CONTACT	PHONE	ADDRESSLINE1	A
🗸 Succ	:e	12/30/0	1	237	ANG Resellers	Camino	Alejandra	(91) 74	Gran V\u005cu(
			2	242	Alpha Cognac	Roulet	Annette	61.77.6	1 rue Alsace-Lo	
			3	206	Asian Shopping N	Walker	Brydey	+612 %	Suntec Tower TI	8
			4	103	Atelier graphique	Schmitt	Carine	40.32.2	54, rue Royale	
			5	144	Volvo Model Repli	Berglund	Christina	0921-1	Berguvsv\u005c	
			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 Cata	
			9	201	UK Collectables, L	Devon	Elizabeth	(171) 5?	12, Berkeley Ga	
			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	
			12	240	giftsbymail.co.uk	Bennett	Helen	(198) 53	Garden House	c
			13	223	Nat\u005cu005cu	Kloss	Horst	0372-5	Taucherstra\u00	
			14	169	Porto Imports Co.	de Castro	Isabel	(1) 356	Estrada da sa\u	
			15	119	La Rochelle Gifts	Labrune	Janine	40.67.8	67, rue des Cinc	
			16	112	Signal Gift Stores	King	Jean	702555	8489 Strong St.	
										P

Figure 3.33. 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 then right-click the project and select *New* > *Seam Generate Entities.*

"workshop" project in the Seam Generate Entities wizard will be selected automatically. There is no need to change something more, click *Next* to proceed further.

8	Generate Seam Entities		×
Generate Seam Entities			
Seam Project: Hibernate Console Configuratio Generation Mode		Browse	Settings
0	< <u>B</u> ack Next >	Einish	Cancel

Figure 3.34. Generate Seam Entities

On the next page use the *Include* button to include all the tables from the database and click *Finish*.

)	Gen	erate Seam En	tities		
Generate Seam Entities Select Tables					
Database schema:	1	Table filters:			
▽ 📋 <default catalog=""></default>	Include	! Catalog	Schema	Table	
V 💀 PUBLIC		.*	PUBLIC	CUSTOMERS	
CUSTOMERS	Exclude	.*	PUBLIC	EMPLOYEES	
EMPLOYEES			PUBLIC	OFFICES	
III OFFICES	Up	.*	PUBLIC	ORDERDETAILS	
ORDERDETAILS		*	PUBLIC	ORDERS	
ORDERS	Down	.*	PUBLIC	PAYMENTS	
PAYMENTS	Remove		PUBLIC	PRODUCTLINES	
PRODUCTLINES	Remove All	*	PUBLIC	PRODUCTS	
PRODUCTS					
Refresh					
0		< <u>F</u>	ack Next	> <u>F</u> inish	Cancel

Figure 3.35. Selecting Tables

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

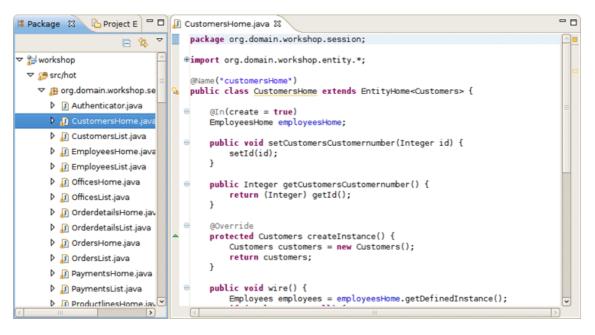


Figure 3.36. org.domain.workshop.entity Classes

There are also *org.domain.workshop.entity* package that contains the JPA classes. These are the entity beans that are mapped to database tables.Note,that you can use Seam refactoring tools

with Seam components. Read more about it in <u>Seam refactoring tools chapter</u> of Seam Dev Tools Reference Guide.

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.

			-		
{projectName}: Hor	me Offices List	Customers List	Employees List	Products List	Orderdet
Error Messages					
Customers search p	arameters				×
customername	#{customersLis	st.customer			
contactlastname	#{customersLis	st.customer			
contactfirstname	#{customersLis	st.customer			
phone	#{customersLi	st.customer			
addressline1	#{customersLis	st.customer			
addressline2	#{customersLis	st.customer			
city	#{customersLis	st.customer			
state	#{customersLis	st.customer			
postalcode	#{customersLis	st.customer			
country	#{customersLis	st.customer			
Search					
Customers search re	esults				
No customers exists	5				
					•

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 perspective in JBoss Developer Studio.

In the upper right corner of the workbench there is a small icon (see the figure below), click on it and choose Hibernate.

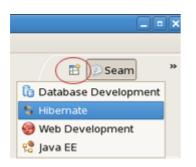


Figure 3.38. Hibernate Perspective

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.

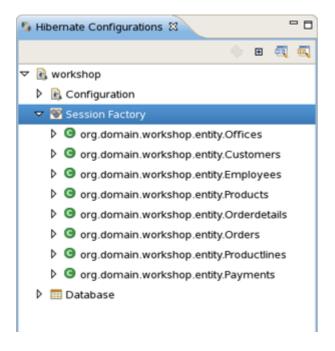


Figure 3.39. Hibernate Configurations View

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.

Chapter 3. Write Your First Project with JBoss Developer Studio

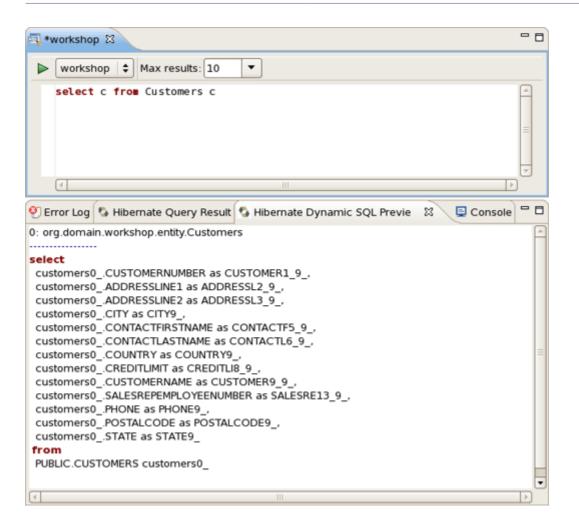


Figure 3.40. JPA Query Editor

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.

