### JBossIDE Tutorial

#### An introduction and walkthrough of JBossIDE

1.4

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## Preface

#### 1. Foreword

JBoss-IDE started with an XDoclet plug-in for eclipse in the middle of 2002. Then Hans Dockter met Marc as he participated at a JBoss training in Mallorca and they talked about the possibility of developing a JBoss-IDE.

#### 2. About the Authors

- Marshall Culpepper is the project lead of JBoss-IDE. Marshall is a full time employee of JBoss, Inc. And lives in Dallas, Texas.
- Laurent Etiemble, is an active contributor to the JBoss-IDE project. Laurent works as a consultant and lives in Paris, France.
- Hans Dockter, was the founder and lead architect of the Jboss-IDE project. Hans works as an independent consultant and lives in Berlin, Germany.

#### 3. About JBoss

JBoss Project, headed by Marc Fleury, is composed of over 100 developers worldwide who are working to deliver a full range of J2EE tools, making JBoss the premier Enterprise Java application server for the Java 2 Enterprise Edition platform.

JBoss is an Open Source, standards-compliant, J2EE application server implemented in 100% Pure Java. The JBoss/Server and complement of products are delivered under a public license. With a huge amount of downloads per month, JBoss is the most downloaded J2EE based server in the industry.

#### 4. Acknowledgements

We would like to thank Thomas Deichsel and Frank Henze from media-style.com for their wonderful interface design. We would also like to thank all the JBoss-IDE community for their support and their feedback.

#### Introduction to JBossIDE

#### JBossIDE offers you:

- Extensive and intuitive support for XDoclet.
- The debugging and monitoring of JBoss servers and the controlling of their life cycles.
- An easy way to configure the packaging layout of archives (packed or exploded)
- A simple way to deploy the packaged and/or exploded archive to a JBoss server
- Several J2EE wizards to ease and simplify J2EE development.
- Source code editors for JSP, HTML, and XML

#### **Tutorial Preparation**

#### 2.1. Introduction

The goal of this tutorial is to demonstrate how simple it is to develop J2EE applications with JBossIDE. The sample application that will be built is a J2EE application with one session EJB and one Servlet, which computes the Fibonacci suite.

The tutorial is split into several parts:

- The Project: this part shows how the project is prepared (source and build path)
- The EJB: this part shows how to write an EJB class with its XDoclet javadoc tags.
- Generation of EJB files: this part shows how to configure the XDoclet generation configuration to generate all the EJB related files
- The Servlet and the Web-App: this part shows how to write a Servlet class with its XDoclet javadoc tags.
- Generation of Servlet files: this part shows how to configure the XDoclet generation configuration to generate all the Web related files
- The J2EE application: this part shows how to create the missing files.
- Packaging: this part shows how to package the J2EE application
- JBoss configuration : this part shows how to define debug configuration to launch JBoss inside Eclipse.
- Deployment : this part shows how to deploy by copy the J2EE application
- Debugging: this part shows how to set up breakpoints to debug the deployed application.

#### 2.2. Requirements

For this tutorial you need:

- Java Development Kit 1.3.0 or higher (a JDK is needed to launch JBoss 3.x)
- Eclipse 3.0 (from eclipse.org [http://www.eclipse.org]) or higher.
- JBoss Application Server 3.x-4.x

You also will need to know about developing and debugging applications in Eclipse. Refer to the Eclipse website [http://www.eclipse.org] for further informations.

#### 2.3. Notes

This tutorial has been written using the Eclipse 3.0 series. If you are using the Eclipse 3.1 series, the screens may be slightly different.

#### **The Project**

We will create a source folder, import libraries and make the build path.



Create a source folder named src. Make sure the default output folder will be bin.



with all the source code.

### The EJB

The next step is to create an EJB. For simplicity, it will be a stateless session bean, but others types are also easy to write.

Create a new Session EJB. Select File > New > Other... and choose JBoss-IDE > EJB Components > Session Bean.





To make this interesting, we will create a business method for our EJB that computes a Fibonacci suite.

Right-click the FiboBean class, under the FiboBean Java file. You should see a J2EE menu. Select J2EE > Add Business Method.



In the method wizard, enter compute as the method name, double[] for the return type and add a parameter called number of type int. Click on Finish.

🖀 New EJB B	usiness Method		×
EJB Business N Create a new E	lethod JB Business Method		
Method Name: Return Type:	compute double[]	Browse	
Parameters:	number [int]	Add Remove	
Exceptions:		Add	
Select the view	type to use ⊙ Remote  ○ Local  ○ Both		
		Einish Cancel	

A new method has been added to the FiboBean class.



In the text editor, complete the body of the compute method as below :

```
public double[] compute(int number) {
    if (number < 0) {
        throw new EJBException("Argument should be positive");
    }
    double[] suite = new double[number + 1];
    suite[0] = 0;
    if (number == 0) {
        return suite;
    }
    suite[1] = 1;
    for (int i = 2; i <= number; i++) {
        suite[i] = suite[i - 1] + suite[i - 2];
    }
    return suite;
}</pre>
```

As you may have noticied, each wizard adds all of the required XDoclet tags. Go to the top of the class and complete the attributes of the tag with the following values (by pressing CTRL+Space for each attribute, you will get an auto-compled list) :

```
/**
 * @ejb.bean name="Fibo"
 * display-name="Name for Fibo"
 * description="Description for Fibo"
 * jndi-name="ejb/Fibo"
 * type="Stateless"
 * view-type="remote"
 */
public class FiboBean implements SessionBean {
```

