Seam Dev Tools Reference Guide



Version: 3.1.0.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 frameworks 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. Key Features of JBoss Seam

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

Feature	Benefit	Chapter
Integrated JSF with EJB 3.0	JBoss Seam combines the component models of EJB3 and JSF, eliminating glue code, and thus, letting the developer think about the business problem.	
Integrated AJAX	Developer can add AJAX capability to the user interface of his application without the need to write any JavaScript code as Seam supports JBoss RichFaces and ICEfaces - the best open source JSF-based AJAX solutions.	
Bijection	Bijection allows auto-assembly of stateful components by the container. It even allows a component to safely and easily manipulate the value of a context variable, just by assigning it to an attribute of the component.	
New Seam Project wizard	An easy step-by-step wizard to create a standalone Seam Web Project with a form to create runtime and server instances in order to get started creating, running, and debugging J2EE (only) applications. You may also add JSF capabilities.	<u>New Seam Project</u> <u>wizard</u>
Seam component generations options	All the Seam component generations options known from Seam-gen are available as	<u>Seam Wizards</u>

Table 1.1. Key Functionality for JBoss Seam

Feature	Benefit	Chapter
	wizards (with sensible auto-defaulting) for creating various common Seam components.	
Seam Editors	Visual Page Editor, Seam Pages Editor and Seam Components Editor provide you with a range of great possibilities and will be helpful when working with JBoss Seam.	<u>Seam Editors</u>
Seam Validator	A configured Seam Validator provides validation of various possible problematic definitions.	Seam Validation
CRUD Database Application Generation	JBoss Seam allows adding CRUD support to a Seam Web application.	CRUD Database Application
TestNG Framework	TestNG ("Testing, the Next Generation") is a Java unit testing framework that aims to overcome many limitations of JUnit.	Using TestNG project

1.3. 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.html]. Installation instruction you can find on JBoss Wiki in <u>InstallingJBossTools</u> [http://labs.jboss.com/wiki/InstallingJBossTools] section.

1.4. Other relevant resources on the topic

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

All JBoss Developer Studio/JBoss Tools release documentation you can find at<u>http://docs.jboss.org/tools</u> [http://docs.jboss.org/tools/] in the corresponding release directory.

There is some extra information on <u>JBoss Wiki.</u> [http://www.jboss.org/community/wiki/ JBossSeam]

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

You can find a set of screencasts on how to search/find references and use Seam refactoring tools in the following Max Andersen's <u>blog post</u> [http://in.relation.to/12524.lace].

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

At first, we suggest to set 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 Icon

Also the Open Web Browser action is directly available in the Seam perspective.



Figure 2.2. Embedded Web Browser Button

2.1. Create standalone Seam Web Project

The best way to get started with Seam is to create a simple Seam Project and experiment with it.

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	
eam Web Project	m
Create standalone Seam Web Project	
Project name: seamproject	
Project contents:	
☑ Use <u>d</u> efault	
Directory: //opt/workspace/seamproject	Browse
Target Runtime	
JBoss 4.2 Runtime	≎ N <u>e</u> w
Dynamic Web Module version	
2.5	\$
Target Server	
JBoss 4.2 Server	≎ New
Configuration	
Dynamic Web Project with Seam 1.2	≎ Modify
Configures a Dynamic Web application to use Seam v	1.2
Operation Next >	Einich Concol

Figure 2.3. New Seam Project Wizard

On the figure above you can see the runtime and the server already created.

If you need to create a new runtime, click on the *New...* button in the Target Runtime section. It brings up the wizard where you can specify a new JBoss Server Runtime environment or the other type of runtime appropriate for your project configuration. Let's create one more JBoss 4.2 Runtime. Hence, after choosing it click on *Next* button.

New Server Runtime Environment	×
New Server Runtime Environment	
Define a new server runtime environment	
Download additional server adapte	ers
Select the type of runtime environment:	
type filter text	
D 🗁 IBM	<u> </u>
JBoss	
JBoss 3.2 Runtime	
JBoss 4.0 Runtime	
🦞 JBoss 4.2 Runtime	
JBoss 5.0 Runtime	=
JBoss Deploy-Only Runtime	
JBoss Enterprise Middleware	
👂 🗁 ObjectWeb	
🕨 🗁 Oracle	~
JBoss Application Server 4.2	0
□ <u>C</u> reate a new local server	
⑦ < <u>Back</u> <u>N</u> ext > <u>Finish</u> Cancel	

Figure 2.4. 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.

e	New Server	Runtime En	vironment	×
JBoss Runtime	Wizard		;	Boss [®] by Red Hat
A JBoss Server i It can be used t as well as by a "	runtime referenc o set up classpa 'server" which wil	es a JBoss inst ths for projects l be able to sta	allation directory. s which depend or art and stop insta	n this runtime, nces of JBoss.
Name				
JBoss 4.2 Runt	ime			
Home Directory	,			
/opt/jboss-4.2	.2.GA			Browse
IRE				
Default JRE				¢ IRE
Configuration				
in all				
🙀 default				
i minimal				
				0
0	< <u>B</u> ack	Next >	Einish	Cancel
		-		

Figure 2.5. Specifying Target Runtime Configurations

Clicking on Finish returns you to the New Seam Project wizard page.

The next step is to define a Server by clicking on *New...* button in the Target Server section. In appeared New Server dialog the last server which matches the runtime will be selected.

All declared runtimes are listed in the combo-box under the servers view. Here, you can indicate a server runtime that you need. Click *Add* if you want to add a new Server Runtime.

3	New Server	×
Define a New Server		-
Choose the type of server to	o create	
Server's <u>h</u> ost name: localho	ost	
	Download additional server ad	anters
Select the server type:		aprese a
type filter text		1
JBoss AS 4.0		
🖓 jBoss AS 4.2		
JBoss AS 5.0		
C Desse Destandaria	C	~
JBoss Application Server 4.2		
Server name:	JBoss AS 4.2 at localhost	
Server runtime environment	IBoss 4.2 Runtime	<u>Add</u>
	Configure runtime environme	ents
(2)	Next > Finish Con-	
< <u>B</u> ack	Livext > Finish Cano	e

Figure 2.6. Specifying Target Server

Next page allows you to verify the information for a chosen server. Leave everything as it is and click on *Next*.

E	New Server
Create a new JBos	s Server
JBoss Application Se	rver 4.2
A JBoss Server mana It manages comman Puntime Information If the runtime inform	iges starting and stopping instances of JBoss. d line arguments and keeps track of which modules have been deployed. nation below is incorrect, please press back, Installed Runtimes,
Home Directory	/opt/iboss-4.2.2.GA
IRE	/usr/lib/jvm/java-1.5.0-sun-1.5.0.16 (java-1.5.0-sun-1.5.0.16)
Configuration Locat	ion server
Configuration	default
?	< <u>B</u> ack [Next >] Cancel Einish

Figure 2.7. JBoss Runtime Summary

On the last wizard step you can modify your projects to configure them on the Server.

)	New Server		Þ
Add and Remove Projects Modify the projects that are co	nfigured on the server		
Move projects to the right to co	onfigure them on the server		
Available projects:	-	Configured projects:	
SFKICKStart	A <u>d</u> d >		
	< <u>R</u> emove		
	Add Ali >>		
	<< Remove All		
0	< <u>B</u> ack <u>N</u> ext	> <u>F</u> inish	Cancel

Figure 2.8. 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.



Seam Web Project Create standalone Seam Web Project Project name: seamproject Project contents: Use gefault Directory: /opt/workspace/seamproject Target Runtime Boss 4.2 Runtime Cynamic Web Module version 2.5 Target Server <custom> Default Configuration for JBoss 4.2 Runtime Dynamic Web Project with Seam 1.2 Dynamic Web Project with Seam 2.0 Dynamic Web Project with Seam 2.1 JavaServer Faces v1.2 Project JavaServer Faces v1.2 Project Minimal Configuration</custom>	New Seam Project	
Create standalone Seam Web Project Project name: seamproject Project contents: Image: Contents: Image: Use gefault Directory: Directory: /opt/workspace/seamproject Target Runtime Image: Contents: Image: Runt: Runtime Image: Contents: Image: Content Contents: Content: Runtime: Content: Runtime: Runtim	Seam Web Project	and the
Project name: seamproject Project contents: ✓ ✓ Use default Directory: /opt/workspace/seamproject Target Runtime ● JBoss 4.2 Runtime ● Dynamic Web Module version ● 2.5 ● Target Server <custom> ● Default Configuration for JBoss 4.2 Runtime ● Dynamic Web Project with Seam 1.2 ● Dynamic Web Project with Seam 2.1 JavaServer Faces v1.1 Project JavaServer Faces v1.2 Project Modify Minimal Configuration ●</custom>	Create standalone Seam Web Project	
Project name: seamproject Project contents: ✓ ✓ Use default Directory: /opt/workspace/seamproject Target Runtime Browse JBoss 4.2 Runtime > Øbynamic Web Module version > 2.5 > Target Server > <custom> > Default Configuration for JBoss 4.2 Runtime > Dynamic Web Project with Seam 1.2 > Dynamic Web Project with Seam 2.0 Modify Dynamic Web Project with Seam 2.1 </custom>		0.2
Project contents: ✓ Use default Directory: /opt/workspace/seamproject Target Runtime JBoss 4.2 Runtime Opnamic Web Module version 2.5 Target Server <custom> Default Configuration for JBoss 4.2 Runtime Dynamic Web Project with Seam 1.2 Dynamic Web Project with Seam 2.0 Dynamic Web Project with Seam 2.1 JavaServer Faces v1.1 Project JavaServer Faces v1.2 Project Minimal Configuration</custom>	Project name: seamproject	
Image: Contract of the second seco	Project contents:	
Directory: /opt/workspace/seamproject Browse Target Runtime Image: Server Image: Server 2.5 Image: Server Image: Server Custom> Image: Server Image: Server Dynamic Web Project with Seam 1.2 Image: Server Image: Server Dynamic Web Project with Seam 2.0 Image: Modify Modify Dynamic Web Project with Seam 2.1 JavaServer Faces v1.1 Project JavaServer Faces v1.2 Project Minimal Configuration Server Server Server Image: Server Faces v1.2 Project Modify Server Faces v1.2 Project	✓ Use default	
Target Runtime JBoss 4.2 Runtime Dynamic Web Module version 2.5 Image: Configuration for JBoss 4.2 Runtime Dynamic Web Project with Seam 1.2 Dynamic Web Project with Seam 2.0 Dynamic Web Project with Seam 2.1 JavaServer Faces v1.1 Project JavaServer Faces v1.2 Project Minimal Configuration	Directory; //opt/workspace/seamproject	Browse
JBoss 4.2 Runtime Ngw Oynamic Web Module version 2.5 2.5 Image: Configuration for JBoss 4.2 Runtime Opnamic Web Project with Seam 1.2 New Oynamic 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	Target Runtime	
Dynamic Web Module version 2.5 Target Server <custom> Version Default Configuration for JBoss 4.2 Runtime Dynamic Web Project with Seam 1.2 Dynamic Web Project with Seam 2.0 Dynamic Web Project with Seam 2.1 JavaServer Faces v1.1 Project JavaServer Faces v1.2 Project Minimal Configuration</custom>	JBoss 4.2 Runtime	N <u>e</u> w
2.5 Target Server <custom> Default Configuration for JBoss 4.2 Runtime Dynamic Web Project with Seam 1.2 Dynamic Web Project with Seam 2.0 Dynamic Web Project with Seam 2.1 JavaServer Faces v1.1 Project JavaServer Faces v1.2 Project Minimal Configuration</custom>	Dynamic Web Module version	
Target Server < custom> Default Configuration for JBoss 4.2 Runtime Dynamic Web Project with Seam 1.2 Dynamic Web Project with Seam 2.0 Dynamic Web Project with Seam 2.1 JavaServer Faces v1.1 Project JavaServer Faces v1.2 Project Minimal Configuration	2.5	0
< custom> New Default Configuration for JBoss 4.2 Runtime New Dynamic Web Project with Seam 1.2 Modify 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	Target Server	
Default Configuration for JBoss 4.2 Runtime Dynamic Web Project with Seam 1.2 Dynamic Web Project with Seam 2.0 Dynamic Web Project with Seam 2.1 JavaServer Faces v1.1 Project JavaServer Faces v1.2 Project Minimal Configuration Image: The search of the search o	<custom></custom>	New
Dynamic Web Project with Seam 1.2 Dynamic Web Project with Seam 2.0 Dynamic Web Project with Seam 2.1 JavaServer Faces v1.1 Project JavaServer Faces v1.2 Project Minimal Configuration (?) Yext > (?) Yext > (?)	Default Configuration for JBoss 4.2 Runtime	
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 Minimal Configuration Simish Cancel Simish	Dynamic Web Project with Seam 1.2	
Dynamic Web Project with Seam 2.1 JavaServer Faces v1.1 Project JavaServer Faces v1.2 Project Minimal Configuration Image: Configuration Ima	Dynamic Web Project with Seam 2.0	Modify
JavaServer Faces v1.1 Project JavaServer Faces v1.2 Project Minimal Configuration	Dynamic Web Project with Seam 2.1	
JavaServer Faces v1.2 Project Minimal Configuration	JavaServer Faces v1.1 Project	
Minimal Configuration (?) < Back	JavaServer Faces v1.2 Project	
(?) < Back Next > Finish Cancel	Minimal Configuration	
② < Back Next > Finish Cancel		
(?) < Back Next > Einish Cancel		
② < Back Next > Einish Cancel		
② < Back Next > Enish Cancel		
O Back Next > Einish Cancel		
	Image: Constraint of the second se	Cancel

Figure 2.9. 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, Seam 2.0 or with Seam 2.1. 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. Selecting the Project Facets

The Project Facets wizard allows you to enable or disable specific facets which define necessary features for the project. When 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.

