Seam Dev Tools Reference Guide

Version: 3.0.0.CR1

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Introduction

1.1. What is Seam?

This introduction will help you to understand what is Seam.

Seam is a fully featured application framework on top of Java EE 5. It is also one of the most popular enterprise Java framework today. Seam deeply integrates many other standard-based or open source frameworks (e.g., JSF, EJB3, JMS, Web Services, jBPM, JBoss Rules, Ajax4jsf, RichFaces, Facelets, Spring, iText, Quartz, TestNG, etc.), and provides a single programming model for developers to "drive" those underlying frameworks via simple annotated POJOs (Plain Old Java Objects). It makes life easier for developers to tackle complex enterprise applications with many component frameworks.

1.2. Installation into Eclipse

Here, we are going to explain how to install Seam plugin into Eclipse.

Seam is a one module of JBoss Tools project. Since Seam has a dependence on other JBoss Tools modules we recommend you to install a bundle of all <u>JBoss Tools plug-ins</u> [http:// labs.jboss.com/tools/download/index.html]. Installation instruction you can find on JBoss Wiki in <u>InstallingJBossTools</u> [http://labs.jboss.com/wiki/InstallingJBossTools] section.

1.3. Other relevant resources on the topic

The <u>Seam Framework</u> [http://seamframework.org/] - Next generation enterprise Java development.

All latest release versions of JBoss Developer Studio/JBoss Tools documentation you can find <u>here</u> [http://docs.jboss.org/tools/2.1.0.GA/].

The latest documentation builds are available <u>here</u> [http://download.jboss.org/jbosstools/nightly-docs/].

Creating a New Seam Project via the New Seam Project wizard

In this chapter we provide you with the necessary steps to start working with Seam Framework.

At first, we suggest setting the specific Seam perspective that combines a number of different views and editors needed for work with resources concerned. For that select *Window > Open Perspective > Other > Seam* or you can also access it through the button in the right top corner.



Figure 2.1. Seam Perspective

2.1. Create standalone Seam Web Project

The best way to get started with Seam is to organise a simple Seam Project and experiment with it by creating variations.

Thus, you should select *File > New > Seam Web Project* to run the New Seam Project wizard. The wizard form allows you to create runtime and server instances in order to get started creating, running, and debugging J2EE (only) applications. Seam Web Project wizard has an option for selecting the actual Server (not just WTP runtime) that will be used for the project. This allows the wizard to identify correctly where the required datasource and driver libraries need to go.

Let's get through the wizard step-by-step. First, you should enter a name and a location directory for your new project.

New Seam Project	×
seam Web Project	4 mm
3 Target Runtime cannot be empty	
Project name: seamproject	
Project contents:]
☑ Use <u>d</u> efault	
Directory; //opt/workspace/seamproject	Browse
Target Runtime	
<none></none>	≎ N <u>e</u> w
Dynamic Web Module version	
2.5	0
Target Server-]
<none></none>	\$ New
Configuration	
Dynamic Web Project with Seam 1.2	\$ Modify
Configures a Dynamic Web application to use Seam v1.2	
O < Back Next > Fini	sh Cancel

Figure 2.2. New Seam Project Wizard

Clicking on *New...* button in the Target Runtime section will bring you to another dialog. Here, you can specify a new installed Runtime environment or the other type of runtime appropriate for configuring your project. Let's create a JBoss 4.2 Runtime. For that after choosing it click on *Next* button.

New Server Runtime
New Server Runtime
Define a new installed server runtime environment
Runtimes are used at build time to compile projects. Download additional server adapter
Select the <u>r</u> untime type:
type filter text
🕨 🇁 JBoss
🤪 JBoss 3.2 Runtime
🤪 JBoss 4.0 Runtime
🤯 JBoss 4.2 Runtime
🤪 JBoss Deploy-only
JBoss Application Server 4.2
Also <u>c</u> reate new local server
Image: Second

Figure 2.3. Specifying Target Runtime

All what you need here is to name runtime, type the path to its install directory or locate it by using *Browse* button, select a Java Runtime Environment, and select which configuration you want.

New Server Runtime
JBoss Runtime Wizard
A JBoss Server runtime references a JBoss installation directory. It can be used to set up classpaths for projects which depend on this runtime, as well as by a "server" which will be able to start and stop instances of JBoss.
Name
JBoss 4.2 Runtime 1
Home Directory
/opt/work/jboss-4.2.0.GA Browse
JRE
jdk1.5.0_12
Configuration
🖏 minimal
🦉 default
0
Image: Second

Figure 2.4. Specifying Target Runtime Configurations

Clicking on *Finish* returns you to the *previous dialog*. The next step is to define an installed server that you can do by clicking on *New...* button in the Target Server section. In appeared Server Dialog it's possible to select a server version.

If the chosen server has already got an installed runtime, there appears a combo box with all declared runtimes under the servers view. Here, you can indicate a server runtime that you need. Use *Installed Runtimes...* button to see or edit which runtimes are installed. If there is no any declared runtime for chosen server, click on *Next* to specify it on the next preferences page.

8	New Server X
Define a New Server	=
Choose the type of server to create	e
Server's host name: localhost	•
	Download additional server adapters
Select the server type:	
type filter text	
JBoss	
▽ 🗁 JBoss, a division of Red Hat	
JBoss AS 3.2	
JBoss AS 4.0	=
🤣 JBoss AS 4.2	
JBoss System Copy Serve	r
👂 🗁 Macromedia	
	V
JBoss Application Server 4.2	
Server runtime: Boss 4.2 Runtime	Installed Runtimes
-	
0	Rack Next > Finish Cancel
U	Cancel

Figure 2.5. Specifying Target Server

Next dialog allows you to verify the information for chosen server, set login credentials to authorize an access to the server and specify a directory for deploying. Leave everything as it is and click on *Next*.

>	New Server	
Create a ne	w JBoss Server	0SS 4.2
A JBoss Serve It manages c Name	r manages starting and stopping instances of JBoss. ommand line arguments and keeps track of which modules have been dep	loyed.
JBoss 4.2 Se	rver	
Runtime Info	rmation	
lf the runtim and then Ad	e information below is incorrect, please press back, Installed Runtimes, d to create a new runtime from a different location.	
Home Direc	ory /opt/work/jboss-4.2.0.GA	
JRE	/usr/java/jdk1.5.0_12 (jdk1.5.0_12)	
Configuratio	n default	
Login Crede	tials	
JMX Console	Access	
User Name		
Password		
Deployment		
Deploy Dire	tory /ont/work/iboss-4.2.0.GA/server/default/deploy Browse	
Deploy Dire		
0	< <u>B</u> ack <u>N</u> ext > <u>F</u> inish Can	cel

Figure 2.6. Specifying Server Configurations

On the last wizard step you can modify your project to configure it on server.

9	New Server		×
Add and Remove Projects Modify the projects that are conf	figured on the server		
Move projects to the right to con	figure them on the server		
Available projects:		<u>C</u> onfigured projects:	
SFRICKStart	A <u>d</u> d >]	
	< <u>R</u> emove		
	Add Ali >>]	
	<< Remove All		
0	< <u>B</u> ack <u>N</u> ext :	Einish	Cancel

Figure 2.7. Project Modification for Configuring on the Server

Once you have the Target Server defined click on *Finish* button to return to the first page of the New Seam Project wizard.



New Seam Project	
Seam Web Project	and the
Create standalone Seam Web Project	E
	u
Project name: seamproject	
Project contents:	
V Use default	
	Browne
Directory, Jopt/workspace/seamproject	Browse
Target Runtime	
JBoss 4.2 Runtime	≎ N <u>e</u> w
Dynamic Web Module version	
2.5	0
Target Server	
Default Configuration for IBoss 4.2 Runtime	New
Dynamic Web Project with Seam 1.2	
Dynamic Web Project with Seam 2.0	Modify
Dynamic Web Project with Seam 2.1	
JavaServer Faces v1.1 Project	
JavaServer Faces v1.2 Project	
Minimal Configuration	
	Cancel
V Sack Next > Buist	cancel

Figure 2.8. Completion of Runtime and Server Configuration

The last section on this wizard step is Configuration. Here, you can select one of the pre-defined project configurations either associated with Seam 1.2 or with Seam 2.0. Furthermore, you can create your own configuration by pressing the *Modify...* button. It will open the dialog which allows to configure your own set of facets for adding extra functionality to your project.

Pass to the next section to find out more details on this dialog.

2.2. Select the Project Facets

The Project Facets wizard allows you to enable or disable specific facets which define necessary characteristics for the project. In time you switch to this wizard form, all critical facets are already checked for the chosen Configuration.

Notice that this page of the wizard also allows you to set the necessary version for any facet.

••••••••••••••••••••••••••••••••••••••	Project Facets			
Project Facets Select the facets that should be enabled for this project.				
Configurations: Dynamic Web Project v	with Seam 1.2	\$ Save As Delete		
Project Facet	Version	Details Runtimes		
Axis2 Web Services		Seam 1.2		
🗹 💑 Dynamic Web Module	2.5	Enables the project to work with JBo		
🗹 🛃 Java	5.0	Requires all of the following facets:		
□ ↔ Java Persistence	1.0	Dynamic Web Module 2.5 or ney		
JavaScript Toolkit	1.0	Java 5.0		
✓ I JavaServer Faces	1.2	JavaServer Faces 1.2 or newer		
	4.3			
Dess Portiets				
Boss web Services	12			
WebDoclet (XDoclet)	1.2 2.0			
< III	>	OK Cancel		

Figure 2.9. Project Facets Selection

Moreover, here you can specify your own preset of selected facets by checking needed ones in project facets window and clicking on *Save* button.

Project Facets		
Project Facets Select the facets that should be ena	bled for this p	roject.
Configurations: <a>custom>		≎ Save As Delete
Project Facet	Version	Details Runtimes
🕨 🗌 🗎 Axis2 Web Services		📄 Seam 2.0
🗹 💑 Dynamic Web Module	2.5	Enables the project to work with JBoss Se
🗹 🔊 Java	5.0	Requires all of the following facets:
🗌 Java Persistence	1.0	Dynamic Web Module 2.5 or newer
🗌 📄 JavaScript Toolkit	1.0	Java 5.0
JavaServer Faces	1.2	JavaServer Faces 1.2 or newer
🗌 📄 JBoss ESB	4.3	Save Preset
P I Boss Portlets		Name:
I Boss Web Services		Custom Facets Preset
Seam	2.0	Description:
🗋 🔄 webbociet (Xbociet)	1.2.3	
< <u> </u>		OK Cancel
٢		OK Cancel

Figure 2.10. Specifying Custom Facet Preset

To see all available Server runtimes click on Runtimes tab on the left. You can create a new one using the *New* button. If more than one runtimes are checked here, the *Make Primary* button won't be dimmed yet. So you can make use of it to mark primary runtime.

