# JBoss Server Manager Reference Guide

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# **Quick Start with JBoss Server**

This chapter covers the basics of working with the JBoss server. If you already have installed JBoss server and runtime you can quickly learn how to configure, start, stop the server, to know deployment and archiving processes. How to install runtimes and servers read in the *Runtimes and Servers in the JBoss AS plugin* chapter.

To start working with JBoss AS, select a JBoss AS Perspective via *Window > Open Perspective > Other > JBoss AS*.

# 1.1. Starting JBoss server

Starting JBoss server is quite simple. You can control the server behaviour with the help of a special toolbar in the JBoss Server View where you could start it in a regular or debug mode, stop it or restart it, publish to the server.

🤪 JBoss Server View Σ	3 🕸	0	ø		P	٥
Server	State	Stat	us			
🤯 JBoss 4.2 Server	🚡 Stopped	Rep	ublis	sh		

#### Figure 1.1. JBoss Server Toolbar

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



Figure 1.2. Start JBoss Server

# **1.2. Stopping JBoss Server**

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

🤪 JBoss Server View Σ	3	莎	0	ø	<b>=</b>	- 0
Server	State		Stat	tus	Stop the	server
🤣 JBoss 4.2 Server	🖡 Started		Syr	nchro	onized	

#### Figure 1.3. Stop JBoss Server

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

Learn more about the JBoss Server View here.

# **1.3. Project Archiving**

JBoss Tools comes with our own archives tool. The Project Archives plugin consists primarily of a view to set up each packaging configuration (*Window > Show View > Other > JBoss Tools > Project archives*).

Right clicking in the Project Archives View you can create War, EJB War or EAR archive.

C Project archives 🛿	Ģ □ □
New Archive	🗔 WAR
	🗟 EJB JAR
	EAR
	🖀 jar

#### Figure 1.4. Archive Creating

Using the context menu on the item you can initiate a full build on archive, edit, delete or publish it.



#### Figure 1.5. Context Menu on the Item

Learn more about the Project Archives View here.

# **1.4. Deploying an Application to a Server**

There are two times to deploy your application:

- · While creating it
- After it already exists

When you create a new project (Seam, JSF or Struts) with the New Project or Import Project wizards, the one of wizards steps has a *Target Runtime* and *Target Server* sections. You can deploy the application through the appropriate selection in these sections.

New Seam Project	×
Seam Web Project	¢∉m
Create standalone Seam Web Project	E
Project name: SeamProject	
Project contents:	
☑ Use <u>d</u> efault	
Directory: /root/workspace/SeamProject Br	owse
-Target Runtime	
JBoss 4.2 Runtime	N <u>e</u> w
Target Server	
JBoss 4.2 Server	New
Configurations	
Default Configuration for JBoss 4.2 Runtime	•
A good starting for working with JBoss 4.2 Runtime runtime. Additional facets can later be instal add new functionality to the project.	lled to
(2) < <u>Back</u> <u>Next</u> > <u>Finish</u> C	ancel

# Figure 1.6. Runtime and Server Sections in the New Project Wizard

9	Import JSF Project	
Project Folders		
Select Project Fol	ders 😡	
		_
Web Root:*	/root/workspace/jsfProject/WebContent Change	
Source Folder	/root/workspace/jsfProject/JavaSource	
Classes Folder	e/jsfProject/WebContent/WEB-INF/classes	
Lib Folder	kspace/jsfProject/WebContent/WEB-INF/lib	
	Add Libraries	
Environment	JSF 1.1.02 - Reference Implementation	¢
Servlet Version:	2.4	•
Context Path*	jsfProject	
Runtime:*	JBoss 4.2 Runtime   New	
Target Server:	Ross 4 2 Server New	
	Select A	5
	Decelert	
	Deselect	AII
0	<pre>&lt; Back Next &gt; Enish Cance</pre>	1

#### Figure 1.7. Runtime and Server Sections in the Import Project Wizard

You can deploy an existing application to a server by right-clicking the target defined server in the JBoss Servers View and then selecting Add and Remove Projects from the context menu.

🤤 JBoss Server View Σ	3	莎	0	ø		60		3
Server	State		Stat	us				
🤯 JBoss 4.2 Server	🖡 Started	P	New	Serv	/er			
		×	Dele	te				
Modules		0	Rest	art				
i Event Log		莎	Deb	ug				
👂 🖹 XML Configuratio	n		Stop					
🗎 File Filters		P	Publi	sh				
🖄 Inactive Categori	es		Clea	n				
JMX Console		<i>بچ</i> ش	Twid Edit I	dle S	erve	er Conf	igura	tion
		R.	Add	and	Rem	iove	Proje	ects

#### Figure 1.8. Add and Remove Projects From the Context Menu.

If this application is not assigned to a server, it will be in the left-hand available projects list. Clicking on the Add > button will add it to the right-hand configured projects list and deploy the application to this server.

S Add	and Remove Projects
Add and Remove Project Modify the projects that are	configured on the server
Move projects to the right to	configure them on the server
<u>Available projects:</u>	<u>C</u> onfigured projects:
seam	Add > < Remove << Remove All
⑦ < <u>B</u> ack	k Next > Finish Cancel

#### Figure 1.9. Modifying The Projects that are Configured on the Server

Here, we have just performed the basic steps you should know to quick start with JBoss server. In fact, there are more functionalities which you can make use of. Further we will talk about them in detail.

# Runtimes and Servers in the JBoss AS plugin

In this chapter we will discuss how to install runtimes and servers.

First of all it's necessary to mention that the JBoss AS plugin makes use of WTP. This includes starting and stopping servers in run or debug mode. It also includes targeting WTP projects, such as Dynamic Web Projects, to certain server runtimes in order to ensure that the proper jars from a specific server are added to the project's classpath properly.

In order to get started creating, running, and debugging J2EE applications, we should create our runtime and server instances.

# 2.1. Runtimes

In JBoss Tools, the main purpose of Server Runtimes is to point to a server installation somewhere on disk. In our case, this will be a JBoss installation, and it can then be used for two primary purposes:

- it provides classpath additions to WTP projects that require them.
- for JBoss server at least, it provides information necessary for the starting and stopping of the server, it tells which jars to run and which configuration to use.

## 2.1.1. Installing a new Runtime

You can install runtimes into eclipse from the *Window > Preferences...* menu, and then select *Server > Installed Runtimes* from the categories available.



