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ZK™

The Quick Start Guide

Version 5.0.0

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Before You Start

New to the Servlet Container (aka., Java Web Server)

Before developing Web applications in Java (and running ZK demo in your machine), you have to install a Servlet container first. Apache Tomcat is one of the most popular Servlet containers. It is easy to install and use.

Prerequisites	Description
Documentation	http://tomcat.apache.org/tomcat-6.0-doc/index.html

New to Java Language

You don't need to know Java to use ZK, since all rich user interface can be implemented in HTML-like markup language called ZUML. However, to complete a Web application, you or teammate need some basic knowledge about Java. Here are some good tutorial.

Java	URLs
Language Basic	http://java.sun.com/docs/books/tutorial/java/nutsandbolts/index.html
Class and Object	http://java.sun.com/docs/books/tutorial/java/concepts/index.html
	http://java.sun.com/docs/books/tutorial/java/javaOO/index.html
	http://java.sun.com/docs/books/tutorial/java/IandI/index.html

1. Creating an Application from Scratch

1. Environment Setup

Prerequisite

There are three softwares you need to download and install prior to use ZK Studio:

Installing Java SE Development Kit (JDK)

1. Download at

JDK 6:

http://java.sun.com/javase/downloads/index.jsp

JDK 5:

http://java.sun.com/javase/downloads/index_jdk5.jsp

2. Select the "Java SE Development Kit (JDK)" to download, not JRE.

Installation Instructions:

http://java.sun.com/javase/6/webnotes/install/index.html

http://java.sun.com/j2se/1.5.0/install.html

Installing Application Server

1. Download Windows Service Installer from the following url.

   http://tomcat.apache.org/download-60.cgi

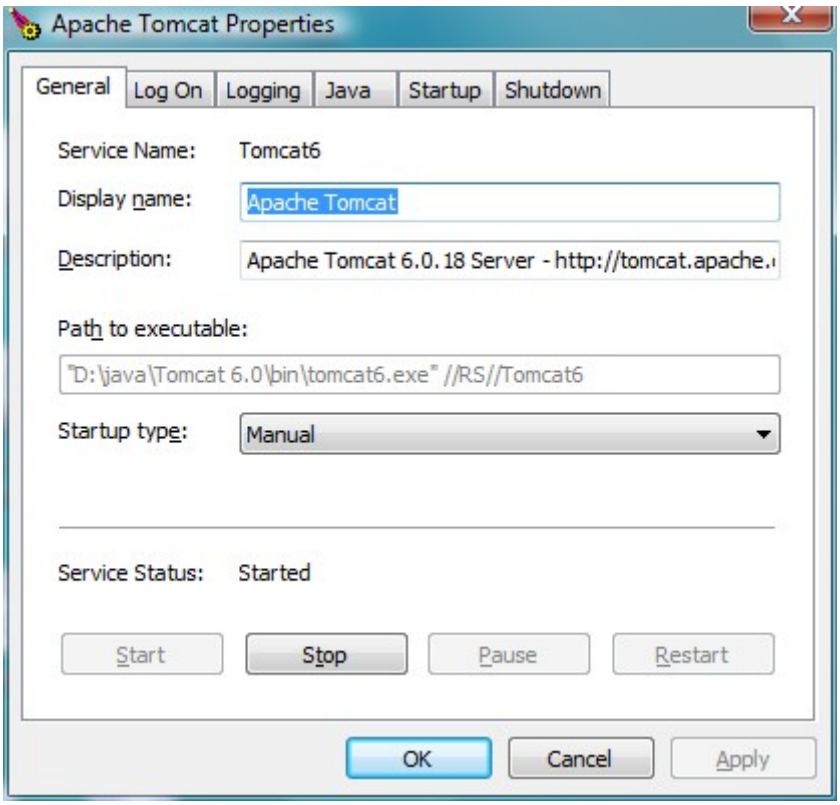
2. Double clicks apache-tomcat-6.0.18.exe to install Apache Tomcat

Notice: Suggest to setup the port number as **8080**.

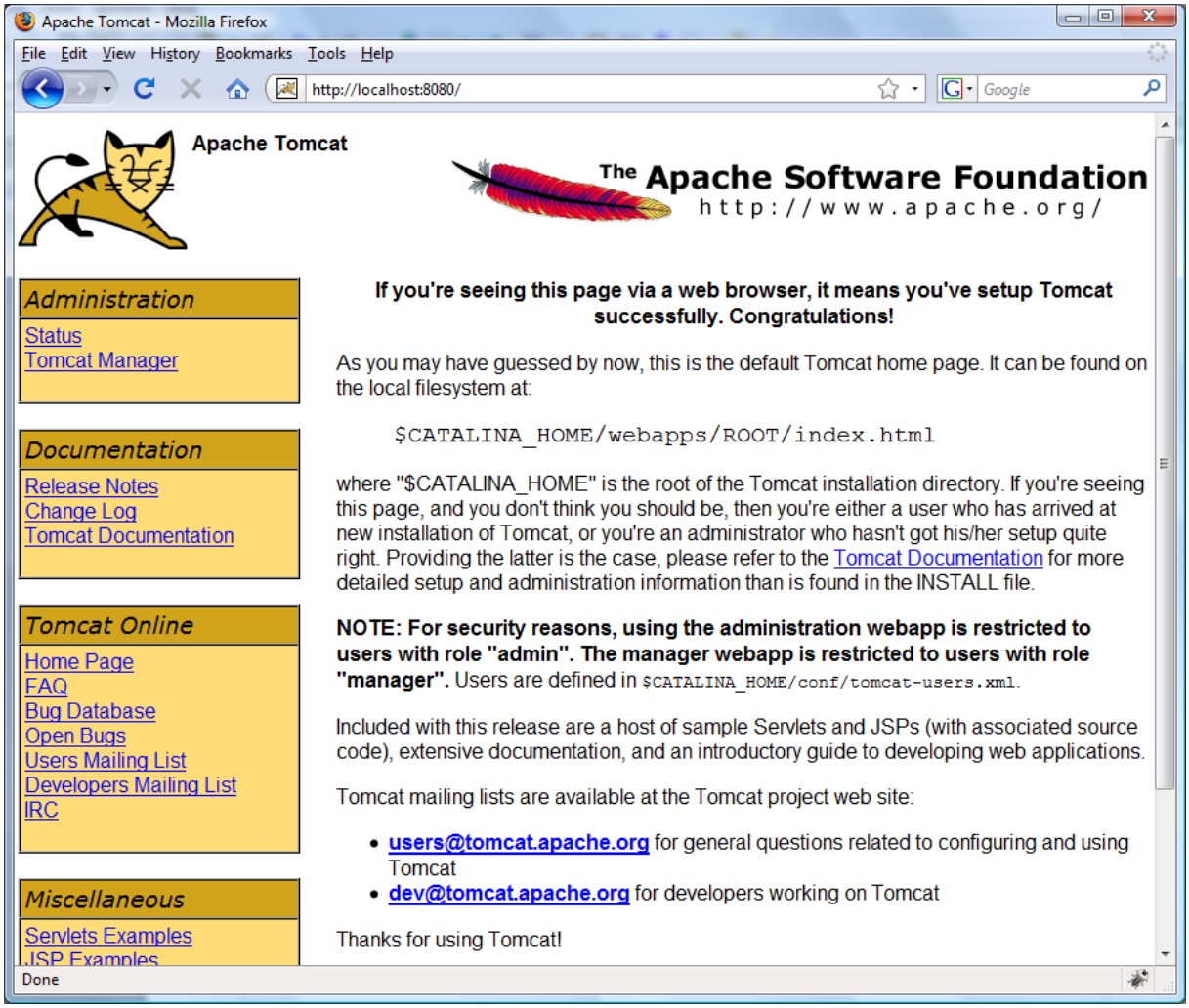
Running Application Server

Here are the steps to see if Tomcat has been successfully installed

1. Start Tomcat by finding its start program in the Programs Menu (located in the Start menu). Look under Apache Tomcat 6.0 and select "Monitor Tomcat". Click the Start button to activates the server.



