WebSphere. software

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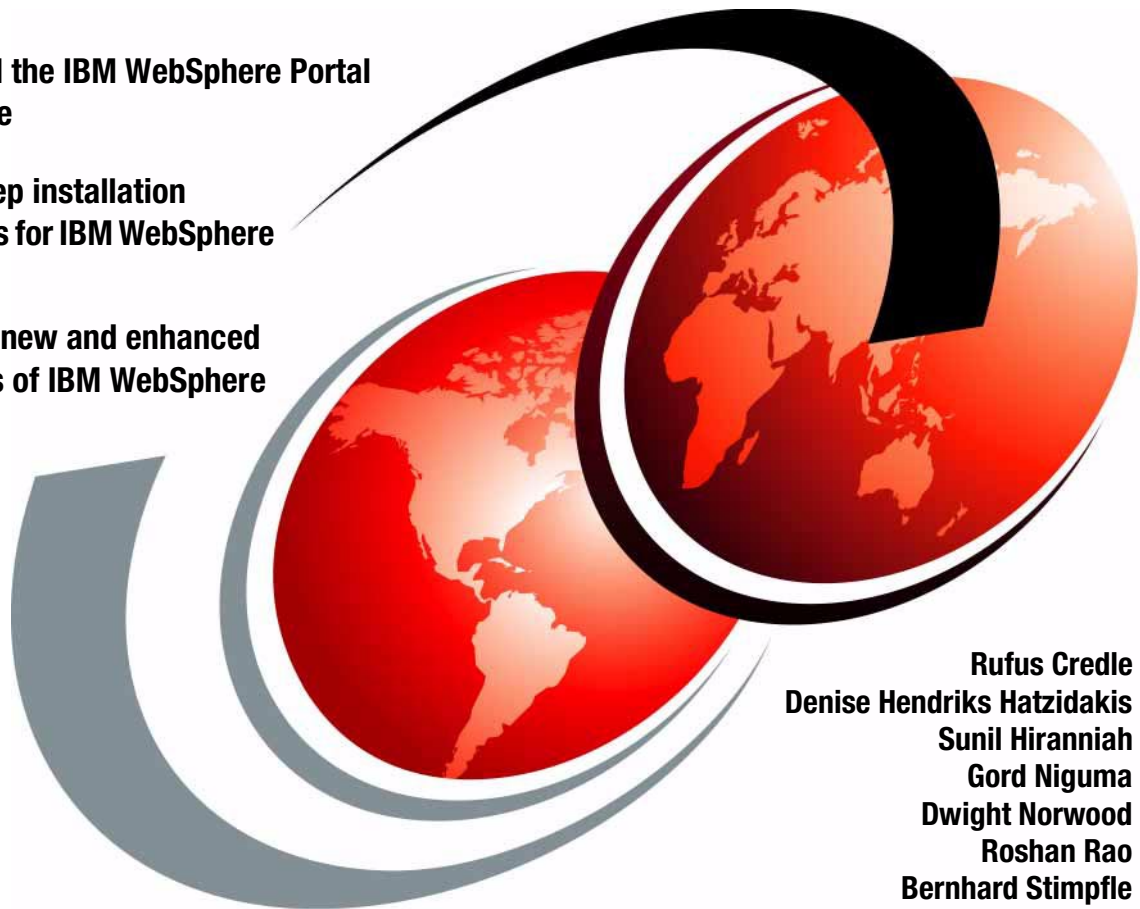# IBM WebSphere Portal V4.1 Handbook Volume 2

Understand the IBM WebSphere Portal architecture

Step-by-step installation instructions for IBM WebSphere Portal

Implement new and enhanced capabilities of IBM WebSphere Portal

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International Technical Support Organization

IBM WebSphere Portal V4.1 Handbook Volume 2

January 2003

> **Note:** Before using this information and the product it supports, read the information in "Notices" on page ix.

First Edition (January 2003)

This edition applies to IBM WebSphere Application Server Advanced Edition V4.0.2, IBM SecurewayDirectory V3.2.2, IBM WebSphere Personalization V4.0, DB2 Universal Database V7.2, IBM WebSphere Studio Application Developer V4.02, and IBM WebSphere Portal for Multiplatform V4.1.2.

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Preface

The IBM WebSphere Portal V4.1 Handbook is available in three volumes of redbooks. This is volume 2.

These redbooks positions the IBM WebSphere Portal for Multiplatforms as a solution that provides a single point of interaction with dynamic information, applications, processses and people to help build successful business -to-employee (B2E), business-to-business (B2B), business-to-consumer (B2C) portals.

WebSphere Portal consists of three packaged offerings:

► Portal Enable
► Portal Extend
► Portal Experience

In the three volumes of the IBM WebSphere Portal V4.1 Handbook, we cover WebSphere Portal Enable and Extend.

The IBM WebSphere Portal V4.1 Handbook will help you to understand the WebSphere Portal architecture, how to install and configure WebSphere Portal, how to administer portal pages using WebSphere Portal, discuss the development of WebSphere Portal portlets, and how to use specific WebSphere Portal applications.

Across the volumes of the IBM WebSphere Portal, you will find step-by-step examples and scenarios showing ways to rapidly integrate your enterprise applications into an IBM WebSphere Portal Server environment using state-of-the-art technologies, such as portlets, and implementing new and enhanced capabilities incorporated in the current releases of IBM WebSphere Portal Server offerings, such as access controls and page customization using themes and skins.

In this redbook, we discuss the administration and portlet development of WebSphere Portal. In addition, we discuss the use of Web Services.

A basic knowledge of Java technologies such as servlets, JavaBeans, EJBs, JavaServer Pages (JSPs), as well as XML applications and the terminology used in Web publishing, is assumed.

Figure 0-1   The team (left to right), Gord Niguma, Roshan Rao, Denise Hendriks Hatzidakis, Rufus Credle, Sunil Hiranniah, Dwight Norwood, and Bernhard Stimpfle.

The team that wrote this redbook

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1

Portlet development

This chapter introduces portlet development. We shall discuss some basic concepts used in portlet Development and walk through the steps for building a simple portlet. The scope for this book does not cover Portlet API. For a detailed information and reference to Portlet API, refer to *IBM WebSphere Portal Developers Handbook*, SG24-6897, available after January 2003.

1.1 Basic definitions

In this section, we discuss the basic definitions for Portal, portlet, and portlet application.

1.1.1 Portal

A Portal as shown in Figure 1-1 is a Web site that provides end users with a single point of access to Web based resources by aggregating those resources in one place and by requiring that users log in only to the portal itself and not to each application (portlet) they use. Over the years, portals have evolved to provide aggregation of content from sources such as rich text, video, and XML and provide personalized services such as user customization of layout and content.

To accommodate the aggregation and display of such a diverse content, WebSphere Portal Server provides a framework that divides the limited space within a Web page among multiple applications.
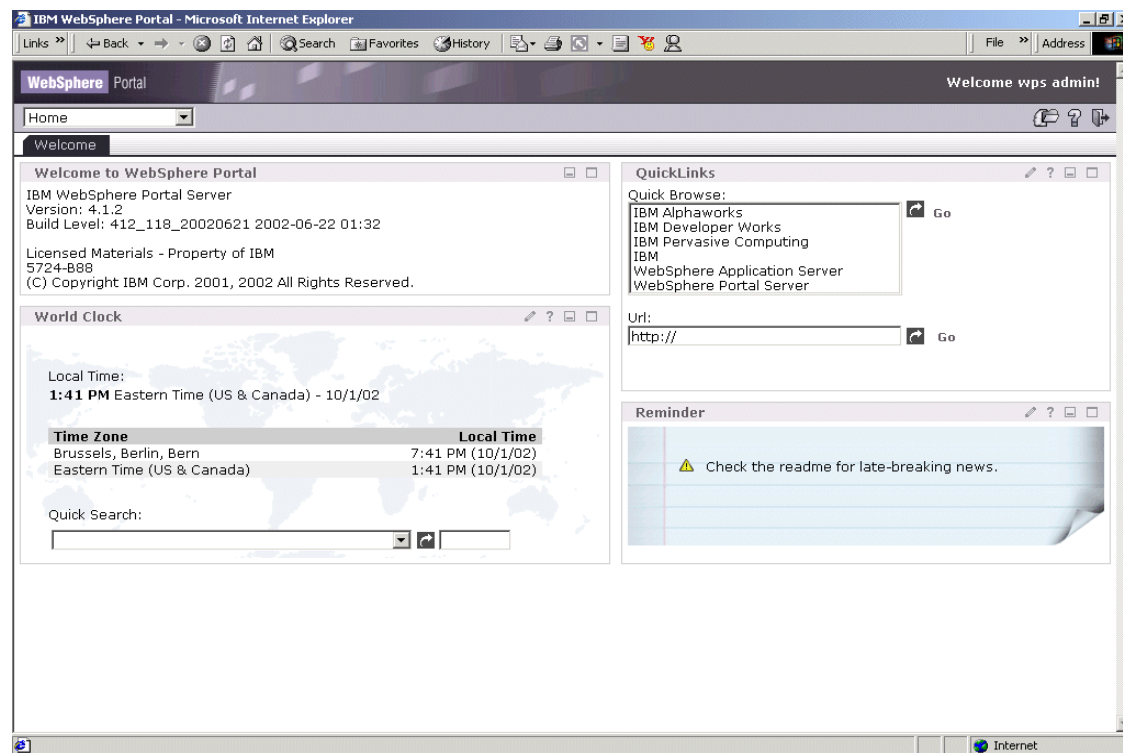

Figure 1-1   This is how a Portal looks

Characteristics of a Portal

The fundamental characteristics of a portal are:

- ▶ Information aggregation
- ▶ Targeted and personalized information
- ▶ Managed content
- ▶ Single Sign-On

1.1.2 Portlet

A portlet is an application that is hosted by the portal. In the Portal example shown in Figure 1-1, Welcome, Quicklinks, World Clock, and Reminder are some of the default portlets that come with WebSphere Portal installation. Discussing some of portlet features:

- ▶ A portlet, a **plug-able** component that represents an application.
- ▶ From a developers perspective, portlet is a Java client that runs on the server.
- ▶ Portlet provides output to the user by generating markup output that is assembled into a portal page by the portal.
- ▶ Portlet manages the user's preferences for the associated application.

1.1.3 Portlet application

A portlet application is a set of portlets grouped together in an execution context.

- ▶ The portlet application provides no code, per se, the application is just a vehicle for grouping portlets.
- ▶ Portlets within the same application package share the same context, for example, images, properties files, and classes.
- ▶ The set of portlets are packaged into a Web archive file, called a (WAR) file.
- ▶ Portlets in a portlet application may communicate with other portlets in the portlet application using custom messages.

1.2 Portlet concepts

Portlets are more than simple views of existing Web content. Portlets have multiple states and view modes, plus event and messaging capabilities. Portlets run inside the portlet container of a portal server, similar to a servlet running on an application server. The abstract portlet class is the central abstraction of the Portlet API. The portlet class extends HTTPServlet of the Servlet API as shown

in Example 1-1. Therefore, portlets are a special type of servlets, with properties that allow them to easily plug into and run in the Portal server.

However, unlike servlets, portlets cannot send redirects or errors to browsers directly, forward requests, or write arbitrary markup to the output stream. This can be done only by the Portal itself, which controls the overall response page.

Example 1-1   General hierarchy for a portlet class

```
+--Javax.servlet.http.HttpServlet
      |
     +--org.apache.jetspeed.portlet.Portlet
         |
        +--org.apache.jetspeed.portlet.PortletAdapter
           |
                      +--com.myCompany.myApplication.myPortlet
```

Generally, portlets are administrated more dynamically than servlets. For example, portlet applications consisting of several portlets can be installed or removed while the portal server is running. The settings and access rights of a portlet can be changed by an administrator even in a production environment. The portlet container provides a runtime environment in which portlets are instantiated, used, and finally destroyed. Portlets rely on the portal infrastructure to access user profile information, for communicating with other portlets, accessing remote content, and to store persistent data. In this chapter, we will discuss some basic portlet concepts.

1.2.1 Portlet objects

We will discuss some of the control structures accessible by a portlet.

> **Note:** Understanding these control structures is essential for knowing Portlet API. However, the scope of this book does not cover Portlet API. The main emphasis is to discuss some of the control structures accessible by a portlet, which will help you to understand portlet development and portal administration.

PortletConfig

The portlet container relies on the J2EE architecture implemented by WebSphere Application Server. As a result, portlets are packaged in WAR files similar to J2EE Web applications and are deployed like servlets. Like other servlets, a portlet is defined to the application server using a Web application deployment descriptor, Web.xml.

> **Definition: Web.xml** defines the Web application characteristics of the portlet application. Includes portlet class names and portlet configuration data. The portlet can read these configuration data using the PortletConfig object.

PortletSettings

In addition to the Web.xml file, the portlet WAR file must also contain a portlet deployment descriptor, portlet.xml.

> **Definition: Portlet.xml** defines characteristics of the portlet application. Portlet.xml contains configuration parameters like portal application names, portlet titles and other data specific to a particular portlet or portlet application. These configuration parameters are read/write accessible and persistent in the PortletSettings object.

They are changeable by the administrator during runtime. When an administrator deploys a new portlet, or uses the administration user interface to copy an existing portlet, a PortletSettings object is associated with the portlet and a concrete portlet is created. There is no Java object that explicitly represents a concrete portlet.

> **Definition:** The **concrete portlet** is purely an association of the portlet's Java class instance with a set of configuration parameters. During the lifecycle of a single portlet, many concrete portlets can be created and destroyed. The same concrete portlet can be shared by many users. Each concrete portlet represents one available portlet.
>
> A **concrete portlet application** is a portlet application parameterized with a single PortletApplicationSettings object. For each portlet application, there may be many concrete portlet applications. A concrete portlet application contains at least one concrete portlet from the portlet application, but it is not required to contain all of them.

PortletData

A concrete portlet is placed on a portal page by a user or an administrator. This creates a concrete portlet instance, which is a concrete portlet parameterized (associated with) a single PortletData object. There can be many concrete portlet instances per concrete portlet. The PortletData object stores persistent information for a portlet on a page. This information cannot be changed by an administrator; it may only be written by the portlet itself. For example, a stock quotes portlet may have an edit page where a user can specify a list of stock symbols to include in the list of quotes. The portlet saves this information in the PortletData object associated with the concrete portlet instance. The scope of

the PortletData object depends on the scope of the page containing the concrete portlet instance:

If an administrator puts a concrete portlet on a page accessible by multiple users, then the PortletData object contains data applicable to all users. In the case of the stock quotes portlet, this would mean that every user would see the same list of stock symbols. However, if some of those users have edit access to the portlet, then once the user edits the portlet, a new concrete portlet instance is created. The PortletData object for the new instance contains information for that user alone.

If a concrete portlet is added to a page by a user, the PortletData object contains data for that user alone. The concrete portlet instance is not used by anyone else.

PortletSession

The PortletSession object is a subclass of HttpSession. When a user accesses a page that contains a portlet, a user portlet instance is created. A user portlet instance is a concrete portlet instance parameterized by a single PortletSession. There can be many user portlet instances per concrete portlet instance. The PortletSession stores transient information related to a single use of the portlet.

PortletRequest

The PortletRequest object is a subclass of the HttpServletRequest. It provides access to attributes (name/value pairs associated with the request), parameters from the URI query string, and other control structures such as the Client, PortletData, and PortletSession objects.

PortletResponse

The PortletResponse is a subclass of the HttpServletResponse. It encapsulates information to be returned from the server to the client. It can be used by the portlet to return portlet output using a Java PrintWriter. It provides methods for creating portlet URIs and qualifying portlet markup with the portlet's namespace.

1.2.2 Portlet modes

Portlet modes allow a portlet to display different user interface, depending on the task. There are four different modes: view, edit, help, and configure.

View

When a portlet is initially constructed on the portal page, it is displayed in its View mode. All portlet's must support view mode. This is the portlet's normal mode of operation.

Edit

If Edit mode is supported, the portlet provides a page for users to customize the portlet for their own needs. For example, a news portlet can provide an edit page for a user to enter the number of headlines to be displayed. Edit mode is accessed through the pencil icon on the portlet's title bar.

Help

If Help mode is supported, the portlet provides a help page for user's to obtain more information about the portlet. Help mode is accessed through the question mark ("?") icon on the portlet's title bar.

Configure

If Configure mode is supported, the portlet provides a page for portal administrators to configure a portlet for a user or a group of users. Configure mode is accessed through a wrench icon on the portlet's title bar.

1.2.3 Portlet states

Portlet states allow users to change how the portlet window is displayed within the portal. In a browser, users invoke these states with icons in the portlet title bar in the same way that Windows applications are manipulated. Portlet states are maintained in the PortletWindow.State object with a boolean value. The states are:

Normal

When a portlet is initially constructed on the portal page, it is displayed in its normal state - arranged on the page along with other portlets.

Maximized

When a portlet is maximized, it is displayed in the entire body of the portal, replacing the view of other portlets.

Minimized

When a portlet is minimized, only the portlet title bar is displayed on the portal Page.

1.3 Portlet development

There are five steps required for portlet development.

- ► Setup a Portlet Development Environment - You can use any of the editor like wordpad, WSAD for creating portlets

- ► Develop and build the portlet application

- ► Deploy the portlet application for test

- ► Test the portlet

- ► Deploy the portlet to a Portal production server

In this section of the chapter, we will show how you can develop and deploy a simple **My HelloWorld** portlet.

1.3.1 Development tools

You can use a normal text editor like wordpad or use WebSphere Application Developer for developing portlets. In this chapter, we have used the Wordpad Editor.

WebSphere Studio Application Developer (WSAD)

WSAD is a leading development suite based on WebSphere Studio Workbench. WSAD suite provides a single environment for designing, developing, debugging and deploying J2EE applications. Portlets can be developed using WSAD. WSAD can also be configured with Lotus Sametime toolkit for rapid development of a custom collaborative portlet application.

Portal Development Kit (PDK) plug-in

This plug-in installs the IBM Portlet API, wizards and related documentation into the Studio environment.The PDK provides wizards for developing portlet applications based on different architectural templates and for creating and configuring instances of portal servers.

1.3.2 Portlet development steps

Step 1 Create directory structure for your portlet

Portlet application directory structure is very similar to the directory structure for a Web application. Directory structure is maintained in the portlet application (Web Archive) WAR file. A Web Archive (WAR) file is Web module containing the application's Web components. WAR file, has a top-level directory, which is the document root.

Create a document root containing the following sub-directories as described in Example 1-2.

Example 1-2   Create a sample war structure

```
myhelloWorld\Web-INF - You will place your deployment descriptors (Web.xml and
portlet.xml) here.
myhelloWorld\Web-INF\classes - This is where your source will go.
myhelloWorld\Web-INF\lib - This is where you will place the JAR file.
myhelloWorld\META-INF - This is where your manifest file will reside
ndex.html ...any static/dynamic Web resource(s)
```

The Web-INF directory may additionally contain Tag library descriptor files (TLD), used for custom JSP tags. The jar utility shipped with Java SDK can be used to create a WAR file. The only difference between a regular JAR file and a WAR is the directory structure. So, you can simply change to the document root of your Web archive structure and issue the command below.

Step 2 Create Java source file

The Java source file that you will be creating as shown in Example 1-3 needs to go under Web-INF\classes directory. We will create and compile HelloWorld.Java and place it under myhelloWorld\Web-INF\classes.

> **Note:** Make sure you use the JDK that comes with WebSphere Application Server.

Once the Java source is compiled, you can create a JAR file in the Web-INF directory. For this portlet development, only one class file will be used and we will not be packaging as a JAR file.

Example 1-3   Java Source file

```
import com.ibm.wps.portlets.*;
import org.apache.jetspeed.portlet.*;
import org.apache.jetspeed.portlets.*;
import Java.io.*;
/* This portlet demonstrates how to display an image in a portlet */
public class HelloWorld extends PortletAdapter {
    public void doView (PortletRequest request, PortletResponse response)
throws PortletException, IOException{
  PrintWriter pw = response.getWriter();
   pw.println("HelloWorld");
      }
}
```

Step 3 Create deployment descriptors

J2EE applications use deployment descriptors to provide deployment instructions to the application server. Descriptors can also be used to configure and parameterize server-side components. We need to create Web.xml and portlet.xml. WebSphere Portal V4.1 extends servlets and hence we need to declare the servlet (portlet) class. Save the code in Example 1-4 as Web.xml and place it under myhelloWorld\Web-INF.

Example 1-4   Web.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE Web-app
    PUBLIC "-//Sun Microsystems, Inc.//DTD Web Application 2.2//EN"
           "http://Java.sun.com/j2ee/dtds/Web-app_2.2.dtd">
  <Web-app id="WebApp_1_1">
    <display-name>Hello Portlet</display-name>
    <servlet id="Servlet_1_1">
      <servlet-name>HelloPortlet</servlet-name>
      <servlet-class>samplepkg.HelloWorld</servlet-class>
      <load-on-startup>0</load-on-startup>
    </servlet>

    <servlet-mapping id="ServletMapping_1_1">
      <servlet-name>HelloPortlet</servlet-name>
      <url-pattern>/HelloPortlet/*</url-pattern>
    </servlet-mapping>
  </Web-app>
```

The important aspect of this descriptor is the **id attribute** of the servlet tag that would be used to map the servlet definition to a portlet definition in a portlet application.

Save the code in Example 1-5 as Web.xml and place it under myhelloWorld\Web-INF.

Example 1-5   portlet.xml

```
<portlet-app-def>
  <portlet-app uid="samplepkg.HelloWorld" major-version="41" minor-version="0">
    <portlet-app-name>Hello World (Sample code)</portlet-app-name>
    <portlet id="Portlet_1_1" href="Web-INF/Web.xml#Servlet_1_1">
      <portlet-name>My HelloWorld portlet</portlet-name>
        <cache>
          <expires>0</expires>
          <shared>NO</shared>
```

```
            </cache>
            <allows>
                  <maximized/>
                  <minimized/>
            </allows>
            <supports>
              <markup name="html">
                 <view output="fragment"/>
              </markup>
            </supports>
        </portlet>
    </portlet-app>

    <concrete-portlet-app uid="samplepkg.HelloWorld.concrete">
      <portlet-app-name>Hello World Concrete app(Sample code)</portlet-app-name>
      <concrete-portlet href="#Portlet_1_1">
        <portlet-name>My HelloWorld portlet</portlet-name>
        <default-locale>en</default-locale>
        <!-- Begin translation: -->
        <language locale="en">
          <title>My simple helloworld</title>
          <title-short>helloworld</title-short>
          <description>Example portlet that explains how to write simple hello
world</description>
                 <keywords>hello</keywords>
        </language>
        <!-- End translation: -->
      </concrete-portlet>
    </concrete-portlet-app>
</portlet-app-def>
```

Let us discuss some of the concepts from portlet.xml file.

<portlet-app-def>
Required, top level element that contains information about the portlet
application. This element includes exactly one <portlet-app> element and one or
more <concrete-portlet-app> elements.

<portlet-app uid="uid">
Required. The tag provides the means to package a group of related portlets that
share the same context. The context contains all resources, for example,
images, properties files, and classes. All portlets must be packaged as part of a
portlet application.The uid for each portlet must be unique within the portlet
application.

<portlet id="id" href="href">

At least one is required. Contains elements describing a portlet that belongs to this portlet application. id and href is required. The id must be unique within the portlet application. The href attribute points to the identifier of the servlet, as in `Web-INF/Web.xml#servlet_id`, for example, mapping to a servlet defined in the Web application.

<markup name="name">

At least one is required. Indicates the type of markup this portlet supports. Name can have one of the following values: html, wml, chtml. The markup tag can have the sub-elements <view/> (required), <edit/>, <help/> and <configure/>. These tagsindicate the modes that the portlet supports.

<concrete-portlet-app uid="uid">

A concrete portlet application contains at least one portlet from the portlet application, but it is not required to contain all of them. The following are subelements of <concrete-portlet-app>.

<context-param>

Optional. Contains a pair of <param-name> and <param-value> elements that this concrete portlet application can accept as input parameters. A concrete portlet application can accept any number of context parameters. Administratorscan change the context parameters when they configure the concrete portlet application. Provide help information using XML comments to explain what values the portlet application can accept. The unique configuration settings for a concrete portlet application make up its PortletApplicationSettings.

<concrete-portlet id="id" href="href">

At least one is required. Contains elements describing the concrete portlet that belongs to this concrete portlet application. id and href are required. The id must be unique within the portlet application. The href attribute points to the identifier of the portlet, as in #portlet_id .

Common XML problems: Some things to double check:

► Verify that you have a closing element for every XML element.

► Make sure that your id and href attributes match.

► Check for mistyped class names and spelling.

Guidelines for portlet application UIDs

The UIDs of portlet applications and concrete portlet applications must identify them unambiguously in the area of their usage, which could be worldwide. Hence, it is strongly recommended to follow these guidelines.

- ► Include the portlet's namespace in the UID, using the same format that is used for Java packages
- ► Add portlet application specific description
- ► Add arbitrary characters to guarantee uniqueness within the namespace, for example: `com.ibm.wps.samplet.mail.4000`
- ► Add postfixes for the corresponding concrete portlet applications, for example: `com.ibm.wps.samplet.mail.4000.9`
- ► Portlet IDs must be unique within the application.

Step 4 Create WAR file

You will need to package the source file and deployment descriptors that we created as a "WAR" file, before we can deploy the Portlet.We will use the standard jar command to build the WAR file. Run this from the myhelloworld directory.

```
set Java_HOME=C:\WebSphere\AppServer\Java

set PATH=%Java_HOME%\bin

jar -cf myhello.war Web-INF
```

Step 5 Deploy the WAR file

There are two ways to deploy a portlet application into WebSphere Portal:

1. Portal administration portlet
2. Portal configuration interface (XML Access)

Installing portlets using Portal administration portlet

Let us install the myhello.war file that we created using Portal Administration portlet. Portal configuration interface will be explained, but we will not install myhello.war using this functionality.

> **Note:** It is assumed that you have a successful installation of WebSphere Portal and you have administrative privilege for installing portlets.

1. Login to WebSphere Portal as shown in Figure 1-2 as Portal administrator.

> **Note:** In this example we have used the user name **wpsadmin** and password **wpsadmin**

Chapter 1. Portlet development   **13**
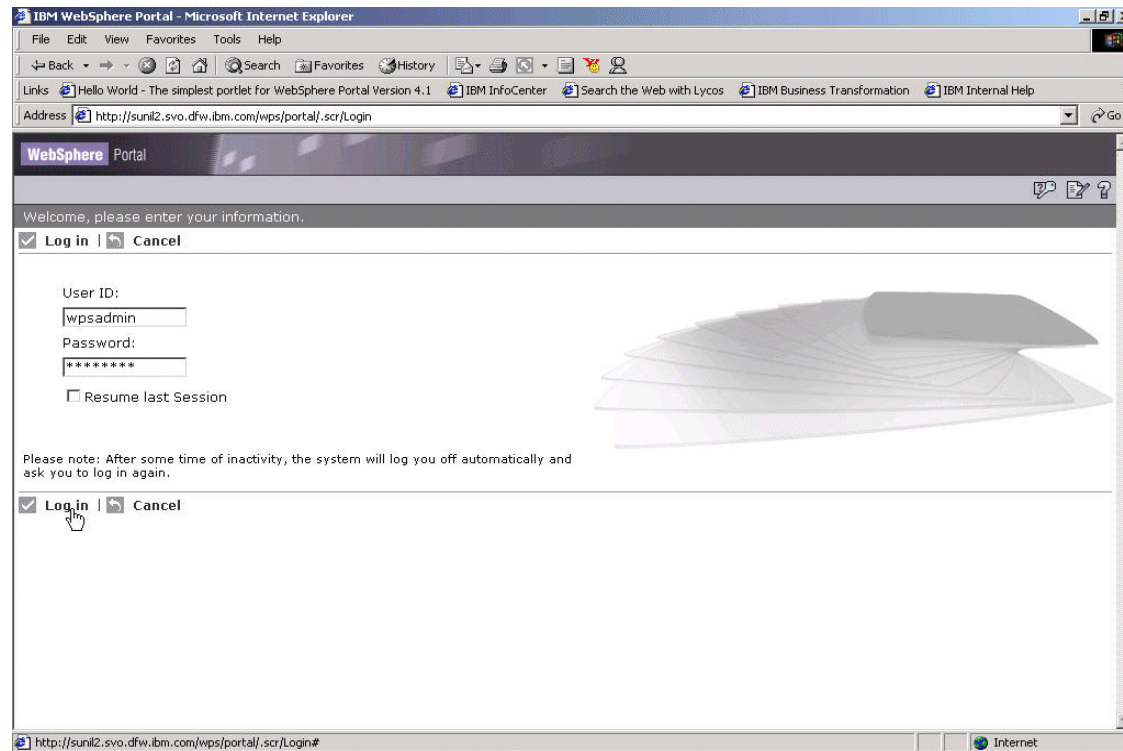
Figure 1-2   Login to WebSphere Portal as Portal administrator

2. Once you successfully login, you will see the Portal Welcome Page. On the top left-hand corner of the welcome page, select **Portal Administration.** Portlets Page will be the default. Select **Install Portlets** portlet as shown in Figure 1-3 and browse for myhello.war. Click **Next**.
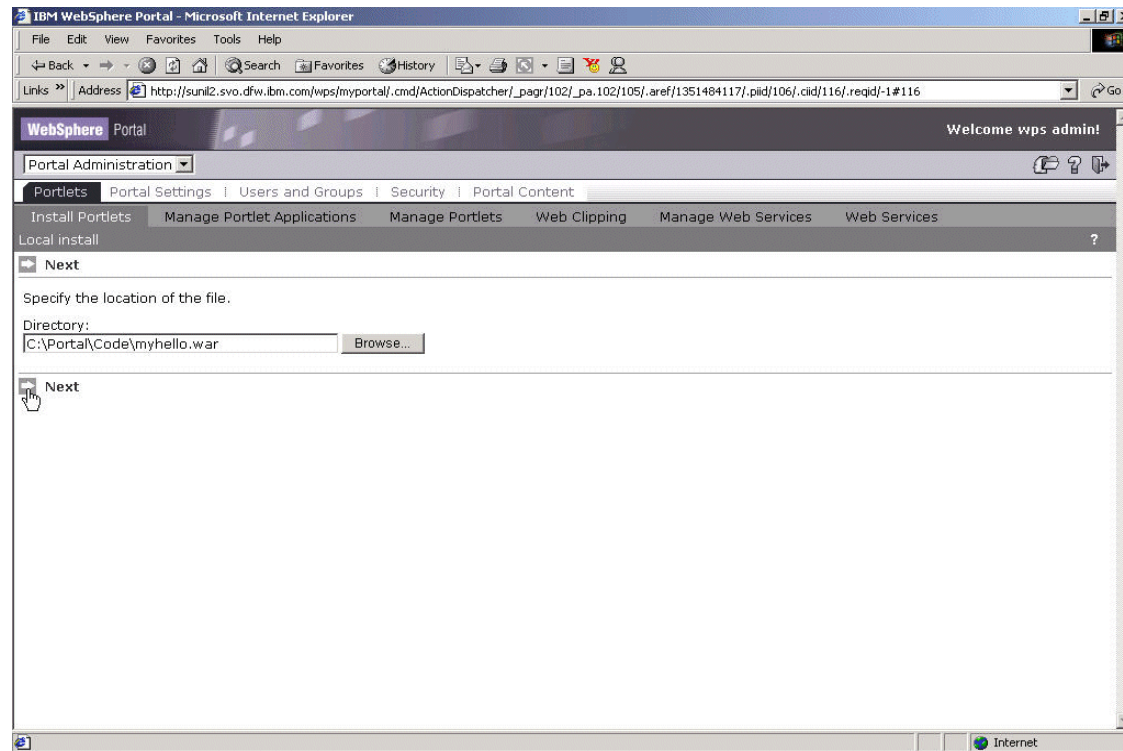
Figure 1-3   Select the war file for installation

3. Check for the portlets that will be installed as shown in Figure 1-4. You can verify based on your portlet.xml description. Click **Install**.
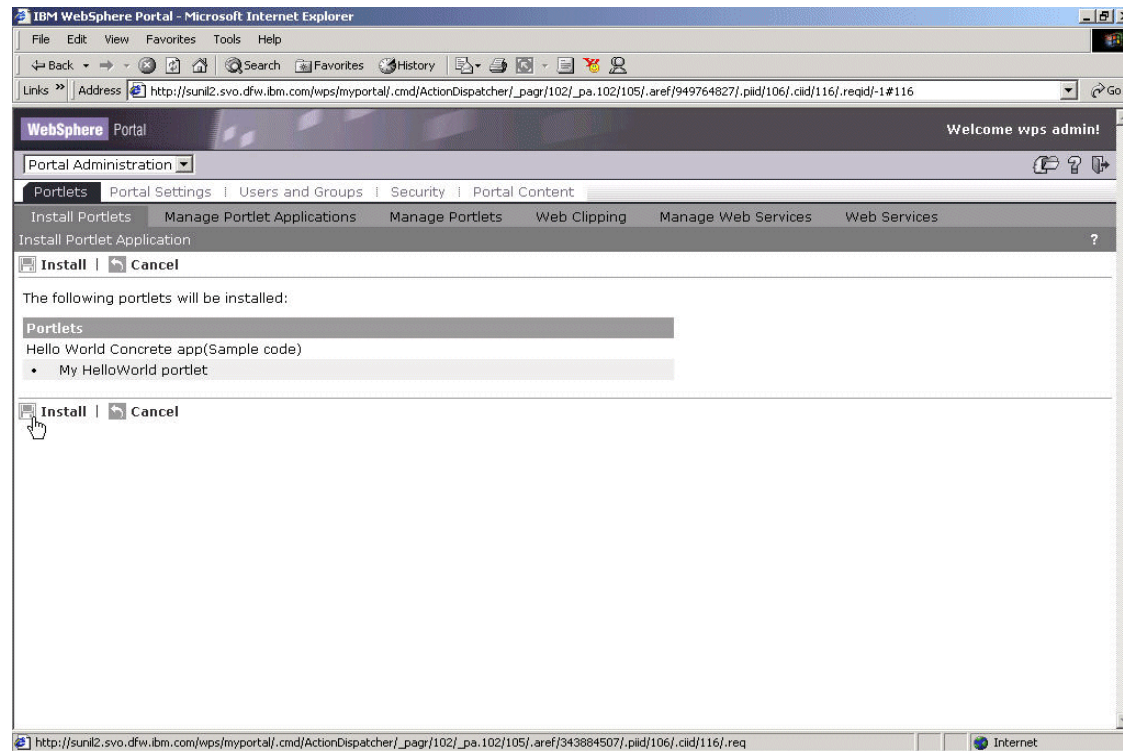
Figure 1-4   Check for the portlets that will be installed

4. If the portlet installation is successful, you should see a message **Portlets Successfully Installed**. If the portlet installation is a failure, check for the portal server logs directory and check for the latest log file located under `\WebSphere\PortalServer\logs\` .At this stage, you have deployed the portlet and now we need to add this to a page.

> **Tip:** The name of the log file can be determined with the append of latest time and date stamp on it. (for example, `wps_2002.07.27-11.00.47.log`)

5. Before you can add a portlet to a portal, you need to determine where to put that in the portal. Portal server has the concept of places (WebSphere Portal Extend version) and pages (WebSphere Portal Enable version). Users navigate through the portal by accessing different places, and then selecting pages within each place. Places can be managed as a unit and you can change the order of places within the portal. Pages are added to places. When defining a page you identify the layout (rows and columns) for the page. After a portlet is installed, to use the portlet, you must add it to a page.

All resources within the portal, including places, pages, and portlets are subject to access control. For this example, we will add the Portlet that we installed to **Portal Welcome Page**.

6. Select **Work with Pages page** group by browsing on the top left-hand drop box option. On the **Edit Layout and Content** page, under Page Group, **select** the **Home page** group. Then **select** the **Welcome page**.

7. Once you select Welcome Page, you should see as shown in the Figure 1-5. Search for the portlet we developed using **GO**. Select **My HelloWorld portlet**. By clicking on the plus button, add this to the portlet list. Click **OK** to continue.
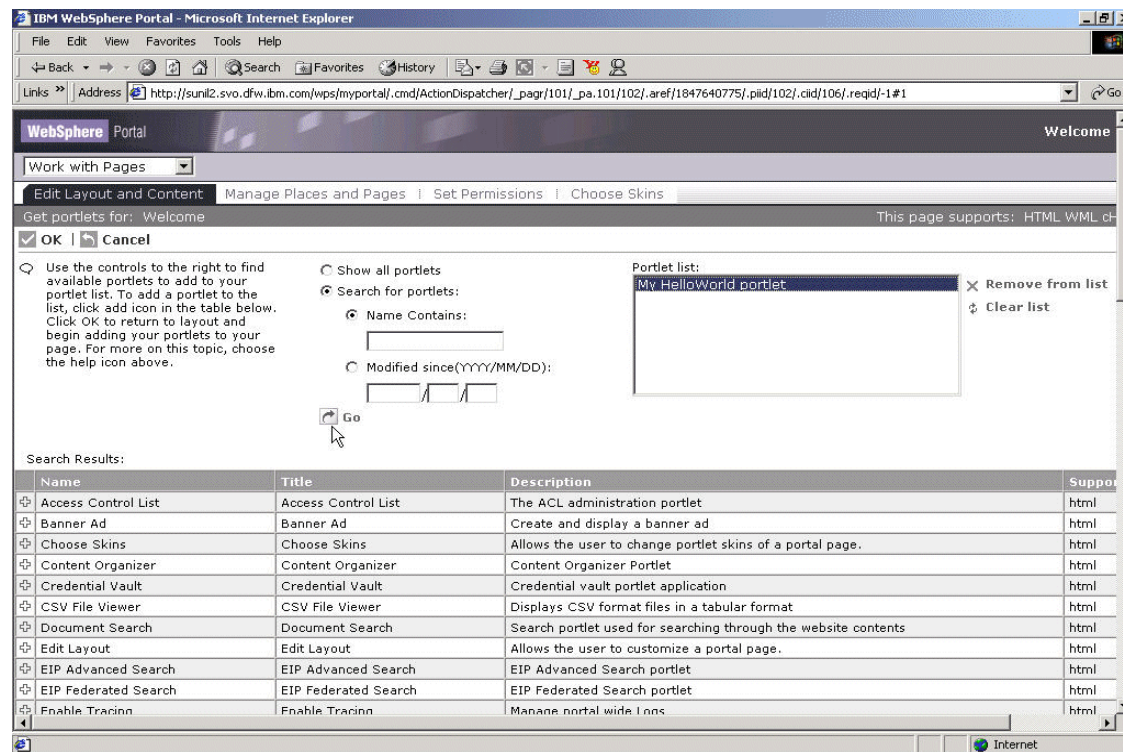
Figure 1-5   Search for the Portlet that was installed for adding to the Portal page

8. You can add **My HelloWorld portlet** to any part of the Welcome Page. Select My HelloWorld portlet and click on add button on left or right column of the page. We will add to the left column of the page as shown in Figure 1-6. Click **Activate** to activate the page with the changes.
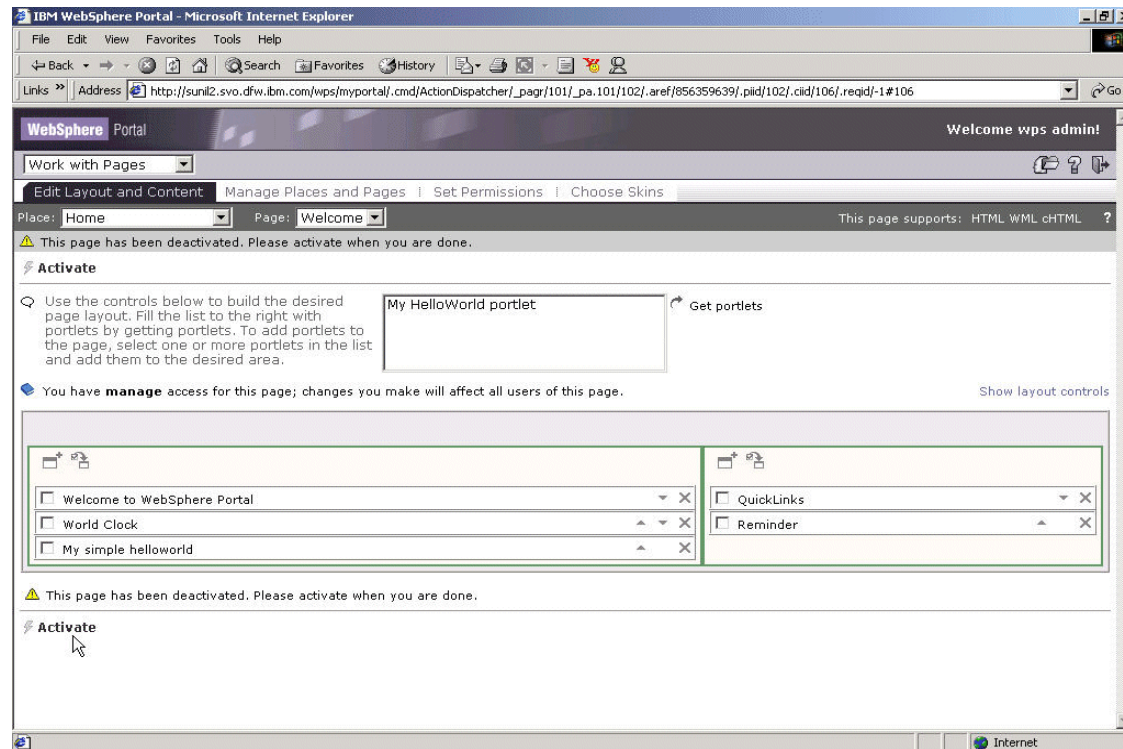
Figure 1-6   Add the portlet to Welcome Page

9. To test how this portlet looks, Select **Home** from the top left-hand drop-down option and you can see the Welcome Page with your added portlet as shown in Figure 1-7.
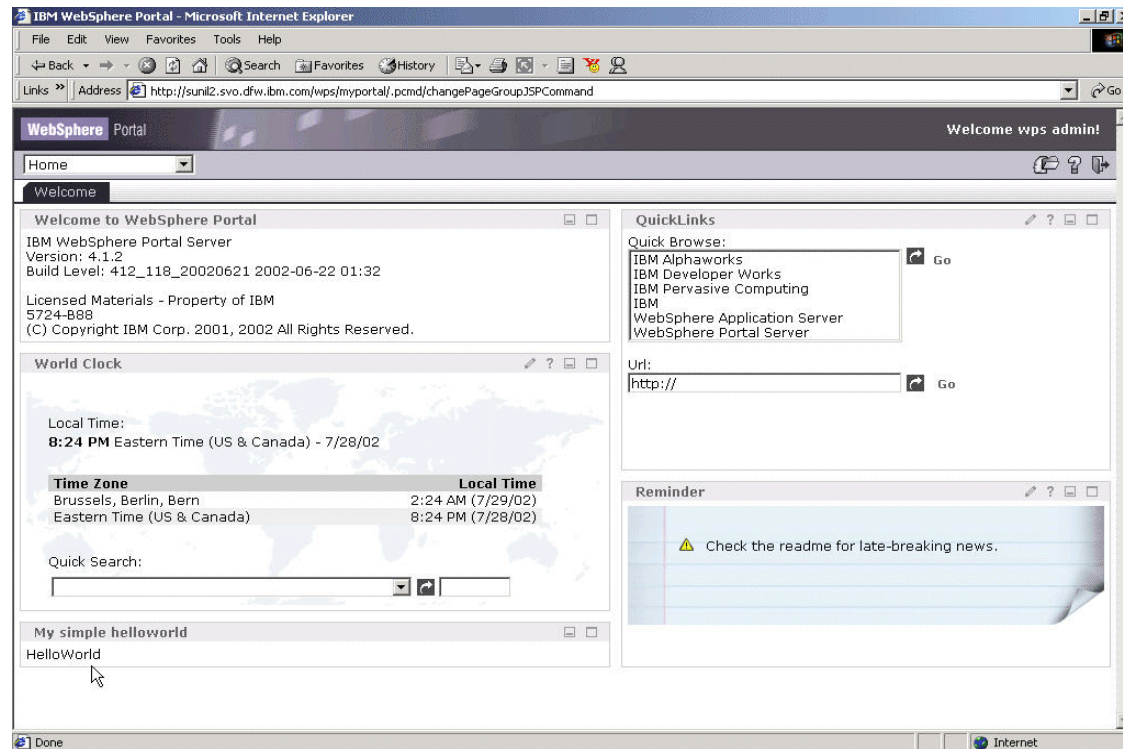
Figure 1-7   Welcome page with My simple helloworld portlet

Congratulations!!! You have successfully, developed, packaged and deployed your first portlet.

Installing portlets using the portlet configuration interface

The portal configuration interface provides a batch processing interface for portal configuration updates. It allows you to export entire portal configurations or parts of the configuration (for example, specific pages) to an XML file and to re-create the exported configurations from such a file. This technique involves creating a XML descriptor file specifying the portlets to install and/or the pages/places to create/use, and running the XMLAccess utility

The typical tasks to perform using the portal configuration interface are:

► Backing up and/or restoring entire portal configurations.

> **Note:** A full XML export of a portal configuration is not sufficient to re-create the portal. You will also need WAR files for your portlets and possibly additional file resources like theme files if they are not part of the standard portal installation.

► Copying parts of a configuration, such as specific pages and places from one portal to another.

XML Access is a command line utility which is available as Java interface that ships with WebSphere Portal. This utility is a small HTTP client to portal server that can also be copied from the machine where WebSphere Portal is installed to another machine and run to update portal configuration. When the XML request has been processed on the server, the resulting XML output is sent back to the client and written to the standard output, that can be redirected to an XML file. The XML Access tool can be invoked by running PortalServer\bin\xmlaccess.bat file and syntax as follows:

```
xmlacccess <XML file> <userid:password> <portal config URL>
```

► where, **XML file i**s XML request file name

► **userid** and **password** should be userid and password of portal user with manage rights on any portal.

► **portal config URL** consists of host name, base URI appended with **/config**

The example for the above command is as follows:

```
xmlaccess input.xml wpsadmin:wpsadmin
http://sunil.svo.dfw.ibm.com/wps/portal/config
```

Specifying XML Schema and Root element

The input request XML file can be created using any text editor and it should follow the specifications of the PortalConfig.dtd located in the `PortalServer\app\wps.ear\wps.war\dtd\` directory. The root element of this XML document is named **<request>**. The **<portal>** sub-element is used to import or export portal resources. The encoding of the input XML must always be UTF-8 as shown in Example 1-6.

Example 1-6   input.xml file

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE request PUBLIC "-//IBM//DTD Portal Configuration 1.0//EN"
"PortalConfig.dtd">
<request>
  <portal action="locate">
```

```
   <!-- XML fragments detailed in the following sections to be inserted here.
-->

  </portal>
</request>
```

Installing portlet using XML Access

The **<package>** element as shown in Example 1-7 corresponds to an abstract portlet application and it is used to install portlet applications. The action attribute of the <package> element can be either **update** or to **install** a portlet application. If the portlet application is already installed, the action attribute with a value of **create** might fail, since the globalid attribute should be unique. Its <URL> sub-element points to the location of WAR file to be installed.

Here are the matching rules between elements of the request XML file and those of the portlet.xml:

► The <package> element's globalid attribute should be the same as the <portlet-app> element's uid attribute specified in portlet.xml.

► The <application> element's globalid attribute should be same as the <concrete-portlet-app> element's uid attribute specified in portlet.xml.

► The <portlet> element's name attribute should be the same as the contents of the <portlet-name> element specified in portlet.xml.

Example 1-7   request XML file

```
<package action="create" active="true" globalid="helloworldpkg.EditPortlet">
<url>file:///d:\tmp\myhello.war</url>
<application action="create"
active="true"globalid="helloworldpkg.CreatePortlet.concrete" >
<access-right permission="delegate" subjectid="wpsadmin" subjecttype="user"
update="set"/>
<access-right permission="manage" subjectid="wpsadmin" subjecttype="user"
update="set"/>
<access-right permission="delegate" subjectid="wpsadmins"
subjecttype="user-group" update="set"/>
<access-right permission="manage" subjectid="wpsadmins"
subjecttype="user-group" update="set"/>
<access-right permission="view" subjectid="any" subjecttype="anonymous-user"
update="set"/>
<access-right permission="edit" subjectid="any" subjecttype="user"
update="set"/>
<portlet action="update" handle="editmemoportlet" active="true" name="Edit Memo
concrete">
<access-right permission="delegate" subjectid="wpsadmin" subjecttype="user"
update="set"/>
```

```
<access-right permission="manage" subjectid="wpsadmin" subjecttype="user"
update="set"/>
<access-right permission="delegate" subjectid="wpsadmins"
subjecttype="user-group" update="set"/>
<access-right permission="manage" subjectid="wpsadmins"
subjecttype="user-group" update="set"/>
<access-right permission="view" subjectid="any" subjecttype="anonymous-user"
update="set"/>
<access-right permission="edit" subjectid="any" subjecttype="user"
update="set"/> </portlet> </application> </package>
```

> **Note:** More information on XML Access is available under WebSphere InfoCenter.

The XML configuration client interface allows exporting entire or partial configuration as an XML file and re-creating configuration by importing the XML file. This interface can also be used as an alternative to perform some of administrative tasks part of Portal Administration page and Work with Pages place . The supported tasks of XML Access interface include creating and updating following resources.

► Portlet applications

► Portlets

► Themes and skins

► Markups and client device definitions

► Places and pages

► Credential Segments and Slots

Embed the contents inside the <portal> element as shown in Figure 1-6 on page 18. Save the resulting file as input.xml. Open a command window and change to the directory where you saved the input.xml file. Add the Portal server's bin directory to your PATH environment in order to locate the XML Access tool. Run the following command by substituting the appropriate userid, password, and server URL.

```
xmlaccess input.xml userid:password
http://machine.domain.com/wps/config
```

XML Access opens an URL connection to a servlet that serves the Webpath "/wps/config" and sends the input.xml to the servlet. The servlet verifies the validity of XML file and updates the portal server. The output of the command itself is XML data that follows the same schema specified in the input.xml. Once

you have installed the portlet, you can follow the same steps as described in Step 5 of Installing portlets using Portal administration portlet section.