After that, the file should look like this. Now, we are ready to run XDoclet on the file to generate the EJB interfaces.

```
package tutorial.ejb;
import java.rmi.RemoteException;
import javax.ejb.EJBException;
import javax.ejb.SessionBean;
import javax.ejb.SessionContext;
import javax.ejb.CreateException;
/**
 * @ejb.bean name="Fibo"
              display-name="Name for Fibo"
              description="Description for Fibo"
              jndi-name="ejb/Fibo"
 *
              type="Stateless"
 *
              view-type="remote"
 */
public class FiboBean implements SessionBean {
    /**
     *
     */
   public FiboBean() {
        super();
        // TODO Auto-generated constructor stub
    }
    /*
     * (non-Javadoc)
     *
     * @see javax.ejb.SessionBean#ejbActivate()
     */
   public void ejbActivate() throws EJBException, RemoteException {
        // TODO Auto-generated method stub
    }
    /*
     *
       (non-Javadoc)
     *
     * @see javax.ejb.SessionBean#ejbPassivate()
     */
   public void ejbPassivate() throws EJBException, RemoteException {
        // TODO Auto-generated method stub
    }
    /*
     *
      (non-Javadoc)
     *
     * @see javax.ejb.SessionBean#ejbRemove()
     */
   public void ejbRemove() throws EJBException, RemoteException {
        // TODO Auto-generated method stub
    }
    /*
     *
      (non-Javadoc)
     *
     * @see javax.ejb.SessionBean#setSessionContext(javax.ejb.SessionContext)
     */
    public void setSessionContext(SessionContext ctx) throws EJBException,
```

```
RemoteException {
    // TODO Auto-generated method stub
}
/**
 * Default create method
 *
 * @throws CreateException
 * @ejb.create-method
 */
public void ejbCreate() throws CreateException {
   // TODO Auto-generated method stub
}
/**
 * Business method
 *
 * @ejb.interface-method view-type = "remote"
 */
public double[] compute(int number) {
    if (number < 0) {
        throw new EJBException("Argument should be positive");
    }
    double[] suite = new double[number + 1];
    suite[0] = 0;
    if (number == 0) {
        return suite;
    }
    suite[1] = 1;
    for (int i = 2; i <= number; i++) {
        suite[i] = suite[i - 1] + suite[i - 2];
    }
    return suite;
}
```

}

#### Generation of the EJB related files

To generate the EJB related classes and descriptors, we need to create some XDoclet configurations. With JBoss IDE, you can define several XDoclet generation configurations that will be run against the project.

<ul> <li>Procedure 5.1. XDoclet EJB Configuration Creation</li> <li>Edit the project properties by right clicking on the project and select Properties.</li> <li>In the property page, select XDoclet configur- ations.</li> <li>Right-click in the upper area to pop-up the menu and choose Add. Type EJB in the dialog and click OK.</li> <li>You have created a new generation configuration named EJB.</li> <li>Procedure 5.2. Ejbdoclet Configuration         <ul> <li>Select the EJB configuration.</li> <li>In the lower-left area, right-click to popup the menu and choose Add Doclet.</li> <li>A list of available doclets will appear. Choose ejbdoclet and click oK.</li> <li>On the lower-right area, you see the properties of the ejbdoclet.</li> </ul> </li> </ul>	
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<ul> <li>3. A list of available doclets will appear. Choose ejbdoclet and click OK.</li> <li>4. On the lower-right area, you see the properties of the ejbdoclet.</li> </ul>	det Property Value
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<ul><li>4. On the lower-right area, you see the properties of the ejbdoclet.</li></ul>	det Property Value destar det Property Value destar destar epClassive
4. On the lower-right area, you see the properties of the ejbdoclet.	det Property Value destar det eddedTags destGarstorne destGa
4. On the lower-right area, you see the properties of the ejbdoclet.	det Property Value desCir det esCirstance escludetTags escludetTags corce 2.0 escludetTags corce 2.0 escludetTags
of the ejbdoclet.	det Property Value desting src set excludedTags excludedT
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a Set the deat Dim property to and	det Property Value desCir arc des
a. Sound descorr property to src.	det Property Value desCir and certain addedTags certain addedTags certain epClassName
<b>b</b> Set the eithspec property to $2.0$	det Property Value desCir addedTags cc desCir
	det Property Value det estimate addedTags generation of the second secon

Our configuration now contains an ejbdoclet that

will produce files in src folder and for the EJB 2.0 specifications.

#### Properties for Tutorial Info Builders XDoclet Configurations **Procedure 5.3. Fileset Configuration** -Builders - Deployment - Java Build Path - Java Code Style - Java Code Style - Java Compiler - Javadoc Location - JSP Compilation Support - Barkazing Conference bar Define the XDoclet configurations available for genera 🗹 🗐 EJB Add. Add Standard... Rename Packaging Configurations 1. In the lower-left area, right-click on ejbdoclet Project References Remove XDoclet Configurations Up to popup the menu and choose Add. Down □ Ø Ø ejbdodet Ø Ø fileset Value 2. A list of available subtasks will appear. Choose fileset and click Ok. 3. On the lower-right area, you see the properties of the fileset. Restore Defaults Apply OK Cancel Set the dir property to src. a. Uncheck excludes b. Set the includes property to c. \*\*/\*Bean.java. Our configuration now contains an ejbdoclet with a fileset that contains the src directory, and all files under it that end in Bean. java. Properties for Tutorial Info Builders XDoclet Configurations **Procedure 5.4. Deployment Descriptor** Builders - Deployment - Java Build Path - Java Code Style - Java Compiler - Javadoc Location - JSP Compilation Support - Packaging Configurations Project Beforement Define the XDoclet configurations available for generation 🗹 🚍 EJB Configuration Add... Add Standard.. Rename... Project References Remove XDoclet Configurations Up Add a new deploymentdescriptor subtask to Down the ejbdoclet (see above). ejbdoclet ationFil Set the destDir property to src/META-INF. ClassTac > All of the standard EJB deployment descriptors will Restore Defaults Apply now be placed in the src/META-INF directory. OK Cancel



Click ok and the XDoclet configuration for the Tutorial will be saved. Once the configuration is saved, right-click on the Tutorial project and select Run XDoclet. The XDoclet generation will display its output in the console. The output should look like this: 

 Problems
 Javadoc
 Dedaration
 Error Log
 Console
 X

 externinated> C:\Program Files\Java\j2re1.4.2\_03\bin\javaw.exe (Jan 6, 2005 12:26:14 PM)

 Buildfile: C:\Apps\eclipse\workspace\runtime-workspace\Tutorial\xdoclet-build.xml

 N10004:

 [ejbdoclet] (CocletMain.start
 47
 ) Running <deploymentdescriptor/>[ejbdoclet] Generating EJB deployment descriptor (ejb-jar.xml).