2. Open a Web browser and type in the following URL:



At this point, you should see the Tomcat home page, which is provided by the Tomcat Web server running on your computer.

To shut down your server and remove the Console window, select "Stop Tomcat" in the same menu of where you selected "Stop Tomcat".

Download ZK Libraries

You have to download the ZK binary libraries in order to run or develop the ZK Web Application. Please download in http://www.zkoss.org/download/zk.dsp and save it to a proper location.

2. Step by Step Tutorial

1. Create Web Project

   Create a development directory under $TOMCAT_HOME\webapps. Say myZK. The structure of development directory is shown below:(ex.C:\Program Files\Apache Software Foundation\Tomcat 6.0\webapps\myZK\)

```
+myZK
   +WEB-INF
      web.xml
index.zul
```

2. Deploy ZK library

   Unzip zk-bin-5.x.x.zip file, and copy the following jar files to the $TOMCAT_HOME\webapps\$PROJECT_NAME\WEB-INF\lib (ex.C:\Program Files\Apache Software Foundation\Tomcat 6.0\webapps\myZK\WEB-INF\lib)

3. Create web.xml

   Create web.xml under $TOMCAT_HOME\webapps\myZK\WEB-INF, and Copy the following lines into web.xml

```
<web-app>
<!-- ZK -->
<listener>
<description>Used to clean up when a session is destroyed</description>
<display-name>ZK Session Cleaner</display-name>
<listener-class>org.zkoss.zk.ui.http.HttpSessionListener</listener-class>
</listener>

<servlet>
<description>ZK loader for ZUML pages</description>
<servlet-name>zkLoader</servlet-name>
<servlet-class>org.zkoss.zk.ui.http.DHtmlLayoutServlet</servlet-class>
<init-param>
```

```
<param-name>update-uri</param-name>
<param-value>/zkau</param-value>
</init-param>
<load-on-startup>1</load-on-startup>
</servlet>
<servlet-mapping>
<servlet-name>zkLoader</servlet-name>
<url-pattern>*.zul</url-pattern>
</servlet-mapping>
<servlet-mapping>
<servlet-name>zkLoader</servlet-name>
<url-pattern>*.zhtml</url-pattern>
</servlet-mapping>

<servlet>
<description>The asynchronous update engine for ZK</description>
<servlet-name>auEngine</servlet-name>
<servlet-class>org.zkoss.zk.au.http.DHtmlUpdateServlet</servlet-class>
</servlet>
<servlet-mapping>
<servlet-name>auEngine</servlet-name>
<url-pattern>/zkau/*</url-pattern>
</servlet-mapping>
</web-app>
```

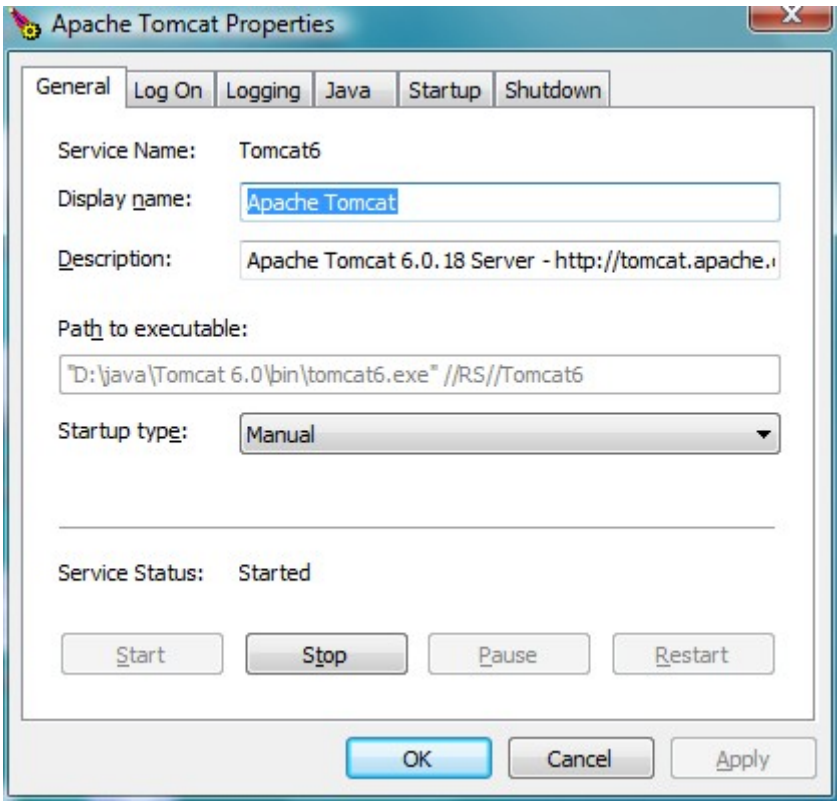
4. Create First Web Page

   Create index.zul under $TOMCAT_HOME\webapps\myZK\, and copy the following lines into it.

```
<window title="My First window" border="normal" width="200px">
Hello, World!
</window>
```

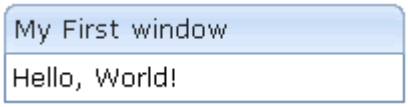
5. Activates Tomcat Server

   Use Tomcat Monitor to activates the Server.



6. Browse the Application

   Browse to http://localhost:8080/myZK/.



2. Creating an Application from Scratch (with IDE)

Installing Eclipse IDE

Eclipse IDE for Java EE Developers

1. Download the Eclipse IDE for Java EE Developers package.

http://www.eclipse.org/downloads/packages/eclipse-ide-java-ee-developers/ganymedesr1

1. Install

Extract the "eclipse" folder from downloaded zip file to a proper location. To make sure Eclipse IDE can be run in your system, execute the eclipse.exe (in windows environment) or eclipse (in *nix environment) in that eclipse folder to start up the Eclipse IDE.

We recommend to set the default JRE of Eclipse to JDK, refer to the Setup/Preferences section in WTP Tutorials – Building and Running a Web Application http://www.eclipse.org/webtools/community/tutorials/BuildJ2EEWebApp/BuildJ2EEWebApp.html

We recommend to modify some parameters in the configuration file eclipse.ini to gain performance, please refer to http://www.eclipsezone.com/eclipse/forums/t61618.html and http://blog.xam.dk/archives/68-Eclipse-and-memory-settings.html

Installing ZK Studio

Since ZK Studio is an Eclipse plugin, we recommend to install ZK Studio via Eclipse Update Manager. It provides a better installation experience and online update mechanism for maintain our release.

We have a detailed step-by-step install procedures in ZK Studio Installation Guide:

http://www.zkoss.org/smalltalks/zkstudioins/

Please follow the link according to the Eclipse version number of your Eclipse Installation to complete the installation.

Setup and Configure ZK Library

Download ZK Libraries:

You have to download the ZK binary libraries in order to run or develop the ZK Web Application. Please download in http://www.zkoss.org/download/zk.dsp and save it to a proper location. You can also extract the content, but it is not necessary.