#### **Figure 2.1. Installed Runtimes**

From this preference page you can see all declared runtimes and their types as well. Figure above shows two declared runtimes that include a JBoss 4.2 instance. Here, it's possible to edit or remove existing runtimes as well as add a new one.

To create a JBoss runtime click *Add* button and choose a necessary type of runtime from the appeared dialog.

C New Server Runtime
New Server Runtime
Define a new installed server runtime environment
Runtimes are used at build time to compile projects.
Download additional server adapters
Select the <u>r</u> untime type:
type filter text
👻 💯 JBUSS, a UlVISION OF NEU Hat
🤪 JBoss 3.2 Runtime
🤪 JBoss 4.0 Runtime 📃
💱 JBoss 4.2 Runtime 📃
🤪 JBoss 5.0 Runtime
🤪 JBoss Deploy-Only Runtime
b. Ca Macromodia
JBoss Application Server 4.2
⑦ < Back Next > Einish Cancel

#### Figure 2.2. Adding a Runtime

As you can see, JBoss Tools provide its own adapters such as JBoss 3.2, 4.0, 4.2 and 5.0 as well. The last one comes with its own new feature, that is a safer incremental deployment, which prevents partial deployments to be picked up by the server. It means that scanning for autodeployment is suspended while files are being copied to the deployment location and resumed when the copy is completed.



You'll also note a Deploy-Only Runtime type. This type provides no classpath for WTP projects. It is used solely by its server type for the purpose of setting up a deploy directory for users who don't wish to make use of starting, stopping, or debugging their projects inside eclipse.

New Server Runtime
JBoss Runtime Wizard
A JBoss Server runtime references a JBoss installation directory. It can be used to set up classpaths for projects which depend on this runtime, as well as by a "server" which will be able to start and stop instances of JBoss.
Name
JBoss 4.2 Runtime 2
Home Directory
/opt/work/jbds_ga/jboss-eap/jboss-as Browse
JRE
jdk1.5.0_12 \$ JRE
Configuration
🦉 default
🛱 all
(?)     < Back

## Figure 2.3. Adding a JBoss 4.2 Runtime

The following table describes all the available options of the wizard.

#### **Table 2.1. Server Runtime Wizard Parameters**

Name	Description
Name	The name of a new Runtime for a chosen server. We suggest that you don't leave a default value. It's better to give descriptive names that will
	neip to distinguish one runtime from another.
Home directory	The path to a directory where the runtime is installed.
jRE	The proper Java Runtime Environment. Because of the open-source nature of JBoss, a user is likely to want to modify and repackage some of the configuration-specific jboss jars and create their own configuration. Thus, rather than forcing you to copy his entire JBoss installation, the structure of the wizard allows to create only a new configuration instead.
Configuration	The list of configurations (all, default, minimal) that is updated as soon as you browse to a valid runtime installation folder. After the runtime is created the configuration becomes an unchanging property of that

Name	Description
	runtime. To compile against a different configuration's jars, you will need
	to create a new runtime from that configuration.

As a result of having each runtime represent a specific configuration rather than the server installation as a whole, it is very likely you'll create several different runtimes to test each of your configurations. It becomes important to ensure your runtimes, and later your servers, are given descriptive names that help you remember which is which.

Press Finish to see your new runtime in the list.

## 2.2. Servers

WTP servers are eclipse-representations of a backing server installation. They are used to start or stop servers, deploy to servers, or debug code that will run on the server. They keep track of the modules (jars, wars, etc) you deploy to the server and also allow you to undeploy those modules (see *Deploying with Run On Server Wizard* section).

Servers can be started or stopped with different *command-line arguments* [21]. They are often backed by a runtime object representing that server's location.

### 2.2.1. Creating a New Server

There are many ways to get to the new server wizard. One way is to use the old standard *File > New > Other...* and then *Server*. This should show the wizard like below.

•		New Serv	/er	×
Define a New S	Server			
Choose the type	of server to create	•		
				Lund
Server's <u>h</u> ost nar	me: localhost			•
			Download	additional server adapters
Select the server	r type:			
type filter text				
▽ 🗁 JBoss, a di	vision of Red Hat			
🖓 JBoss A	S 3.2			
🤪 JBoss A	S 4.0			
🤣 JBoss A	S 4.2			=
🤪 JBoss A	S 5.0			
🤪 JBoss D	eploy-Only Server			
Acromed Macromed	dia			
Doog Application	Conver 4 D			•
JBoss Application	1 Server 4.2			
Server <u>r</u> untime:	JBoss 4.2 Runtime	1		Installed Runtimes
	JBoss 4.2 Runtime	1		
2	ſ	< Back	Next >	Finish Cancel
Ū	l	- gasn	Teur b	

#### Figure 2.4. Adding a JBoss Server

A server object is that keeps track of things like command line arguments when starting or stopping, and runtimes keep track of the location of the installation. Thus, each server instance must be backed by an appropriate runtime.

From the list of already declared runtimes in the combo box below the view it's possible to select which runtime you want your server to be backed by. If there is no runtime that matches your needs just press *Installed Runtimes...* to bring up the familiar preference page like in *the previous section*. Here, it becomes possible to edit already existing runtime or add a new one with necessary configuration.

8	Preferences (Filt	ered)	×		
type filter text	Installed Server Runt	ime Environments	(> <b>▼</b> <} <b>▼</b>		
▽ Server	Add, remove, or edit installed server runtime definitions.				
Installed Runtimes	Installed server runtimes				
	Name	Туре	<u>A</u> dd		
	🤪 JBoss 4.2 Runtime	JBoss 4.2 Runtime	Edit		
	JBoss 4.2 Runtime 1	JBoss 4.2 Runtime			
			<u>Remove</u>		
			Search		
< III •					
2		ОК	Cancel		

## Figure 2.5. Installed Server Runtime Environments

If the server you want to create doesn't have any installed runtime yet, the combo box and button will disappear.

0	New Server X
Define a New Server	
Choose the type of server to creat	te
Server's host name: localhost	•
	Download additional server adapters
Select the server type:	
type filter text	
* <u>* * 1011</u>	
JBoss AS 3.2	
🤪 JBoss AS 4.0	
🤣 JBoss AS 4.2	=
🤪 JBoss AS 5.0	
🤪 JBoss Deploy-Only Server	r 🗕
👂 🗁 Macromedia	
Boss Application Server 4.2	
Jooss Application Server 4.2	
0	< Back Next > Finish Cancel

#### Figure 2.6. Installed Server Runtime Environments

In this case the next page in the wizard which has the same form as in *the previous section* will ask you to create the associated runtime.