 [ejbdoclet] Generating Jboss.xml.
 [ejbdoclet] Generating jboss.xml.

 [ejbdoclet] Generating Remote interface for 'tutorial.ejb.FiboBean'.

 [ejbdoclet] Generating Home interface for 'tutorial.ejb.FiboBean'.

 \_xdoclet\_generation\_:

 BUILD SUCCESSFUL

 Total time: 1 second

After the code generation, select the project and refresh it (you can press F5). You should have a project that looks like this. Note that a tutorial.interfaces package has been created with new classes inside. There is also a META-INF folder with the deployment descriptors (both standard and jboss).



#### The Servlet and the Web-App

Having an EJB is not enough. We will write a servlet that access this EJB to perform the actual computation of the Fibonacci suite.

Create a new HTTP Servlet. Select File > New > Other... and choose JBoss-IDE > Web Components > HTTP Servlet.



#### **Procedure 6.1. HTTP Servlet Configuration**

- 1. Set the Package to tutorial.web.
- 2. Set the Class Name to ComputeServlet.
- Under Which method stubs would you like to create?, check the init() method.
- Under Which service method stubs would like to create?, check the doPost() method.

🖨 New HTTP	Servlet	×
HTTP Servlet		~
Create a new l	HTTP Servlet	(C)
Source Folder:	Tutorial/src	Browse
Package:	tutorial.web	Browse
		1
Name:	ComputeServlet	]
Modifiers:	public Odefault Oprivate Oprotected	
	abstract final static	
Superclass:	javax.servlet.http.HttpServlet	Browse
Interfaces:		Add
		Remove
		]
Which method	stubs would you like to create?	
	Constructors from superclass Inherited abstract methods	
	✓ init() method service() method	
	destroy() method getServletInfo() method	
Miletale and the second	and a data way of the terms of a D	
which service h		
doget() method		
doPut() method doDelete() method		
	uonace\_metilou	
	<back next=""> Finish</back>	Cancel

Our servlet needs some initialization and processing code. Add the following private member.



Complete the init method as shown. This code is responsible for the initialization of the EJB Home interface and grabbing the local environment entry.

<pre>public void init(ServletConfig config) throws ServletException {</pre>
try {
Context context = new InitialContext();
<pre>Object ref = context.lookup("java:/comp/env/ejb/Fibo");</pre>
<pre>home = (FiboHome) PortableRemoteObject.narrow(ref, FiboHome.class);</pre>
<pre>} catch (Exception e) {</pre>
<pre>throw new ServletException("Lookup of java:/comp/env/ failed");</pre>
}
}

Complete the doPost method as shown. The code will parse the request to get the limit parameter, create an instance of the EJB, perform computation, release the instance and output the result as HTML.

```
PrintWriter out = response.getWriter();
out.println("<html><head><title>");
out.println("Fibonaci Computation");
out.println("</title></head>");
out.println("<body>");
out.println("<h1>");
out.println("Fibonaci Computation");
out.println("</h1>");
try {
        Fibo bean = home.create();
        int limit = 0;
        String value = request.getParameter("limit");
        if (value != null) {
                try {
                        limit = Integer.parseInt(value);
                } catch (Exception e) {
                }
        double[] result = bean.compute(limit);
       bean.remove();
        out.println("");
        out.print("The ");
        out.print(limit);
        out.print(" first Fibonacci numbers ");
        for (int i = 0; i < result.length; i++) {
                out.println("<br>");
                out.println(i);
                out.println(" : ");
                out.println(result[i]);
        }
        out.println("");
} catch (Exception e) {
       out.println(e.getMessage());
        e.printStackTrace(out);
} finally {
        out.println("</body></html>");
        out.close();
}
```

}

Next, we will insert the missing XDoclet tags for the Servlet. In the Java editor go in the Javadoc class paragraph. Type "@web." And press CTRL+Space. You should see JBossIDE's auto-completion in action.



Correct and complete the attributes of the tag with the following values (press CTRL+Space for each attribute if you want the completion) :

```
/**
 * @web.servlet
 *
           name="Compute"
           display-name="Computation Servlet"
           description="Servlet that compute Fibonacci suite"
 *
  @web.servlet-mapping
                   url-pattern="/Compute"
 *
  @web.ejb-ref
           name="ejb/Fibo"
 *
           type="Session"
           home="tutorial.interfaces.FiboHome"
           remote="tutorial.interfaces.Fibo"
           description="Reference to the Fibo EJB"
 * @jboss.ejb-ref-jndi
 *
           ref-name="ejb/Fibo"
           jndi-name="ejb/Fibo"
 * /
public class ComputeServlet extends HttpServlet {
```