> **Note:** If you encounter any problems with xmlaccess, enable logging by the setting the **baseGroup.XMLAccessTraceLogger.isLogging property** to **true** in the file -- `WebSphere\AppServer\lib\app\config\jlog.properties`. Restart portal server and try the XML Access command again. The resulting log file can be found in the \WebSphere\PortalServer\log directory.

1.4 Available portlets

WebSphere Portal installation comes with a rich set of standard portlets for displaying syndicated content, performing XSL transformation, accessing existing Web pages, Lotus Notes and Microsoft Exchange productivity portlets, Sametime instant messaging, and Lotus QuickPlace team rooms.

Companies can also create their own portlets or select from a catalog of portlets created by IBM and IBM business partners. You can find this information under:

`http://www.ibm.com/software/Webservers/portal/portlet/catalog`

> **Note:** For additional reading on Portlet development, you can refer Portlet Development Guide available under:
>
> `ftp://ftp.software.ibm.com/software/Webserver/portal/V41PortletDevelopmentGuide.pdf`

2

WebSphere Portal administration

This chapter describes how to work with the administration portlets provided by WebSphere Portal.

2.1 Introduction

In WebSphere Portal V4.1, administration of the portal is done through the portal itself, either in a centralized or delegated fashion. Administration interface for Portal Server enables quick access to the administration portlets and greatly simplifies the task of administering the portal. Administrators can deliver a new service to users simply by adding new portlets to the pages of the portal. Since these are portlets, just like bookmarks or reminders or news or any other portlets, administrators can control access to them, place them on portal pages, and perform any of the usual steps.

2.1.1 Definitions

You will need to know some of the basic definitions before you start working with Portal administration pages:

Portlet
From a portal administrator's view, a portlet is a content container which users can subscribe. WebSphere Portal administration functionality is delivered via portlets.

Page
A collection of portlets and containers. A page contains one or more portlets and containers.

Pages are:

► Customized page saved on a per-user and per-page basis.

► Pages once created are automatically set to active state, but with no permissions

► When a page is edited, it is automatically deactivated

► Pages are made of row containers and column containers

► Containers and container content can be locked

  • Manage rights required

  • Locked containers cannot be deleted

  • Locked container content keeps it from being moved or deleted

► **Place vs Page:** If you have installed WebSphere Portal V 4.1 Extend, you will see the word Place and if you have installed WebSphere Portal V 4.1 Enable, you will see the word Page. Both have the same meaning.

Page Group

A collection of Pages. In WebSphere Portal, one or more pages that are grouped under one tab called a Page Group. Page groups provide a new level of page categorization. Pages can be grouped together and managed as a unit. The way pages are grouped is arbitrary and left up to the page group creator.

► All pages must exist in a page group and there is no way to move or copy page groups between page groups, but it is possible to copy pages.

► Gives multilevel tab functionality

► Deleting a page group deletes all pages in it.

2.1.2 Organization

Portlets are laid out on pages. The Portal administration pages use a **Portlet Selector** portlet to provide menu-like access to portlets on the page.

Page groups installed by default within WebSphere Portal are:

► Home (Public)

► Work with Pages (Customizer)

► Portal Administration

Use the Portal Administration pages to:

► Install portlet applications on the portal

► Manage installed portlet applications and portlets

► Publish portlets to a Web service

► Configure the portal

► Define the users and user groups for the portal

► Control which portal resources users and user groups can access

Page groups can have specific access control applied to them. Most cases only Portal administrators or sub-administrators will have access to the Portal Administration page.

WebSphere Portal 4.1 provides a Page Group called **Portal Administration**, which allows Portal administrator to install portlets, create themes and skins, work with users and groups, secure portlets and ACL's. Portal Administration Page group contains the following portlet pages, which will be discussed in this chapter:

► Portlets

► Portal Settings

► Users and Groups

► Security

► Portal Content

The sections are organized in such a manner that, administrative functionalities offered by these individual portlets are discussed.

> **Note:** Portal administration can also be done using XMLAccess as explained in "Installing portlets using the portlet configuration interface" on page 19. In this chapter, we will focus only on using administrative portlets for portal administration.

2.1.3 Getting started

> **Important:** Before you start working on Portal administration, make sure that you have successfully installed WebSphere Portal and you have the user information who has administrative privileges to login.

Before you start working on Portal administration, make sure that you have successfully installed WebSphere Portal and you have the user information who has administrative privileges to login.

To get to the WebShere Portal Administration page,

1. Open a Web browser and type in the URL for login page to WebSphere Portal as shown in Figure 2-1. Click **Log in** to proceed. The **Cancel** button will take you to WebSphere Portal Welcome page.

> **Note:**
>
> ► The default user with administrative privilege is generally **wpsadmin**.
>
> ► In our example, we will login with the user **wpsadmin** and password **wpsadmin**.
>
> ► You can also login to the default portal page `http://completedomainname/wps/portal` and click on the log in icon (key symbol) provided on right-hand side of the page.
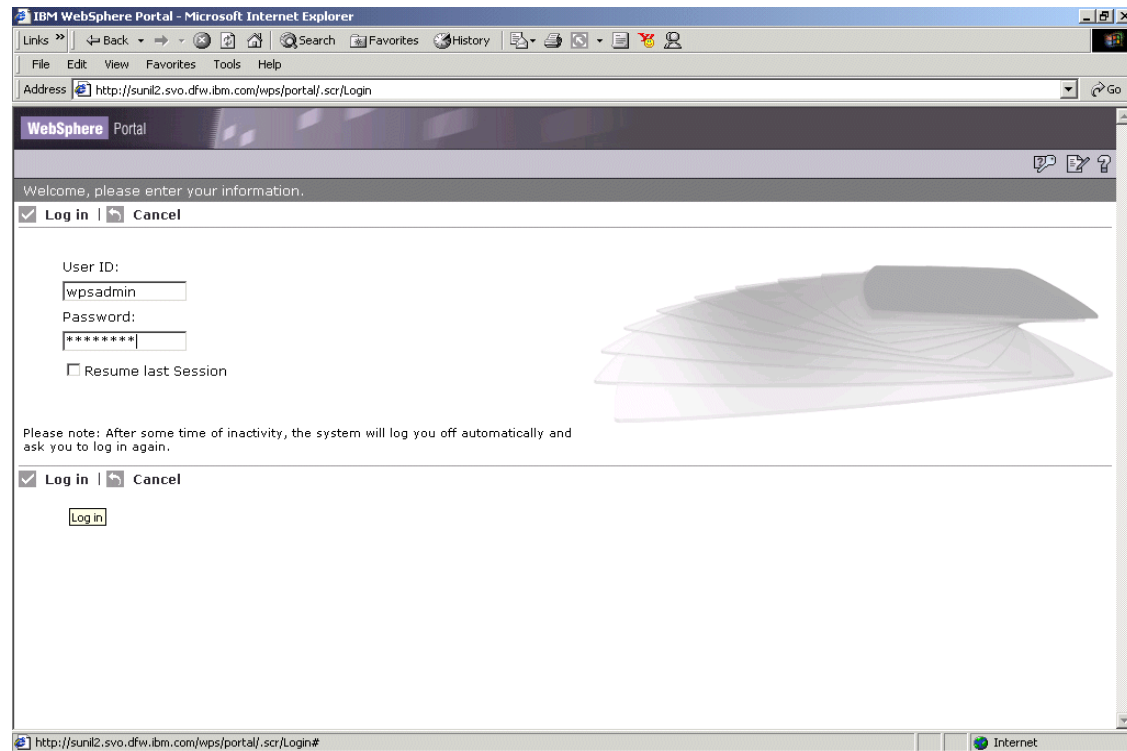
Figure 2-1   Login to WebSphere Portal as Administrator

2. If you have successfully logged in, you should see the WebSphere Portal Welcome Page as shown in Figure 2-2. On the top left-hand side as shown in the image, select **Portal Administration** page from the drop down list.
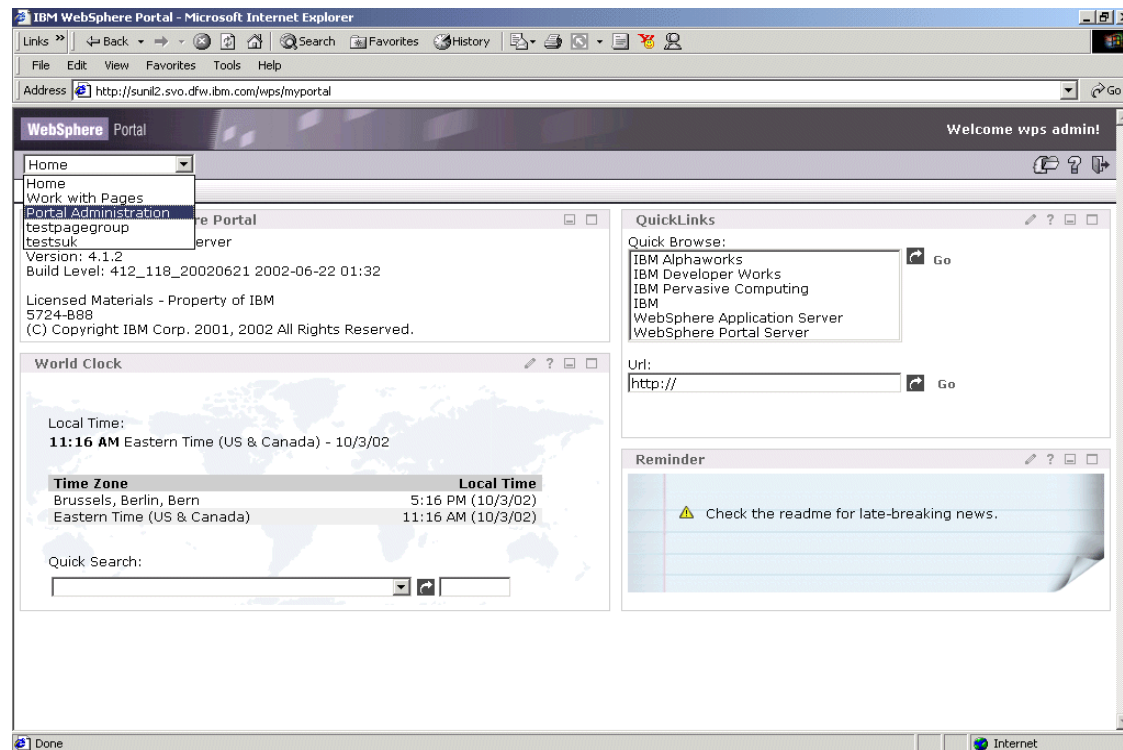
Figure 2-2   Select Portal Administration page group

3. WebSphere Portal Administration page will open and you should see a
   window as shown in Figure 2-3.
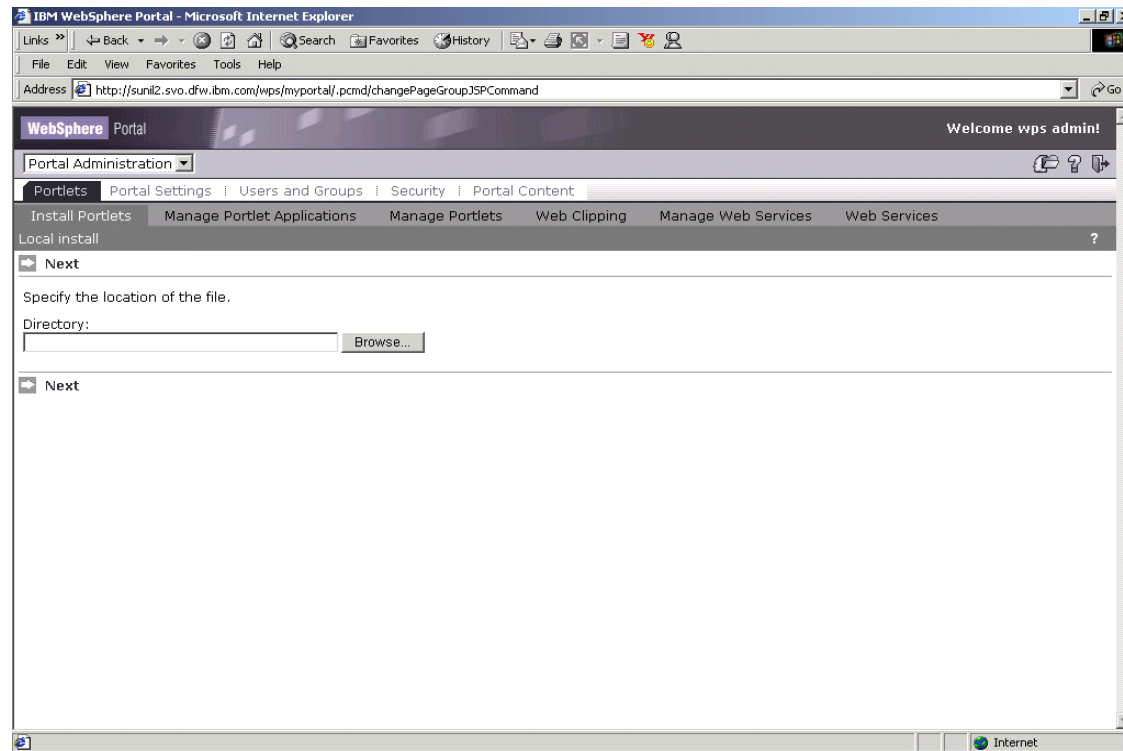
Figure 2-3   WebSphere Portal Administration Page

> **Note:** If you get a error message "There are no Portlets available on this page", refer to the Redbook, *IBM WebSphere Portal V4.1 Handbook Volume 1,* SG24-6883 in Chapter 5 for installation tips.

Portal Administration Help option

The Help menu icon (?)**,** is provided on all the Portal Administration pages. When you click on this icon, a window pops-up with the product documentation information also known as the InfoCenter.

There is also a Help icon **(?)** on individual Administration Portlets and clicking on this icon will get you the product information, specific to that particular portlet.

Navigation: At any time, you can select any of the administrative portlet by selecting the appropriate tabs on the Portal Administration page.

> **Important:** If there is no activity with your Portal and you get the message, "It appears that you did not properly terminate your last session by logging out. Please Log in again before you try to access your customized pages.", you will have to **log in** again clicking on the **Log in error message** (grey color) as a user with administrative privileges.

2.2 Portlets

Portlets Page contains the following portlets:

- ▶ Install Portlets
- ▶ Manage Portlet Applications
- ▶ Manage Portlets
- ▶ Web Clipping
- ▶ Web Services
- ▶ Manage Web Services

We will explore the above portlet applications individually.

2.2.1 Install Portlets

This feature will help you to install a portlet application. Portlet application is installed through a Web Archive (WAR) file or install remote portlets via UDDI directory (Web Services portlet). The WAR file, which is used to install portlet application can contain multiple portlets. The install process uploads the WAR file to the server, installs portlets, adds them to the list of available portlets and activates the portlets. Once you install a portlet, it is automatically activated but with no permissions. Use the Access Control portlet to determine which users and groups can view, edit, or manage the new portlet.

> **Note:** For this section, we have used readparameters.war file. We will walk and explain different portal administration capabilities using this war file. You can refer **APPENDIX**?? for the code. You can package them as WAR files and save it in a directory on your machine and install. This is just an example we have used and users can incorporate administration functionality for their own code.

Perform the following instructions:

1. Select **Install Portlets** portlet. Browse for the war file as shown in Figure 2-4. Click **Next**.

> **Important:** This war file for installing the portlet application should be in the local directory. Portal administrator should be installing the portlet application on the same machine as that of the portal server. Installing portlet from a remote machine will fail.
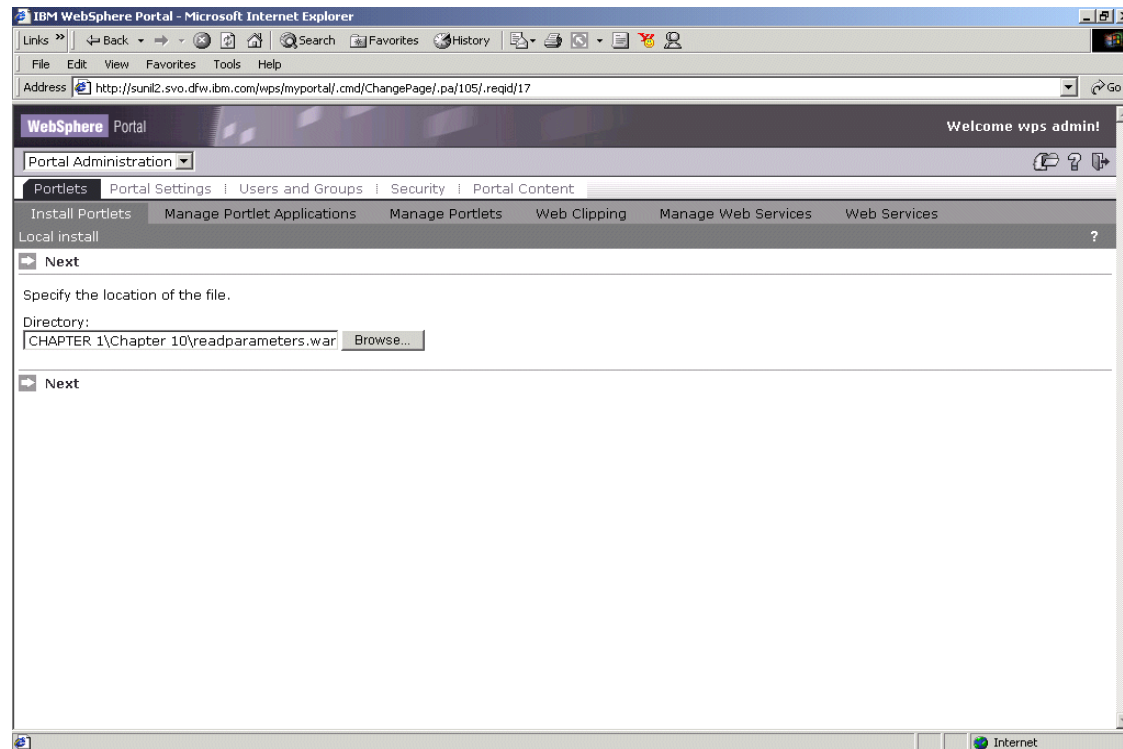
Figure 2-4   Browse for the war file for installing your portlet

2. Check for the list of the Portlets included in the WAR file as shown in Figure 2-5. In our example, Read Concrete Portlet 1 is selected for installation. Click **Install** to begin the installation. You can hit **Cancel** anytime to avert the installation process.
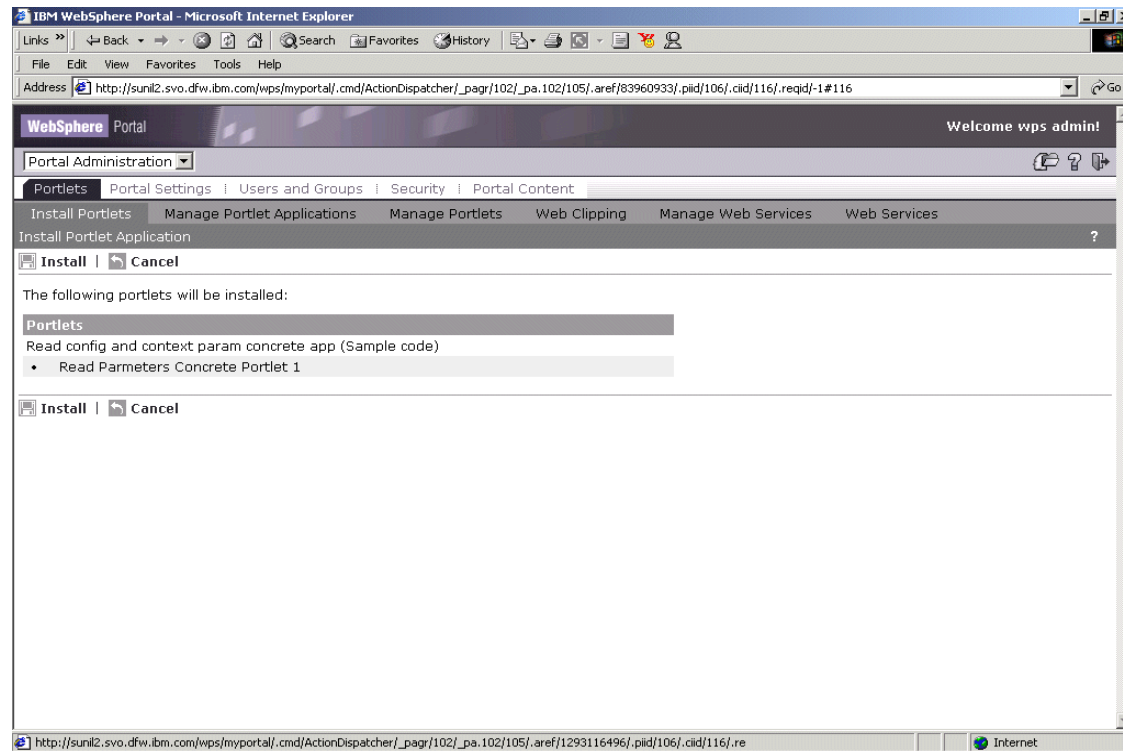
Figure 2-5   Check for the portlets that will be installed

3. When installation is complete, if successful, you should get the message **Portlets Successfully Installed** as shown in the Figure 2-6. You can click **Next**, if you want to install more portlets.

Tip: If Portlet installation is a failure, check for the portal server logs directory and check for the latest log file located under `\WebSphere\PortalServer\logs\`. The name of the log file can be determined with the append of latest time and date stamp on it. (for example, wps_2002.07.27-11.00.47.log)
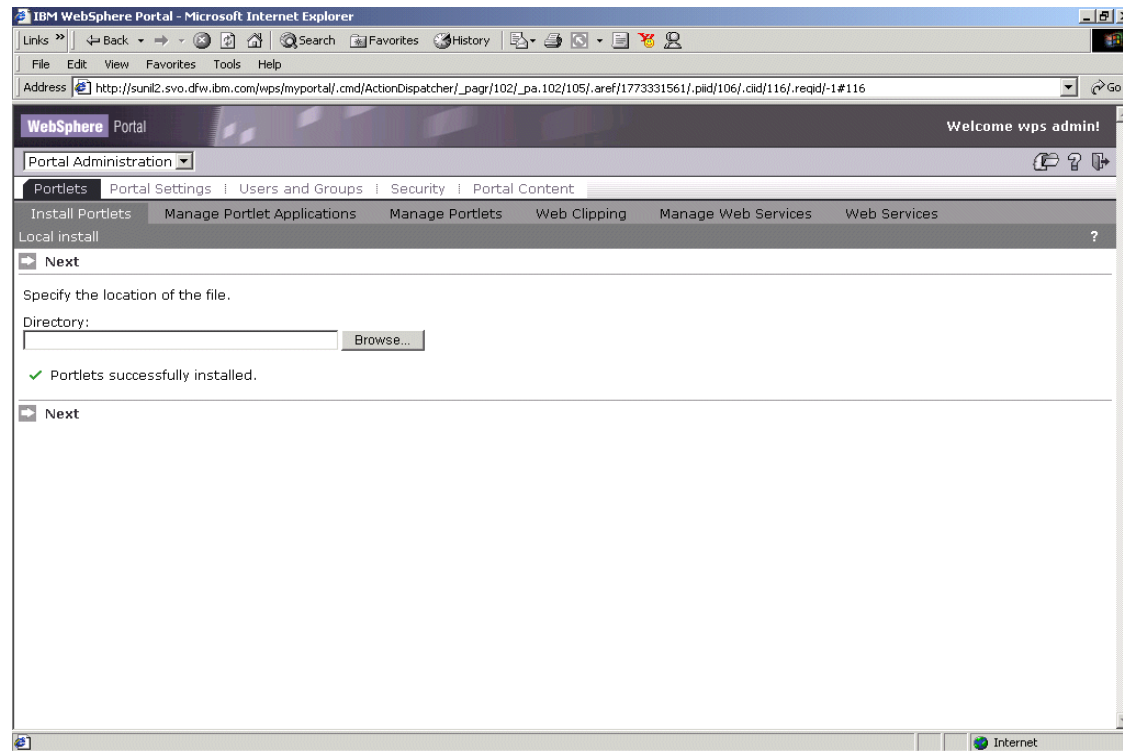
Figure 2-6   Portlet successfully installed

We have successfully installed the Read Concrete portlet. We will add this portlet into a page following the steps as explained in **Chapter 5?? of Volume 1??**. Once we add, we should see the page with the Read Concrete portlet as shown in the Figure 2-7. The portlet is designed to display the context and config parameters.
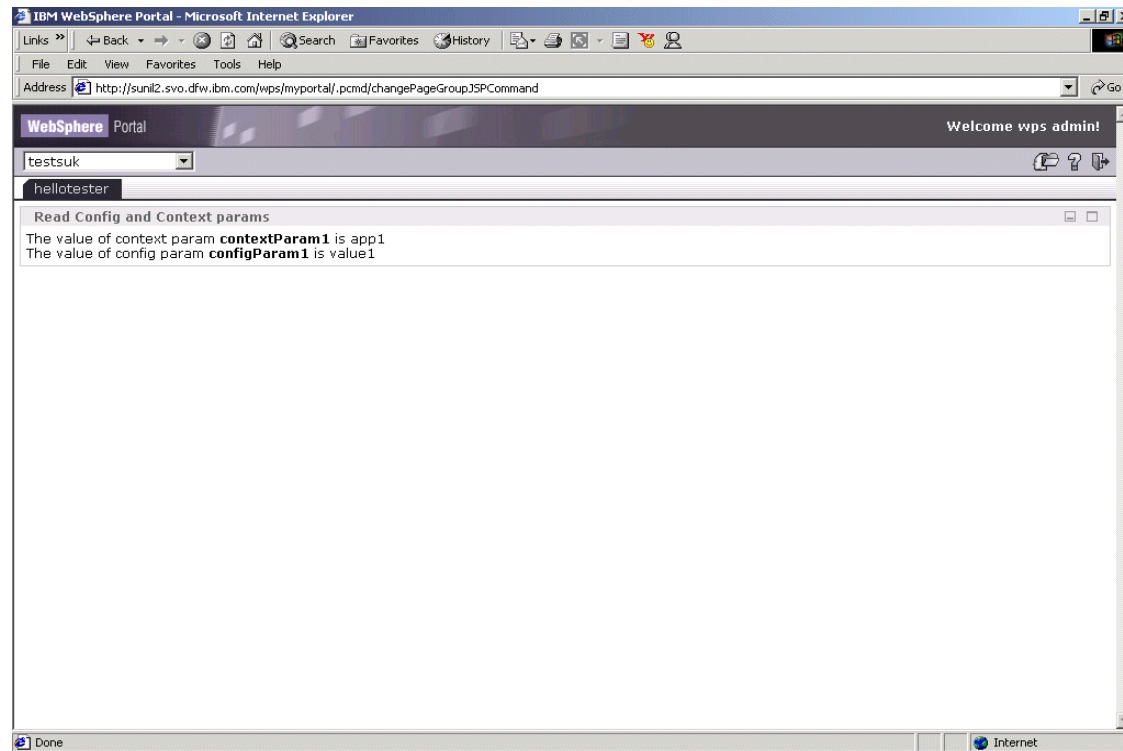
Figure 2-7   Adding the portlet to a page

2.2.2 Manage Portlet Applications

Manage Portlet Applications helps you to identify and manage the existing installed Web modules (WAR file). It also displays the concrete portlet application corresponding to the selected Web module. Using this Portlet you can uninstall the portlet application and modify dynamically configured parameters.

Select **Manage Portlet Applications** portlet and with the Web module readparameters.war file as shown in Figure 2-8, you are able to:

▶ Show Info

▶ Update

▶ Uninstall

Web modules can contain one or more portlet applications, servlets JSP files and other files and are defined in the Web descriptor file. (Web.xml)

With the portlet applications belonging to the selected module, you are able to

▶ Activate/Deactivate

▶ Rename

▶ Copy

▶ Modify Parameters

▶ Show Info

▶ Delete

Portal applications can contain one or more portlets. They are created implicitly when the WAR file is deployed and they are packaged as enterprise application. (ear file) You will see in the figure shown default Web modules. This gets installed during WebSphere Portal installation.
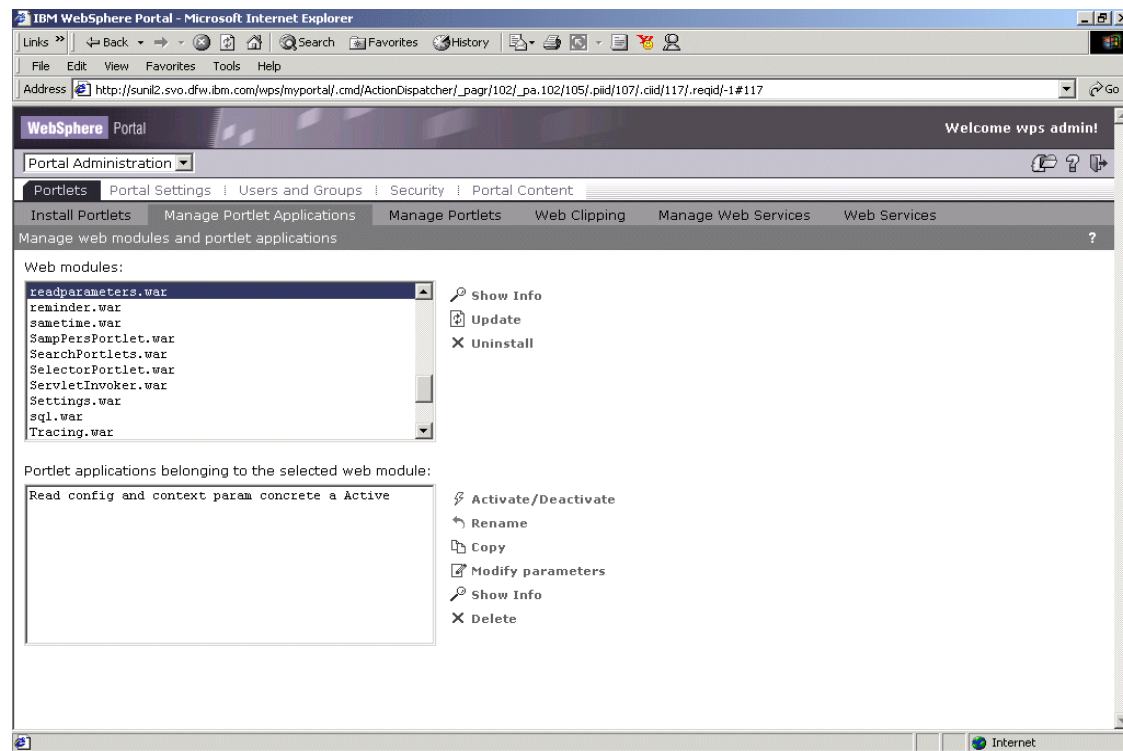
Figure 2-8   Manage Web modules and portlet applications

Show Info

Show Info describes the content of the WAR file (Web module), abstract Portlet application and the abstract Portlet. (Complete Portlet application)

▶ Select readparameters.war file and click **Show Info**. (Top one)

► It will show the selected Web module, portlet application name, concrete portlet applications belonging to the Web module, and portlets as shown in Figure 2-9.

► Click **Done** to come back to Manage Portlet.
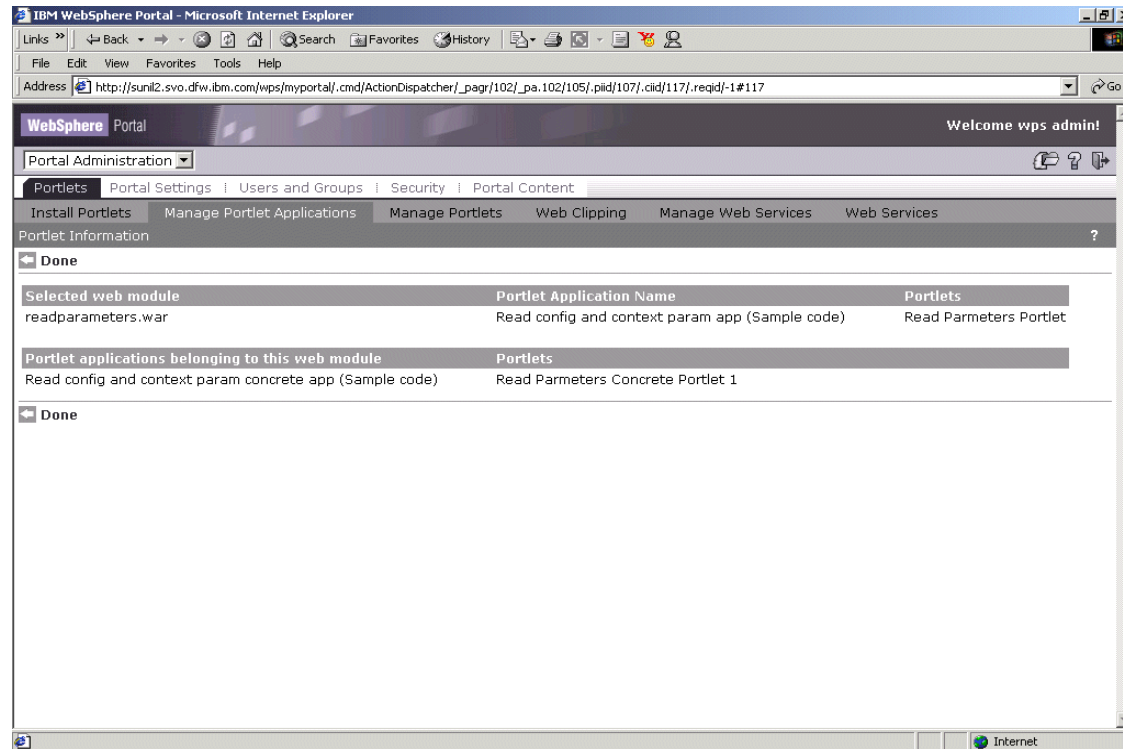
Figure 2-9   Select the war file to get details

Update

Update option helps you to modify your existing portlet application without the need for uninstalling your existing portlet application.

> **Note:** Update functionality includes updating configuration parameters in your portlet and replacing the portlet code with new code, incorporating all the changes.

► Select readparameters.war file. We will show how update functionality works.

► Click **Update** and it will take you to a window as shown in Figure 2-10.
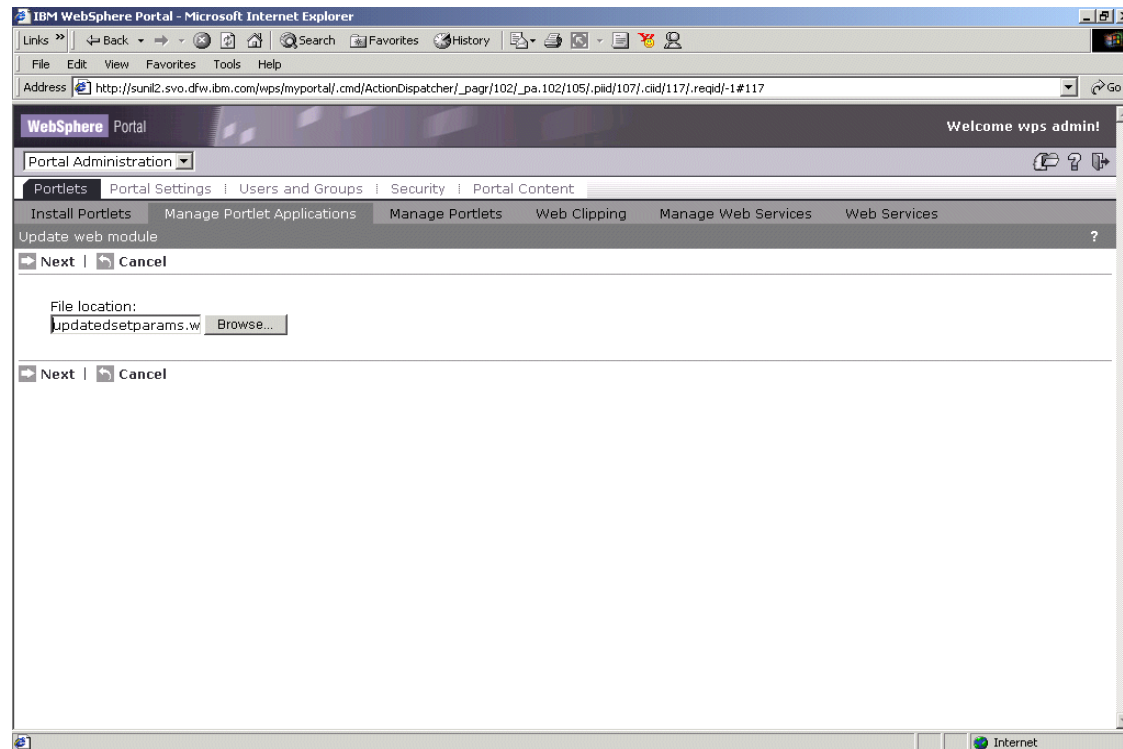
Figure 2-10   Browse for the war file for updating your portlet

- ► Enter or browse for the updated WAR file (updatedsetparams.war file) location. In this example, we have changed the code in readparameters.war file and renamed as updatedsetparams.war file. You can see the modifications to the code in **Appendix??.**

- ► Click **Next**. You can hit **Cancel** to return.

- ► You will get a window as shown in the Figure 2-11 on page 40 highlighting the portlets that will be installed during the update. Check for accuracy and select **Install** option. You can select **Cancel** to return.
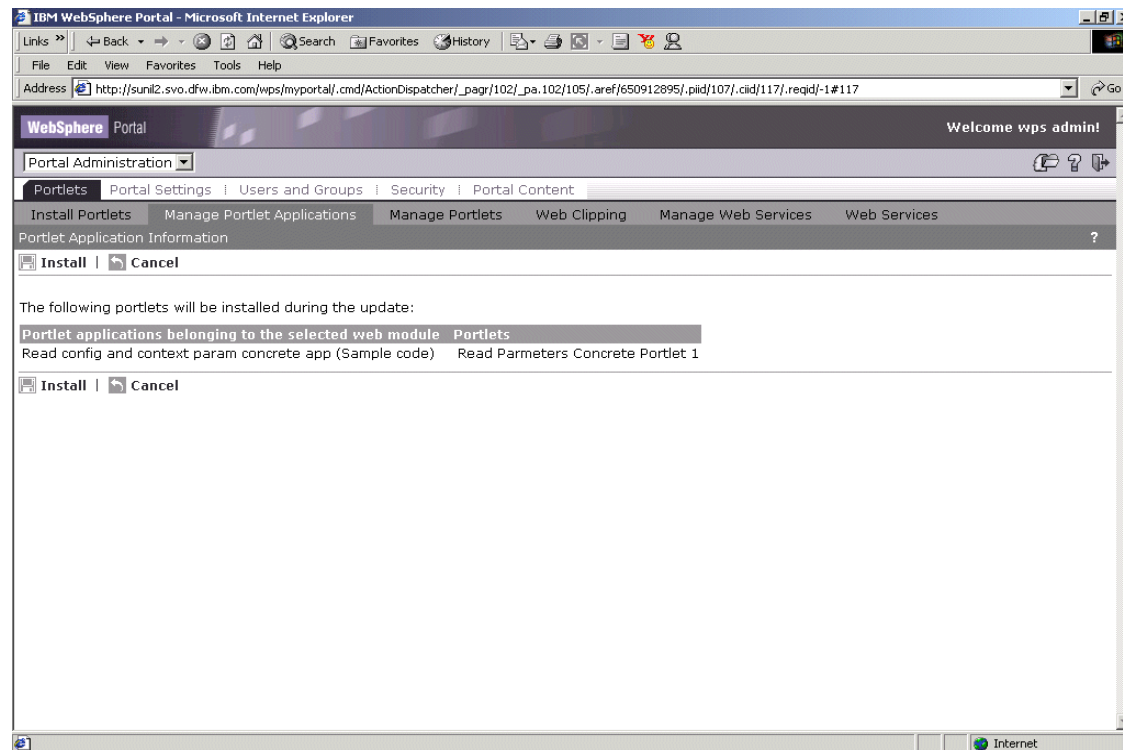
Figure 2-11   Check for the portlets that will be installed during update

- ► If the war file is successfully updated, you should see the updatedsetparams.war file as shown in Figure 2-12 and the message **The Web module was updated successfully** at the bottom of the page.
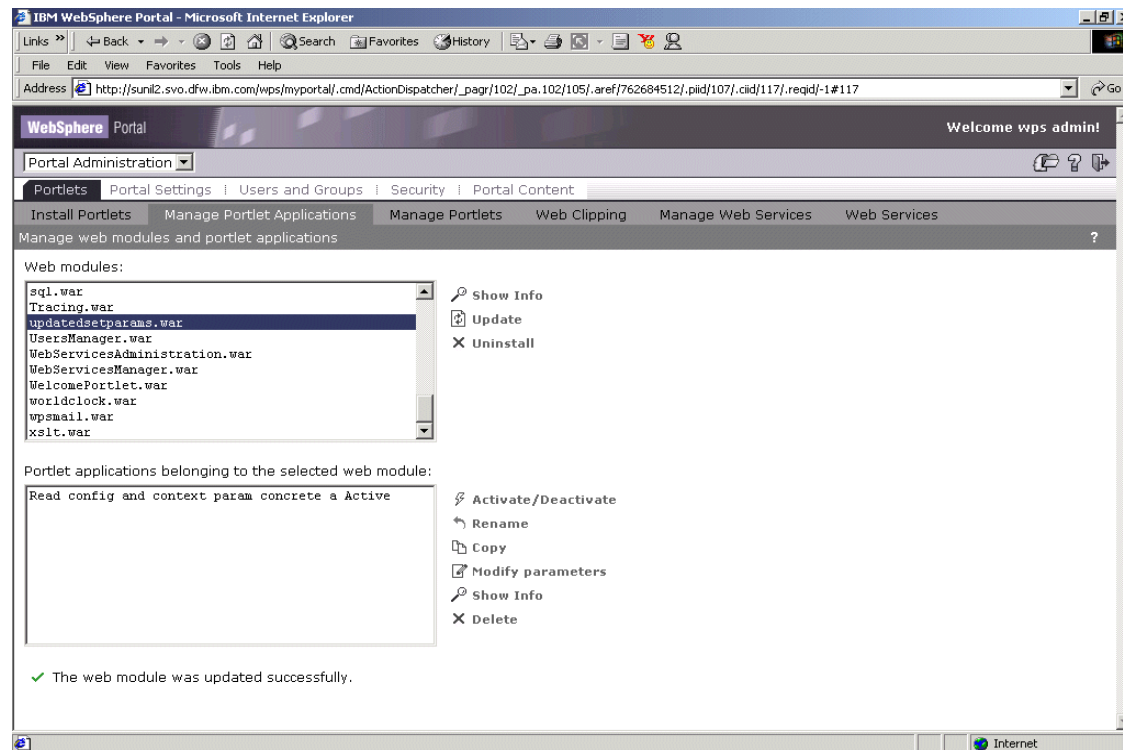
Figure 2-12   Web module successfully updated

Note: In our example, we have renamed readparameters.war file to updatedsetparams.war file after doing changes with the code. There is no need to change the war file name for using **Update** administrative functionality. We have used for convenience sake.

Let us check the changes made to our portlet after using this **Update** functionality. Go back to the drop-down menu on the top-left hand corner of the page and select your page, where you had installed Read Parameter portlet. When you bring that page, you should see as shown in Figure 2-13.

Tip: It is not required for you to add the portlet again to the page after doing an Update. Changes are incorporated to the page where the portlet was installed automatically.
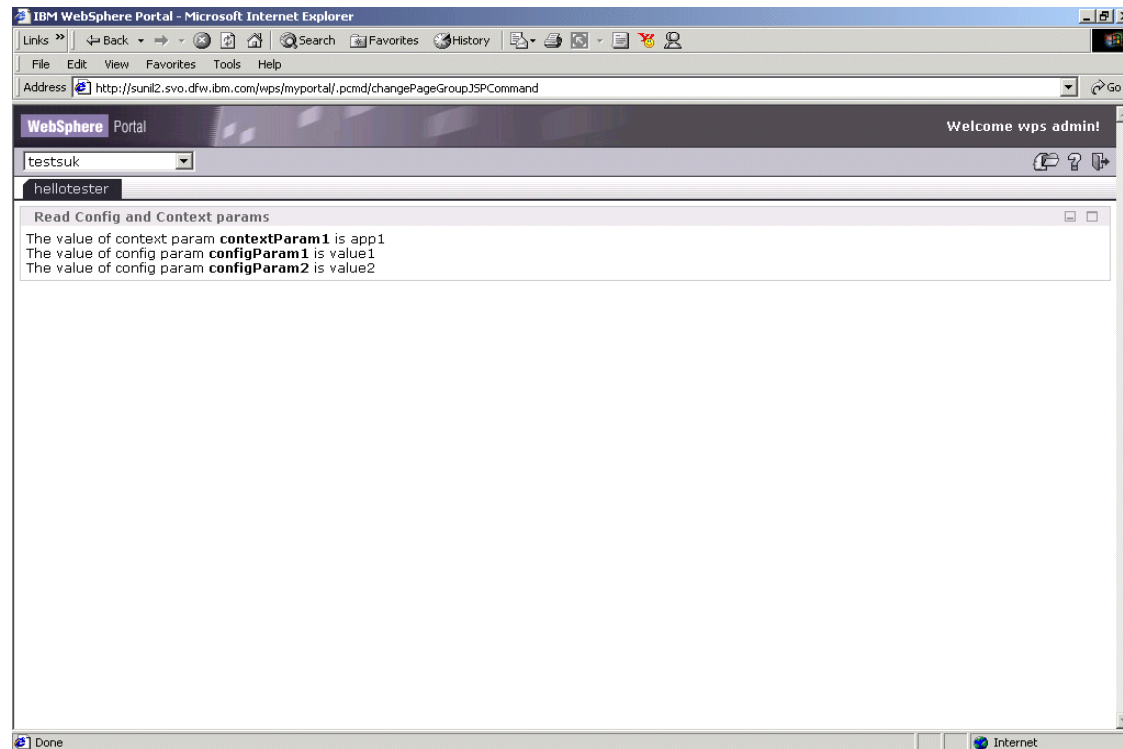
Figure 2-13   Portlet with changes after using Update administrative functionality

> **Note:** Compare Figure 2-13 with Figure 2-7 and you will see that one more configparam value is added to the portlet.
>
> `The value of config param configParam2 is value2` **– New line**

Uninstall

Uninstall option helps to uninstall your existing portlet application.

► Highlight the Web module (updatesetparams.war) to uninstall.

► A confirmation window will prompt for confirmation. Click **OK** if you want to uninstall or click **Cancel** to return.

► You will return back to Manage Application Portlet and on the bottom of the Portlet, you can read the message **The Web module was uninstalled successfully** and will be removed from the Web module section and the page where the portlet would have been deployed.

Activate/Deactivate

Deactivate feature helps to temporarily suspend access to your selected portlet application and then with activating, provide access to the portlet application.

► Highlight the portlet application to activate or deactivate. You will see in Figure 2-14 that updatesetparams.war to be hightlighted. Select the Portlet application corresponding to this WAR file. (Read config and concrete param concrete).