Either way, after targeting your server to a runtime, the final screen in this wizard is largely confirmational, giving you a chance to verify that you've selected the appropriate runtime. It also allows to name the server appropriately.

reate a new JBoss Server            JBoss Server manages starting and stopping instances of JBoss.          manages command line arguments and keeps track of which modules have been deployed lame          JBoss 4.0 Server         Runtime Information         If the runtime information below is incorrect, please press back, Installed Runtimes, and then Add to create a new runtime from a different location.         Home Directory /opt/work/jboss-4.2.0.GA         JRE       /usr/java/jdkl.5.0_12 (jdkl.5.0_12)         Configuration       all         .ogin Credentials         MX Console Access         User Name         Deploy Directory /opt/work/jboss-4.2.0.GA/server/all/deploy       Browse         ?       < Back       Next >       Enish       Cancel	)	New Server	[
JBoss Server manages starting and stopping instances of JBoss.         manages command line arguments and keeps track of which modules have been deployed         Jame         JBoss 4.0 Server         Runtime Information         if the runtime information below is incorrect, please press back, Installed Runtimes, and then Add to create a new runtime from a different location.         Home Directory /opt/work/jboss-4.2.0.GA         JRE       /usr/java/jdk1.5.0_12 (jdk1.5.0_12)         Configuration       all         .ogin Credentials         JMX Console Access         User Name         Deployment         Deploy Directory /opt/work/jboss-4.2.0.GA/server/all/deploy         Browse	reate a nev	JBoss Server	S
JBoss 4.0 Server Runtime Information If the runtime information below is incorrect, please press back, Installed Runtimes, and then Add to create a new runtime from a different location. Home Directory /opt/work/jboss-4.2.0.GA IRE /usr/java/jdk1.5.0_12 (jdk1.5.0_12) Configuration all .ogin Credentials IMX Console Access User Name Password Deploy Directory /opt/work/jboss-4.2.0.GA/server/all/deploy Browse  7	A JBoss Serve t manages co Name	manages starting and stopping instances of JBoss. mmand line arguments and keeps track of which modules have been deploye	d.
Runtime Information         If the runtime information below is incorrect, please press back, Installed Runtimes, and then Add to create a new runtime from a different location.         Home Directory /opt/work/jboss-4.2.0.GA         IRE       /usr/java/jdk1.5.0_12 (jdk1.5.0_12)         Configuration       all         .ogin Credentials         IMX Console Access         User Name         Password         Deploy Directory /opt/work/jboss-4.2.0.GA/server/all/deploy         Browse	JBoss 4.0 Se	ver	٦
If the runtime information below is incorrect, please press back, Installed Runtimes,   and then Add to create a new runtime from a different location.   Home Directory /opt/work/jboss-4.2.0.GA   JRE /usr/java/jdk1.5.0_12 (jdk1.5.0_12)   Configuration all   .ogin Credentials   JMX Console Access   User Name   Password   Deploy Directory   /opt/work/jboss-4.2.0.GA/server/all/deploy   Browse	Runtime Infor	mation	1
Home Directory /opt/work/jboss-4.2.0.GA   JRE   /usr/java/jdk1.5.0_12 (jdk1.5.0_12)   Configuration   Configuration   all   .ogin Credentials   JMX Console Access   User Name   Password   Password   Deploy Directory   /opt/work/jboss-4.2.0.GA/server/all/deploy   Browse     ?     < Back	If the runtime and then Add	information below is incorrect, please press back, Installed Runtimes, to create a new runtime from a different location.	
JRE       /usr/java/jdk1.5.0_12 (jdk1.5.0_12)         Configuration       all         Login Credentials	Home Direct	ry /opt/work/jboss-4.2.0.GA	
Configuration       all         Login Credentials       JMX Console Access         JMX Console Access       User Name         Password	JRE	/usr/java/jdk1.5.0_12 (jdk1.5.0_12)	
Jogin Credentials         JMX Console Access         User Name         Password         Password         Deployment         Deploy Directory /opt/work/jboss-4.2.0.GA/server/all/deploy         Browse         ?         < Back         Next >         Einish         Cancel	Configuration	all	
JMX Console Access User Name Password Deployment Deploy Directory /opt/work/jboss-4.2.0.GA/server/all/deploy Browse	Login Creden	tials	
User Name Password Deployment Deploy Directory /opt/work/jboss-4.2.0.GA/server/all/deploy Browse           ?       < Back	JMX Console	Access	
Password Deployment Deploy Directory /opt/work/jboss-4.2.0.GA/server/all/deploy Browse           ?       < Back	User Name		
Deployment         Deploy Directory /opt/work/jboss-4.2.0.GA/server/all/deploy Browse         ?         < Back Next > Finish Cancel	Password		
Deploy Directory     /opt/work/jboss-4.2.0.GA/server/all/deploy     Browse       ?     < Back	Deployment		
?         < Back	Deploy Direc	tory (opt/work/iboss-4.2.0.GA/server/all/deploy) Browse	
⑦ < Back Next > Finish Cancel	Deploy Direc	biy [optition]0003 4.2.0.000 civer/dividebioy]	
⑦ < <u>B</u> ack <u>N</u> ext > <u>F</u> inish Cancel			
⑦ < Back Next > Finish Cancel			
O         < Back         Next >         Finish         Cancel			
	0	< Back Next > Finish Cancel	

## Figure 2.7. Installed Server Runtime Environments

Press *Finish* to complete the process of the server creation.

Now that we've created our runtimes and servers, we can dwell on all services and tools that JBoss Server Manager provides.

# **JBoss AS Perspective**

This chapter tells how to manage installed JBoss Servers via JBoss AS Perspective.

The JBoss AS Perspective is similar to the Java Perspective, but it contains a few additional views. Two of the additional views are standard views, specifically the Console View and the Properties View. The other two views that are added are the Project Archives View and the JBoss Server View.

# 3.1. The JBoss Server View

Let's have a look at the JBoss Server View and inspect in detail all parts it consists of.