After that, the file should look like this. Now we are ready to run XDoclet on the file, which will generate the Web descriptors.

```
package tutorial.web;
import java.io.IOException;
```

```
import java.io.PrintWriter;
import javax.naming.Context;
import javax.naming.InitialContext;
import javax.rmi.PortableRemoteObject;
import javax.servlet.ServletConfig;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import tutorial.interfaces.Fibo;
import tutorial.interfaces.FiboHome;
/**
 * @web.servlet
           name="Compute"
           display-name="Computation Servlet"
           description="Servlet that compute Fibonacci suite"
 * @web.servlet-mapping
                   url-pattern="/Compute"
 * @web.ejb-ref
           name="ejb/Fibo"
           type="Session"
           home="tutorial.interfaces.FiboHome"
           remote="tutorial.interfaces.Fibo"
           description="Reference to the Fibo EJB"
 * @jboss.ejb-ref-jndi
           ref-name="ejb/Fibo"
           jndi-name="ejb/Fibo"
 */
public class ComputeServlet extends HttpServlet {
        private FiboHome home;
        public ComputeServlet() {
                super();
        }
      public void init(ServletConfig config) throws ServletException {
                try {
                        Context context = new InitialContext();
                        Object ref = context.lookup("java:/comp/env/ejb/Fibo");
                        home = (FiboHome) PortableRemoteObject.narrow(ref, FiboHome.class);
                } catch (Exception e) {
                        throw new ServletException("Lookup of java:/comp/env/ failed");
        }
        protected void doPost(HttpServletRequest request,
                        HttpServletResponse response) throws ServletException, IOException {
                response.setContentType("text/html");
                PrintWriter out = response.getWriter();
                out.println("<html><head><title>");
                out.println("Fibonaci Computation");
                out.println("</title></head>");
                out.println("<body>");
                out.println("<h1>");
                out.println("Fibonaci Computation");
                out.println("</hl>");
                try {
```

```
Fibo bean = home.create();
        int limit = 0;
        String value = request.getParameter("limit");
        if (value != null) {
                try {
                        limit = Integer.parseInt(value);
                } catch (Exception e) {
                }
        }
        double[] result = bean.compute(limit);
        bean.remove();
        out.println("");
        out.print("The ");
        out.print(limit);
        out.print(" first Fibonacci numbers ");
        for (int i = 0; i < result.length; i++) {</pre>
                out.println("<br>");
                out.println(i);
                out.println(" : ");
                out.println(result[i]);
        }
        out.println("");
} catch (Exception e) {
        out.println(e.getMessage());
        e.printStackTrace(out);
} finally {
        out.println("</body></html>");
        out.close();
}
```

\_\_\_\_

}

}

#### **Generation of the Servlet related files**

To generate the Web descriptors, we need to create another XDoclet configuration, like we did for our EJB.

Pro Cre	<b>Edit the project properties. Right-click on the project and select Properties</b>	<ul> <li>Properties for Tutorial</li> <li>Info</li> <li>Buiders</li> <li>Deployment</li> <li>Java Godd Style</li> <li>Java Compiler</li> <li>Java Compiler</li> <li>Java Compiler</li> <li>SP compilation Support</li> <li>Project References</li> <li>XDodet Configurations</li> </ul>	
2.	In the properties page, select XDoclet Config- urations.		Property Value
3.	Right-click in the top area to pop-up the menu and choose Add. Type web in the dialog and click OK.		Restore Defaults Apply OK Cancel
You nam	n have created a new generation configuration ned Web.	L	
Pro	cedure 7.2. Webdoclet Configuration	Properties for Tutorial      Info     Builders     Deployment     Dava Build Path     Dava Code Style     Dava Compler	
<b>Pro</b> 1.	cedure 7.2. Webdoclet Configuration Select the Web configuration.	Properties for Tutorial      Info     Builders     Oepojoment     Java Build Path     Java Code Style     Java Compiler     Javadoc Location     JayAdoc Location     JayCompilation Support     Packaging Configurations     Project References     Xbodet Confourations	XDoclet Configurations         Define the XDodet configurations available for generation.
<b>Pro</b> 1. 2.	cedure 7.2. Webdoclet Configuration Select the web configuration. In the lower-left area, right-click to popup the menu and choose Add Doclet.	<ul> <li> <b>Properties for Tutorial</b> </li> <li>             Lnfo         </li> <li>             Builders         </li> <li>             Deopoyment         </li> </ul> <li>             Java Build Path         <ul>             Bill Java Compiler</ul></li> Java Compiler             Java Compiler             Java Compiler             Packaging Configurations             Project References             XDodet Configurations	XDoclet Configurations         Define the XDoclet configurations available for generation.         Image: Configuration available for generation.         I
<b>Pro</b> 1. 2. 3.	cedure 7.2. Webdoclet Configuration Select the Web configuration. In the lower-left area, right-click to popup the menu and choose Add Doclet. A list of available doclets will appear. Choose webdoclet and click OK.	<ul> <li>              Properties for Tutorial      </li> <li>             Enfo         </li> <li>             Builders         </li>             Depolyment              Java Build Path              By Java Code Style              By Java Code Style              Java Gode Style              Java Code Style              Java Code Style              Javadoc Location              Spec Complation Support  </ul> <li>Project References         <ul>             XDodet Configurations</ul></li> <li>Project References         <ul>             XDodet Configurations</ul></li>	XDoclet Configurations         Define the XDoclet configurations available for generation.         Image: Distance         Image: Distan
<ol> <li>Pro</li> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> </ol>	<ul> <li>cedure 7.2. Webdoclet Configuration</li> <li>Select the Web configuration.</li> <li>In the lower-left area, right-click to popup the menu and choose Add Doclet.</li> <li>A list of available doclets will appear. Choose webdoclet and click OK.</li> <li>On the lower-right area, you see the properties of the ejbdoclet.</li> </ul>	<ul> <li> <b>Properties for Tutorial</b> </li> <li>             Endiders         <ul> <li>Deployment</li> <li>Java Buld Path</li> <li>Dava Code Style</li> <li>Dava Complete</li> <li>Java Code Style</li> <li>Davadoc Location</li> <li>PS Completion Support</li> <li>Packaging Configurations</li> <li>Project References</li> <li>XDodet Configurations</li> </ul> </li> </ul>	XDoclet Configurations         Define the XDoclet configurations available for generation.         Image: E18
<ol> <li>Pro</li> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> </ol>	<ul> <li>cedure 7.2. Webdoclet Configuration</li> <li>Select the Web configuration.</li> <li>In the lower-left area, right-click to popup the menu and choose Add Doclet.</li> <li>A list of available doclets will appear. Choose webdoclet and click OK.</li> <li>On the lower-right area, you see the properties of the ejbdoclet.</li> <li>Set the destDir property to src/WEB-INF.</li> </ul>	<ul> <li>         Properties for Tutorial     </li> <li>         Info         <ul> <li>Builders</li> <li>Deployment</li> <li>Java Build Path</li> <li>Java Compiler</li> <li>Java Compiler</li> <li>Java Compiler</li> <li>Pava Compiler</li> <li>Project References</li> <li>XDodet Configurations</li> </ul> </li> </ul>	XDoclet Configurations         Define the XDoclet configurations available for generation.         Image: Display to the image: Display t

produce files in the src/WEB-INF folder.