🔲 Pro	operties 🕱	🗉 🋸 🗟 🗸 🗖	<u>ه</u>	worksho	p 🛙					- 0
Prope	erty	Value		worksh	nop 😫	Max result	s: 10 🔻			
⊽ Ide	entifier			select	c from	Custome	rs c			A
	customernumbe	103								
▽ Pr	operties									=
	addresslinel	54, rue Royale								-
	addressline2			4				111	Þ	
	city	Nantes	0 E	rror Log	🖏 Hiber	mate Quer	y Result 🕱	S Hibernate Dynamic SQL Pr	Console	- 0
	contactfirstnam€	Carine	_	-					34	×4
	contactlastname	Schmitt							~	- 26
	country	France	0							Ê
	creditlimit	21000.0	or	g.domair	n.worksh	op.entity.C	ustomers@c9	lfc25		
	customername	Atelier graphique	or	g.domair	n.worksh	op.entity.C	ustomers@84	1423		
⊳	employees		or	g.domair	n.worksh	op.entity.C	ustomers@14	63027		
⊳	orderses		or	g.domair	n.worksh	op.entity.C	ustomers@10	38048		
⊳	paymentses		or	g.domair	n.worksh	op.entity.C	ustomers@db	0d07		
	phone	40.32.2555	or	g.domair	n.worksh	op.entity.C	ustomers@13	34817a		
	postalcode	44000	or	g.domair	n.worksh	op.entity.C	ustomers@20	7655		
	state		or	g.domair	n.worksh	op.entity.C	ustomers@13	18d8fa		
			or	g.domair	n.worksh	op.entity.C	ustomers@12	d2db8		
			or	g.domair	n.worksh	op.entity.C	ustomers@11	499ff		
4	111	Þ	sele	ct c fron	n Custon	n select c	from Custom	select c from Custom 🛚 🎾 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 छ	- 0	
<pre>workshop \$ Max results: 10 \$ select c.customername, c.employees. from Customers c</pre>		
Setect C. Customername, C. emptoyees. Prom Customers C Stonerses - Employees email - Employees o email - Employees o extension - Employees		
 firstname - Employees jobtitle - Employees jobtitle - Employees lastname - 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_select c from Custom	v	
Writable Insert 1:36		

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	name, c.employees.extension from Customers	c A
Error Log 😘 Hibernate (Query Result 🛛 💊 Hibernate Dynamic SQL Prev	Console
Perfor Log	Query Result & G Hiberhate Dynamic SQL Frev	Console
		×
0	1	
Atelier graphique	x2028	
Signal Gift Stores	x4065	
Australian Collectors, Co.	x101	
	x2028	
La Rochelle Gifts	ALVED	
La Rochelle Gifts Baane Mini Imports	x102	
	x102	
Baane Mini Imports	x102	
Baane Mini Imports Mini Gifts Distributors Ltd.	x102 x3291	
Baane Mini Imports Mini Gifts Distributors Ltd. Blauer See Auto, Co.	x102 x3291 x102	

Figure 3.43. The Hibernate Query Result

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.

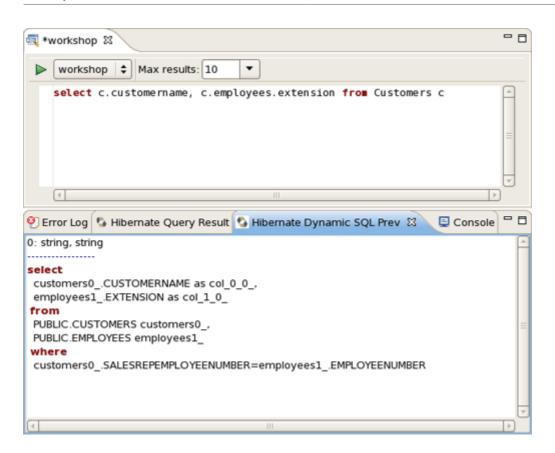


Figure 3.44. Criteria Editor

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.

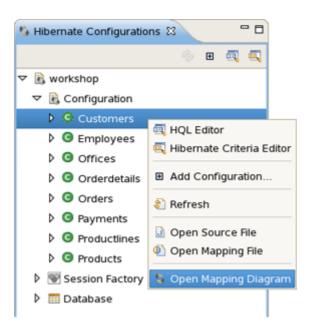


Figure 3.45. Mapping Diagram Opening

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.

🕄 *workshop	😘 *Diagram for org.domain.workshop.entity.Customers 🛿					
			_			
O org.hibe	rnate.mapping.RootClass(org.domain.workshop.entity.Orderdetails)	\$				
🛃 orderdetai	lnumber : java.lang.lnteger			h	•	🛈 org.hibernate.map
P, orderlinen	umber : java.lang.Short					🛃 ordernumber : java.la
*-1 org.hibern	ate.mapping.Property(orders)	*		-		🖪 comments : java.lang
🖲 priceeach	: java.lang.Double			-11-1		+1 org.hibernate.mappin
*-1 org.hibern	ate.mapping.Property(products)	*		-#41		🖲 orderdate : java.util.D
E quantityon	dered : java.lang.Integer			Щ		A org.hibernate.mappin
					ſ	🖪 key
				Ч		1-* element
						🖲 requireddate : java.uti
						🖲 shippeddate : java.uti
						🖲 status : java.lang.Strir
0 t-11	rnate.mapping.RootClass(org.domain.workshop.entity.Payments)					
	umber : java.lang.lnteger					
	ava.lang.Double					
	nber : java.lang.String					
	ate.mapping.Property(customers)	۱ <u>–</u>	_			
🗵 paymentd	late : java.util.Date					
						···· .

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.

📾 OI	rderdetailsEdit.xhtml 🕴	- 8										
X		^										
ŵ,												
	<pre><s:decorate id="orderlinenumberDecoration" label"="" template="l</th><th></th></tr><tr><th>6</th><th colspan=11><pre><ui:define name=">orderlinenumber</s:decorate></pre>											
-	required="true"											
	value="#{orderdetailsHome.instance.orderl: 											

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.

][≎	- Font Name -	C Font	t Size - 0	В	I II La	<rich:dndparam> <rich:dragindicator> <rich:draglistener></rich:draglistener></rich:dragindicator></rich:dndparam>		
Orderdetailnumber	#{orderdetailsHome.instan	🔞 Error Mess	sages			<rich:dragsupport></rich:dragsupport>		
Quantityordered	#{orderdetailsHome.instan	😢 Error Mess	sages			<rich:dropdownmenu> <rich:droplistener></rich:droplistener></rich:dropdownmenu>		
Priceeach	#{orderdetailsHome.instan	🐼 Error Mess	sages			<rich:dropsupport></rich:dropsupport>		
Orderlinenumber	Farent Tag (rich:panel)	Firor Mess	tages			<rich:editor> <rich:effect> <rich:extendeddatatable></rich:extendeddatatable></rich:effect></rich:editor>		
Save Save Delet	Insert before	>				<rich:fileupload> <rich:gmap></rich:gmap></rich:fileupload>		
Products * Orders * There is no products asso		>		>	Ajax4Jsf > RichFaces >	<rich:graphvalidator> <rich:hotkey></rich:hotkey></rich:graphvalidator>		
Productcode #(_products.productcode)	Replace with	Ctrl+X	name oductname}		Seam >	<rich:inplaceinput> <rich:inplaceselect></rich:inplaceselect></rich:inplaceinput>	lescription pductdescription}	Quant #{_products
		Ctrl+C				<rich:inputnumberslider></rich:inputnumberslider>		
 ✓ ui:composition ui: al/Source Source Previ 	Paste define mon munipaner	Ctrl+V s.uecorate	ui:define			<rich:inputnumberspinner> <rich:insert> <rich:jquery> <rich:jsfunction> <rich:layout> <rich:layout></rich:layout></rich:layout></rich:jsfunction></rich:jquery></rich:insert></rich:inputnumberspinner>		
						<rich:listshuttle></rich:listshuttle>		