The JBoss Server View is based on the WTP view, Server View. The top part of the JBoss Servers View essentially embeds the original Server View directly into it, making slight changes to the context menu. A second part was added to provide additional information about the server selected in the top part.



#### Figure 3.1. The JBoss Server View

The view's toolbar provides quick access to starting a server (in debug mode, run mode, or profile mode), restarting a server, stopping a server, or publishing to a server.



#### Figure 3.2. The JBoss Server View Toolbar

In order to debug your applications or EJB's that are deployed to the server, you must start the server in debug mode. By starting the server in debug mode, eclipse will allow you to set breakpoints on code in your workspace and step through the code.

The publish icon on the extreme right will republish any modules where it has determined the workspace is out of sync with the server. It will attempt to do an incremental publish if it turns out that the module in question is capable of doing one.

Now, let's get to know with both of the JBoss Server View parts.

## 3.1.1. Top Part of the JBoss Server View

In the top part of the JBoss Server View all declared servers are represented as well as their current states, that is, whether they are started or stopped.

🖹 Proble 🛛 🖉 Tasks 🛞	Seam 📿 JBo	ss 🖾 📮 Consol 🗖 🗖
		🎋 🚺 🖉 📕 🔛
Server	State	Status
🤯 JBoss 4.2 Server	🖡 Started	Republish

#### Figure 3.3. Server Publish Status

The top part also shows the server's publish status. The fallowing table lists possible statuses.

#### Table 3.1. Server Publish Status

Status	Description
Republish	The status which allows you to see if changes are awaiting
Publishing	The status which shows if changes are being updated
Synchronized	The status which allows you to see if changes are in-sync

By double-clicking on any server, an editor window will appear allowing you to edit parts of that server. On the figure you can see that a username/password is available in the UI when configuring the server. If you get an SecurityException when trying to launch the server, it is most likely because your server is protected and hence you need to fill the username/password fields with appropriate values.

poss Applicau	on Server 4.2 🛿		
Overview			
General Infor	mation	Automatic Publishing	
pecify the hos	t name and other common settings.		
Server name:	JBoss Application Server 4.2		
Host name:	localhost		
Runtime:	¢ Edit		
Open launch	configuration		
Deploymen The temporary	t deployment location is where files will efore being renamed into the deploy directory.		
Deploymen The temporary be copied to be This folder sho as the deploy f Deploy Directo	t deployment location is where files will efore being renamed into the deploy directory. uld be on the same file system 'older.		
Deploymen The temporary be copied to be This folder sho as the deploy f Deploy Directo Temporary Dep	t deployment location is where files will efore being renamed into the deploy directory. uld be on the same file system older. ry /opt/work/rhds_rc1/jboss-ea Browse bloy Directory /opt/work/rhds_r Browse		
Deploymen The temporary be copied to be This folder sho as the deploy f Deploy Directo Temporary Dep      Login Cred	t deployment location is where files will efore being renamed into the deploy directory. uld be on the same file system 'older. 'ry /opt/work/rhds_rc1/jboss-ea ploy Directory /opt/work/rhds_r Browse entials		
Deploymen     The temporary     be copied to be     This folder sho     as the deploy f     Deploy Directo     Temporary Dep     Login Cred     Set the login ar	t deployment location is where files will efore being renamed into the deploy directory. uld be on the same file system older. "Y /opt/work/rhds_rc1/jboss-ea Dioy Directory /opt/work/rhds_r Browse entials and password for your server.		
Deploymen The temporary be copied to be This folder sho as the deploy f Deploy Directo Temporary Dep      Login Cred Set the login ar This will ensure	t deployment location is where files will efore being renamed into the deploy directory. uld be on the same file system folder. dry /opt/work/rhds_rc1/jboss-ea Browse bloy Directory /opt/work/rhds_r Browse entials ad password for your server. a it starts and stops properly.		
Deploymen     The temporary     be copied to be     This folder sho     as the deploy f     Deploy Directo     Temporary Dep     Login Cred     Set the login ar     This will ensure     User Name	t deployment location is where files will efore being renamed into the deploy directory. uld be on the same file system older. "Ty /opt/work/rhds_rc1/jboss-ea Browse ploy Directory /opt/work/rhds_r Browse entials ad password for your server. a it starts and stops properly.		
Deploymen The temporary be copied to be This folder sho as the deploy f Deploy Directo Temporary Dep      Login Cred Set the login ar This will ensure User Name Password	t deployment location is where files will efore being renamed into the deploy directory. uld be on the same file system folder. TY /opt/work/rhds_rc1/jboss-ea ploy Directory /opt/work/rhds_r Browse Browse entials ad password for your server. a it starts and stops properly.		

#### Figure 3.4. Preferences Page for the Chosen Server

The editor will also allow you to modify that server's launch configuration. It's just after clicking *Open launch configuration* link. In the open window there are the tabs for setting command line arguments and other things that are relevant to launching the server.

	Properties for JBoss 4.2 Server
it launch cor low is the laun your server is	nfiguration properties the configuration properties for starting, stopping, and polling JBoss Servers for their status. Secure, you will want to ensure the appropriate password parameters are passed in.
ame: JBoss 4	.2 Server
Arguments     Program arguing	Classpath 🦗 Source 🚾 Environment 🛋 JRE 🔲 <u>C</u> ommon
configuratio	n=default
	Varjables
VM arguments	5:
-Dprogram.na Djava.net.pre	ame="JBossTools JBoss 4.2 Runtime" -Xms256m -Xmx512m -XX:MaxPermSize=256m - ferIPv4Stack=true -Dsun.rmi.dgc.client.gcInterval=3600000 -
	Variable <u>s</u>
Working direct	tory:
O Defa <u>u</u> lt:	/opt/work/jbds/eclipse
Other:	/opt/work/jbds/jboss-eap/jboss-as/bin
	Workspace [File System] Variables
	Appl <u>y</u> Re <u>v</u> ert
D	OK Cancel

#### Figure 3.5. Launch Configuration Properties

Look up *here* [http://docs.jboss.org/jbossas/guides/installguide/r1/en/html/start-stop.html] to find parameters which can be specified for JBoss Server.

As the JBoss Servers have few properties to modify in this editor, a shortcut to the launch configuration has been provided in the context menu when right-clicking on a server.