6	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	2.5	🗹 🗟 JBoss 4.2 Runtime
V M Java	2.5	
□ ↔ Java Persistence	1.0	
🗌 📄 JavaScript Toolkit	1.0	
🗹 📄 JavaServer Faces	1.2	
🗌 📄 JBoss ESB	4.3	
Image: Boss Portlets		
P Boss Web Services	1.2	
VebDoclet (XDoclet)	1.2.3	
	1.2.0	Show all runtimes
		Make Primary New
		Runtime Composition:
		<no runtime="" selected=""></no>
< III		<u>></u>
(?)		OK Cancel

Figure 2.11. Runtime Manipulations

Ok button will bring you to the Web Module wizard form again.

2.3. How to Configure Web Module Settings

As we deal with a Dynamic Web Application we should first specify the top level directory of our application for deploying it to a server afterwards. You know, this kind of application contains both Web and Java code resources. Thus, it's also important to indicate the content directory as well as Java source directory. The wizard will put all those values itself. So you can leave everything as it is.

New Seam Project
Web Module
Configure web module settings.
Context Root:
seamproject
Content Directory:
WebContent
Java Source Directory:
src
Generate deployment descriptor
⑦ < Back Next > Einish Cancel

Figure 2.12. Web Module Settings

Choose *Next* to switch to the next wizard form.

2.4. Adding JSF Capabilities

This wizard helps you to add JSF capabilities into your project for representing appropriate behaviours associated with JSF.

Checking *Server Supplied JSF Implementation* means that you will have a default JSF implementation given by server.

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

Figure 2.13. Adding JSF Capabilities to Web Project

In case when you want to use your custom JSF implementation check a lower radio button. You are able to create a library of jars by clicking on *New* button.

Here, it's necessary to type a Library Name, select a Version Supported and add proper Library jars. Then click on *Finish* to complete the choice.

() C	reate JSF Implementation Library 🛛 🗙
JSF Library Create a library of j	ars that make up a JSF implementation library.
Library <u>N</u> ame:	CustomJSFImplementation
Version Supported:	v1_1
Library Jars	
🧓 jsf-api.jar - /roo 🦲 jsf-impl.jar - /ro	t/Desktop/rhds/eclipse/plugins
☑ Is JSF [mplement	ation
0	<u>F</u> inish Cancel

Figure 2.14. Create JSF Implementation Library

In the Component Libraries section of the wizard you can also add Component Libraries (e.g. <u>*Richfaces*</u> [http://www.jboss.org/jbossrichfaces]). Just click on <u>New</u> button. Appeared dialog will ask you to type the Library name, supported version and add necessary jar's. Press *Finish* to complete the choice.

e c	reate JSF Implementation Library
JSF Library Create a library of j	ars that make up a JSF implementation library.
Library <u>N</u> ame:	Rich Faces
Version Supported:	
Library Jars	
inchfaces-ui-3. Is JSF Implement	Add Remove
0	<u>F</u> inish Cancel

Figure 2.15. Create JSF Implementation Component Library

The last wizard options allows to edit a path for JSF Configuration File, a name for JSF Servlet, JSF Servlet Classname and change URL Mapping Patterns.

0	New Seam Project
JSF Capabilities Add JSF capabilities to the	nis Web Project
JSF Libraries:	 Server Supplied JSF Implementation CustomJSFImplementation Component Libraries Deploy Library Name Richfaces New
JSF <u>C</u> onfiguration 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 Add
	*.faces
Ô	< Back Next > Bnish Cancel

Figure 2.16. JSF Capabilities Wizard

Finally, as we are arranging the Seam Web project, the last step we should do is to adjust project configurations associated with the Seam.

2.5. Configure Seam Facet Settings

The last wizard step is related to Seam facet and allows you to do the following:

9	New Seam	n Project	×
Seam Facet Configure Seam Facet Settings			
General Seam Runtime: Seam 1.2.AP Deploy as:	EAR		\$ Add
Database Database Type: Connection profile: Database Schema Name: Database Catalog Name:		HSQL DefaultDS	¢ Edit New
DB Tables already exists in dat Recreate database tables and	abase: data on deploy	: 🗆	
Code Generation Session Bean Package Name: Entity Bean Package Name: Test Package Name:	org.domain.te org.domain.te org.domain.te	st.session st.entity st.test	
Ô	< <u>B</u> ack	Next >	<u>F</u> inish Cancel

Figure 2.17. Seam Facet Settings

• Create Seam runtime and define Seam home folder.

For that click on *Add* button in the General section. Notice that in this wizard presented below you can create a Seam runtime only for that version which was selected in the *Project Facets* wizard (version 1.2 in our case).

0	New Seam Runtime
Seam Runtim Create a Sean	n Runtime
Name: Version: Home Folder:	Seam_runtime 1.2 \$ /opt/work/jboss-seam-1.2.1.GA Browse
0	[<u>Finish</u> Cancel

Figure 2.18. Seam Runtime Creation

- Select EAR or WAR deployment by checking a necessary radio button.
- Select a Database Type

5	New Seam	Project	
Seam Facet Configure Seam Facet Settings			
		DB2	
General		DB2/390	
Seam Runtime Seam 1.2.AP		DB2/400	
	AD	Derby	
Deploy as: 💿 WAR 🔿 E	AR	Firebird	
Database		FrontBase	
Database Type:		HSQL	
Connection		Informix	
Connection profile:		Ingres	
Database Schema Name:		Interbase	
Database Catalog Name:		Mckoi SQL	
DB Tables alwards eviate in dat	-	MySQL	
DB lables already exists in da	labase:	MySQL (InnoDB)	
Recreate database tables and	data on deploy:	MySQL (MyISAM)	
Code Generation		MySQL 5	
Session Bean Package Name:	org.domain.Sea	MySQL 5 (InnoDB)	
Fakiba Dalam Dalaman Marria	ann dennein Cea	Oracle 10g	
Entity Bean Package Name:	org.domain.sea	Oracle 8i	
Test Package Name:	org.domain.Sea	Oracle 9i	
		Pointbase	
		PostgreSQL	
		Progress	
		SAP DB	
		SQL Server	
		Sybase	
		Sybase 11	
0	< <u>B</u> ack	Sybase Anywhere	

Figure 2.19. Seam Runtime Creation

• and then specify a *Connection profile* appropriate for your database.

8	New Seam	Project		8
Seam Facet Configure Seam Facet Settings				
General Seam Runtime: Seam 1.2.AP Deploy as:	AR			\$ Add
Database Database Type:		HSQL		+
Connection profile:		DefaultDS	•	Edit New
Database Schema Name: Database Catalog Name: DB Tables already exists in dat Recreate database tables and	abase: data on deploy:			
Code Generation Session Bean Package Name: Entity Bean Package Name:	org.domain.tes	t.session t.entity		
(2)	< Rack	Next >	Finish	Cancel
U	Dack	Meye >	CHISH	Cancer

Figure 2.20. Connection Profile Options

You can edit chosen profile by using *Edit* button or organise a new one by clicking on *New* button and selecting necessary for you type of connection profile.

New Connection Profile	×
Wizard Selection Page	
Please select the connection profile type:	
Derby Embedded Database	
Seneric JDBC Connection	
BALLDB Connection Profile	
PostgreSQL JDBC Connection	
Sybase ASA	
(7) < Back Next > Einish	Cancel

Figure 2.21. Connection Profile Selecting

On the other dialog you'll be asked to enter its name and description. And then you should select a proper driver and adjust connection details. Press *Next* to preview all the adjusted settings and complete the creation of the new profile.

8	HSQLDB Database	×
Specify a Driver	and Connection Details	
Select a driver from the connection.	n the drop-down and provide login details for	
Select a driver from	the drop-down:	
Hypersonic DB		•
Database:	SAMPLE	
Database location:	MyDB	Browse
User name:		
Password:		
URL:	jdbc:hsqldb:MyDB	
Optional properties:		
L		Add
		Up
		Down
		Remove
		Clear All
	Ţes	t Connection
Ø	< Back Next > Finish	Cancel

Figure 2.22. Connection Details

The next block of settings in the Seam Facet wizard are describing a Database and a connection to it.

In the Code Generation section the wizard have already put the names for your Session Bean, Entity Bean and Test packages. Of course, you can change them into the others which you like.

Session Rean Package Name	ora domain seamproject session
Session beam ackage Name.	org.domain.seamproject.session
Entity Bean Package Name:	org.domain.seamproject.entity
Test Package Name:	org.domain.seamproject.test
	· · · · · · · · · · · · · · · · · · ·

Figure 2.23. Code Generation Section

Click on *Finish* to generate a project.

Directory Structure of the Generated Project

In this chapter we describe where the Seam wizard puts the generated files for both EAR and WAR deployments.

The Seam Project wizard generates projects like Eclipse WTP style in order to utilize Eclipse WTP features and to have a correct classpath. To be more precise it generates one project per artifact.

3.1. WAR Deployment

The project layout for WAR projects is:

😫 Package Explorer 🛿 🛛	Project Explorer	- 0
	e 4	\$ ▽
🕨 👑 seamproject		
👂 😂 seamproject-test		

Figure 3.1. Project Layout for WAR projects

A WAR project can only use Seam JavaBean and JPA Entity bean components; it cannot use EJB3 Session beans etc.

WAR projects are generated to enable Seam 1.2.1 war hotdeploy feature. Classes put into *src/ action* will be deployed to *WEB-INF/dev* from which Seam 1.2.1 automatically will perform hotdeploy of new components.



Note:

Because of Eclipse WTP limits the hot deployed classes also existed in *WEB-INF/ classes*, but since Seam gives *WEB-INF/dev* precedence it will work.

Furthermore the Seam Project wizard generates a test project that is setup to run <u>TestNG</u> directly against the proper libraries and server runtime libraries. When the TestNG plugin is installed you can just run your tests via Run As > TestNG Test.