6	Project Fac	ets 🛛 🗶
Project Facets Select the facets that should be enable	ed for this project.	
Configurations: Dynamic Web Project	with Seam 1.2	\$ Save As Delete
Project Facet	Version	Details Runtimes
 Axis2 Web Services Dynamic Web Module Java Java Persistence JavaScript Toolkit JavaServer Faces JBoss Web Services Seam WebDoclet (XDoclet) 	2.5 5.0 1.0 1.0 1.2 1.2 1.2 2.0 2.1	 Seam 1.2 Enables the project to work with JBoss Seam Requires all of the following facets: Dynamic Web Module 2.5 or newer Java 5.0 Java Server Faces 1.2 or newer
0		OK Cancel

Figure 2.10. 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.

	Proj	ect Facets X
Project Facets Select the facets that should be ena	abled for this p	project.
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 IBoss Se
🗹 🔬 Java	5.0	Requires all of the following facets:
🗌 🚸 Java Persistence	1.0	
🗌 📄 JavaScript Toolkit	1.0	Dynamic Web Module 2.5 or newer Days 5.0
🗹 📄 JavaServer Faces	1.2	Java 5.0
🔲 📄 JBoss ESB	4.3	Save Preset
🕨 🗹 📄 JBoss Portlets		Name:
IBoss Web Services		Custom Facets Preset
🗹 <table-cell-rows> Seam</table-cell-rows>	2.0	Description
🗌 📄 WebDoclet (XDoclet)	1.2.3	
< 10		OK Cancel
0		OK Cancel

Figure 2.11. 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 runtime is checked here, the *Make Primary* button won't be dimmed yet. Thus, you can make use of it to mark primary runtime.

1	Project Fac	ets
Project Facets Select the facets that should be ena	abled for this project.	
onfigurations: 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		🗹 🗟 JBoss 4.2 Runtime
🗹 👼 Dynamic Web Module	2.5	
🗹 🛃 Java	5.0	
🗌 🚸 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	
		Show all runtimes
		Make Primary New
		Runtime Composition:
		<no runtime="" selected=""></no>
0		OK Cancel

Figure 2.12. Setting Runtime

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

2.3. Java application building configuration

With this wizard you can define Java source directories which will be generated on build path. Also you can specify a default output folder. If you are agree with default values, press Next

New Seam Project	×
Java Configure project for building a Java application.	
Source folders on build path:	
SLC	Add Folder Edit Remove
Default output folder:	
Duild/classes (?) < Back	Finish

Figure 2.13. Java application building Wizard

2.4. How to Configure Web Module Settings

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

6	New Seam P	roject	×
Web Module Configure web mod	dule settings.		
Context root: Content directory:	seamdemo WebContent		
☑ Generate web.>	rml deployment descript	or	
? < <u>B</u> ac	k <u>N</u> ext >	Cancel	Einish

Figure 2.14. Web Module Settings

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

2.5. Adding JSF Capabilities

This wizard helps you to add JSF capabilities to your project.

Choose *Library provided by Target Runtime* from Library Type list if you'd like to use a default JSF implementation given by the present runtime.

	New Seam Project			
SF Capabilities				
Add JSF capabilities to t	his Web Project			
ICE Implementation Lib				
JSF Implementation Lib	rary			
type: Library Provided	i by larget funcime			
The targeted runtime i this option will configur	s able to provide the library required by thi e the project to use that library.	s facet. Selecting		
SF <u>C</u> onfiguration File:	/WEB-INF/faces-config.xml			
SF <u>S</u> ervlet Name:	Faces Servlet			
SF Servlet C <u>l</u> assname:	javax.faces.webapp.FacesServlet			
URL Mapping Patterns:	*.seam	Add		
	*.faces			
		Berriove		
		THEFT		

Figure 2.15. Adding JSF Capabilities to Web Project

In case if you prefer to use your custom JSF implementation, choose User Library Item from Library Type list. In User Library list you can check required library.

	New Seam Project			
SF Capabilities		-0		
Required class javax.f libraries.	aces.FactoryFinder does not exist in selected			
JSF Implementation Lib	rary			
Type: User Library		0		
		*		
Include libraries with	n this application			
SF <u>C</u> onfiguration File:	/WEB-INF/faces-config.xml			
SF <u>S</u> ervlet Name:	Faces Servlet			
SF Servlet Classname:	javax.faces.webapp.FacesServlet			
JRL Mapping Patterns:	*.seam *.faces	Add Remove		
?	ack Next > Cancel	Einish		

Figure 2.16. Using Custom JSF implementation Library



button. Then you should click New.

3	Preferences (Filtered)	
type filter text 🛛 🖉	User Libraries	\$~\$~ ~
マ Java マ Build Path User Libraries	User libraries can be added to a Java Build external archives. System libraries will be launched. Defined user libraries:	I path and bundle a number of added to the boot class path when
		New
		dit
		Add JARs
		Bemove
		qL
		Down
		Import
		Export
0		Canad C. Cr
T		Cancel

Figure 2.17. Using Custom JSF implementation Library

Here, it's necessary to type a Library Name.

<u>∪</u> ser library	name:	
CustomJSF	Implementation	
<u>S</u> ystem	library (added to the	boot class path
?	Cancel	ок

Figure 2.18. Entering New User Library Name

To add proper Library JARs, click Add JARs... button and select the JARs on your hard drive.

	Preferences (Filt	tered)	
pe filter text 🛛 🖳	User Libraries	\$~\$~ \	
Java ▼ Build Path User Libraries	User libraries can be added to external archives. System libr launched. Defined user libraries:	o a Java Build path and bundle a number of aries will be added to the boot class path when	
	6		
	Location:	3.5 eclipse	
	Places	Name	✓ Modified
	G Search	🎾 about_files	05/01/2009
	📁 Recently Used	📁 configuration	10/13/2009
	🙀 administrator	📁 dropins	05/01/2009
	🖾 Desktop	🃁 features	10/27/2009
	S File System	₽ p2	10/13/2009
		📁 plugins	Thursday
	Documents Music Pictures Videos	© readme	05/01/2009
	⊕ ∆dd = Bernove		*.jar;*.zip X Cancel

Figure 2.19. Selection Library JARs

You JSF can download implementation libraries provided necessary Sun by and Apache Foundation well. Click Download... as (뉢

button and choose one of proposed libraries.

)

	Downlo	ad Library	
ownload Library Select a library to dowr	nload from the specified	provider.	
Library	^	Download Provider	
JSF 1.2 (Apache MyFac	es)	Apache Software Foundation	
ISE 1 2 (Sup BI)		Sun Microsystems	
Jor 1.2 (our N)			
ibrary name:	JSF 1.2 (Apache MyFace	es)	
ibrary name: Jownload destination:	JSF 1.2 (Apache MyFace /opt/workspace	es)	Browse

Figure 2.20. Download JSF Implementation 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.

	New Seam	Project	(
SF Capabilities			
Add JSF capabilities t	o this Web Project		
JSF Implementation I	Library		
Type: User Library			0
🗹 📥 CustomJSFIm	plementation		a
🗹 🛋 JSF 1.2 (Sun F	a)		8
Include libraries v	with this application		
SF <u>C</u> onfiguration File:	/WEB-INF/faces-o	config.xml	
SF <u>C</u> onfiguration File: SF <u>S</u> ervlet Name:	/WEB-INF/faces-	config.xml	
SF <u>C</u> onfiguration File: SF <u>S</u> ervlet Name: SF Servlet Classnam	/WEB-INF/faces-o Faces Servlet iavax.faces.weba	config.xml app.FacesServlet	
SF <u>C</u> onfiguration File: SF <u>S</u> ervlet Name: SF Servlet Classnam <u>J</u> RL Mapping Pattern:	/WEB-INF/faces-o Faces Servlet ; javax.faces.weba	config.xml app.FacesServlet	Add
SF <u>C</u> onfiguration File: SF <u>S</u> ervlet Name: SF Servlet Classnam <u>J</u> RL Mapping Pattern:	/WEB-INF/faces-o Faces Servlet e: javax.faces.webs s: *.seam	config.xml app.FacesServlet	<u>A</u> dd
SF <u>C</u> onfiguration File: SF <u>S</u> ervlet Name: SF Servlet Classnam <u>J</u> RL Mapping Pattern:	/WEB-INF/faces-o Faces Servlet iavax.faces.weba	app.FacesServlet	Add Bernove
SF <u>C</u> onfiguration File: SF <u>S</u> ervlet Name: SF Servlet Classnam <u>U</u> RL Mapping Pattern:	/WEB-INF/faces-o Faces Servlet e: javax.faces.weba 5: *.seam	config.xml app.FacesServlet	<u>A</u> dd Bemove
SF <u>C</u> onfiguration File: SF <u>S</u> ervlet Name: SF Servlet Classnam JRL Mapping Pattern:	/WEB-INF/faces-o Faces Servlet e: javax.faces.weba	config.xml app.FacesServlet	Add Bemove
SF <u>C</u> onfiguration File: SF <u>S</u> ervlet Name: SF Servlet Classnam <u>J</u> RL Mapping Pattern:	/WEB-INF/faces-o Faces Servlet i javax.faces.weba	config.xml	Add Bemove
SF <u>C</u> onfiguration File: SF <u>S</u> ervlet Name: SF Servlet Classnam <u>J</u> RL Mapping Pattern:	/WEB-INF/faces-o Faces Servlet e: javax.faces.weba	app.FacesServlet	Add Bemove
SF <u>C</u> onfiguration File: SF <u>S</u> ervlet Name: SF Servlet Classnam <u>U</u> RL Mapping Pattern:	/WEB-INF/faces-o Faces Servlet iavax.faces.weba	app.FacesServlet	Add Bernove

Figure 2.21. JSF Capabilities Wizard

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

2.6. Configure Seam Facet Settings

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

)	New Sean	n Project	
eam Facet			m
Configure Seam Facet Settings	;		
			Care la
General			
Seam Runtime: Seam 1.2.AF	, 	÷	Add
Deploy as: WAR O 	EAR		
Database			
Database Type:		HSQL	\$
Connection profile:		DefaultDS 🗘 Edit	New
Database Schema Name:			
Database Catalog Name:			
DB Tables already exists in da	tabase:		
Recreate database tables and	l data on deploy	: 🗆	
Code Generation			
Session Bean Package Name:	org.domain.te	st.session	
Entity Bean Package Name:	org.domain.te	st.entity	
Test Deskage Name	ann dannain ta	at to at	
lest Package Name:	org.domain.te	stitest	
3	- Dach	Novt > Fields	ancol
U	< Back	<u>Hext</u> <u>Finish</u>	ancer

Figure 2.22. Seam Facet Settings

• Create Seam runtime and define Seam home folder.

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

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

Figure 2.23. Seam Runtime Creation

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

)	New Seam	Project	
eam Facet Configure Seam Facet Settings			T
Configure Seam Facet Settings General Seam Runtime Seam 1.2.AP Deploy as: WAR E Database Database Type: Connection profile: Database Schema Name: Database Catalog Name: DB Tables already exists in dat Recreate database tables and Code Generation Session Bean Package Name: Entity Bean Package Name: Test Package Name:	AR abase: data on deploy: org.domain.Sea org.domain.Sea org.domain.Sea	DB2 DB2/390 DB2/400 DB2/400 Derby Firebird Firebird FrontBase HSQL Informix Ingres Interbase Mckoi SQL MySQL (MVISAM) MySQL (InnoDB) MySQL (MVISAM) MySQL (MVISAM) MySQL (MVISAM) MySQL 5 (InnoDB) Oracle 10g Oracle 10g Oracle 8i Oracle 9i Pointbase PostgreSQL Progress SAP DB SQL Server	
		Sybase Sybase 11	
0	< Back	Sybase Anywhere	

Figure 2.24. Database Type Selecting

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

8	New Seam	Project		×
Seam Facet Configure Seam Facet Settings				
General Seam Runtime: Seam 1.2.AP Deploy as: WAR E 	AR			\$ Add
Database Database Type:		HSQL		+
Connection profile:		DefaultDS	\$	Edit New
Database Schema Name: Database Catalog Name: DB Tables already exists in data Recreate database tables and	abase: data on deploy:			
Code Generation Session Bean Package Name: Entity Bean Package Name: Test Package Name:	org.domain.tes org.domain.tes org.domain.tes	t.session t.entity t.test		
0	< <u>B</u> ack	Next >	<u>F</u> inish	Cancel

Figure 2.25. 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	
😫 Generic JDBC Connection	
BSQLDB Connection Profile	
PostgreSQL JDBC Connection	
😝 Sybase ASA	
(7) < Back Next > Bit	nish Cancel

Figure 2.26. Connection Profile Selecting

On the 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.

	inserve secondse	
pecify a Driver a	and Connection Details	
Select a driver from	n the drop-down and provide login details for	
ne connection.	the deep device	
Select a driver from	n the drop-down:	
Hypersonic DB		•
Database:	SAMPLE	
Database location:	MyDB	Browse
Jser name:		
Password:	[
101	lidh e beelds MuDD	
JRL:	Tape:usdiap:wybs	
Carrie Decarrie and		
Dptional properties:	:	
Save Password Optional properties:	:	Add
Save Password Optional properties:	:	Add
Save Password Optional properties:	:	Add Up Down
Save Password Optional properties:	:	Add Up Down
Save Password Optional properties:	:	Add Up Down Remove
Save Password		Add Up Down Remove Clear Al
Save Password		Add Up Down Remove Clear Al
□ Save Password	Tes	Add Up Down Remove Clear Al
□ Save Password	Tes	Add Up Down Remove Clear Al
□ Save Password	Tes	Add Up Down Remove Clear Al

Figure 2.27. 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 has already provided the names for your Session Bean, Entity Bean and Test packages. Of course, you can change them on others of your choice.

Session Bean Package Name:	org.domain.seamproject.session			
Entity Bean Package Name:	org.domain.seamproject.entity			
Test Package Name:	org.domain.seamproject.test			

Figure 2.28. Code Generation Section

Click on *Finish* to generate a project.

Maven Integration for Seam Projects

Starting from 3.1 M2 version JBoss Tools includes new Jboss Maven Integration plug-in which for now allows to create mavenized Seam projects and enable Seam tools support for imported Maven projects.