Figure 3.48. Insert RichFaces Component from Context Menu

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

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

ه * C)rderdetailsEdit.×htm	1 23	- 8
% ⊚ €		oport event="onblur" reRender="quantityorderedDecoration" bypassU "ext> utNumberSlider id="quantityOrdered" required="true" value="#{orderdetailsHome.instance.quantityordered}	=
•	<u::define <h:inputte rec</h:inputte </u::define 	× •	~
		Normal 🔅 Normal 🗘 B Z U 🔏 🗛	
	Edit Orderdetails		Â
	orderdetailnumber •	#{orderdetailsHome.instar 😵 Error Messages	
	quantityordered	#{orderdetailsHome.instar 🔞 Error Messages	=
	pric ce ach •	#{orderdetailsHome.Instar 😣 Error Messages	
	orderlinenumber	#{orderdetailsHome.instar 😣 Error Messages	
	* required fields		~
	<		>
	$^{\bigtriangledown}$ ui:composition	ui:define h:form rich:panel rich:inputNumberSlider	×
Visua	al/Source Source Pr	eview	

Figure 3.49. Manually coping Source Code

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

Chapter 3. Write Your First Project with JBoss Developer Studio

shop: Ho	me Offices	List Custom	ers List E	mployees List	Products List Orderdetails List Or	ders List Produ	ctlines Lis	· D-	yments L
	ine Onices			inployees List	Products List Orderdetails List Or	Produ	cumes Lis	<u>a Pa</u>	lyments L
Edit Orderde	tails								
orderdeta		0	0		100 0				
orderdeta	inumber*	v	•		-				
quantityo	dered *	0							
priceeach		0.0							
orderlinen	umb er t	0							
	umber	•							
* required fi	cius								
Save	Cancel								
products *	orders *								
products *		1		1	1		-	-	
products *	and officer	productname	productscale	productvendor	productdescription	quantityinstock	buyprice	msrp	action
	productines	productname	productscale	productvendor	This 1:18 scale replica of the 1917 Grand	quantityinstock	buyprice	msrp	action
productoode	productines	productname			This 1:18 scale replica of the 1917 Grand Touring car has all the features you would expect from museum quality reproductions:				
	productines	1917 Grand	productscale	productvendor Welly Diecast Productions	This 1:18 scale replica of the 1917 Grand Touring car has all the features you would expect from museum quality reproductions: four doors and bi-fold hood opening, detailed	2724	buyprice 86.7	msrp 170.0	
productoode	productlines	1917 Grand		Welly Diecast	This 1:18 scale replica of the 1917 Grand Touring car has all the features you would expect from museum quality reproductions:	2724			

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 <u>JSP</u> 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

We are going to start with the creating a Dynamic Web Project with a minimal structure, i.e. with just required facets. Thus this section will perform you all necessary steps on how to do this.

- Go to the menu bar and select File > New > Other
- Select Web > Dynamic Web Project in the New Project dialog box
- Click Next
- Enter "jspHello" as a project name
- Then select Minimal Configuration from the list of possible configurations and click Finish

New Dynamic Web Project	
ynamic Web Project	-
reate a standalone Dynamic Web project or add it to a new or existing Enterprise pplication.	
Project name: jspHello	
Project contents:	
Directory: //home/ochikvina/java/eclipse-tools/eclipse/workspace2/jspHello	Browse
Farget Runtime	
JBoss 4.2 Runtime	≎ N <u>e</u> w
Dynamic Web Module version	
2.5	0
Configuration	
Minimal Configuration	C Modify
The most conservative starting point. Only the required facets are installed. Addition can later be installed to add new functionality to the project.	onal facets
EAR Membership	
Add project to an EAR	
EAR Project Name: EAR	✓ New
	Cancel

Figure 4.1. Create New Web Project

The *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.

New j	avaServer Page
elect JSP Template Select a template as initial content in the JSP page	e.
✓ Use JSP Template	
emplates are 'New JSP' templates found in the JS	<u>P 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
	01* 2>
review xml version="1.0" encoding="\${encodin<br %@ page language="java" contentType="t	
<pre>pageEncoding="\${encoding}"%> :DOCTYPE html PUBLIC "-//W3C//DTD XHTM thml xmlns="http://www.w3.org/1999/xht head></pre>	<pre>IL 1.0 Transitional//EN* "http://www.w3.org/TR/x ml"></pre>
<pre>snead> smead> smea</pre>	="text/html; charset=\${encoding}" />
4	Þ
(?)	< Back Next > Finish Cancel

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:

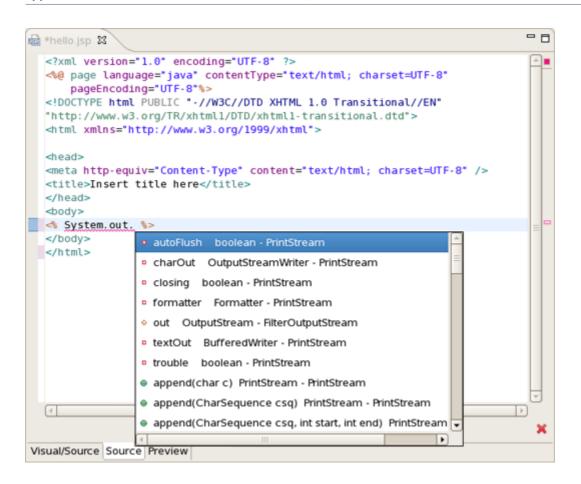


Figure 4.4. Content Assist in JSP Page

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

<pre><?xml version="1.0" encoding="UTF-8" ?></pre>	hello.jsp 🕱	- 6
	<pre> de page language="java" contentType="text/html; charset=UTF-8" pageEncoding="UTF-8"%> descriptionset=UTF-8"%> descriptionset=UTF-8%% descriptionset=UT</pre>	
		*
		D

Figure 4.5. Hello.jsp Page Source

This line will actually output *"Hello World!"* message in the Console. To make the message displayed in the Browser, just replace this line with the simple *Hello World!*.