In order to deploy WAR project on server, right-click on the project and select *Run As > Run on Server.* Studio will deploy WAR project into one web application on server to deploy folder.

3.2. EAR Deployment

The project layout for EAR projects is:



Figure 3.2. Project Layout for WAR projects

An EAR project can use the whole range of Seam components, including EJB3 Session beans.

In order to deploy EAR project on server, right-click on the project with -ear postfix and select Run As > Run on Server. Studio will take care about all modules and deploy EAR project into one enterprise application on server to deploy folder. EAR application keeps ejb and war modules of the EAR project.

3.3. Renaming the Projects and Folders

If you need to rename one of the Seam Project artifacts (*<project_name>*, *<project_name>*test, *<project_name>*-test or *<project_name>-ejb*) or any entire folder like *<project_name>*/ WebContent, *<project_name>/ejbModule*, *<project_name>-test/test-src*, or project name in packages org.domain.<project_name>.session, org.domain.<project_name>.entity, you can do this by brining the context menu and navigating *Refactor > Rename...* or just pressing *Shift* + *Alt* + *R* under the chosen resource.

Use *Refactor > Move...* (or *Shift + Alt + V*), if you need to move *<project_name>/WebContent* folder, *<project_name>/ejbModule* folder or *<project_name>/test-src* folder in the other place within the Project structure.

Seam Menus and Actions

In this chapter we provide a description of Seam actions that are available from

- Menu bar
- Toolbar
- Context menus in views

4.1. File Menu Actions

In a Seam perspective, by default there are the following actions in File > New submenu

Table 4.1. Seam Actions in the New Submenu

Name	Function
Seam Web Project	Runs New Seam Project wizard for creating a new Seam project
Seam Action	Runs New Seam Action wizard for creating a new Seam action
Seam Form	Runs New Seam Form wizard for creating a new Seam form
Seam Entity	Runs New Seam Entity wizard for creating a new Seam entity
Seam Conversation	Runs <u>New Seam Conversation</u> wizard for creating a new Seam conversation
Seam Generate Entities	Runs <u>Generate Seam Entities</u> wizard

4.2. Navigate Menu Actions

In the next sections we are going to describe Seam actions which can help you to easily navigate through the source code.

4.2.1. Find Seam References/Declarations

To find EL expretions both in *.java* and *.xhtml* files use Find Seam References/Declarations actions. For that, in the main menu bar click on *Search > Find Seam References* or *Find Seam Declarations*.

Look at the description of the actions in the table below.

Table 4.2. Find Seam References/Declarations actions

Name	Function	Keyboard Shortcut
		Ctrl+G

Chapter 4. Seam Menus and Actions

Name	Function	Keyboard Shortcut
Find Seam	Find all references and declarations to the selected	Ctrl+Shift+G
References	element. It's available for EL expressions in both .java	
Find Soom F	and .xhtml files. Differs from normal Eclipse Find	also Ctrl + 1 for .java files
Find Seam L	References/Declarations by showing an EL or Seam	
	references in the Search View.	

On the screenshot example below you could see that the search results are listed in the Search view.

🚾 login.xhtml 🕴												- 8
 	value	e="#	(ider	ntit	y. rer	nemb	e rMe	}*/ :	>			
<pre><div class="actionButtons"></div></pre>												
<h:commandbutton act:<="" td="" value="1</td><td>ogin"><td>ion=</td><td>#{10</td><td>den t</td><td>ity.l</td><td>logi</td><td>n}"/</td><td>></td><td></td><td></td><td></td><td></td></h:commandbutton>	ion=	#{10	den t	ity.l	logi	n}"/	>					
												=
												-
4												9
Visual/Source Visual Source Preview												
🔗 Search 🕱	÷	Ŷ	ж	*	Đ		*		!? •	đ	~	- 0
▽ 🗞 seamProject												
🛠 identity - /opt/work/workspace_jbds/sear	nProject/Web	Con	tent/\	VEB-	INF/lib	/jbos	s-se	am.j	ar			

Figure 4.1. Find Seam Declaration for "Identity"

You can also use Ctrl + 1 in .java files to activate the actions:



Figure 4.2. Find Seam References for "Identity"

4.2.2. Open Seam Component

To open Seam Components click on *Navigate > Open Seam Component* in the main menu bar. This dialog is also available from toolbar icon or with hot keys combination "Ctrl+Shift+Z ".



Figure 4.3. Open Seam Components icon

In the table below read a description about the dialog.

Table 4.3. Open Seam Components Dialog

Name	Function	Keyboard Shortcut
Open	Brings up the Open Seam Component dialog	Ctrl+Shift+Z
Seam Comp	otoenoppen a component in the editor. The Open	
	Seam Component selection dialog shows all Seam	
	components existing in the workspace. You can	
	search the components via their short, imported or full	
	name.	

Enter a name in the text field and see the results as it shown on screenshot:

Open Seam Component
Enter seam component name prefix or pattern (? = any character, * = any string): 👻
capt
Matching items:
🔊 org.jboss.seam.captcha.captcha - testSeam
🐑 org.jboss.seam.captcha.captcha - testSeam-ejb
🐑 org.jboss.seam.captcha.captcha - seamProject
🐑 org.jboss.seam.captcha.captchalmage - testSeam
🐑 org.jboss.seam.captcha.captchalmage - testSeam-ejb
된 org.jboss.seam.captcha.captchalmage - seamProject
🔊 org.jboss.seam.captcha.captcha - testSeam
⑦ OK Cancel

Figure 4.4. Open Seam Components Dialog

Seam Wizards

This chapter introduces you with Seam Components.

All the Seam component generations options known from Seam-gen are available as wizards (with sensible auto-defaulting) for creating various common Seam components:

- Seam Action
- Seam Form
- Seam Entity
- Seam Conversation

Go to *File > New* and select the component wizard.

		
<u>Elle</u> dit <u>S</u> ource Refactor	<u>N</u> avigate Search <u>P</u> r	oject <u>R</u> un <u>W</u> indow <u>H</u> elp
<u>N</u> ew	Shift+Alt+N 🔸	🚳 Seam Web Project
Open File		Project
<u>C</u> lose	Ctrl+W	🖶 Package
Close All	Shift+Ctrl+W	G Class
Cave.	CHUS	😯 Interface
Save As	Culta	😂 Source Folder
l Save ΔI	Shift+Ctrl+S	😂 Folder
Revert	Sincrearry	🕆 File
		Seam Action
Mo <u>v</u> e		🕖 Seam Form
Rena <u>m</u> e	F2	Seam Entity
Refresh	F5	Seam Conversation
Convert Line Delimiters To	•	Seam Generate Entities
👜 <u>P</u> rint	Ctrl+P	📑 E <u>x</u> ample
Switch <u>W</u> orkspace	,	📑 <u>O</u> ther
🔄 Import		
🛃 Export		
Properties	Alt+Enter	
Exit		

Figure 5.1. Seam Component Wizards

The wizards create multiple resources and place it in the appropriate folders depending on your project structure (WAR or EAR).

Let's create a WAR project using the New Seam Project wizard.



Figure 5.2. Seam Project WAR Deployment

After the project is created you need deploy it on server.

5.1. New Seam Action

In this and following sections you can see example creating Seam Components.

To create a New Seam Action you should select a necessary project, type a name for Seam component, POJO class, Method, Page and select a Package using *Browse* button.
	New Seam Action
Seam Action Create a new Seam action	
Seam Project:	seam_war Browse Settings
Seam component name:	Action
POJO class name:	ActionPOJO
Bean name:	ActionBean
Method name:	actionMethod
Page name:	actionPage
Package name:	org.domain.seam_war.session Browse
0	Einish Cancel

Figure 5.3. New Seam Action Wizard

You can see the action page in WebContent folder. Click on it to open in JBoss Tools HTML Editor.



Figure 5.4. Action Page in JBoss Tools HTML Editor.



Action component was hot-deployed. Forms and Conversations will work the same way.

tilles seam_war छ		- 8
🗢 🔿 🔳 🗞 http://localhost:8080/seam_war/actionPage.seam	•	Ð
seam_war: Home	Login	
actionPage		
actionMethod!		
Powered by Seam, Generated by seam-gen.		

Figure 5.5. Action Component

5.2. New Seam Form

Click on actionMethod in the internal browser and add a form in your project using the New Seam Form wizard *File > New > Seam Form*.

Select a necessary project, type a name for Seam component, POJO class, Method, Page and select a Package using *Browse* button.

٥	New Seam Form	×
Seam Form Create a new Seam form		
Seam Project:	seam_war	Browse
Seam component name:	Form	
POJO class name:	FormPOJO	
Bean name:	FormBean	
Method name:	formMethod	
Page name:	formPage	
Package name:	org.domain.seam_war.session	Browse
0	Einish	Cancel

Figure 5.6. New Seam Form Wizard

The Form Page was created in WebContent folder.

😫 Package Explor 🕴 🖒 Project Explorer 🗖 🗖	3	🄪 seam_wa	r 🚺 F	ormPOJO.java	formPage.x	html 🛙			- 0	
수 수 🗟 😑 🔽 🎽	7	DOCTYP</th <th>E compo</th> <th>sition PUBLIC</th> <th>"-//W3C//DTD : "http://www.w</th> <th>XHTML 1.0 Tra 3.org/TR/xhtm</th> <th>nsitional//EN" Nl1/DTD/xhtmll-transi</th> <th>tional.d</th> <th>td"></th>	E compo	sition PUBLIC	"-//W3C//DTD : "http://www.w	XHTML 1.0 Tra 3.org/TR/xhtm	nsitional//EN" Nl1/DTD/xhtmll-transi	tional.d	td">	
🕨 🚵 Web App Libraries	-	<ui:comp< th=""><th>osition</th><th><pre>xmlns="http://</pre></th><th>/www.w3.org/1</th><th>999/xhtml"</th><th></th><th></th><th></th></ui:comp<>	osition	<pre>xmlns="http://</pre>	/www.w3.org/1	999/xhtml"				
🗁 build			<pre>xmlns:s="http://jboss.com/products/seam/taglib" xmlns:ui="http://iava.sun.com/isf/facelets"</pre>							
P Sources			<pre>xmlns:f="http://java.sun.com/jsf/core"</pre>							
🗁 src			<pre>xmlns:h="http://java.sun.com/jsf/html" xmlns:rich="http://richfaces_playdisf_orm/rich"</pre>							
☞ 🐎 WebContent	11			xmlns:a="http	s://ajax4jsf.	dev.java.net/	'ajax"			
Þ 🗁 img			<pre>template="layout/template.xhtml"></pre>							
👂 😂 layout		4				Ш				
META-INF		-	1.4.)[A B Z I	T A A			
Stylesheet		a.					2 la tà			
WEB-INF		#{proje	ctName}:	Home		۷	/elcome, #{identity.username}	Login	Logout	
actionPage.xhtml		*		_						
📾 error.xhtml 🛛	=	Er Er	or Messag	es						
n formPage.xhtml		te	rmPage						=	
📾 home.xhtml				1010-1			7			
index.html			Value*	#{Forn	n.value}	Error Messages				
🔊 login.page.xml										
📾 login.xhtml			formMethod							
hibernate-console.properties									•	
📄 seam_war.launch									×	
▶ 😂 seam war-test	┚,	Visual/Sourc	e Visual	Source Preview						

Figure 5.7. Form Page in JBoss Tools HTML Editor.