The Jboss Maven Integration requires <u>m2eclipse</u> [http://m2eclipse.sonatype.org/] to be installed.

Note:

For M2 release of Jboss Tools it is important to use m2eclipse <u>stable updatesite</u> [http://m2eclipse.sonatype.org/update/] or the <u>latest integration build</u> [http://m2eclipse.sonatype.org/releases/0.9.9.200906081351] that M2 was developed against. If you want to use the latest development release of m2eclipse you need to use the <u>nightly builds</u> [http://download.jboss.org/jbosstools/updates/nightly/trunk/] of JBoss Tools.

3.1. Creating Maven ready Seam project

Maven Integration makes the Seam Wizard capable of creating Maven ready projects to let Maven get the libraries instead of using the Seam runtime.

To create a mavenized Seam project you should perform the following steps:

• Navigate to *File > New Seam Project.* Give the project a meaningful name, specify a target runtime and server and select the proper configuration for your Seam project:

New Seam Project 🗙
Seam Web Project
Create standalone Seam Web Project
Project name: testMaven
Project contents
✓ Use default
Directory: //opt/workspace3/testMaven Browse
Target runtime
JBoss 4.2 Runtime
Dynamic web module version
2.5
Target Server
JBoss 4.2 Runtime Server
Configuration
Dynamic Web Project with Seam 2.1 (technology preview 🗘 Modify
Configures a Dynamic Web application to use Seam v2.1
(?) < Back Next > Cancel Finish

Figure 3.1. Starting the Mavenized Seam Project

• Click the *Modify* button to enable the *Jboss Maven Integration* facet:

6	Project Face	ets 🛛 🗙
Project Facets Select the facets that should be enable	ed for this project.	
Configuration: <pre><custom></custom></pre>		Save As
Project Facet	Version	Details Runtimes
 Axis2 Web Services Dynamic Web Module Java Java Persistence JavaScript Toolkit JavaServer Faces JBoss Maven Integration Boss Web Services Seam WebDoclet (XDoclet) 	2.5 5.0 1.0 1.0 1.2 1.0 2.1 1.2.3	 jBoss Maven Integration 1.0 Adds support for Maven. Requires all of the following facets: Dynamic Web Module 2.3 or newer java 5.0 or newer
[<]		× · · · · · · · · · · · · · · · · · · ·
?		Cancel OK

Figure 3.2. Enabling the Jboss Maven Integration Facet

 On the JBoss M2 capabilities page you'll be prompted to add the following maven properties: groupId, artifactId, version, packaging, name and description. Here it's possible to set a maven version of Seam and also decide whether to remove WTP classpath containers (where the path starts with org.eclipse.jst).

New Seam Project				
JBoss M2 capabilities Add M2 capabilities to this Web Project				
Group Id: Artifact Id: Version: Packaging: Name: Description Seam Maven version:	org.jboss.tools testMaven 0.0.1-SNAPSHOT war testMaven 1 2.1.1.GA			
✓ Remove WTP Classpath containers				
? < Back Next :	Cancel <u>F</u> inish			

Figure 3.3. Adjusting JBoss M2 Capabilities

• On the Seam Facet page configure the Seam Facet settings and click *Finish:*

New Seam Project				
Seam Facet Configure Seam Facet Settings				
General Seam Runtime: jboss-seam-2 Deploy as: O WAR O E	2.1.1.GA AR		≎ Add	
Database				
Database Type:		HSQL	•	
Connection profile:		New HSQLDB	Edit New	
Database Schema Name:				
Database Catalog Name:				
DB Tables already exists in dat	abase:			
Recreate database tables and	data on deploy			
Code Generation				
Session Bean Package Name:	org.domain.te	stmaven.session		
Entity Bean Package Name: org.domain.testmaven.entity				
Test Package Name: org.domain.t		stmaven.test		
?	Back Ne	cancel	Einish	

Figure 3.4. Seam Facet Settings

The organized Seam project contains five projects with the Maven nature, builder, Maven classpath and the *pom.xml* files added: projectname, projectname-ear, projectname-ejb, projectname-parent and projectname-test.


Figure 3.5. Mavenized Seam Project

3.2. Existing Maven Projects Import

Maven Integration includes the Seam Maven configurator which is called when importing a project, changing *pom.xml* and/or calling *Maven > Update Project Configuration*. When importing a Maven Seam project, the Seam Maven configurator picks up the settings set up in *pom.xml* and adds to the project the following:

- Seam nature
- · Seam facet and dependent facets to the EJB, EAR and WAR projects
- JBoss Maven Integration facet if the Maven project contains a dependency with the org.jboss.seam groupId and an artifactId starting with 'jboss-seam'
- other required facets (Web Module, Java, JSF, etc.)

If the Seam version from *pom.xml* matches a version of a Seam runtime configured in the workspace, Seam configurator will set that runtime, otherwise no Seam runtime will be set and you'll have to set it manually under <u>Seam Settings in the project preferences</u>.

Seam configurator recognizes the Seam artifacts in the following way: the view folder is a web content folder from the WAR project, the source folder is the first Eclipse source folder. If there is a folder containing "hot" in the name, it will be chosen as the action source folder. Package is the first package that has children or doesn't have any subpackage.

Configuring the Seam when importing a Maven project as well as a Seam Runtime, Seam artifacts and some facets could be suspended in the JBoss Maven Integration preferences (*Window* > *Preferences* > *JBoss Tools* > *JBoss Maven Integration*).

 E 	Preferences	×
type filter text	JBoss Maven Integration 🔅 🗸 🖒 🗸	•
 ▷ General ▷ Ant ▷ BPEL ▷ Data Management ▷ Drools Drools Task FreeMarker Editor Guvnor ▷ Help 	 Configure Seam when importing Maven projects Configure Seam Runtime Configure Seam Artifacts (view folder, model source folder, package) Configure JSF facet when importing Maven projects Configure JBoss Portlet Core facet when importing Maven projects Configure JBoss JSF Portlet facet when importing Maven projects Configure JBoss Seam Portlet facet when importing Maven projects 	
HQL editor ↓ Install/Update ↓ Java Java EE ↓ JBoss jBPM ↓ JBoss jBPM ↓ JBoss Tools JBoss ESB Runtimes JBoss Portlet Project Examples		
 ▷ Web ▷ Maven ▷ Plug-in Development Project Archives ▷ Run/Debug ▷ Server ✓ 	Restore Defaults Apply Cancel OK	

Figure 3.6. JBoss Maven Integration Preferences

3.3. Relevant Resources Links

In the <u>Using Maven with JBoss Tools</u> [http://in.relation.to/Bloggers/UsingMavenWithJBossTools] article written by Max Andersen you'll find references to the screencasts on how to use the examples of mavenized Seam projects provided by JBoss Tools.

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.

4.1. WAR Deployment

The project layout for WAR projects is:

😫 Package Explorer 🕴 🏠 Project Explore	er] =	•
8	4 5	~
🕨 🚰 seamproject		
Seamproject-test		
		_

Figure 4.1. 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 war hotdeploy feature. Classes put into *src/action* will be deployed to *WEB-INF/dev* from which Seam automatically will perform hotdeploy of new components.



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.

4.2. EAR Deployment

The project layout for EAR projects is:



Figure 4.2. Project Layout for EAR 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.

Note: The WAR generated for EARs is now configured to utilize Seam hot-deployment (*WEB-INF/dev*) similar to standalone WAR projects.

4.3. Changing the Seam Version

To upgrade or downgrade your projects Seam version use the facet preferences. You should right-click your project and choose *Project Facets* category. Next select *Seam* and change its version to needed one.

Chapter 4. Directory Structure of the Generated Project

3		Properties for seam	
type filter text	Project Facets		¢~ ¢~ ▼
Resource	Configurations: <a>custom>		
Beaninfo Path	Project Facet	Version	Details Puotimos
Builders		Version	Decais Runtimes
Drools	Axis2 web Services		📄 Seam 2.0
FreeMarker Cont	Dynamic Web Module	2.5	Enables the project to work with JBoss Seam
Guvnor	🗹 🔬 Java	5.0	Requires all of the following facets:
Hibernate Settin	Java Persistence	1.0	C Dynamic Web Module 2.5 or newer
Java Build Path	🗌 📄 JavaScript Toolkit	1.0	I Java 5.0 or newer
Java Code Style	🗹 📄 JavaServer Faces	1.2	JavaServer Faces 1.2 or newer
Java Compiler	IBoss Web Services		
Iava Editor	🗹 🗎 Seam	2.0	
Java FE Module (🗌 📄 WebDoclet (XDoclet)	1.2	
Javadoc Location		2.0	
JavaGot Ebtation		2.1	5
JSP Fragment			
Project Archives			
Project Facets			
Project Referenc			
Run/Debug Setti			
Seam Settings			
Seam Validator			5
Server	<u>Ci</u>		
Service Policies			
	<	00	
0			OK Cancel
U			OK Cancel

Figure 4.3. Changing the Seam Facet Version

After pressing *Apply* the wizard for adjusting new Seam runtime settings appears.

Chapter 4. Directory Structure of the Generated Project

C Seam Rur	time Settings
Seam Runtime Settings Set Seam Runtime	The second secon
Old Seam Runtime: jboss-seam-2.3	1.1.GA
New Seam Runtime: jboss-seam-2.	0.0.GA 🗘 Add
-Libraries-	
 Update libraries 	
Project: seam	
Libraries to be removed:	Libraries to be added:
✓ antlr-runtime.jar	A antir-runtime.jar
🖌 commons-beanutils.jar	≡ commons-beanutils.jar =
🗹 commons-digester.jar	commons-digester.jar
🗹 core.jar	core.jar
🗹 drools-compiler.jar	drools-compiler.jar
✓ drools-core.jar	drools-core.jar
✓ iboss-el.iar	V iboss-el.iar
Note Seam configuration files and the	ir XSDs won't be changed.

Figure 4.4. Changing the Seam Facet Version

If you need to update the libraries for you project, check the *Update libraries* option. All libraries you checked will be removed and the libraries from the new Seam distribution will be added after clicking *Ok*.

Chapter 4. Directory Structure of the Generated Project

Seam Runt	ime Settings 🛛 🗙
Seam Runtime Settings	all and a second
Set Seam Runtime	
Old Seam Runtime: jboss-seam-2.1.	1.GA
New Seam Runtime: jboss-seam-2.0.	0.GA 0.GA
Libraries	
✓ Update libraries	
Project: seam	
Libraries to be removed:	Libraries to be added:
✓ antlr-runtime.jar	antlr-runtime.jar
✓ commons-beanutils.jar	commons-beanutils.jar
✓ commons-digester.jar	commons-digester.jar
🗹 core.jar	core.jar
✓ drools-compiler.jar	drools-compiler.jar
✓ drools-core.jar	drools-core.jar
✓ jboss-el.jar	jboss-el.jar
🗹 jboss-seam-debug.jar	jboss-seam-debug.jar
✓ jboss-seam-excel.jar	jboss-seam-ioc.jar
✓ jboss-seam-ioc.jar	jboss-seam-mail.jar
✓ jboss-seam-mail.jar	jboss-seam-pdf.jar
✓ jboss-seam-pdf.jar	jboss-seam-remoting.jar
✓ jboss-seam-remoting.jar	🔍 jboss-seam-ui.jar 🔍
Note Seam configuration files and their	XSDs won't be changed.
0	OK Cancel

Figure 4.5. Changing the Seam Facet Version

Note:

The note "Seam configuration files and their XSDs won't be changed" is meant that the libraries, Seam facet and runtime version will be changed, but configuration files that refer to the old version will have to be manually updated.

4.4. Changing Seam Parent Project

Starting from the 2.0.0.CR2 version of JBoss Tools it is possible to change the Seam parent project. In earlier versions this was only controllable at a project creation time, now it can be changed for existing projects too.

Go to your project preferences and select *Seam Settings* category on the left. Press the *Browse* button next to the *Main Seam Project* section to select the other Seam parent project.

	Properties for seam_v	war 🛛 🗴
type filter text	Seam Settings	⇔ < ⇔ < ×
Resource BeanInfo Path Builders Drools FreeMarker Context Guvnor	Seam support: Seam Runtime: jboss-seam-2.1. Main Seam Project: seam_war Connection profile: New HSQLDB	1.GA Add Browse C Edit New
Hibernate Settings Java Build Path	Deploy type WAR O EAR	Seam Web Projects
 ▷ Java Compiler ▷ Java Editor 	Seam EJB Project: seam_war	insurance_quote_demo i seam_war
Java EE Module Dep∈ Javadoc Location ▷ JavaScript	View Folder: /seam_war/WebContent Model Source Folder: /seam_war/src/main	🔊 seamproject
JSP Fragment Project Archives Project Facets	Package: org.domain.seamwar	
Project References Run/Debug Settings	Source Folder: /seam_war/src/hot	
Seam Settings Seam Validator Server	Test Create Test:	□ Show all projects
Service Policies	Test Project: seam_war-test	© OK Cancel
٢		OK Cancel

Figure 4.6. Changing Seam Parent Project

4.5. 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

5.1. File Menu Actions

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

Table 5.1. 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

5.2. 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.

5.2.1. Find Seam References/Declarations

To find EL expressions 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 5.2. Find Seam References/Declarations actions

Name	Function	Keyboard Shortcut
Find Seam	Find all references and declarations to the selected	Ctrl+G
References	element. It's available for EL expressions in both .java	

Name	Function	Keyboard Shortcut
Find Seam	and .xhtml files. Differs from normal Eclipse Find	Ctrl+Shift+G
Declarations	References/Declarations by showing an EL or Seam references in the Search View.	also Ctrl + 1 for .java files

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

📾 login.xhtml 🕴													- 6
		value	="#	{ider	ntit	y.rer	nemb	e rMe	}*/>	>			
<td>id></td> <td></td>	id>												
<pre><div class="action</pre></td><td>uttons"></div></pre>													
<h:commandbut< td=""><td>n value="Log</td><td>in" acti</td><td>on=</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:commandbut<>	n value="Log	in" acti	on=	#{10	den t	ity.l	logi	n}"/	>				
													Н
													Ξ
4		III										Þ	
Visual/Source Source Preview													
🔗 Search 🛿		Ŷ	Ŷ	ж	*	Đ	8	*		!? -	đ	~	- 6
🗢 🗞 seamProject													
K identity - /opt/work/worksp	e jbds/seamPr	roject/Web	Con	tent/V	VEB-I	NF/lib	/jbos	s-se	am.j	ar			
	_												

Figure 5.1. Find Seam Declaration for "Identity"

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



Figure 5.2. Find Seam References for "Identity"

5.2.2. 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 5.3. Open Seam Components icon

In the table below read a description about the dialog.