> **Important:** If you do not select any portlet application, a window will prompt you to choose before you proceed.
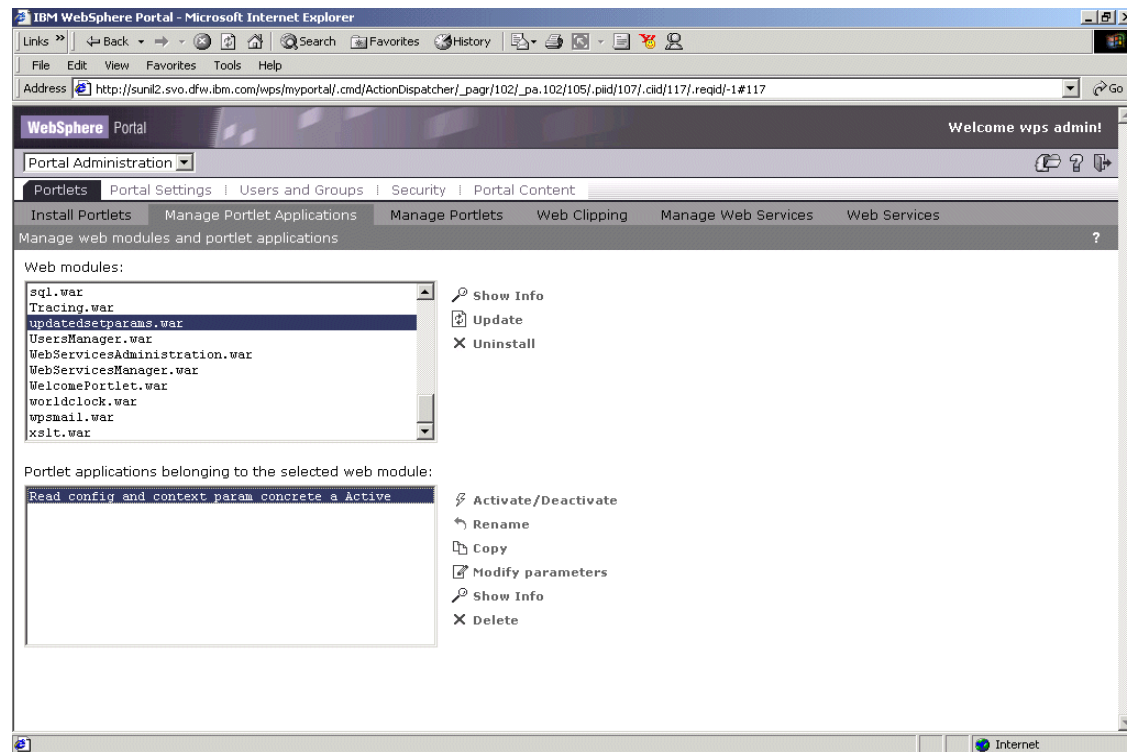
Figure 2-14   Select the Web module for activation/deactivation

► In our example, the portlet application corresponding to updatesetparams.war file is active. Click **Activate/Deactivate** button and you can see the portlet application being deactivated as shown in Figure 2-15.
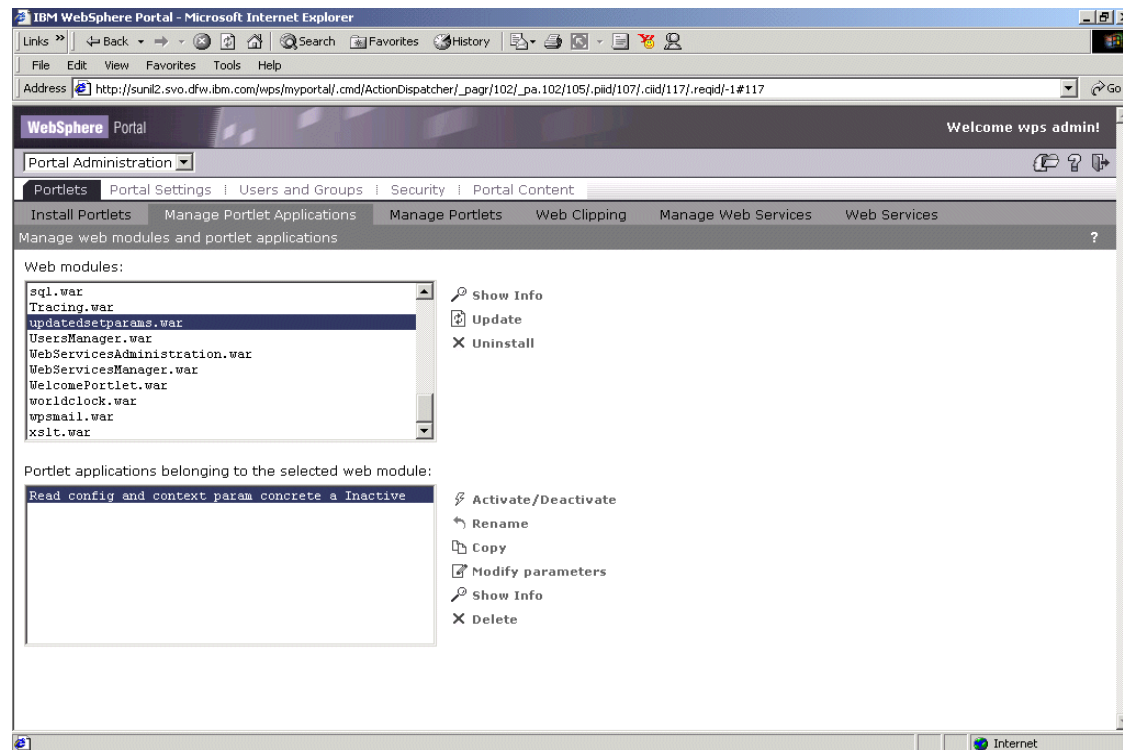
Figure 2-15   Portlet application being Deactivated

► You can click on **Activate/Deactivate** button to Activate the Portlet application.

> **Tip:** Once you deactivate your portlet application, all the portlets that are part of the deactivated application will disappear from your customized portal page.

Rename

You can rename a concrete portlet application.

Purpose: When you clone a portlet application, you may wish to rename one of the portlet application to avoid duplicate names. **Rename** option helps with this functionality.

► Highlight the portlet application corresponding to updatesetparams.war. Select **Rename**.

► A pop-up window will open asking you to provide a new name.

► Enter the new name and click **OK**.

► You will see the new changed name as shown in Figure 2-16.
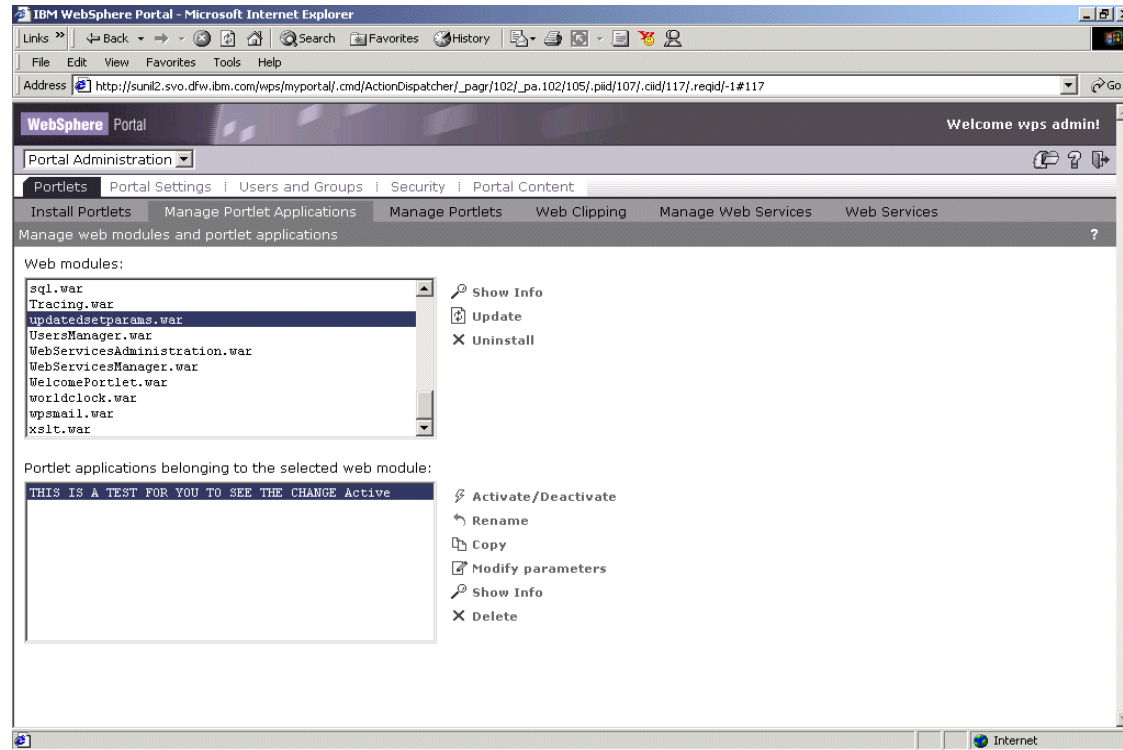
Figure 2-16   Rename your portlet application

Copy (Cloning)

Helps to copy your concrete portlet application.

Note: Useful when different portlet configuration parameters are required for different instances of a portlet.

You can activate or deactivate based upon your requirements. When you copy a Portal application, the newly created application is active by default. However portlets that are part of the newly created Portal application is inactive. For customizing this Portal application, you will have to activate, which will be shown in **Manage Portlets** portlet.

► Highlight the portlet application corresponding to updatesetparams.war. Select **Copy**. A window will prompt you enter the name for the copy and click **OK**. You can hit **Cancel** to avoid copying.

▶ Once it is copied, you should see the changes as shown in Figure 2-17.
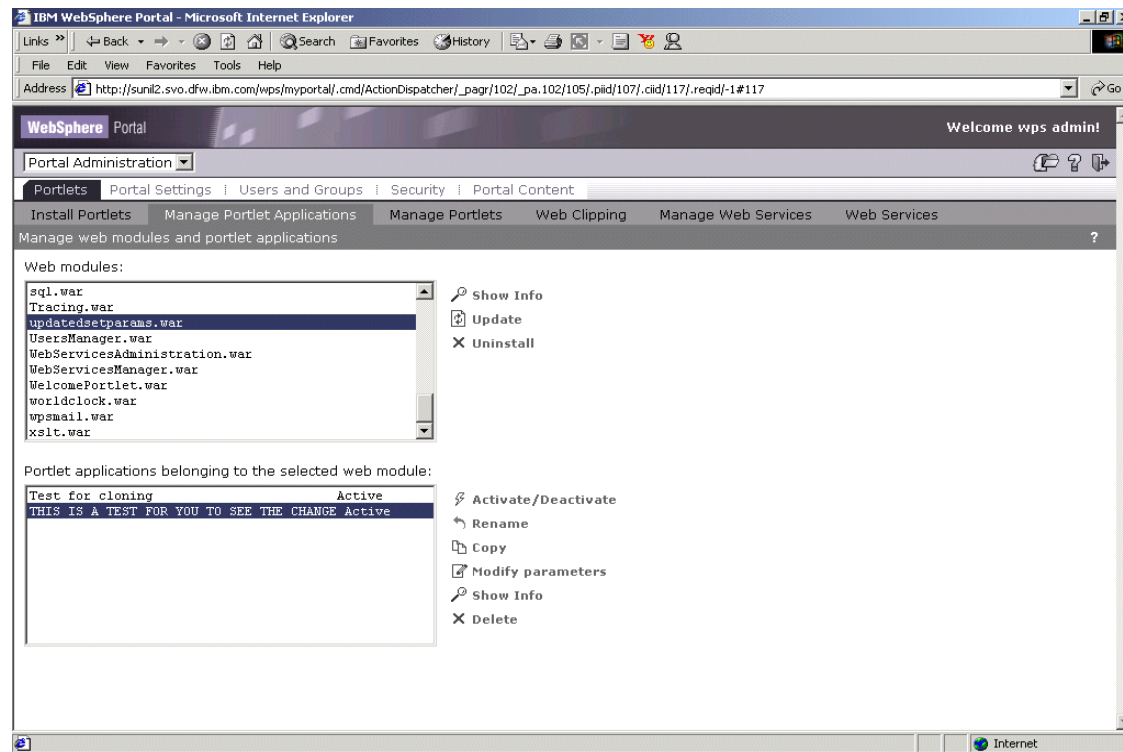
Figure 2-17　Copy your concrete portlet application

▶ You should see the new copied concrete portlet application, **Test for cloning.**

Note: Compare Figure 9-16 and Figure 9-17 and you will notice the difference. You will find a new portlet application for the updatedsetparams.war Web module.

Modify Parameters

Modify Parameters option allows you to modify the configuration parameters of the portlet application. Parameters are originally set by portlet.xml for that instance.

▶ Highlight the portlet application (updatedsetparams.war) you want to modify. Select **Modify parameters**.

► You will see as shown in the Figure 2-18 with the portlet application name and existing parameter values.
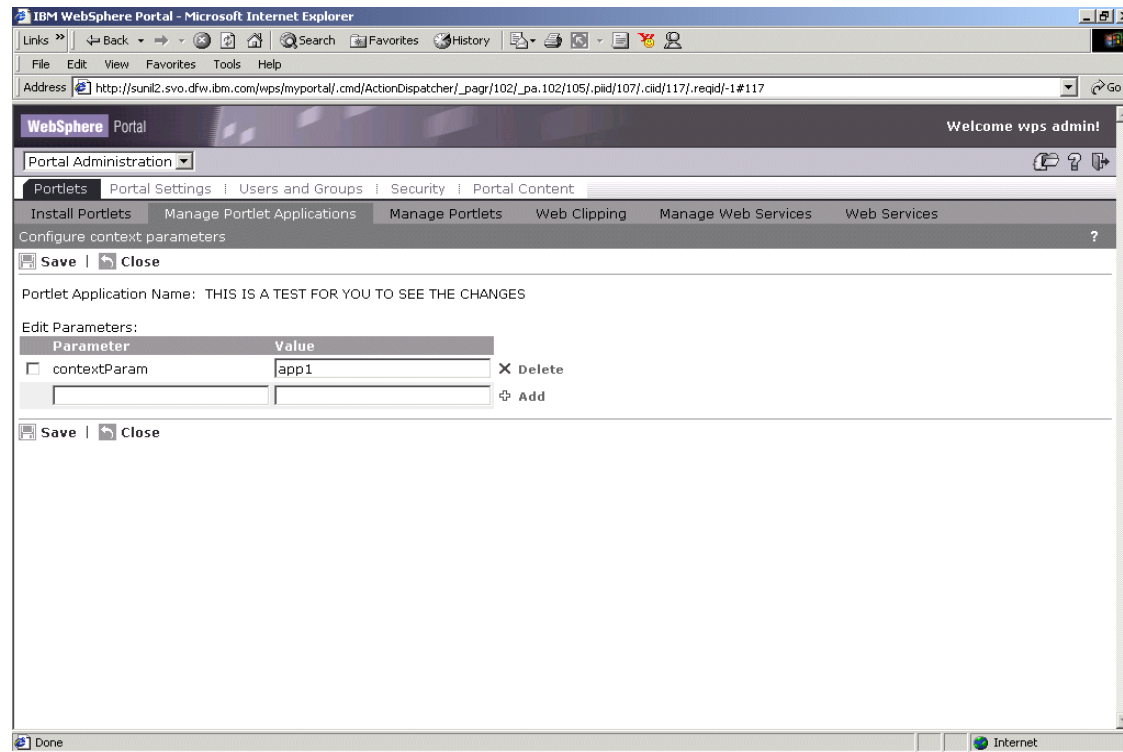
Figure 2-18   Modify Parameters for your portlet application

► To add a new parameter and value, Enter the new values. We will change the contextparam value. (Change app1 to app2)

> **Note:**
>
> ► Context param is defined at concrete Portlet application level so that all concrete portlets, part of that application can access getportletsetting().getportletapplicationsettings.getattribute.
>
> ► Config param is defined per **concrete portlet,** which can only be accessed from that concrete portlet and can be accessed using getportletsettings.getattribute

► Click **Add**. Select **Save**. The parameter and value is saved.

► Once when you have made the changes or added a new parameter value, you can **Delete** and **Close** the window if no modifications are required.

► **Close** to return to the Manage Portlets page.

► To **Test**, select your page, where the Read Parameter portlet is installed and you should see the parameter modification changes reflected in the Figure 2-19.
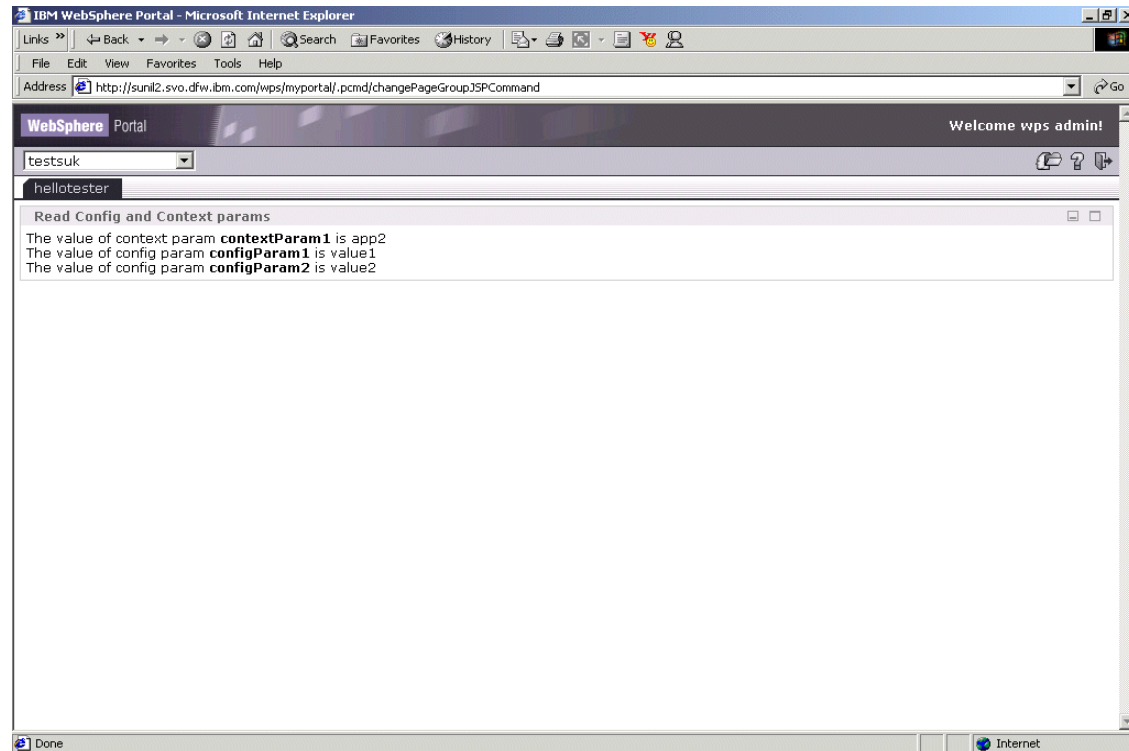
Figure 2-19   Changes to your portlet after modifying the parameters

> **Tip:** The character limit and character type are dependent on the database setup you have. Generally, the parameter name can be up to 64 characters and the value can be up to 255 characters. Both can be can contain letters, numbers, or other characters.

Show Info

Shows information for each concrete portlet application. Displays the names of the concrete portlets that are part of the selected portlet application.

► Select the concrete portlet application corresponding to the Web module (the portlet application in our example: This is a test for you to see the change) and click on **Show Info**.

► You should see a window open as shown in the Figure 2-20 with information on portlet application name and corresponding portlets. Provides details on the concrete portlet application.
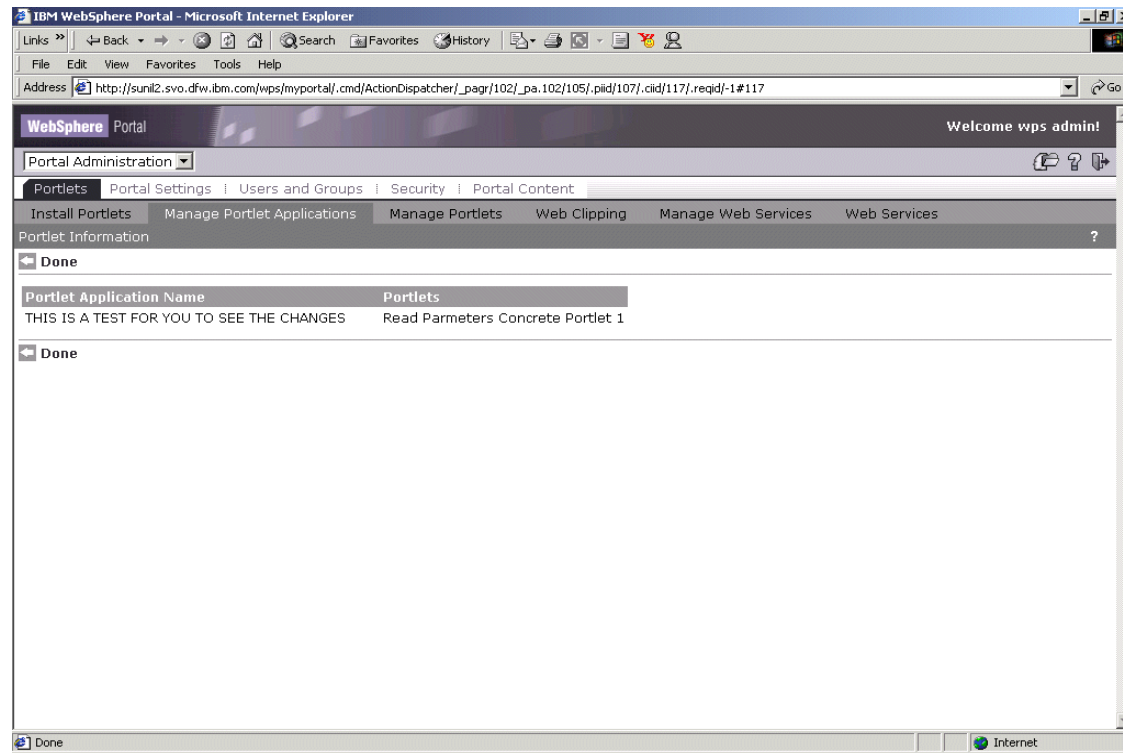
Figure 2-20   Show Info for portlet application

► Click **Done** to return back to Manage Portlet Applications portlet.

Delete

Deletes the Portlet Application.

► Select the portlet application that you wish to delete. Click **Delete(X)** button.

► A prompt window will appear to confirm. Click **OK** or **Cancel**, depending on your requirement.

► If the deletion was successful, you will not see the portlet application under Manage Portlet Applications portlet.

2.2.3 Manage Portlets

Manage Portlets allows you to selectively activate, deactivate, rename, copy, delete portlets and modify portlet parameters instead of portlet applications as we did in the previous section.

► You can take the default setting for Manage Portlet, by displaying all al the portlets as shown in Figure 2-21.

► You can also search for portlets by specifying the search criteria (Active/Inactive State) and clicking **Go** button.

Note: When you take the default of displaying all Portlets, the other selection options are greyed out.
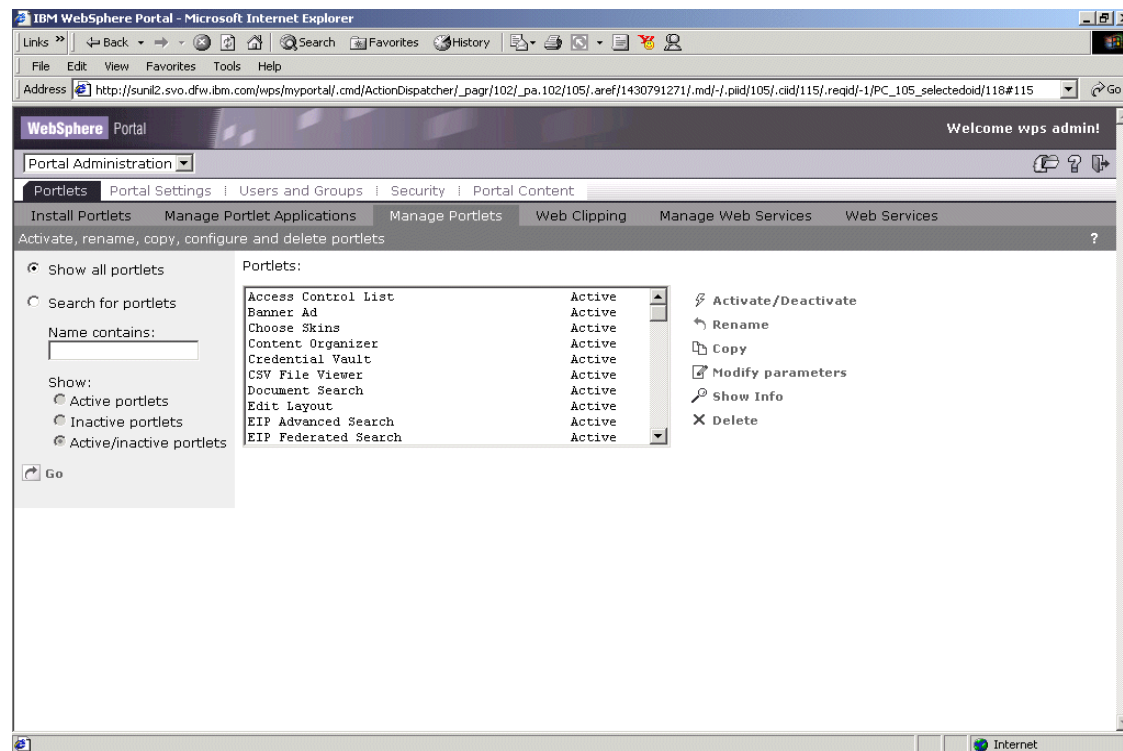
Figure 2-21   Manage Portlets

Activate/Deactivate

In the previous section "Manage Portlets" on page 50, we have shown how to copy your concrete portlet application. Portlets that are part of the newly created Portal application is inactive as shown in Figure 2-22.

► You can select the portlet you want to activate/deactivate and click **Activate/Deactivate**.
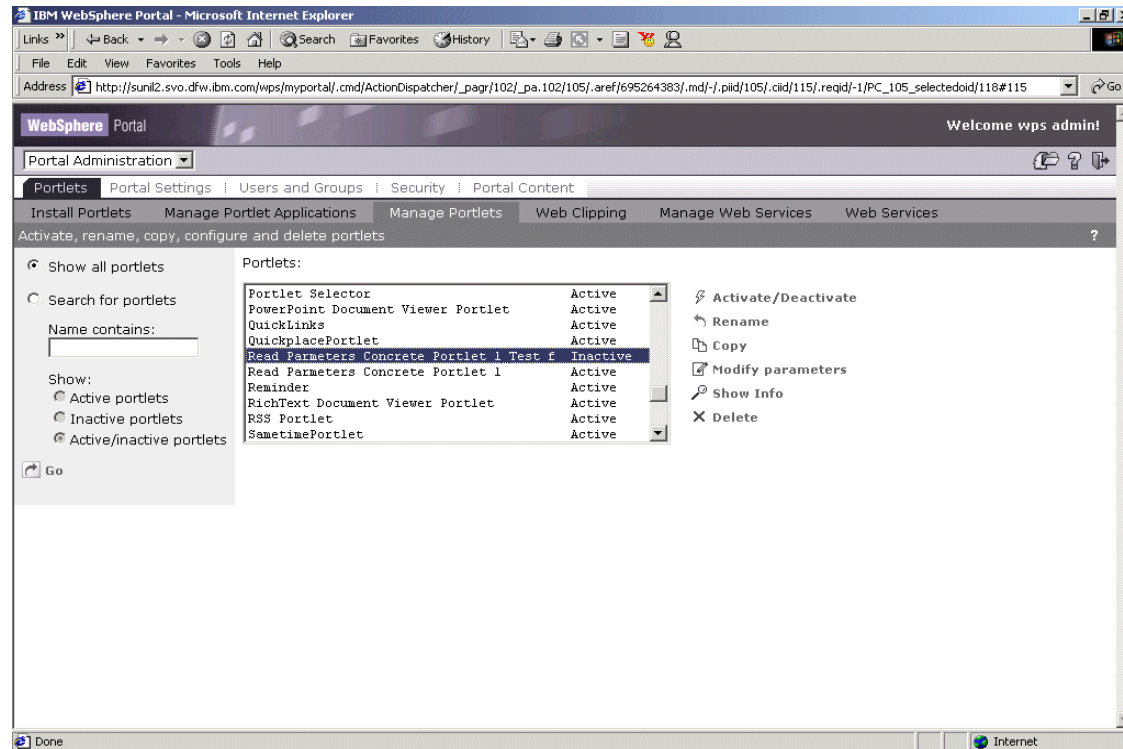
Figure 2-22   Activate portlets that part of the newly created portlet application

► Once you select Activate/Deactivate option, the page will refresh and you should see the portlet **Read Parameters Concrete Portlet 1_Test** as **Active**.

Rename

You can rename your portlet.

► Highlight **Read Parameters Concrete Portlet 1.**

► Click **Rename** option.

► A pop-up window will appear asking you to provide a new name.

► In this example, we changed it to **Hello Reader.** Click **OK** to accept and **Cancel** to return.

► If you click **OK**, the Manage Portlet page will refresh and you should see the Hello Reader portlet as shown in Figure 2-23.
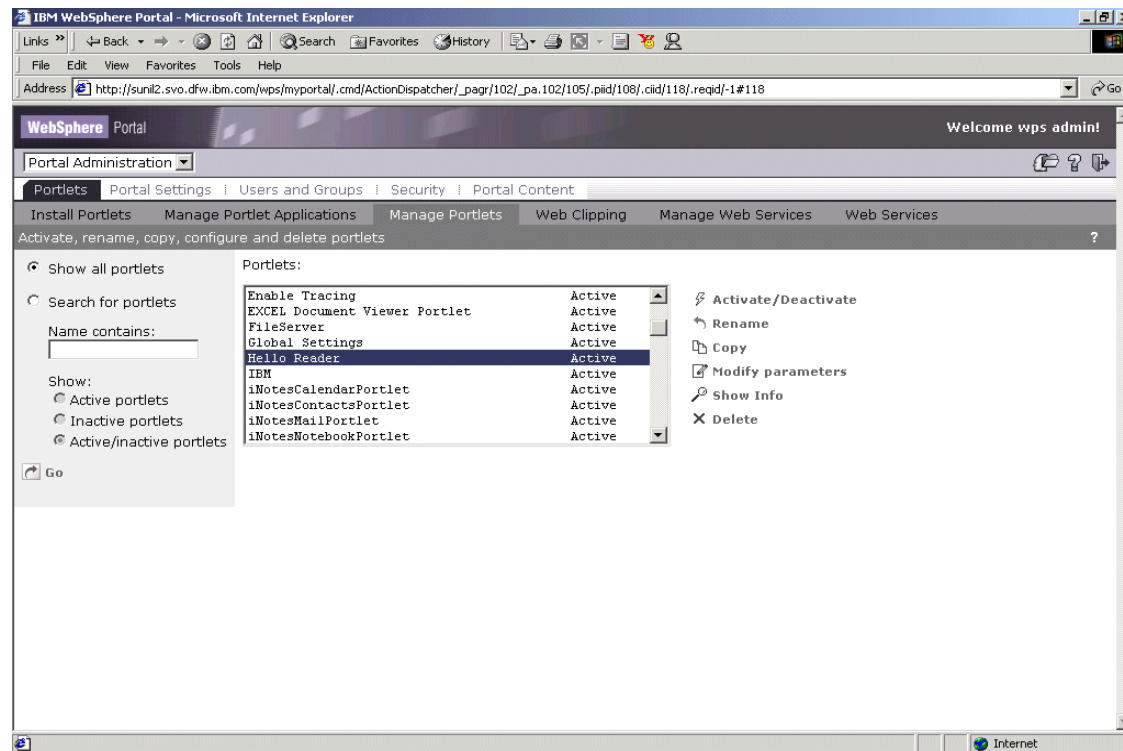
Figure 2-23   Rename your portlet

Copy

Copies a portlet.

► Highlight **Hello Reader** portlet.

► Click on **Copy** option.

► You will be prompted with a window, asking for a name for the portlet after it is copied. In this case, we have used Hello Reader 25. Click **OK** to continue or **Cancel** to return.

► Once the portlet is copied, Manage Portlet page gets refreshed and you will see **Hello Reader 25 portlet** as shown in Figure 2-24 with a **Inactive** state. You can click on Activate/Deactivate to Activate this newly created portlet.
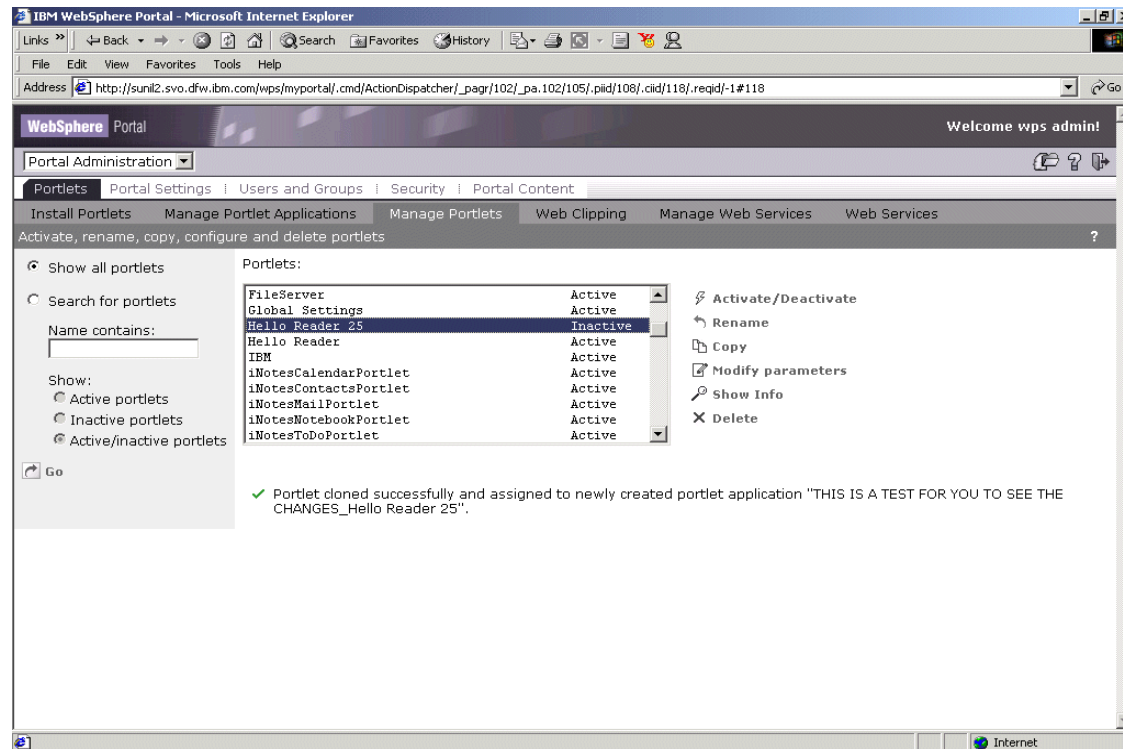
Figure 2-24   Copying your portlet

Modify Parameters

Modify Parameters allows you to modify the parameter values of your portlet.

► Select **Hello Reader** portlet.

► Click **Modify parameters**.

► You will see a window as shown in Figure 2-25 with portlet configuration parameters and titles. Select the parameter, that requires edit. Enter the new parameter or value. We have modified the values for configParam1 and configParam2.
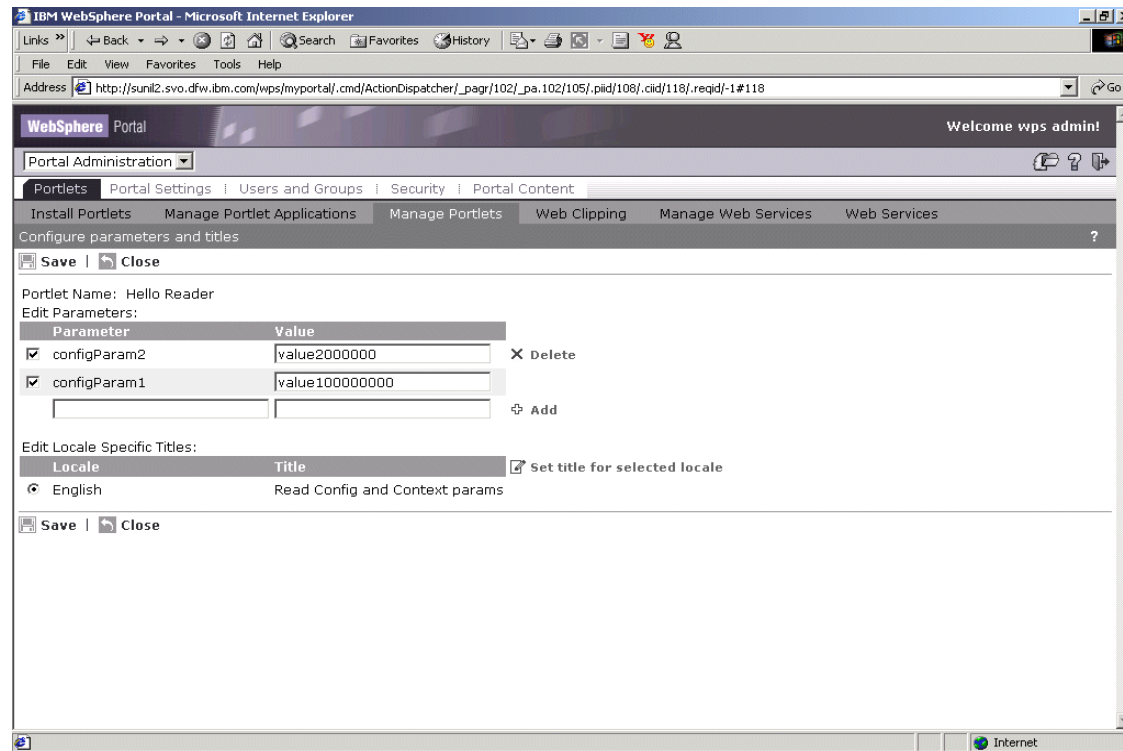
Figure 2-25   Modify portlet parameters

► You can add new parameter and click **Add** button.

► Edit Locale Specific Titles will help you change your Portlet Title. **Select** the Title radio-button and **Click** on **Set title for selected locale.**

► A new window will open as shown in Figure 2-26. Click **OK** and you will return to Portlet configure parameter and title page.

Note: Changing title option, is not mandatory. It can be used based on individual requirements.
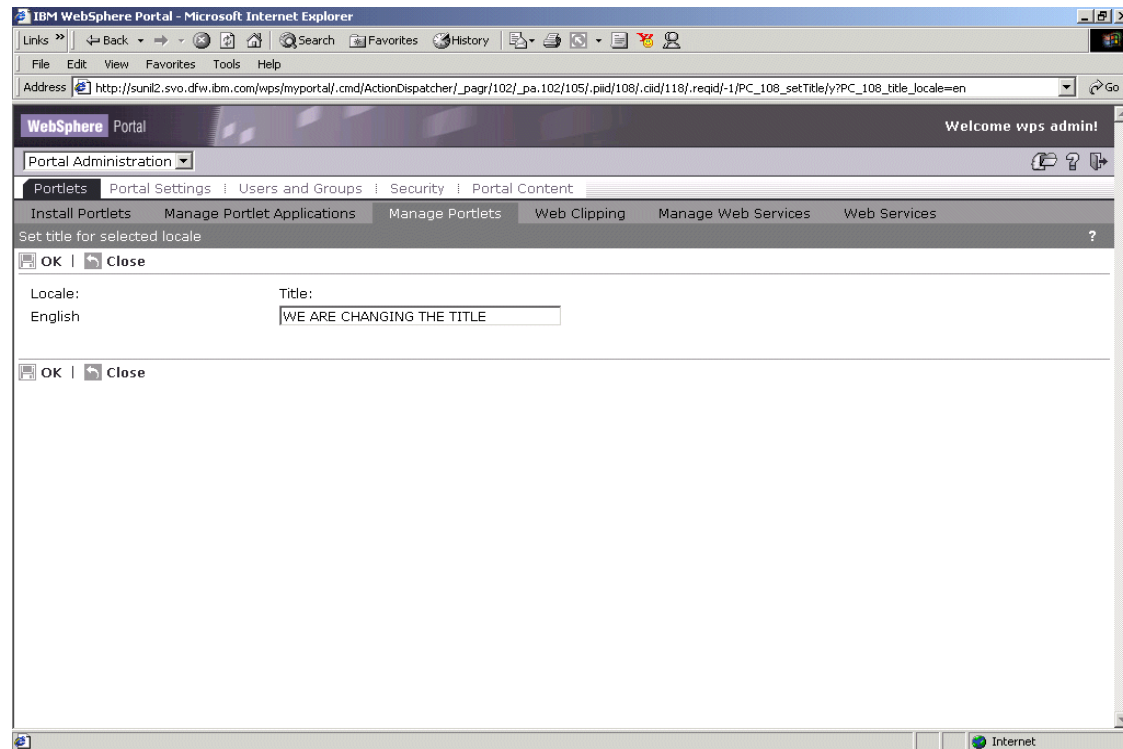
Figure 2-26   Change title for your portlet

- ► Click **Save** button and then **Close** button.

- ► It will take you back to Manage Portlets.

- ► To test, go back to the page, where you have installed Read Parameter portlet, you see the portlet with our changed title and changed parameter values as shown in Figure 2-27.
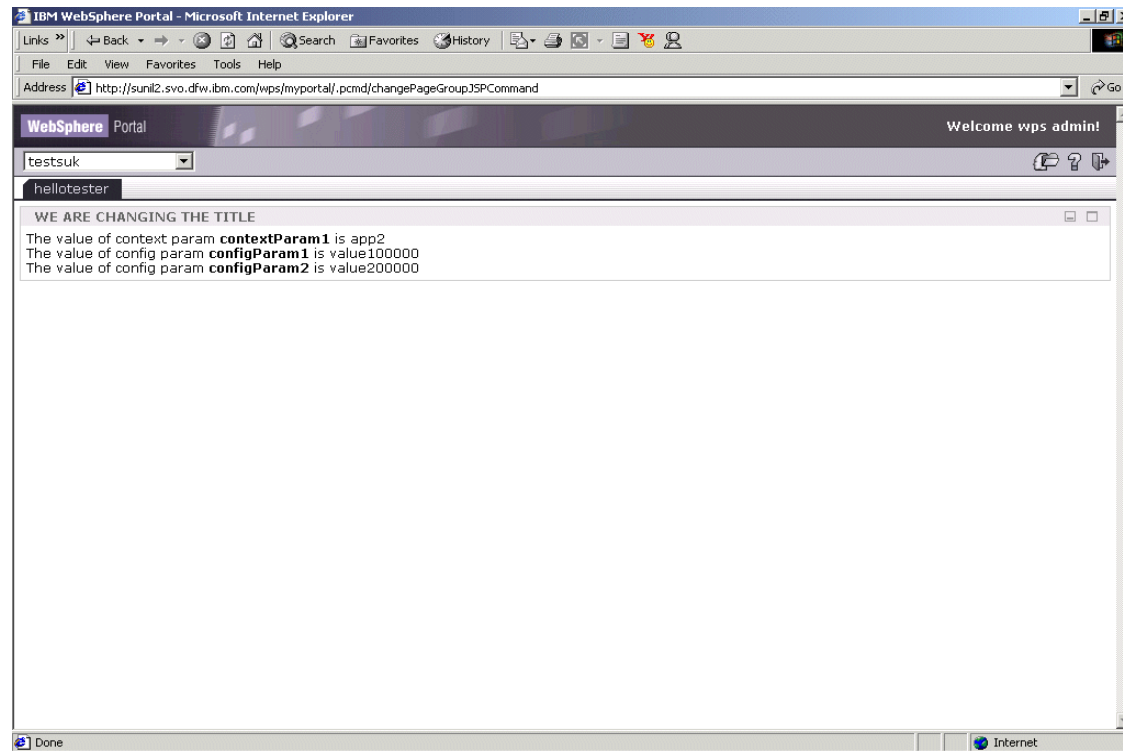
Figure 2-27   Portlet with changed title

Show Info

Shows the portlet name, portlet title, and portlet description.

► Highlight Hello Reader portlet.

► Click **Show info.**

► You should see a window as shown Figure 2-28 with the portlet information for the selected portlet.

► Click **Done** to return to Manage Portlets.
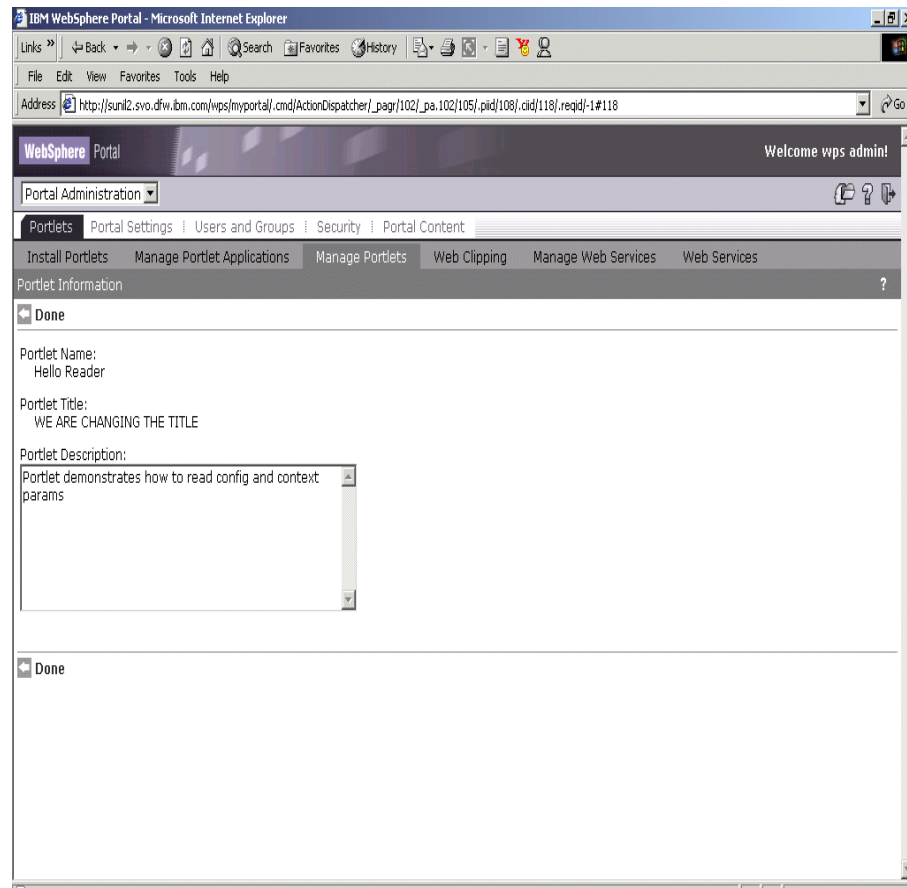
Figure 2-28   Show Portlet Info

Delete

You can delete any portlet.

► Select **Hello Reader 25**.

► Click **Delete(X)**.

► You will get a pop-up window for confirmation. Click **OK** to confirm and **Cancel** to return.

► Manage Portlets page will refresh and Hello Reader 25 is deleted.

2.2.4 Web Clipping Portlet

The Web Clipping Portlet allows Web content from other sites to be clipped and displayed within the portlet on a portal page.

Web Clipping Portlet Administration:

► Displays sections of existing Web pages. Visually or between tags.

► Links can be displayed without leaving the portal.

► Each clip creates a new portlet.

► Retrieves the current version of the Web page.

► No security, basic authorization or forms based authentication.

► Credentials supplied by user or administrator.

Web Clipping portlet uses Transcoding Technology, which allows the administrator to use the front-end user-interface,it provides to create new portlets with the ability to wrap contents by specifying spe cific URL information. It allows you to identify and extract specific portions of an HTML document as desired by the administrator. Links have been rewritten to go through the Portal.

Two portlets that are involved in Web clipping:

Tooling Portlet (Clipping editor)

► Identify and extract specific portions of a document for display in a portlet

► Used to visually specify the source URI

– Specify the URL rewriting rules (no-proxy, new window)

– Specify the authentication settings, annotation rules etc.

► Provides a graphic step-based approach

– Steps the user through the process of building a new portlet

– Point and click

– Preview window

► Intended for use by administrators/portlet developers

– Specify access rights

– Negotiate copyright

– Access information (authentication, proxy/firewall settings etc.)

► The portlet created can then be added to a page group and administered as any other portlet.

Clipping Runtime Portlet

► Small UI used in portlet edit mode to specify authentication settings

► A set of Java classes providing a run-time implementation for the new portlet

► Obtains external content and presents the resulting content in the portlet's view mode

► URL Rewriting:

– Enabled - modify URL links to point to the Portal Server vs. original host

– Do Not Proxy... - URLs identified by the Rule expression are not altered and will not go through the Portal Server (requires Enable URL Rewriting)

– Open URLs in new window... - indicates which URLs will not be altered and will be opened a new browser window (takes precedence over other options)

Let us explore steps for adding a Web clipper portlet.

1. Go to Web Clipping Portlet and click **Add** as shown in the Figure 2-29.
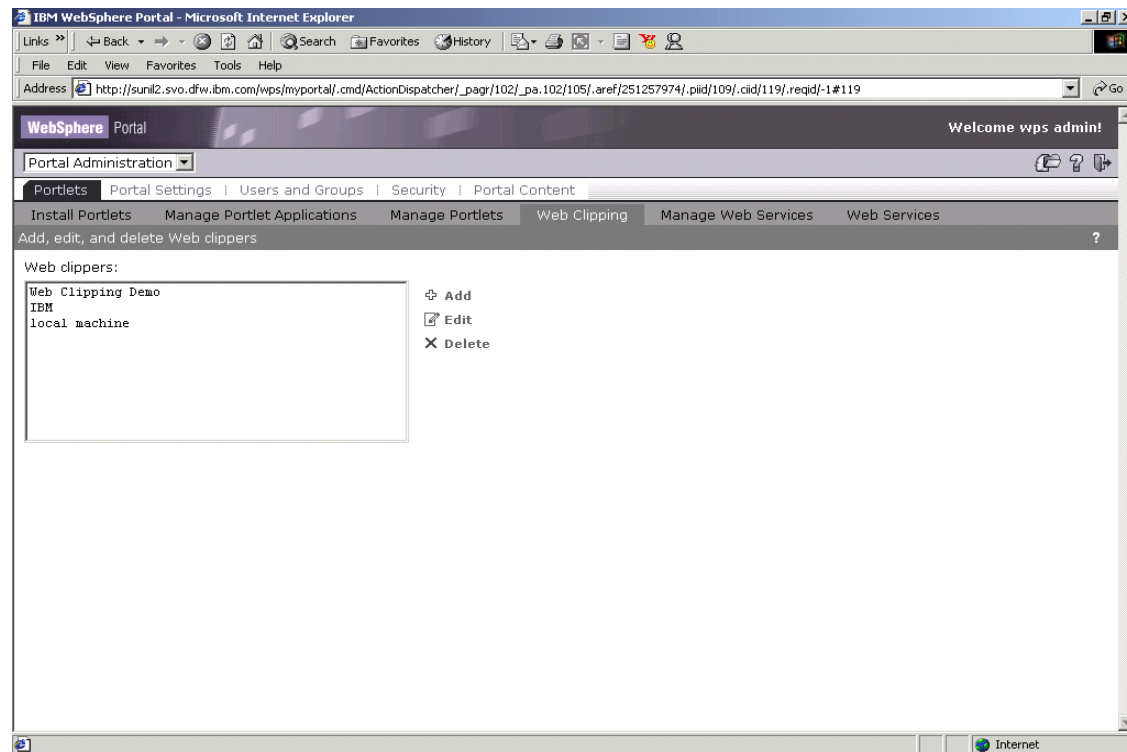
Figure 2-29   Click on Add in Web Clipping Portlet

2. You will be taken to the next window Add a Clipper as shown in Figure 2-30.
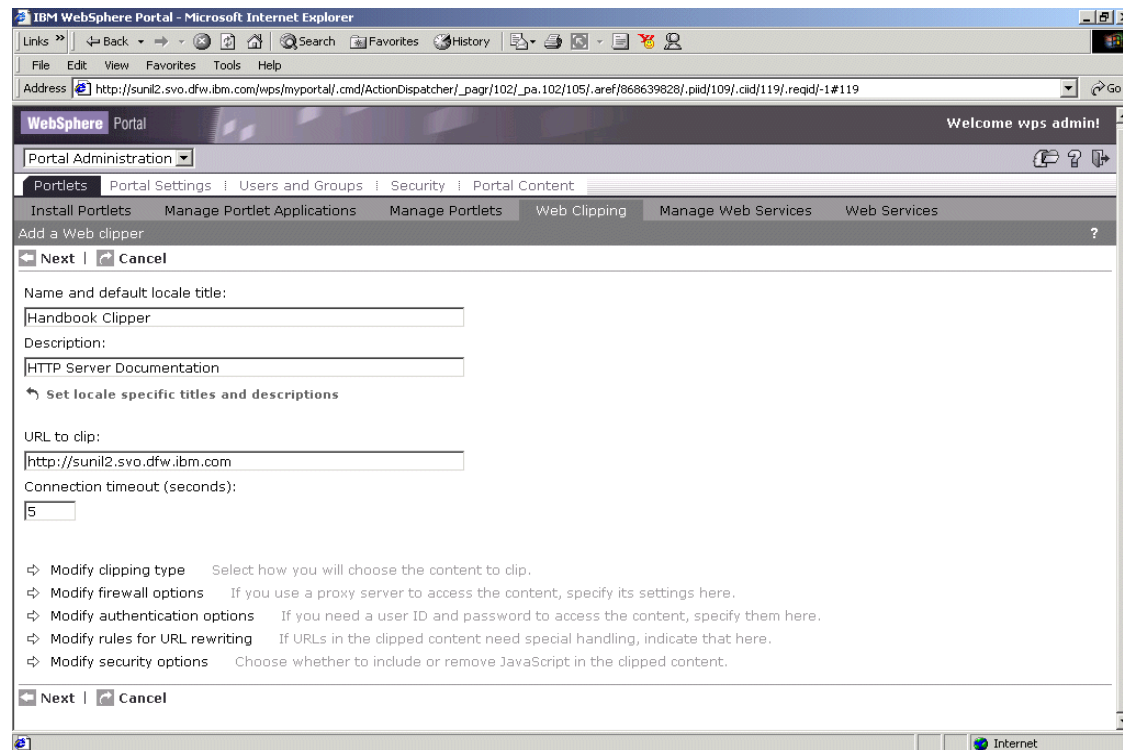
Figure 2-30   Add a Clipper

Complete the information requested in the window:

► Specify Name and default locale title. In this example, we have specified Handbook Clipper.