Deploy the form on server. Right click on Form Page, select *Run As > Run On Server*.

ء 🌒	eam_war S	X		- 0
¢		http://localhost:8080/seam_war/formPage.seam		9
sea	am_war: <u>He</u>	ome	Login	
	formPage			
	Value*			
	formMetho	ad l		
		Powered by Seam. Generated by seam-gen.		

Figure 5.8. Form Component

Form component was hot-deployed.

5.3. New Seam Conversation

Enter some value in the text field (e.g. value1) and click on formMethod.

Add a conversation using the New Seam Conversation wizard File > New > Seam Form.

You should select a necessary project, type a name for Seam component, POJO class, Method, Page and select a Package using *Browse* button.

😂 Cr	eate New Conversation 🛛 🗙
Seam Conversation Create a new Seam conve	ersation
Seam Project:	seam_war Browse
Seam component name:	talk
POJO class name:	Talk
Bean name:	TalkBean
Method name:	talk
Page name:	talk
Package name:	org.domain.seam_war.session Browse
0	Einish Cancel

Figure 5.9. New Seam Conversation Wizard

Conversation page was created in WebContent folder.

😫 Package Explor 🙁 🏠 Project Explorer 🗖 🕻	٥	a taik.xhtml 🕴	- 0
Content WebContent Content Content	•	<pre><!DOCTYPE composition PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"</th> <th>ltional.dtd"></th></pre>	ltional.dtd">
 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>		<hr styleclass="message"/>	
Stylesheet			
े actionPage.xhtml		#{projectName}: Home Welcome, #{identity.username}	Login Logout
蟁 formPage.xhtml 國 home.xhtml	=	Error Messages	_
📾 index.html 🔊 login.page.xml		Value #(taik.value)	
🧰 login.xhtml न्द्र talk.xhtml		Begin Increment End	
hibernate-console.properties			
▶ ≥ seam_war-test	×	Visual/Source Visual Source Preview	×

Figure 5.10. Conversation Page in JBoss Tools HTML Editor.

Right click on Conversation page, select *Run As > Run On Server*.

ء 🌒	eam_wa	r 🕄					-	• 0
¢	ې 🖪	http://localhost:8	080/seam_war/t	alk.seam		•		٩
Se	amWar:	Home					Login	
	talk							
	Value	1						
	Begin	Increment End						
			² owered by <u>Seam</u> . Gener	rated by seam-gen.				

Figure 5.11. Conversation Component

Conversation component was hot-deployed.

Click on Begin and Increment buttons to check the conversation functionality.

5.4. New Seam Entity

Entities cannot be hot-deployed, so we need to stop the server.

Create an Entity using the New Entity wizard *File > New > Seam Entity*.

You should select a necessary project, type a name for Entity class, select a Package using *Browse* button, type a name for Master Page and Page.

8	New Seam Entity	×
Seam Entity Create a new Entity		
Seam Project:	seam_war	Browse
Seam entity class name:	Customer	
Package name:	org.domain.seam_war.entity	Browse
Master page name:	customerList	
Page name:	customerPage	
0	Einish	Cancel

Figure 5.12. New Seam Entity Wizard

The Master Page and the Entity were created in WebContent folder.

😫 Package Explorer 🕱 📃 🗖	and cu	ustomerList.xhtml 🔀	- 0
 C C C C C C C C C C C C C C C C C C C		<pre>!DOCTYPE composition PUBLIC *-//W3C//DTD XHTML 1.0 Transitional//EN*</pre>	
▷ 🗁 layout ▷ 🗁 META-INF ▷ 🗁 stylesheet			<u>.</u>
Boyseneer Boyseneer	≶× ⊚ ■	#[projectName]: <u>Home</u> Welcome, #[Identity.username} Login Login	<u>out</u> [≜]
ൽ customerPage.xhtml ൽ error.xhtml 물 ൽ formPage.xhtml		customerList No customer exists Id Name	=
교 index.html 丞 login.page.xml 쿄 login.xhtml		#[customer.id] <u>#[customer.name]</u>	
i talk.xhtml III hibernate-console.properties III seam war.launch			-
N ⇔J coom was tost	Visu	al/Source Visual Source Preview	-

Figure 5.13. Master Page in JBoss Tools HTML Editor.

The Entity page is:

😫 Package 😫 🏠 Project E 🗖 🗖	D 📾 customerPage.xhtml 🛙	- 0
 E Seam_war > ﷺ seam_war > ﷺ src/hot > ﷺ src/main > ➡ JRE System Library [java-1.!] > ➡ JBoss 4.2 Runtime [JBoss 4. > ➡ Web App Libraries > build > ➢ resources > src 	<pre></pre>	td*>
▽ 🍃 WebContent		
Þ 🗁 img		
Alayout		
D 😂 META-INF	X #{projectName}: Home Welcome, #{identity.username}! Login	Logout
Stylesheet		
WEB-INF	Error Messages	100000000
WEB-INF actionPage.xhtml	Error Messages customerPage	
WEB-INF actionPage.xhtml actionerList.xhtml	Error Messages CustomerPage Name * Error Messages	
▷ ➢ WEB-INF	Error Messages	
	Error Messages	
 ▷ >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Error Messages	
 ▷ ➢ WEB-INF ⓓ actionPage.xhtml ⓓ customerList.xhtml ⓓ customerPage.xhtml ⓓ error.xhtml ⓓ home.xhtml ⓓ index.html 	Error Messages	
EWEB-INF add actionPage.xhtml add customerList.xhtml dd customerPage.xhtml add error.xhtml add home.xhtml add home.xhtml add index.html add index.html add login.page.xml	Error Messages	
EWEB-INF ad actionPage.xhtml ad customerList.xhtml de customerPage.xhtml de error.xhtml de home.xhtml de index.html de login.page.xml de login.xhtml	Error Messages customerPage Name * Error Messages Save Save Delete Done Powered by Seam, Generated by seam-gen.	×

Figure 5.14. Entity Page in JBoss Tools HTML Editor.

Run the Entity page on server. This is what you get:

ء 🍪	seam_war	×		- 8
¢	ې 🔳	http://localhost:8080/seam_war/customerPage.seam	• •	•
se	am_war: H	Home	Login	1
	customerP	age		
	Name*			
	Save	Powered by <u>Seam</u> . Generated by seam-gen.		-

Figure 5.15. Customer Page

Let's create two customers c1 and c2. Enter the name in the text field and press the Save button. Customer should be successfully created. Press Done. Do the same for c2 customer. The result should be:

⊛ seam_war ⊠		- 0
🔶 🖒 🔳 🦑 [http://localhost:8080/seam_war/customerList.seam?cid=7&clr=true&conversationPropag		9
seam_war: Home	Login	
customerList Id Name 1 c <u>1</u> 2 c <u>2</u>		
Create customer Powered by <u>Seam</u> . Generated by seam-gen.		

Figure 5.16. Two Customers Are Created

Seam Generate Entities

The main purpose of this chapter is to tell you about Seam Generate Entities.

Generate Entities is available directly from within Eclipse using Hibernate Tools plugin for the standard seam-gen generation.

Generate Entities generates a set of CRUD Seam components and web pages based on existing tables in a database or on existing entities in your application.

Generate Seam Entities	×
Generate Seam Entities	
Seam Project: seamproject Browse S Hibernate Console Configuration: seamproject Generation Mode Reverse engineer from database Use existing entities 	ettings
⑦ < <u>Back</u> <u>N</u> ext > <u>F</u> inish C	ancel

Figure 6.1. Generate Seam Entities Wizard

In the Generate Seam Entities wizard there are two generation modes: Reverse Engineer from database and Use existing entities.

The Reverse Engineer from database mode can be described in four steps:

- 1. The wizard gets in database, extracts the tables and their connections
- 2. On basis of this metainfomation the Entity classes are generated into org.domain.project.entity package
- 3. For the entities from step 2 the classes EntityList and EntityHome are generated into org.domain.project.session package

4. The xhtml pages are generated.

Checking the Use existing entities mode the wizard executes only 3 and 4 steps. It generates missing classes and xhtml pages.

Read the <u>Generate a CRUD Database Application</u> chapter in order to see how the Generate Seam Entities wizard can be used.

Seam Editors Features

7.1. Content Assist

In this chapter you know what Seam Editors Features are and how to work with them.

Content Assist (ctrl + space) is available when using expression language in:

- JSP
- XHTML
- XML
- JAVA

The Seam components are available in content assist.



Figure 7.1. Content Assist

i

Note:

To get Code Assist available for an externally generated and imported project, don't forget to enable Seam features and configure Seam Settings in *Project Preferences*.

7.2. OpenOn

OpenOn let's you easily navigate through your project without using the Package Explorer or Project Explorer. After pressing ctrl + left click (or just F3) you will see a corresponding method or class.



Figure 7.2. OpenOn

7.3. Seam Validation

Validation of various possible problematic definitions is implemented for Seam applications.

If an issue is found it will be showed in the standard Problems View.



Figure 7.3. Seam Validation

In the preferences page for Seam Validator you can see and modify the validator behavior. Go to *Window > Preferences > JBoss Tools > Web > Seam > Validator* and select the severity level for the optional Seam Validator problem.