Table 5.3. Open Seam Components Dialog

Name	Function	Keyboard Shortcut
Open	Brings up the Open Seam Component dialog	Ctrl+Shift+Z
Seam	to open a component in the editor. The Open	
Components	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
org.jboss.seam.captcha.captchalmage - seamProject
org.jboss.seam.captcha.captcha - testSeam
⑦ OK Cancel

Figure 5.4. Open Seam Components Dialog

You can also open Seam Component from the other component where the required one is declared in <code>@In</code> by using <u>OpenOn</u> (Ctrl + left click and select Open Declaration of Seam Component for seam_component in Seam_class.java).

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>Eile</u> <u>E</u> dit	<u>S</u> ource	Refactor	<u>N</u> avigate	Search	Pr	oject	<u>R</u> un	<u>W</u> indov	v <u>H</u> elp
<u>N</u> ew			Shi	ft+Alt+N	•	👸 Se	eam V	Veb Proje	ct
Open	File					📑 P <u>r</u>	oject.		
Close				Ctrl+	w	🕂 Pa	ackade	2	
Close	All		Sh	nift+Ctrl+	w	GC	lass		
						🕜 In	terfac	e	
Save				Ctrl-	-S	Se 💕	ource	Folder	
Save /	<u>i</u> s					😂 Fo	older		
lig Sav <u>e</u> /	711		S	hift+Ctrl+	-S	📑 Fil	le		
Rever					_	10 S	eam A	ction	
Mo <u>v</u> e.						🕑 Se	eam F	orm	
Rena <u>n</u>	<u>n</u> e			F	-2	🔘 Se	eam E	ntity	
Refres	h			F	-5	🕑 Se	eam C	onversa	tion
Con <u>v</u> e	rt Line De	limiters To			•	🕖 Se	eam G	ienerate	Entities
👜 Print				Ctrl-	٢P	📑 Eg	<u>k</u> ampl	e	
Switch	<u>W</u> orkspa	ce			,	<u>c</u> o	ther		
눮 Import									
🛃 Export									
Proper	ties			Alt+Ent	er				
Exit									

Figure 6.1. 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 6.2. Seam Project WAR Deployment

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

6.1. 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 the *Browse* button.

G	New Seam Action
Seam Action Create a new Seam action	
Seam Project:	seam_war Browse <u>Settings</u>
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	<u>Einish</u> Cancel

Figure 6.3. New Seam Action Wizard

If you specify a class which already exists, the wizard will warn you about it.

6	New Seam Action
Seam Action A Such POJO class already	exists!
Seam Project:	seamproject Browse Settings
Seam component name:	Action
POJO class name:	Action
Bean name:	ActionBean
Method name:	action
Page name:	action
Package name:	org.domain.seamproject.session Browse
0	<u>F</u> inish Cancel

Figure 6.4. Wizard Warning against Existing File

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



Figure 6.5. Action Page in JBoss Tools HTML Editor.

Note:

You don't need to restart the server to see how the action component works. Just use context menu *Run As > Run On Server.*

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

ခြာ seam_war အ		- 8
🗇 🔿 🔳 🔗 http://localhost:8080/seam_war/actionPage.seam	• •	Ð
seam_war: Home	Login	
actionPage		
actionMethod!		
Powered by Seam, Generated by seam-gen.		

Figure 6.6. Action Component

6.2. 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.

8	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 6.7. New Seam Form Wizard

If you specify a class which already exists, the wizard will warn you about it.

6	New Seam Form 🛛 🗙
Seam Form A Such POJO class already	v exists!
Seam Project:	seamproject Browse <u>Settings</u>
Seam component name:	Form
POJO class name:	Form
Bean name:	FormBean
Method name:	form
Page name:	form
Package name:	org.domain.seamproject.session Browse
0	<u>F</u> inish Cancel

Figure 6.8. Wizard Warning against Existing File

The Form Page was created in WebContent folder.

😫 Pack 🛿 🛞 Sea 🖵 🗖	💼 f	ormPage.xhtml 🕴	- 8
E 🤹 🗢	%	<pre>xmlns:h="http://java.sun.com/js//html" xmlns:rich="http://richfaces.org/rich"</pre>	^
D. Gaima		<pre>xmlns:a="nttp://richtaces.org/a4j" template="lavout/template.xhtml"></pre>	=
D 👝 layout		<pre><ui:define name="body"></ui:define></pre>	
META-INF	- I		
▷ 👝 stylesheet		<h:messages globalonly="true" styleclass="message"></h:messages>	
VEB-INF		<h:form id="FormForm"></h:form>	~
actionPage.xht			<u>)</u>
🔬 customerList.x		○ Normal ○ B Z U	»
and customerPage			
and costonnen age.		#(projectName): Home Welcome, #(identity.username)! Login Logo	
error.xhtml	1	#{projectName}: <u>Home</u> Welcome, #{identity.username}! <u>Login</u> <u>Logo</u>	<u>"</u>
error.xhtml		#{projectName}: <u>Home</u> Welcome, #{identity.username}! <u>Login</u> <u>Logo</u>	<u>u</u> ~
i error.xhtml i formPage.xhtml i formPage.xhtml		#{projectName}: <u>Home</u> Welcome, #{identity.username}! <u>Login</u> <u>Logo</u>	
ecotornen age: dia error.xhtml dia formPage.xhtml dia home.xhtml dia index.html	_	#{projectName}: <u>Home</u> Welcome, #{identity.username}! <u>Login</u> <u>Logov</u> • Error Messages formMethod	
index.html	_	#{projectName}: <u>Home</u> Welcome, #{identity.username}! <u>Login</u> <u>Logo</u>	
index.html index.html index.html index.html index.html index.html index.html index.html index.html index.html	-	#{projectName}: Home Welcome, #{identity.username}! Login Logov • Error Messages formMethod Value #{Form.value} S Error Messages	
index.html index.html index.html index.html index.html index.html index.html index.html index.html index.html index.html index.html index.html index.html index.html	-	<pre>#{projectName}: Home Welcome, #{identity.username}! Login Logov • Error Messages formMethod Value #{Form.value} S Error Messages</pre>	
i custonten age. i error.xhtml i formPage.xhtml i home.xhtml i index.html i login.page.xml i login.xhtml i calk.xhtml i hibernate-console	-	#{projectName}: Home Welcome, #{identity.username}! Login Logon	
i costonien oge. i costoni costoni costonien oge. i costonien oge. i costonien o	-	#{projectName}: Home Welcome, #{identity.username}! Login Logon • Error Messages • formMethod • <	

Figure 6.9. Form Page in JBoss Tools HTML Editor.

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

🎯 seam_war 🛿			- 8
🗢 🔿 🔳 🤣	http://localhost:8080/seam_war/formPage.seam	•	÷
seam_war: Home		Logi	<u>n</u>
formPage			
Value*			
formMethod			
	Powered by <u>Seam</u> . Generated by seam-gen.		

Figure 6.10. Form Component

Form component was hot-deployed.

6.3. 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.

Create New Conversation				
Seam Conversation Create a new Seam conversation				
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 6.11. New Seam Conversation Wizard

If you specify a class which already exists, the wizard will warn you about it.

Cr Cr	eate New Conversation 🛛 🗙
Seam Conversation	exists!
Seam Project:	seamproject Browse Settings
Seam component name:	talk
POJO class name:	Talk
Bean name:	TalkBean
Method name:	talk
Page name:	talk
Package name:	org.domain.seamproject.session Browse
0	<u>F</u> inish Cancel

Figure 6.12. Wizard Warning against Existing File

Conversation page was created in WebContent folder.



Figure 6.13. Conversation Page in JBoss Tools HTML Editor.

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

🛞 se	am_war	r 🛙					6	- 0
¢	ے ہ	ф.	http://k	ocalhos	:8080/seam_war/talk.seam	•		Э
Seam	War:	Home					Login	
1	alk							
	Value			1				
Ĩ	Begin	Inc	rement	End				
					Powered by Seam, Generated by seam-gen.			

Figure 6.14. Conversation Component

Conversation component was hot-deployed.

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

6.4. 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.

0	New Seam Entity X
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
Ø	<u>Einish</u> Cancel

Figure 6.15. New Seam Entity Wizard

If you specify a class which already exists, the wizard will warn you about it.

C	New Seam Entity
Seam Entity ④ Such entity class alread	y exists!
Seam Project:	seamproject Browse <u>Settings</u>
Seam entity class name:	Customer
Package name:	org.domain.seamproject.entity Browse
Master page name:	customerList
Page name:	customer
0	<u>F</u> inish Cancel

Figure 6.16. Wizard Warning against Existing File

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



Figure 6.17. Master Page in JBoss Tools HTML Editor.

The Entity page is:



Figure 6.18. Entity Page in JBoss Tools HTML Editor.

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

li seam_war छ	- 0
🗇 🔿 🔳 🗞 http://localhost:8080/seam_war/customerPage.seam	🔹 🔺 💽
seam_war: Home	Login
customerPage	
Name*	
Save Done	
Powered by Seam. Generated by seam-gen.	

Figure 6.19. 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 အ	c	- 8
💠 🔿 🔳 🗞 [http://localhost:8080/seam_war/customerList.seam?cid=7&clr=true&conversationPropag		۲
seam_war: Home	Login	
customerList		
Id Name 1 <u>c1</u> 2 <u>c2</u>		
Create customer Powered by <u>Seam</u> , Generated by seam-gen.		

Figure 6.20. 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 Eclipse using Hibernate Tools plugin for the standard seam-gen generation.

The wizard 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 Settin Hibernate Console Configuration: seamproject 🗘 Generation Mode Reverse engineer from database Use existing entities	<u>gs</u>
Image: Section of the section of t	əl

Figure 7.1. Generate Seam Entities Wizard

By default, the generation mode is set to *Reverse engineer from database*. The reverse engineering from a database could 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.

Note:

The entities are generated from a database based on the console configuration that is created automatically during a Seam project creation. (Read more about *console configuration* [../../hibernatetools/html_single/index.html#console_conf]). The created console configuration is based on the connection profile set on the *Seam Facets wizard page* while creating a project. Configured connection profile settings are hold in the generated hibernate-console.properties . To change the connection profile, double-click the console configuration. It could be found in the Hibernate Configurations view (*Window > Show view > Other > Hibernate > Hibernate Configurations* or just switch to the Hibernate perspective).

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

This chapter tells about Seam Editors and their features.

8.1. Visual Page Editor

Visual Page Editor fits perfectly for authoring view Seam pages. The major features of VPE are listed in *Main Features of Seam Editors*

You can also read more about Visual Page Editor in <u>Visual Page Editor</u> [http://download.jboss.org/ jbosstools/nightly-docs/en/jsf/html/editors.html#visual_page] chapter of "Visual Web Tools Reference Guide".

8.2. Seam Pages Editor

Seam Pages Editor provides a handy way to edit the pages.xml file.

You can edit the pages.xml file in three modes: Graphical, Tree and Source.

Seam Pages Editor supports synchronization with Package Explorer. This means that while renaming files in the Package Explorer all the changes immediately affect the pages.xml file.

8.2.1. Graphical Mode

Graphical mode provides you with a set of visual tools to organize your project pageflow, exception handling etc.

*	/home.xhtml	ne.xhtml
o.j.s.f.Entityf	lotFoundException	/error.xhtm
9 j.p.EntityNot	FoundException /error.xhtml	
🔶 j.p.Optimistic	cLockException /error.xhtml	
🔶 o.j.s.s.Autho	rizationException	
♦ o.j.s.s.Author	rizationException /error.xhtml	

Figure 8.1. Seam Pages Editor: Graphical View

The Graphical part of the editor has some visual elements. The table below shows graphical representation of the elements and explains their meanings.

Table erift ages Ealert erapinear fremi fredar elemente	Table 8.1.	Pages Editor:	Graphical V	/iew. Visual	elements
---	------------	---------------	--------------------	--------------	----------

Element	Description
PageName.xhtml ⊞	A yellow box with a solid border represents a <page> element.</page>
CustomersEdit.xhtml	Pressing on the plus icon
	on the <page> element reveals a box that</page>
customersFrom:	lists the parameters for the page.
customers: #{customersHome.custom	
employeesFrom:	
employees: #{employeesHome.employ	

Element	Description
PageName.xhtml	A red cross in the upper left corner of the page box indicates that the view-id is not found in the project.
/login.xhtml	A gray box with a dashed border represents a page that has navigation (navigation rule) to but the page is not defined in the page.xml file.
j.p.EntityNotFoundException	An <exception> is represented by a blue box with a orange diamond.</exception>

Pageflow relations are shown with gray arrows, when you select a relationship the arrow is changed to orange.

On the lefthand side of the Graphical view of Seam Page Editor you can find a toolbar with a set of icons for the most frequently used commands.

Table 8.2. Pages Editor: Graphical View. Commands Icons

Icon Image	Command
2	Select a page element
E2	Marquee a page item
Ъ.	Add a page relationship
•	Add an exception rule

Context menus are also available when you click either on an item or a blank space.