#### **Procedure 7.3. Fileset Configuration**

- 1. In the lower-left area, right-click on webdoclet to popup the menu and choose Add.
- 2. A list of available subtasks will appear. Choose fileset and click Ok.
- 3. On the lower-right area, you see the properties of the fileset.
  - a. Set the dir property to src.
  - b. Uncheck excludes
  - c. Set the includes property to \*\*/\*Servlet.java.

Our configuration now contains a webdoclet with a fileset that contains the src directory, and all files under it that end in Servlet.java.

#### **Procedure 7.4. Deployment Descriptor Configuration**

- Add a new deploymentdescriptor subtask to the webdoclet (see above).
  - Set the Servletspec property to 2.3.

All of the standard Web deployment descriptors will now be placed in the src/WEB-INF directory (property is inherited from webdoclet).

Properties for Tutorial	
Info Builders Deployment Java Build Path Dava Gode Style Buado Location Javadoc Location Javadoc Location Javadoc Location Packaging Configurations Project References XDodet Configurations	XDoclet Configurations Define the XDoclet configurations available for generation.          Image: Configuration in the second state of the seco
	Image: Second
	OK Cancel



	l	
	Properties for Tutorial	
Procedure 7.5 IBoss Configuration	- Info Builders	XDoclet Configurations
Troccurre 7.5. 50055 Configuration	- Deployment - Java Build Path	Define the XDodet configurations available for generation.
	<ul> <li>Java Code Style</li> <li>Java Compiler</li> </ul>	✓ ■ E3B     Add       ✓ ■ Web     Add
	Javadoc Location     JSP Compilation Support	Add Standard
• Add a new jbosswebxml subtask to the web-	Packaging Configurations     Project References	Remove
doclet (see above).	- XDoclet Configurations	
		Down
• Set the Version property to 3.0.		□ ☑ 🖗 webdodet Property Value
All of the JBoss-specific Web deployment descriptors		Jbosswebxml     acceptAbst     acceptInter
will now be placed in the src/WEB-INF directory		contextroot
(property is inherited from webdoclet)		
(property is inferred from webdoeree).		Restore Defaults Apply
		OK Cancel
	Problems Declaration Error	Log 📮 Console 🛛
Click ok and the XDoclet configuration for the Tu-	<terminated> C: \Program Files</terminated>	Java\j2re1.4.2_03\bin\javaw.exe (Jan 6, 2005 2:15:28 PM)
torial will be saved. Once the configuration is	[webdoclet] (XDocletMain. [webdoclet] Generating we	start 47 ) Running <deploymentdescriptor></deploymentdescriptor>
saved, right-click on the Tutorial project and select	[webdoclet] (XDocletMain. [webdoclet] (TemplateSub	start 47 ) Running <jbosswebxml></jbosswebxml> Task.engineStarted 794 ) Generating output 'jboss-web.xml'
Run XDoclet. The XDoclet generation will display its	_xdoclet_generation_: BUILD SUCCESSFUL	
output in the console. The output should look like	Total time: 2 seconds	
this:	<u>(</u>	
uns.		
After the generation, you should have a project that	Package E	xplorer ×
looks like this. Note that a WEB-INF folder has been		
created with the web deployment descriptors (both		~~~~
standard and jboss).		a
	SI 🚰 SI	°C
		tutorial.ejb
	9	🖳 🕖 FiboBean.java
		tutorial.interfaces
		Fibo, iava
		EiboHome java
		tutorial web
	- 40	
		ComputeServiet.java
		META-INF
		jboss.xml
		> WEB-INF
		iboss-web.xml
		web yml
		Contem Library Filtra 1 4 D 001
		ke System Library []2re1.4.2_03]
	( <b>⊡⊒</b> ∖ ];	2EE 1.3 Libraries (JBoss-IDE)
	× <>	doclet-build.xml

In order to run our servlet, we'll need to create an HTML page that passes it parameters.

#### Procedure 7.6. Creating the HTML Page

- 1. Create a docroot folder under the root of the project.
- 2. Create an empty file named index.html under the docroot folder.

The index.html file is intended to be the default page for the Web application and contains a form that will be posted to the Servlet.



The following content should be copied into the index.html file:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html>
  <head>
    <title>
       Fibonacci Application
    </title>
  </head>
  <body>
    <h1>Fibonacci Form</h1>
    <form action="Compute" method="POST" >
       <t.d>
              Limit :
           <input type="text" name="limit" value="50">
           <input type="submit" name="Compute" value="Compute">
           <input type="Reset">
```

```
    </form>
    </body>
</html>
```

#### The J2EE Application

This project is intended to be a complete J2EE application. We are going to create some additional files to have all the materials needed to build it.



Your META-INF directory should now look like this:



Now double click on the application.xml to open it, and make sure the content looks like this (most of the content is already there for you):

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE application PUBLIC
        "-//Sun Microsystems, Inc.//DTD J2EE Application 1.3//EN"
        "http://java.sun.com/dtd/application_1_3.dtd">
<application>
        <display-name>Sum Application</display-name>
        <module>
                <ejb>FiboEJB.jar</ejb>
        </module>
        <module>
                <web>
                        <web-uri>FiboWeb.war</web-uri>
                        <context-root>/fibo</context-root>
                </web>
        </module>
</application>
```

## The Packaging

JBoss-IDE provides an easy way to configure the packaging of various archives. There is no restriction of what can be packaged. In this tutorial, four packaging configurations will be defined:

- The EJB JAR. It will contain the EJB classes and interfaces, as well as the ejb-jar.xml and jboss.xml deployment descriptors.
- The EJB Client JAR. It will contain the EJB interfaces.
- The Web Application WAR. It will contain the Servlet class, the EJB client Jar, as well as the web.xml deployment descriptors.
- The J2EE Application EAR. It will contain the EJB Jar and the Web Application War, as well as the application.xml deployment descriptor.