🤪 JBoss Server Vie	w 🕄 📮 Consol	e	莎	0	${\rm I}^{\rm e}$	ŧ0	- 0
Server	State	Status					
🤯 JBoss Applica	🕆 New Server					 	
🤮 JBoss 4.2 Ser	X Delete		ed				
	🚺 Start						
	🏇 Debug						
	Stop						
👂 🛅 Modules	🗐 Publish						
i Event Log	Clean						
XML Configur	🐔 Twiddle Server						
interniters	i Edit Launch Co	nfiguration					
🕲 Inactive Cate	늘 Add and Remo	ve Projects					
JMX Console							

## Figure 3.6. Launch Configuration

The following table describes all these additional properties.

Name	Description
New Server	The option allows to define a new server
Delete	Standard option that allows to delete the chosen server
Start	The action for stating a server in a run mode
Debug	The action for stating a server in a debug mode
Stop	The action for stopping a declared server
Publish	The action for synching the publish information between the server and workspace
Clean	The option for complete redeploying the resources
Twiddle Server	The option provides a dialog for running Twiddle commands against the Twiddle Server
Edit Launch Configuration	The option that provides an editor for editing launch configuration properties of the proper server
Add and Remove Projects	The option allows to publish a new project to the server (if its type is supported)

Mentioned above Twiddle is a JMX library that comes with JBoss, and you can use it to access any variables that exposed via the JBoss JMX interfaces.

## 3.1.2. Bottom Part of the JBoss Server View

Here, we dwell on the bottom part of the JBoss Server View.

First, we should say that the bottom part is meant to provide additional functionality relevant to the server selected in the top part of the view. If a standard server element is selected from above, some of the extensions may still provide the additional information. Others may not. So, let's look at the currently available extensions to the bottom part of the JBoss Server View.

Þ	🙍 Modules
	i Event Log
Þ	XML Configuration
	🔒 File Filters
	🔯 Inactive Categories
	JMX Console

#### Figure 3.7. View Extensions

In order to access the view's preferences, you should access *Window > Preferences > JBoss Tools > JBoss Servers > View*. This preference page allows you to select which view extensions you want on or off, the order they appear in the view, as well as any other extension-specific preferences that may be available.



Figure 3.8. View Preferences

The first view extension is *Modules* section. It shows which modules are currently deployed to the server, and allows you to remove them from the server, or force a full republish upon them. It only shows which modules have been deployed through Eclipse, not any and all modules that happen to be in the deploy directory.



#### Figure 3.9. Modules Action

The *Event Log* will show relevant information to your server's startup, shutdown, and publish processes. This allows you to keep an eye on what's going on (such as automatic incremental deployment if you have it enabled). The only action available is to clear the *Event Log*. However, if the Properties View is opened, you can receive further information on each *Event Log* item (when available).



Figure 3.10. Event Log Actions



#### Figure 3.11. Stopping the Server

The *XML Configuration* category allows you to quickly browse to descriptor files in your server's deploy directory and check or change the values. Its use requires the Properties view. Basically, *XML Configuration* includes XML XPaths where a xpath is a path used to access some specific part of an xml document.



Figure 3.12. XML Configuration and Properties View



#### Note

You are assumed to be familiar with XPath. If not, we highly suggested that you look through an appropriate manual or tutorial on the topic.

The *XML* Configuration category itself contains only a list of categories. *Ports* are provided by default and is filled with many of the most commonly used ports in the JBoss Server. In the Properties view you can see an identifier and nested files underneath in which that xpath can be found as well as its current value. The details of the xpath are hidden as all you need to see is only which file you're referring to and what its current value is.

By right-clicking on *XML Configuration*, you can create a new category. Besides, context menu for *XML Configuration* category makes possible to disable it. You can disable any category in the bottom part of the *JBoss Server View*. Look for them in the *Inactive Categories* afterwards to re-enable.



#### Figure 3.13. Adding New Category

By right-clicking on *Ports* or any other category in *XML Configuration*, you can create a new xpath.

🤪 JBoss Server	View 8	3 🚜 Serve	ers 📮	Con	sole	0	- 0
			湬	0	ø		60
Server		Status	Statu	IS			
🥔 JBoss 4.2	Server	🚡 Stopped	Sync	:hror	nized		
Modules							
i Event Log	,						
🗢 🖹 XML Conf	iguratio	n					
😑 Ports							
🗟 File Filters	New X	Path					
🖄 lnactive (	Remov	/e Category					
👂 🏭 JMX Cons	Refres	h ltern					
							_
						_	

#### Figure 3.14. Adding New XPath

After that, the dialog shown below will appear.

9	New XPath
An XPath is a way This dialog will he by using the JBoss	to find a specific XML element inside an xml file. p you create one. These XPaths' values can then be modified s Servers View with the Properties View.
Name:	test
XPath Pattern:	
Attribute Name:	
Location	Value
	OK Cancel Preview

#### Figure 3.15. Adding New XPath

The goal here is to get an end result where the XPath matches up with a necessary property. With that in mind, let's look how it works. If the property you want to reach is the value of the *name* attribute in the element *<mbean>*, then your *XPath Patten* should end with *mbean* and your *Attribute Name* should be *name* like on the next figure.

<server></server>
<pre></pre>
Inline XMBean Descriptor BEGIN
<mbean></mbean>
<description></description>
The EJBDeployer responsible for ejb jar deployment

٢	New XPath	×
An XPath is a way This dialog will hel by using the JBoss	to find a specific XML element inside an xml file. p you create one. These XPaths' values can then be modified s Servers View with the Properties View.	
Name:	test	
XPath Pattern:	server/	
Attribute Name:	server/classpath	
Location	server/loader-repository	
Locadon	server/mbean	
	1	

#### Figure 3.16. XPath Preview



Then, on the other hand, if your desired field is the text of an element *<description>*, your *XPath Patten* should end with *description* and *Attribute Name* field should be left blank. When finished, click *Preview* to see how many matches you have for that particular XPath.

۹	N	ew XPath X
An XPath is a way This dialog will hel by using the JBoss	to find a specific XML eler ip you create one. These X servers View with the Pro	nent inside an xml file. Paths' values can then be modified perties View.
Name:	test	
XPath Pattern:	server/mbean[@name='j	boss.ejb:service=EJBDeployer']/xmbean/description
Attribute Name:		
Location		Value
/deploy/ejb-de	ployer.xml	The EJBDeployer responsible for ejb jar deployment
/tmp/deploy/tr	np34942ejb-deployer.xml	The EJBDeployer responsible for ejb jar deployment
		OK Cancel Preview

#### Figure 3.17. XPath Preview

As part of the JBoss Server View there is a *JMX Console* section which allows you to browse and use the JMX exposed beans on the server.