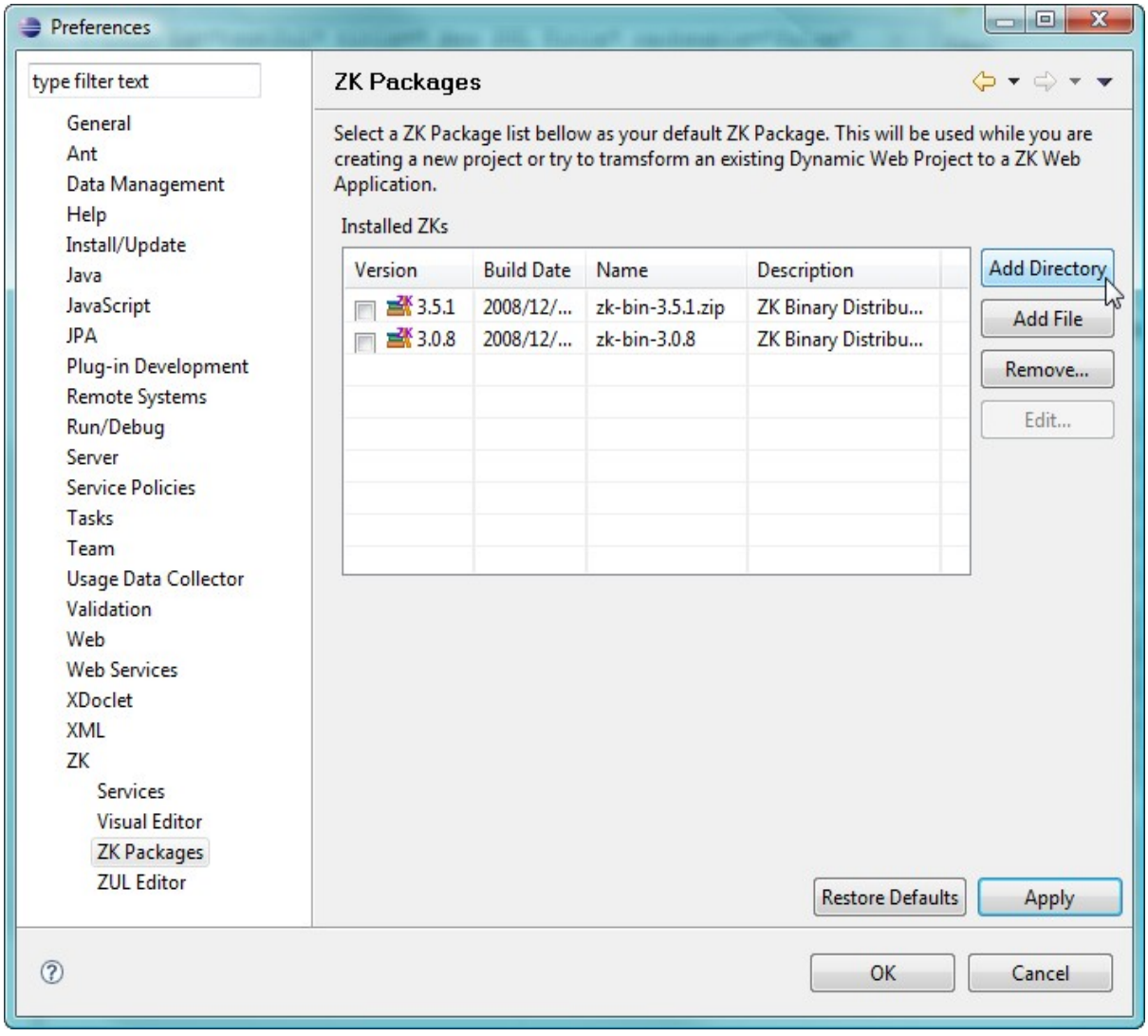
Configure ZK Libraries:

1.Start the Eclipse which already has ZK Studio installed.

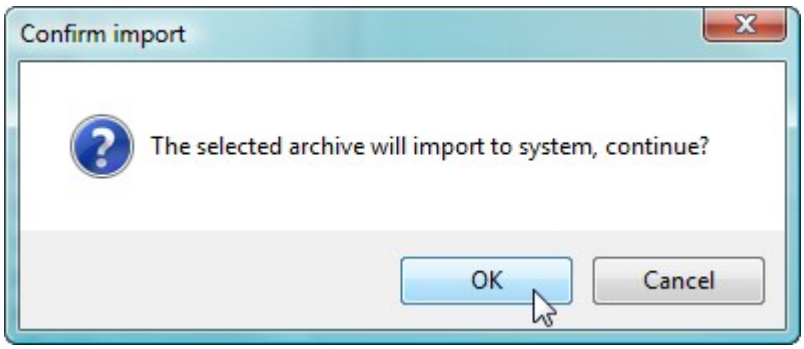
2.Click **[Window]/[Preferences]** in Eclipse main menu.

3.On the Preferences Window, select **ZK/ZK Packages**.

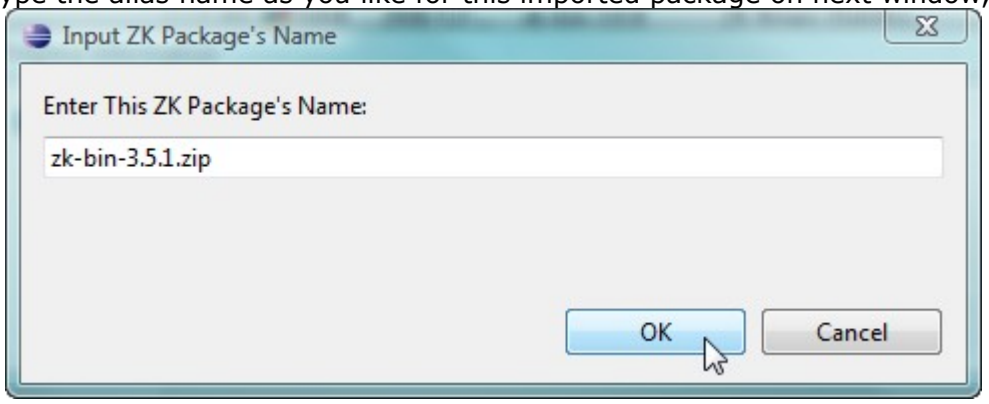
4.On the right panel of the ZK Packages preference page in Preferences Window, select **Add Directory** if you have extract the ZK Library zip file, point the location to the extracted file folder, then click OK; Otherwise select **Add File** if you didn't had extract the zip file, then select the ZK Package zip file.



5.It will popup a confirm window, click OK.