► Specify Description. This is the description of the material that will be clipped.

► You can click **Set locale specific titles and descriptions**. A new window will open, where you can select the language for the title and description. Click **Done** when finished and you will come back to Add Clipper portlet or **Cancel** to return.

► Specify URL to clip and Connection time-out in seconds.

► Click **Modify clipping type** to manually select the HTML content to clip, or Keep all content from the base URL or clip content between specified text. Click **Done** to make changes and exit or **Cancel** to return.

► Click **Modify firewall options** to specify firewall setting if needed to connect to the clipped page.Click **Done** to make changes and exit or **Cancel** to return.

► Click **Modify authentication options**. If you need a user ID and password to access the content, specify them here. You have the option for choosing between HTTP- Basic Authentication or Form Based Authentication. Information need to be provided accordingly. Click **Done** to make changes and exit or **Cancel** to return.

► Click **Modify rules for URL rewriting**. If the content of your Web clipper contains links, the URL's in those links will be modified to point to the portal server. However, you can create rules that exclude certain URLs from being modified in this manner. You can also specify URLs to be opened in new browser windows. Click **Done** to make changes and exit or **Cancel** to return.

► Click **Modify security options**. If the clipped URL contains JavaScript and you want it to run, you have to uncheck that option here. Click **Done** to make changes and exit or **Cancel** to return.

Note:

► Sometimes JSP pages takes time to compile and wait for the page to load.

► In the example for this chapter, we have not used any of these Modify options.

3. Click **Next** and you should a window as shown in Figure 2-31. By pointing and clicking on the content, choose the content you would like to clip. Select **Preview** option on the top-right hand corner, to open or update the Web Clipping Preview window with a preview of the content for your Web clipper. When you are satisfied with the content of your Web clipper, select **Next**. If you want to do some changes, you can select **Clear**. Cancel will take you back to Add Clipper Portlet.
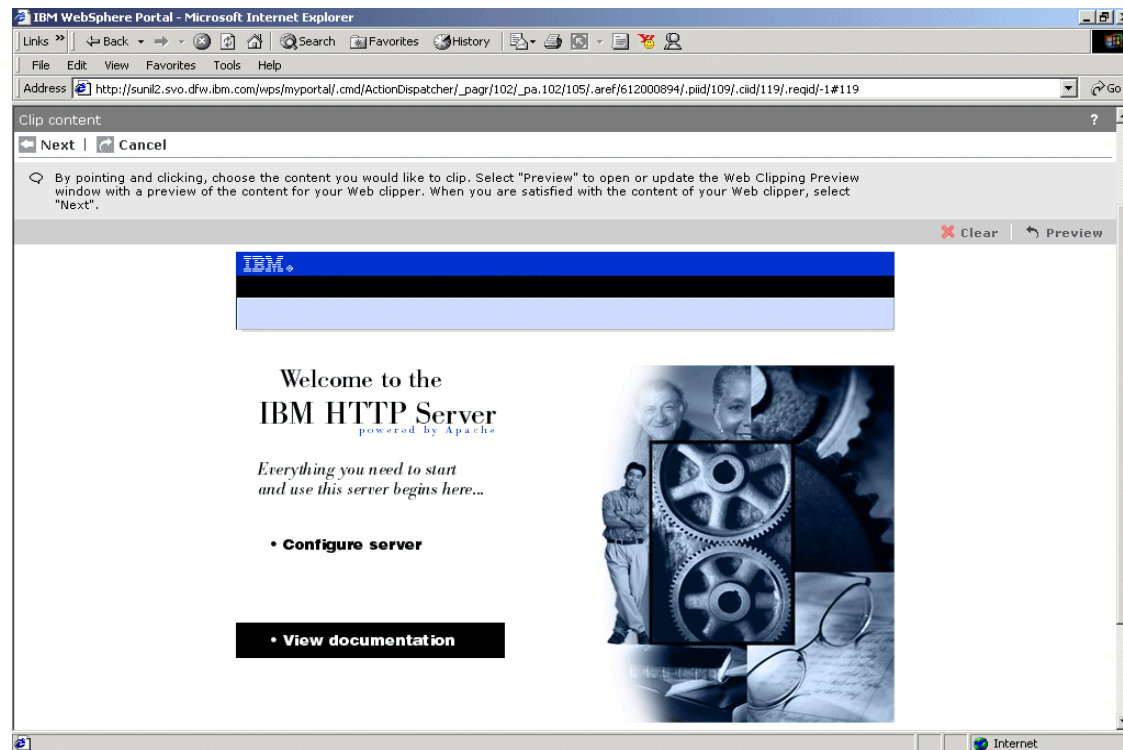
Figure 2-31   Select Clip Content

> **Note:** In this example, we have selected View documentation content to be clipped.

4. You will see the Content Preview window as shown in Figure 2-32.
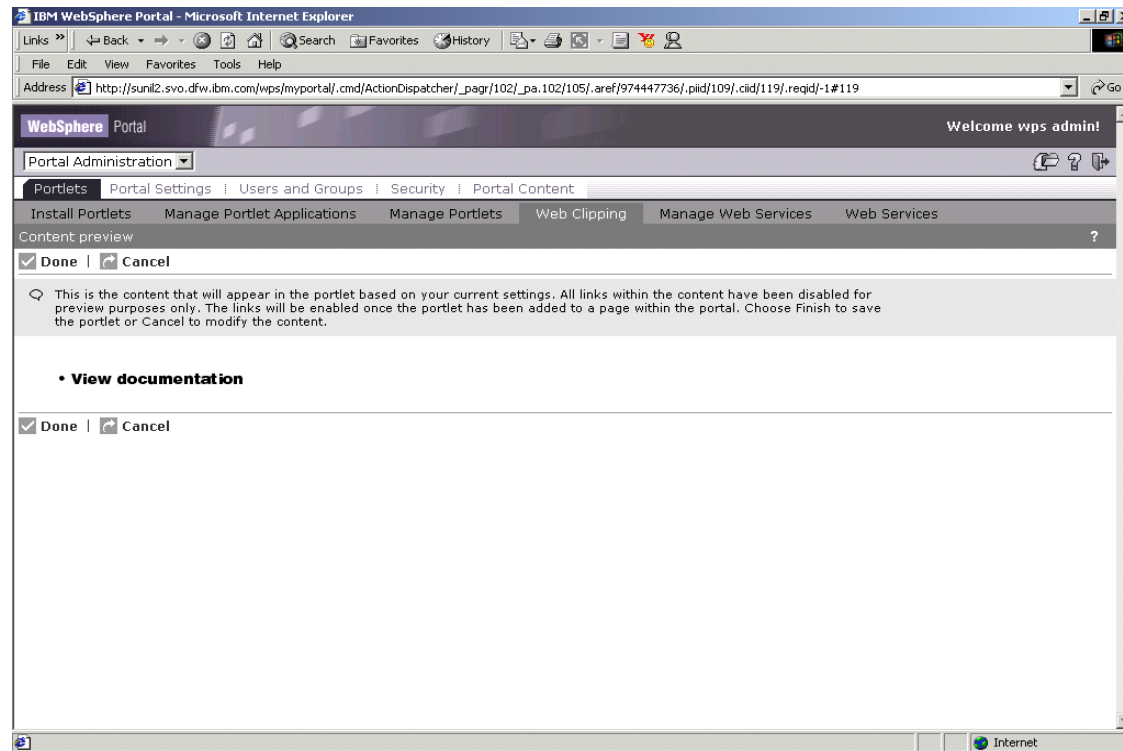
Figure 2-32   Check for the contents you have clipped

This is the content that will appear in the portlet based on your current settings. Click on **Done** to proceed or **Cancel** to re-select the contents for clipping.

5. You should see Handbook Clippers being added to the list of Web Clippers in the Web Clipper Portlet as shown in Figure 2-33.
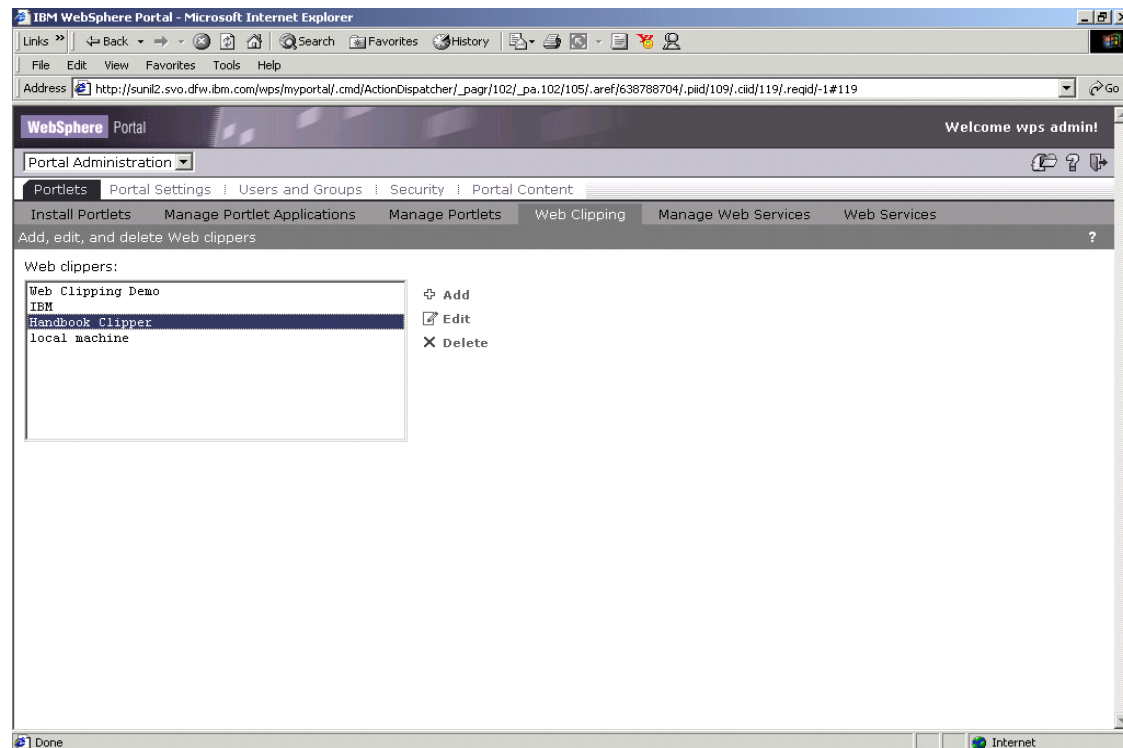
Figure 2-33   Handbook clipper added to list of Web Clippers

6. To test whether this Handbook Clipper Portlet works, add this to the page, where you had added Read Parameter portlet and **Activate** the portlet to the page. You should see the clipped portlet displayed on your page.

> **Note:** You should see Handbook Clipper Portlet on the available portlets list in Manage Portlets portlet and with a status Active.

2.2.5 Managing Web Services

Web Services are a form of distributed computing where a software component is available over the intranet. The functions provided by the Web service are described by the standard XML-based Web Services Definition Language (WSDL), so that the service can be invoked without prior knowledge of the platform, language, or implementation design of the Web service. A service broker maintains a Universal Discovery, Description Integration (UDDI) registry as a directory of available Web Services. Service providers publish their Web

Services to a UDDI directory. There are many global registries available today that allow businesses to find each other across enterprise boundaries.

For a more indepth discussion of Web Services and it's related technologies see Chapter 4, "Web Services" on page 163.

Publishing and using a remote portlet in WebSphere Portal involves making the portlet available through a UDDI registry. Before you can work with the registry, you will need a user ID and password to access the registry.

There are several public registries available. Access the following URLs to learn about some of these registries.

IBM test registry: `http://uddi.ibm.com/testregistry/registry.html`

IBM Universal Business Registry: `https://uddi.ibm.com/ubr/registry.html`

Microsoft: `http://uddi.microsoft.com/default.aspx`

HP:
`http://hpmiddleware.com/products/hp_Web_services/registry/default.html`

In this section, we will explore Administring Portal Web Services using one of the public registries. **For more information on installing and configuring a private registry see ???**.

Cross ref to
Installing
private registry

The Portal Administration - Portlets - Manage Web Services task is used to define UDDI registries to WebSphere Portal.

1. Select **Manage Web Services Portlet** and you should see a window as shown in the Figure 2-35.

▶ Click on **Add** button for adding UDDI registry information.

▶ Edit option will allow you to edit registry information.

▶ Using Delete option, you can delete the UDDI Web Service registry information.
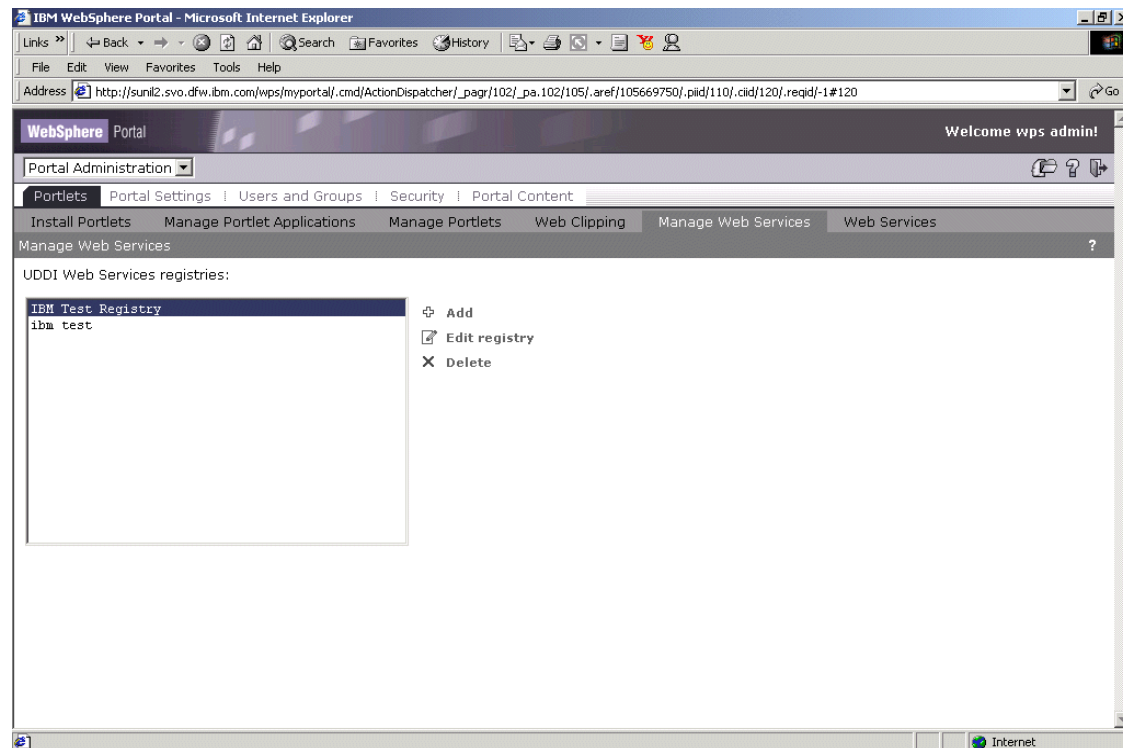
Figure 2-34   Manage Web Services Portlet for adding UDDI registry information

2. If you click on Add, you should see a window requesting for registry information as shown in Figure 2-35.
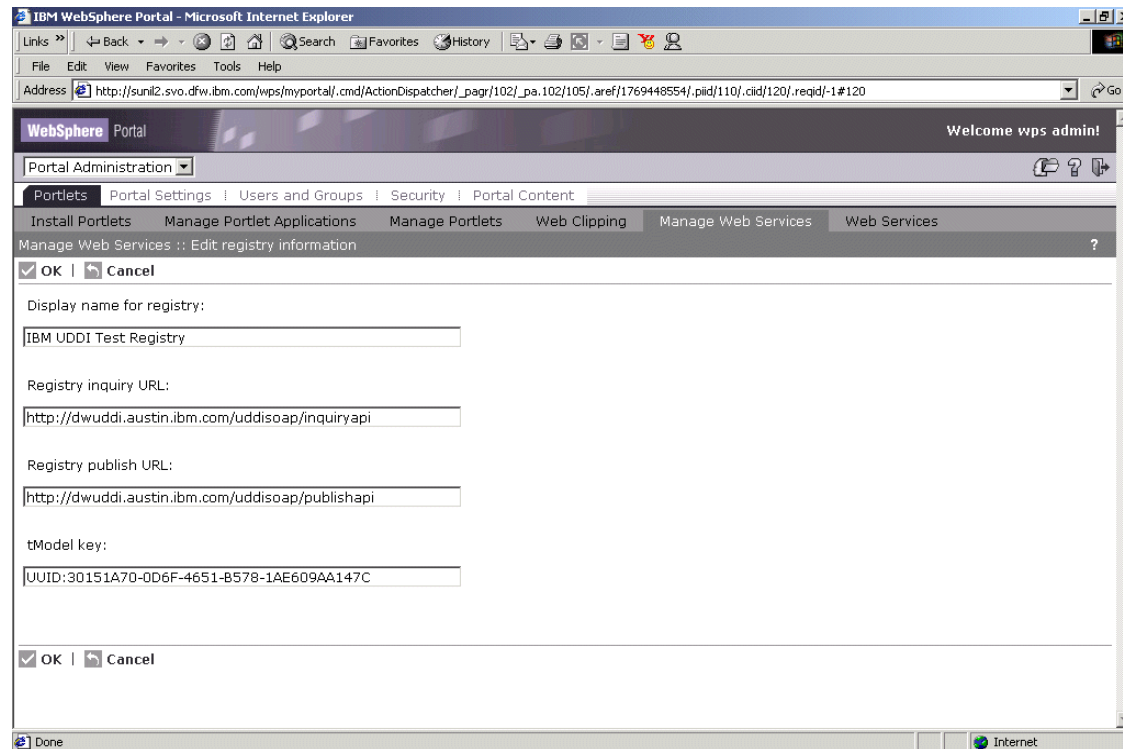
Figure 2-35   Manage Web Services Task

When defining the registry to WebSphere Portal, you need to know three things about the registry:

► Inquiry URL
► Publish URL
► Model Key

The corresponding values for the IBM UDDI Test Registry information that we have used in our example are:

► Display name for Registry: IBM UDDI Test Registry

► Registry inquiry URL: `http://dwuddi.austin.ibm.com/uddisoap/inquiryapi`

► Registry publish URL: `http://dwuddi.austin.ibm.com/uddisoap/publishapi`

Cross ref to WS chaptrer.. connecting to the UDDI registry

► Model key: UUID:UUID:30151A70-0D6F-4651-B578-1AE609AA147C

For a more detailed discussion of deteriming these values, **see ???**

.

> **Note:**
>
> ► The URLs values should be found in the documentation for the registry.
>
> ► You can find the correct Model Key to use by searching the registry for the desired service type.
>
> ► For example, searching for technical models in the IBM Test Registry using the "rpws" search string yields the entry for
> `com.ibm.Websphere.portal.rpws.`

3. Once you furnish the URL information and the key, click **OK** to register or **Cancel** to return.

4. If you click **OK,** you should see IBM UDDI Test Registry added to UDDI Web Services registries in the Manage Web Services portlet.

2.2.6 Web Services

One you have defined a UDDI registry to the WebSphere Portal as explained in 2.2.5, "Managing Web Services" on page 64, you can use the following tasks found under Portal Administration - Portlets - Web Services to access the information in a registry as shown in Figure 2-36. In this section, we will publish a portlet as a Web service.
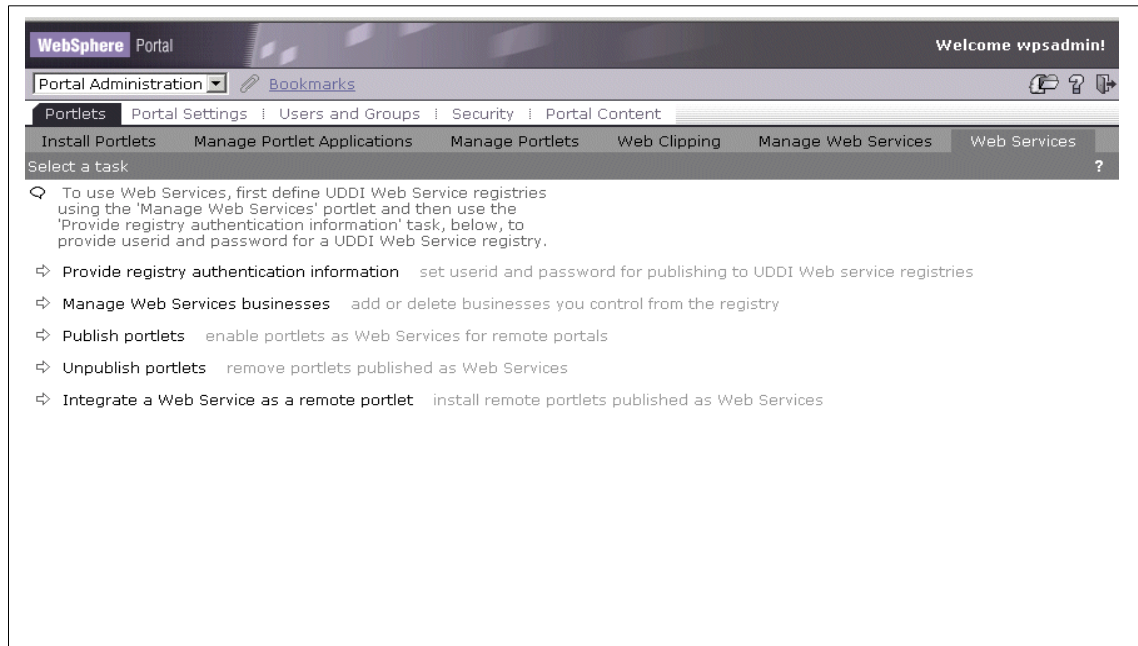
Figure 2-36   Web Services Tasks

1. Select the **Provide registry authentication information** task first. This option allows you to specify user ID and password information for using the registry. The userid and password information is used by other tasks on this page when connecting to the registry.

2. The Manage Web Services businesses option gives you the ability to add or delete businesses from the registry.

3. To add a portlet to the registry and make it available as a Web Service, Choose **IBM UDDI Test Registry** in Manage Web Services Portlet and then Select **Publish portlets** option in Web Services Portlet.

> **Tip:** The Manage Web Services businesses and the Publish Portlets option automatically connect to the first registry in its registry selection list when the task is opened. To access a different registry, just select it from the drop-down list. The connection is automatically refreshed to the newly selected registry.
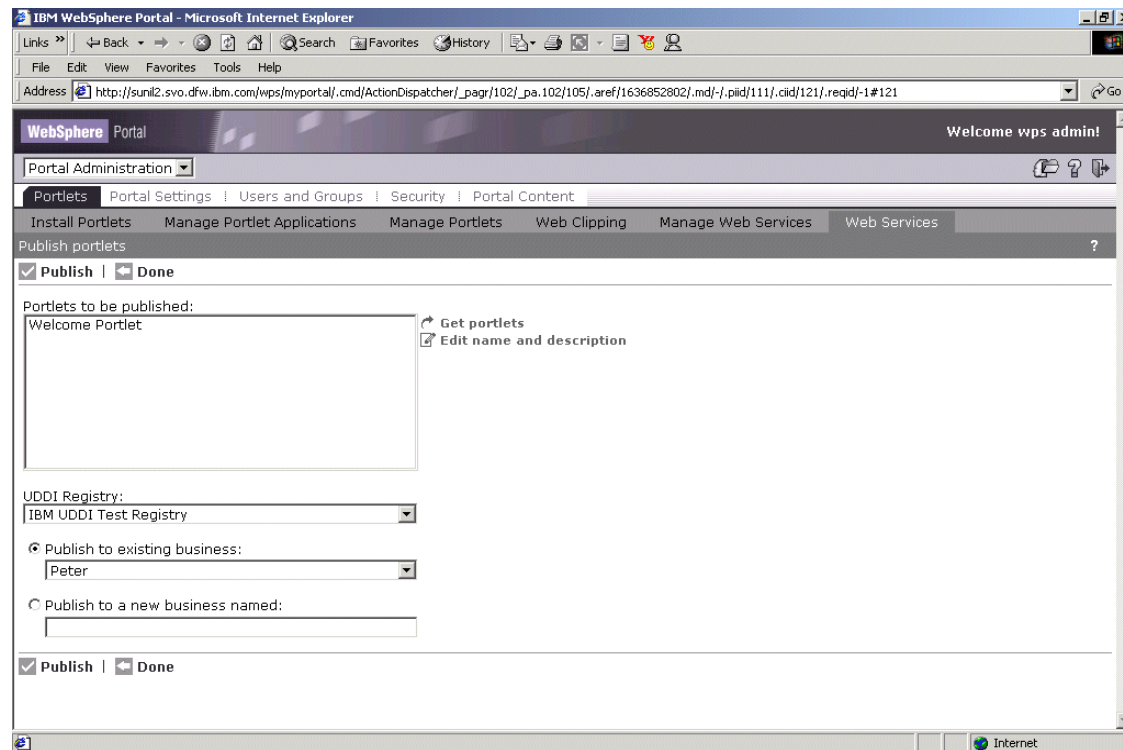
Figure 2-37   Publish a portlet

4. Once you select Publish portlets option, a window as shown in Figure 2-37 on page 70 opens. Any of the installed portlets (for which you have manage access) can be published as Web Services. Use the **Get portlets** link to populate the list of portlets to publish. Prior to publishing, you can click **Edit name and description** to modify the corresponding portlet information as it will appear in the registry. You can also choose to publish the portlet to an existing business (multiple portlets can be services under a single business) or you can create a new business.

5. Select **IBM UDDI Test Registry** for UDDI Registry. In our example I have given Publish to a **new business** Sunil.You can use existing business. Click **Get Portlets** icon.

6. You should see a window open as shown in Figure 2-38. Select **Show all Portlets** and the list of Portlets that are currently installed will pop-up in the window. Select the Portlet you want to publish as a Web service and click **Add**. In our example, we have selected Welcome Portlet. Highlight the selected portlet and click **OK** to proceed or **Cancel** to return.
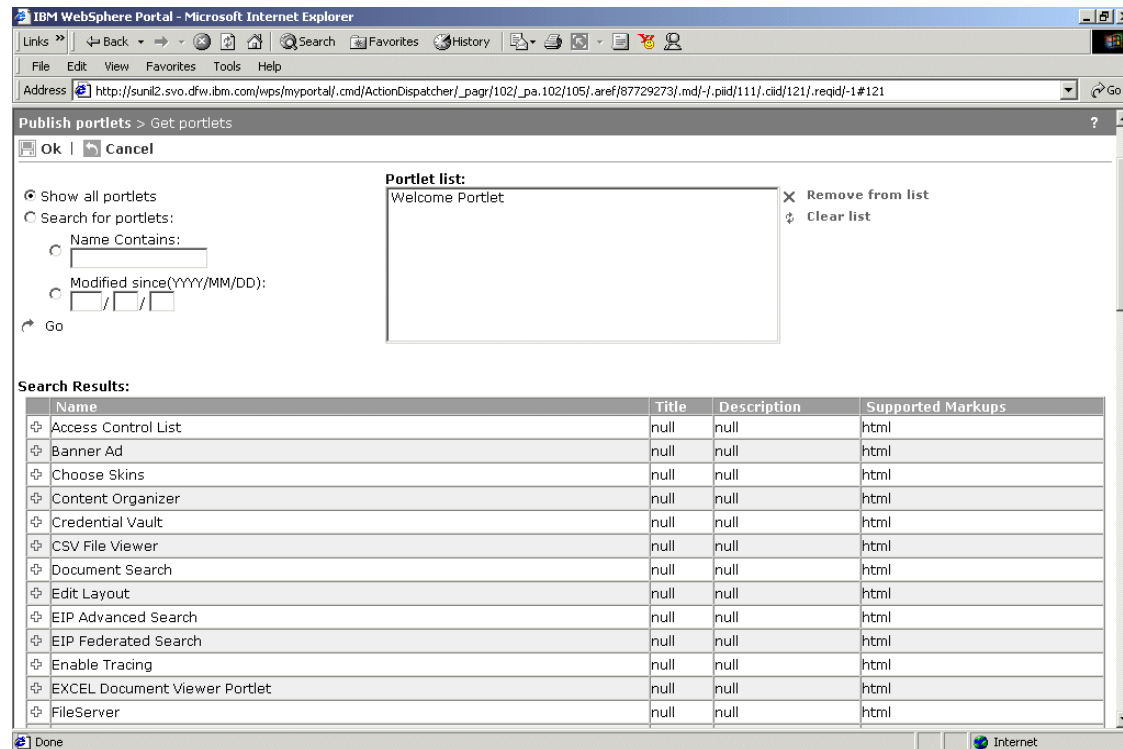
Figure 2-38   Get the Portlet you want to publish as a Web Service

Tip: Use the radio buttons to list all portlets or filter the list of portlets by a string. Do not include wildcard characters in the filter.

7. You should see Welcome Portlet in your Portlet to be published List. **Click Publish**.

8. If the portlet is published successfully, you should a message **Portlets Published Successfully** as shown in Figure 2-39.
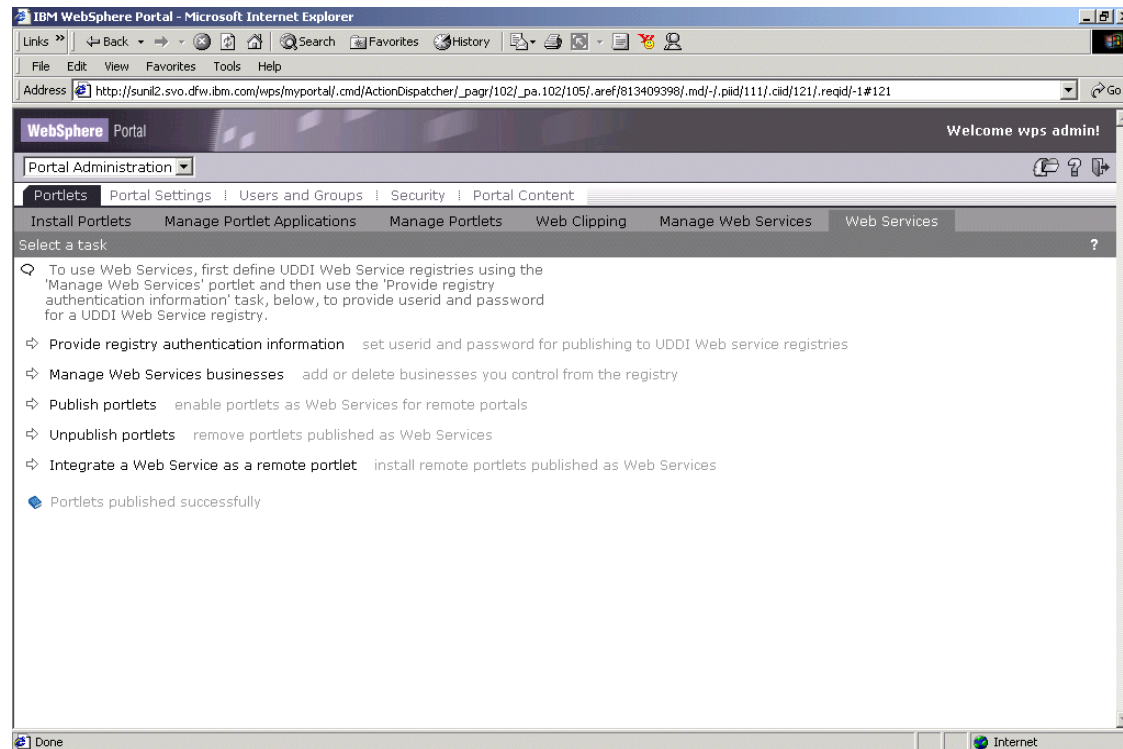
Figure 2-39   Portlet published successfully

9. To remove a portlet from the registry use the **Unpublish portlets** task on the Web Services task page.

10. The **Integrate a Web Service as a remote portlet** task is used to locate and bind a remote portlet to your local portal server. Once you define a UDDI registry to your portal, you can query the registry to determine what services exist. Any service using the RPWS service type can be accessed as a remote portlet.

11. Select **Integrate a Web Service** as a remote portlet option. You should see a window open as shown in the Figure 2-40.
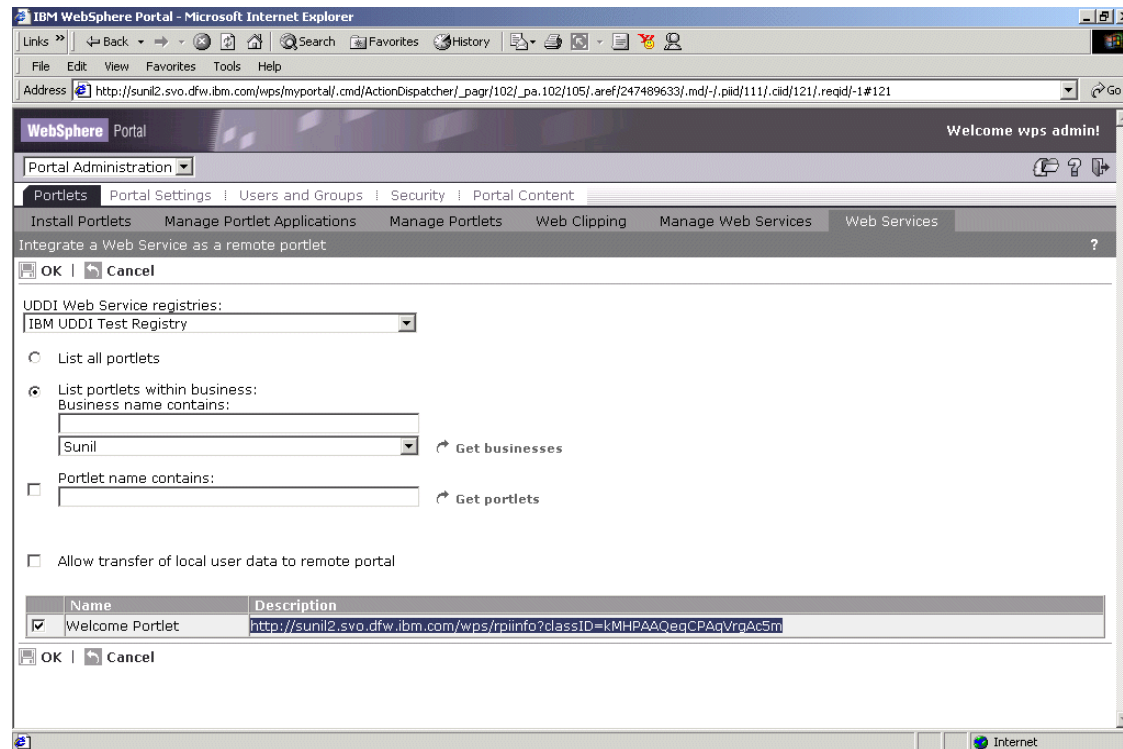
Figure 2-40   Integrate a Web Service as a Remote Portlet

12. You have two options when searching for portlets in the selected registry:

► Use the **List all portlets** option if the number of published portlets in the registry is not large.

► If there is a large number of published portlets, you should use the **List portlets within business** option. Before you click the **Get businesses** link, you may want to refine the list of businesses returned by entering a string in the **Business name contains** field. From the list of businesses returned, select one from the list.

► In our example, we will select **IBM UDDI Test Registry**, **Get Businesses Sunil**. Once you have completed entering your filter criteria, click **Get portlets** to retrieve the list of portlets. Select **Welcome Portlet** and then click **OK** to integrate a Web service as a remote portlet or **Cancel** to return.

13. If successful, you should see a message as shown in the Figure 2-41.
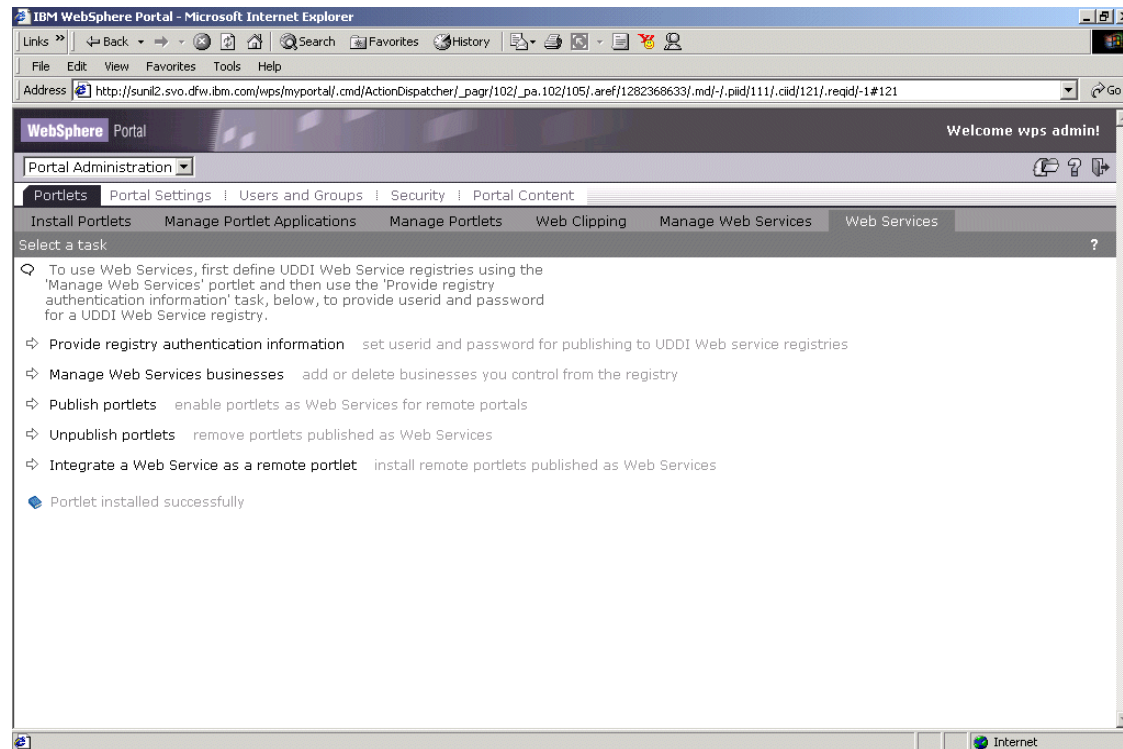
Figure 2-41   Successfully integrated a remote Web service portlet

14. After a remote portlet has been intergrated, you can access the portlet in all the same ways you would access a locally installed portlet, for instance, you can add it to pages, assign access control, choose skins, etc. The name of a remote portlet is prefixed with the string "IBM_Proxy". In our example, you can find the remote portlet as **IBM_ProxyPortlet_Welcome Portlet**.

> **Note:**
>
> ► You can also remove a remote portlet through the Uninstall option under **Portal Administration - Portlets - Manage Portlet Applications**.
>
> ► For more information on Web Services, Chapter 4, "Web Services" on page 163.

2.3 Portal Settings

In the Portal Settings tab, we will be able to set up the basics for our portal, such as default language, messages to users, and add new skins, manage the clients

(browsers) that your portal will support and give them the priority you want. Also, manage the markups available on your portal or create new ones, and manage tracing.

Portlet Settings Page contains the following portlets:

► Global Settings

► Themes and Skins

► Manage Clients

► Manage Markups

► Manage Search Index

► Enable Tracing

We will explore them individually.

2.3.1 Global Settings

When you select Portal Settings Portlet, Global Settings portlet, opens as the default.

Global Settings portlet is used to:

► Specify default portal language.

► Determine unauthorized access by ignoring the user or providing an informative message.

► Provide information to Returning users

  – Taking them to the default page or

  – To the state of the page at user's last visit.

When you select the Global Settings Portlet, you will see as shown in Figure 2-42.
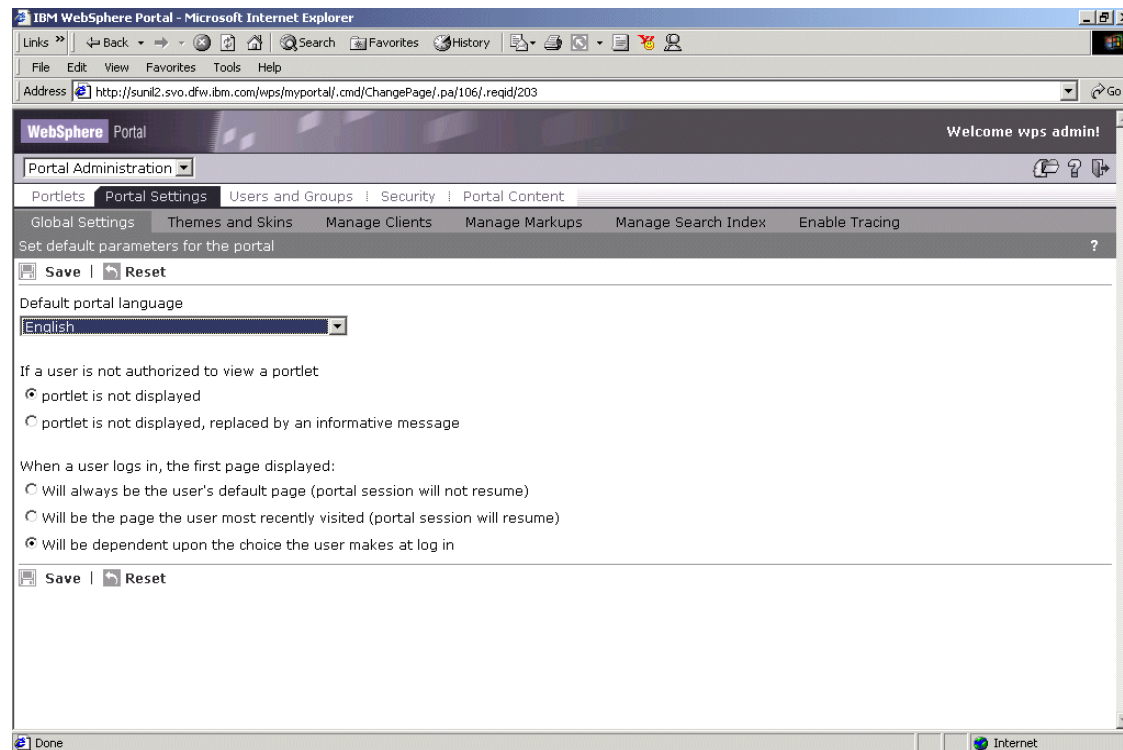
Figure 2-42   Set Default Parameters for the Portal

1. You can change the **default portal language** from English.

2. Portlet View Permissions for **Unauthorized** users can be set.

3. When a user logs in, the first page that he sees can be defined.

4. Once you finish the settings, you can click **Save** for the changes to take effect.

5. You need to restart WebSphere Application Server for changes to take effect.

6. Click **Reset** option and return to your default settings anytime when you are changing the parameters.

> **Note:**
>
> ► In our example, we have used the default settings.
>
> ► If you choose **portlet is not displayed, replaced by an informative message** option, then an informative message will appear when a user tries to access a portlet to which he or she does not have access.
>
> ► If you choose **Will always be the user's default page (portal session will not resume)** option, users will always return to the default page after log in.
>
> ► If you choose the option **Will be the page the user most recently visited (portal session will resume)**, users will return to the page from their last visit. This option is helpful when users lose their portal session in the middle of a task and need to login to return.

2.3.2 Themes and Skins

Themes and skins are templates that provide a page group's look and feel. They provide specific control for branding, navigation, and decoration.

Branding is the general scheme of the page. It usually encompasses logos, color schemes, decorations, fonts, artistic layout, etc.

Navigation refers to the way in which the user gets around on the site. There are several themes that demonstrate some of the different navigation models.

Decorations are the icons and images that are used to provide function and content links as well as general look-and-feel enhancement.

Each place has a theme associated with it, and each theme has a set of skins associated with it.

Themes

A theme is an attribute of a page group, meaning you create page groups and then apply a theme to it. Themes are not user-specific. All users see the same theme that is applied to the page group. This means that a user could be presented with a completely different site experience when navigating from one page group to the next.

> **Theme:** A theme determines the global appearance of all pages in a place. This will ensure visual consistency. Themes affect the navigational structure, the banner, colors and fonts and other visual elements of a page.

Themes contain various components:

▶ Cascading Style Sheets (CSS files) provides a mechanism to apply look and feel to specific HTML tags. This can be done on a broad scale by specifying the attributes of the specific HTML tag. Or you can create "classes" and apply specific classes to the HTML attributes as desired. For example, you can specify a font size to be used on the <P> (paragraph) tag or you can create a class that specifies a font size, and then point to the class when you use the <P> tag. This second method provides the ability to apply different attributes to the same tag and achieve a variety of effects. CSS files can be found in the product install directory.

▶ Images provide specific brand, logos, and decorations. The image components of the theme's supported skins that are sensitive to theme settings are kept with the theme's images.

▶ Each theme contains its own set of JSPs to render the page groups and pages. This allows a completely different layout and brand experience from one page group to the next.

▶ Assets (images, JSPs, etc.) that are used in Themes and Skins are resolved by using WebSphere Portal supplied custom tags. There are several points within the directory structure where assets can be located. When the "<wps:urlFindInxxx>" tag is used, a search for the asset begins deep in the directory structure where the asset may be deployed for a specific country within a locale. If the assets is not found or the directory structure does not exist, the search continues by traversing "up" the directory tree. It's important to deploy default assets in the theme (or skin) root in order to avoid a "not found" situation.

The portal determines the theme for display as follows:

▶ If there is a theme associated with the displayed page group, the portal uses this theme.

▶ If there is no theme specified for the page group, the portal-wide default theme is used.

▶ If no portal default theme is set, the portal uses the theme settings given in the theme main directory, such as /theme/Tamil for HTML.

A default theme is not required for the portal.