Properties 🕅				· 🗆	🖹 Prol	ble	🙆 Tasks	💿 Seam C 😯	JBoss S 🖾		Console	
Attributes			\$							<b>炒 (</b>		<b>e</b> (P
for MBean jboss.depk	oyment.flavor=URL,type=Deplo	ymentScann	er (15 operations, 10 attributes	0	Serve	er		State	Status			
Name	Туре	Acces	Value	Â	Q.	JBos	ss Applicatio	on 🖡 Started	Synchron	ized		
URLCompar	java.lang.String	RW	org.jboss.deploymen									
Filter	java.lang.String	RW	org.jboss.deploymen									
StateString	java.lang.String	R	Started									
State	int	R	3	=	▽ 🚻	јмх	Console					-
StopTimeOu	long	RW	60000		Þ	jt	boss.consol	e				=
ScanEnable	boolean	RW	true		~	jt	boss.deploy	ment				
URLList	java.util.List	RW	[file:/opt/work/rhds_re			~	flavor=UF	RL.type=Deploy	mentScanne	r		
RecursiveSe	boolean	RW	true	H			<ul> <li>Attribut</li> </ul>	tes				
Name	java.lang.String	R	URLDeploymentScan	•			susper	ndDeployment				
4	III		•				start					

#### Figure 3.18. JMX Console

#### 3.1.2.1. Relevant Resources Links

Find more about XPath in the XPath Documentation [http://www.w3.org/TR/xpath20/].

# **3.2. Project Archives View**

Every application, whether Plain Old Java, J2EE, or some other language altogether, needs to be packaged in some way. In Java-related projects, many people use ANT. JBoss Tools comes with our own Archives tool with a bit easier and less-verbose XML and a handy user interface. The Project Archives plugin consists primarily of a view, that is Project Archives View, to set up each packaging configuration.

So far, let's look through all functionality that the Project Archives View provides.

### 3.2.1. Overview

The packaging configuration for each project is stored in the project's root folder, and is in a file named *.packages*, which has a fairly simple XML structure. Modifying the file by hand is neither required nor recommended, and using the UI is the official way of modifying your packaging structure.

🖹 Problems 🗇 Project archives 🕴 梯 Servers	6	- 8
🗢 🣋 seam.jar		
▽ 🗁 testFolder		
📋 inner.jar		

#### Figure 3.19. Archives View

A project's configuration contains archives. On the image above there is only one archive, but a project can contain many. Inside the archive folders (testFolder), filesets, or other internal archives can be located. Internal archives and filesets may be directly inside of an archive, or in some sub-folder of that archive.

In the upper right corner of the view you can see an icon which, when clicked, will build the selected top-level archive. Additionally, you can select *Project > Build Packages* when a project is selected in the Packages View to build all declared packages in that project's *.packages* file. This will execute a full build on all declared archives.

## 3.2.2. Creating an Archive

When creating a new archive, you have some different options at your disposal. If the project has no *.packages* file, your options will be presented to you all at once to choose from. Otherwise you will right-click inside the view and select *New Archive* to see your archive type options.



#### Figure 3.20. Create an Archive

JAR is the standard archive type, and does very little configuration, leaving most of the work up to you. You can customize the name, add folders, filesets, and inner jars to it.

The other types, for the most part, simply start off with a default setting, usually the jar with some specific children based on an expected structure of the project. For example, if the project is a Dynamic Web Project, and you create a WAR archive, the archive will be created with a few filesets relevant to the known structure of the project.

Here is the first page of all New archive wizards. It is the same for any archive type and the only page in the New Jar Wizard.

New WAR	×
Create a new archive	
Create a new archive consisting of filesets in the workspace.	
Archive information	
Archive name: 📋 SomeProject.jar	
Destination: 🔄 SomeProject Workspace Filesystem	
Archive type	
Standard archive using zip compression	
<ul> <li>Exploded archive resulting in a folder (no compression)</li> </ul>	
< Back	

#### Figure 3.21. New JAR Wizard

The page is pretty simple. All it asks for is the name of your new archive, a destination, which we'll get to in a moment, and whether the archive is exploded or packaged up.

The destination of an archive can be anywhere on the filesystem, anywhere in the workspace, inside some other archive, or inside a folder declared inside an archive. You can browse to workspace or filesystem destinations by clicking on their respective buttons. To select a destination inside some other archive, you'll need to press the *Workspace...* button. At the bottom of the list, you'll see archives that have been declared in the workspace.

#### 3.2.2.1. Creating a Folder

Creating a folder is much easier. You simply right-click on an archive or folder you want your new folder to be a child under. The only piece of required information is naming the file.

#### 3.2.2.2. Creating a FileSet

To create a new fileset, you click on an available target location such as an archive, a nested archive, or a folder within an archive, and select *New Fileset*.

The New Fileset Wizard requires a destination (where the files will go), and a root directory (or where the files are coming from). The source can be anywhere in the workspace or from the filesystem at large.

Fileset Wizard
New Fileset
Create a new fileset consisting of one or more files
Fileset information
Destination: 🗁 SomeWebProject.jar/testFok Workspace
Root project: 🗁 SomeWebProject
Root directory:
Workspace Filesystem
Fxcludes:
Preview
action.xhtml
error.xhtml
⑦ <u>F</u> inish Cancel

#### Figure 3.22. Adding a New FileSet

Below that, the fileset requires only an includes pattern and an excludes pattern. As you type in either of these fields, the preview viewer should update itself with which files are matched.

## 3.2.3. Archive Actions

🗂 Project archives 🛿		🔂 🗆 🗗
🗢 📋 SomeProject.jar		
▽ 🗁 NewFolder 📋 inner.jar	New Archive Comparison Polder New Fileset	
	Build Archive (Full)     Edit Archive     X Delete Archive     Publish To Server	

#### Figure 3.23. Context Menu on the Item

The context menu on the items in the view is extendable, but there are several that come standard.