٢	Preferences	×
type filter text	Validator	(> + <) +
type filter text ▷ General ▷ Ant ▷ Connectivity FreeMarker Editor ▷ Help HQL editor ▷ Install/Update ▷ Install/Update ▷ Internet ▷ JBoss jBPM ▽ JBoss Servers Packaging Archives ▽ Web ▷ Editors ▷ JSF ▽ Seam Validator ▷ Struts ∨erification ▷ ▷ XDoclet JPA Plug-in Development ▷ Server ▷ Spring ▷ SQL Development	Validator Configure Project Sp Select the severity level for the following optional Seam Validator problems: • Components Duplicate component name: Stateful component does not contain @Remove method: Stateful component does not contain @Destroy method: Stateful component has wrong scope: Component class name cannot be resolved to a type: Component class does not contain setter for property: • Entities • Component life-cycle methods: • Factories • Bijections • Context variables • Expression language	<pre>cific.</pre>
	Restore <u>D</u> efaults	Apply
0	ОК	Cancel

Figure 7.4. Seam Validator Preferences

On WTP projects validation are enabled by default and thus executed automatically, but on normal Java projects you will have to go and add the Validation builder to your project. It is available in the properties of your project under Validation. The validations can be run manually by clicking Validate via the context menu on your project which will execute all the active WTP validations.

7.4. Structured components.xml Editor

When editing components.xml a structured tree editor is available in addition to pure source editing. It has a graphical view (Tree tab) and source (Source tab).

S components.xml		- 0
Seam Components 1.2 Editor		
▼ components	- Seam Components 1.2	2 File
▼ 🗟 components.xml	nts	
org.jboss.seam.	Sectory	
olg.jbbss.seam. Properties	Event Framework	Add
	Theme +	<u> </u>
 persistence unit properties org.jboss.seam.core.ejb 	Spring Remoting	Edit
👂 ᡚ securityRules	Pdf +	<u>Цр</u>
 org.jboss.seam.security.identity 	Core Drools	Down
<pre> # {redirect.captureCurrentView } </pre>	Security •	
de org.jboss.seam.postAuthenticate	JMS •	Add
e org.jooss.scart.mail.mailscssion	Web 🔸	<u>B</u> emove
		<u>E</u> dit
		<u>U</u> p
Tree Source	-	

Figure 7.5. component.xml Editor



Note:

You can view and edit components.xml and other xml files directly in the Project Explorer and Properties sheet without opening the components.xml editor.

陷 Project Expl	orer 🛿			\$₽	~		٥
🗢 🎾 ME	B-INF						-
۵ 🖒	classes						
۵ 🖉	dev						
ا 🗠 (lib						
▽ 🖹	components.xml						
	陷 org.jboss.seam.core	.init					
	횐 org.jboss.seam.core	.manager					Н
Þ	횐 entityManager						
Þ	🔊 seamEntityManagerF	actory					
	陷 org.jboss.seam.core	.ejb					
▷ (🔊 securityRules						
	🔰 org.jboss.seam.secu	irity.identity					Н
Þ	🚯 org.jboss.seam.notL	oggedin					
Þ	🚯 org.jboss.seam.post	Authenticate					
	🔊 org.jboss.seam.mail	mailSession					
	facar config uni				~	_	9
Properties 2	3				Ť	_	
1 items sele	cted						
Advanced	Property	Value					
	authenticate-metho	#{authenticator.au	ther	ntica	te}		
	auto-create	false					
	class	_					
	installed	true				•	
	jaas-config-name	true					
	name	false				Ŀ	•
	precedence						
	remember-me	true					
	scope						
	security-rules	#{securityRules}					

Figure 7.6. component.xml Editor

Seam Views

8.1. Seam Components View

This chapter introduces you with Seam Components View.

The Seam Components View is available from Seam perspective. It provides a list of seam components found in a project.



Figure 8.1. Seam Components View

The Seam Components View can show a components default scope in two ways:

 as labels on each component (click on the triangular symbol at the top of the Seam Components View page and select Scope Presentation > Label)



Figure 8.2. As label

• as a node per scope where the components are grouped under a node representing its default scope.

🖹 Problems 🕢 Tasks 😥 Seam Components 🕱 📿 JBoss Server View 🕷 Servers 🖳 Console 👘	. 🗆
🖻 😫	~
🗢 🎭 seamproject	Seam Packages
Dabel	Scope Presentation
Business Process Node	Sustomize View
Conversation	
Event	
Method	
🕨 🖓 Page	
🕨 🖓 Session	
A Construction of the second secon	
Inspecified	~

Figure 8.3. As node

The Seam Packages can be presented in two ways:

Flat

😰 Problems 🖉 Tasks 📨 Seam Components 🛛 📿 JBoss Server View 🍭 Servers 🗳	Console	
	🖻 🔩	~
🗢 🎭 seamproject	 Flat 	Seam Packages
default package)	⊖Hierarchical	Scope Presentation
Gripboss.seam.core		≱ <u>C</u> ustomize View
 Image: Booss.seam.mail Image: Booss.seam.security 		Link Editor
▷ 🗞 seamproject-ejb		
Seamproject-test		

Figure 8.4. Flat Presentation of Seam Packages

• Hierarchical

😰 Problems 🕢 Tasks 😥 Seam Components 🖾 🥥 JBoss Server View 🏶 Servers 🗳 Console	· 🗆
E 45	~
🗢 😓 seamproject 🛛 🔿 Flat	Seam Packages
Image: Image in the second	Scope Presentation
⇒ ⊕ org	☆ <u>C</u> ustomize View
V 🖶 jboss	Link Editor
🗢 🖶 seam	
ter core	
🕨 🌐 mail	
👂 🌐 security	
🖻 🗞 seamproject-ejb	
A seamproject-test	

Figure 8.5. Hierarchical Presentation of Seam Packages

The Seam Component View can be filtered by choosing Customize View.



Figure 8.6. Customize View

Select the *Seam Components from Libraries* under the Filters tab. This will make the view ignore components defined in jars. This will hide the many built-in Seam components and leave only those that are actually defined in the project or have been actively configured via components.xml. Therefore, deselecting the filter will show you all available components.

Selecting the Seam Components from Referenced Projects will hide the components that dependent on other project.

Available Customiz	ations
Filters 😫 Content	
Select the filters to apply (matching items	will be hidden):
enter name of filter	
Seam Components from Libraries	
Seam Components from Referenced	Projects
	V
L	OK Cancel

Figure 8.7. Available Custimozations

8.2. Project Explorer integration

If you don't like to have a view for every piece of information in Eclipse, the content of the Seam Components view is also available as a node in the built-in Project Explorer (not Package Explorer!) view in Eclipse.



Figure 8.8. Seam Components in Project Explorer

Seam Preferences

In this chapter you get to know how Seam preferences can be modified during the development process.

9.1. General Preferences

Seam preferences can be set using the Seam preference page. Click on *Window > Preferences > JBoss Tools > Web > Seam*.

On this page you can manage the Seam Runtime. Use the appropriate buttons to Add more runtimes or to Remove those that are not needed.

6			P	referen	ces		X
ty	pe filter text	s	eam			<	≽• ⇔∘ •
	pe filter text General Ant Data Management Drools Preferences FreeMarker Editor Help HQL editor Install/Update Java JavaScript JBoss jBPM JBoss Tools	5	eam Name ✓ jboss-se	eam-2.0	Version 2.0	Path /opt/jboss-seam-2.0.0.G	Add Edit Bemove
Þ	JBoss ISBR JBoss ESB Runtimes JBoss Portlet ♥ Web ▷ Editors El Variables ▷ JSF Label Decoration ♥ Seam Validator ▷ Struts Verification JPA oXygen						
•	Plug-in Development Project Archives	~					
G	0					ОК	Cancel

Figure 9.1. Seam Preferences Page

Clicking on Edit button you get the form where you can change the path of Seam runtime home folder, modify name and version. Press Finish to apply the changes.

6	Edit Seam Runti	ime 🗙
Edit Seam Ru Input new valu	intime es	
Home Folder: Name: Version:	/opt/jboss-seam-2.0.0.GA jboss-seam-2.0.0.GA 1.2 🗘	Browse
0		Einish Cancel

Figure 9.2. Edit Seam Runtime

9.1.1. Validator Preferences

Seam preference page includes a subsection Validator. See *Window > Preferences > JBoss Tools* > *Web > Seam > Validator.*

On this page you can choose a severity level for the various Seam validator problems. For example, if you want to ignore the case when component name is duplicated expand the Components node and select Ignore next to Duplicate component name. After that you won't see the error.

6	Preferences	×
type filter text	Validator	⇔-⇒-
General	Configure Project Sp	ecific.
Ant Connectivity	Select the severity level for the following optional Seam Validator problems: Components	
Help	Duplicate component name:	Error
HQL editor	Stateful component does not contain @Remove method:	Warning
Install/Update	Stateful component does not contain @Destroy method:	Ignore Error 🗘
▷ Internet	Stateful component has wrong scope:	Error 😫
▷ JBoss jBPM	Component class name cannot be resolved to a type:	Error 🗘
	Component class does not contain setter for property:	Error 😫
 ▷ JBoss Servers Packaging Archives ▽ Web ▷ Editors ▷ JSF Label Decorations ▽ Seam Validator ▷ Struts Verification ▷ XDoclet JPA 	 Entities Component life-cycle methods: Factories Bijections Context variables Expression language 	
Plug-in Development Run/Debug	Restore Defaults	Apply
0	ОК	Cancel

Figure 9.3. Seam Validator Preference Page

In the upper right corner of the page there is a Configure Project Specific link. Clicking on it you get the form where you can choose a project for specific setting. Project specific configuration allows you to have different validator settings for each project. Check the Show only projects with project specific settings if you want to see the projects that have been already set. Click on Ok.

Project Specific Configuration
Select the project to configure:
😅 seamproject
😂 seamproject-ejb
😂 seamproject-test
□ Show only projects with project specific settings
ОК Cancel

Figure 9.4. Project Specific Configuration

You get the validator properties page for chosen project. Check the Enable project specific settings to be able to change the settings.