A context menu called on a blank space of the diagram provides the following options:

- Page creates a new page element on the diagram
- Exception creates a new exception element on the diagram
- Auto Layout formats the layout of the diagram automatically
- Select Element calls the Select Element Wizard with a filter to perform a quick search through the pages.xml file

Rightclicking on a selected <page> element calls a context menu where you can choose the following options if you click on the **New** menu item:

• Rule opens the Add Navigation Rule dialog in which you can browse your project for a view page to set the view-id in the navigation rule and specify **render** or **redirect** navigation options
• **Param** calls a dialog box where you can define a parameter (using the param> tag) for the cpage> element

8.2.1.1. Seam Pages Diagram Preferences

In order to customize the layout of Diagram you can go to Window > Preferences > JBoss Tools > Web > Seam > Editors > Seam Pages Diagram.

E		Prefere	inces		X
type filter text]	Seam Pages D	iagram	⇔ ~ ⇔~	-
▶ Install/Update	^		2 Show arid		
▶ java					
▶ JavaScript		Grid Step:	16		~
JBoss jBPM		Link Path Font:	default,size=8,style=1	Browse	
		View Path Font:	default size=8 style=1	Browse	5
JBoss Portlet		view Potentione.	Cuitele to standard control mode for surrou offen to	Diowsen.	
∀ Web			Switch to standard control mode for cursor after th	ansition is m	ade
✓ Editors			Show shortcut icon		
JSF Flow Diagram			Show shortcut path		
Seam Pages Diagram					
Struts Flow Diagram					
Tiles Diagram					
Visual Page Editor					
El ∨ariables					
▷ JSF					
Label Decorations					
Þ Seam					
Struts					
∨erification					
JPA	~		Restore Defaults	Apply	
0			ОК	Cancel	

Figure 8.2. Preferences of Seam Pages Diagram

8.2.2. Tree Mode

Tree Mode provides a wider range of options and way to edit and modify the pages.xml file.

👌 pages.xml အ	- 8
Seam Pages Editor	
▼ pages	▼ Page
 ✓	Action: <u>View ID:</u> PageName.xhtml Browse Description:
 Image: Second state of the second	Advanced Switch: No Conversation View ID: Browse Conversation Required: Login Required: Scheme: Timeout: Bundle: Conversation:
Org.jboss.seam.framework.Ent Opjavax.persistence.EntityNotFor Optimistial of Graphical Tree Source	Restrict:

Figure 8.3. Seam Pages Editor: Tree View

In this mode all elements and attributes of the page.xml file can be viewed and edited in a visual, user friendly way.

8.2.3. Outline Support for Seam Pages Editor

Seam	Pages	Editor	provide	es (Outline	view	supp	oort.	You	can
explore	the	pages.xml	using	Outlin	e view	in	two	modes:	Tree	(
L.										
)		and		Diagran	า		Navigat	tion		(
).										

The Diagram Navigation mode of Outline view gives a birds-view of the layout to allow quick navigation for large-scale applications.



Figure 8.4. Outline view: Diagram Navigation mode

The Tree mode shows a tree for every element in the pages.xml file. You can get a quick overview of the whole file. When selecting an element in the Outline view the related element is highlighted in the Graphical, Tree or Source page of Seam Pages Editor.

🕞 pages.xml 🕱 🗖 🗖	🗄 Outline 🛛 🗖 🗖
	8 🖪 🗗 🎽
🗘 🔶 o.j.s.s.NotLoggedInException /login.xhtml	👂 🤏 # {employeesHorr 🛌
-e 🗋 /login.xhtml	▷ 🍓 #{employeesHorr
	▷ 🍓 #{employeesHom
	👂 🗋 /EmployeesList.xhtml
CustomersEdit.xhtml	🗢 🗋 /CustomersEdit.xhtm
/Customers.xhtml /CustomersList.xhtml	📀 begin-conversation
E //Customers.xhtml	🏷 # {customersHom
customersFrom:	🔍 customersFrom
customersCustomernumber: #{customersHome.customersCustomernumber}	🔍 customersCustom
employeesFrom:	🔍 employeesFrom 😑
employeesemployeenumber. Wemployeestrome.employeesemployeenumber y	🔍 employeesEmploy
/EmployeesEdit.xhtml /Employees.xhtml	\$ \$ #{customersHom
/Employees.xhtml	#{customersHom
	👂 🍓 # {customersHom 💳
employeesFrom:	🗢 🗁 Exceptions
employeesEmployeenumber: #{employeesHome.employeesEmployeenumber}	👂 🚸 org.jboss.seam.fram:

Figure 8.5. Outline view: Tree mode

8.3. Seam Components 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).

🔓 components.xml 🛛			- 8
Seam Components 2.0 Edi	tor		
▼ components	am Components 2.0 File		Â
🗢 🗟 components 📶 👘 .			1
🔊 org.jboss. 🛛 🔍 🔪	Scomponent		1
org.jboss. Properties	🔿 Factory		
🕨 🌒 entityManager 🛛 Na	Event		
SeamproiEntity	Import	Parraya	
A securityRules	Spring >	Bernove	4
	Remoting >	Edit	
	Framework	Lip	
N A are these second of	Security >		
v iii org.jooss.seam.s	Web	Down	
💽 org.jboss.seam.r 👻 Fá	Persistence		
Nar	Async >		
	Drools >	<u>A</u> dd	
	International >	Paragua	î
	Pdf >	Dennove	
	Mail 📏	<u>E</u> dit	
	Theme >	Lip	1
	jms 💙		
	Core >	Down	
- E	врм		
Туре)		
	;jboss.seam.security.notLog	gedin Add	
Tree Source			

Figure 8.6. 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.

Project Expl	orer 🛙		Ξ	\$₽\$	~	•	٥		
🗢 浄 ME	B-INF								
Þ 🗁 (classes								
Þ 🗁 (dev								
Þ 🕞 I	ib								
▽ 🖹 (components.xml								
	🔊 org.jboss.seam.core	init							
	🔊 org.jboss.seam.core	.manager					Н		
▷ (陷 entityManager								
Þ	친 seamEntityManagerF	actory					=		
	陷 org.jboss.seam.core	.ejb							
▶ (securityRules								
	🔰 org.jboss.seam.secu	rity.identity					Н		
Þ	🚯 org.jboss.seam.notLo	oggedin							
Þ	🏚 org.jboss.seam.post	Authenticate							
•	🔊 org.jboss.seam.mail.	mailSession							
	acor config uml				~	_			
Properties 8	3				Ť	_			
1 items sele	cted								
Advanced	Property	Value							
	authenticate-metho	#{authenticator.au	ther	nticat	æ}				
	auto-create	false							
	class								
	installed	true				•			
	jaas-config-name	true							
	name	false				Ŀ	-		
precedence									
remember-me true									
	scope								
	security-rules	#{securityRules}							

Figure 8.7. component.xml Editor

8.4. Main Features of Seam Editors

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

8.4.1. Content Assist

Content Assist (Ctrl + Space) is available when using EL expressions in the following file formats:

- JSP
- XHTML
- XML
- JAVA

Notice, the code completion for the Seam components shows the proposals marked with Seam icon.



Figure 8.8. Content Assist

Content Assist is also available for the *"jsfc"* attribute, it lets you select from a list of possible attribute values. Whereas, JSF components appear above all other components in the list.



Figure 8.9. Content Assist for the "jsfc" attribute

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*.

8.4.1.1. Content Assist for components.xml

While you are editing a *components.xml* file you can make use of the Content Assist for inserting needed elements.



Figure 8.10. Content Assist in the component.xml Editor

The editor also makes code completion aware of methods/attributes for EntityQuery component.



Figure 8.11. Content Assist for EntityQuery Component

8.4.2. Content Assist for Page Descriptors

Content Assist (CA) is available for Page Descriptors, .page.xml and page.xml files. Content Assist lets you easily compose a Page Descriptor file by suggesting elements and attributes. The suggestions are context dependent, which means that CA provides only the elements, attributes and in some cases values for the attributes, suitable in a particular place of your Page Descriptor.

Seam Pages Editor also supports code completion in EL-expressions suggesting you possible bean properties and methods.

8.4.3. OpenOn

OpenOn lets 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.

📾 *menu.xhtml 🕱	• 0
<pre><rich:toolbar <="" pre="" xmlns="http://www.w3.org/1999/xhtml" xmlns:ui="http://java.sun.com/jsf/facelets"></rich:toolbar></pre>	4
<pre>xmlns:n="http://java.sun.com/jsf/ntml" xmlns:f="http://java.sun.com/jsf/core" xmlns:s="http://jboss.com/products/seam/taglib" xmlns:rich="http://richfaces.ajax4jsf.org/rich"></pre>	
<pre><rich:toolbargroup></rich:toolbargroup></pre>	
 <rich:toolbargroup location="right"> <h:outputtext rendered="#{identity.loggedIn}" value="Welcome, #{identity.username}"></h:outputtext> <s:link rendered="#{not identity.}" value="Login" view="/login.xhtml"></s:link></rich:toolbargroup>	_
<pre><s:link view="/home.xhtml" action="#{identity.logout}" value="Logout" rendered="#{ident </rich:toolBarGroup> </pre>	

Figure 8.12. OpenOn

OpenOn is available for the following files:

- <u>XML files</u>
- JSP/XHTML Pages
- Java files

Note:

In this section were described only use cases special for Seam applications.For general information please read <u>OpenOn section in Visual Web Tools</u> <u>Reference Guide</u> [http://download.jboss.org/jbosstools/nightly-docs/en/jsf/html/editors.html#OpenOnSelection4Hyperlinknavigation].

- Using OpenOn in .xhtml files you can open:
 - · components or properties resolved using an EL expression;
 - all actions described in pages.xml;
 - other .xhtml files that paths are specified in a current file;
 - image files that paths are set in the *value* property. The files will be opened in the default system graphical editor.
- OpenOn is also supported in Page Descriptors (.page.xml and pages.xml). OpenOn allows you
 to navigate to Java beans as well as to view pages. You can Ctrl + left click on a bean or on
 view page file (e.g. XTML file) to navigate to the file you clicked on.



Figure 8.13. OpenOn in .page.xml file

If you use Rule-based authorization with Drools in your Seam application you can apply OpenOn in *components.xml* to open the files containing rule definitions in the *"rule-files"* tag.



Figure 8.14. OpenOn in components.xml file

You can also use OpenOn to open jBPM components that are described in Seam component descriptor. Two places where it works are available:

• inside <component> definition;

🔒 components.xml 🕴	- 8
<pre>ejbql="select p from Product p" order="p.inventory.sales desc" max-results="8" /> <component name="org.jboss.seam.bpm.jbpm"> <property name="org.jboss.seam.bpm.jbpm"> <property a="" is="" of="" select<="" selection="" td="" the=""><td>< I III III III III III III IIII IIII</td></property></property></component></pre>	< I III III III III III III IIII IIII
	>
Iree Source	

Figure 8.15. OpenOn in components.xml file

• inside *jbpm* tags;



Figure 8.16. OpenOn in components.xml file

- OpenOn is also supported in seam components where In annotation is presented. After pressing Ctrl + left click on the seam component specified in @In you will get the possibility to open the file where the component is declarated as well as all of the seam components where it is used in the next declarations:
 - @Out
 - @DataModel
 - @Role
 - @Roles



Figure 8.17. OpenOn in Seam Component

8.4.4. Seam Validation

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

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



Figure 8.18. Seam Validation

Note:

Please note, only files within source path and web content are validated, meaning temporary files or test files are not included.

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.



Figure 8.19. 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 of your project. It is available in the properties of your project under *Validation*.

text	Validation			¢-~	
^	R Enable project specific settings			Configure Workspace	Setting
	Suspend all validators				
ntext	The selected validators will run when va	alidation	is perfe	ormed:	
gs	Validator	Manual	Build	Settings	
	BPEL Validator	2			
	Classpath Dependency Validator				
	DTD Validator	2			
	HTML Syntax Validator				
P	JavaScript Syntax Validator	2		22	
	jPDL 4 Validator			<u>m</u>	
_	JSF Application Configuration Validato	2		200	
, =	JBF View Validator			22	
	JSP Content Validator	Ø		200	
	JSP Syntax Validator				
	ModuleCore Validator				
	Seam Project Property Validator		2		
90	Seam Validator				
	Smooks File Validator			<u></u>	
	Tag Library Descriptor Validator			<u></u>	
	WSDL Validator			<u></u>	
s	WS-I Message Validator				
	XHTML Syntax Validator			<u></u>	
	XML Schema Validator	2	M	(C)	
tin	Enable All Disable All				
~					
0				Restore Defaults	Apply

Figure 8.20. Enabling the Validation Builder

The validations can be run manually by clicking *Validate* via the context menu on your project (folder or file inside your project) which will execute all the active WTP validations. Following to the project's preferences under *Validation* it's possible to enable/disable any validator.

It's also possible to turn off the validation for some resource (a file, folder) inside your project via the *Exclude Validation* context menu option.



Figure 8.21. Excluding Validation for the WebContent Folder

As a result, if you've turned off the validation for a folder (or file), it is put to the excluded group of the Validation filters and be ignored during the validation.

6		Properties for seamProject				×		
type filter text		Validation			⇒ ⇒	-		
Resource Builders Drools		 Enable project specific settings Suspend all validators 	Configure	e Works	space Settin	gs		
FreeMarker Co	ontext	The selected validators will run when	validation	is perfo	ormed:			
Java Build Patl	h	Validator	Manual	Build	Settings			
Java Code Sty	le	BPEL Validator						
Java Compiler		Classpath Dependency Validator						
Java Editor		DTD Validator	V	2				
Java EE Modul	e Depen	HTML Syntax Validator						
Javadoc Locat	e	Validation Filters fo	r DTD Val	idator				
JSP Fragment Module Assen	using the the rules groups, a	e logical OR operator. There are two typ in the Exclude group match, the resou at least one rule from each group must	es of group arce is not v match bef	os Inclu validate fore the	de and Exclu ed. If there a resource is	ude. If any o re Include validated.		
Project Archiv		de Group			Add Incl	ude Group		
Project Facets	C	Content Type: org.eclipse.wst.dtd.core.dtdsource (excludes						
Project Refere	Fil	e extension: dtd				ude Group.		
Run/Debug Se	Fil	e extension: ent			Add	l R <u>u</u> le		
Seam Setting	Fil	e extension: mod			Be	move		
Seam Validate	🗢 Exclu	ide Group				0 (h		
Server	Fo	lder: WebContent (case sensitive)			Restor	e <u>D</u> efaults		
Service Policie								
Targeted Runt								
Task Tags								
Validation								
Web Content !	<u>د</u>	10		>	j –			
Web Page Edit				_				
Web Project S				0	ancel	OK		
XDoclet			Restore L	Default				
< III	>							
?			Car	ncel	ок			
Ū								

Figure 8.22. Validation Filters

Seam Views

9.1. 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.