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	otor 2.5		-	
📾 web.xml	Name:	web			
😂 Context Params	Display-Name:	DynamProject		i III	
襑 Filters	Display-Warne.	Dynaminoject			
😂 Listeners 📾 hello.	sp 🛛 🗷 web.xml 🛿				
	version="1.0" encodi				
accelen a	<pre>app xmlns:xsi="http:/, ="http://java.sun.com</pre>		LSchema-instance	e *	
	:web="http://java.sun		web-app_2_5.xsd"	•	
A Mime Maj xmln:	:web="http://java.sun chemaLocation="http://	.com/xml/ns/javaee/ /java.sun.com/xml/n			ml/
Image: A second sec	<pre>:web="http://java.sun chemaLocation="http:// splay-name>jspHello<!--0</pre--></pre>	.com/xml/ns/javaee/ /java.sun.com/xml/n			ml/
Mime Maj xmln: Smln:	<pre>:web="http://java.sun chemaLocation="http:// splay-name>jspHellolcome-file-list> welcome-file>index.htm</pre>	.com/xml/ns/javaee/ /java.sun.com/xml/n display-name> ml			ml/
Image: A state of the stat	<pre>:web="http://java.sun chemaLocation="http:// splay-name>jspHellolcome-file-list> welcome-file>index.htm welcome-file>index.htm</pre>	.com/xml/ns/javaee/ /java.sun.com/xml/n display-name> ml m			ml/
Image: Application of the second	<pre>:web="http://java.sun chemaLocation="http:// splay-name>jspHellolcome-file-list> welcome-file>index.htm</pre>	.com/xml/ns/javaee/ /java.sun.com/xml/n display-name> ml m p	s/javaee http://		ml/
Image: Security Image: Security Image: Security Image: Security	<pre>:web="http://java.sun chemaLocation="http:// splay-name>jspHellolcome-file-list> welcome-file>index.htm welcome-file>index.htm welcome-file>index.jsp welcome-file>default.l</pre>	.com/xml/ns/javaee/ /java.sun.com/xml/n display-name> m p html html	s/javaee http://		ml/
Image: Security I Image: Security I Image: Security I Image: Security I	<pre>:web="http://java.sun chemaLocation="http:// splay-name>jspHello<!--<br-->lcome-file-list> welcome-file>index.htm welcome-file>index.htm welcome-file>index.jsp welcome-file>index.jsp</pre>	.com/xml/ns/javaee/ /java.sun.com/xml/n display-name> m p html html	s/javaee http://		ml/
Image: Security i Image: Security i Image: Security i	<pre>:web="http://java.sun chemaLocation="http:// splay-name>jspHello<!--/<br-->lcome-file-list> welcome-file>index.htm welcome-file>index.jsp welcome-file>default.l welcome-file>default.l</pre>	.com/xml/ns/javaee/ /java.sun.com/xml/n display-name> m p html html	s/javaee http://		ml⁄:
Image: Security i Image: Security i Image: Security i	<pre>:web="http://java.sun chemaLocation="http:// splay-name>jspHello<!--/<br-->lcome-file-list> welcome-file>index.htm welcome-file>index.jsg welcome-file>default.l welcome-file>default.j welcome-file>default.j lcome-file-list></pre>	.com/xml/ns/javaee/ /java.sun.com/xml/n display-name> m p html html	s/javaee http://		ml/:
Image: Security i	<pre>:web="http://java.sun chemaLocation="http:// splay-name>jspHello<!--/<br-->lcome-file-list> welcome-file>index.htm welcome-file>index.jsg welcome-file>default.l welcome-file>default.j welcome-file>default.j lcome-file-list></pre>	.com/xml/ns/javaee/ /java.sun.com/xml/n display-name> m p html html	s/javaee http://		ml/
Image: Security i Image: Security i Image: Security i	<pre>:web="http://java.sun chemaLocation="http:// splay-name>jspHello<!--/<br-->lcome-file-list> welcome-file>index.htm welcome-file>index.jsg welcome-file>default.l welcome-file>default.j welcome-file>default.j lcome-file-list></pre>	.com/xml/ns/javaee/ /java.sun.com/xml/n display-name> m p html html	s/javaee http://		ml/
Image: Security i	<pre>:web="http://java.sun chemaLocation="http:// splay-name>jspHello<!--/<br-->lcome-file-list> welcome-file>index.htm welcome-file>index.jsg welcome-file>default.l welcome-file>default.j welcome-file>default.j lcome-file-list></pre>	.com/xml/ns/javaee/ /java.sun.com/xml/n display-name> m p html html	s/javaee http://		ml/:

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 tab.
- Add the next code into <welcome-file-list> :

<welcome-file>hello.jsp</welcome-file>

If you come back to Tree 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.

4.2.3. Deploying the project

While creating any web project you could experience a pain writing ant scripts and managing the packaging even when 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 <u>JBDS's Archive Tools</u> 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:

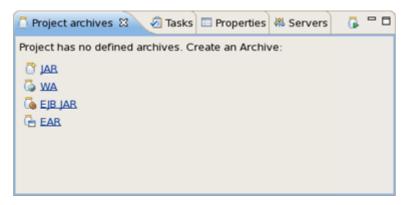


Figure 4.7. Project Archives

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

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

9	New WAR	×
Create a ne	w archive	
Create a new	archive consisting of filesets in the workspace.	
Archive infor	mation	
Archive nam	ne: 🚺 jspHello.war	
Destination:	😂 jspHello Workspace Filesystem	
Archive type		5
Standard	archive using zip compression	
O Exploded	archive resulting in a folder (no compression)	
0	< Back Next > Einish 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 fil	nish.
Preview	
 ✓ jspHello.war ✓ WEB-INF ✓ lib ispHello ✓ classes ispHello ✓ classes ispHello **/*: classes ispHello ispHello ✓ ✓ ✓ ○ ✓ ✓ ○ Classes ispHello ispHello ispHello ✓ ✓ 	
⑦ < <u>B</u> ack <u>Next</u> >	<u>F</u> inish Cancel

Figure 4.9. Stub Archive Configuration

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

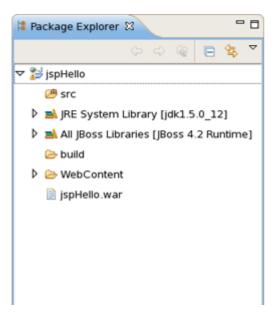


Figure 4.10. Archive is Created

ី Project archives 🕱 🖉 Tasks 😲 JBoss Server View 🖳 Console	🖡 🗆 🗖
🗢 📄 jspHello.war	
▽ 🗁 WEB-INF	
Dib 😂 lib	
▽ 🗁 classes	
🗟 **/*: classes	
🗟 **/*: WebContent	

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:

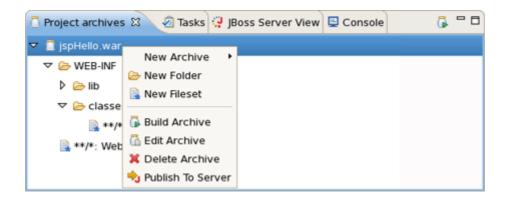


Figure 4.12. Configure Archive

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 Server. Any changes made in the application in exploded format will trigger a redeployment on the server.