#### Table 3.3. Context Menu on the Item

Name	Description					
Build Archive (Full)	The action enabled only on top-level archives, which initiates a full build on that archive					
Edit Archive	Standard action that brings up the wizard associated with that particular node type and allows the details to be changed					
Delete Archive	Deleting node is standard action with deletion not needing an explanation					
Publish To Server	The action means the ability to publish to a declared server					

## 3.2.4. Publishing to Server

Finally, you'll need to publish your application to a server. Here, we show you how to do it with the help of *Archives View*.

0		×
Publish a	rchive to a server	
Select the	e server to publish the archive to.	
	JBoss Application Server 4.2	
	Always publish to these servers	
	Auto-deploy to selected servers after builds	
0	Einish	Cancel

#### Figure 3.24. Context Menu on the Item

The dialog above appears after selecting *Publish To Server*. To simply publish once, you just select the server(s) that you want, and finish. If you want the *Publish to Server* action on that particular Archive to publish always to that set of servers, then check the appropriate checkbox. And finally, to enable automatic publishing upon build events, check the last checkbox.

The automatic publishing feature is nice if, for example, your package's destination (where it is built) is a temporary folder and you want the archive published to several servers. If you only really want your archive published to one server, it might be easier to have the archive's destination folder be the deploy folder of the server.

### 3.2.5. Relevant Resources Links

Refer to *Ant manual* [http://ant.apache.org/manual/index.html] to find more on how to build your applications with help of Ant.

At this point, you are guessed to be familiar with JBoss AS Perspective and your next step now is to explore how to work with different kinds of projects.

# **Projects**

The most popular of the projects we deal with are the J2EE ones, such as Dynamic Web Project, EJB Project, or EAR project. Web projects of JBoss Tools are Struts, JSF and Seam projects. All of them are called faceted projects. Thus, in this chapter we are going to tell you about facets the main benefit of which to provide proper structuring and packaging for any type of project.

# 4.1. Faceted Projects Overview

The idea behind faceted projects is that each project can accept units of functionality, or facets, which can be added or removed by the user. Most often, these facets either add to the project's classpath, enable a builder, or watch the project in some other fashion. Generally, every project concerned has at least one facet when it's created. As an example, a Web project has a WebDoclet facet, or an EJB Project has an EJB Module facet as prerequisites.

WTP projects have undergone some criticism as being *over-engineered* or too restrictive in their design. WTP projects are set up in a tree-relationship to each other, where one project can be a child of another. For example, an EAR project may have a Web Project child, an EJB project child, or other types.

However, the benefit of this is that the structure of your projects is then known, and packaging it up \*should\* be trivial. Apparently, if your project is non-standard, or you feel too confined by such rigid structural requirements, you can still choose to package your project using the *Archives plugin*.

# 4.2. Adding Facets to a Project

There are two ways to add facets to a project. The first way is to include facets into already existing project. For that you should bring up the context menu for selected project and click *Properties*. At this point, choose *Project Facets* from the left. It will represent a list of the facets for your project and give opportunity to modify it by clicking on *Modify Project...* button.

Properties for SomeWebProject					
type filter text	Project Facets		() ¥ () ¥		
Resource	Project Facet	Version			
Beaninfo Path	Dynamic Web Module	2.5			
Builders	Java	6.0			
FreeMarker Context					
Hibernate Settings					
J2EE Module Dependen					
Java Build Path					
Java Code Style					
Java Compiler					
Java Editor					
Javadoc Location					
JSP Fragment					
Packaging Archives					
Profile Compliance and					
Project Facets					
Project References					
Run/Debug Settings					
Seam Settings					
Server					
Targeted Runtimes					
Task Tags					
TestNG					
Validation					
Web Content Settings					
Web Project Settings					
XDoclet					
XDoclet Configurations		Mo	dify Project		
0		ОК	Cancel		

### Figure 4.1. Adding Facets to the Existing Project

The other way is adding necessary facets while organizing a new project. To demonstrate it let's create a new Dynamic Web Project selecting as usual *File > New > Other...* and then *Web > Dynamic Web Project*.

🖨 New	×
Select a wizard	
Create a Dynamic Web project	
Wizards:	
type filter text	
v 🦢 seam	
Server	
Spring	
SQL Development	
👂 🗁 User Assistance	
🗢 🗁 Web	
S CSS	=
🎇 Dynamic Web Project	-
6 HTML	
	Enich Cancel
C Sack Rex	Cancer

# Figure 4.2. New Dynamic Web Project

Click Next and you will see Dynamic Web Project page.

create a standal interprise Applic	one Dynamic Web project or add it to a new or exist ation.	ting 🔣
Project name:	SomeWebProject	
Project contents	:	
🗹 Use <u>d</u> efault		
Directory: /opt	work/workspace_jbds/SomeWebProject	Browse
Target Runtime		
JBoss 4.2 Runti	me	\$ N <u>e</u> w
Configurations		
Default Config	uration for JBoss 4.2 Runtime	\$
A good starting installed to add	for working with JBoss 4.2 Runtime runtime. Addition new functionality to the project.	al facets can later be
EAR Membershi	0	
Add project	to an EAR	
EAR Project Nar	DO EAR	Vew New

#### Figure 4.3. Faceted Project Wizard: First Page

The first page of most WTP projects allows you to target a specific runtime, representing a server's library location. It will also provide you the ability to add this project to an EAR project, and select a pre-selected default set of facets, called a configuration, rather than manually select each facet you might want.

Selecting the runtime, again, allows the project to install the proper classpaths to the project so it knows what code to compile against.

5	New D	ynamic Web Project	×
Project Facets Select the facets	s that should be enabl	ed for this project.	
Configurations:	Default Configuratio	n for JBoss 4.2 Runtime	Save Delete
Project Facet		Version	
🕨 🔲 🙆 Axis2 V	Veb Services		
🗹 💑 Dynam	ic Web Module	2.5	-
🗹 🔬 Java		6.0	-
🗌 🚸 Java Pe	rsistence	1.0	
🗆 📄 JavaSe	rver Faces	1.1	-
🗆 📄 Seam		2.0	-
🗆 📄 WebDo	clet (XDoclet)	1.2.3	-
			< Show <u>B</u> untimes
0	<	Back Next >	inish Cancel

#### Figure 4.4. Faceted Project Wizard: Second Page

The second page of the wizard allows you to enable or disable specific facets, as described above. Some facets may require others, and some may conflict with others, but on the whole this page allows you to add any number of facets that don't conflict with each other. It means that the list doesn't show those facets that couldn't be in the same project. To view the information on limitations and requirements for the chosen facet right-click on the facet and press *Show Constraints.* 



## Figure 4.5. Facet Constraints

Notice that here it is also possible to change the version of any facet. If the chosen version isn't compatible with any other facet version, you'll be prompted about this in the combo box underneath.