🖹 Pro	oblems	🙆 Tasks	🕖 Seam	Components	23	😲 JBoss	Server View	👭 Servers	📮 Console		' 🗆
										₫\$	~
⊽ 🗞	seampr	roject									
Þ	🖶 (defa	ault packa	ige)								
Þ	🌐 org.j	boss.sear	n.core								
Þ	🌐 org.j	boss.sear	m.mail								
~	🌐 org.j	boss.sear	n.security								
	🗢 🔬 id	entity (Se	ession)								
	a components.xml										
	🖞 jboss-seam.jar/org.jboss.seam.security.ldentity										
۵ 🗞	seampr	roject-ejb									
6	seampr	roject-test	t								

Figure 9.1. 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 9.2. Label Scope Presentation of Seam Components

 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 >
Deal Application	Scope Presentation →
Business Process	≱ <u>C</u> ustomize View
Conversation	
🕨 🚱 Event	Link Editor
Method	
🕨 🚱 Page	
🕨 🚱 Session	
A Gamma Stateless	
Compared Compare Compared Compared C	~

Figure 9.3. Node Scope Presentation of Seam Components

The Seam Packages can be presented in two ways:

• Fl	at
------	----

~
Seam Packages 🔷 🔸
Scope Presentation >
≱ <u>C</u> ustomize View
Link Editor

Figure 9.4. Flat Presentation of Seam Packages

• Hierarchical

🖹 Problems 🕢 Tasks 😥 Seam Components 🛛 🧔 JBoss Server View 🕷 Servers 🗳	Console 🗖	
	E 😫	~
🗢 🗞 seamproject	⊖ Flat	Seam Packages >
default package)	Hierarchical	Scope Presentation >
🗢 🌐 org		≱ <u>C</u> ustomize View
🗢 🌐 jboss		
🗢 🖶 seam		Link Editor
D 🌐 core		
🕨 🌐 mail		
👂 🌐 security		
Seamproject-ejb		
A seamproject-test		

Figure 9.5. Hierarchical Presentation of Seam Packages

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



Figure 9.6. 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 Customizations	X)
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	
	,
OK Cancel	

Figure 9.7. Available Seam Component View Customizations

9.2. 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 9.8. Seam Components in Project Explorer

Seam Preferences

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

10.1. 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.

G	Preferences	×
type filter text	Seam	⇔ ∙ ⇔ ▼
 General Ant Data Management Drools Preferences FreeMarker Editor Help 	Name Version Path ✓ jboss-seam-2.0 2.0 /opt/jbos	ss-seam-2.0.0.G Edit Bernove
HQL editor ▷ Install/Update ▷ Java ▷ JavaScript ▷ JBoss jBPM ☞ JBoss Tools JBoss ESB Runtimes JBoss Portlet		
 ✓ Web ▷ Editors El Variables ▷ JSF Label Decoration ✓ Seam Validator ▷ Strute 		
Verification JPA DoXygen Plug-in Development Project Archives	(OK Cancel

Figure 10.1. 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.

E	Edit Seam Runti	me 🗙
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
Ø		<u>Finish</u> Cancel

Figure 10.2. Edit Seam Runtime

Tip:
If you try to delete the Seam Runtime that is already in use by some project in the current workspace, then a warning message will appear. To confirm the removal press OK
Besides, when you right-click on your Seam project with deleted runtime in Project Explorer and select Properties > Seam Settings the error message "Runtime <runtime_name> does not exist" will appear.</runtime_name>

10.1.1. 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 f	ilter text	Validator	⇔ ∙ ⇔≁
type f ↓ Ge ↓ Ani ↓ Co Fre ↓ Hel HQ ↓ Ins ↓ Ins ↓ Jav ↓ JBo	ilter text neral t nnectivity eMarker Editor lp L editor tall/Update ernet va ss jBPM	Validator Configure Project Spr Select the severity level for the following optional Seam Validator problems: Components 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:	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
▼ JBo ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	ss Tools JBoss Servers Packaging Archives Web Editors JSF Label Decorations Seam Validator Struts Verification XDoclet	Component class does not contain setter for property: • Entities • Component life-cycle methods: • Factories • Bijections • Context variables • Expression language • Project Settings	Error
P Rur ∢	n/Debug	Restore Defaults	Apply Cancel

Figure 10.3. Seam Validator Preference Page

Notice, that in the *Expression language* section there is now a preference for setting severity of EL Syntax. You can select whether the Seam validator displays an error, a warning or just ignore the EL Syntax error.



@	Preferences	×
type filter text	Validator	⇔ • ⇔∘ •
FreeMarker Editor Guvnor Help HQL editor Install/Update Java Java EE JBoss jBPM JBoss jBPM JBoss jBPM JBoss Tools JBoss Portlet Project Examplet Velitors El Variables JSF Label Decorat Seam Validator Struts Verification Maven Plug-in Developmer Project Archives Run/Debug	Select the severity level for the following optional Seam Validator problems: Components Entities Component life-cycle methods: Factories Bijections Context variables Expression language EL Syntax Error Context variable cannot be resolved: Property cannot be resolved: Unpaired Getter/Setter: Recognize "var" attributes Revalidate unresolved ELs automatically. Project Settings	Configure Project Specific Settings Error Warning Ignore Warning Ignore Ignore Apply
?		Cancel

Figure 10.4. Severity Preference for EL Syntax

The *Revalidate unresolved ELs automatically* option is enabled by default. If necessary, you can uncheck it. It may increase a performance for big complex projects.

In the upper right corner of the Seam Validator preferences page there is a *Configure Project Specific Settings* 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.



Figure 10.5. 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.



6		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	
		 Project Settings 	
(1)	Þ	Restore Defaults	Apply
0		ОК	Cancel

Figure 10.6. Validator Properties Page for Chosen Project

10.2. 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				
type filter text	Seam Settings 🔅 - 🖒 - 👻			
Resource				
Builders	Seam support: 🗹			
Drools	Seam Runtime: jboss-seam-2.1.1.GA 🗘 Add			
FreeMarker Context	Main Seam Project: seamproject Browse			
Hibernate Settings	Deeleument			
Java Build Path	Deployment			
▷ Java Code Style	Deploy type 🕜 WAR 💿 EAR			
Java Compiler	Seam EJB Project: seamproject-ejb Browse			
Java Editor	View			
Java EE Module Dep	View Folder: /reapproject/WebContent			
Javadoc Location	view rolder. [/seamproject/webContent			
P JavaScript	Model			
JSF Validator	Source Folder: /seamproject-ejb/ejbModule Browse			
JSP Hagment Module Assembly	Package: org.domain.seamproject.entity Browse			
Project Archives	Action / Form / Conversation			
Project Facets	Course Folder (recomprised of /ofbModule			
Project References	Source Polder: //seamproject-ejb/ejbModule Browse			
Run/Debug Settings	Package: org.domain.seamproject.session Browse			
Seam Settings	Test			
Seam Validator	Create Test: 🗹			
Server	Test Project: seamproject-test Browse			
Service Policies	Seurce Felder: //compresent textitect.org			
Targeted Runtimes	Browse			
Task Tags	Package: org.domain.seamproject.test Browse			
▷ Validation				
Web Content Settin 💌	Restore Defaults Apply			
?	Cancel			

Figure 10.7. 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 seamproject				
ty	pe filter text	▲ Seam runtime is not selected		
	Resource			
	Builders	Seam support:		
	Drools	Seam Runtime: Add		
	FreeMarker Context	Main Seam Project: seamproject Browse		
	Hibernate Settings	Performent	1	
	Java Build Path	Deployment	1	
Þ	Java Code Style	Deploy type O WAR () EAR		
Þ	Java Compiler	Seam EJB Project: seamproject-ejb Browse		
Þ	Java Editor	- Lionu	J	
	Java EE Module Dep			
	Javadoc Location	View Folder: //seamproject/WebContent Browse	J	
Þ	JavaScript	(^{Model}		
	JSF Validator	Source Folder: //seamproject-ejb/ejbModule Browse		
	JSP Fragment	Package: org. domain.seamproject.entity Browse		
	Module Assembly	i sonage, lo graentanteentip electeritity la sonsen	J	
	Project Archives	Action / Form / Conversation		
P	Project Facets	Source Folder: /seamproject-ejb/ejbModule Browse		
	Project References	Package: org.domain.seamproject.session Browse		
	Run/Debug Settings	Test.		
	Seam Settings	Test		
	Seam validator			
	Server	Test Project: seamproject-test Browse		
	Targeted Buntimes	Source Folder: /seamproject-test/test-src Browse		
	Task Tags	Package: org.domain.seamproject.test Browse		
Þ	Validation		J	
	Web Content Settin			
<		Restore Deraults Apply		
(2)	Cancel	h	
(J	

Figure 10.8. Properties for Seam Project when Seam runtime is not selected

Tip:

On the figure above fields for configuring Seam artifacts are unavailable 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	Einish Cancel

Figure 10.9. Quick Setting Link In Seam Wizards

10.3. Adding Custom Capabilities

JBoss Tools provides a possibility to add custom capabilities to any Seam project, i.e. add a support of additional frameworks built on top of JSF, such as

- ADF
- Facelets
- JBoss Rich Faces (versions 3.1, 3.2, 3.3)

To enable it, you should call the context menu for a Seam project and select *JBoss Tools > Add Custom Capabilities*. Then check the needed modules and press *Finish*.

🔄 🛛 🕹 Add Custom Capa	abilities 🗙
Select Custom Capabilities	
 ADF Facelets JBoss RichFaces 3.1 JBoss RichFaces 3.2 	
JBoss RichFaces 3.3	Finish Cancel

Figure 10.10. Custom Capabilities be added to Seam Project

The next page displays all the updates that have been made to the project.

Add Custom Capabilities
Added Custom Capabilities The following updates have been made to the project.
JBoss RichFaces 3.3: Added "Ajax4jsf Filter" to /WEB-INF/web.xml JBoss RichFaces 3.3: Added "Ajax4jsf Filter mapping" to /WEB-INF/web.xml JBoss RichFaces 3.3: Added "Skin Parameter" to /WEB-INF/web.xml JBoss RichFaces 3.3: Added richfaces-api-3.3.0.GA.jar to WEB-INF/lib JBoss RichFaces 3.3: Added richfaces-impl-3.3.0.GA.jar to WEB-INF/lib JBoss RichFaces 3.3: Added richfaces-impl-3.3.0.GA.jar to WEB-INF/lib
Close

Figure 10.11. Adding Custom Capabilities to Seam Project

Seam Refactoring Tools

The goal of Seam components refactoring is to make system-wide code changes without affecting the behavior of the program. The Seam module of JBoss Tools provides assistance in easily code refactoring.

Starting from Jboss Tools M4 refactoring functionality became also available for managed beans, method and properties used in ELs. Thus now Seam refactoring tools include the next refactoring operations:

- <u>Renaming Seam components</u>
- Renaming Seam context variables in EL

Refactoring commands are available from the context menus of several views and editors and use a standard Eclipse refactoring wizard. For details, see <u>"Using the Refactoring Wizard"</u> later in this chapter.

Note:

Seam refactoring could be only performed in the file that is not marked as *Read only* in its properties.

E Properties for Booking,java				
type filter text	Resource	· <> -		
Resource FreeMarker Context Run/Debug Settings	Path: /jboss-seam-jpa/src/model/org/jboss/seam/example/jpa/Booking.java Iype: File (Java Source File) Location: /home/vchukhutsina/workspace1/jboss-seam-jpa/src/model/org/jboss/seam/example/jpa/seam/exa	ample/jpa/		
0	Cancel	ок		

Figure 11.1. Properties View for Java File

11.1. Using the Refactorinig Wizard

This wizard is opened always when the user clicks Rename Seam Component/Rename Seam Context Variable/Rename command in any of the mentioned views.

E	Refactoring	×
Rename Seam Compo	nent	
Seam component name:	booking	
(?) < <u>B</u> ack	Next > Cancel	Einish

Figure 11.2. Refactoring Seam wizard

In the Seam Components name field you should enter a new name of the component, then click Next and follow the next wizard steps:
E Refi	actoring X
Rename Seam Component	
The following changes are necessary to perform the	e refactoring.
Changes to be performed	\$ û ≱×
🗢 🗹 🔂 Rename Seam Component	<u> </u>
🗹 🚭 Booking.java - jboss-seam-jpa/src/mode	l/org/jboss/seam/example/jpa
🗹 🕾 HotelBookingAction.java - jboss-seam-jp	a/src/model/org/jboss/seam/example/jpa
🗹 🔮 BookingTest.java - jboss-seam-jpa/src/m	iodel/org/jboss/seam/example/jpa/test
🗹 🔮 pages.xml - jboss-seam-jpa/WebContent	t/WEB-INF
🕽 Booking.java	40 Sa 40 Sa
Original Source	Refactored Source
<pre>import org.jboss.seam.annotations.Name; @Entity @Name("booking") public class Booking implements Serializa /** */ private static final long serialVersi private Long id; private User user; private User user; private Hotel hotel; private Date checkinDate; private Date checkoutDate; /////////////////////////////////</pre>	<pre>import org.jboss.seam.annotations.Nam @Entity @Name("cooking") public class Booking implements Seria /** */ private static final long serialv private Long id; private User user; private User user; private Date checkinDate; private Date checkoutDate; v </pre>
? <u>B</u> ack	Next > Cancel <u>F</u> inish

Figure 11.3. Navigating between the differences

As you see, when performing a refactoring operation, you can preview all of the changes resulting from a refactoring action before you choose to carry them out.