You can also use the "Finger touch" button for a quick restart of the project without restarting the server:



Figure 4.13. Finger Touch button

The "Finger" touches descriptors dependent on project (i.e. web.xml for WAR, application.xml for EAR, jboss-esb.xml in ESB projects).

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 <u>attach your stylesheet to the Preview</u>.

• 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. You can do it by performing one of the following actions:

- Start JBoss Server from <u>JBoss Server view</u> by clicking the Start the server icon (
 -).
- 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* (



You should see the next page in a Browser :

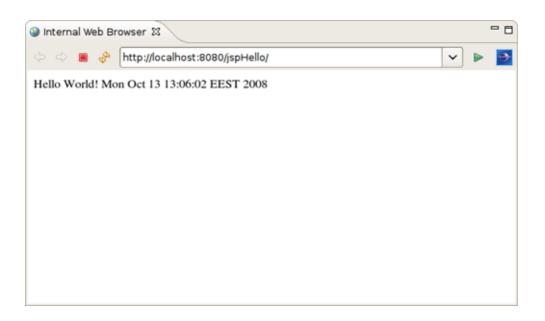


Figure 4.14. Running Project

Thus with the help of this chapter you've learnt how to organize a Dynamic Web Project with a minimal configuration, add any staff to it (in our case it's just one jsp page) and deploy and run it on the JBoss Server shipped with JBDS.

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.

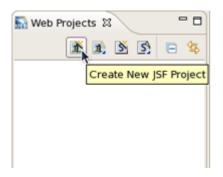


Figure 5.1. Create New JSF Project

- 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.

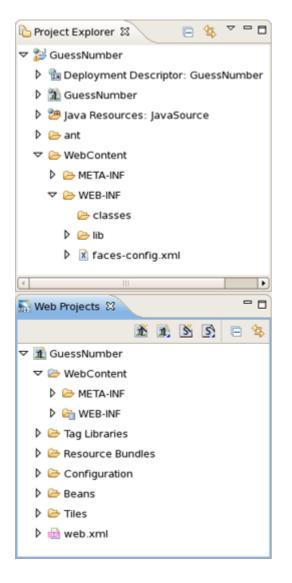


Figure 5.2. New JSF Project

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 🕴 👘	
Faces-config.xml XX Image: Second Secon	
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.

aces-config.xml 🛿	and the second sec	
	/pages/inputnumber.jsp	
	/pages/success	.jsp

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	/pages/inp	outnumber.jsp
•		
3		
Create New		

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.

	/pages/i	nputnumber	.jsp		
	1 📾 🕹				
		success			
			/pages/su	ccess.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.

me value	Filter		
Delete	ame	value	Add
			Edit
			Delete
Down			Цр
			Down

Figure 5.7. Messages.properties File

- Click Add button for adding new attribute to your resource file
- 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:

essages.properties		
Filter		
name	value	Add
how_to_play	Please pick a number between 0 and 100.	
makeguess_button	Make Guess	Edit
trayagain_button	Play Again?	Delete
success_text	How cool You have guessed the number, {0} is correct!	Up
tryagain_smaller	Oopsincorrect guess. Please try a smaller number.	
tryagain_bigger	Oopsincorrect guess. Please try a bigger number.	Do <u>w</u> n
roperties Source		

Figure 5.8. Properties are Added

Up and *Down* buttons allow you to move you attribute on the list. For delete the attribute, choose it and press *Delete* button.

If you want to change a value or a name of your attribute, click on it and than on *Edit* button.

If the .properties file is rather big and there are a lot of entries in it, you can use filtering and regular expressions to find the necessary ones. The Filter and Regular Expressions Search is implemented by an expandable panel, closed by default:

When "Expression" is not selected (as by default), filter is case insensitive. When "Expression" is selected, filter uses regular expressions which are case sensitive

Chapter 5. RAD development of a simple JSF application

essages.properties		
Filter		
Name	Value	Expression
name	value	Add
how_to_play	Please pick a number between 0 and 100.	
makeguess_button	Make Guess	Edit
trayagain_button	Play Again?	Delete
success_text	How cool You have guessed the number, {0} is correct!	Up
ryagain_smaller	Oopsincorrect guess. Please try a smaller number.	
ryagain_bigger	Oopsincorrect guess. Please try a bigger number.	Do <u>w</u> n

Figure 5.9. Filter and Regular Expressions Search Panel

Enter the characters that should be searched for in the entries to the 'name' or 'value' input fields accordingly. The filtered results will be displayed in the table below:

Chapter 5. RAD development of a simple JSF application

Filter	s.properties		
Vame	pla	Value	Expression
	tched 1 out of 6 iten		
ame		value	
iow_to_	play	Please pick a number between 0 and 100.	Add
			Edit
			Delete
			Up
			Down

Figure 5.10. Filter results

When using regular expressions please note, that regular expression syntax does not use "*" for any characters and "?" for any one character. It's necessary to use "." for any one character and ".*" for any characters. Symbols "*" and "?" are used to show that the preceding token is not required, for example, "a.a" matches "aba" but not "aa", while "a.?a" or a.*a" matches both; besides "a.*a" matches "abcda".

To find the exact match, use sequences \A and \z in expression. For example, expression "\Adate \z" matches only string "date"; expression "\Adate" matches "date" and "dateline", expression "date\z" matches "date" and "Begin date", and expression "date" matches all of them.

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

Chapter 5. RAD development of a simple JSF application

)	Gene	erate Getters a	nd Setters		
Select getters a	and setters to create	a:			
🗢 🗹 🔺 user	Number				Select <u>A</u> ll
🗹 o ge	etUserNumber()				Deselect All
🗹 o se	etUserNumber(Integ	er)			
					Select Getters
					Select Setters
	re for final fields (ror	move 'final' modi	fiar from fields	if nocossa	
	s for final fields (rer	move 'final' modi	fier from fields	s if necessa	iry)
nsertion point:		move 'final' modi	fier from fields	s if necessa	
nsertion point: Last method		move 'final' modi	fier from fields	s if necessa	iry)
nsertion point:		move 'final' modi	fier from fields	s if necessa	
nsertion point: Last method S <u>o</u> rt by:	r/setter pairs	move 'final' modi	fier from fields	s if necessa	\$
nsertion point: Last method Sort by: Fields in gette Access modifi	r/setter pairs		fier from fields		\$
nsertion point: Last method Sort by: Fields in gette Access modifi	r/setter pairs) d <u>e</u> fault			\$
nsertion point: Last method Sort by: Fields in gette Access modif o public final	r/setter pairs ier O protected Synchronize) d <u>e</u> fault			\$
Insertion point: Last method Sort by: Fields in getter Access modified o public final Generate m	r/setter pairs ier O protec <u>t</u> ed	⊖ d <u>e</u> fault ed	⊖ pri <u>v</u> ate	2	\$
nsertion point: Last method Sort by: Fields in getter Access modifi @ public @ final @ Generate m The format of t	r/setter pairs ier O protected Synchronize nethod <u>c</u> omments the getters/setters m	⊖ d <u>e</u> fault ed	⊖ pri <u>v</u> ate	2	\$
Insertion point: Last method Sort by: Fields in getter Access modified o public final Generate m	r/setter pairs ier O protected Synchronize nethod <u>c</u> omments the getters/setters m	⊖ d <u>e</u> fault ed	⊖ pri <u>v</u> ate	2	\$