When launched, these four packaging configurations will create the J2EE application ready to be deployed.

#### 9.1. FiboEJB.jar creation

		- reported for retornat			
Pro	cedure 9.1. Creating the EJB JAR	Info Builders Deployment Java Build Path ⊕Java Code Style	Packaging Configurations           Define the packaging configurations available for generating                -             Z	tion.	
1.	Edit the project properties by right clicking on the project and select Properties.	Bava Compiler     Java Compiler     Javado Location     JSP Complation Support     Packaging Configurations     Project References     XDodet Configurations	Jord Gompanian Support     Javadoc Location     JSP Compliation Support     Packaging Configurations     Project References     XDodet Configurations		Add Standard Edit Remove Up Down
2.	In the property page, select Packaging Config- urations.				
3.	Right-click in the area to pop-up the menu and choose Add Archive. Type FiboEJB.jar in the dialog and click OK.			Restore Defaults Apply	
4.	You have created a new packaging configuration that will produce the FiboEJB.jar file.				

Folder Selection × We want to add the EJB classes and interfaces. Eclipse has generated the compiled classes into the bin Choose a folder (either in workspace or external) folder (declared as the default output dir of the project). Folder: Project Folder... Select the FiboEJB. jar item and right-click in the External Folder... area to pop-up the menu and choose Add Folder. A Includes: "Folder Selection" dialog appears. Excludes: This dialog allows to select which folder (local to workspace or in the file system) to include into the Prefix: package, to specify include and exclude filters (A la Ant) and to set a prefix that will be append when Cancel building the package. OK Select a Folder Click on Project Folder. A "Folder Chooser" dialog appears. Please select a folder resource 🖃 彦 Tutorial This dialog allows selecting which folder to include. 🗄 🧁 bin This folder can be choosen among all the opened 🗄 🗁 docroot 🗄 🧁 src projects. Select the /Tutorial/bin folder and click OK. /Tutorial/bin OK Cancel

The folder is now /Tutorial/bin.	Folder Selection
As we only want the EJB classes and interfaces, spe- cify the following as an include filter: tutorial/ ejb/*.class,tutorial/interfaces/*.class Click on οκ	Choose a folder (either in workspace or external) Folder: /Tutorial/bin Project Folder External Folder Includes: butorial/ejb/*.class,tutorial/interface Excludes: Prefix: OK Cancel
We now want to add the standard EJB deployment descriptor. Select the FiboEJB.jar item and right-click in the area to pop-up the menu and choose Add File. A "File Selection" dialog appears.	C Properties for Tutorial  Th6 Builders Depforment Dava Build Path B: Java Coople Development Develop
This dialog allows you to select which file (local to workspace or in the file system) to include in the package and to set a prefix which will be appended when building the package.	Choose a file (either in workspace or external) File: Project File External File Prefix: OK Cancel

Click on Project File. A "File Chooser" dialog appears. This dialog allows to select which file to include. This file can be choosen among all the opened projects. Select the /Tutorial/src/META-INF/ejb-jar.xml folder and click ок.	Select a File Select a file resource Tutorial Constraints Constrai
	/Tutorial/src/META-INF/ejb-jar.xml OK Cancel
The file is now /Tutori- al/src/META-INF/ejb-jar.xml. The ejb-jar.xml must be located under the META- INF directory of the EJB package. Set the prefix to META-INF. Click on OK.	Choose a file (either in workspace or external) File: /Tutorial/src/ME Project File External File Prefix: META-INF OK Cancel
To add the specific EJB deployment descriptor, select the FiboEJB.jar item and right-click in the area to pop-up the menu and choose Add File. The file to choose is /Tutori- al/src/META-INF/jboss.xml. The jboss.xml must be located under the META-INF directory of the EJB package. Set the prefix to META- INF. Click on OK.	Choose a file (either in workspace or external) File: /Tutorial/src/ME Project File External File Prefix: META-INF OK Cancel

The packaging configuration for the FiboEJB.jar is now complete.



#### 9.2. FiboEJB-client.jar creation



The packaging configuration for the FiboEJB-client.jar is now complete.



#### 9.3. FiboWeb.war creation



Click on ok.	
To add the standard Web deployment descriptor, se- lect the FiboWeb.war item and right-click in the area to pop-up the menu and choose Add File. A "File Se- lection" dialog appears. The file to choose is /Tutori- al/src/WEB-INF/web.xml. The web.xml must be located under the WEB-INF of the War package. Set the prefix to WEB-INF. Click on OK.	File Selection Choose a file (either in workspace or external) File: /Tutorial/src/WI Project File External File Prefix: WEB-INF OK Cancel
To add the JBoss specific Web deployment descriptor, select the FiboWeb.war item and right- click in the area to pop-up the menu and choose Add File. A "File Selection" dialog appears. The file to choose is /Tutori- al/src/WEB-INF/jboss-web.xml. The jboss-web.xml must be located under the WEB- INF of the War package. Set the prefix to WEB-INF. Click on OK.	Choose a file (either in workspace or external) File: /Tutorial/src/WI Project File External File Prefix: WEB-INF OK Cancel

To add the EJB Client Jar, select the FiboWeb.war item and right-click in the area to pop-up the menu and choose Add File. A "File Selection" dialog appears.

The file to choose is /Tutori-

al/FiboEJB-client.jar. But it doesn't exist yet as the packaging has not been run. Instead of selecting it, go in the text field and type the name of the file / Tutorial/FiboEJB-client.jar. Even if the file doesn't exist, it can be added to a packaging configuration.

The FiboEJB-client.jar must be located under the WEB-INF/lib directory of the War package. Set the prefix to WEB-INF/lib.