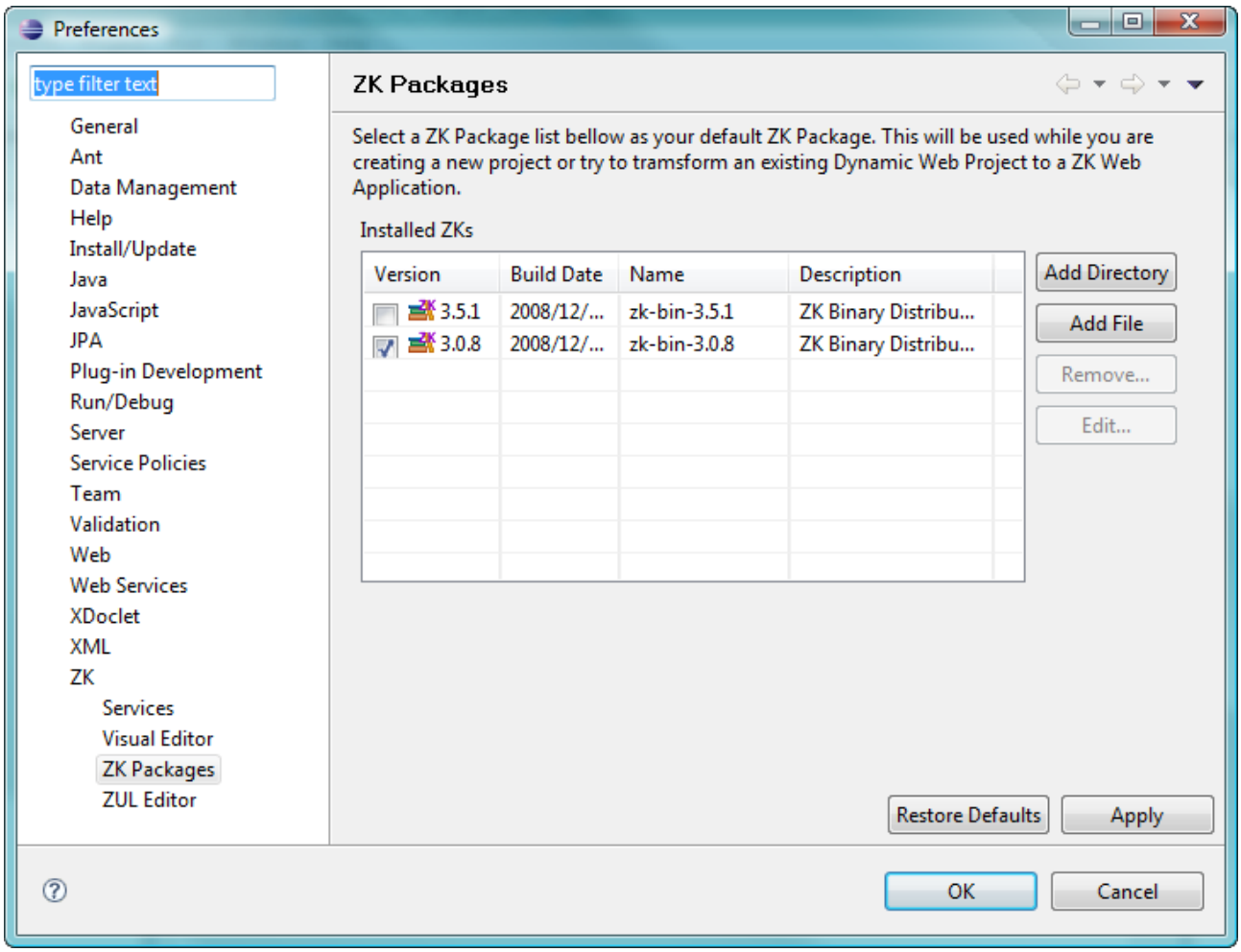


6.Type the alias name as you like for this imported package on next window, click OK.



7.ZK Studio will import the selected ZK library package.

In ZK Packages preferences page, you can check the check box of the imported ZK Packages on the ZK Package list as the default ZK library package for any ZK Web application you will create later. If you don't select anyone as a default ZK library package, ZK Studio will automatically choose the latest version of those imported ZK Packages.

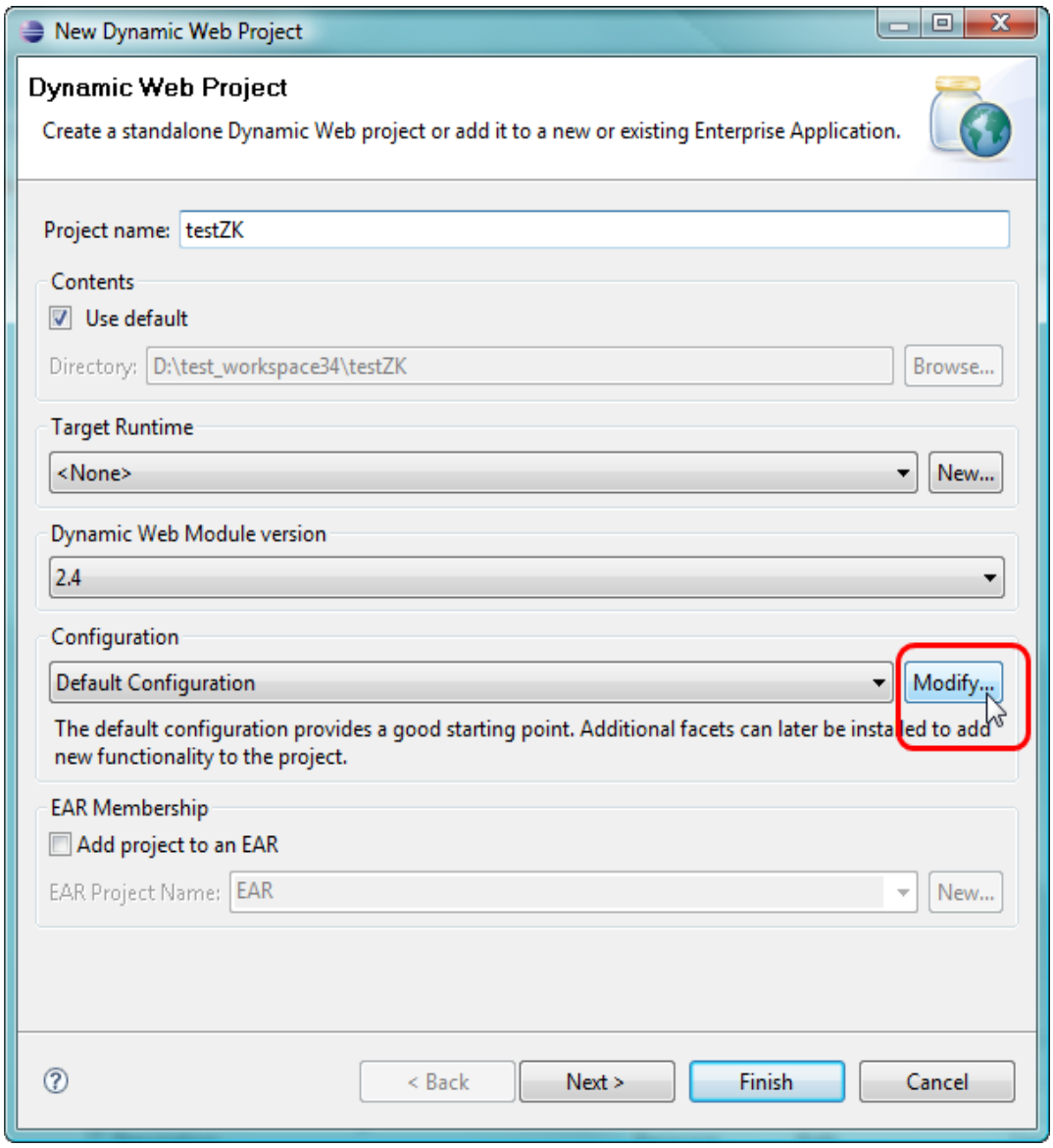


You can remove unwanted ZK package in ZK Packages preferences page in Preferences Window by select the row in ZK Package then click **Remove**.