Here is a search order example:

```
<...background='<wps:urlFindInTheme file="banner.jpg">'>
    \themes\html\science\ie5\en_US\default.jsp
    \themes\html\science\ie5\en\default.jsp
    \themes\html\science\ie5\default.jsp
    \themes\html\science\en_US\default.jsp
```

```
\themes\html\science\en\default.jsp
\themes\html\science\default.jsp
\themes\html\en_US\default.jsp
\themes\html\en\default.jsp
\themes\html\default.jsp
\themes\default.jsp
```

An example directory structure, where you can find your default themes in WebSphere Portal (`\WebSphere\PortalServer\app\wps.ear\wps.war\themes`) as shown in Figure 2-43.
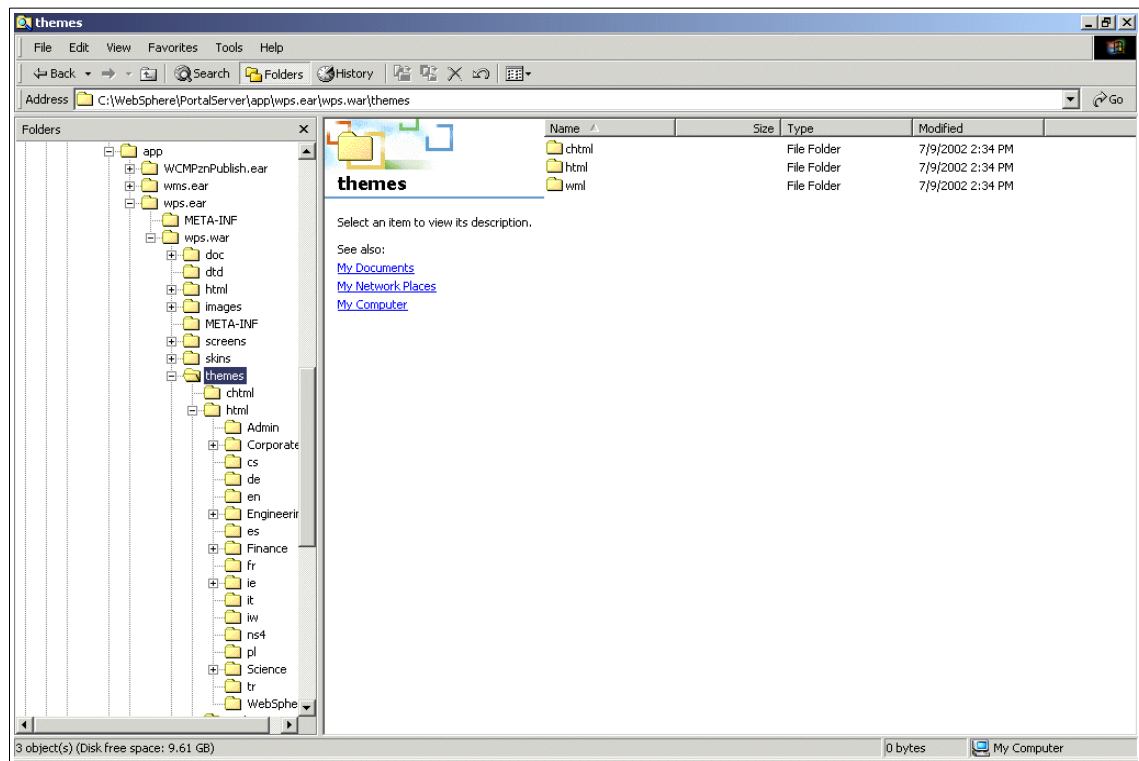
Figure 2-43   Themes location under WebSphere Portal directory

Creating a new theme

To create a new theme:

1. Create a new directory for your theme:
   <WP_HOME>/app/wps.ear/wps.war/themes/html/MyTheme

2. Choose a current theme closest to the layout you want:

   /themes/html/Science

3. Copy the resources into the appropriate directories

   – JSPs: Default.jsp, Banner.jsp, Navigation.jsp, ...
   – Images: banner.jpg, navfade.jpg, ...
   – Style Sheet: Styles.css

   Note: You may modify the tag definitions and the class definitions.

4. Customize to get the look and feel you are looking for.

Skins

Skins are used to apply specific decorations to portlets. They are used in conjunction with the theme in order to accomplish this. For instance, the theme's Cascading Style Sheet is used to specify the color of the portlet's title bar. Some skins use images to produce rounded corners on the title bar. The rounded corner images are stored with the different themes that support the skin. This is done so that the colors match across all of the components of the portlet's title bar. The rest of the skin assets are generic and apply to all theme uses, so they are kept in the skins folder.

Skins contain images that are used to create the visual effects of the portlet. The visual portlet container (lines, shadows, backgrounds, etc.) and the portlet navigation icons (edit, help, back, etc.) are the main components of a skin.

Skins are applied to the portlet via a JSP known as Control.jsp. Each skin has its own version of Control.jsp. It is used to specify the exact implementation of the skin and can be considered the "Portlet" container.

The search for skin assets works the same way as the themes search. Using the "<wps:urlFindInSkin>" tag, the file system is traversed starting with a specific country within a locale and working "up" to the skin default.

> **Skin:** A skin defines the frame around a portlet, thus determining the look of the portlet. It affects only portlets. You can select a skin for each portlet in a page if the theme has skins associated with it.
>
> A Default theme is not required for the portal, but specifying a default skin is mandatory.

The portal determines the skin for display as follows:

1. If there is a skin specified for the portlet, the portal displays the component in that skin.

2. If there is no skin specified for the component, the portal looks for a skin on page level and uses it.

3. If no skin has been set for the page, the portal checks the page group for a skin setting.

4. If the page group has no skin specified, the portal uses the default skin of the page group.

5. If no skin has been found so far, the portal default skin is used.

While a default theme is not required for the portal, specification of a default skin is mandatory.

To create a new skin, make a copy of one of the existing ones and modify the images and the JSP in order to get the desired look and feel. Once you finish, you will be able to choose it from the administration portlets.

Creating a new skin

To create a new skin, execute the following steps:

1. Create a new directory for your skin. Let us name as NewSkin (`<WP_HOME>/app/wps.ear/wps.war/skins/html/NewSkin`).

2. Choose a current skin closest to the layout you want (/skins/html/Science).

3. Copy the resources into the appropriate directories:

   – JSPs: Control.jsp, RowContainer.jsp, ColumnContainer.jsp, ...
   – Images: title_edit.gif, ...

4. Customize to get the look and feel you are looking for.

5. Control.jsp is the only JSP that you would want to modify.

6. Images may be modified or new ones created.

Administer Themes and Skins Portlet

To administer Themes and Skins, perform the following steps:

▶ Select **Portal Settings** and **Themes and Skins** portlet. You should see Manage themes and skins as shown in Figure 2-44.
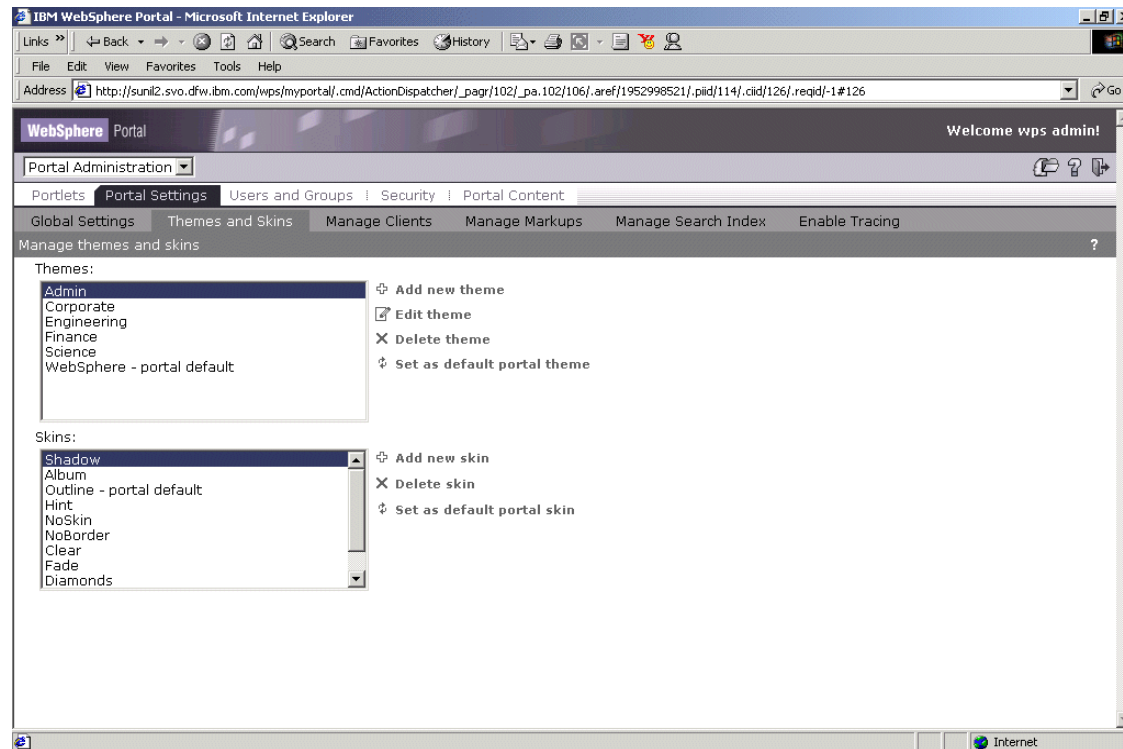
Figure 2-44   Manage Themes and skins

► In the Manage Themes and Skins Portlet, you can notice that for our example we have WebSphere as portal **default theme** and Outline as portal **default skin**.

► Themes has four administrative capabilities:

   – Add New theme

   – Edit Theme

   – Delete Theme

   – Set as Default

Add New Theme

Add new theme will allow you to add a new theme.

Let us add the theme we created using this administrative functionality.

► Click on **Add New theme** option.

► You will see a window open as shown in Figure 2-45.
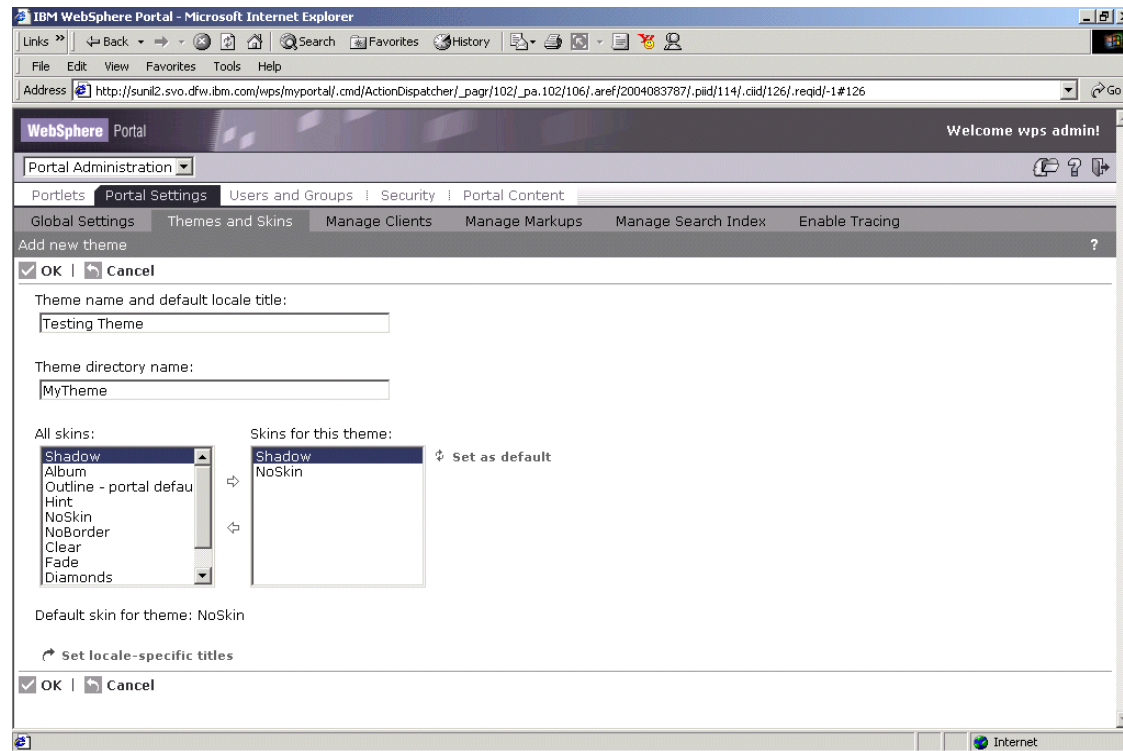
Figure 2-45   Add a new theme

► Enter the name for the theme (default locale title). In our example, we have given Testing Theme

► Enter directory location of your theme. You can specify just the relative path.

> **Note:** We will use **MyTheme** that we created for adding to the portlet.

► You will have All Skins to your left-hand side and you can use the arrow button and choose the Skin that you want for the theme.

> **Note:** If only one skin is chosen, it is selected as the default. However, you can choose multiple skins and click on **Set as Default** for making it as the default skin.

► You can confirm with the message at the bottom on your Default Skin. In our example, we have chose NoSkin as the default skin for our theme.

- ► You can change the language and the Theme title (locale-specific theme titles) by selecting **Set locale specific-titles** option. For our example, we will not use this option.

- ► Once finished, click **OK** for adding the new theme or **Cancel** to return.

- ► You will see Testing Theme being added to the list of available portlet themes.

Edit Theme

Edit Theme option will help you modify, which skin your theme uses.

- ► Select the Theme for which, you need to modify the skin.

- ► Select Edit theme option.

- ► Make the necessary changes. You can also edit local specific titles here.

- ► Click **OK** to confirm the changes or **Cancel** to return.

Delete Theme

- ► Select the Theme you want to delete and click **Delete** option.

- ► A pop-up window will ask you to confirm your deletion.

- ► Select **OK** to confirm or **Cancel** to return.

> **Tip:** The files that compose the theme are not deleted from the system.

Set as default portal theme

Perform the following instructions to set as default portal theme:

- ► To set a portal-wide default theme, select a theme from the themes list, then click **Set as default portal theme**.

- ► If no theme is set for a place, the portal default theme is used.

> **Tip:** You should not apply **Admin** theme to the portal. This theme is intended for administrative portlets and renders the portlets without a title bar.

Add New Skin

You can add a new skin using the **Add New Skin** option.

- ► Select **Add New Skin** and we will add NewSkin that we created to the list of available skins.

- ► You will see the window as shown in the Figure 2-46.
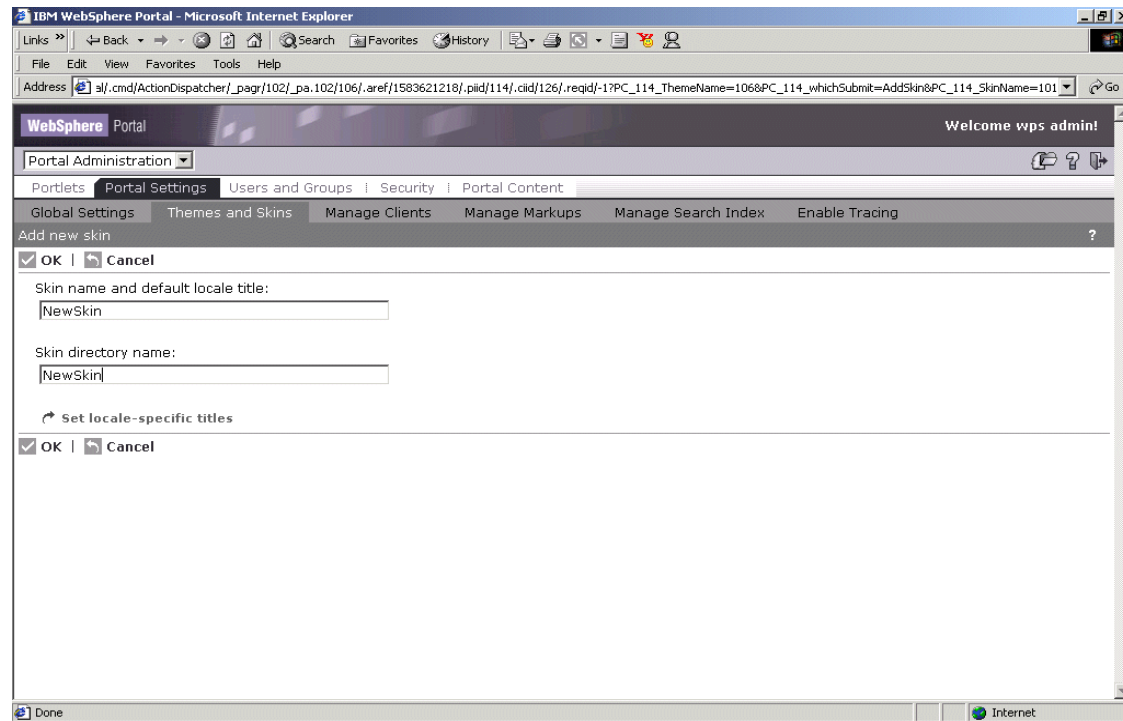
Figure 2-46   Add a new skin

► Specify Skin Name (NewSkin), default locale and the directory location, where this skin is stored. You can specify just the relative path.

► Set-locale specific titles option will help you change the locale-specific titles

► Click **OK** to add the new skin or **Cancel** to return.

► You should now see NewSkin added to list of available skins.

> **Important:** The necessary skin files must already exist within a specific directory path before a theme can be added.

Delete Skin

Perform the following instructions to delete skin:

► Select the Skin you want to delete.

► A hint window will pop-up asking you to confirm the deletion. Click **OK** if you are sure or **Cancel** to return.

Set as default portal skin

This option will help you o set a portal-wide default skin for portlets,

► Select a skin from the skins list then

► Click **Set as default portal skin**. If no default skin is set for a theme, the portal default skin is used.

► The changes will be reflected when the page refreshes.

> **Important:** You should not apply the skin with the name **NoSkin** to a portlet. This skin is intended for administrative portlets and renders the portlet without a title bar.

2.3.3 Manage Clients

Portlets can be accessed across a Web browser, mobile devices, personal digital assistants and other types. Manage Client portlet will help you to define these devices for accessing portal information.To optimize the data that the portal sends to the client and to handle the limitations and deviations of each individual client browser, the portal server maintains information about all supported client devices in a client registry.

You can do the following tasks from Manage Client Portlet.

Add new Client

You can add a new client for accessing portal information.

► Select Portal Setting and Manage Client Portlet. You should see a window, as shown in Figure 2-47.
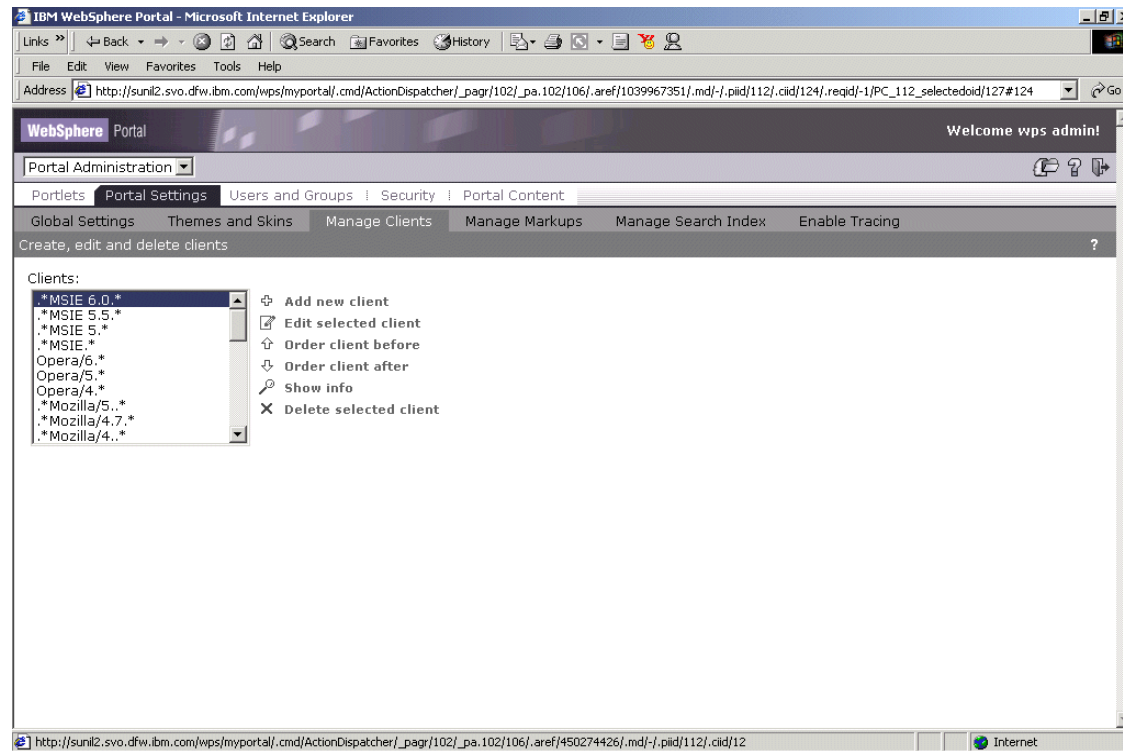
Figure 2-47   Create,Edit and Delete Clients

▶ Click **Add a new client**.

– User Agent is a required field. Make sure that the user agent string that the client sends in its request header matches to the value you specify.If you are not sure enter * and the portal server will search for the closest match to this string.

– Select **Markup**, which the client supports. This is a required field.

– Specify Markup Version, Manufacturer information, Model and Version. These are optional values.

– List the capabilities for this client you have specified. For example, you could specify specific attributes it supports in HTML like JavaScript etc.You can use **Add** or **Delete** options for adding and removing the capabilities.

– Specify the position, where you would want this new client information stored in the client registry.The portal server matches the user agent string in the client's request header to patterns in the client registry. If the default user agent pattern (*), is used then it should be placed in the last position.

Check on the drop-down option and you can position the client information according to your requirement.

> **Note:** If the user agent sends 'Microsoft Internet Explorer 5.5' and the portal server finds '*Internet Explorer 5*', then that registry entry is used to determine markup sent to the client. For this reason, it is recommended to place the most specific User Agent patterns to the top of the list.

► Click **OK** to add the new client or **Cancel** to return.

► You will see the new added client in the clients list.

Edit selected client

If you notice that a certain browser requires different browser specific processing, you change the client registry information by editing the existing client registry entry.

► Select the client, which require editing.

► Click on **Edit selected client**.

► Do the required modifications. Click **OK** to approve changes or **Cancel** to return.

Order client before/Order client after

For sending the most exact markup to the client, it is very important that you make sure your client is properly positioned in the client registry.

► Select the client from the list on the Manage Clients tab.

► Click **Order client before** to move the client up in the registry.

► Click **Order client after** to move the client down in the registry.

Show Info

Perform the following instructions to show information:

► Click **Select Info** and the complete client information for all the clients defined to WebSphere Portal is displayed.

► Click **OK** to return back to the client listing.

Delete selected client

Perform the following instructions to delete selected client:

► Select the client you want to delete from the client listing and click **Delete selected client**.

► A pop-up window will verify for confirmation. Click **OK** to delete or **Cancel** to return.

2.3.4 Manage Markups

Manage Markups portlet will help you define the markup language that will be supported by the portal. By default, WebSphere Portal comes with three markups, chtml, wml and html as shown in Figure 2-48.
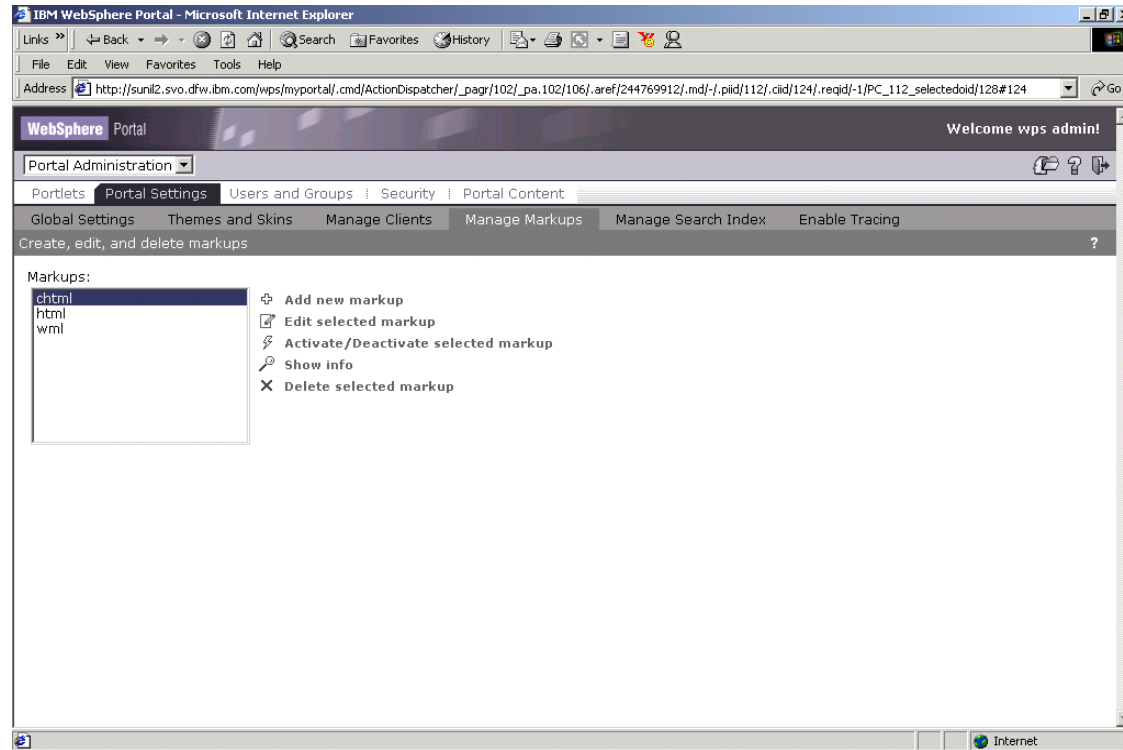
Figure 2-48   Manage Markup portlets

Edit Selected Markup

You can edit the markups.

► Select the markup that you wish to edit and click **Edit Selected Markup**.

► Do the necessary changes. You can select **Set locale-specific settings** option and change the markup settings for different languages.

► Click **OK** to confirm changes or **Cancel** to return.

Add new markup

To add a new markup, click **Add new markup**.

► You will be required to specify the markup name. This is a required field.

Directories of this name also have to be created to support the aggregation of the portal for clients that support this markup. For example, to add the markup MathML, the following directories have to be created:

– <wps_root>/app/wps.ear/wps.war/MathML

– <wps_root>/app/wps.ear/wps.war/windows/MathML

– <wps_root>/app/wps.ear/wps.war/themes/MathML

– <wps_root>/app/wps.ear/wps.war/skins/MathML

For this reason, avoid characters in the markup name that might cause conflicts inside file or path names, such as / , \ , . , or & . The markup name also acts as default title for those languages where no locale-specific title has been set.

► Specify MIME type associated with this markup.

► UTF-8 is used as the default character set if Default character option is left blank.

► You can use Set locale-specific settings for specifying/changing markup settings for different languages. Default markup title is displayed, which you can change. Click **OK** to confirm and **Cancel** to return.

► Click **OK** to add the new markup or **Cancel** to return. Once when you click OK, you should see the new markup with the available markup for WebSphere Portal.

Activate/Deactivate Selected Markup

By default all available markups to WebSphere Portal are in Active state.

► Select the markup, you want to deactivate and click **Activate/Deactivate** option.

► The page will refresh and you can see a message Inactive next to the selected markup. You will also see a message confirming in the portlet that selected markup is inactive.

► You cannot render the markup to any portlet, until you change the status of the markup to Active.

► Click **Activate/Deactivate** option again to Activate the markup.

Show info

Perform the following instructions to show information:

► Select **Markup Info** and you can get complete details about all the available markup's to WebSphere Portal along with the date created and last modified information.

► Click **OK** to return to the Manage Markups portlet.

Delete selected markup

You can delete any markup by clicking on Delete option.

► A pop-up window will appear asking you to confirm for deletion.

► Click **OK** to delete or **Cancel** to return.

► If you choose **Delete** option, the markup will not be available in the list of available markups for WebSphere Portal.

2.3.5 Manage Search Index

WebSphere Portal provides integrated text search capabilities, including a search portlet, a crawler, and a document indexer.

► Document search -- a search engine used with HTML or text documents. In this case a portal administrator uses the Manage Search Index portlet to create an index to be used for search. Once the index is created, the administrator configures an instance of the Document Search portlet to use that index.

► Enterprise Information Portal Search -- provides both a federated or advanced search to a local or remote EIP server. A federated search performs a function similar to the EIP thin client application. The user enters parameters on one of possibly many predefined templates, and the results are presented in a table.The advanced search is an unstructured search using EIP's Information Mining feature. The user can select from a list of categories to narrow the search results.

► Lotus Discovery Server -- creates expertise and knowledge maps by analyzing and categorizing documents. It creates profiles of users based on their document activity, including their topics of interest and their area of expertise. The Lotus Discovery Server is a separately purchased product.

The search service can search the portal's document repository as well as Internet content. The portal server's built-in search engine is optimized for full-text searching of small and medium-sized collections where precision is essential. Searchable resources can be stored on the local portal server or on remote sites.

The search engine supports free-text queries, with query assistance and query word completion. Search queries use advanced query operators (+ or -) to

indicate keywords that must be in the document or keywords that must not be in the document. The search engine can search documents in any language, and also supports synonyms and stop word lists. Search results include document summarization and search results clustering.

To prepare for searching, the search engine builds a full-text index in order to search documents that are stored in the local file system. The indexer supports multi-word indexing for high precision. The index can be compressed, and the size can be controlled for situations where the size of the index needs to be limited.

► Select **Portal Administration -> Portal Settings and Manage Search Index** portlet, and you should a window as shown in the Figure 2-49. It has two options, Configure search index and Manage search index.
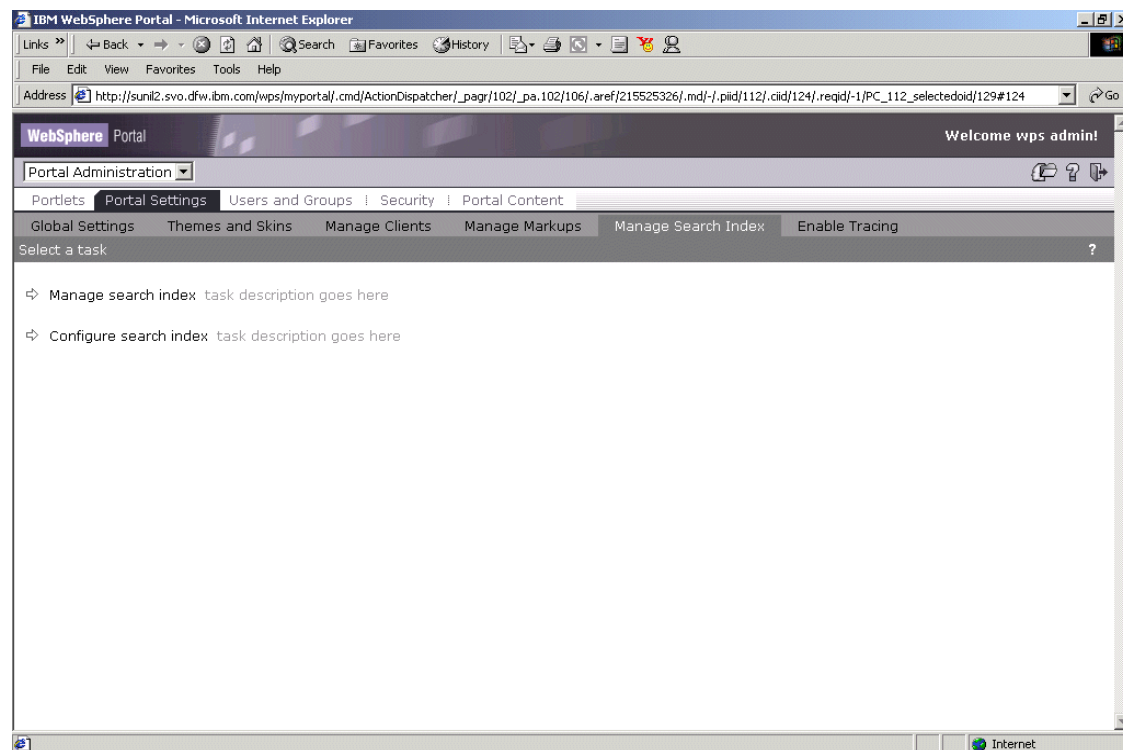
Figure 2-49   Manage Search Index Portlet

Configure Search Index

The Configure Search Index option manages the configuration information for one or more search indices. It does not actually create or modify an index, just the configuration information for that index.

► Select **Configure Search Index** option and you should see a window opened as shown in Figure 2-50.
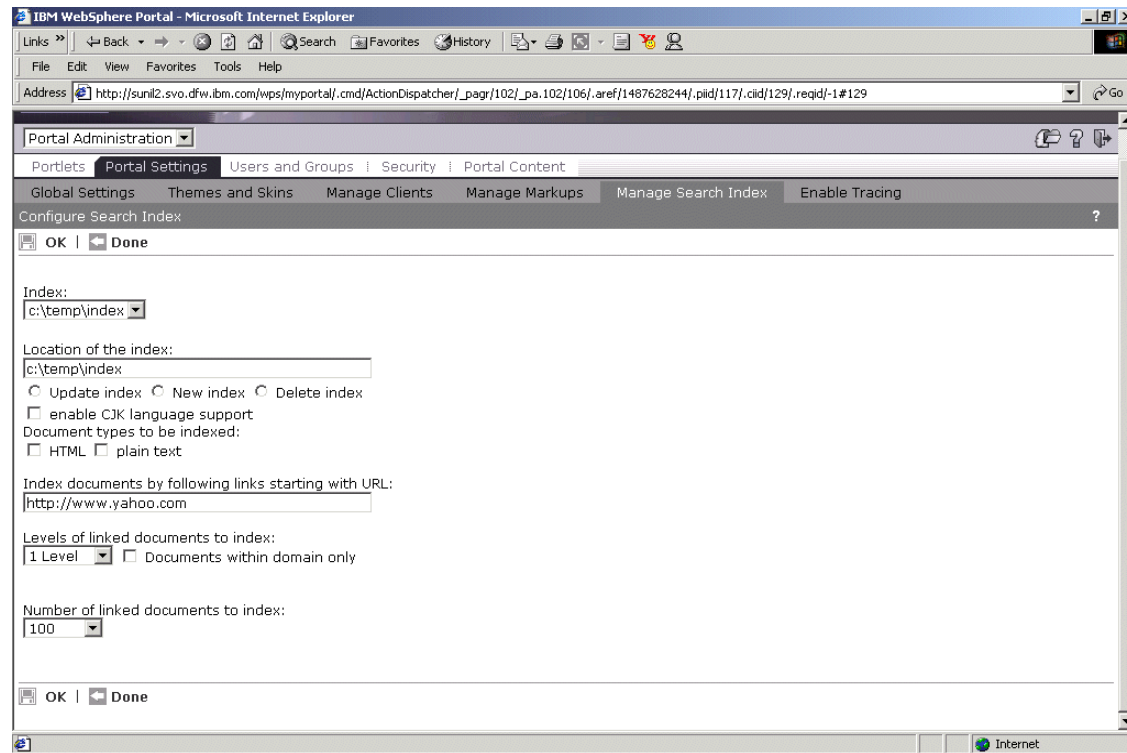
Figure 2-50   Configuring Search Index

► **Specify index that the** user will select in the search portlet**.** More than one index can be created. The location you specify for the search index becomes the name of the search index. Use this index name when you configure the search portlet.

► Specify the location of the Index. This is the location where index files are located on your system.

Important: Multiple indexes may not share a common location.

► Choose the option **New index**.

– The radio button selections New Index and Update Index, do not modify the index, rather they indicate whether the configuration information you are specifying is for a new or existing index.

– To actually affect the index you must use the Manage Search Index task on the main page of the Manage Search Index portlet.

– The **Delete Index** option is used for deleting the index. **Select** the index you need to delete and select the radio button option **Delete**. However, you need to ensure that the index file is physically removed from the system.

► If you enable **CJK language support**, it enables Chinese, Japanese, and Korean languages. Check this option to allow these languages to be indexed.

► Select the **Document types to be indexed**. (HTML or Plain text)

► Specify URL information, URL where the crawler will use as a starting point to traverse through the hyper-linked documents, beginning with the protocol.

► A single index can search multiple sites. See the instructions in the WebSphere Portal InfoCenter for modifying the crawler.properties file.

► A proxy server can be used to access the site you want to index. See the instructions in the WebSphere Portal InfoCenter for modifying the crawler.properties file.

► Levels of linked documents to index option determines the number of links to follow within the URL for fetching content for the index. This option can be used to control the amount of documents returned and processed for sites that are of unknown size.

► Number of linked documents to index option will determine the total number of documents to be indexed.

► Once you specify index configuration information, click **OK** to create a new index and **Done** to return. If you click OK, a new index will be created.

► To change configuration information for an existing index. **Select** the index from the drop-down Index option. Do the necessary modifications and click **OK** to confirm the changes.

Manage Search Index

The Manage Search Index task,is used to initiate creation of a search index.

► Select Manage Search Index option from the Manage Search Index portlet and you should a window as shown in Figure 2-51.
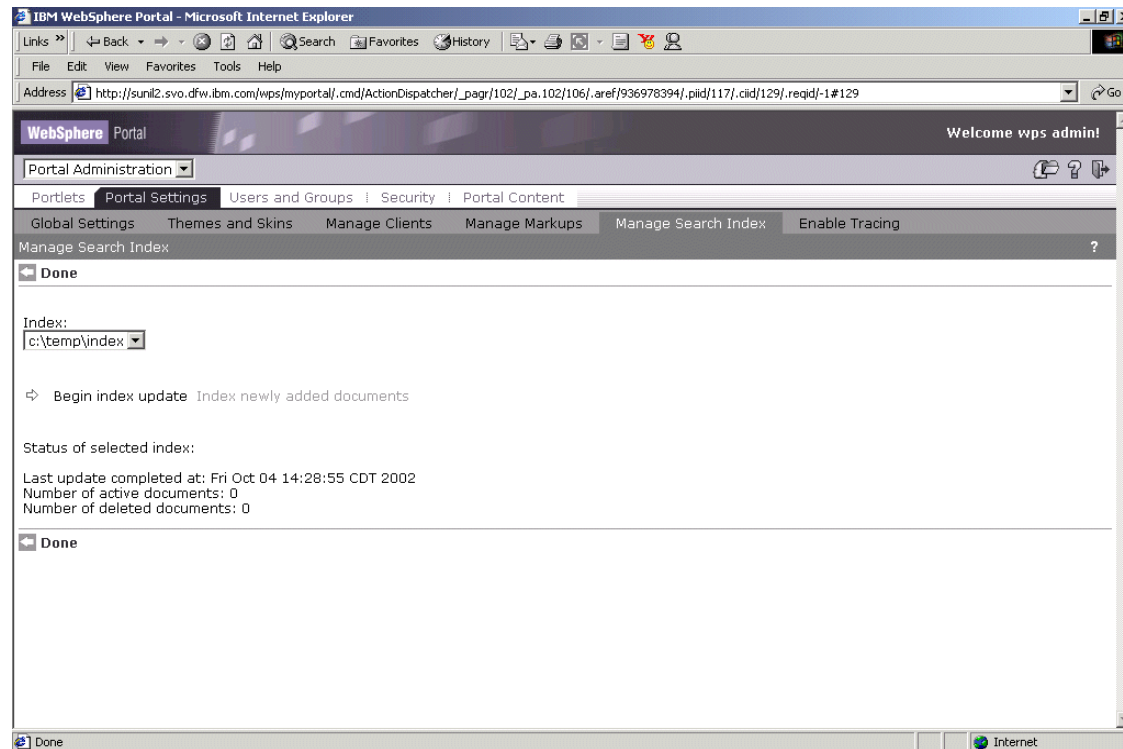
Figure 2-51   Manage your search index

► Select the index you wish to create from the drop-down selection list.

► Click **Begin index update** to initiate creation of the index. The crawler used to construct the search index processes asynchronously.

– The Last updated completed at field is updated with date and time information when a new index has been created or an existing index refreshed.

– Number of active documents indicates the number of documents retrieved and indexed.

Note: Depending on the index size, this process can take several minutes to complete. You can click the browser refresh button to see if the update has completed, or continue elsewhere in the portal and return to this task later on to see if the update has completed.

► Click **Done** to return.

> **Note:** You can refer to **Chapter???** for additional Reference to Search Index.

Enable Tracing

Enable Tracing portlet lists all WebSphere Portal Trace Loggers as shown in and allows you to enable or disable each Trace Logger listed.

► Click in the check box (Trace On) next to a Trace Logger name to enable that Logger.

► Select the **Save** option at the top or bottom of the window to save the Logger settings.

> **Tip:** Use Enable Tracing portlet, you want to set logging options for the current portal session only.
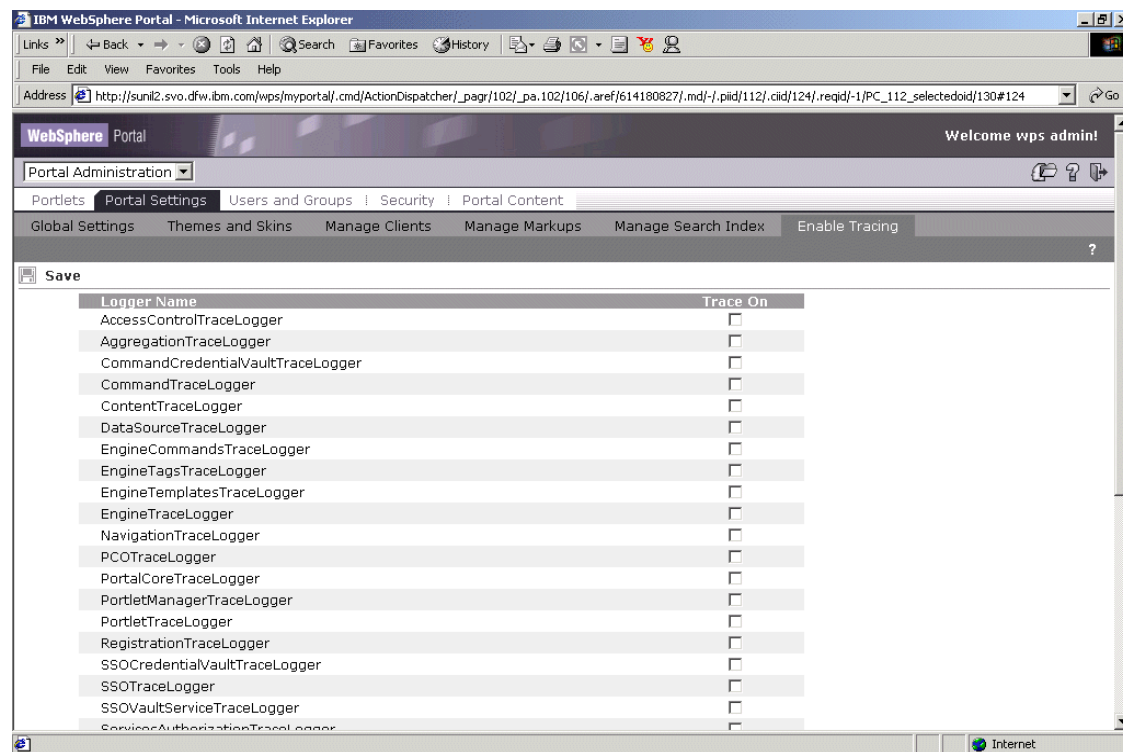
Figure 2-52   Enable Tracing portlet

► You can find portal trace information in `\WebSphere\PortalServer\logs` directory.

► To disable the trace for a particular logger, uncheck that option.

2.4 Users and Groups

Centralized administration of users and user groups is provided through the Member Services component of Portal Server. Users can register and manage their own account information, or an administrator can provision and manage users. Administrators can also create groups and maintain group membership. A user group (sometimes called "member group") is an arbitrary collection of members. The members of the group are users or other groups.

The Member Services component:

► Manages user profile information (which excludes authentication data).

► Manages user group information.

► Provides a user repository containing user profiles, group definitions,and organizational entities.The physical implementation of the registry can be a database or a directory server.

> **Users and Groups:** The main advantage of Users and Groups main intention is to help the administrator to create portal users and groups without using the LDAP interface directly.

2.4.1 Manage Users

Users can be generic or registered users. Generic users are basically anonymous users; registered user's have an associated user profile and a user ID and password kept in the authentication registry. Member Services accesses the user authentication registry, for updating user ID and password information.

The user registration paged shipped with WebSphere Portal exposes a limited set of user attributes. You can add or delete attributes as required for your portal implementation, either by exposing additional attributes from the underlying user repository (LDAP) that are not currently exposed, or by extending the user profile to include new attributes.

► Portal will recognize an existing user/group in existing repository (LDAP).

► A user can modify his profile (except user ID).

► Users may belong to multiple groups.

► User membership can also be managed externally by using the LDAP Directory Management Tool (DMT).

► Typically a portal operator will separate its users in groups. Separating smaller groups from bigger groups will enable sophisticated structuring of the users in the system.

> **Note:** Using a LDAP directory as user database, grouping users will not lead to branches in the LDAP directory. By default all users to go to the cn=users branch and all groups to the cn=groups branch. The groups will hold the information of this users via the uniqueUsers field. See also XXX for setting up the LDAP structure during install time.

Using the Manage Users portlet. you can do the following:

► Create a new user (the window has the same look as in self registration).

► Edit a user profile

► Delete a user

► Show ID

► Search for users

Create new user

By default, are three different possibilities to create a user:

► Add the user directly to the appropriate branch in the LDAP directory. To do this use the Administration Interface of your LDAP directory or create a appropriate LDIF file and import it to your LDAP directory. See **"Adding entries to the LDAP directory" on page 604** as an example of how it is done at the WebSphere Portal installation on the AIX platform.

► Use the Self-Registration functionality of WebSphere Portal. To do this, use the **Sign Up** button located at the upper right corner in the portal default startup page (See Figure 2-53). Fill out all required values in the window and submit them. The values definitions are the same as explained in option 3 below.

► Go to Users and Groups portlet and select **Manage Users** portlet by clicking on the left tab of the lower tabbed buttons.

   – Click **Create new user** option. See Figure 2-54.

   – Provide the required values as shown in Figure 2-55.
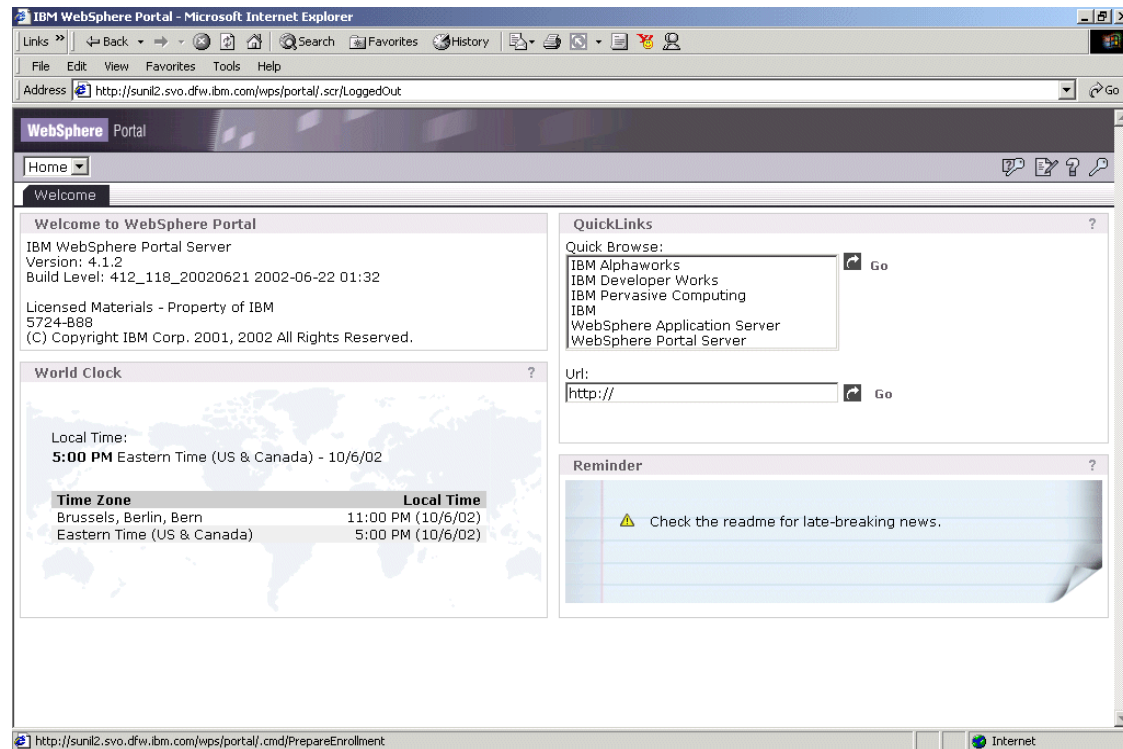
Figure 2-53   Use the Sign Up button for self registration

Figure 2-54   Use the Administration Portlet for creating a new user

Figure 2-55   Provide new user information

- Specify User ID information. The (*****) represents values that are required for registering the new user.

> **Note:** The User ID must be 3-60 characters in length. It can contain alphanumeric characters and the hyphen "-", period ".", and underscore "_" characters. No other characters are permitted in this field.

- Provide password information for the user and confirm the password.

- Type the First and Last name for the user.

- Specify E-mail ID.

- You can select the preferred language for the user from the drop-down menu list. If no language is selected, Portal will assume that the user will use the default language.

- Select any particular interests the user might have from the drop-down menu list.

  - Click **OK** to register the new user or **Cancel** to return.

  - Test: Open your LDAP and you should be able to see this new user listed.

Either of these ways create a valid new user that is part of no group and has therefore the minimum default set of permissions.

Search for users

You must search for users prior to editing or deleting users.

On the left-hand side of Manage users portlet, you will see the option Search for users.

► Type text for search in Name is field. You can use the asterisk character, *****, as wildcard.

► You can type a group name in Restrict to Group option, if you want to restrict the search to a particular group. If the field is left blank, all groups are searched.

► Click **Get users**. The page will refresh and the list of users will be populated and displayed.

► The search list is based on name and not on ID.

Edit user profile

Using this option, you can edit user information.

► Select the user for which you need to edit the information and click **Edit user profile** option. If no user is selected and you click on this option, a pop-up window will appear asking you to select the user.

► User ID information cannot be changed. You will see a window as shown in Figure 2-56.

► The values are already populated with the current values. Make the necessary changes.