Properties for seamProject (Filtered)			
type filter text	R	Seam Validator	(>* -\$*
Seam Validator		☑ Enable project specific settings	
		Select the severity level for the following optional Seam Validator problems:	
		- Components	
		Duplicate component name:	Error 😫
		Stateful component does not contain @Remove method:	Error 😫
		Stateful component does not contain @Destroy method:	Error
		Stateful component has wrong scope:	Error
		Component class name cannot be resolved to a type:	Error
		Component class does not contain setter for property:	Error
		▶ Entities	
		Component life-cycle methods:	
		→ Factories	
		▶ Bijections	
		Context variables	
		Expression language	
< III	Þ	Restore Defaults	Apply
0		OK	Cancel

Figure 9.5. Validator Properties Page for Chosen Project

9.2. Project Preferences

Once Seam project is created you can modify its settings. Right click on Seam project in Project Explorer and select *Properties > Seam Settings*.

This project properties page allows you to have a flexible project layout. It means that you are not restricted with a specific project structure. You can use the Seam wizards (New Action, Form, Entity, etc.) on Maven, command line seam-gen or your own project structure.

Properties for seamproject					
	/pe filter text	Seam Settings	4		
	Resource BeanInfo Path	Seam support:			
	Builders	Seam Runtime: jboss-seam-2.0.0.G	A	≎ Add	
	FreeMarker Context	Main Seam Project: seamproject			
	Hibernate Settings Java Build Path	Connection profile: New HSQLDB	\$ Edit	t New	
₽	Java Code Style	Deployment			
⊳	Java Compiler	Deploy type 🛛 🔾 WAR 💿 EAR			
Þ	Java Editor Java EE Module Depend	Seam EJB Project: seamproject-ejb		Browse	
	Javadoc Location	View			
₽	JavaScript	View Folder: /seamproject/WebContent	Browse		
	JSP Fragment	Model			
	Project Archives	Source Folder: /seamproject-eib/eibMod	ule	Browse	
	Project Facets	jocariproject cjorejonica			
	Project References	Package: org.domain.seamproject	entity	Browse	
_	Run/Debug Settings	Action / Form / Conversation			
	Seam Settings	Source Folder: /seamproject-ejb/ejbMod	ule	Browse	
	Seam Validator	Package: org domain seamproject	session	Browse	
	Server	l'addaget l'addaget			
	Service Policies	Test			
	Targeted Runtimes	Create Test:			
	Task Tags	Test Project: seamproject-test		Browse	
P	Validation Web Content Settings	Source Folder: //seamproject-test/test-si	rc	Browse	
	Web Project Settings	Package: org.domain.seamproject	.test	Browse	
⊳	XDoclet				
<			Restore <u>D</u> efaults	Apply	
0	D		ОК	Cancel	

Figure 9.6. Properties for Seam Project



Also notice, you are not required to use the New Seam Project wizard to benefit from Seam artifact wizards. You can just enable Seam on your existing project by checking Seam Support and targeting to Seam Runtime, and then configure the folders as you want.

Properties for test				
ty	pe filter text	💧 Seam runtim	e is not selected	¢~ ¢~ ▼
	Resource Beaninfo Path	Seam support:		
	Builders	Seam Runtime	:	≎ Add
	FreeMarker Context	Main Seam Pro	ject: test	
	Hibernate Settings	Connection		
	Java Build Path	Connection profile: New HSQLDB (\$ Edit) New		
⊳	Java Code Style	[Deployment]		
₽	Java Compiler	Deploy type 💿 WAR 🔿 EAR		
₽	Java Editor	Seam FIR Project: test		
	Java EE Module Depend	Searric Di Project. Test		
	Javadoc Location	(View		
₽	JavaScript	View Folder: /test/WebContent Browse		
	JSP Fragment	-Model		
	Project Archives	Source Folder:	/test/src	Browse
	Project Facets	Deskager	lara damain tast antitu	
	Project References	Package;	lorg.domain.test.entity	Browse
_	Run/Debug Settings	Action / Form / Conversation		
	Seam Settings	Source Folder:	/test/src	Browse
	Server	Package:	org.domain.test.session	Browse
	Service Policies			
	largeted Runtimes	Create Test	_	
ь	Validation	Create lest;		
1	Web Content Settings	Test Project:	test	Browse
	Web Project Settings	Source Folder:	/test/src	Browse
Þ	XDoclet	Package:	org.domain.test.test	Browse
-				
<			Restore <u>D</u> efa	ults <u>A</u> pply
	D		U OK	

Figure 9.7. Properties for Seam Project



Tip:

On the figure above fields for configuring Seam artifacts are dimmed because Seam Runtime is not selected.

In Seam Wizards (New Action, Form, Entity, Conversation, Generate Entities) you can get a quick access to project settings using the <u>Settings</u> link in the upper right corner of each wizard.

New Seam Action			
Seam Action Create a new Seam action			
Seam Project:	seamproject Browse Settings		
Seam component name:	Action		
Local interface:	Action		
Bean name:	ActionBean		
Method name:	action		
Page name:	action		
Package name:	org.domain.seamproject.session Browse		
0	<u>E</u> inish Cancel		

Figure 9.8. Settings Link

Generate a CRUD Database Application

10.1. What is CRUD?

CRUD is an acronym for the four basic types of SQL commands: *Create*, *Read*, *Update*, *Delete*. Most applications have some kind of CRUD functionality, and we can assume that every programmer had to deal with CRUD at some point. A CRUD application is one that uses forms to get data into and out of a database.

In the next section we will create <u>Seam</u> Web application, connect it to the <u>HSQL</u> [http:// www.hsqldb.org/] database and add CRUD support.

10.2. How to create the CRUD Database Application with Seam

- First, you should <u>download</u> [http://docs.jboss.org/tools/resources/] a database and start it by running ./runDBServer.sh or runDBServer.bat from the database directory.
- Create a new Seam Web Project using New Seam Project wizard or main menu File > New > Seam Web Project.

•	New		×
Select a wizard			->
Create a Seam Web Project			
<u>W</u> izards:			
type filter text			
🛞 Seam Components File			Ĥ
Seam Conversation			
🍥 Seam Entity			
🍥 Seam Form			
🛞 Seam Generate Entities			
Seam Page Flow			=
🚳 Seam Web Project			
Server			-
< Back	<u>N</u> ext >	Einish	Cancel

Figure 10.1. Seam Web Project Creation

• Name your project as *crudapp*, specify Target Runtime, Server and Seam Runtime configuration. Then press *Next* and follow the next wizard steps keeping default settings.
Seam Project
Seam Web Project
Create standalone Seam Web Project
Project name: crudapp
Project contents:
☑ Use <u>d</u> efault
Directory: /opt/workspace/crudapp Browse
Target Runtime
JBoss 4.2 Runtime
Dynamic Web Module version
2.5
Target Server
JBoss 4.2 Server
Configuration
Dynamic Web Project with Seam 2.0
Configures a Dynamic Web application to use Seam v2.0
Image: Second

Figure 10.2. New Seam Project Wizard



• On *Seam Facet* page click *New...* next to the Connection profile section to create a new Connection profile.

6	New Seam Project 🛛 🗙
Seam Facet i Connection profile is not select	cted
General Seam Runtime: jboss-seam-2 Deploy as:	.0.2.GA ≎ Add
Database Database Type: Connection profile: Database Schema Name: Database Catalog Name: DB Tables already exists in data Recreate database tables and o	HSQL 🗘 Edit New babase:
Session Bean Package Name:	org.domain.crudapp.session
Entity Bean Package Name:	org.domain.crudapp.entity
Test Package Name:	org.domain.crudapp.test
?	Back Next > Finish Cancel

Figure 10.3. Seam Facet page

• On New Connection Profile dialog select the *HSQLDB* connection profile type, name it *cruddb* and click *Next*.

New Connection Profile
Connection Profile
Create an HSQLDB connection profile.
Connection Profile Types:
type filter text
B2 for Linux, UNIX, and Windows
BB2 for i5/OS
🕼 DB2 for z/OS
🕼 Derby
🕼 Generic JDBC
🖺 HSQLDB
😫 Informix
€ MaxDB
€ MySQL
😫 Oracle
😫 PostgreSQL
😫 SQL Server
😫 Sybase ASA
😫 Sybase ASE
Na <u>m</u> e:
cruddb
Description (optional):
(?) < Back

Figure 10.4. New JDBC Connection Profile

• On the next page click the round icon next to the *Drivers* field to select a database driver.

New Connection Profile	×
Specify a Driver and Connection Details	
Select a driver from the drop-down and provide login details for the connection.	or 🗾
Drivers:	
Properties	
 Connect when the wizard completes 	Test Connection
Connect every time the workbench is started	
Image: Second system Mext > Enrish	Cancel

Figure 10.5. New JDBC Connection Profile Database Driver

• Now you should see the New Driver Definition dialog. On the first tab select the HSQLDB JBDC Driver. Underneath in the Driver name field you can change its name if you need.

How to create the CRUD Database Application

with Seam

	New Driver Definition	×
pecify a Driver Template a	and Definition Name	
Unable to locate JAR/zip in fil hsqldb.jar.	le system as specified by the dri	ver definition:
Name/Type Jar List Properties	5	
Available driver templates:		
Name	Vendor	Version
▽ Database		
HSQLDB JDBC Driver	HSQLDB	1.8
Driver <u>n</u> ame: HSOLDB IDBC Driver		
Driver <u>n</u> ame: HSQLDB JDBC Driver Driver type:		
Driver <u>n</u> ame: HSQLDB JDBC Driver Driver <u>typ</u> e: HSQLDB JDBC Driver		

Figure 10.6. Database Driver Type

• You may notice the note on the previous figure. It prompts that you should specify the driver of the type you pointed. Set the location of the driver by switching to the next tab and press *Add JAR/Zip* button.

New Driver Definition	×
Specify a Driver Template and Definition Name	
Specify a driver template, then modify details in the fields bel unique name, a list of required jars, and set any available and	ow to provide a d applicable
Name/Type Jar List Properties	
Driver <u>fi</u> les:	
/opt/hsqldb.jar	Add JAR/Zip
	Edit JAR/Zip
	Bernove JAR/Zip
	<u>C</u> lear All
0	OK Cancel

Figure 10.7. Driver Definition

• On the Properties tab set the Connection URL, Database Name and User ID and click OK.

How to	create	the	CRUD	Database	Appli	cation
						0

with Seam

S N	ew Driver Definition	×
Specify a Driver Template and	Definition Name	
Specify a driver template, then me unique name, a list of required jar	odify details in the fields below to provide a s, and set any available and applicable	
Name/Type Jar List Properties		
Properties:		
Property	Value	
⊽ General		
Connection URL	jdbc:hsqldb:hsql://localhost:1701	
Database Name	employee	
User ID	sa	
0	ок	Cancel

Figure 10.8. Driver Definitions Properties

• After clicking *OK* to submit the newly created driver you can observe and if you need edit all specified connection details.