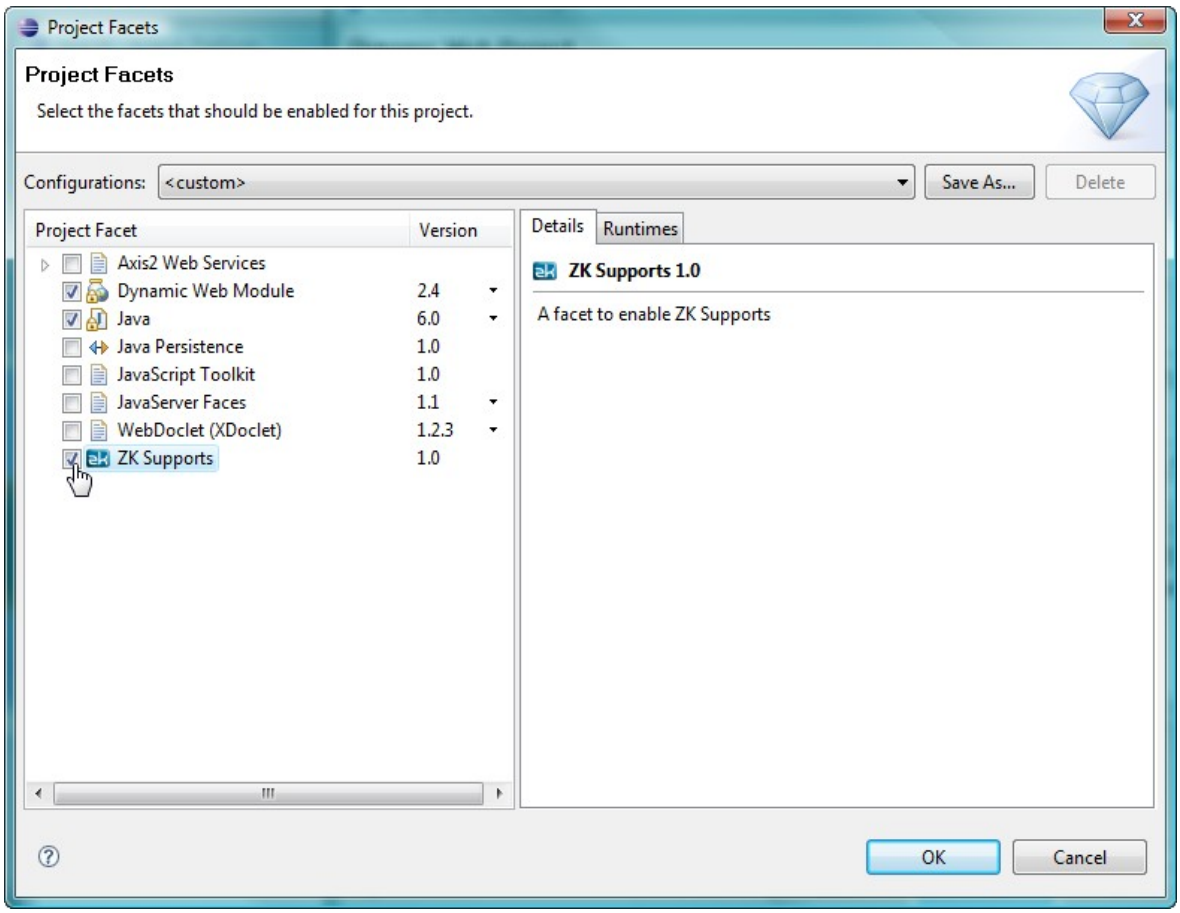
Create a New Dynamic Web Project

1.Click **[File]/[New]/[Dynamic Web Project]** in Eclipse main menu

2.Type the project name, click "**Modify...**" in the Configuration Column



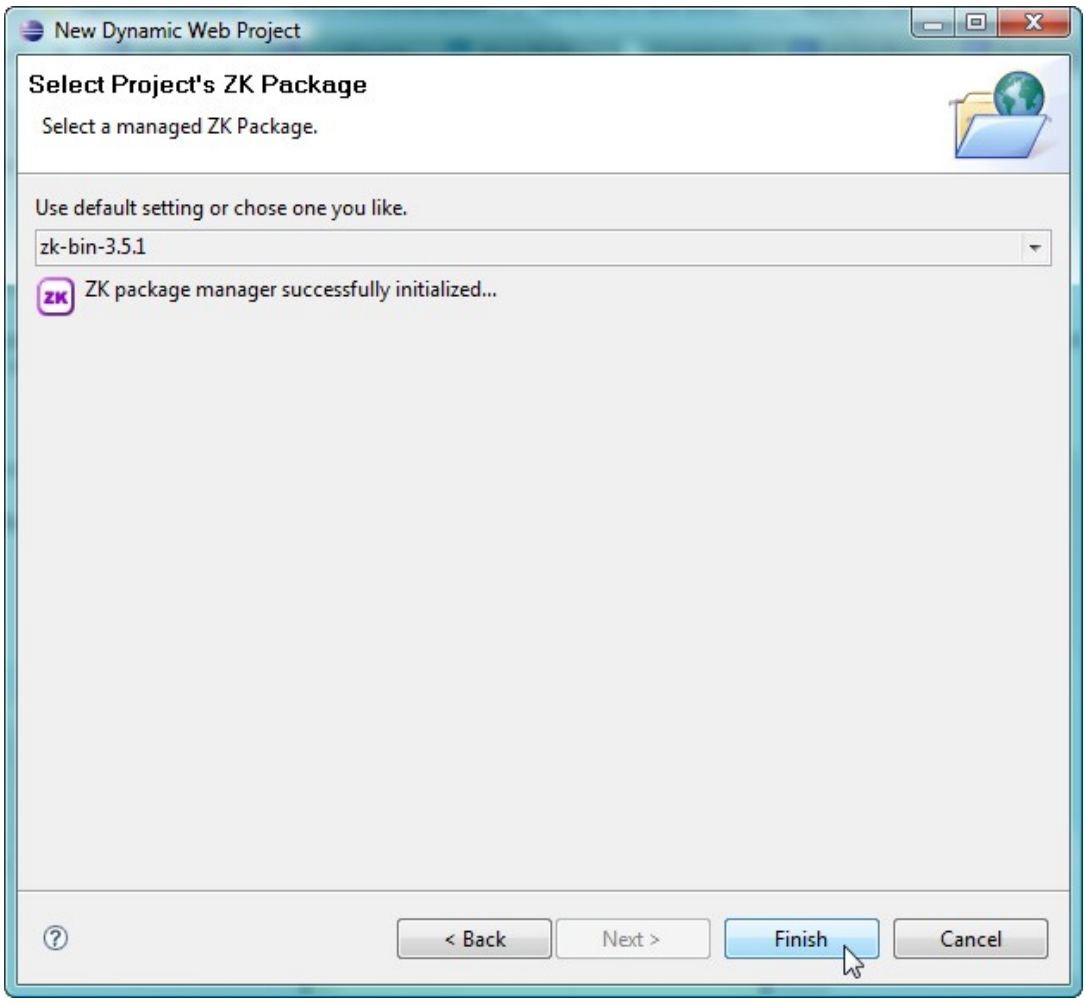
3.On the left side of pop-up Project Facets Window, select **ZK Supports**, then Click **OK**.



4.Click **Next**

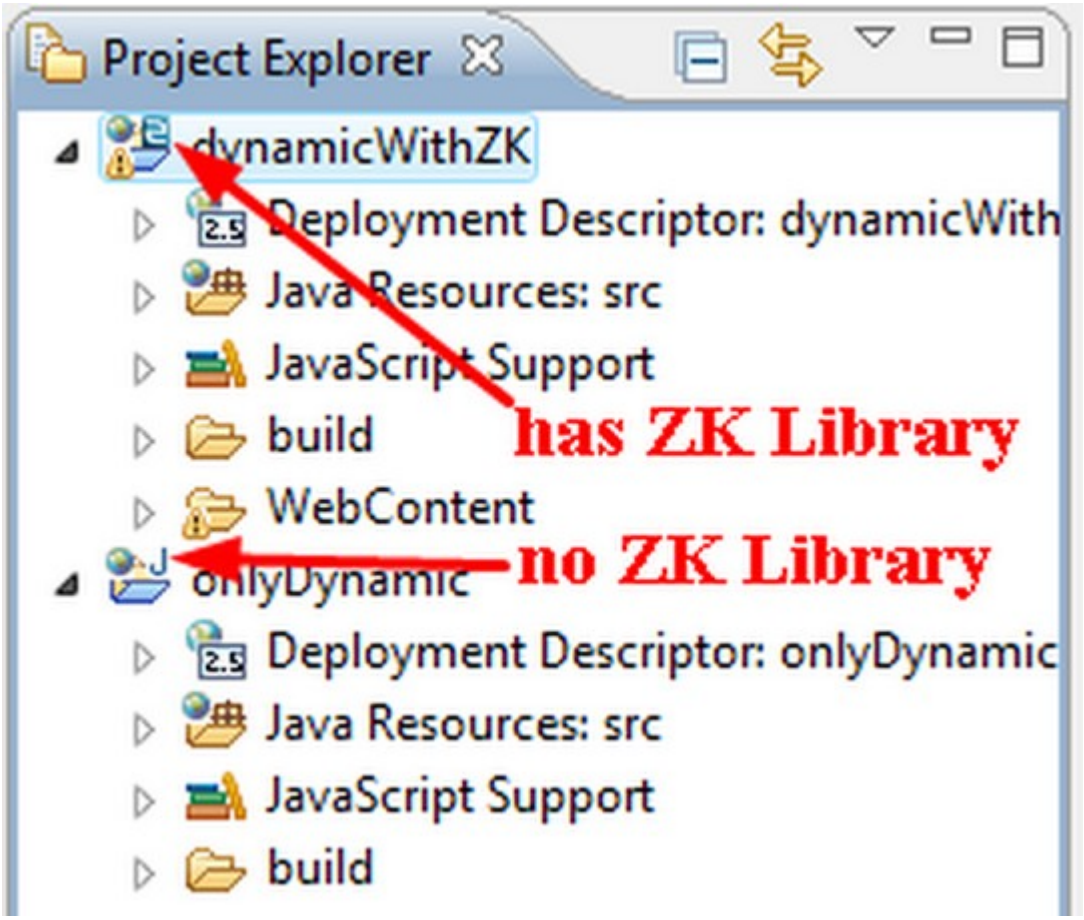
5.If you don't want to modify the default directory of Context Root, Content Directory, Java Source Directory, just click **Next**.