Figure 5.11. Generate Getters and Setters

• Add the declaration of the second variable

int randomNumber;	
• other bean methods:	

public NumberBean ()

Chapter 5. RAD development of a simple JSF application

```
{
  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; Chapter 5. RAD development of a simple JSF application

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 ()
```

Chapter 5. RAD development of a simple JSF application

```
// 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_2xsd">
<navigation-rule></navigation-rule>
<from-view-id>*</from-view-id>
<navigation-case></navigation-case>
<from-outcome>playagain</from-outcome>
<to-view-id>/pages/inputnumber.jsp</to-view-id>
<navigation-rule></navigation-rule>
<from-view-id>/pages/inputnumber.jsp</from-view-id>
<navigation-case></navigation-case>
<from-outcome>success</from-outcome>
<to-view-id>/pages/success.jsp</to-view-id>
<managed-bean></managed-bean>
<managed-bean-name>NumberBean</managed-bean-name>
<managed-bean-class>game.NumberBean</managed-bean-class>
<managed-bean-scope>session</managed-bean-scope>

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 continue 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

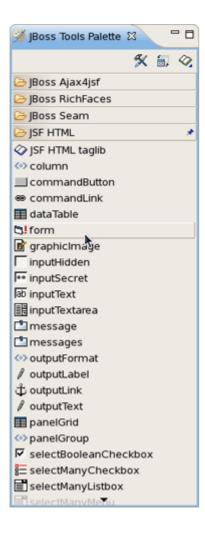


Figure 5.12. Insert h:form

• 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

Chapter 5. RAD development of a simple JSF application

Attribute name	Value	
accept		
acceptcharset		
binding		
dir		
enctype		
id		
lang		
onclick		
ondblclick		
onkeydown		
onkeypress		

Figure 5.13. Define Id of Form

• Type inputNumbers and click Finish

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

🔝 faces-config.xml 🛛 🐼 *inputnumber.jsp 🛛	- 8
<pre></pre>	Â
<html> <head> <title></title> </head> <body> <f:view> <h:form id="inputNumbers"> </h:form> </f:view> </body></html>	
() III	\mathbf{D}

Figure 5.14. Created Form

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

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



🔊 faces-config.xml	🐵 *inputnumber.jsp 🕴 🔳 messages.properties	- 0	🧭 JBoss Tools Palette 🛿 🗧 🗖
	<pre>http://java.sun.com/jsf/html* prefix=*h* %> http://java.sun.com/jsf/core* prefix=*f* %></pre>	A	🛠 🗟 🤣
S <> f:loadBundle	view, and of the cur the "var" a get() car literal strii the key b MissingRe	source bundle localized for the LC I expose it as a java.util Map in th rent request under the key speci attribute of this tag. The Map mus II is made for a key that does no ng ???KEY??? is returned from the eing looked up in the Map, instear sourceException being thrown. It exist, a JspException must be thr	ccale of the current e request attributes fied by the value of st behave such that if t exist in the Map, the e Map, where KEY is d of a f the ResourceBundle
د ۲:۱	17		outputLabel outputLink outputText panelGrid opanelGroup selectBooleanCheckbox selectManyCheckbox selectManyListbox selectManyMenu selectOneListbox

Figure 5.15. Code Assist

- 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>		
leanaged Beans		
Resource Bundles		
JSF Variables		
		Ok Cancel

Figure 5.16. Choose Value

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

×
=
x Cancel

Figure 5.17. Selecting Value

The text will appear on the page:

	0 Norma	al	🗘 Normal 🗘 🖪	I	Ū	Z A	
Please	pick a number be	tween 0 and 100.					
ິ jsp:di	rective.taglib						
al/Source	Source Preview						

Figure 5.18. Created OutputText Component

- Switch to 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.
- 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		
	Ок	Cancel

Figure 5.19. 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>
<head>
<title></title>
</head>
  <body>
    <f:view>
       <h:form id="inputNumbers">
         <h:outputText value="#{msg.how_to_play}" />
         <br />
         <h:messages style="color: blue" />
         <br />
         <h:inputText value="#{NumberBean.userNumber}" id="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>
  </body>
</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" %>
```

Chapter 5. RAD development of a simple JSF application

<%@ taglib uri="http://java.sun.com/jsf/core" prefix="f" %>
<f:loadbundle <b="">basename="game.messages" var="msg"/></f:loadbundle>
<html></html>
<head></head>
<title></title>
<body></body>
<f:view></f:view>
<h:form id="result"></h:form>
<h:outputformat <b="">value="#{msg.success_text}"></h:outputformat>
<f:param value="#{NumberBean.userNumber}"></f:param>
<h:commandbutton <="" td="" value="#{msg.trayagain_button}"></h:commandbutton>
action="#{NumberBean.playagain}" />

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

<f:view></f:view>	K 😸 🔗 JBoss Ajax4jsf JBoss RichFaces JBoss Seam
<pre></pre>	JSF HTML SF HTML taglib Column commandButton commandLink dataTable form graphicImage inputHidden inputSecret inputText inputTextarea message messages outputFormat outputLabel outputLink outputLink outputText panelGrid panelGroup selectBooleanCheckbox
	selectManyCheckbox selectManyListbox

Figure 5.20. 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.xm	🗟 inpu	itnumber.jsp 🛙	🖬 messages.prope	rties 📄 📾 success.jsp	»ı	- 0
Please pick a 1 #{NumberBean.u Make Guess		etween a 0 and	1 100.			
_						
Visual/Source Sour	ce Preview					