► Click **OK** when completed or **Cancel** to return to Manage users portlet.
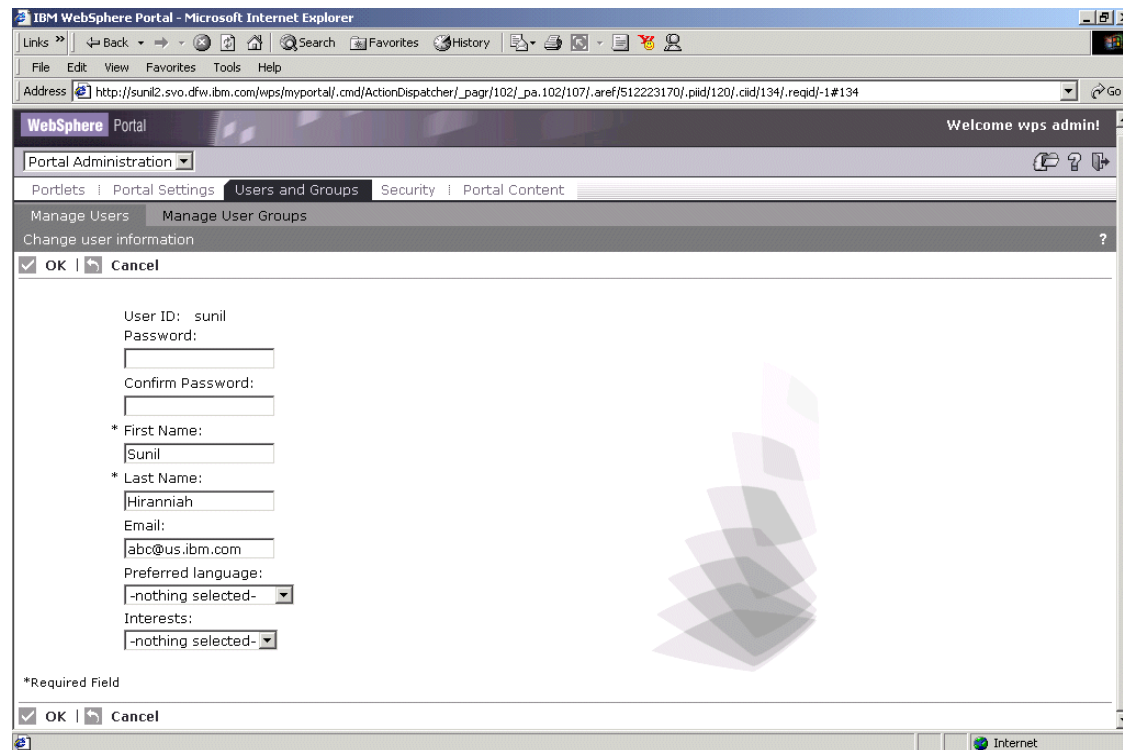
Figure 2-56   Edit user information

Delete user from Portal

This option will help you remove a user information from the database.

▶ Select a user from the list and click **Delete user from portal** button.

▶ A pop-up window will appear requesting you to confirm the deletion. Click **OK** to proceed or **Cancel** to return.

▶ The user information will be deleted from the database if you click OK.

Show ID

Shows you the ID of a highlighted user.

▶ **Search** for the user you want to view.

▶ Highlight the user's name in **Users**.

▶ Click **Show ID** to display a box with the user's ID information.

▶ Click **OK** when the ID is shown in the pop-up window.

2.4.2 Manage User Groups

In Manage User Groups you no longer have to go to LDAP and you can manage groups and group memberships from within the portal. Groups can contain groups and this can be managed in the same administration window. Even though you can manage users and groups from within the portal, you can Import an LDIF file or manage users and groups by using the LDAP Directory Management Tools.

► Access permission for resources can be given to both groups and users. If a user is added to a group it will inherit the groups permission. That means, a user has in no case less permissions than his group. If a user is a member of more than one group, the user inherits the highest permission for each particular resource.

► This is also true for groups. So groups will also inherit the permissions of the groups they get added to.

> **Note:** You will not see the inherited permissions of a group in the Access Control List Administration Portlet in WebSphere Portal Version 4.1.2. If you add, however, a user to this group, the user will show the inherited permissions.

Manage User Groups portlet provides you with tools to help you search and be able to assign users to your groups. The following options are available with this portlet:

► Create Group

► Membership

► Delete group

► Show ID

► Search for groups

Create Group

By default, there are two different possibilities to create a group:

► Add the group directly to the appropriate branch in the LDAP directory. To do this use the Administration Interface of your LDAP directory or create a appropriate LDIF file and import it to your LDAP directory.

► Use the WebSphere Portal User and Groups Administration Portlet. To do this use the following instructions:

   – Go to Users and Groups page and Select **Manage User Groups** portlet by clicking on the right tab of the lower tabbed buttons.

– Fill the field Group Name with the name of the group that you intend to create.

> **Note:** The group name must be less than 256 alphanumeric characters. It can contain alphanumeric characters and the hyphen, -, period, ., and underscore, _ characters. No other characters are permitted in this field.

– Click on the plus symbol or **Create new group** button on the right side of the window.

– You will see a message stating the group successfully created as shown in Figure 2-57.

– Test: Open your LDAP and you should be able to see this new group added.
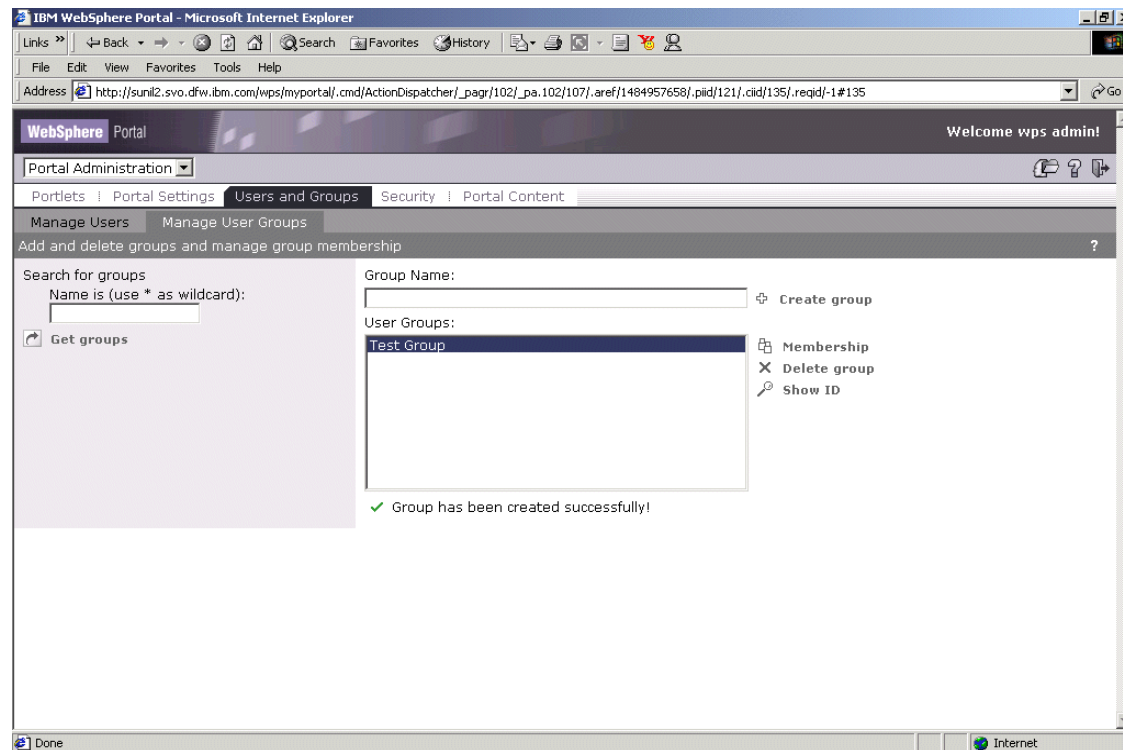
Figure 2-57   Successful creation of a group

Either of these ways create a valid new group.

Membership - Assigning a user to a group

Important: When the users register themselves, the administrator has to assign them to a group. If you do not do this, you will not see the users in the Manage Users tab. Go to Membership and assign them to groups there.

By default there are two different approaches to users to groups:

► Use your favorite LDAP tool to directly modify the group entry in the LDAP database. Add to the uniqueMember section the Distinguished Name (DN) of the user you intend to have in this group.

► Use the WebSphere Portal User and Groups Administration Portlet. To do this use the following instructions:

 – Search for the user group to which you want to add members.

 – Highlight the group's name in User Groups under Manage Users portlet.

 – Click **Membership**. A window will appear as shown in Figure 2-58.

 – Add the user that you wish to add to the selected group to the Search Results field. Add an appropriate search value to Name is field. You can also use wild card search (*). To further qualify your search you can add a value to the Restrict to Group field.

 > **Note:** For the **Restrict to Group** field you can also use wild card search star (*). A star on its own will however restrict to user that are members of any group. That means it will not list the users that are not member of any group yet.

 – Click on the image icon **Go** to submit your search request and display the result in the Search Results list.

 – Select the appropriate user from the search results list and click on **Add to group** button.

 – The page will refresh and you can see the user listed under the group you chose earlier.

 – Click **OK** button to make the changes persistent and to switch back to the previous window or add more users to this group. Click **Cancel** to return.
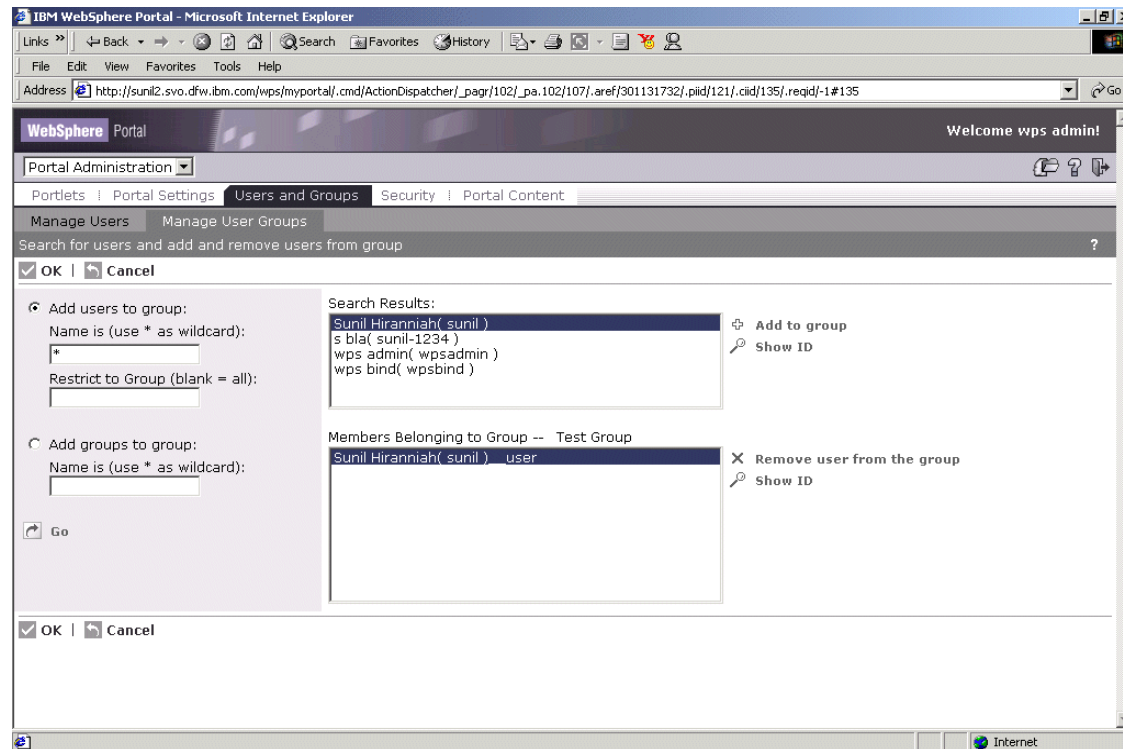
Figure 2-58   Selecting a group to add users

Assigning a group to group

By default there are two different approaches to add groups as sub-groups to other groups:

► Use your favorite LDAP tool to directly modify the group entry in the LDAP database. Add to the uniqueMember section the Distinguished Name (DN) of the group you intend to have as sub-group in this group.

► Use the WebSphere Portal User and Groups Administration Portlet. To do this use the following instructions:

  – Search for the user group to which you want to add members.

  – Highlight the group's name in User Groups under Manage Users portlet.

  – Click **Membership**. A window will appear as shown in Figure 2-58.

  – To add the group that you wish to add to the selected group to the Search Results field, click **Add groups to group** radio button and insert an appropriate search value to the Name is field. You can use ***** as wildcard to enhance your search. If you want to restrict the search for a user to a

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particular group, type a group name. If the field is left blank, all groups are searched.

– Click on the image icon **Go** to submit your search request and display the result in the Search Results list.

– Select the appropriate group from the Search Result list and click on the Add to group image icon as shown in Figure 2-59.

– Click on the **OK** button to make the changes persistent and to switch back to the previous window or add more groups to this group. Click **Cancel** to return.
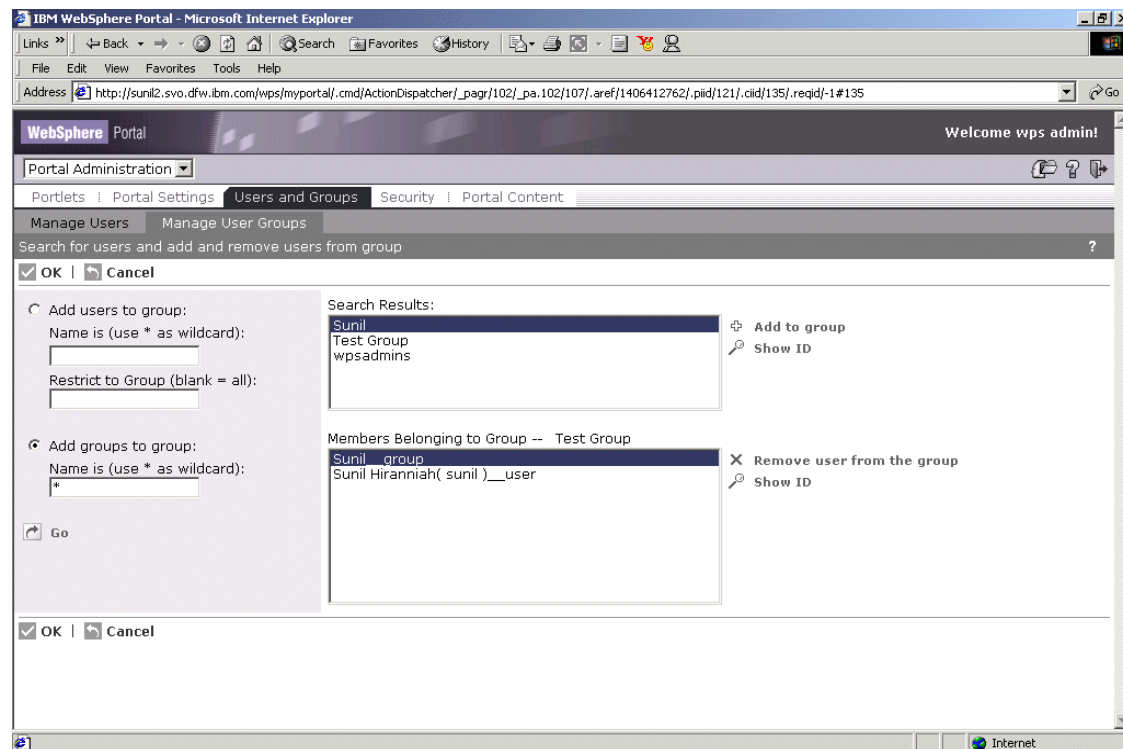
Figure 2-59   Adding groups to a group

Show ID

Shows you the ID of a highlighted group.

► Search for the user group you want to view.

► Highlight the user group in User Groups.

► Click **Show ID** to display a box with the group's ID information.

▶ Click **OK** when the ID is shown on the pop-up window.

2.5 Security

Security portlet will help you to assign permissions for groups, portlets, places, pages, Web modules for a group or user and also help you with selecting a security vault management task.

WebSphere Portal Security Administration comes with two portlets,

▶ Access Control List and
▶ Credential Vault

2.5.1 Access Control list

Access Control is also referred to as authorization. Before a user can be authorized to access a resource, he must be authenticated, that is, he must have successfully logged in to the portal. Other than the requirement for a successful authentication, authorization is independent of the WebSphere Application Server (or any custom authentication proxy being used by WebSphere). WebSphere Application Server protects servlets and EJBs; Portal protects all portal resources:

▶ Portlet application
▶ Portlet
▶ Page
▶ Place
▶ User
▶ User group
▶ Resource collection
▶ Portal
▶ External ACL

Portal has five types of permissions: *view, edit, manage, create,* and *delegate*. The meaning of each permission type with respect to the resource can vary based on what is meaningful for the type of resource. For instance, view access for a portlet, page, and place allows the user to "see" the portlet, page, and place in the appropriate context within the portal. For other resource types, such as user and user group, view access is not applicable.

▶ Select **Security Portlet** from Portal Administration page and you should see a window as shown in Figure 2-60.
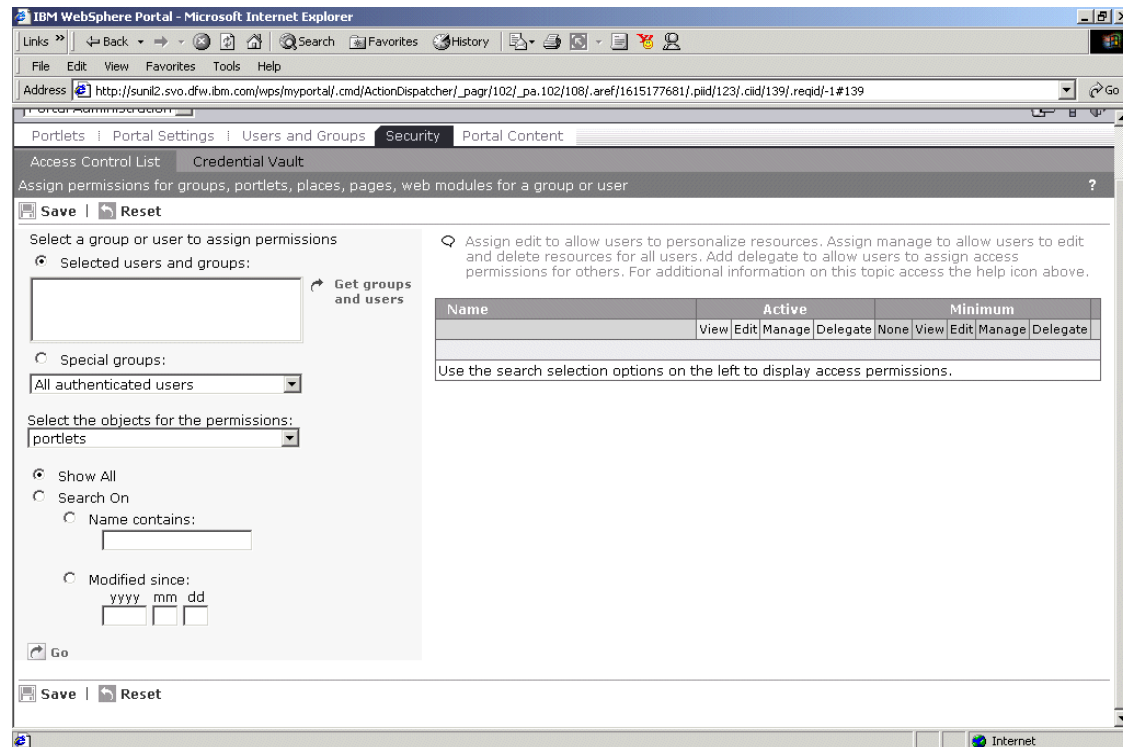
Figure 2-60   Security Portlet

► The Access Control List portlet allows you to configure access to portal resources by granting permissions to users and groups.The Access Control List portlet also passes control of resources to and from external security mechanisms if desired.

► Before a portal can be deployed, the access control associated with portal resources must be established. When setting up access control it is important to remember that permission to a "higher level" resource does not imply the same permission to a "lower level" resource. For example, access permission to a page does not automatically grant access to the portlets contained on that page.

► Giving a user or a group of users Manage authority on the object "Portal" effectively makes them administrators.

► The Access Control List portlet allows you to configure access to pages, places, portlets, etc by granting permissions to users and groups.

> **Note:** For information on using Access Control List portlet and more information on Portal Security, refer to **Chapter 16** on Portal Security.

2.5.2 Credential Vault

The Vault Service stores user IDs and passwords for various back-end resources. It is a portal service to assist portlets and portal users in managing multiple identities, perhaps among multiple Vault implementations.

A vault segment can contain one or more credential slots, which are containers where portlets store and retrieve a user's credentials. A credential slot contains only one credential and is linked to a resource in a vault implementation, the place where the credential secrets are actually stored.

A vault segment can be either administrator-managed or user-managed. Admin-managed could be corporate resources such as Lotus Notes databases or Intranet passwords. WebSphere Portal provides one simple database vault implementation for user or admin-generated mappings to user IDs and passwords for other enterprise applications. It can also contain user-generated mappings to user IDs and passwords for non-enterprise applications (for example your Hotmail account in a POP3 portlet).

> **Note:** Portlets can (on behalf of a portal user) set and retrieve credentials in both types of segments. However, they can only create credential slots in user-managed segments

The credential vault provided by WebSphere Portal distinguishes between three different types of credential slots:

► A system credential slot stores system credentials where the actual secret is shared among all users and portlets.

► A shared credential slot stores user credentials that are shared among the user's portlets.

► A portlet private slot stores user credentials that are not shared among portlets.

Many portlets need to access remote applications that require some form of user authentication. In order to provide a single sign-on experience, portlets must be able to store and retrieve user credentials for the back-end application they need to access. For accessing applications outside the portal's security realm, portal server provides a credential vault service that portlets can use to store user ID and password (or other credentials) information.

The credential vault supports the WebSphere Portal default database vault or IBM Tivoli Access Manager. You can also use other credential vault implementations. If you provide your own vault implementation, you will need to write a vault adapter.

A portal administrator uses the Portal Administration - Security - Credential Vault task to manage vault segments and slots as shown in Figure 2-61.
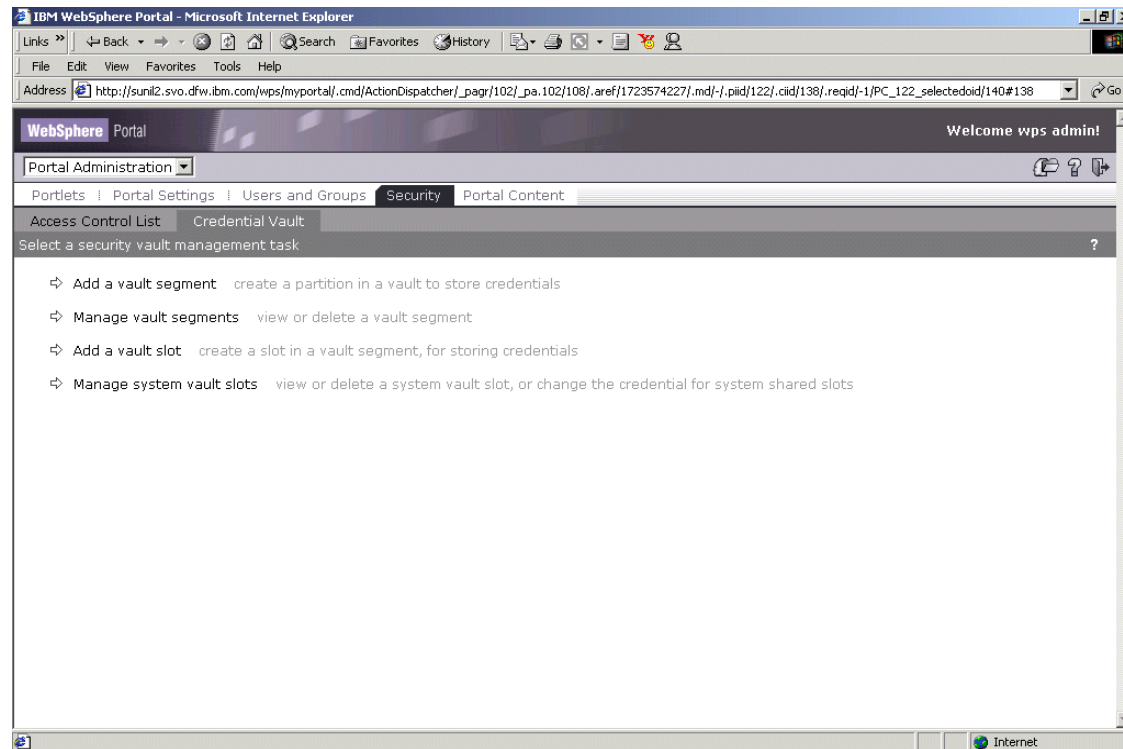
Figure 2-61   Credential Vault portlet

> **Note:** For information on using Credential Vault portlet and more information on Portal Security, refer to **Chapter 16 ??** on Portal Security.

2.6 Portal Content

WebSphere Portal includes a content organizer portlet that enables portal users to contribute and share documents. The content organizer portlet provides a workspace for storing, navigation, viewing, and searching portal documents and other content. The organizer is preconfigured to work with files and Rich Site

Summary (RSS) formats. Additional content types, formats, and back-end systems can be integrated easily.

The content organizer maintains properties and attributes of content, which can be searched by the portal's built-in search service.

The content model used by the organizer is a lightweight, open, extensible content model based upon the WebSphere Personalization resource engine. Third-party Web content management systems can also be integrated.

The purpose of this portlet is to provide a basic portal (enable version) with small content management capabilities.

We will highlight the Portal Content Organizer capabilities here. It is possible to upload content from both a file system and a Web site into Portal Content Organizer resource collections, and annotate and bookmark the content.

First of all, you will need to have users and groups tree to assign different permissions to folders. For example, if you want to create one to understand its capabilities, do the following:

1. Log in as wpsadmin and open the Portal Administration page group.

2. Create groups called xxxadmins and xxxusers.

3. Make the wpsadmins group a member of the xxxadmins group.

4. Add your non-administrative groups as members of the xxxusers group.

2.6.1 Manage Content Organizer

Figure 2-62 illustrates the Manage Content Organizer portlet in WebSphere Portal.
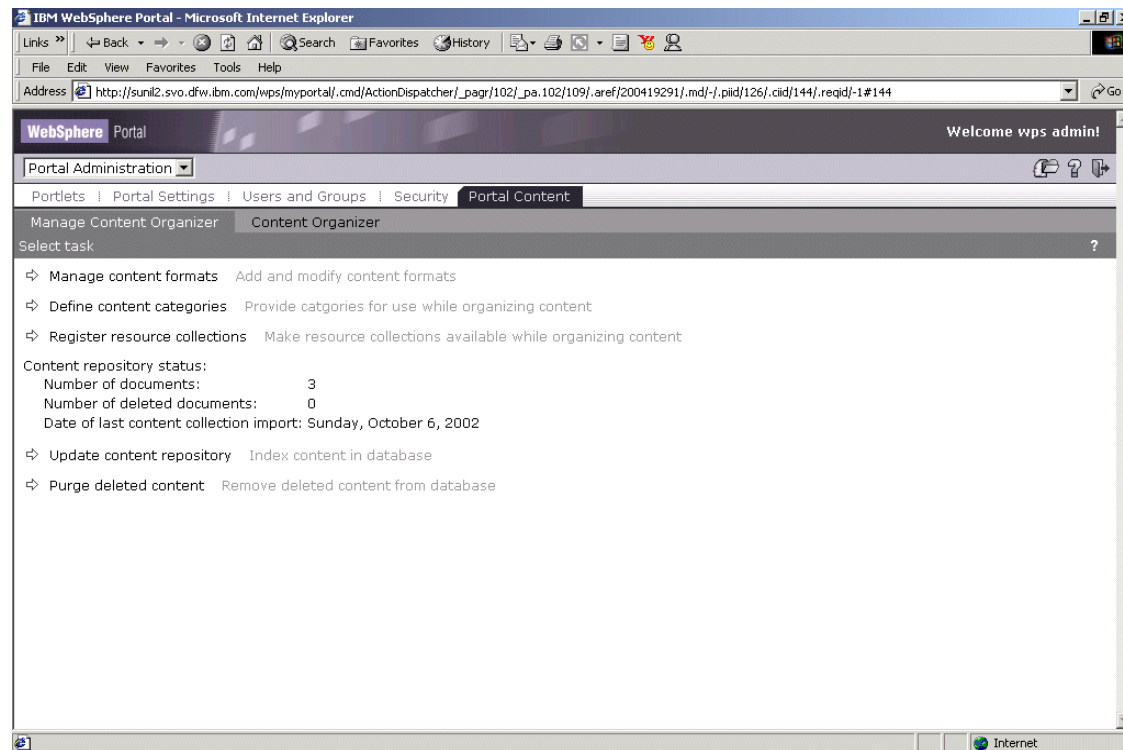
Figure 2-62   Manage content organizer portlet

Manage Content formats

It is also possible to change the content format in Portal Content Organizer. For example:

► To open the Portal Content Organizer, click **Portal Content -> Manage Content Organizer** page.

► Choose **Manage content formats**.

► Choose **Document**, and then click **Modify selected content format** and you will see a window as shown in Figure 2-63.
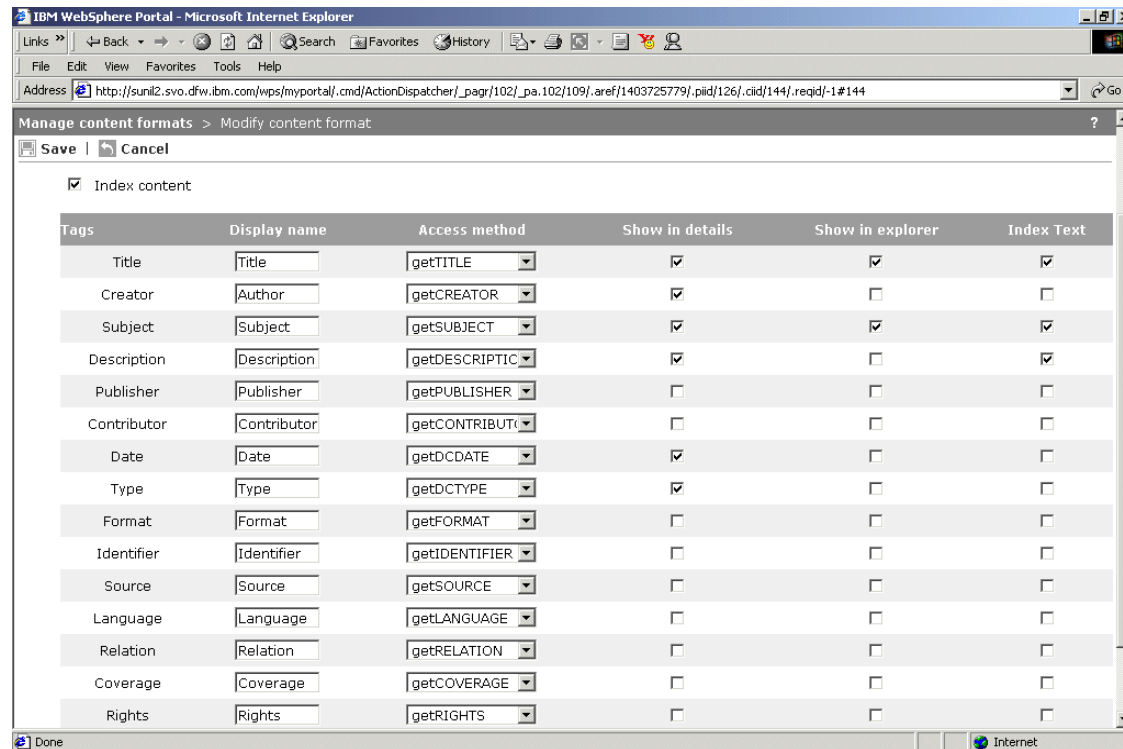
Figure 2-63   Changing content format

- ► In the Show in details field, check the date box and save your change.
- ► You will see a message content format modified successfully.
- ► Click **Done**.

Define content categories

Specifies the category label to be used when assigning content to Categories. The Administrator assigns labels to the categories.

- ► Open the **Portal Content -> Manage Content Organizer** page.
- ► Choose **Define content categories**.
- ► Add categories.
- ► Click **OK** to add the categories and **Cancel** to return to the Manage content organizer portlet.
- ► You can do any edits for the previous documents using this option.

Figure 2-64 illustrates the Manage Content Organizer portlet to define content categories.
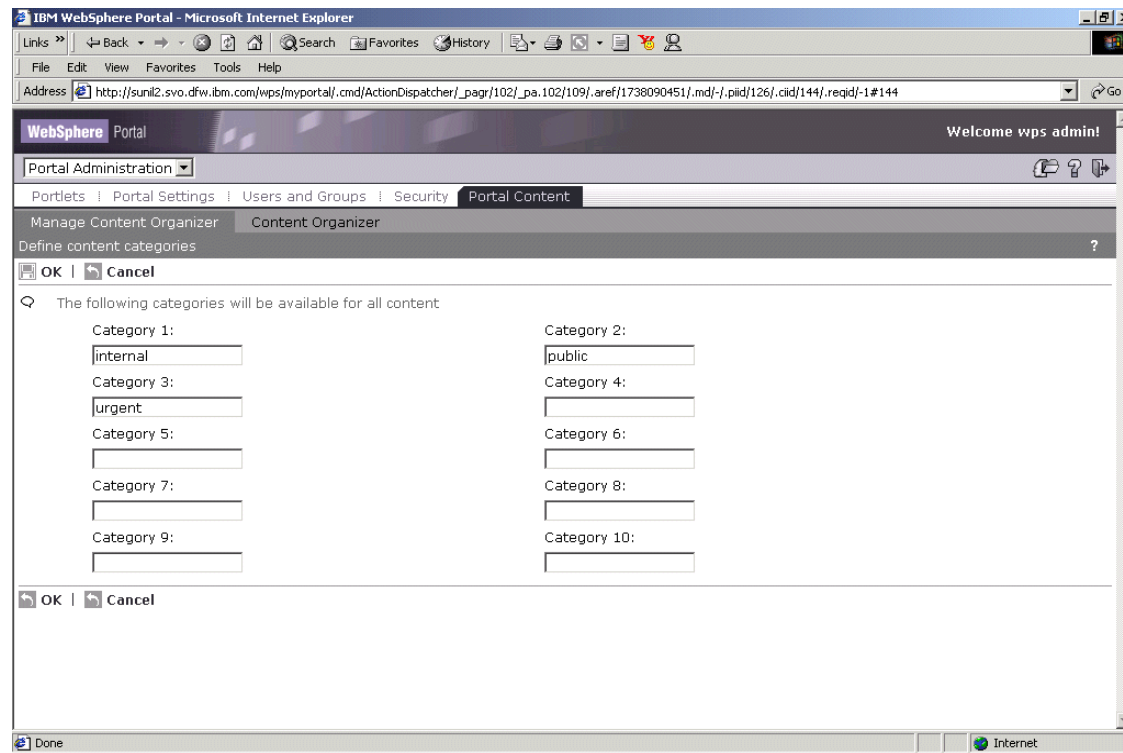
Figure 2-64   Adding content categories

Register resource collections

Shows registered and unregistered collections. Collections correspond to content formats. After content is added, it is considered unregistered. You must register the collection for users to access the collection.

▶   Select **Register the resource collections**.

▶   Register all of the resource collections. Figure 2-65 shows the window to register resource collections.
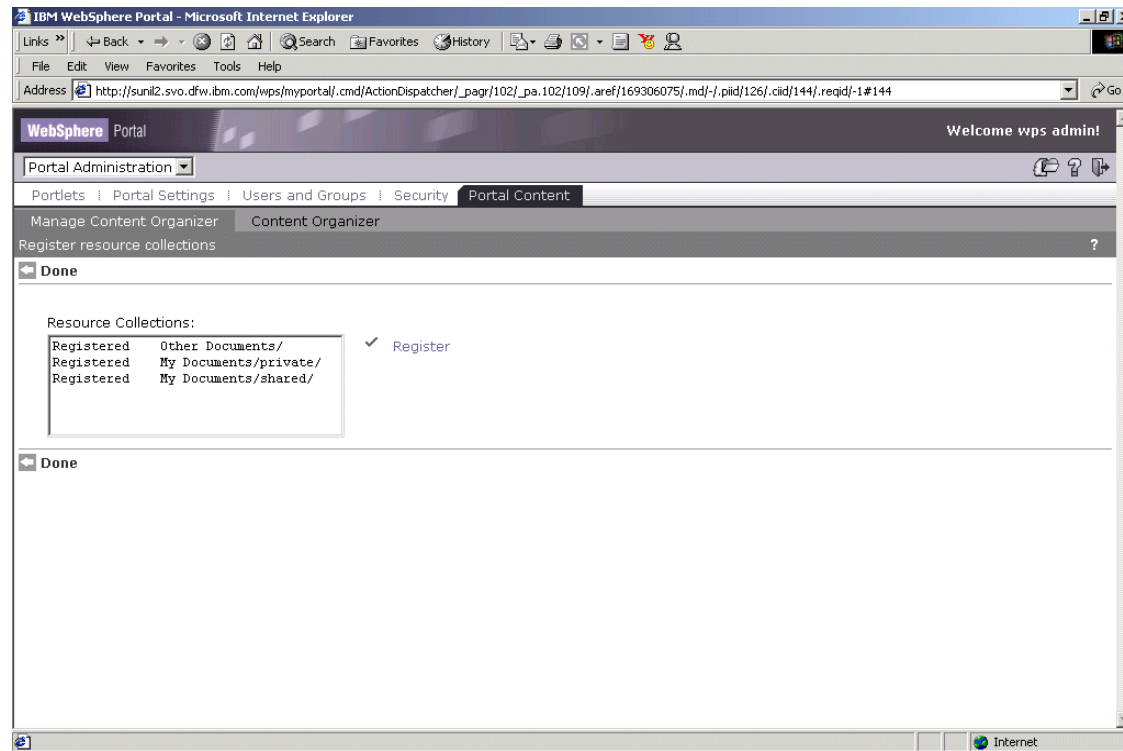
Figure 2-65   Registering resource collections

► Select on the resource collection and click **Register option**.

► Once you register, click **Done** to complete and return.

Content repository status

Content repository status provides you the information on the number of documents that are available, number of deleted documents and also the date information for the last content that was collected.

Update content repository

Updates the content repository. The number of documents listed in the content repository status box will update when you select this option. You will see a message "**Content repository updated successfully**".

Purge deleted content

Deletes the documents marked for deletion in the database. The number of deleted files will update in the content repository status box

2.6.2 Content Organizer

You can add the Content Organizer portlet to a page by opening the Work with Pages page group. For example,

▶ On the Content Organizer portlet, click **Upload content** tab and choose **Browse**.

▶ Browse any folder containing documents.

▶ Choose files and make some, but not all, of the documents shared and then click **Upload** as illustrated in Figure 2-66.
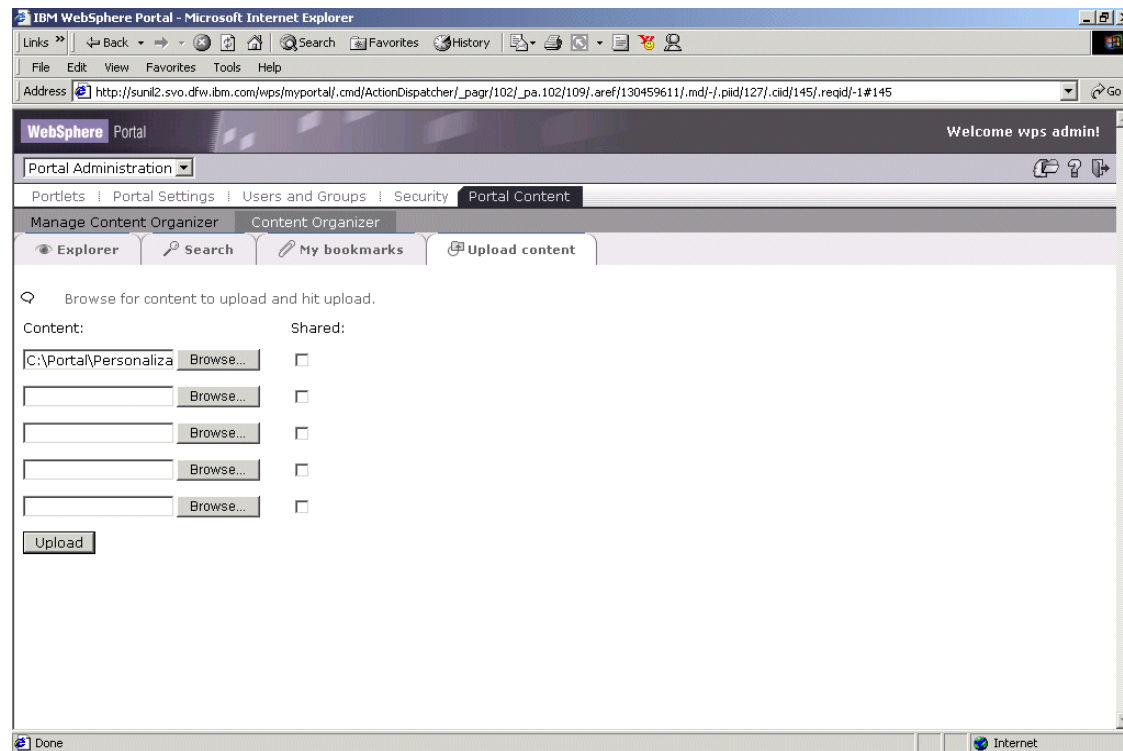
Figure 2-66   Upload content

Viewing and annotating content can be done as follows:

▶ Click **Explorer** tab and open the shared and private folders.

▶ Click the radio button next to a PDF file, and then choose **View**.

▶ Choose **Click here to download** and save the file to your local disk using a filename that you will remember.

▶ When the download is complete, click **Open**.

- ► Review the file, and then choose **File -> Exit**.

- ► Click **Close** button to close the Explorer view.

- ► If you have the Microsoft Word Viewer or Microsoft Word on your machine, use the same procedure to open the Word file.

- ► To add annotations to that Word file, choose **Annotate**.

- ► Add a Document name, Description, Type, Subject, Title, and Author.

- ► Click **Auditing** category, and then click **OK**.

The annotations could be used for categorizing your content. Figure 2-67 shows a content file list.
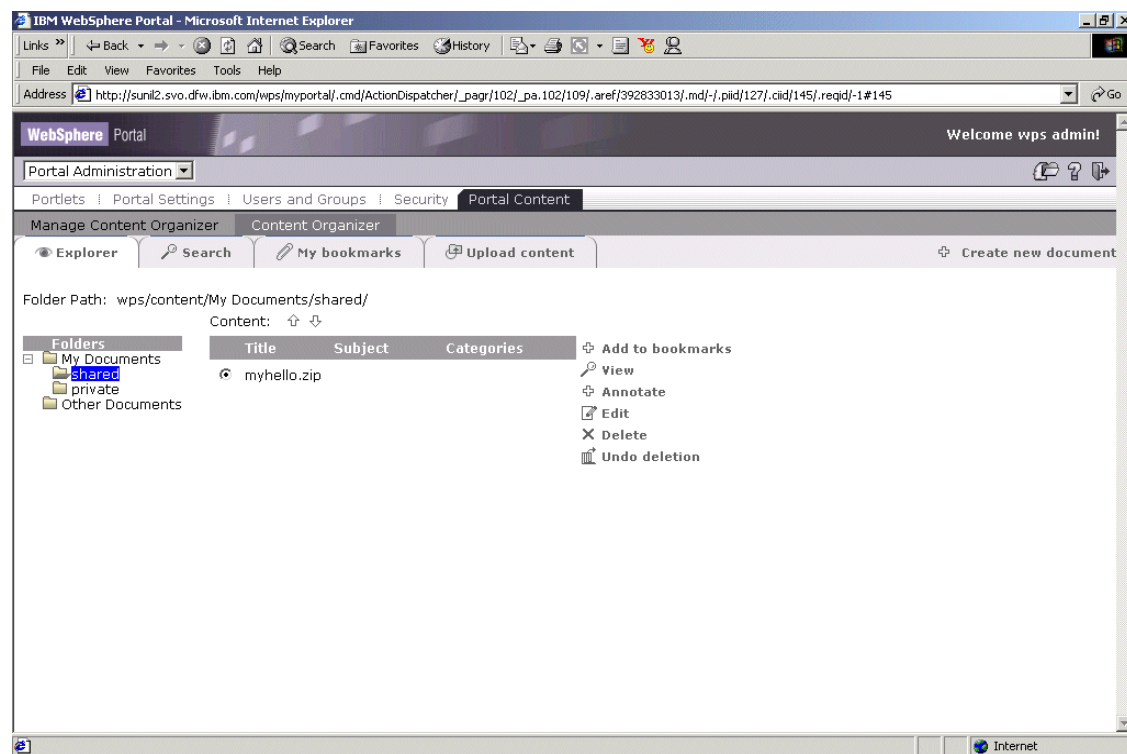
Figure 2-67   Content file list

Figure 2-68 illustrates the annotation window.
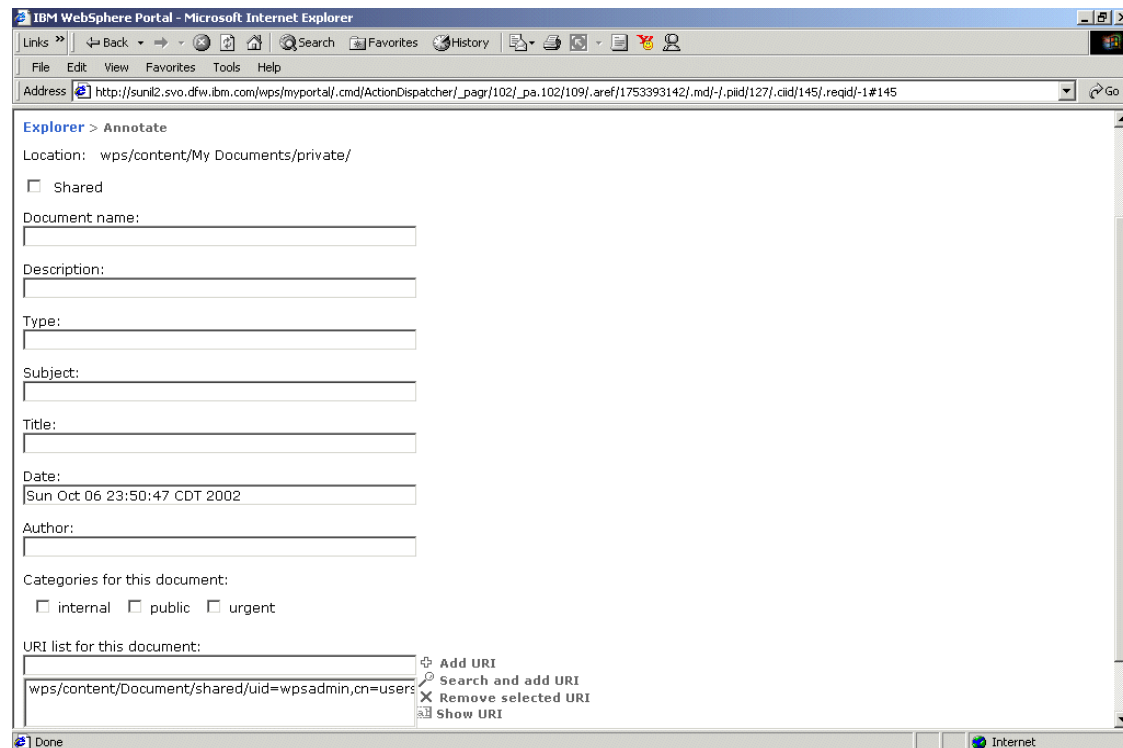
Figure 2-68   Annotation window

To bookmark content, bookmark files by selecting the file and clicking **Add to bookmarks**. You can also click **My bookmarks** tab to review your bookmarks.

> **Note:** If you log off and then log in as a different user, you will see that the PCO changes were made only for this user.

How to use Web content to create a new document:

► Copy some files in an area that will be served by the Web server, for example the IBM HTTP Server htdocs directory.

► On the Content Organizer portlet, click **Create new document**.

► Complete the Document name, Description, Type, Subject, Title, and Author fields.

► Choose a category and in the URI list for this document field, type `http://<your_server_name>/foldername` and then click **Add URI**.

► Click **OK**.

► Select the radio button to the left of your new entry in the Explorer.

► Click **View**.

► Select **http://<your_server_name>/foldername** and then click **View**.

► Choose **Click here to download**. Portal Content Organizer launches a browser window showing the folder name home page.

► Bookmark the home page by selecting the radio button to the left of the entry in the Explorer and then clicking **Add to bookmarks**.

Figure 2-69 shows the window to create a new document.
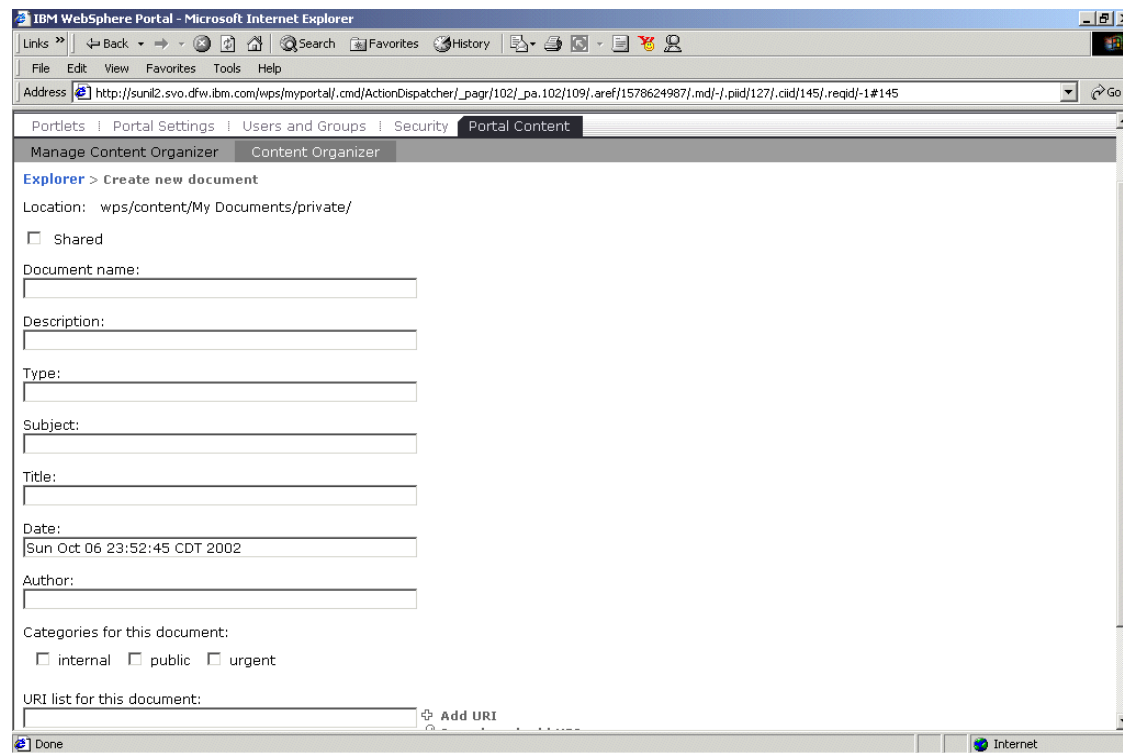
Figure 2-69   Create a new document

Note: For additional information on Web Content Management and Portal Content Organizer refer to **Chapter??** on Web Content Management.