٢	New Dyr	amic Web Project		×	
Project Facets         Select the facets that should be enabled for this project.					
Configurations: <	itom>		Save Del	ete	
Project Facet		Version			
Axis2 Web Se Ø Axis2 Web Se Ø Axis2 Web Se	rvices Module	2.5			
🗹 🔬 Java		1.4		•	
□ ↔ Java Persister □ 📄 JavaServer Fa □ 📄 Seam	nce nces	6.0 5.0 1.4			
😣 Dynamic Web Mod	ule 2.5 requires Java 5.0	or newer.			
			< Show <u>B</u> untim	nes	
٢		< <u>B</u> ack <u>N</u> ext >	Enish	21	

# Figure 4.6. Facet Constraints

Further pages in the wizard are specific to either the project type, or the facets selected.

# **Deploying Modules**

In this chapter it will be described how to deploy modules onto the server.

First of all it is necessary to say that deploying to a server is mostly painless. There are several ways to do it provided by WTP, and some additional methods provided by JBoss Tools. These methods are described further in this chapter.

# 5.1. Deploying on the Package Explorer

On the package explorer it is possible to publish either a project to a server or just a signal file. Let's look at how to do this.

## 5.1.1. Deploying with Run On Server Wizard

The first WTP method is to right-click on a project, such as a Dynamic Web project, EJB project, or EAR project and then select Run As > Run on Server. The resulting dialog allows you to select which supporting server the project can be published to.

🛢 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
<ul> <li><u>Manually define a new server</u></li> </ul>
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 serves when murping this preject
Always use this server when running this project

Figure 5.1. Define a New Server

Click *Next* button to see add or remove projects page where you can choose projects to configure them on server.

0	Run On Server X				
Add and Remove Projects Modify the projects that are configured on the server					
Move projects to the right to configure them on the server					
Available projects: Configured projects:					
<ul> <li>/crudapp/resources/c</li> <li>/SeamProject/resourc</li> <li>jsfHello/jsfHello.war</li> <li>jsfHello/jsfHello.war</li> </ul>	Add > Add All >>				
⑦ < <u>B</u> ack	Next > Einish Cancel				

#### Figure 5.2. Add or Remove Projects

This page of the wizard also allows to undeploy modules from the server. For that choose proper module(s) from the right and click < *Remove*. The modules will be completely undeployed after restarting your server or republishing.

Generally, for the JBoss AS Server Adapters, publishing using this method will force a default, best-guess, packaging configuration for your project. This best-guess does not publish incrementally, but instead repackages your entire project into a *.war*, *.jar*, or *.ear* as appropriate, and then copies that file into the proper deploy directory. For quicker smarter deployment, you will need to create archives using the *Project Archives view* and customize packaging yourself.

## 5.1.2. Deploying single files

Sometimes it becomes necessary to deploy one or more files to a server. For that in order not to do a full republish in the context menu of files a *Deploy To Server* option is provided that allows a single file deployment. To deploy these non-WTP files/projects right click on the file (*-ds.xml, .ear, .jar* etc.) and select *Deploy To Server* and it will be automatically deployed.



#### Figure 5.3. Deploy to Sever

The deployed files are listed side-by-side with other modules that are deployed to the server.

•	Add and Remove Projects
Add and Remove I Modify the projects t	Projects nat are configured on the server
Move projects to the	right to configure them on the server
<u>Available</u> projects:	<u>C</u> onfigured projects:
	Agd >       Image: Seam/WebContent/error.xt         Agd >       Image: Seam/WebContent/home.x         < Bernove       Image: SomeWebProject
	Add All >>
0	< Back Next > Finish Cancel

#### Figure 5.4. Deployed files on the Server

# 5.2. Deploying with JBoss Server View

As it has been already mentioned JBoss Server View contains two parts: the top part that displays all defined servers and the bottom part which provides categories with additional information. Thus, in this section we suggest two more ways to deploy resources onto the server.

### 5.2.1. Top part of JBoss Server View

In the top part of the JBoss Servers View like in the Servers View you should right click on a server and select the *Add and Remove Projects* menu item.

🤪 JBoss Server Vi	ew బి 🕒 Console	莽	0	ø I	ED.	- 8
Server	State Sta	tus				
Server         Image: Boss 4.2 Set         Image: Boss Applic         Image: Boss	State     State       Image: State     State       Image: State     Image: State </td <td>ed</td> <td></td> <td></td> <td></td> <td></td>	ed				
lnactive Cat	Edit Launch Configur Add and Remove Pro Add and Remove Pro	ation jects				

#### Figure 5.5. Add and Remove Projects

This will bring up a *familiar dialog* allowing you to either publish projects or modules to a server, or remove them from the server. If the selected module is a project like a Dynamic Web project, EJB project, or EAR project, it will be published as through *Run on Server* wizard, with a best-guess full package. If, however, the selected element is an archive from the *Project Archives view*, it will be published according to the rules of that module type.

### 5.2.2. Bottom part of JBoss Server View

In the bottom part of *JBoss Server View* there is a category called *Modules* which should display all currently-published modules on the server. Right-clicking on the desired module and selecting *Full Publish* will force a full rebuild of the entire module.



#### Figure 5.6. Full Publish

Here, *Incremental Publish* is meant to enable publishing of only those parts where changes have been made.

# **5.3. Deploying with Project Archives View**

In the Project Archives View you can right-click on any declared archive and select the *Publish To Server* element. For more on this subject, see *Publishing to Server* in the Project Archives View section.



#### Figure 5.7. Publish to Server

The only way to ensure an *Incremental Build*, such as changes to one *.jsp, .html,* or *.class* file, is to enable the builder for that project. This is done by either changing the global preferences for the Archives View, or by enabling project-specific preferences and ensuring the builder is on.

The last chapter covers a variety of methods on how you can deploy needed modules onto a server.

In summary, this reference supplies you with all necessary information on the functionality that JBoss Server Manager provides for work with JBoss AS [http://www.jboss.org/products/jbossas].