Figure 5.21. 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:



```
<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

🔮 Mozilia Firefox	
<u>Eile Edit View Go Bookmarks T</u> ools <u>H</u> elp	\sim
🖕 • 🛶 - 🥰 💿 🏠 🛴 http://localhost:8080/GuessNumber/ 💌 🛛 Go 💽	
Please pick a number between a 0 and 100.	
Make Guess	
Done	

Figure 5.22. You are Asked to Enter a Number Between 0 and 100

8		Мо	zilla Firefox		_ = ×
	<u>G</u> o <u>B</u> ookmarks				ं
🤹 • 🧼 • 🕯			umber/pages/inputnumber.jsf	🔻 🔕 Go	
Please pick a nu	mber between a 0 a	id 100.			
	ibers:userNumber:	alidation Error: Specified at	ribute is not between the expect	ed values of	f 0 and 100.
-6					
Make Guess					
Done					

Figure 5.23. Your Input is Validated and an Error Message is Displayed if Invalid Input was Entered

Mozilla Firefox	×
<u>Ele Edit V</u> iew <u>G</u> o <u>B</u> ookmarks <u>T</u> ools <u>H</u> elp	0
🔷 • 🧼 - 🥰 🛞 🏠 🕻 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	
Dana	
Done	

Figure 5.24. After You Enter a Guess, the Application Tells You Whether a Smaller or a Larger Number Should be Tried

🕹 Mozilla Firefox	X
	<u>ہ</u>
🖗 🔹 🛶 🚽 🧭 🙁 😭 🛴 http://localhost:8080/GuessNumber/pages/inputnumber.jsf	f 💌 🕼 Go 🔀
How cool You have guessed the number, 32 is correct!	
Play Again?	
Done	

Figure 5.25. Your Guess is Correct

Project Examples

JBoss Developer Studio provides an option to download and import a ready-made project that you can explore and derive some useful technology implementation lessons from.

To adjust the settings of the Project Examples feature you need to navigate to Windows> Preferences > JBoss Tools > Project Examples .

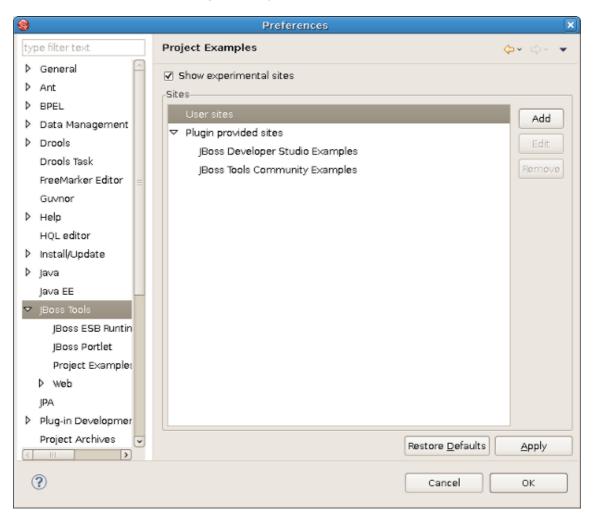


Figure 6.1. Project Examples Preferences

The Show experimental sites checkbox serves to enable/disable representing the user sites in the Project Example dialog (Help > Project Examples).

6.1. User Sites

As you can see from the **Project Examples Preferences** image you can add a custom project example that can be provided by anyone. This feature can, for example, facilitate project testing.

In oder to add a new project example you need to select the User sites option and press the Add button to the right.

When the Add button is pressed the Add Project Example Site dialog is displayed. The dialog contains 2 input fields: Name where you need to specify the name of the new entry and URL that has to point to the xml file that contains example project(s) properties. In more detail the structure of the xml file is discussed further in the chapter of the guide. Alternatively, if the xml is stored on your local machine, you can hit the Browse button to select the file in the file system.

Here is an example of the xml file that holds project example settings:

<pre>c</pre>	ojects>
<	project>
	<category>User Examples</category>
	<name>User Project Example</name>
	<shortdescription></shortdescription>
	Short project description.
	<description></description>
	Full project description.
	<size>10900</size>
	<url></url>
	http://projectexample.org/projectexample.zip
<	/project>
<td>rojects></td>	rojects>

Once you define the location of the xml file with projects settings you will see a new user site entry added. Please note now if you select the entry you can edit and remove it with the corresponding buttons to the right. You can not do such operations with the Plugin provides sites.

When the user sites location is set up you can download and install the project(s). Please see the next chapter of the guide.

6.2. Downloading a Project Example

To download a project example and start working with it you need to take a few steps:

- Go to the menu bar and select File > New > Other
- Select Jboss Tools > Project Examples (You can also call the Project Examples from menu bar: Help > Project Examples... or directly from File > New > Example... menu)

Sew Project Example
Project Example
Show experimental sites
Site: All
Projects:
type filter text
> Seam
▷ Portlet
▶ ESB
RichFaces
RESTEasy
Description:
Project name:
Project size:
URL:
✓ Show the Quick Fix dialog
E and the spine for dialog
Cancel Enish

Figure 6.2. Project Examples

Alternatively, you should navigate to New > Other.., scroll down to find the JBoss Tools option (or just type in the first letters of the word "JBoss" for quick search), expand the option and select Project Examples, click Next.

 Now in the New Project Example dialog you can select a project you would like to explore and a site to download it from

Project Examples Wizard provides a filter field to more easily locate the project examples you want, so you can type in the project you would like to explore in the field.

New Project Example
Project Example
Import Project Example
Show experimental sites
Site: All
Projects:
type filter text
Seam Booking Example - EAR
Seam Booking Example - EAR (including a test project)
Seam Booking Example - EAR mavenized
Seam Booking Example - EAR mavenized - Seam 2.1.1.GA
Seam Booking Example - WAR Standalone
Seam Booking Example - WAR Standalone (including a test project)
Description:
This example demonstrates the use of Seam in a Java EE 5 environment. Transaction and persistence context management is handled by the EJB container. This example can also run in Tomcat with JBoss Embedded.
Project name: jboss-seam-jpa
Project size: 5.34M
URL: http://anonsvn.jboss.org/repos/jbosstools/workspace/snjeza/seam-exampl
Show the Quick Fix dialog
Cancel Einish

Figure 6.3. Selecting a Project Example

If you have previously specified user sites (see the <u>User Sites</u> chapter) they also will be displayed in the list of project examples in the category that was defined in the xml file with user sites settings.

9	New Project Example	×
Project Examp		
Import Project I	Example	-4
☑ Show e×peri	mental sites	
Site: All		0
Projects:		
type filter text		
▶ Seam		<u>^</u>
Portlet		
▶ ESB		
 RichFaces RESTEasy 		
v RESTEasy ⊂ User Examp		
-	ct Example	
Description:		
My Project Exar	nple	
Project name:	My Project Example	
Project size:	10.64K	
URL:	http://projectexample.org/ProjectExample.zip	
🗹 Show the Q		
?	Cancel	Einish

Figure 6.4. User Site

Pleas note that to view the user sites you need to have Show experimental sites checked.



• Press Finish to start downloading the project from the repository

When downloading is finished the project will be imported automatically and you will be able to see it in the Package Explorer.

Now you can run the application on the server.

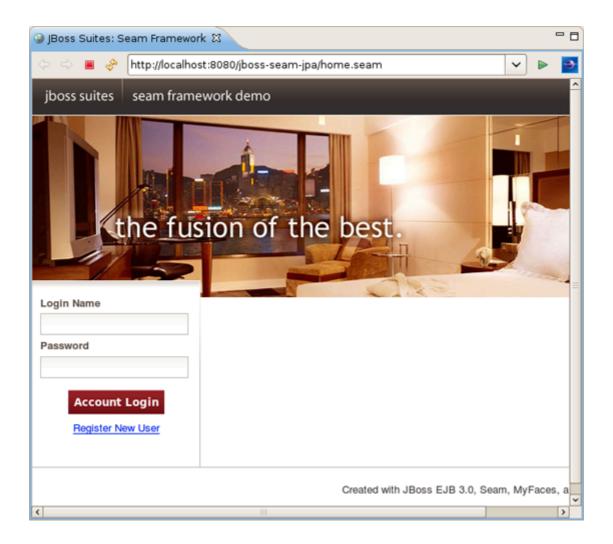


Figure 6.5. Seam Demo Application run on the Server

6.3. Quick Fixes

Project Examples Wizard has an option for making quick fixes for the imported project to easily fix possible issues like missing servers, Seam runtimes etc.