New Connection Profile				
Specify a Driver and Connection Details				
Select a driver from the drop-down and provide login details for the connection.				
Drivers: HSQLDB JDBC Driver				
Properties General Optional				
Database: employee				
Database location: hsql://localhost:1701 V Browse				
User name sa				
Password:				
✓ Save Password				
URL jdbc:hsqldb:hsql://localhost:1701				
☑ Connect when the wizard completes				
Connect every time the workbench is started				
⑦ < <u>Back</u> <u>Next</u> > <u>Finish</u> Cancel				

Figure 10.9. Driver and Connection Details

• Now click *Test Connection* to be sure that connection can be established.

6	Success	X
P	Ping succeeded!	
		ОК

Figure 10.10. JDBC Connection is OK

• Validate JDBC Connection profile settings and press Finish or Back if something is wrong.

Property	Value	
Name	cruddb	
Description		
Auto connect at startup	false	
Auto connect on finish	true	
Driver name	HSQLDB JDBC Driver	
Database	employee	
Database location	hsql://localhost:1701	
User name	sa	
URL	jdbc:hsqldb:hsql://localhost:1701	
Save password	true	
Connection properties		

Figure 10.11. Validate JDBC Connection settings

• After clicking *Finish* two projects *crudapp* and *crudapp-test* will be created.



Figure 10.12. CRUDAPP Seam Project

• Have a look at the created projects. You can expand WEB_CONTENT folder and open home.xhtml or login.xhtml with JBoss Visual Editor.

How to create the CRUD Database Application with Seam

📾 login.xhtml 🛛		- 0
<pre><u::composition body"="" xmlns="/ xmlns:s: xmlns:u xmlns:f: xmlns:r: template <u::define_name="></u::composition></pre>	http://www.w3.org/1999/xhtml" ="http://jboss.com/products/seam/taglib" i="http://java.sun.com/jsf/facelets" ="http://java.sun.com/jsf/core" ="http://java.sun.com/jsf/html" ich="http://richfaces.org/rich" e="layout/template.xhtml">	
duracease stulech		
<n:messages stytect<="" td=""><td>155- message / ></td><td></td></n:messages>	155- message / >	
<h:form id="login"></h:form>		
<rich:panel></rich:panel>		~
<)
▼ Ormal	🗘 Normal 🗘 B I 🖳 🚣	
×		^
lerror Messages		
Login		
Please login using any use	rname and password	_
Username	#{identity.username}	
Password	*****	
Remember me	ন্দ	
Login		~
<	III.	>
ui:composition ui:define h:me	ssages	×
Visual/Source Source Preview		

Figure 10.13. login.xhtml in VPE

• Switch to Database Development perspective with *Window->Open Perspective->Other...* and connect to the *cruddb* database.

🙀 Data Source Ex	plorer 🛿 🗖 🗖	
	~	
🖻 😫 🖬 🚳	26 A B	
🗢 🗁 Databases		
🧮 cruddb	Connect	
🗢 🗁 ODA Data So	Disconnect	
😂 Flat File D	Ping	
😂 Web Servi	Wede officer	
😂 XML Data	work Offline	
	<u>Save Onine</u>	
	Re <u>n</u> ame	F2
	D <u>e</u> lete	Delete
	Du <u>p</u> licate	
	Ref <u>r</u> esh	F5
	Open SQL Scrapboo <u>k</u>	
	Properties	Alt+Enter

Figure 10.14. Connecting to the CRUDDB database

• Expand *cruddb* nodes to view its *Schemas, Tables, Columns* etc.

🎬 Data Source Explorer 🛛 🗧 🛙	3						
- 😫 🖬 😻 🖬 🖉	7						
▽ 궏 Databases	^						
🗢 🧱 cruddb (HSQL Database Engine v. 1.							
▽ 🚺 employee							
🗀 Authorization IDs							
🗢 🗀 Schemas							
INFORMATION_SCHEMA							
V PUBLIC							
Dependencies							
Sequences							
マ 🗀 Tables							
CUSTOMERS	Ξ						
EMPLOYEES							
OFFICES							
CRDERDETAILS							
DRDERS							
PAYMENTS							
PRODUCTLINES							
PRODUCTS							
User-Defined Functions							
Views							
▽ 🗁 ODA Data Sources							
😕 Flat File Data Source	~						
	2						

Figure 10.15. CRUDDB Database

 Switch back to the Seam perspective. From the toolbar select New->Seam Generate Entities to create a set of CRUD Seam components and web pages based on existing tables in the database. On the first page of *Generate Seam Entities* wizard keep everything by default and press *Next*.

6	Generate Seam Entities	×
Generate Seam Entities		
Seam Project: Hibernate Console Configura Generation Mode	crudapp ation: crudapp ≎ n database	Browse <u>Settings</u>
0	< Back Next >	<u>Finish</u> Cancel

Figure 10.16. Generate Seam Entities

• Click *Refresh* to display all the tables from the database.

6	Gen	erate Seam Enti	ties		×
Generate Seam Ent Select Tables	tities				
Database schema:	Include Exclude Up Down Remove Remove All	Table filters:	Schema	Table	
0	<	Back Next	> <u>F</u> inish		Cancel

Figure 10.17. Dialog for Selecting Tables

• Now you can filter the tables. Use the *Include* button to include only necessary ones.

How to create the CRUD Database Application with Seam

6	Gen	erate Seam En	tities		×
Generate Seam Entities Select Tables					
Database schema: ▼ Obefault catalog> ▼ PUBLIC CUSTOMERS EMPLOYEES OFFICES ORDERDETAILS ORDERS PAYMENTS PRODUCTLINES PRODUCTS Refresh	Include Exclude Up Down Remove Remove All	Table filters:	Schema PUBLIC PUBLIC PUBLIC PUBLIC	Table CUSTOMERS ORDERS EMPLOYEES PAYMENTS	
٢		< <u>B</u> a	ck Next >	Einish	Cancel

Figure 10.18. Selecting Tables

• Under *WebContent* folder you can find all generated xhtml files:



Figure 10.19. Entities Web Pages

• And under src folder java classes are created.



Figure 10.20. Entities Java Classes

• Switch to Hibernate perspective with *Window->Open Perspective->Other...* On Hibernate Configurations view expand the *crudapp* configuration. Right click on Customers and select *Open Mapping Diagram* from the popup menu.



Figure 10.21. Hibernate Configurations View

• Observe the Mapping Diagram opened in the editor. Here you can see the relations between models and database tables. For better navigating on the diagram use the Outline view.



Figure 10.22. Mapping Diagram

with Seam

• For example, select Customers entity, right click and select *Open Source File*. This will open the Customers.java file in the java editor. You can also do this by right-clicking on the same entity on the Mapping Diagram.

😘 Hiberna 🕴 🔰 Packag 📟 🗖 🚱 Diag	ram fororg.domain.crudapp.entity.Customers 🛛 🔊 Customers.java 🕱	- 0
 € crudapp	Customers generated by hbm2java htity ble(name = "CUSTOMERS", schema = "PUBLIC") lie class Customers implements inva in Secielizable (
O Employ O Gorders O Paymer Add Configuration Session E	or rivate int customernumber; rivate Employees employees; rivate String customername; rivate String contactlastname;	
	rivate String contactifistname; rivate String addressline1; rivate String addressline2; rivate String city; rivate String state;	
GOFFICES GOFFICES GOFFICES GORDERDETAILS GORDERS GORD	<pre>rivate String postalcode; private String country; private Double creditlimit; private Double creditlimit; private Set<orders> orderses = new HashSet<orders>(0); private Set<payments> paymentses = new HashSet<payments>(0); public Customers() {</payments></payments></orders></orders></pre>	
	<pre>} public Customers(int customernumber, String customername,</pre>	•

Figure 10.23. Entity class from Mapping Diagram

So far, you are ready to deploy your application to JBoss Application Server. This is described in the next chapter.

The CRUD Application Walkthrough

After you familiarized oneself with example of creating the CRUD Database Application with Seam, you can read this charter.

11.1. Using CRUD Application

To run your CRUD Application you should do the following steps:

• Run a project on the Server.

On Package Explorer View right click on the crudapp project, select Run As > Run on Server.



Figure 11.1. Run Project on Server

Select a Server and click Finish

Run On Server	×
Define a New Server	
Choose the type of server to create	
How do you want to select the server?	
Ochoose an existing server	
Manually define a new server	
Select the server that you want to use:	
type filter text	
▽ 🗁 localhost	
👹 JBoss Application Server 4.2	
JBoss Application Server 4.2	
Always use this server when running this project	
Image: Comparison of the sector of the se	ancel

Figure 11.2. Select a Server

Home page of the *crudapp* project should appear in *Web Browser*.

i crudap	o 🖾								- 8
	S	http://localhost:	8080/crudapp/h	ome.seam			~		۲
crudapp:	Home	Customers List	Employees List	Payments List	Orders L	ist		Lo	ogin
Welco	me!								
This	empty she Ant buil Deploy Develo Integra JavaBe JPA en A confi Templa RichFa Default Interna	I application includes: d script ment to JBoss AS (EA prinert and production to resting using Test an or EJB 3.0 Seam of thy classes purable DataSource a ted Facelets views ces panels and tables CSS stylesheet tionalization support	R or WAR) profiles NG and Embedded J components nd JPA EntityManage	Boss Y					
			Powe	red by <u>Seam</u> . Gener	rated by sea	m-gen.			

Figure 11.3. Home page

After that you can use CRUD application with "employee" database.

You can use internal JBDS Web Browser or your external Web Browser with the same link (<u>http://localhost:8080/crudapp/home.seam</u>).