6.On the next page you can choose which ZK packages you want to use for this Dynamic Web Project. It will automatically choose the default ZK packages configured in the ZK Packages preferences page in Preferences Window of Eclipse.



7.Click **Finish**, the New Project Wizard will setup a Dynamic Web Project ready for development.

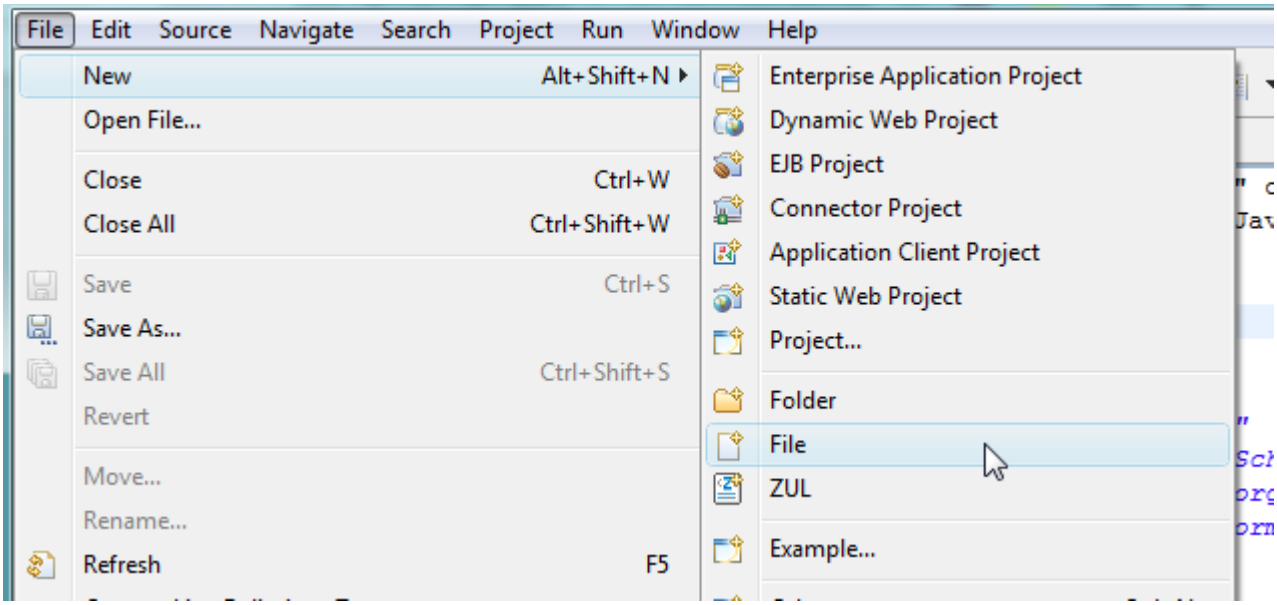
Tips:
You can see a ZK mark on the project's right top icon to indicate that this project is support ZK:



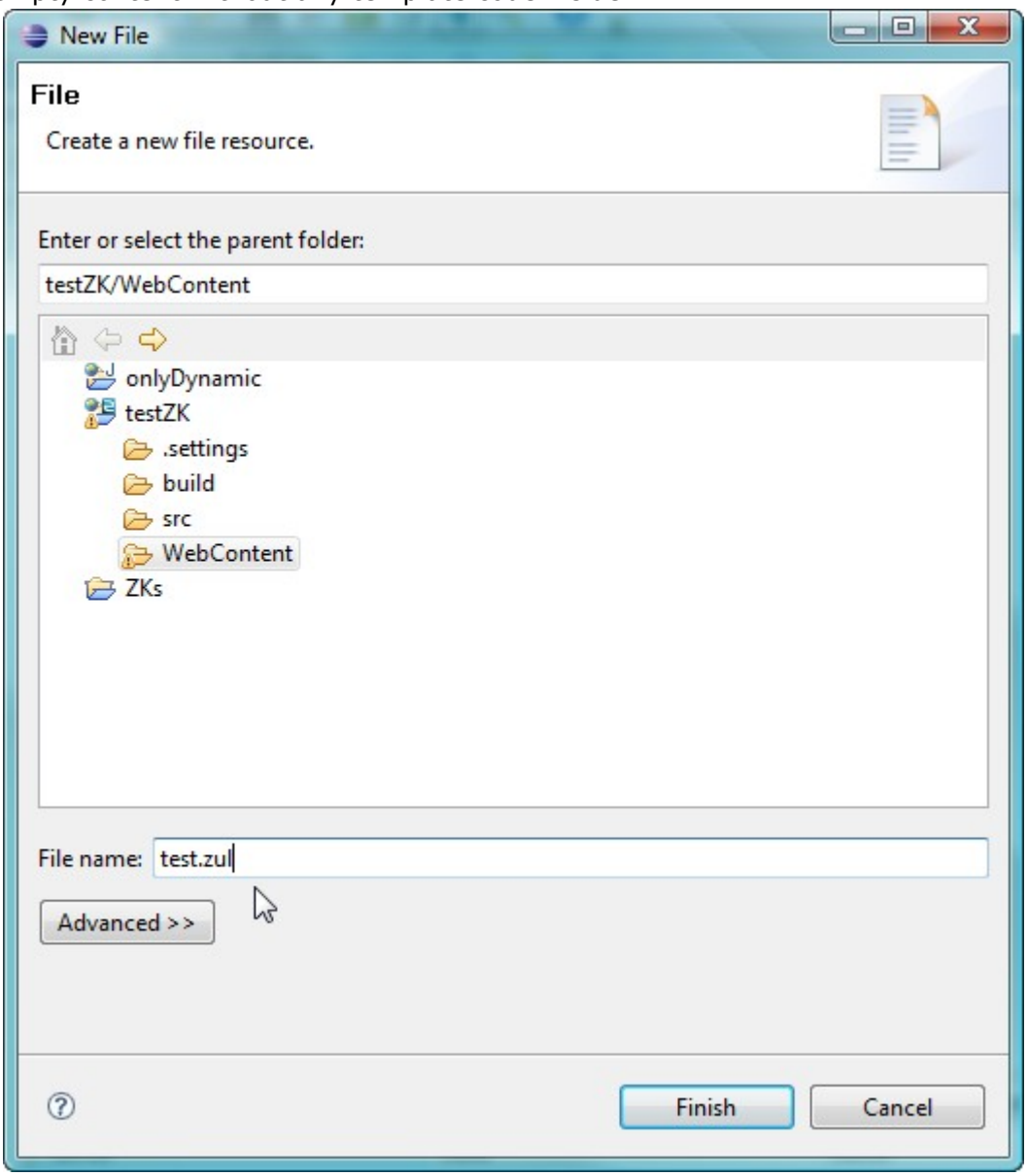
Create New ZUL File

Using New File Command

You can create new ZUL file via **[File]/[New]/[File]** command in Eclipse main menu.