Click on ok.

	Select a file resource
	E 🔁 Tutorial
	Din
	src     xdodet-build.xml
ır-	
	/Tutorial/FiboEJB-client.jar
	OK Cancel
•	File Selection
	Choose a file (either in workspace or external)
	File: /Tutorial/FiboE1 Project File
	External File
	Prefix: WEB-INF/lib
	OK Cancel



#### 9.4. FiboApp.ear creation

Click the Add button on the right side of the list. Type FiboApp.ear in the dialog and click OK.

You have created a new packaging configuration that will produce the FiboApp.ear file.



To add the application deployment descriptor, select the FiboApp.ear item and right-click in the area to pop-up the menu and choose Add File. A "File Selection" dialog appears.

The file to choose is /Tutorial/src/META-INF/application.xml.

The application.xml must be located under the Meta -INF of the EAR package. Set the prefix to Meta -INF.

Click on ok.

To add the EJB module, select the FiboApp.ear item and right-click in the area to pop-up the menu and choose Add File. A "File Selection" dialog appears.

The file to choose is /Tutorial/FiboEJB.jar. But it doesn't exist yet as the packaging has not been run. Instead of selecting it, go in the text field and type the name of the file /Tutorial/FiboEJB.jar. Even if the file doesn't exist, it can be added to a packaging configuration.

Click on ok.

To add the Webmodule, select the FiboApp.ear item and right-click in the area to pop-up the menu and choose Add File. A "File Selection" dialog appears.

The file to choose is /Tutorial/FiboWeb.war. But it doesn't exist yet as the packaging has not been run. Instead of selecting it, go in the text field and type the name of the file /Tutorial/ FiboWeb.war. Even if the file doesn't exist, it can be added to a packaging configuration.

Click on ok.

	E File Selection
	Choose a file (either in workspace or external) File: /Tutorial/src/ME Project File External File Prefix: META-INF OK Cancel
	File Selection Choose a file (either in workspace or external) File: Tutorial/FiboEJB.jar Project File External File
	Prefix: OK Cancel
e	File Selection Choose a file (either in workspace or external) File: /Tutorial/FiboW Project File External File Prefix: OK Cancel

Properties for Tutorial Info Builders Deployment Java Build Path B Java Code Style 3ava Code Style 3ava Code Style Javadoc Location JSP Compilation Support Packaging Configurations Project References XDodet Configurations The packaging configuration for the FiboApp.ear is Packaging Configurations now complete. Define the packaging configurations available for generation. Define the packaging configurations available for generation.

 Image: Pool 2B, jar

 I Add.. Add Standard. Click ok to save the packaging configurations. Edit. Remove Up Down Restore Defaults Apply OK Cancel Problems Declaration Error Log 📃 Console 🔀 Right-click on the project and select Run Packaging. <terminated> C:\Program Files\Java\j2re1.4.2\_03\bin\javaw.exe (Jan 6, 2005 7:16:21 PM) cteminated> C:Program Files/Javaly2re1.4.2\_03bin/javaw.exe (Jan 6, 2005 7:16:21PM)
[jar] Building jar: C:\Apps\eclipse\workspace\runtime-workspace\rutorial\FiboEJB-client.jar
N10036:
[jar] Building jar: C:\Apps\eclipse\workspace\runtime-workspace\rutorial\FiboApp.ear
[jar] Building jar: C:\Apps\eclipse\workspace\runtime-workspace\rutorial\FiboApp.ear
\_packaging\_generation\_:
BUILD SUCCESSFUL
Total time: 1 second The packaging will display its output in the console. The output should look like this:

After the execution, you should have a project that looks like this:



### **JBoss Configuration and Launch**

Now, it is time to configure the JBoss server if it has not been done yet.



Select the configuration you want to launch and click on Debug and you will see JBoss starting. The output is sent to the console.

Problems	Declaration	Error Log	😑 Console	23						1 × 1	a 🐻	8 🛃	E - [	9 - 5	9
JBoss 3.2	.5 (JBoss 3.2	.x] C:\j2sd	1.4.2_06\bin	javaw.exe (Jan 6,	005 7:38:10 PM)	)									
19:38:20 19:38:20 19:38:20 19:38:20 19:38:20 19:38:20	8,366 INFO 8,446 INFO 8,486 INFO 8,577 INFO 9,828 INFO	[UILSen [DLQ] B [JmsXA] [Tomcat [Tomcat	verILServic ound to JNI Bound con Deployer] ( Deployer] ( JBoss (MX	<ul> <li>BossMQ UIL : In name: queue/ nection factory f deploy, ctxPath= deploy, ctxPath= MicroKernel) [3.     </li> </ul>	ervice availab DLQ or resource ad jmx-console, i web-console, 2.5 (build: CVS	le at : /0.0 lapter for ( warUrl=file warUrl=file STag=3Bos	1.0.0:8093 Connection 5:/C:/Apps/ 5:/C:/Apps 52_3_2_5 d	lanager jboss-3. jboss-3. ate=200	'jboss.jc 2.5/serv 2.5/serv 4062519	a:servi er/defa er/defa 54)] St	ce=Txi sult/dep sult/tm arted i	CM,nam kloy/jm: b/deplo n 19s:2	ne=Jms) x-consol y/tmp60 18ms	(A to JI e.war/ 179we	NI
19:38:3 19:38:3 19:38:3 19:38:3 19:38:3 19:38:3	0,730 INFO 0,800 INFO 1,170 INFO 1,180 INFO	Tomcat [Http11F [Channe [JkMain]	5] Saw org rotocol] St (Socket] Jk Jk running	jboss.system.se arting Coyote HT 2: ajp13 listenin ID=0 time=0/40	ver.started no FP/1.1 on http- on /0.0.0.0:8 config=null	otification, -0.0.0.0-80 8009	starting cor 180	nectors							

#### Deployment

The deployment within JBoss-IDE can be done in two ways:

- A file-system copy: Copies a file from your project into any other location on your computer (including network drives, etc)
- A local deployment through the MainDeployer MBean (Experimental). The URL of the resource is sent to the MainDeployer Mbean, which deploys and watches it.