Click on the *Employees List* link and observe that data from *employee* database is displayed.

				rudapp - Mozilla Firefox				
a <u>E</u> dit <u>V</u> iew Hi <u>s</u> to	ry <u>B</u> ookm	arks <u>T</u> oo	ls <u>H</u> elp					
🕒 🗸 🔗 🖸) 🌰 🛛	http://lo	calhost:80	80/crudapp/EmployeesList.sea	m;jsessioni	d=2317 🔬		e
Most Visited 🗸 📁	Smart Book	rmarks 🗸	n Getting	g Started 🛛 🔝 Latest Headlines	~			
udapp: <u>Home Cus</u>	tomers List	Employee	es List Pa	yments List Orders List				
Employees search pa	rameters							
			_					
lastname								
firstname								
extension								
email								
officecode								
oneccouc								
jobtitle								
Search								
Search	suits							
Search Employees search res	sults						I	
Search Employees search res employeenumber	sults lastname	firstname	extension	email	officecode	reportsto	jobtitle	ac
Search Employees search res employeenumber 1002	sults lastname Murphy	<u>firstname</u> Diane	extension x5800	email dmurphy@classicmodelcars.com	officecode	reports to	jobtitle President	act Sel
Search Employees search res employeenumber 1002 1056	sults lastname Murphy Patterson	<u>firstname</u> Diane Mary	extension x5800 x4611	email dmurphy@classicmodelcars.com mpatterso@classicmodelcars.com	officecode 1 1	reportsto	jobtitle President VP Sales	ac Sel
Search Employees search res employeenumber 1002 1056 1076	Sults Lastname Murphy Patterson Firrelli	firstname Diane Mary Jeff	extension x5800 x4611 x9273	email dmurphy@classicmodelcars.com mpatterso@classicmodelcars.com jfirrelli@classicmodelcars.com	officecode 1 1 1	reports to 1002 1002	jobtitle President VP Sales VP Marketing	act Sel Sel
Search Employees search res employeenumber 1002 1056 1076 1088	Ites International Internation	firstname Diane Mary Jeff Wiliam	extension x5800 x4611 x9273 x4871	email dmurphy@classicmodelcars.com mpatterso@classicmodelcars.com jfirrelli@classicmodelcars.com wpatterson@classicmodelcars.com	officecode 1 1 1 6	reports to 1002 1002 1056	jobtitle President VP Sales VP Marketing Sales Manager (APAC)	Ac Sel Sel Sel Sel
Search Employees search res employeenumber 1002 1056 1076 1088 1102	Iastname Murphy Patterson Firrelli Patterson Bondur	firstname Diane Mary Jeff Wiliam Gerard	extension x5800 x4611 x9273 x4871 x5408	email dmurphy@classicmodelcars.com mpatterso@classicmodelcars.com jfirreli@classicmodelcars.com wpatterson@classicmodelcars.com gbondur@classicmodelcars.com	officecode 1 1 1 6 4	reports to 1002 1002 1056 1056	jobtitle President VP Sales VP Marketing Sales Manager (APAC) Sale Manager (EMEA)	ac Sel Sel Sel Sel Sel
Search Employees search rest employeenumber 1002 1056 1076 1088 1102 1143	Murphy Patterson Firrelli Patterson Bondur Bow	firstname Diane Mary Jeff William Gerard Anthony	extension x5800 x4611 x9273 x4871 x5408 x5428	email dmurphy@classicmodelcars.com mpatterso@classicmodelcars.com jfirreli@classicmodelcars.com wpatterson@classicmodelcars.com gbondur@classicmodelcars.com abow@classicmodelcars.com	officecode 1 1 6 4 1	reports to 1002 10056 1056 1056	jobtitle President VP Sales VP Marketing Sales Manager (APAC) Sale Manager (EMEA) Sales Manager (NA)	Sel Sel Sel Sel Sel Sel
Search Employees search rest employeenumber 1002 1056 1076 1088 1102 1143 1165	Item test test test test test test test t	firstname Diane Mary Jeff William Gerard Anthony Leslie	extension x5800 x4611 x9273 x4871 x5408 x5428 x3291	email dmurphy@classicmodelcars.com mpatterso@classicmodelcars.com jfirreli@classicmodelcars.com wpatterson@classicmodelcars.com gbondur@classicmodelcars.com abow@classicmodelcars.com ljennings@classicmodelcars.com	officecode 1 1 6 4 1 1	reports to 1002 1002 1056 1056 1056 1143	jobtitle President VP Sales VP Marketing Sales Manager (APAC) Sale Manager (EMEA) Sales Manager (NA) Sales Rep	ac Sel Sel Sel Sel Sel Sel Sel Sel Sel
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Figure 11.4. Employees List

Use Employees search parameters fields to filter the selected list.

Press Select opposite one of employees.

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firstname Diane	
extension ×5800	
email dmurphy@classicmodelcars.com	
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jobtitle President	
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There are no customerses associated with this employees.	
Add customers	
Powered by <u>Seam</u> . Generated by seam-gen.	
Done	

Figure 11.5. Employee details

Press Edit to edit employee fields.

Enter Login and Password to login. (Use "crudapp-user"/"secret" for example)

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Figure 11.6. Login page

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Figure 11.7. Edit Employee

Fill in *firstname* and press Save.

Database will be updated.

Using TestNG project

With the help this chapter you will get to know with TestNG.

12.1. What is TestNG?

TestNG ("Testing, the Next Generation") is a Java unit testing framework that aims to overcome many limitations of JUnit. TestNG introduces some new functionalities that make it more powerful and easier to use, such as:

- JDK 5 Annotations (JDK 1.4 is also supported with JavaDoc annotations)
- Flexible test configuration
- Support for data-driven testing (with @DataProvider)
- Support for parameters
- · Allows distribution of tests on slave machines
- Powerful execution model (no more TestSuite)
- Supported by a variety of tools and plug-ins (Eclipse, IDEA, Maven, etc...)
- Embeds BeanShell for further flexibility
- · Default JDK functions for runtime and logging (no dependencies)
- Dependent methods for application server testing

More information can be found on home page: <u>www.testng.org</u> [http://testng.org]

12.2. Other relevant resources on the topic

<u>Next-Generation Testing with TestNG (An Interview with Cedric Beust)</u> [http://www.artima.com/ lejava/articles/testng.html]

<u>TestNG: The next generation of unit testing</u> [http://www.javaworld.com/javaworld/jw-04-2005/jw-0404-testng.html]

<u>Test Categorization Techniques with Test/NG</u> [http://dev2dev.bea.com/pub/a/2006/09/testng-categorization.html]

<u>TestNG makes Java unit testing a breeze</u> [http://www-128.ibm.com/developerworks/java/library/ j-testng/]

<u>In pursuit of code quality: JUnit 4 vs. TestNG</u> [http://www-128.ibm.com/developerworks/java/ library/j-cq08296/index.html]

12.3. How to use the generated Seam-test project to run Seam tests?

- Create a new Seam Web Project with EAR deployment using the New Seam Project wizard.
- After a project is created you will have the generated Seam-test project that is setup to run TestNG directly against the proper libraries and server runtime libraries.



Figure 12.1. Seam-test Project

• Add Seam Action to your project via File > New > Seam Action.

How to use the generated Seam-test project to



Figure 12.2. Seam Action Creation

• Fill out the wizard fields. New Seam Action wizard will create resources and place them in the appropriate folders dependent on EAR project structure.

6	New Seam Action X
Seam Action Create a new Seam action	
Seam Project:	seamproject Browse Settings
Seam component name:	Action
Local interface:	ActionLocal
Bean name:	ActionBean
Method name:	actionMethod
Page name:	actionPage
Package name:	org.domain.seamproject.session Browse
٢	<u>Einish</u> Cancel

Figure 12.3. New Seam Action Wizard

• When Action is created you will see actionPage.xhtml in Package Explorer view. ActionBean.java will be automatically opened in Java Editor.



Figure 12.4. Created Action

How to use the generated Seam-test project to

run Seam tests?

 Select ActionLocalTest.xml in Seam-test project and run the test with right click Run As > TestNG Suite.



Figure 12.5. Running TestNG

The test process will start and its output will be written in Console View.

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ActionLocal Tests					
Total tests run: 1, Failures: 0, Skips: 0 ====================================	=				
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Figure 12.6. Test is Finished

• After running TestNG you will have the test results in *test-output* folder in Seam-test project (press F5 to refresh the Package Explorer view). Open index.html file with Web Browser or simply use the TestNG view.

The below view shows a successful run of the test.

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📲 All Tests 🖬 Failed Tests	= Failure Ex	xception		68
🗢 💏 ActionLocal Tests (1/0/0/0)				
▽ 🛃 ActionLocal Test (1/0/0/0)				
arg.domain.seamProject.test.ActionLocalTest.test				

Figure 12.7. Viewing the Test Results

You can see the test results in Web Browser.

How to use the generated Seam-test project to

run Seam tests?

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Test results					
Suite	Passed	Failed	Skipped	testng.xml	
Total	1	0	0		
ActionLocal Tests	1	0	0	Link	
Done				· · · · · · · · · · · · · · · · · · ·	

Figure 12.8. Test Results in Browser

After clicking on *ActionLocal Tests* link you will see the Results for ActionLocal Tests.

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Interpretended in the second s	2
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Results for ActionLocal Tests Select a result on the left-hand pane. 1 test 1 class 1 method: chronological alphabetical not run (0) 0 group output reporter testng.xml ActionLocal Test (1/0/0) Results	
Done *	

Figure 12.9. Test Information

Select a result on the left-hand pane and its details will be displayed on the right-hand one.

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Results for Action Local Tests	ActionLocal Test			
ActionLocul Tests	Tests passed/Failed/Skipped:	1/0/0		
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chronological	Total time:	18 seconds (18077 ms)	
not run (0)	Included groups:			
0 group reporter output testng.xml	Excluded groups:			
ActionLocal Test (1/0/0) Results	(Hover the method name to see the test c	lass name)		
	PASSED TESTS			
	Test method	Time (seconds)	Exception	
	test_actionMethod	0		
file:///root/workspace/seamproject-test/test-output/Action	Local Tests/ActionLocal Test.html			

Figure 12.10. ActionLocal Test Details

Thus with Seam tooling you can easily take advantage of TestNG framework. As you can see, it generates its own TestNG project as a separate module within which you can easily monitor the tests execution and their output.

In conclusion, the main goal of this document is to get you know with a full featureset that JBoss Tools provides to support Seam development. Thus if you have some questions, comments or suggestions on the topic, please fell free to ask in the <u>JBoss Tools Forum</u> [http://www.jboss.com/ index.html?module=bb&op=viewforum&f=201]. You can also influence on how you want to see JBoss Tools docs in future leaving your vote on our page <u>here</u> [http://wiki.jboss.org/wiki/ JBossToolsDocsFuture].

A set of movies on Seam tooling is available *here* [http://docs.jboss.org/tools/movies].