3

WebSphere Portal customization

This chapter describes the general customization concepts, themes and skins and customization portlets that come with WebSphere Portal Work with Pages page.

Note: Most of the concepts covered in this chapter is an extension to Portal Administration. You can refer to Chapter 2, "WebSphere Portal administration" on page 25, for basic definitions that will be used in this chapter like page, page group, portlet, portal etc. and for additional reading material.

3.1 General customization

> **Definitions:**
>
> **Customization** is presenting tailored content and layouts based on explicit user specifications.
>
> **Personalization** is presenting content to a user based on their profile.

Users can have one or more personalized pages, navigating to each one from the home page. Pages are arranged into page groups or places. Each page group can have its own choice of color themes, skins and page layouts. Themes are used to define the fonts, colors, spacing, and other visual elements; themes consist of cascading style sheets, JSP files, and images. Skins are decorations and controls placed around portlets, such as title bars, borders, shadows, etc. Since the look and feel of each page group can be completely different, page groups can be used to create multiple virtual portals running on one portal server.

In a page group, each personalized page can have a different set of portlets.The portlets on page can be selected by end users or by administrators, depending on their access rights for the page. Administrators can specify that certain portlets are required, so that end users cannot remove them or rearrange them. Pages can also be re-arranged to get a different navigation order.

All of the functions related to customizing page layouts, page contents, color themes and skins are found in the pages of the Work with Pages page group. Using these tools, users can see the arrangement of the page and can move portlets around easily.

3.1.1 Customization roles

Customization is one of WebSphere Portal main strengths. Portal administrators, Web designers and end users each have specific roles that contribute to the end users' experience.

Web designers are responsible for building the look and feel of the portal. They design the graphics and design the layouts that will be used in the portal.

Portal administrators are responsible for controlling users access to the portal. They can make decisions on which applications and designs are available to users. They are also responsible for selecting what designs will be applied to the portal.

Portal administrators can also assign specific applications and portal pages are mandatory for users. They can specify where applications reside and what capabilities.

Users are able to add applications to their portal, as well as create new portal pages. They can modify the default layout of the portal page, assuming the portal administrators have given them the proper permissions to do so.

3.1.2 Portal layout

Portal Content is organized by **Page groups** - **Pages** and **Portlets**.

► Portals may have multiple Page Groups.

► Page Groups may contain multiple portlets.

► Pages may contain multiple portlets.

► Customized page saved on a per-usage and per-page basis

► If a portlet supports multiple devices, the portlet customization is also saved on a per-device basis.

► Portal layout is are made up of and controlled by Row Containers and Column containers, which contain either more containers or controls.

> **Note:** A container is a row or column on the page. A row container stacks content horizontally. A column container stacks content vertically.

► Containers and container content can be locked.

– Manage rights required

– Locked containers cannot be deleted.

– Locked container content keeps it from being moved or deleted

• Containers can be container content of other containers,

> **Note:** For additional information on Row and Column containers, refer to the Redbook, *IBM WebSphere Portal Developers Handbook*, SG24-6897 (available after January 2003).

Portlets are laid out on pages. All WebSphere Portal functionality (administration, customization, etc.) is delivered via portlets. The Portal Administration pages use a Portlet Selector portlet to provide menu-like access to portlets on the page. When combined with the NoSkin skin, these functions appear to be single windows served to the user. This technique can be used on any type of page.

Various WebSphere Portal layout options are shown in Figure 3-1.

Icon	Functionality
	Add portlet from list
	Add a column container. Allows you to add a column to a row.
	Add a row container. Allows you to add a row to a column
✕	Delete container or portlet. When you delete a container that has portlets, individual portlet settings are lost.
	Add portlet from page
	Place existing layout and content in a new container. If the root container is a row, this icon places the existing layout inside a column, and a new row is created beneath the existing root row. If the root container is a column, this icon places the existing layout inside a row, and a new column is created to the right of the existing column.
	Edit portlet
	Move selected portlets to chosen area
▾	Move area or portlet down
◂	Move area or portlet to the left
▸	Move area or portlet to the right
▴	Move area or portlet up

Icon	Functionality
⟷	Column width setting. Allows you to modify the width of the column in pixels or percentages. This icon produces a popup dialogue that allows you to enter a new column width. For example, entering 50% sets the column space to take 50% of the parent space. By default, the width is not set.
	Activate/De-activate page

Figure 3-1   Portal layout options

Portlets have customization options, based on access permissions. Take a look at the following image. (Figure 3-2).
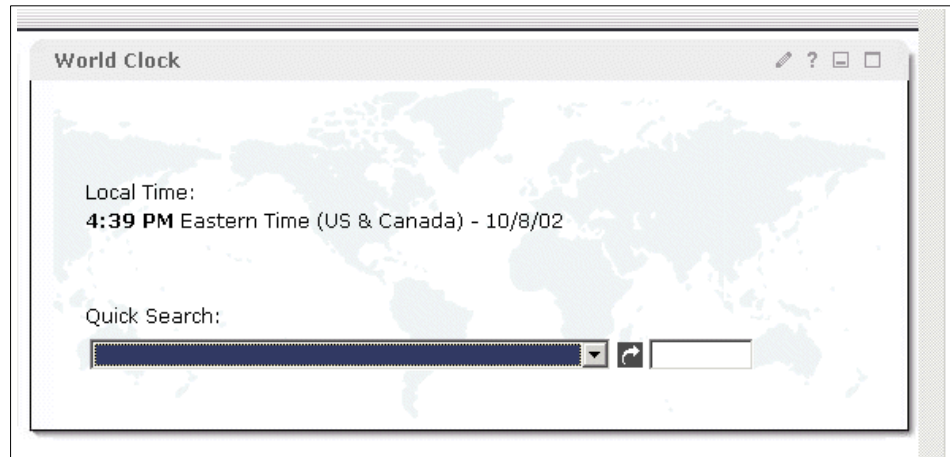
Figure 3-2   Portlet with customization options

World Clock is a portlet with Edit, Help, Minimize and Maximize options. TOn your portlet,

► Click on Minimize icon and you can minimize your portlet and can click on Maximize icon for maximizing your portlet. For this option to be available, you will have to include this feature with your portlet code.

► Edit option will allow you edit your portlet. Changes take immediately. You can see this option, based on access permission.

► Help option will take you to information about the portlet.For this option to be available, you will have to include this feature with your portlet code.

3.2 Themes and skins

The success of a portal is tied closely to the user's experience. As with any other Web site, the look and feel has to be appealing in terms of colors, style, and ease of use. In most cases, you will also need to match a company's standard logo and presentation colors and patterns. WebSphere Portal makes it easy to create new themes and skins.

Themes represent the overall look and feel of the portal, including colors and fonts. They also define the layout of the portal components.

There are three basic kinds of files that make up a theme:

► JSPs

Default.jsp, Banner.jsp, and Navigation.jsp are used to provide the layout and determine where the window elements go. There are a series of JSP tags available to inspect the configuration of the portal when dynamically constructing the markup for the current page. For example, you can obtain the list of active places and determine which place is currently selected.

► Images

banner.jpg is the background image used by the portal banner. navfade.jpg is used by the left-side navigation. You can modify these images or create your own and access them from the theme JSPs.

► Style sheets

Styles.css is the default cascading style sheet. For incoming Internet Explorer requests, the ie/Styles.css style sheet is used

For more information on themes and skins, refer to 2.3.2, "Themes and Skins" on page 77.

Several default themes are packaged with WebSphere Portal server. These are:

► WebSphere

► Science

► Finance

► Engineering

► Corporate

► Admin

To explain the differences among different themes, we shall walk through with an example.

The WebSphere theme is depicted in Figure 3-3 and Finance theme is depicted in Figure 3-4.

Notice how the portal changes when a different theme is selected. The WebSphere theme uses a color scheme based on purple, black and grey, while the Finance theme's colors are blue and grey.

The tools to navigate through the portal have also changed. In the top left corner of the WebSphere theme is a pull-down menu that allows users to select a page group. The Finance theme uses page tabs labelled Home, Work with Pages, and Portal Administration to allow the user to navigate through page groups.
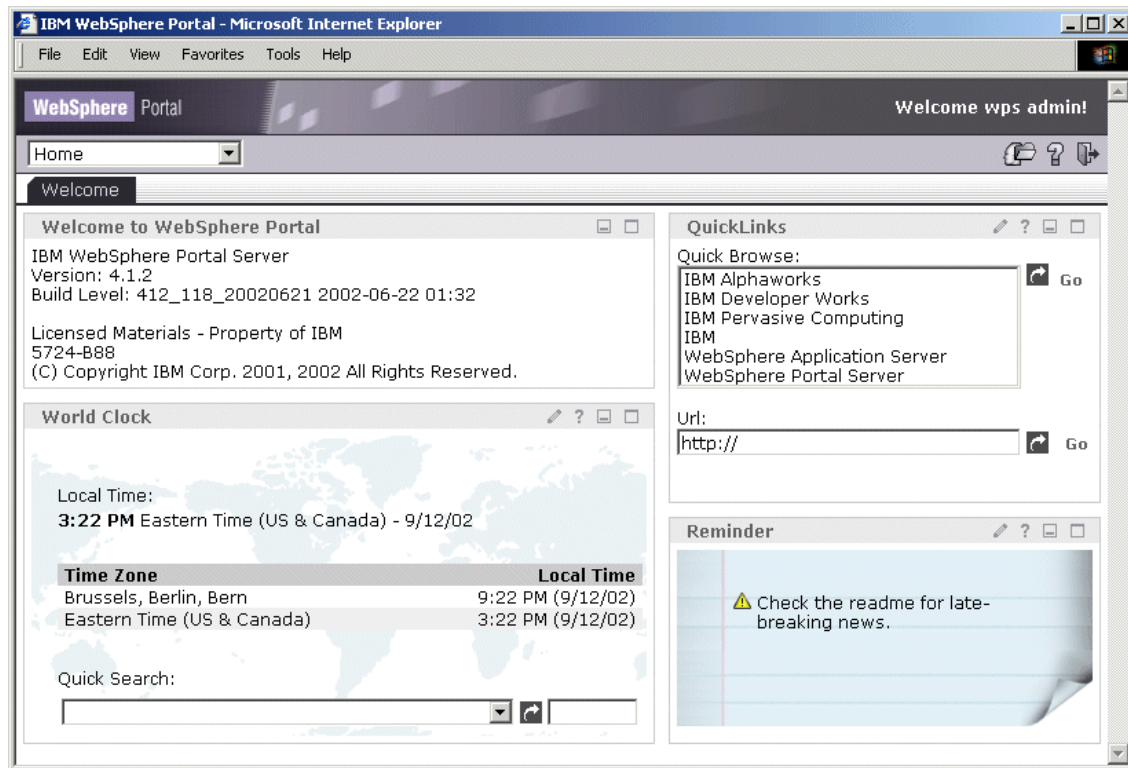
Figure 3-3   WebSphere default theme
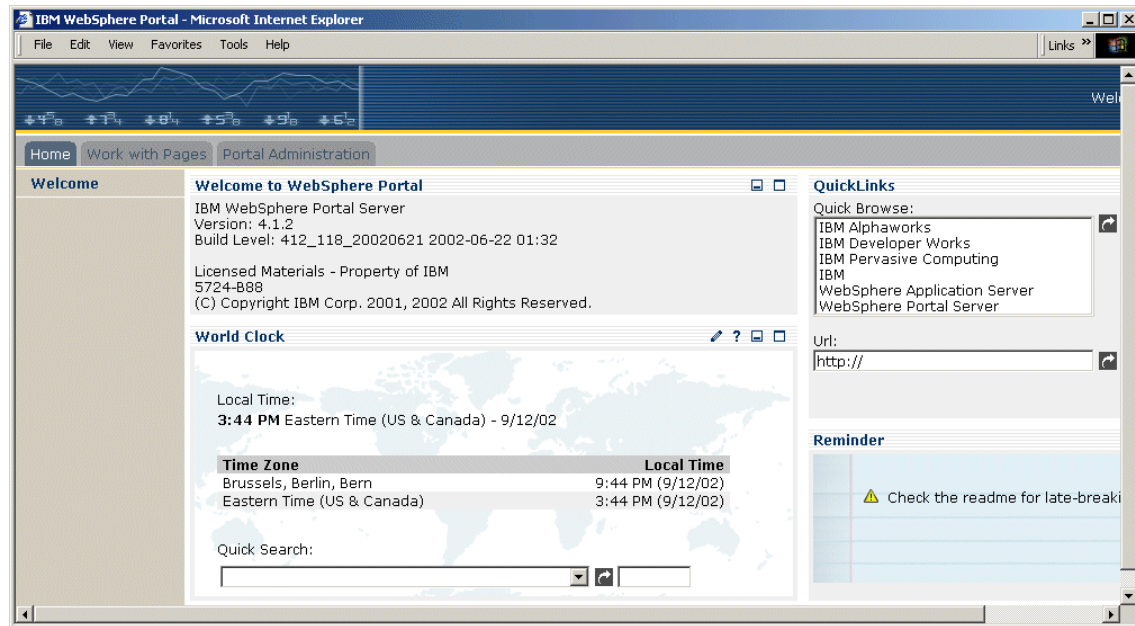
Figure 3-4   Finance Theme

Themes are typically built by usability experts and graphical designers who have expertise in user interface design, HTML and Java Server Pages. The portal administrator is responsible for importing a theme into the portal and selecting it as a default. This is done through the portal administrative tools.

WebSphere is the default theme when WebSphere Portal is installed.

3.2.1 Skins

Skins are the look and feel surrounding a portlet. Skins control the frame surrounding the portlet and the title bar of the portlet. Each portlet can apply a different skin.

Several skins are packaged with WebSphere Portal. They are:

► Album

► Outline

► Hint

► NoSkin

► NoBorder

► Clear

► Fade

► Diamonds

► Pinstripe

► Wave

Examples of portlet skins are shown in Figure 3-5, Figure 3-6, Figure 3-7 on page 132 and Figure 3-8 on page 132. They are examples of outline, shadow, album and noskin, respectively. The Noskin example shows a portlet without any borders or title graphics. Notice how this contrasts with the other skins.

Each skin can define the graphics surrounding the outer edge of the portlet. The shadow skin in Figure 3-4 has created a shadow effect around its borders and has tapered its top right edge.The album skin shown in Figure 3-5 has created a dotted edge border with creases at the bottom.
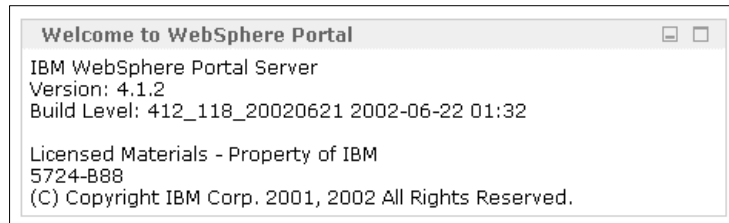
Figure 3-5   Portlet with Outline skin
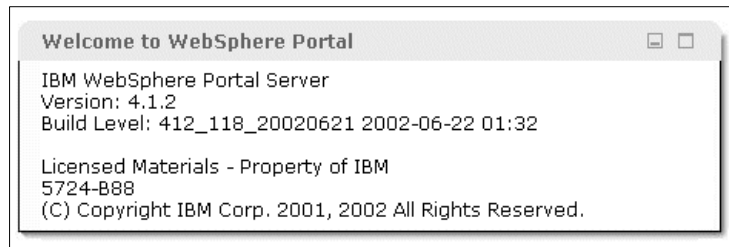
Figure 3-6   Portlet with Shadow skin
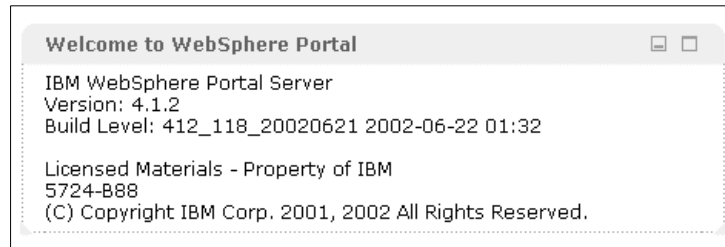
Figure 3-7   Portlet with album skin
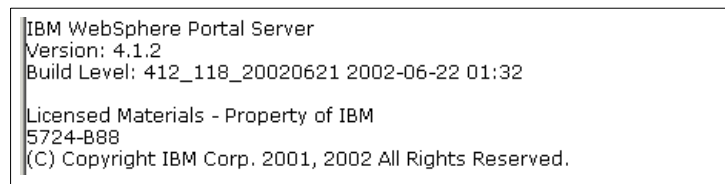
Figure 3-8   Portlet with NoSkin skin

Skins can be assigned to portlets by an administrator, a user or as a default skin for a theme. When a skin is assigned as the default for a theme on a page, all portlets are assigned to the skin automatically.

An administrator can also select which skins will be available for a given theme.

The default skin **Outline** is applied when WebSphere Portal Server is installed.

3.3 Work with pages

WebSphere Portal Server allows users and administrators to modify the applications, design, and navigation that appear on a page. The flexibility in WebSphere Portal Server allows developers, administrators and end users to provide a unique experience based on each individuals preferences. After all the very essence of having a portal server is to be able to customize the Web site and personalize it so that users and customers feel welcome.

The **Work with Pages** page group provides the user with the ability to customize their experience. This includes creating page groups and pages, laying out portlets on pages, choosing skins, and locking portlets in place on a page. Users may only be allowed to customize their own experiences, or they may have access permissions that allow them to make changes that affect others.

Before you sign-in to WebSphere Portal, you have the following options on the top-left hand banner of the page.

► **I forgot my password:** If a registered user has forgotten his/her password, clicking on I forgot my password icon brings up a page, which is a place holder for a mechanism to retrieve one's password information. That could be a phone call to the portal administrator or an e-mail notification to the support person.

► **Sign-up:** New users can sign up and register with WebSphere Portal. Options are provided, where users can customize their portal information based on language of choice or interests etc. Step by step walk through of this process is explained in WebSphere Portal administration chapter.

► **Help option:** Clicking on Help option, will take you to WebSphere Portal Infocenter, which is also the product documentation.

Login into WebSphere portal and you should see a Welcome page. On the Welcome Page, select Work with Pages page group from the drop down menu list that you see on the top left hand corner as shown in Figure 3-9.
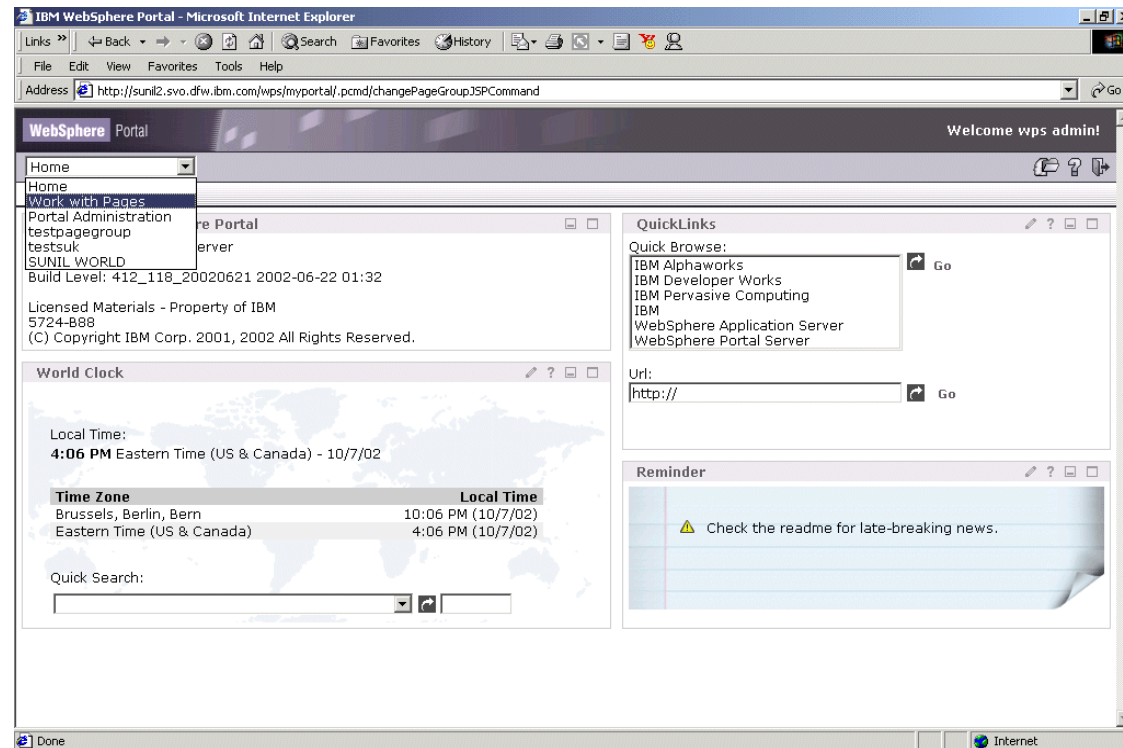
Figure 3-9   Select Work with Pages page group

Explaining some of the icons that you see on the top left-hand banner of the Welcome page:

► **Edit your profile:** This option will allow you to edit user profile. Click on Edit your profile option, make the changes, confirm your changes and return.

► **Help option:** Clicking on Help option, will take you to WebSphere Portal Infocenter, which is also the product documentation.

► **Log -off:** Clicking on this option, will sign you off from WebSphere Portal.

If you select Work with Pages page group option, you should see a window, as shown in Figure 3-10.
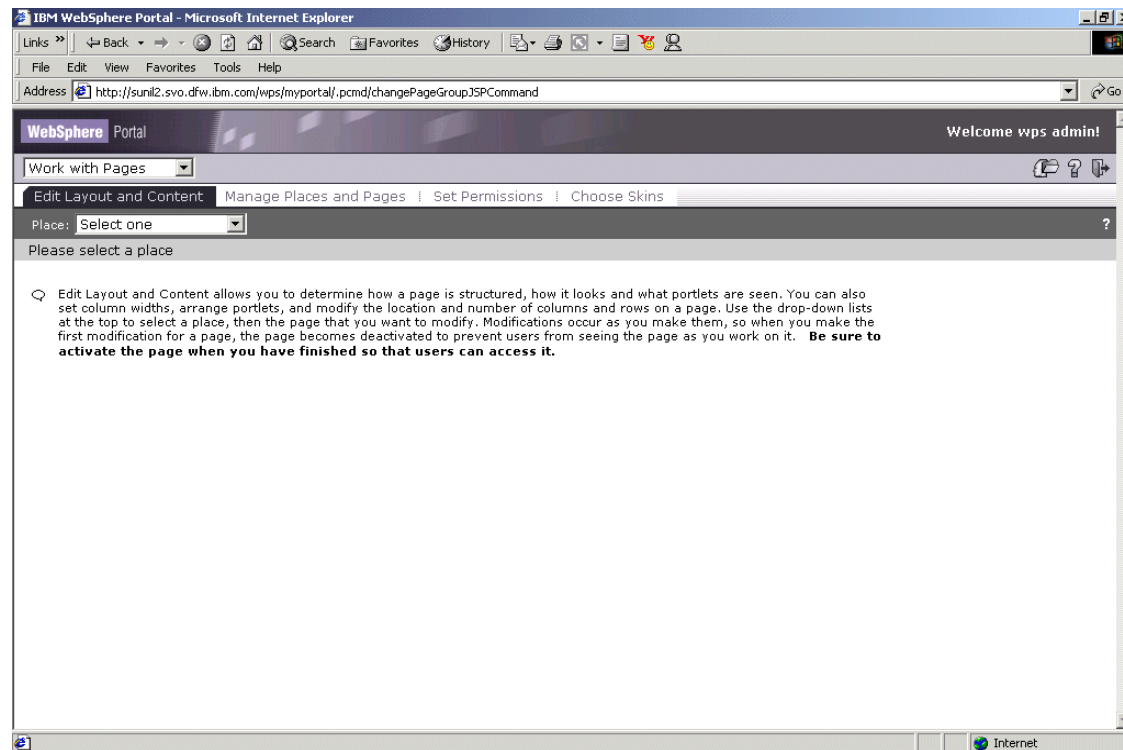
Figure 3-10   Portlets that comprises work with pages page group

Work with Pages page group, comes with the following portlets:

► Edit Layout and Content

► Manage Places and Pages

► Set Permissions

► Choose Skins

These portlets will help you with customizing your page.

3.4 Manage Places and Pages

Use the Manage Page Groups and Pages portlet to add a new page group.One attribute of a page group is a theme. An administrator can assign a specific theme to a page group or you can specify that the page group should use the portal default theme. Once the page group is created, administrator will be able to change the page properties, delete pages, activate/deactivate pages and create pages for that page group.

With the Manage Places and Pages portlet as shown in Figure 3-11, you can:

► Create or delete a place

► Modify the properties for a place (the theme, markup, and locale specific

► titles)

► Change the ordering of places

► Create or delete a page belonging to a place

► Modify the properties for a page (the markup and locale specific titles)
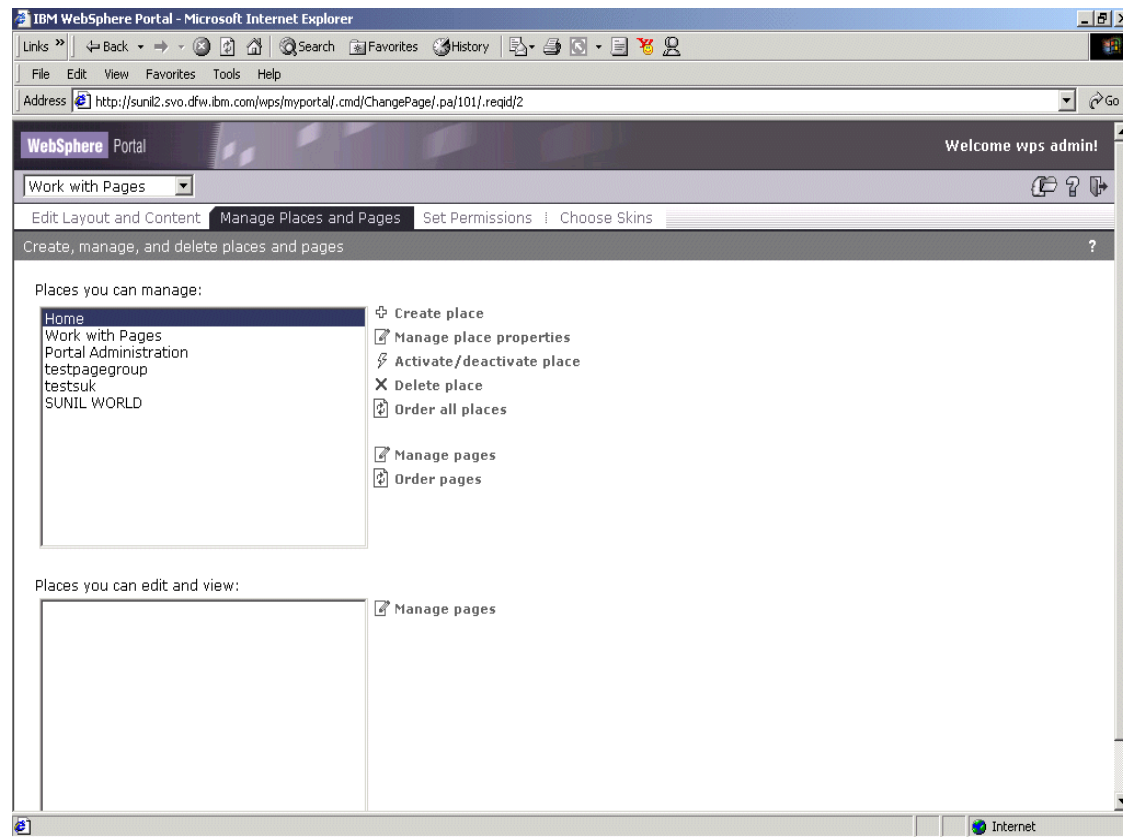
Figure 3-11   Manage Places and Pages portlet

Note: Each place can contain multiple pages.

3.4.1 Create place

You can use Create place option to name and create a new place. To be able to use this option, must have **CREATE** permission on places to create a new place.

By default, any user in WebSphere Portal will be having Create permission for Places and Pages.

To make sure you have those permissions, Login to WebSphere Portal as administrator or user with admin privileges.

- ► Go to Portal Administration - Security - Access Control Lists - under Select the objects for permissions, make sure you select **Resource type permissions**.

- ► Click **Get groups and users**.

- ► Select for the user. You can do a blind search (*). Click **Go** button.

- ► Add to the list and click **OK** button.

- ► You will see the user displayed under selected users and groups list.

- ► Click **Go** button, once you make this selection.

- ► Page will refresh and you will see the privileges or access permissions for this particular user.

To Create a place,

- ► Click on **Create place** option in the Manage places and pages portlet.

- ► You will see a window open as shown in Figure 3-12.
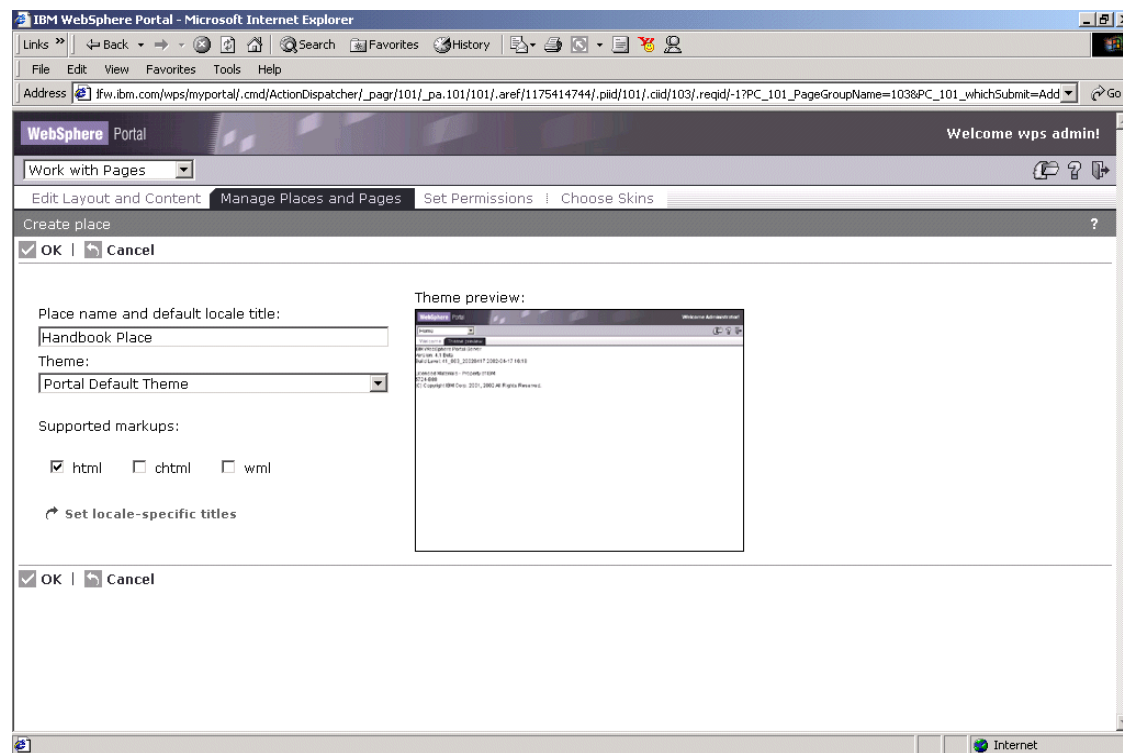
Figure 3-12   Create a place

► Specify the new place name under Place name and default locale title option.

> **Note:** In our example, we have named the place as Handbook Place and has html markup and we have kept the default settings. We shall use this place throughout for customization explanation.

► Select the theme from the drop-down menu for your place. The selected theme will appear in the theme preview on the right-hand side of the page. You can select various themes and based on the preview finalize the theme.

> **Note:** You should not apply the theme with the name **Admin** to a place. This theme is intended for administrative portlets and renders portlets without a title bar.

► Choose the markup that your place will support.

► Click **Set locale-specific titles** to custom place titles to other languages. You will see this option only if your portal is configured to support multiple languages. A list of locales appears. Select a locale, then click **Set title for selected locale**. Click **OK** to make the changes effective.

► Click **OK** to create a place or **Cancel** to return.

► You will see this new page added to the pages you can manage list.

3.4.2 Manage place properties

This option will allow you to you to edit an existing place name, change the theme for the place, and set locale-specific titles.

► Select the place, which you require editing.

► Click **Manage place properties**.

► Make the necessary changes.

► Click **OK** to accept the changes or **Cancel** to go back to the previous window.

3.4.3 Activate/Deactivate place

When you create a place, by default it is active. This option will be useful while creating and modifying a place.

► Select the place you would like to deactivate.

► Click **Activate/Deactivate** option.

► You will see Inactive next to your place. Clicking on Activate/Deactivate again will activate this place. You cannot use the place when it is in Inactive state.

3.4.4 Delete place

This option will help you to delete a place.

- ► Select the place you would like to delete and click on Delete place.

- ► You will see a window with warning message for confirmation.

- ► Click **OK** if you would like to delete or **Cancel** to return.

- ► If you select **OK**, this place will be deleted from the list of available places in the portal.

> **Important:** When a place is deleted, pages within that place are also removed, and any individual user settings made to portlets on those pages are lost.

3.4.5 Order all places

You can use this option to change the order of your place. By default, Home page is the first place that you see on the list. This option will allow you to have your place as the first place if required.

- ► Click **Order all places** button.

- ► Select your place and choose either **Before** arrow or **After** arrow to move your place up or down.

- ► Click **Done**. Changes take place immediately. After the changes, take a look at Figure 3-13, the order of Handbook place. We have moved one place above in the list and you can also check this changes with the drop-down list in WebSphere Portal Home page.
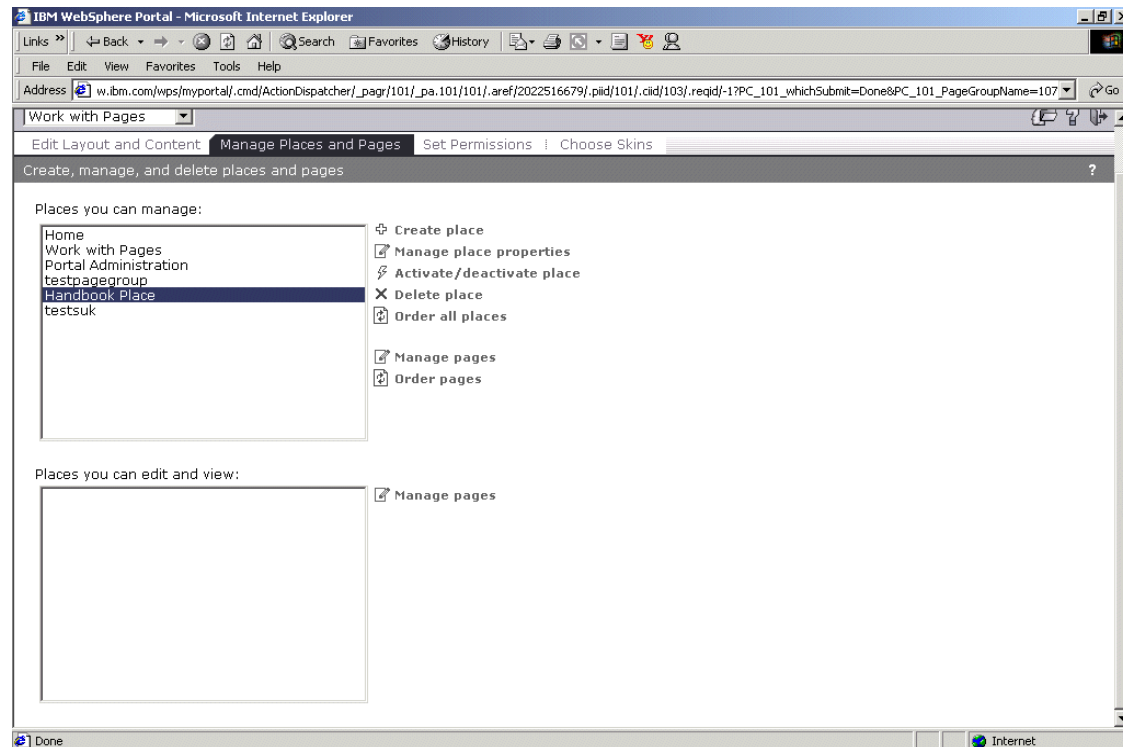
Figure 3-13   Change the order of your place

> **Important:** This option only appears to a user who has MANAGE permission for the entire portal.

3.4.6 Manage pages

You can use this option only if you have **Manage** permission.

Select a place, for which you need to create a page and click **Manage Pages** option and you should see a window open as shown in Figure 3-14.
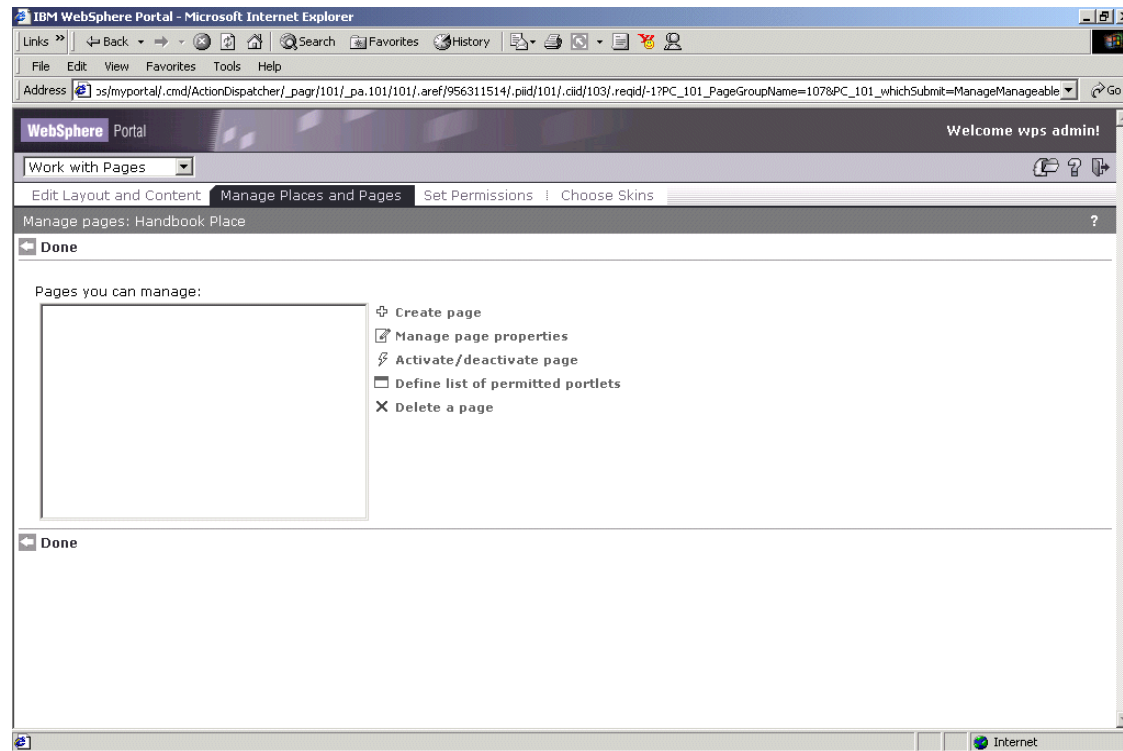
Figure 3-14   Manage page

You have the following functionalities with this portlet:

► Create page

► Manage page properties

► Activate/Deactivate page

► Define list of permitted portlets

► Delete a page

Create page

This option will help you create a new page from an existing place. You must have Create permission to create a page to a place. Using this option, you can also reference an existing page, apply a layout, select supported markups, define a list of associated portlets, and specify locale-specific titles.

If you reference an existing page, the page name, layout, supported markups, locks, skins, portlet list, and locale-specific titles are predetermined by the existing page you reference. If you choose to reference an existing page, you

must have MANAGE and DELEGATE permissions for the page that is
referenced.

► Click on **Create page** option.

► A window will open as shown in Figure 3-15.
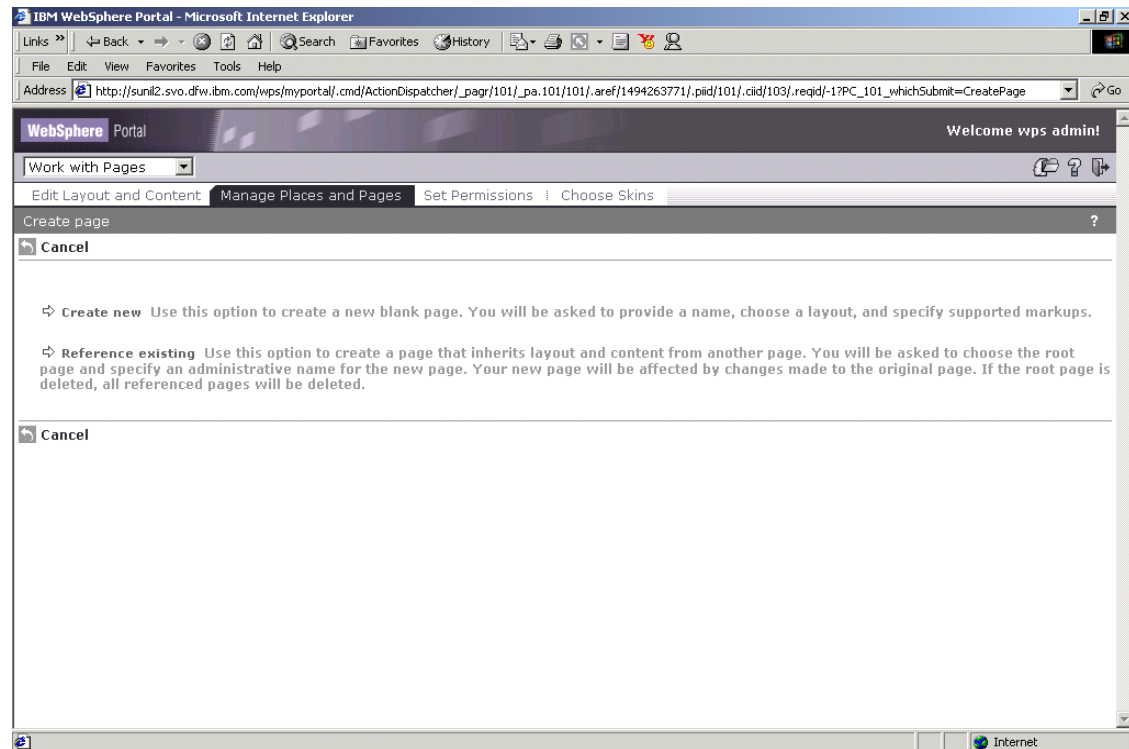
Figure 3-15   Create page options

► Select **Create new** option. This option will create a new blank page.
Reference Existing option will inherits all layout, content, locks, titles,
markups, and portlet lists from another page.The option to create a new page
that references an existing page is present only if you have CREATE
permission for pages, VIEW or greater permission on a place, and MANAGE
and DELEGATE for a page in a place. In this example, we will use create new
option.

► A page will open as shown in Figure 3-16.
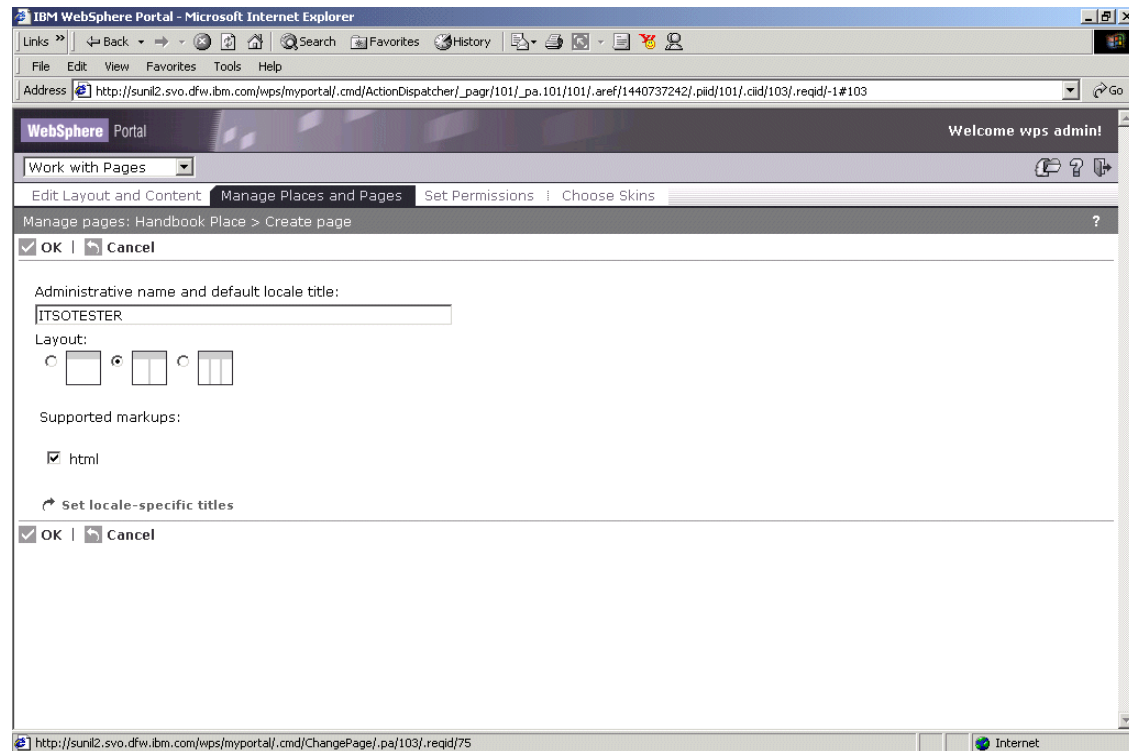
Figure 3-16   Create page

- ► Specify the administrative name and default locale title. For this example, we have specified the page name as ITSOTester.

- ► Select a page layout you would like the page to use. The column layout can be changed later using the Edit layout and content portlet.

- ► Specify the supported markup. In our example, we have only html as the option as we had selected html as the only markup for our Handbook Place.

- ► Click **Set locale-specific titles** to specify locale-specific names for the place. A list of locales appears. Select a locale, then click Set title for selected locale. A prompt for the title appears. Type in the place name for the selected locale, then click **OK**.

> **Note:** This option will appear only if your portal is configured to support multiple languages.

- ► Click **OK** to create a page or **Cancel** to return.

► You will see the page ITSOTESTER added to the list of pages you can manage as shown in Figure 3-17.
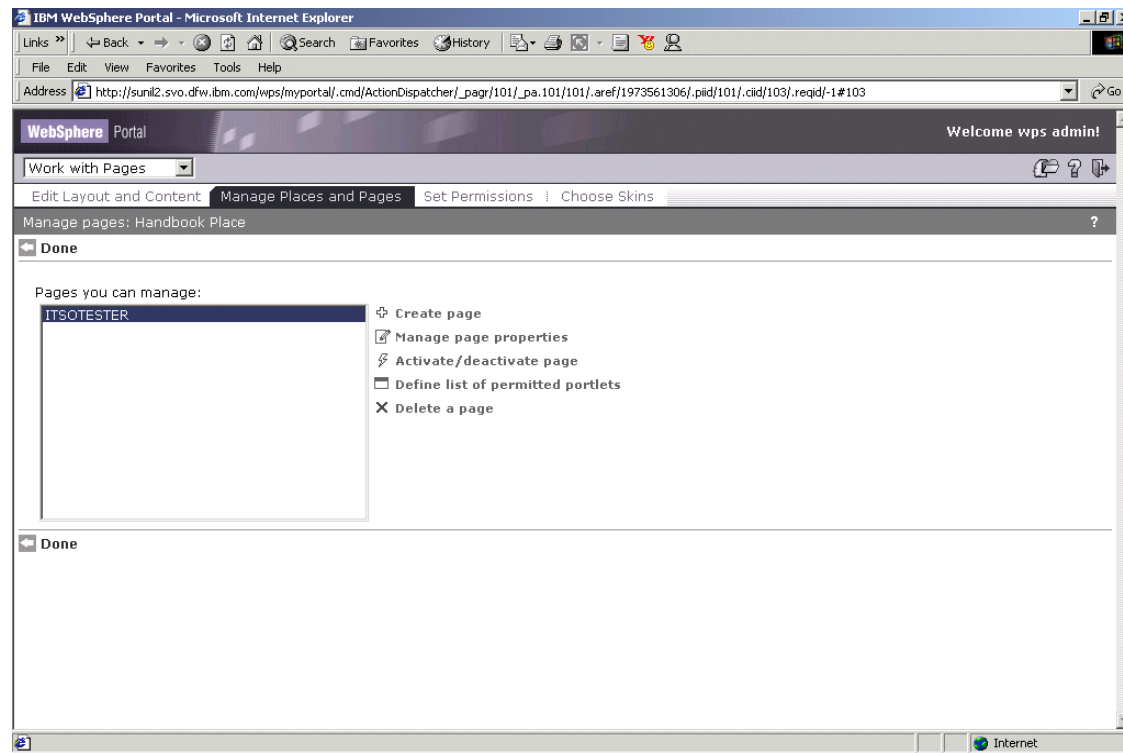
Figure 3-17   New page added to the list of pages you can manage

Limitation: With the current version, which is used for this book; WebSphere Portal 4.1.2, cannot add page into a page, places into a place. This functionality will be offered with the next release of WebSphere Portal.