The view represents two windows: one with the original source code and the other with refactored one.

With	the	help	of
▲			,
<u>%</u>			,
4			,
<u> </u>			

buttons you can quickly navigate between the differences in the code. If you don't agree with some changes you can't undo them but you can remove the class from the list of classes that need refactoring.

Changes to be performed	₽	Ŷ	*
🗢 🖃 🚱 Rename Seam Component			<u>_</u>
🗌 🕾 Booking.java - jboss-seam-jpa/src/model/org/jboss/seam/example/jpa			=
🗹 🕶 HotelBookingAction.java - jboss-seam-jpa/src/model/org/jboss/seam/example/jpa			
🗹 🕾 BookingTest.java - jboss-seam-jpa/src/model/org/jboss/seam/example/jpa/test			
🗹 🗬 pages.xml - jboss-seam-jpa/WebContent/WEB-INF			~

Figure 11.4. List of classes that need refactoring

To apply the changes click Finish.

Renaming the selected seam component also corrects all references to the component (also in other files in the project). Renaming a type doesn't allow to rename similarly named variables and methods.

11.2. Renaming Seam Components

Renaming a Seam component could be performed in the:

- Java editor
- Seam Components view
- Tree view of the components.xml editor

11.2.1. Renaming Seam Components in the Java Editor

If you want to rename certain seam component using Java Editor, first of all it's necessary to open it. If you don't know ,where the seam component is declared, use <u>Open Seam Components icon</u>.

To open the rename Seam Component command in Java Editor it's necessary to left click the file >Seam Refactor>Rename Seam Component.

🛱 Package 🛛 🕒 Project E 🗖 🗖	🕑 Booking.java 🛛			1	- 8
🕞 🤹 🗢	//\$Id: Booking. package org.jbo		Ctrl+Z		
⊽ 🥵 src/model	⊕import java.io.	Save	Ctrl+S		
⊽ J⊞ org.jboss.seam.example	@Entity	Seam Refactor	\rightarrow	Rename Seam Component	
AuthenticatorAction.ja Booking.java	@Name("booking" public class Bo	Open Declaration	F3	\$	
BookingListAction.javi	⊖ /** *	Ope <u>n</u> Type Hierarchy	F4		
ChangePasswordActic	*/	Open Call <u>H</u> ierarchy Show in Breadcrumb	Ctrl+Alt+H Shift+Alt+B		
🕨 🕖 Hotel.java	private sta private Lor	Quick Out ine	ctrl+o		
I HotelBookingAction.ja	private Use private Hot	Quick Type <u>H</u> ierarchy	Ctrl+T		
▷ D RegisterAction.java	private Dat private Dat	Show In S	ihitt+Alt+₩ >		
🕨 🕖 User.java 🗸	private Str	Cu <u>t</u>	Ctrl+X		~
	<	Copy Qualified Name			
		<u>P</u> aste	Ctrl+V		
		<u>Q</u> uick Fix	Ctrl+1		
		Source S	shift+Alt+S >		
		Local History	sniπ+Ait+1 >		
		Beferences	``		
		Declarations	>		
		📔 Add to Snippets			
		<u>B</u> un As	>		

Figure 11.5. Opening Refactoring wizard in Java Editor

11.2.2. Renaming Seam Components in the Seam Components View

To open Refactoring wizard in the Seam Components view you should left click the component you wants to open and choose Rename Seam Component option.



Figure 11.6. Opening Refactoring Wizard in Seam Components View

11.2.3. Renaming Seam Components in the Seam Components Editor

When you open components.xml file using JBossTools XML Editor, open the Refactoring wizard in the Tree tab by left-clicking the component in components area and choosing Rename option.

🔒 components.xml ස					- 8
Seam Components 2.	0 Editor				
▼ components		🕶 Entity Ma	nager Facto	ory	· ^
▽ 🗟 components.xml		Name:		bookingDatabase	1
🐑 org.jboss.seam.cor 🜒 org.jboss.seam.tra	re.man nsactic	<u>Class:</u>		Browse	=
🕨 🙆 bookingDatabase		Scope:	1	✓	
Þ 蓟 em	Rename	·	Jnit-Name:		i
🐑 org.jboss.seam.se	📄 Сору	Ctrl + C			· · ·
	😽 Cut	Ctrl + X	·		,
< III	X Delete	Delete			. ~
Tree Source	Propert	ies			

Figure 11.7. Opening Refactoring Wizard in components.xml File

11.3. Renaming Seam Context Variables in EL

Renaming a Seam context variables in EL could be executed in .java , .xml , .jsp , .xhtml and .properties files in Seam projects using the context menu command Seam Refactor > Rename Seam Context Variable.

🖻 messages_en.properties 🛛		- 8	
<pre>rCCE=Credit Card Expiration: omerError=There was an error creating your acc omerExistingError=The username #{customer.user omerPasswordError=Your passwords don't match.</pre>	ount. Name} already exi	sts. Try	
omerSuccess=Hegistered new customer #{ <u>CuStomer</u> DVD Store Entrance =Welcome to the DVD Store - Click below to beg rchasesHeader=Your previous purchases:	⊘ Undo Re⊻ert File Save	Ctrl+Z Ctrl+S	
leColumn=Title orColumn=Actor atedColumn=People who liked this DVD also like	Seam Refactor Sho <u>w</u> In	> Shift+Alt+W	Rename Seam Context Variable
e=DVD Store Browse Page chHeader=Search for DVDs: =Search For III Properties Source	Cu <u>t</u> <u>C</u> opy <u>P</u> aste	Ctrl+X Ctrl+C Ctrl+V	
	Quick Fix Shift Right S <u>h</u> ift Left Toggle Comment	Ctrl+1 Shift+Ctrl+C	
	🚡 Add to Snippets		

Figure 11.8. Refactoring Seam Context Variable in .properties File

🕞 components.xml 🕴			- 8	
<factory <="" name="order" th=""><th></th><th></th><th><u> </u></th><th></th></factory>			<u> </u>	
value="#{orderHome	Much Tet dhees			
scope="stateless"	<i>♀</i> <u>U</u> ndo Text Change	e Ctrl+Z		
auto-create=*true	Re <u>v</u> ert File			
<framework:entity-home name<="" th=""><th><u>S</u>ave</th><th>Ctrl+S</th><th></th><th></th></framework:entity-home>	<u>S</u> ave	Ctrl+S		
enti			raer"	<u> </u>
scop	Seam Refactor	>	Rename Seam Con	text Variable
<framework:id>#{orderId </framework:id>	Sho <u>w</u> In	Shift+Alt+W 🕻	Ξ	3
	Cu <u>t</u>	Ctrl+X		
<pre><framework:entity-query name<="" pre=""></framework:entity-query></pre>	⊆opy	Ctrl+C		
ejt	Paste	Ctrl+V	~	
(<			>	
Tree Source	<u>Q</u> uick Fix	Ctrl+1		
	Properties			
	Source	>		
	Open Selection	F3		
	<u>B</u> un As	>		
	Debug As	>		
	Profile As	>		
	Validate			
	Make Deployable			

Figure 11.9. Opening Refactoring wizard in components.xml file

🚾 complete.xhtml 🛙	- 8		
<h:form></h:form>			
<h:datatable dvdtable"<="" th="" value="#{completedOrder</th><th>🖓 Undo Text Change</th><th>Ctrl+Z</th><th></th></tr><tr><th>styleClass="><th>Revert File</th><th></th><th></th></h:datatable>	Revert File		
headerClass="dvdtablehe	Save	Ctrl+S	
rowClasses="dvdtableodo columnClasses="dvdtable			
<h:column></h:column>	Seam Refactor	>	Rename Seam Context Variable
<f:facet name="header"> <h:outputText value="#{n</th><th>Sho<u>w</u> In</th><th>Shift+Alt+W 🕻</th><th>n.</th></f:facet>	Sho <u>w</u> In	Shift+Alt+W 🕻	n.
	Cuţ	Ctrl+X	
	<u>С</u> ору	Ctrl+C	
	Paste	Ctrl+∨	
☆ html body ui:composition ui:define f:subview h:form h:dataTab	Insert tag from Palette	>	
Visual/Source Source Preview	Replace with Palette tag	>	
	Quick Fix	Ctrl+1	
	🖹 Add to Snippets		
	Properties		
	Source	>	
	Open Selection	F3	

Figure 11.10. Opening Refactoring wizard in .html file

Generate a CRUD Database Application

12.1. 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.

12.2. 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.

b New	
Select a wizard	
Create a Seam Web Project	
<u>W</u> izards:	
type filter text	
🧐 Seam Components File	
Seam Conversation	
🍥 Seam Entity	
🍥 Seam Form	
🍥 Seam Generate Entities	
💦 Seam Page Flow	=
🐼 Seam Web Project	
Server	-
(?) < Back Next:	> Enish Cancel

Figure 12.1. 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.

New Seam Project	
eam Web Project	and the second s
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	≎ N <u>e</u> w
Dynamic Web Module version	
2.5	0
Target Server	
Boss 4.2 Server	Ô New
Configuration	
Dynamic Web Project with Seam 2.0	
Configures a Dynamic Web application to use Seam v2.0	
	Finish Consel
< Back Next >	Enish

Figure 12.2. New Seam Project Wizard



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

eam Facet Connection profile is not selected General Seam Runtime: jboss-seam-2.0.2.GA Deploy as: WAR EAR Database Database Database Database Connection profile: HSQL Connection profile: Edit New Database Schema Name: Database Catalog Name: DB Tables already exists in database: Recreate database tables and data on deploy: Code Generation Session Bean Package Name: Org.domain.crudapp.session Entity Reap Package Name: Corg.domain.crudapp.session	Facet Image: Second		New Seam	Project
General Seam Runtime: jboss-seam-2.0.2.GA Connection profile is not selected Complexed Connection profile:	Add a Runtime: jboss-seam-2.0.2.GA Add a Runtime: jboss-seam-2.0.2.GA Add ay as: WAR EAR Aase Dase Type: HSQL Edit New Dase Schema Name: Dase Schema Name: Dase Catalog Name: Dase Catalog Name	eam Facet	et e d	ME
General Seam Runtime: jboss-seam-2.0.2.GA Deploy as: WAR O EAR Database Database Database Type: HSQL Connection profile: Database Schema Name: Database Catalog Name: DB Tables already exists in database: Recreate database tables and data on deploy: Code Generation Session Bean Package Name: org.domain.crudapp.session Entity Reap Package Name: org.domain.crudapp.session	al a Runtime: jboss-seam-2.0.2.GA	Connection profile is not selec	ted	Le
Seam Runtime: jboss-seam-2.0.2.GA Deploy as: WAR EAR Database Database Database Database Type: HSQL Connection profile: Database Schema Name: Database Catalog Name: DB Tables already exists in database: Recreate database tables and data on deploy: Code Generation Session Bean Package Name: Org.domain.crudapp.session Entity Reap Package Name:	n Runtime: jboss-seam-2.0.2.GA ay as: WAR EAR pase pase Type: HSQL Edit New pase Schema Name: pase Catalog Name: pase Catalog Name: pase Catalog Name: pase Catalog Name: pase Type: generation on Bean Package Name: org.domain.crudapp.session Bean Package Name: org.domain.crudapp.test	General		
Deploy as: WAR O EAR Database Database Database Type: HSQL Connection profile: Edit New Database Schema Name: Database Catalog Name: DB Tables already exists in database: DB Tables already exists in database: Recreate database tables and data on deploy: Code Generation Session Bean Package Name: org.domain.crudapp.session Entity Rean Package Name: org.domain.crudapp.session	y as: • WAR O EAR	Seam Runtime: jboss-seam-2	.0.2.GA	Add
Database Database Type: HSQL Connection profile: Database Schema Name: Database Catalog Name: DB Tables already exists in database: Recreate database tables and data on deploy: Code Generation Session Bean Package Name: Org.domain.crudapp.session Entity Reap Package Name: Org.domain.crudapp.active	base Type: HSQL ection profile: base Schema Name: base Catalog Name: bles already exists in database: ate database tables and data on deploy: Generation on Bean Package Name: org.domain.crudapp.session Bean Package Name: org.domain.crudapp.entity rackage Name: org.domain.crudapp.test	Deploy as: WAR O E/ 	AR	
Database Type: HSQL Connection profile: Image: Edit Database Schema Name: Image: Edit Database Catalog Name: Image: Edit DB Tables already exists in database: Image: Edit Recreate database tables and data on deploy: Image: Edit Code Generation Image: Edit Session Bean Package Name: Image: Org.domain.crudapp.session Entity Reap Package Name: Image: Org.domain.crudapp.antity	base Type: HSQL ection profile: base Schema Name: base Catalog Name: bles already exists in database: ate database tables and data on deploy: Generation on Bean Package Name: org.domain.crudapp.session Bean Package Name: org.domain.crudapp.entity ackage Name: org.domain.crudapp.test	Database		
Connection profile: Database Schema Name: Database Catalog Name: DB Tables already exists in database: Recreate database tables and data on deploy: Code Generation Session Bean Package Name: org.domain.crudapp.session Entity Reap Package Name: Org.domain.crudapp.active	ection profile: Edit New Dase Schema Name: Dase Catalog Name: D	Database Type:		HSQL
Database Schema Name: Database Catalog Name: DB Tables already exists in database: DB Tables already exists in database: Recreate database tables and data on deploy: Code Generation Session Bean Package Name: org.domain.crudapp.session Entity Reap Package Name:	base Schema Name:	Connection profile:		C Edit New
Database Catalog Name: DB Tables already exists in database: DB Tables already exists in database: Recreate database tables and data on deploy: Code Generation Session Bean Package Name: org.domain.crudapp.session Entity Reap Package Name:	base Catalog Name: bles already exists in database: bleady exist	Database Schema Name:		
DB Tables already exists in database:	bles already exists in database: ate database tables and data on deploy: Generation on Bean Package Name: org.domain.crudapp.session r Bean Package Name: org.domain.crudapp.entity rackage Name: org.domain.crudapp.test	Database Catalog Name:		
Recreate database tables and data on deploy: Code Generation Session Bean Package Name: org.domain.crudapp.session Entity Reap Package Name: org.domain.crudapp.entity	ate database tables and data on deploy: Generation on Bean Package Name: org.domain.crudapp.session r Bean Package Name: org.domain.crudapp.entity rackage Name: org.domain.crudapp.test	DB Tables already exists in data	abase:	
Code Generation Session Bean Package Name: org.domain.crudapp.session	Generation on Bean Package Name: org.domain.crudapp.session Bean Package Name: org.domain.crudapp.entity Package Name: org.domain.crudapp.test	Recreate database tables and	data on deplo	y: 🗌
Session Bean Package Name: org.domain.crudapp.session	on Bean Package Name: org.domain.crudapp.session Bean Package Name: org.domain.crudapp.entity Package Name: org.domain.crudapp.test	Code Generation		
Entity Rean Package Name: org domain crudann entity	Pean Package Name: org.domain.crudapp.entity Package Name: org.domain.crudapp.test	Session Bean Package Name:	org.domain.	rudapp.session
Chicky Beam Package Name.	ackage Name: org.domain.crudapp.test	Entity Bean Package Name:	org.domain.	:rudapp.entity
Test Package Name: org.domain.crudapp.test		Test Package Name:	org.domain.	:rudapp.test
			Deals 1	