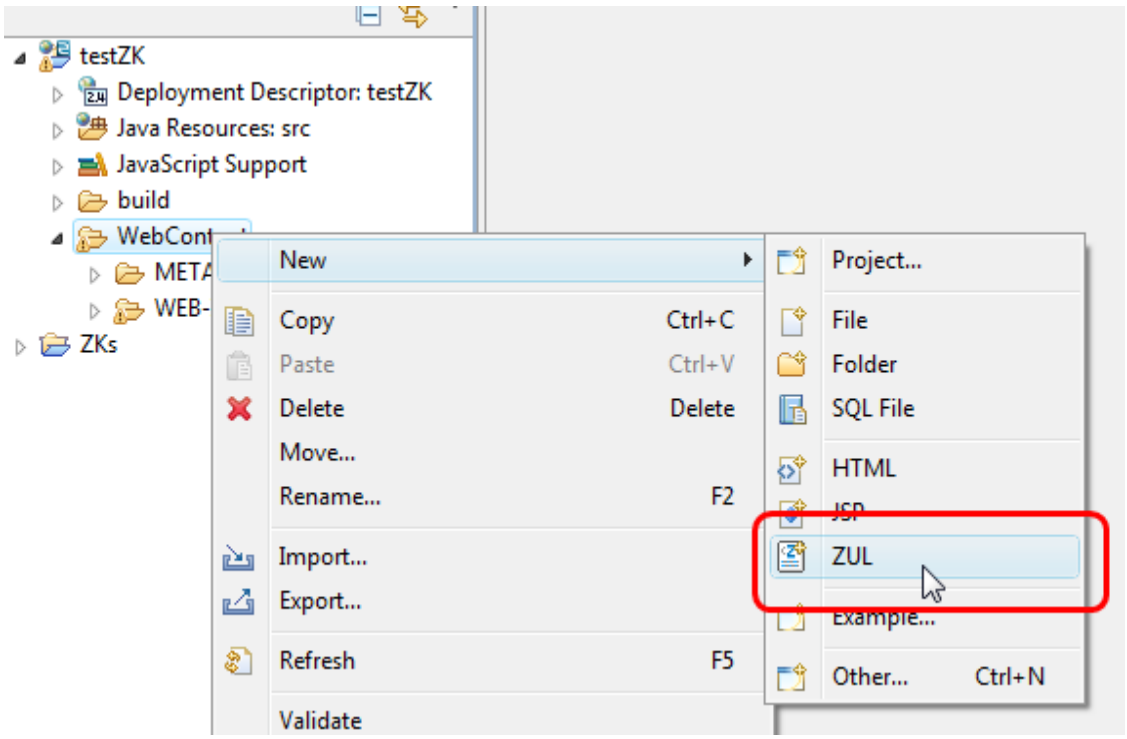
But you have to input the "**.zul**" extension for that file yourself, and the newly create zul file will be empty content without any template code inside.



Using New ZUL File Wizard

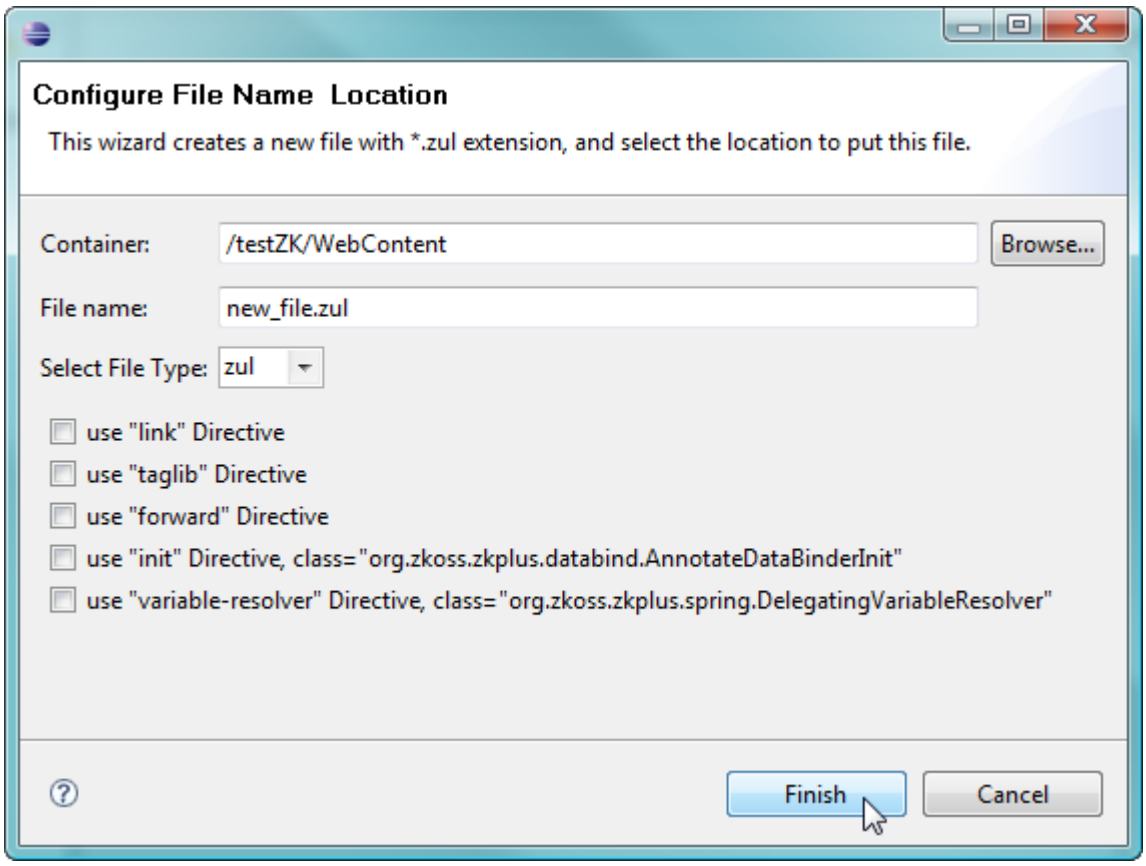
1.There are two ways to open New ZUL File Wizard:

(1)Right click on the opened project which has been created as Dynamic Web Project in "Project Explorer" view or "Package Explorer" view, select **[New]/[ZUL]**.



(2)Click **[File]/[New]/[ZUL]** in Eclipse main menu when you select an opened project which has been created as Dynamic Web Project.

2.Type the file name you want in **File name** textbox, select the options your want in the beneath check box.
(you can refer to developer's guide for the meaning of these instructions:
http://www.zkoss.org/doc/devguide-single/index.html#id457941
http://www.zkoss.org/doc/devref-single/index.html#id385772), click **Finish**.