In addition, the deployment target is stored during the workbench session. This means that if you have deployed a package on a target, you can redeploy or undeploy it without specifying the target. The Deployer plugin automatically creates file-system targets from the debug configurations. Other deployment target can be defined.



A dialog box appears with the list of the deployment targets. It contains both the default and the user- defined deployment targets. Select the one you are interested in (the one for the running server is probably a good idea !).	Target Choice  Target Choice  Boss 3.2.5 [file:/C:/Apps/jboss-3.2.5/server/default/deploy/]  OK Cancel
In the console view, you should see some deployment activity. The J2EE application is now deployed.	Probleme       Dedaration       Enror Log       Conside       Image: 2.3 [Displicit_12_20/bit]enrom:cee [an 6, 2005 7:38:10 PM]         Bees 3.2.3 [Displicit_12_20/bit]enrom:cee [an 6, 2005 7:38:10 PM]       Image: 2.3 [Displicit_12_20/bit]enrom:cee [an 6, 2005 7:38:10 PM]         19:33:22:52:80 BINO       Displicit_12_20/bit]enrom:cee [an 6, 2005 7:38:10 PM]       Image: 2.3 [Displicit_12_20/bit]enrom:consta enrom:cee [an 6, 2005 7:38:10 PM]         19:33:22:52:80 DIVO       Displicit_12_20/bit]enrom:consta enrom:cee [an 6, 2005 7:38:10 PM]       Image: 2.3 [Displicit_12_20/bit]enrom:consta enrom:cee [an 6, 2005 7:38:10 PM]         19:33:23:52:80 DIVO       Displicit_12_20/bit]enrom:cee [an 6, 2005 7:38:10 PM]       Image: 2.3 [Displicit_12_20/bit]enrom:consta enrom:cee [an 6, 2005 7:38:10 PM]         19:33:23:52:80 DIVO       Displicit_12_20/bit]enrom:cee [an 6, 2005 7:38:10 PM]       Image: 2.3 [Displicit_12_20/bit]enrom:consta enrom:cee [an 6, 2005 7:38:10 PM]         19:33:33:57:80 DIVO       Displicit_12_20/bit]enrom:cee [an 6, 2005 7:38:10 PM]       Image: 2.3 [Displicit_12_20/bit]enrom:cee [an 6, 2005 7:38:10 PM]         19:33:33:17:80 DIVO       Displicit_12_20/bit]enrom:cee [an 6, 2006 consta enrom:cee [an 6, 2006 consta enrom:cee [an 6, 2005 7:38:10 PM]         19:33:33:17:80 DIVO       Displicit_12_20/bit]enrom:cee [an 6, 2006 consta enrom:cee [an 6, 2006 consta enro:cee [an 6, 2006 cons
When a resource is deployed, a small decorator appears in the top-left corner of the icon.	<ul> <li>docroot</li> <li>index.html</li> <li>FiboApp.ear</li> <li>FiboEJB.jar</li> <li>FiboEJB-client.jar</li> <li>FiboWeb.war</li> </ul>

### Debugging

Prior to the debugging, we need to set some breakpoints inside the code.

Open the FiboBean. java file. Double click in left column to create a breakpoint.

In the example, the breakpoint is set in front of the test.



Open the ComputeServlet.java file. Double click in left column to create a breakpoint.

In the example, the breakpoint is set in front of the EJB creation.



Open a web browser and type http://localhost:8080/fibo/. The host/port can change if the web server listens on another host/port. You should see a simple form like the one above. Enter a positive value in the field and press compute.

Fibonacci Application - Mozilla Firefox	- 🗆 🛛
<u>File E</u> dit <u>V</u> iew <u>G</u> o <u>B</u> ookmarks <u>T</u> ools <u>H</u> elp	0
🗘 🗸 🎝 👻 🏠 🔲 http://localhost:8080/fibo/	~ 77
Fibonacci Form Limit: 50 Compute Reset	
Waiting for localhost 🔬 💩	<b>*</b> .::

Switch to your Eclipse workbench. You should see that execution has been suspended on the first breakpoint (in the servlet). You can go step by step in the code or continue with execution.

🕖 Fib	an.java 🔬 ComputeServlet.java 🗙 🔊 index.html	- 8
65	protected void doPost(	^ 🗆
66	HttpServletRequest request,	
67	HttpServletResponse response) throws ServletException, IOException {	_
68	response.setContentType("text/html");	
69	PrintWriter out = response.getWriter();	
70		
71	out.println(" <html><head><title>");</title></head></html>	
72	out.println("Fibonaci Computation");	
73	out.println("");	
74	out.println(" <body>");</body>	
75		
76	out.println(" <h1>");</h1>	
77	out.println("Fibonaci Computation");	-
78	out.println("");	
79		
80	try {	
2 81	Fibo bean = home.create();	
82	int limit = 0;	
83	String value = request.getParameter("limit");	<b>×</b>
	>	

Another suspension occurs when hitting the second breakpoint (in the EJB). You can go step by step in the code or continue with execution.



After resuming execution, the response should be in the browser. It should look something like this:

Fibonaci Computation - Mozilla Firefox				×
<u>File E</u> dit <u>V</u> iew <u>G</u> o <u>B</u> ookmarks <u>T</u> ools <u>H</u> elp			0	
			~	2
				^
Fibonaci Computation				
The 50 first Fibonacci numbers				
0:0.0				
1:1.0				
2:1.0				_
3:2.0				
4:3.0				
5 : 5.0				
6:8.0				
7:13.0				
8:21.0				
9:34.0				
10:55.0				
11:89.0				
12:144.0				
13:233.0				
14:377.0				~
Done	2	2	-	

### Conclusion

This simple tutorial was intended to give an overview of what is possible with JBoss-IDE. We hope that it will be useful for developers who want to develop for JBoss in Eclipse