To enable quick fixing option you need to check the *Show the Quick Fix dialog* while choosing the *Project Example*.

When the project you selected is downloaded it will be checked for missing dependences and if there are some you will see a dialog listing the problems.

9 Quick Fix Select a marker and click the C	Quick Fix Quick Fix button.		0
Markers:			
Description	Resource	Туре	
Seam Runtime "Seam 2.0.FP"	booking	Seam Project Problem	
Unbound classpath container:	booking-ejb	Build Path Problem	
The project cannot be built unt	booking-ejb	Java Problem	
0		Quick Fix	inish

Figure 6.6. Quick Fix Dialog box

To fix the problem you need to:

- Select the problem from the list
- Click Quick Fix button

You will be offered a solution or a number of solutions to the problem.

😔 Quick F	ix	×
Quick Fix Select the fix for 'Seam Runtime "Seam 2.0.FP" specified for	or Seam project "booking" does	not exist.
<u>S</u> elect a fix: Set Seam properties		
<u>P</u> roblems: Resource	Location	Select <u>A</u> ll
✓ ⊗ booking	Unknown	Deselect All
0	Einish	Cancel

Figure 6.7. Quick Fix Dialog box: Selecting a Fix

In this case(see the image above), when the *Finish* button is pressed, Seam Settings dialog box will be displayed where you need to provide a path to the Seam environment to fix the issue.

When the problem is fixed you will be returned to the Quick Fix dialog box with the remaining problems to be fixed.

FAQ

For more information on JBoss Developer Studio features, refer to the following FAQ to get the answers on the most "popular" questions.

7.1. What should I do if Visual Page Editor does not start under Linux

Linux users may need to do the following to get the Visual Page 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 it doesn't help and you use Fedora Core Linux and Eclipse Version: 3.4.1,the issue be produced because libswt-xulrunnercan gtk-3449.so file doesn't present in eclipse-swt-3.4.1-5.fc10.x86_64.rpm/eclipse/plugins/ org.eclipse.swt.gtk.linux.x86_64_3.4.1.v3449c.jar.To add this file to eclipse you should:
 - Decompress eclipse/plugins/org.eclipse.swt.gtk.linux.x86_3.4.1.v3449c.jar form eclipse-SDK-3.4.1-linux-gtk-x86_64.tar.gz
 - Copy libswt-xulrunner-gtk-3449.so file to your Fedora Eclipse location.
 - Open the file eclipse.ini,which can be found in your Fedora Eclipse location and add the following line:

-Dswt.library.path=/usr/lib/eclipse

,where /usr/lib/eclipse is the path to your eclipse folder.

6. 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.

7.2. 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.

7.3. 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.

7.4. 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.

7.5. Can I import a .war file?

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

7.6. 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

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

See <u>Adding Tag Libraries</u> in Visual Web Tools Guide.

7.8. How to get Code Assist for Seam specific resources in an externally generated project?

To get Code Assist for Seam specific resources in an externally generated project, you should enable Seam features in Project Preferences. Right click an imported project and navigate *Properties > Seam Settings*. Check *Seam support* box to enable all available <u>Seam Settings</u>.

7.9. How to import an example Seam project from jboss-eap directory?

To import an example Seam project from *jboss-eap* into your working directory, you should perform the following steps:

- Go to New > Other > Java Project from Existing Buildfile
- Point to the *build.xml* of any chosen project by pressing *Browse* button
- Hit Finish to open the project

As these seam examples are non WTP projects, next you should enable Seam support for them. To do that, right click the project and go to *Properties > Seam Settings*.

7.10. Is a cross-platform project import possible for JBDS?

Yes. You can easily import created in Linux JSF, Struts or Seam project to Windows and vice versa.

To do the transferring JSF, Struts or Seam project, go to *Menu > Import > General > Existing Projects into Workspace*, select the folder where your project stored and press *Finish*.

Further Reading

If there's anything we didn't cover in this guide, please feel free to visit our <u>JBoss Developer Studio</u> <u>Users Forum</u> or <u>JBoss Tools Users Forum</u> to ask questions. There we are also looking for your suggestions and comments.

• Seam Dev Tools Reference Guide (html)

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 (<u>html</u>) provides general orientation and an overview of JBDS visual web tools functionality. This guide discusses the following topics: editors, palette, web properties view, openOn, content assist, RichFaces support.

• JBoss Server Manager Reference Guide (html)

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)

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.

Hibernate Tools Reference Guide (html)

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.

• ESB Editor Reference Guide (html)

This guide provides you with the information on ESB Editor and all necessary wizards for ESB files development.

JBoss Portal Tools Reference Guide (html)

The guide gives a detail look at how you can easily build a Portlet Web Application with JBoss Tools and deploy it onto JBoss Portal.

• JBoss WS User Guide (html)

This guide gives you practical help on JBossWS usage. You will learn how to create a web service using JBossWS runtime, find out how to create a web service client from a WSDL document using JBoss WS and also see how to set your development environment.

• Smooks Tools Reference Guide (html)

This guide is packed with useful and easy-to-understand information about graphical, configuration and source editor pages.

Drools Tools Reference Guide (html)

The guide help you to discover how to create a new Drools project, use debugging rules and work with different editors.

• JMX Tools Reference Guide (html)

With the help of this guide you'll explore the best practices to follow when working with MBean Explorer, MBean Editor, Connections and etc.

• Eclipse Guvnor Tools Reference Guide (html)

The purpose of this guide is to describe briefly the functionality present in the Eclipse Guvnor Tools (EGT) for Drools 5.

• JSF Tools Tutorial (html)

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.

• JSF Tools Reference Guide (html)

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.

• Struts Tools Reference Guide (html)

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.

• Struts Tools Tutorial (html)

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.

• Exadel Studio Migration Guide (html)

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