Figure 12.3. Seam Facet page

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

New Connection Pro	ofile 🗙
Connection Profile	
Create an HSQLDB connection profile.	
Connection Profile Types:	
type filter text	
BB2 for Linux, UNIX, and Windows	
BB2 for i5/0S	
DB2 for z/OS	
😫 Derby	
😝 Generic JDBC	
S HSQLDB	
Informix	
B MaxDB	
B MySQL	
😝 Oracle	
PostgreSQL	
SQL Server	
😫 Sybase ASA	
😫 Sybase ASE	
Na <u>m</u> e:	
cruddb	
Description (optional):	
② < Back Next >	Einish Cancel

Figure 12.4. 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.
Drivers:
Properties
✓ Connect when the wizard completes Test Connection
Connect every time the workbench is started
Image: Cancel Image: Cancel

Figure 12.5. 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.

	New Driver Definition	2
Specify a Driver Template a	nd Definition Name	
Unable to locate JAR/zip in file hsqldb.jar.	e system as specified by the dr	ver definition:
Name/Type Jar List Properties		
Available driver templates:		
Name	Vendor	Version
HSQLDB JDBC Driver	HSQLDB	1.8
Driver <u>n</u> ame:		
Driver <u>n</u> ame: HSQLDB JDBC Driver		
Driver <u>n</u> ame: HSQLDB JDBC Driver Driver <u>type</u> :		
Driver <u>n</u> ame: HSQLDB JDBC Driver Driver <u>type</u> : HSQLDB JDBC Driver		

Figure 12.6. 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	r Definition
pecify a Driver Template and Definitio	n Name
Specify a driver template, then modify detail inique name, a list of required jars, and set	ls in the fields below to provide a any available and applicable
Name/Type Jar List Properties	
Driver <u>fi</u> les:	
/opt/hsqldb.jar	Add JAR/Zip
	Edit JAR/Zip
	Bemove JAR/Zip
	Clear All
0	OK Cancel
~	

Figure 12.7. Driver Definition

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

N	ew Driver Definition
pecify 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
(?)	OK Cancel
÷	

Figure 12.8. 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
Image: The sector of the se

Figure 12.9. Driver and Connection Details

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

6	Succe	55 🗙
Q	Ping succeeded!	
		ОК

Figure 12.10. 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 12.11. Validate JDBC Connection settings

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



Figure 12.12. 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.



Figure 12.13. login.xhtml in VPE

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

🙀 Data Source Ex	plorer 🛛 🗖 🗖	
8 4 8 4	2 4 B	
🧊 cruddb	Connect	
🗢 🗁 ODA Data So	Disconnect	
읃 Flat File D	Ping	
읃 Web Servi	Wede office -	
🔁 XML Data	work Offline	
	Save Online	
	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 12.14. Connecting to the CRUDDB database

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



Figure 12.15. 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.

Generate Seam Entities	×
Generate Seam Entities	
Seam Project: crudapp Browse Hibernate Console Configuration: crudapp \$ Generation Mode Reverse engineer from database Use existing entities Use existing entities	<u>Settings</u>
(?) (?)	Cancel

Figure 12.16. Generate Seam Entities

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

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

Figure 12.17. Dialog for Selecting Tables

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

8	Gen	erate Seam En	tities		Þ
Generate Seam Entities Select Tables					
Database schema:		Table filters:	Schema	Table	
V PUBLIC	Include	.*	PUBLIC	CUSTOMERS	
CUSTOMERS	Exclude	.*	PUBLIC	ORDERS	
EMPLOYEES		.*	PUBLIC	EMPLOYEES	
OFFICES ORDERDETAILS ORDERS PAYMENTS PRODUCTLINES PRODUCTS	Up Down Remove Remove All	*	PUBLIC	PAYMENTS	
()		< <u>B</u> a	ck Next >	Einish	Cancel

Figure 12.18. Selecting Tables

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

😫 Package Ex 🛛 🖒 Project Expl 🗖 🗖	🖻 Customers.xhtml 🧴	ំ CustomersEdit.xhtml ដ				-	° 6
	#{projectName}: <u>Home</u>	Customers List Employ	ees List Payments Li	ist Orders List	Welcome, #{identity	y.username}! Login	^
マ 🐉 crudapp 📃							1
▷ 🥵 src/hot	Error Messages						
▷ 🥵 src/main	#{customersHome.mana	ged ? 'Edit' : 'Add'} Customers					
🕨 🛋 JBoss 4.2 Runtime [JBoss 4.2 Runt	customernumber *	#{customersHome.instanc	Error Messages				
JRE System Library [java-1.5.0-su	customername *	#/customersHome instance cu	stomername}				
👂 🐋 Web App Libraries	customentane	a featomerarione	sconcentarite	Error Messa	pes		
듣 build	contactiastname *	#{customersHome.instance.co	ntactlastname}	Error Messa	jes		
P Construction of the second secon	contactfirstname *	#{customersHome.instance.co	ntactfirstname}	Error Messa	jes		
ç∋ src	phone *	#{customersHome.instance.ph	one}	Error Messa	jes		
▽ 🍃 WebContent	addressline1 *	#{customersHome.instance.ad	dressline1}	Error Messa	jes l		
Þ 🗁 img	addressline2 *	#{customersHome.instance.ad	dressline2}	Error Marcov	 		
👂 🚌 layout	addressmith			Endimessa			-
META-INF	city *	#{customersHome.instance.ci	¥}	Error Messa	ges		
Stylesheet	state *	#{customersHome.instance.st	ite}	Error Messag	jes		
WEB-INF	postalcode *	#{customersHome.i}	r Messages				
🐱 Customers.page.xml	country *	#{customersHome.instance.co	untry}	Error Messar	185		
🚘 Customers.xhtml	creditlimit *	#/customersHome instand	[
🗟 CustomersEdit.page.xml	* required fields	a feastancistantine anstance	Error Messages				
🔂 CustomersEdit.xhtml							
🐱 CustomersList.page.xml	Save Save I	Delete Done Cancel					
📾 CustomersList.xhtml	empioyees orderses	s paymentses					-
😸 Employees.page.xml	No employees						
im Employees.xhtml	employeenumber	r lastname	firstname	extension	email	officecode	
😸 EmployeesEdit.page.xml	#(employees.employeer	number} #{employees.lastname}	#{employees.firstname}	#{employees.extension}	#{employees.email}	#{employees.officecode	17
📾 EmployeesEdit.xhtml	Select employees						
🐱 EmployeesList.page.xml	<					>	, '
Employant ist shtml	Visual/Source Source Pre	view					-

Figure 12.19. Entities Web Pages

• And under src folder java classes are created.



Figure 12.20. 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 12.21. 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 12.22. Mapping Diagram

• 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.



Figure 12.23. 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.

13.1. 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 13.1. 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	
 <u>Manually define a new server</u> 	
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	
⑦ < Back Next > Finish Can	icel

Figure 13.2. Select a Server

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



Figure 13.3. 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://</u> localhost:8080/crudapp/home.seam).

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

				rudapp - Mozilla Firefox				
<u>E</u> dit <u>V</u> iew Hi <u>s</u> to	ry <u>B</u> ookr	narks <u>T</u> oo	ls <u>H</u> elp					
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Figure 13.4. Employees List Page

Use Employees search parameters fields to filter the selected list.

Press Select opposite one of employees.

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Employees		
employeenumber	1002	
lastname	Murphy	
firstname	Diane	
extension	×5800	
email	dmurphy@classicmodelcars.com	
officecode	1	
reports to		
jobtitle	President	
Edit Done		
customerses		
There are no customerse	es associated with this employees.	
Add customers		
	Powered by <u>Seam</u> . Generated by seam-gen.	
Done		*

Figure 13.5. Employee details Page

Press Edit to edit employee fields.

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

2	crudapp - Mozilla Firefox					
<u>File Edit ⊻iew His</u> tory	<u>B</u> ookmarks <u>T</u> ools <u>H</u> elp					
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 Please log in first 						
Login						
Please login here						
Username	crudapp-user					
Password	••••					
Remember me	×.					
Note - You may login using any username/password combination.						
Login						
Powered by <u>Seam</u> . Generated by seam-gen.						
Done		*				

Figure 13.6. Login page

e	crudapp - Mozilla	a Firefox		
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Welcome.crudapp-user				
Edit Employees				
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firstname * Mary				
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email *				_
dmurphy@classicmodelcars.com				
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- required fields				
Save Delete Done				
customerses				
There are no customerses associated with this e	nployees.			
Add customers				
				~
Done				*

Figure 13.7. 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.

14.1. 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]

14.2. 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 TestNG</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]
14.3. 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 14.1. Seam-test Project

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



Figure 14.2. 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
0	<u>E</u> inish Cancel

Figure 14.3. 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 14.4. Created Action

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



Figure 14.5. Running TestNG

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

🖹 Problems 🖉 Tasks 🛞 Seam Components 😲 JBoss Server View 👯 Servers 📭 TestNG 🗳 Console 🛛 🧧	٥				
<terminated> test-src.org.domain.seamProject.test.ActionLocalTest.xml [TestNG] /usr/java/jdk: 🝵 🗰 🍇 🙀 👪 🕼 🕼 🕼 🕼 🕼</terminated>	•				
01:14:42,614 INF0 [Lifecycle] starting up: org.jboss.seam.ui.graphicImage.dynamicImageResource 01:14:42,615 INF0 [Lifecycle] starting up: org.jboss.seam.debug.hotDeployFilter 01:14:42,616 INF0 [Lifecycle] starting up: org.jboss.seam.servlet.multipartFilter 01:14:42,617 INF0 [Lifecycle] starting up: org.jboss.seam.servlet.redirectFilter 01:14:42,618 INF0 [Lifecycle] starting up: org.jboss.seam.servlet.redirectFilter 01:14:42,620 INF0 [Initialization] done initializing Seam 01:14:43,032 INF0 [ActionBean] Action.actionMethod() action called 01:14:43,058 INF0 [Ejb] stopping the embedded EJB container	•				
PASSED: test ActionLocal Test Tests run: 1, Failures: 0, Skips: 0 ActionLocal Tests					
Total tests run: 1, Failures: 0, Skips: 0					

Figure 14.6. 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.

🕢 Tasks 🛞 Seam Components 😥 JBoss Server View 🏘 TestNG 🕴	📮 Console 🛛 🕀	û 💊 🧐	
Tests: 1/1 Methods: 1/1 (15317 ms) Dasse	d: 1 🗳 Failed: 0	Skipped: 0	
E ^t All Tests 2 Failed Tests	E Failure Exception		67
🗢 猗 ActionLocal Tests (1/0/0/0)			
▽ 🛃 ActionLocal Test (1/0/0/0)			
😹 org.domain.seamProject.test.ActionLocalTest.test			

Figure 14.7. Viewing the Test Results

You can see the test results in Web Browser.

😢 Test results - Mozilla Firefox 📃 🗆 🗙					
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Test results					
Suite	Passed	Failed	Skipped	testng.xml	
Total	1	0	0		
ActionLocal Tests	1	0	0	Link	
Done 😽					

Figure 14.8. Test Results in Browser

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



Figure 14.9. Test Information

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

😺 Results for ActionLocal Tests - Mozilla Firefox 💶 🗖 🗙						
<u>File E</u> dit <u>V</u> iew Hi <u>s</u> tory <u>B</u> ookmarks <u>T</u> ools <u>H</u> elp						
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🛅 Most Visited 🛩 🎓 Smart Bookmarks 🛩 🌩 Getting Started 🔝 Latest Headlines 🛩						
Results for	ActionLocal Test					
ActionLocal Tests	Tests passed/Failed/Skipped:	: 1/0/0				
1 test 1 class 1 method:	Started on:	Tue Dec 02 15:40:31 EET 2008				
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 o	class name)				
	PASSED TESTS					
	Test method	Time (seconds)				
	test_actionMethod	0				
file:///root/workspace/seamproject-test/test-output/ActionLocal Tests/ActionLocal Test.html						

Figure 14.10. 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.

FAQ

15.1. 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>.

15.2. 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*.

15.3. How to change the deploy folders for Seam source code from src/hot and src/main?

You should right-click the project, select *Properties > Java Build Path*, then switch to the *Source tab*, select the output folder for *src/hot* (*src/main*) and click *Edit* to change their output location.

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 the article <u>Overview of the improvements required</u> by JBossTools/JBDS Docs users [http://wiki.jboss.org/wiki/JBossToolsDocsFuture].

A set of movies on Seam tooling is available on <u>Seam movies page</u> [http://docs.jboss.org/tools/ movies].