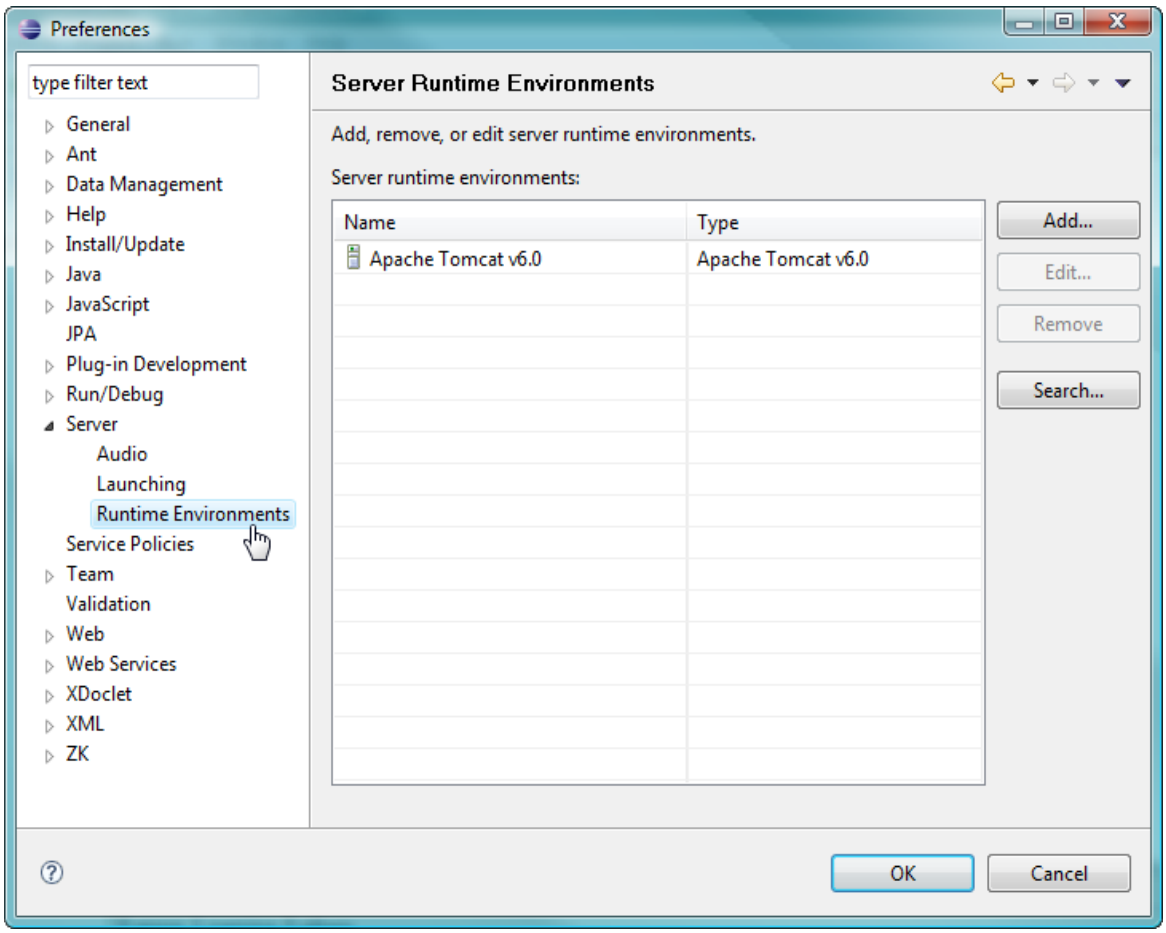


3.The newly created ZUL File will be opened in ZUL Editor.

Running the ZUL File

To run the ZUL File (that is, to run a ZK Web application in Eclipse), follow the instructions:

1.Configure Apache Tomcat server configuration in Eclipse:
You have to create a valid Apache Tomcat server configuration of the Apache Tomcat Server (The extracted tomcat zip file which is described in Application Severs section) in **Server/Runtime Environments** preference page in Eclipse's Preference Window.



Please refer to the "**Choose a Server Runtime Environment**" section in the "***WTP Tutorials – Building and Running a Web Application***" article on Eclipse: website http://www.eclipse.org/webtools/community/tutorials/BuildJ2EEWebApp/BuildJ2EEWebApp.html

Or you can refer "***2.Define a Server Runtime***" in this smalltalk: http://www.zkoss.org/smalltalks/eclipse/ek.html

2.Create a Server instance in Eclipse's Servers View:

Please follow the "**Create a Server**" section in the "***WTP Tutorials – Building and Running a Web Application***" article on Eclipse: website http://www.eclipse.org/webtools/community/tutorials/BuildJ2EEWebApp/BuildJ2EEWebApp.html or refer "***3.Define a Server Instance***" in http://www.zkoss.org/smalltalks/eclipse/ek.html to create a runnable server in Eclipse.

3.Start server, view result:

Please refer to the "**Start the Server**", "**Running the Application**" and "**Running the Application**" sections section in the "***WTP Tutorials – Building and Running a Web Application***" article on Eclipse: website http://www.eclipse.org/webtools/community/tutorials/BuildJ2EEWebApp/BuildJ2EEWebApp.html

3. Running A Sample Application

No Installation Required

The simplest way to test drive the power of ZK is to visit http://www.zkoss.org/zkdemo/userguide.

Installing Sample Application on Your Computer

If you want to run the demo on your local server, you can follow the following steps.

Notice: Make sure you have installed Java JDK, and application server on your computer or you have to refer to the previous chapter.

1. Download zk-demo-5.0.0.zip from here (sourceforge.net).

   http://downloads.sourceforge.net/zk1/zk-demo-5.0.0.zip

2. Unzip zk-demo-5.0.0.zip, and Copy zkdemo.war to the $TOMCAT_HOME\webapps directory

3. Execute $TOMCAT_HOME\bin\tomcat5w.exe, and clicks Start button to activate your Web Server.

4. Open your browser to visit http://localhost:8080/zkdemo/userguide.

   The port number depends on how you installed your Web or application servers. Some application servers deploy only the EAR file. That is, you have to deploy zkdemos.ear instead.

Appendix A. The Content of Binary Distribution

This chapter describes the content of zk-bin-5.0.0.zip.

/doc

This directory holds the documents including copyrights and release notes.

/dist/lib

This directory holds the binary libraries required to run ZK.

/dist/lib/zkforge

This directory holds the components from ZK Forge, such as FCKeditor. It is optional depending on whether you need them.

File	Description
fckez.jar	Required if you want to use ZK FCKeditor components. Version: 2.6.4.1_50
ckez.jar	Required if you want to use ZK CKeditor components. Version: 3.0_50 [not available in the community edition]
gmapsz.jar	Required if you want to use ZK Google Maps components. Version: 2.0_50 [not available in the community and professional edition]
timelinez.jar	Required if you want to use ZK Timeline components. Version: 2.3.0_50 [not available in the community edition]
timeplotz.jar	Required if you want to use ZK Timeplot components. Version: 1.0_50 [not available in the community edition]
zuljsp.jar	Required if you want to use ZK JSP Tags Version: 1.4.0-RC

File	Description
	[not available in the community and professional edition]

/dist/lib/ext

This directory holds the external libraries required to run ZK. Since these libraries are common, you might have installed them in your container.

Here are optional jar files. You can choose whether to copy depending on your requirements.

File	Description
commons-fileupload.jar commons-io.jar	Required if you want to upload files with them. Version: Commons Fileupload 1.2.1 and Commons IO 1.3.1
jcommon.jar jfreechar.jar	Required if you want to use ZUL's chart component. Version: JFreeChart 1.0.13 and JCommon 1.0.16 [not available in the community edition]
jasperreports.jar itext.jarjxl.jar poi.jar commons-collections.jar commons-logging.jar commons-digester.jar	Required if you want to use the jasperreport component. Version: Jasper Reports 3.7.0(itext: 2.1.7, commons-collections: 3.2.1, commons-logging: 1.1.1, commons-digester: 2.0, jxl: 2.6.12, poi: 3.2) Note: poi.jar is required if you want to use Apache POI to generate Microsoft Excel format. And, jxl.jar is required only if you want to use JExcelApi to generate the Microsoft Excel format. [not available in the community edition]
bsh.jar	Required if you want scripting in Java interpreter (BeanShell). Version: BeanShell 2.0b4
js.jar	Required if you want scripting in JavaScript (Rhino). Version: Rhino 1.7R2 (for Java 5 or later)
groovy.jar	Required if you want scripting in Groovy. Version: Groovy 1.7 (groovy-all)
jruby.jar	Required if you want scripting in Ruby (JRuby). Version: JRuby 1.1.2 (jruby-complete)
jython.jar	Required if you want scripting in Python

File	Description
	(Jython). Version: Jython 2.5.0
Filters.jar	Required if you want to use the captcha component. Version: JH Labs Java Image Filters [not available in the community edition]
mvel.jar	Required if you want to use MVEL to evaluate the expressions. Version: MVEL 1.2.21 (for Java 1.4 or above) [not available in the community and professional edition]
ognl.jar	Required if you want to use OGNL to evaluate the expressions. Version: OGNL 2.6.9 [not available in the community and professional edition]

/dist/src

This directory holds the source codes in JAR format. These JAR files are used for debugging in IDE, such as Eclipse. You cannot build the binary libraries from these. Rather, download and uncompress zk-src-5.0.0.tar.gz.

/dist/xsd

This directory holds the XSD files that might be useful to develop ZK applications.

/dist/WEB-INF

This directory holds the TLD files. These TLD files are part of JAR files so they are loaded automatically. We put them here mainly for your reference only.

Appendix B. The Content of Demo Distribution

This chapter describes the content of zk-demo-5.0.0.zip.

/

This directory holds the executable: zkdemo.war, zkdemo-min.war, zkdemos.ear and zkdemos-min.ear. Refer to the Installation chapter for details.

/zkdemo

This directory holds the source codes of the live demo.

/MyApp

This directory holds an empty Web application which you can start your new Web application from.