Manage page properties

Using this option, you can edit the page name, supported markup, and locale-specific titles with this option. If the page references another page, only the Administrative name and default locale title can be modified. The option to specify locale-specific titles is only available if the portal is configured to support multiple languages.

► Select the page, for which you need to modify information.

► Make necessary edits and click **OK** button to confirm the changes or **Cancel** to return.

Activate/Deactivate

Use this option to activate/deactivate a page. By default, the new page you create is in Active state.

► Select the page and click **Activate/Deactivate** button.

► The page will refresh and you will see **Inactive** next to your page. When your page is in Inactive state, you cannot use the page.

Define list of permitted portlets

Using this option you can define a list of portlets associated with a page or add portlets to an existing list of portlets associated with a page.This option allows you to associate specific portlets with a page. If you reference a page that already contains a portlet list, you can add new portlets to the list, but you may not remove existing portlets inherited from the referenced page.

► Select the page from the list of pages you can manage.

► Click **Define list of permitted portlets**. You will see a window open as shown in Figure 3-18.
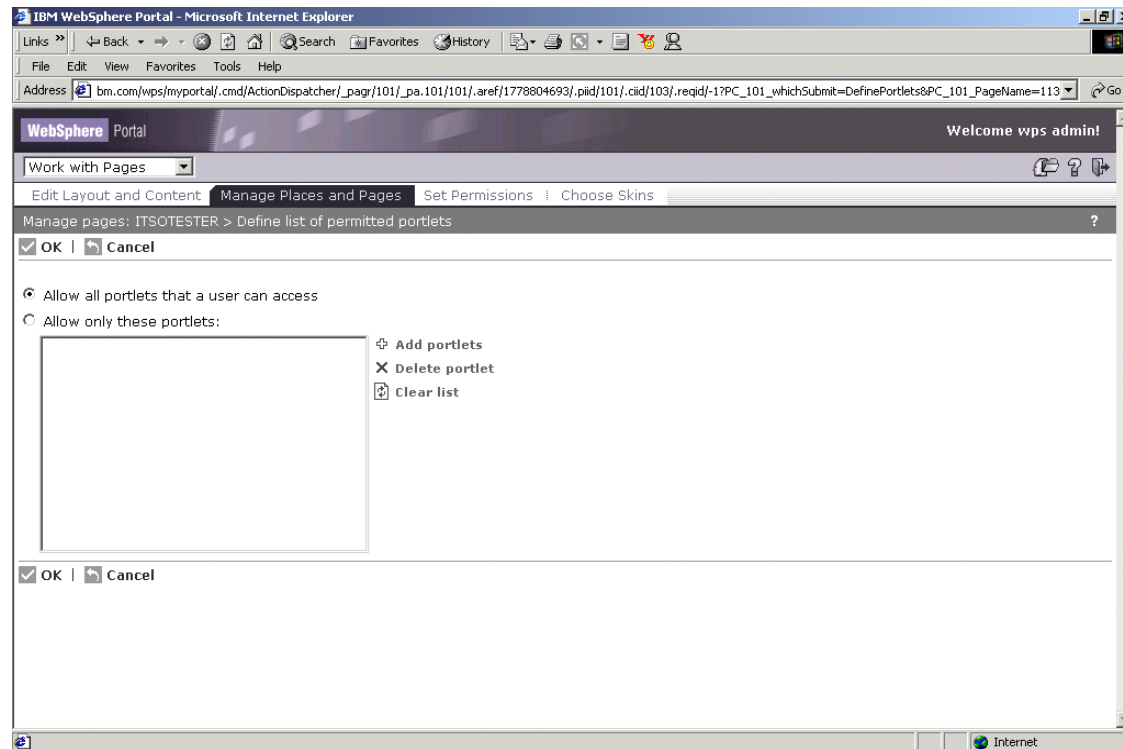
Figure 3-18   Define list of permitted portlets

► Click **Add portlets** option, to add portlets to the page. If the selected page references another, a list of inherited portlets is displayed. This list can only be modified by making changes on the referenced page.

► Select a search method. You can show all available portlets, or you can search by name or date modified.

► For the option **Modified since**, enter the date the portlet was modified using the YYYY, MM, DD format.

► Click **Go** to display the search results.

► A list of available portlets, including name, title, description, and supported markups, is displayed in the Search Results table.

► Click **OK** to add a portlet to the portlet list. You can continue to enter new search criteria and search until your list is complete.

► In the portlet list, you can remove a portlet from the list by selecting a portlet and clicking Remove from list. You can also clear the list of all portlets.

► By default, you will have the option **Allow all portlets that a user can access** selected. This allows users to any portlet to this page.

► If you also choose the option **Allow only these portlets**, you can limit the users to the portlets that you have associated with this page.

► To remove a permitted portlet from the page, highlight the portlet you want to remove, and click **Delete portlet**.

► Similarly, you can use **Clear list** button to clear the portlets from the list of permitted portlets.

► Click **OK** to define list of permitted portlets or **Cancel** to return.

Delete a Page

This option will allow you to delete a page from a place. When a page is deleted, layout settings and any individual user settings made to portlets on those pages are lost. If you delete a page that another page references, both pages are lost.

► Select the page that you would like to delete.

► Click **Delete a Page** option.

► You will see a page open with a warning message requesting your confirmation before the page is deleted.

► Click **OK** if you are sure or **Cance**l to return. If you click OK, this page will be deleted from the place.

Click **Done** to return to Manage Places and Pages portlet.

3.4.7 Order pages

This option is used to change the order of the page in your place. You need to have **Manage** access for the place.This option displays all pages within the group.

► Select the Place from the list of Places you can manage.

► Click **Order pages** option.

► You will see a window as shown in Figure 3-19.
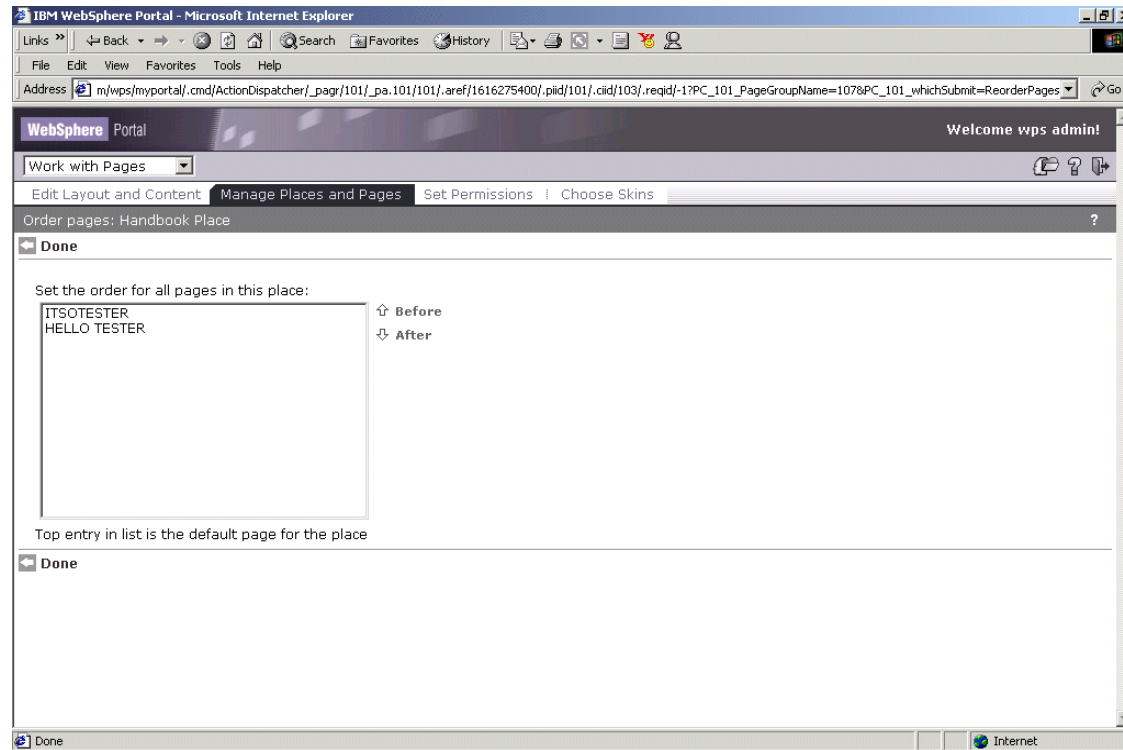
Figure 3-19   Set the order for the pages

► To change the order of the pages in the place, click **Before** and **After** and you will notice the changes.

► Click **Done** to exit from this window.

► If you do not make any changes, top page will be the default page that place will display when the user logs in next time.

► For the current session, movement of these pages are immediate and you can notice the changes.

> **Note:** If you have places with **Edit** and **View** permissions, choose Manage pages button, which is on the bottom of Manage places and pages portlet.

3.5 Edit Layout and Content

The Edit Layout and Content portlet, allows you to define the physical appearance of a portal page in terms of rows and columns, along with the specific portlets on the page.

- ▶ Using Edit layout and Content portlet, you can:
- ▶ Determine how a page is structured
- ▶ What portlets you see in a page
- ▶ Set column widths
- ▶ Arrange the order or portlets or where they will be positioned on a page
- ▶ Create column and row containers

> **Tip:**
> - ▶ Each page group can have its own theme.
> - ▶ Each portlet can have its own skin.

Select Work with Pages page group and Edit Layout and Content portlet is the default portlet that you see, as shown in Figure 3-20.
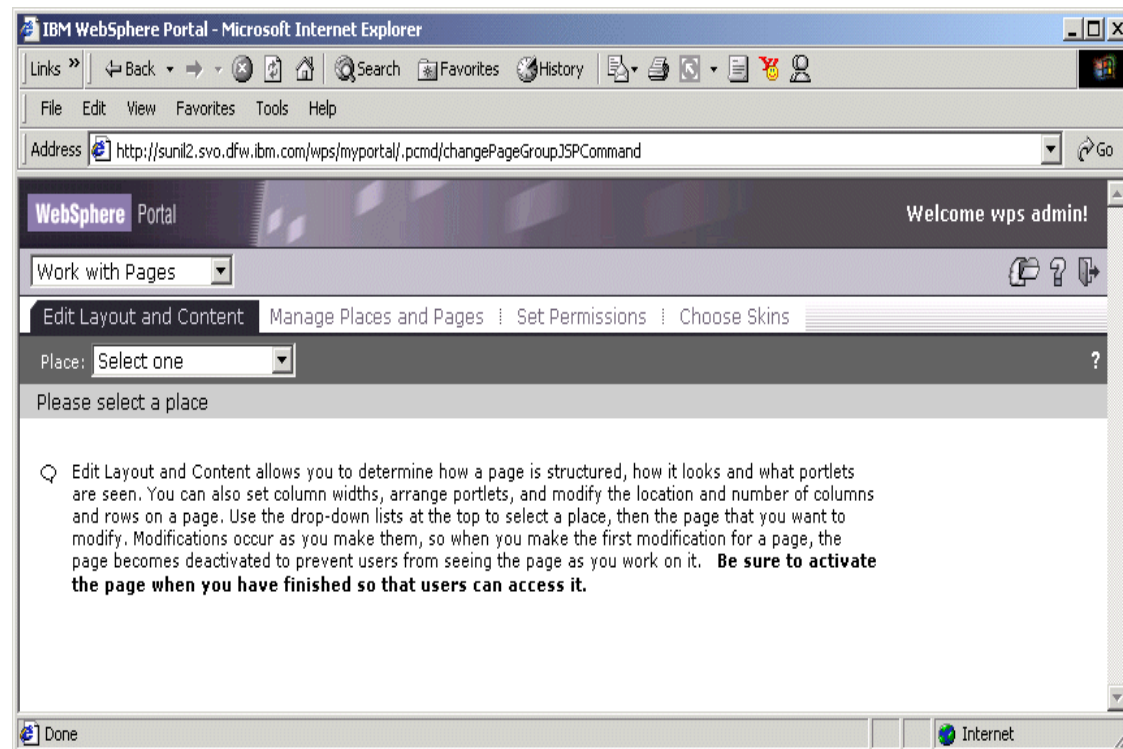
Figure 3-20   Edit Content and Layout portlet

► **Select** a **Place** from the drop-down menu available in Edit Layout and
    Content portlet.

► We will select for this example Handbook Place, which we created earlier.

► The page will refresh and will provide you with a list of available pages for this
    place.

► Select a page you wish to modify. We will select ITSOTESTER as shown in
    Figure 3-21.
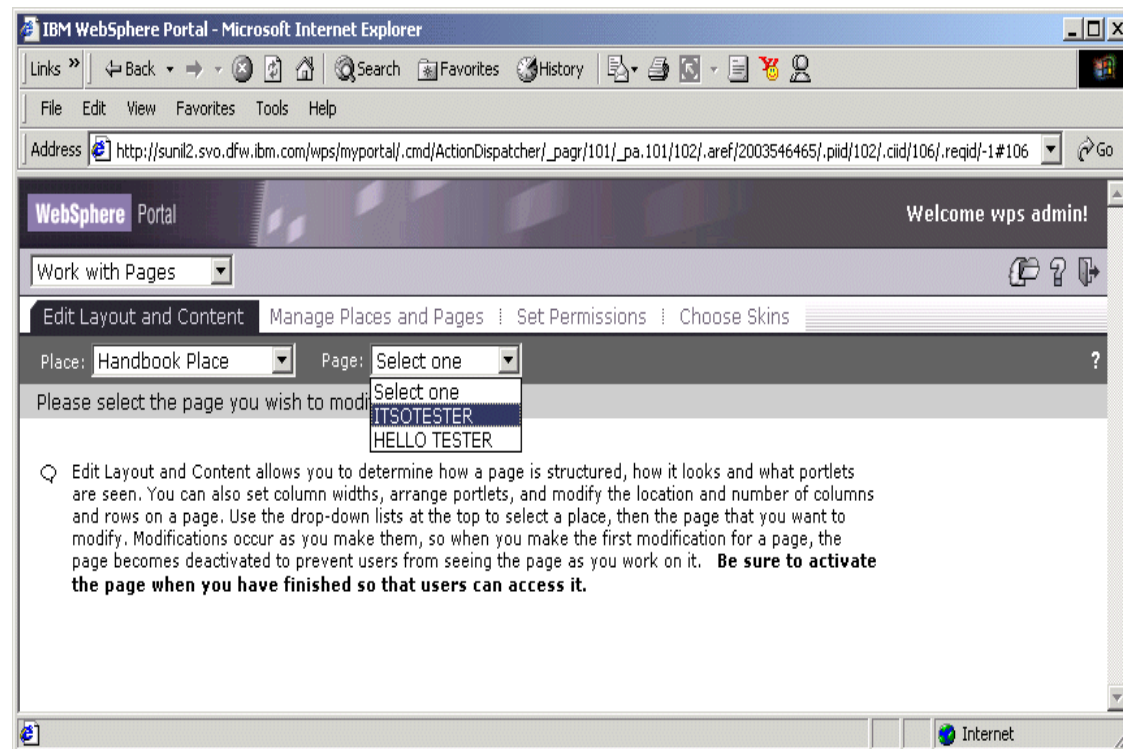
Figure 3-21   Select a page you wish to modify

> ► Once, you select a page for modification, (in our example ITSOTESTER), you
>   should a window open as shown in Figure 3-22.
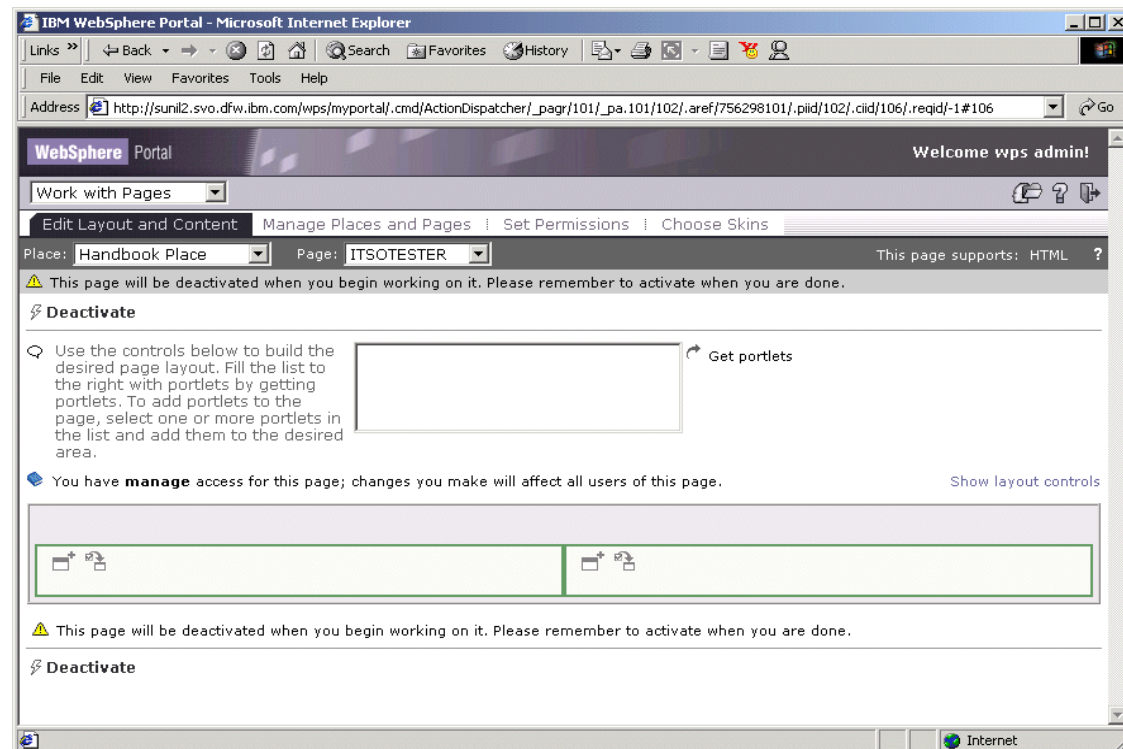
Figure 3-22   Portal Page layout options

3.5.1 Add Portlets to a Page

The first step before you add a portlet to a page is to generate a list of available portlets. Click **Get portlets** icon.

- Specify a search criteria for searching the portlets. You can search for all portlets or a specific portlet by name or portlet modified date.

- Click **Go** button.

- You will see a list of portlets displayed.

> **Note:** If specific portlets are already associated with the selected page, the portlet list is locked. Only portlets available in the portlet list can be placed on the selected page.

- Select the Portlet you wish to add to your page by clicking on the plus sign next to the portlet name. Once you click on the plus sign, you should see the portlet added to the portlet list. You can click **Remove from list** to

remove a portlet from the available portlet list or click on **Clear** to clear the list of portlets. In our example, we have added Welcome Portlet and World Clock as shown in Figure 3-23.
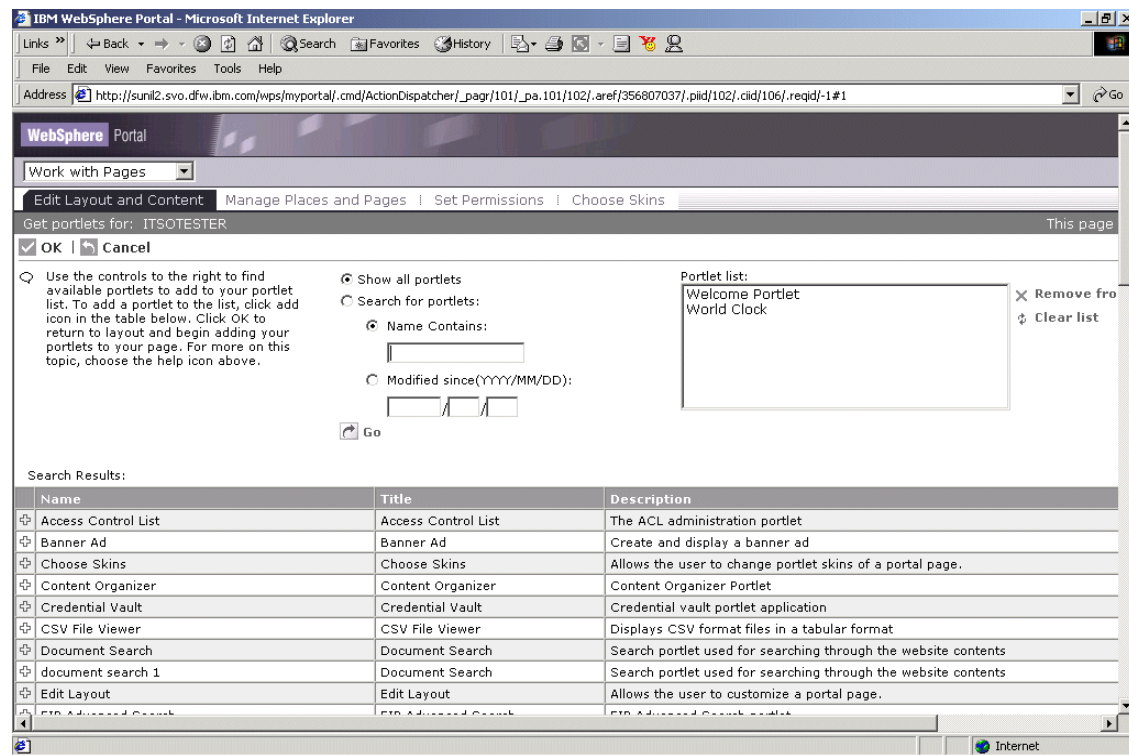
Figure 3-23   Select Portlets required for your page

– Click **OK** to confirm your selection or **Cancel** to cancel the selection list.

► You should see the portlets you have selected, in our example Welcome Portlet and World Clock portlet, listed as the available portlets, which you can add to your page.

► Select the portlet you want to add to the page and click on add symbol in the desired column or row container to add the selected portlet from the list to the portlet container.

► You can use the icon with down-arrow and a check mark to move a portlet from one container to another.

► In our example, we have added Welcome Portlet to the left side of the page (left column container) and World Clock to the right-side (right column container) as shown in Figure 3-24.
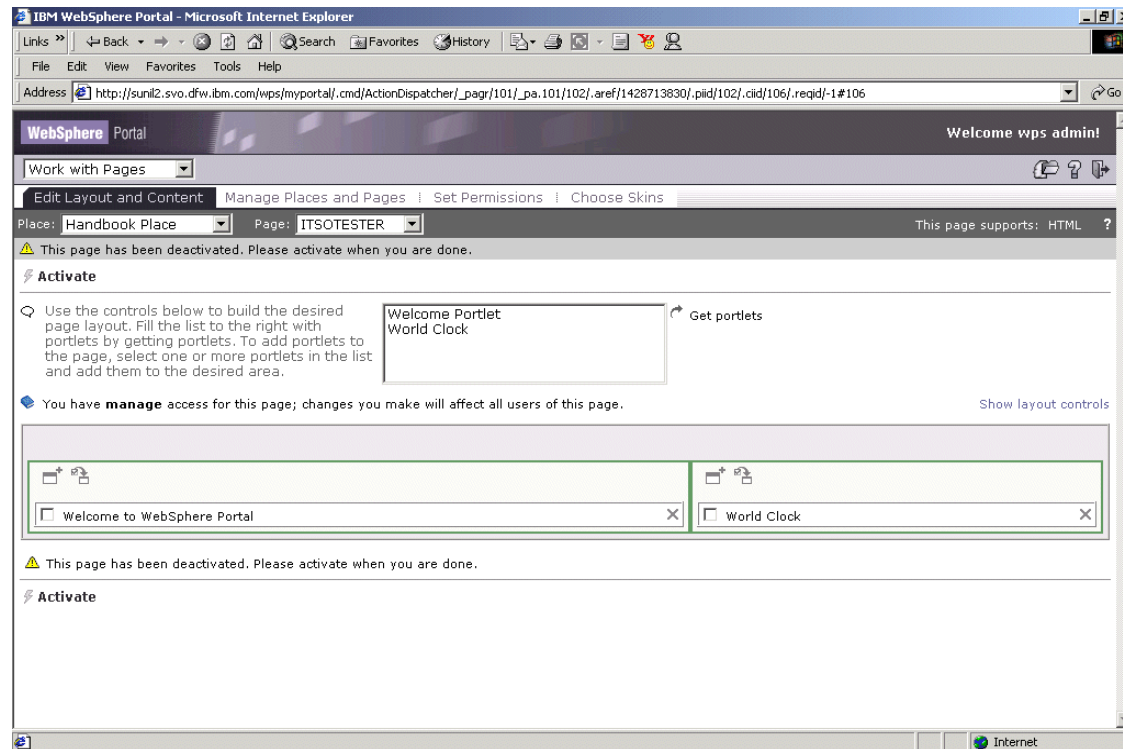
Figure 3-24   Add portlets to your page

► When you select a page to modify, the page is deactivated to prevent users from seeing the page as you work on it. The tasks that you perform on the page, depends on the access permission.

► Click **Activate** icon, to activate the page when you have finished, so that users can access it. You will notice that the page will turn to Deactivate state.

► To test, how the portlets are laid on your page:

► Select your page group from the top left-hand corner of the page. In our example, we select Handbook Place.

► You will see two pages, HELLO TESTER and ITSOTESTER. These are the two available pages in our Handbook Place page group.

► Select ITSOTESTER tab and you should see as shown in Figure 3-25.
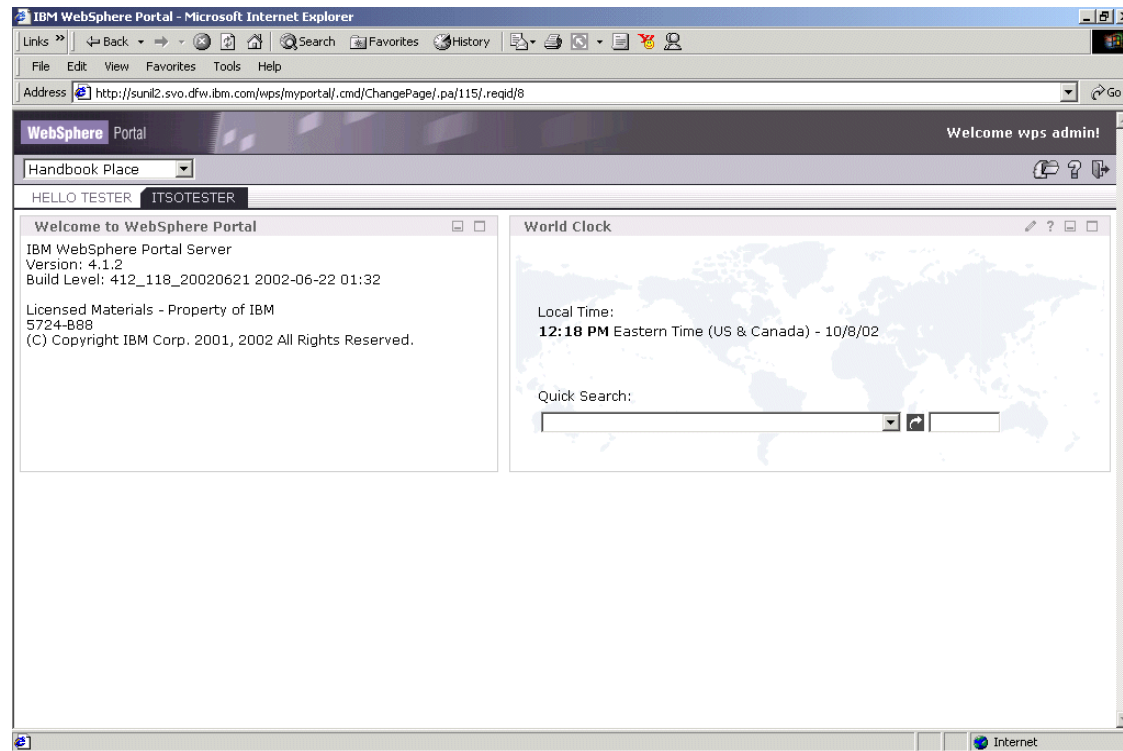
Figure 3-25   Portlets displayed on your page

You will notice Welcome Portlet on the left-side of the page and World Clock portlet on the right-hand side of the page.

> **Tip:** If you open your page and do not see any portlet, make sure that you have activated the page. For any changes that you make on the page you need to **Activate.**

3.5.2 Modifying Page Layout

Once you create a page, you can choose to display one, two, or three columns. Edit Layout and Content portlet, provides you the capability to customize your page. You can rearrange Portlets and Containers.

Re-arranging Portlets
You can rearrange portlets, anywhere you want on the page.

► The check box you see on the container next to the portlet, is only for selecting a portlet to move it to another container on the page.

► You can place Welcome Portlet from left side container to right side by checking the Welcome Portlet on the left-side and clicking on down-arrow and check mark icon on the right-column container. You will see the changes with Edit Layout and Content portlet, Figure 3-26 and changes in your page as shown in Figure 3-27.
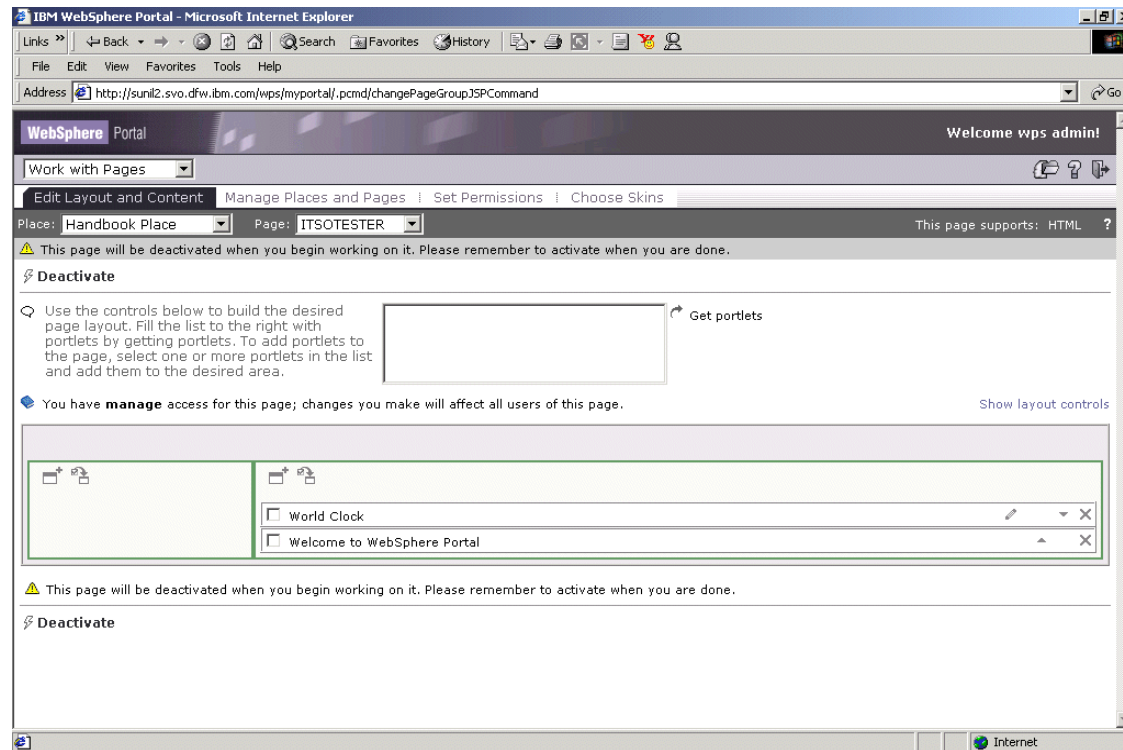
Figure 3-26   Re-arrange your portlets
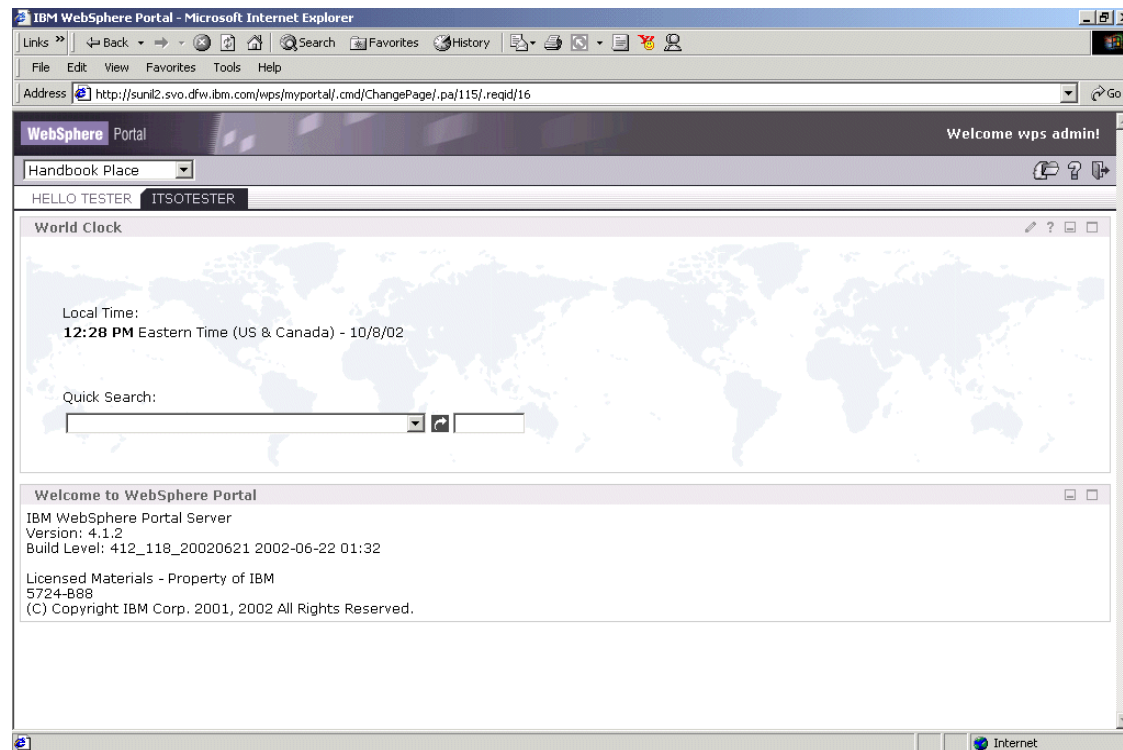
Figure 3-27   Rearranged portlets shown on your page

▶ Use the icon descriptions as shown in Figure 3-1 as a guide in changing your layout.

▶ To add a container for example, click **Show layout controls.** You will see additional icons as shown in Figure 3-28. The various options as shown in the figure:

• **A** - This option will allow you to add column containers.

• **B** - Clicking on this option, will place your entire layout into a separate container. If the root container is a row, this icon places the existing layout inside a column, and a new row is created beneath the existing root row. If the root container is a column, this icon places the existing layout inside a row, and a new column is created to the right of the existing column.

• **C** - Clicking on this icon, will open a pop-up window, where you can set column width for the page. Column width can be set by pixels or by percent.

• **D** - Moves the column container to right.

- **E** - Moves the column container to left.
- **F** - Adds Rows to Column
- **G -** You can delete a portlet.
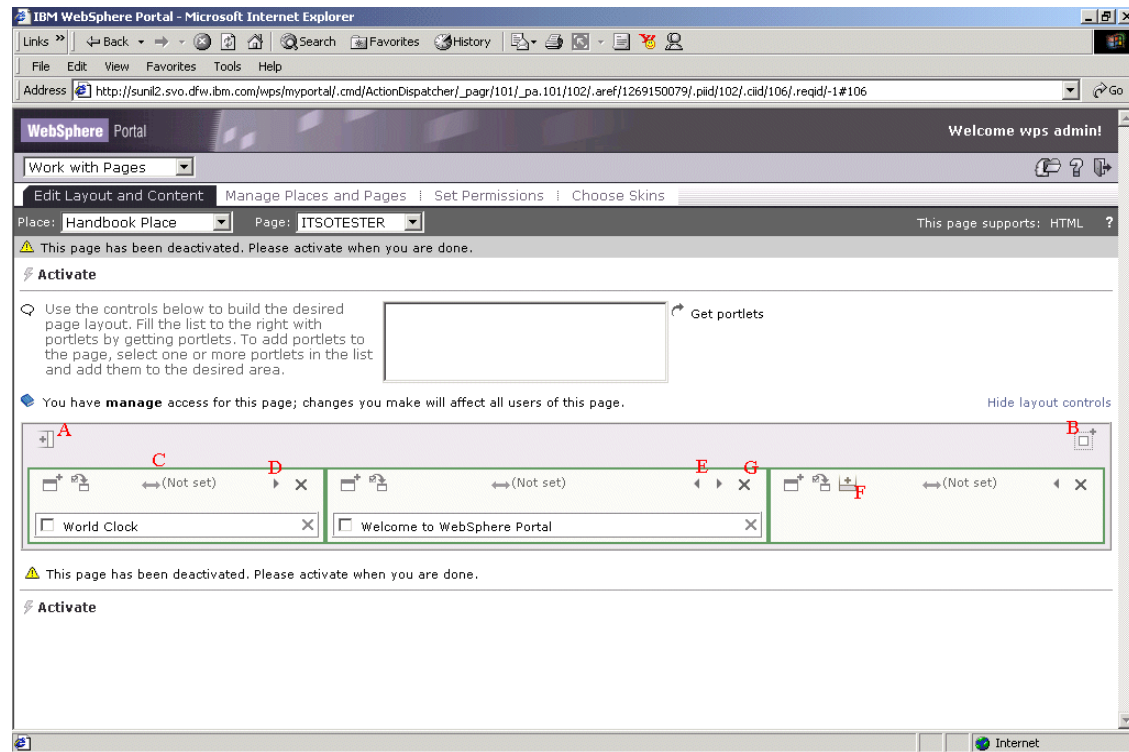
Figure 3-28   Additional options for changing your layout.

► Once you finish making changes to the layout, you can click **Hide Layout Controls**.

► Click **Activate** for the changes to take effect.

3.6 Set Permissions

The Set Permissions portlet allows you to lock containers on a page and the contents of containers on a page. For example, in an intranet portal you want to be sure your employees see the content of an Bulletin Board portlet containing important employee notices; but at the same time, you want the employees to be able to tailor other content (portlets) on the Welcome page.

You can also decide which portlets can or cannot be deleted from the page. These settings control how a user can work with the page in the Edit Layout and Content portlet.

Use the drop-down lists at the top to select the place and page that you want to modify. Then lock or unlock the containers or container contents. All changes occur as you make them. When you select a page to modify, the page becomes deactivated so that users cannot access it. Be sure to activate the page when you are finished making changes.

You must have *Manage* access for a page in order to modify the permissions settings. An end user must have EDIT access for a page in order to modify unlocked containers or container contents.
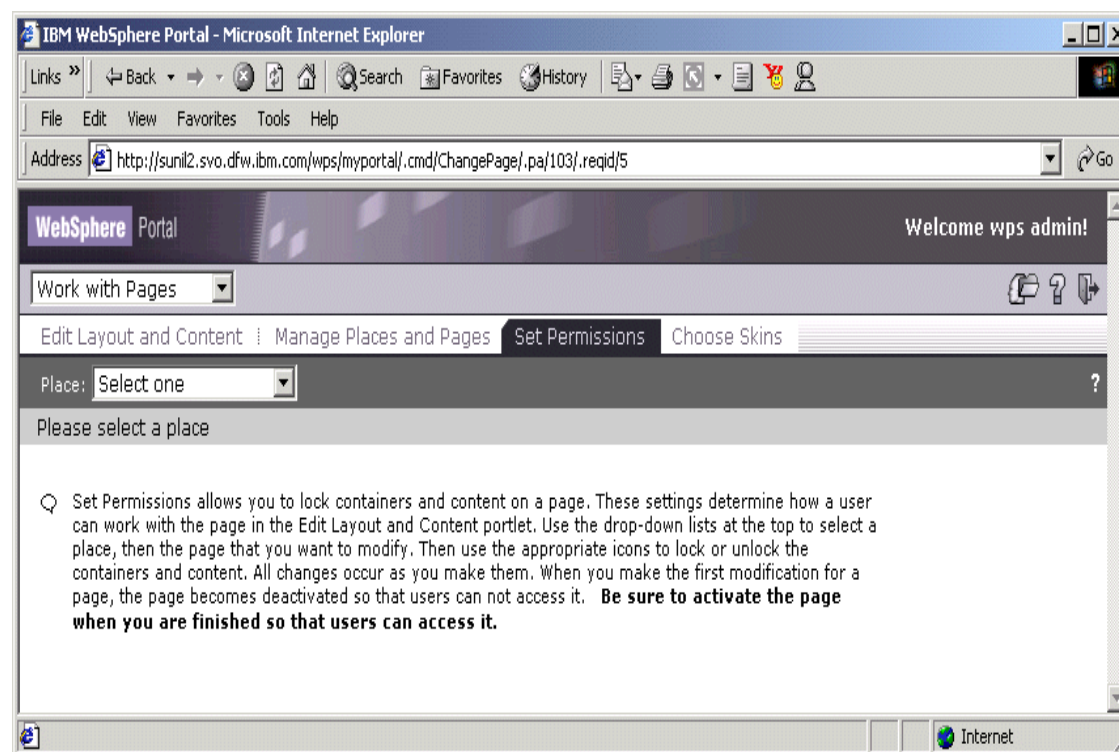
Figure 3-29   Set Permissions portlet

Select **Set Permissions** portlet. You will be asked to select the place and a page, for which you need to set permissions. (See Figure 3-29)

For our example, we will select Handbook Place and ITSOTESTER page. You should see a window similar to Figure 3-30.
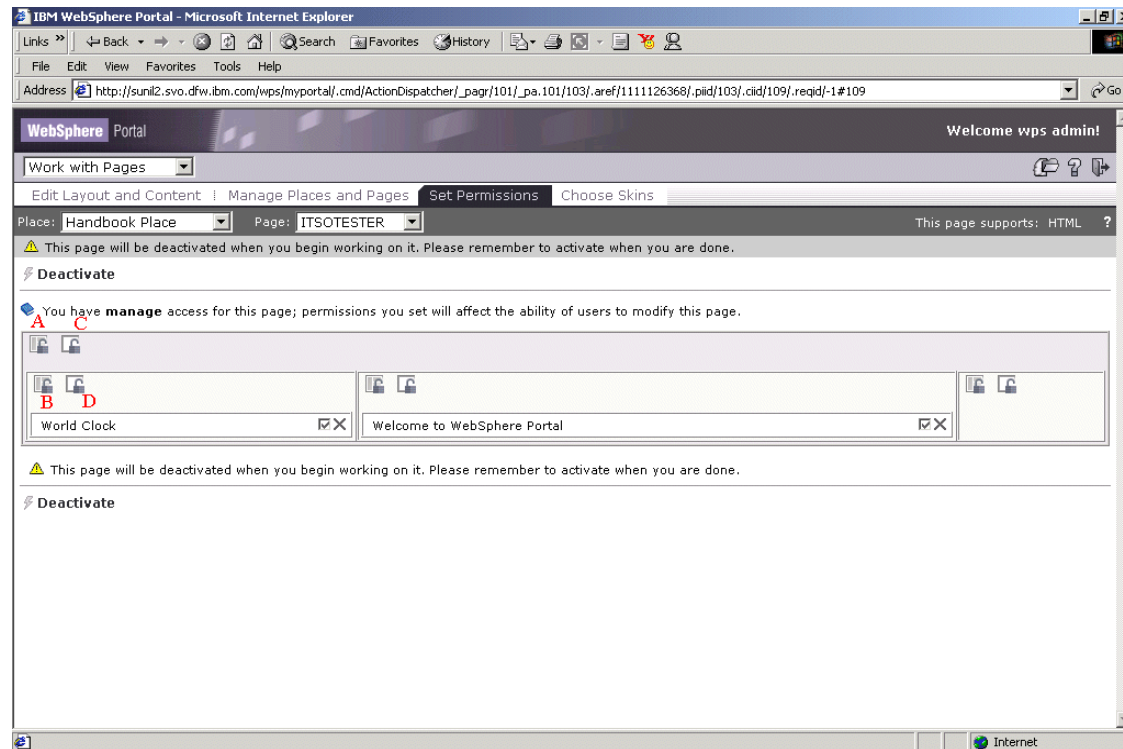
Figure 3-30   You can set permissions for your portlet

You will see a check mark next to the portlet on your page. This is the default settings.

► Portlets can be deleted when the delete icon for the portlet is available for users who are modifying the page using Edit Layout and Content portlet.This is when the portlet is check-marked.

► Uncheck this option and users using Edit Layout and Content portlet, cannot delete the portlet as this option will not be available on the portlet.

Click to lock the container content (A or B)

When you click on the option A or B a shown in Figure 3-30, container contents for a page are locked, a user with edit access to the derived page cannot perform any of the following tasks with the contents. The icons for performing these tasks do not appear when the user works with this page in the Edit layout and content portlet.

► Add portlets to the container.

► Remove portlets from the container.

► Move portlets inside of the container into other containers.

► Add sub-containers (columns or rows) to the container.

► Remove sub-containers (columns or rows) from the container.

► Modify portlet positions within the container.

► Modify sub-container positions within the container.

► Set the width for the container.

You need to click on the same option again to **unlock** the container contents. When the container content is unlocked, a user with edit access to the derived page can perform any of the following tasks with the contents. The icons for performing these tasks appear when a user works with this page in the Edit layout and content portlet.

Container Locked (C or D)

When a container is locked, it can not be removed from the page. The delete icon for this container is not available when the user works with this page in the Edit layout and content portlet.

Click the icon again to unlock the container. When it is unlocked, it can be removed from the page. You can see the delete icon when the user tries to edit the page using Edit Layout and Content portlet.

> **Important:** You need to click **Activate** for changes to take effect.

3.7 Choose Skins

Choose Skins will allow you to change the way an individual portlet appears on a specific page.

► Select **Work with Pages** page group and **Choose Skins** option from the tab.

► Select Place and Page, for which you need to choose skins. For our example, we will choose Handbook Place and ITSOTESTER page as shown in Figure 3-31.
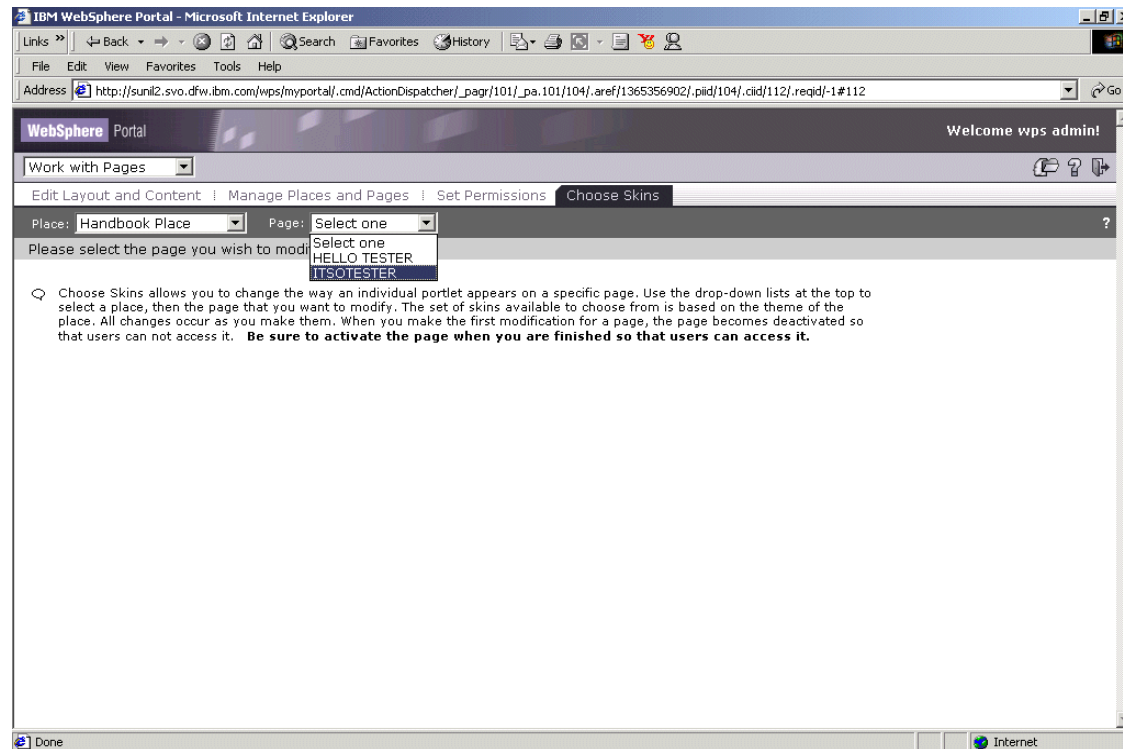
Figure 3-31   Choose Skins portlet

Changing the skin, will change the look and feel of the portlet.The page that the portlet is on belongs to a place. The place has a theme associated with it. The theme has a set of skins associated with it. This set of skins is the set from which you can choose a skin for the portlet.

► Take a look at Figure 3-25. We will change the skin using Choose Skin portlet and you can notice the difference.

► Next to the Portlet, you have a drop-down menu option. Select the skin you want your portlet to have on the page. Each portlet can have different skins on a page.

► Click the eye icon and you can preview the skin.

► Outline is the default skin applied to the portlet when WebSphere Portal is installed. For our example, we have changed, Welcome Portlet to have Shadow Skin and World Clock portlet to have Hint Skin.

► Select your page group and page from the drop-down menu option at the top of the page and you will see as shown in Figure 3-32.
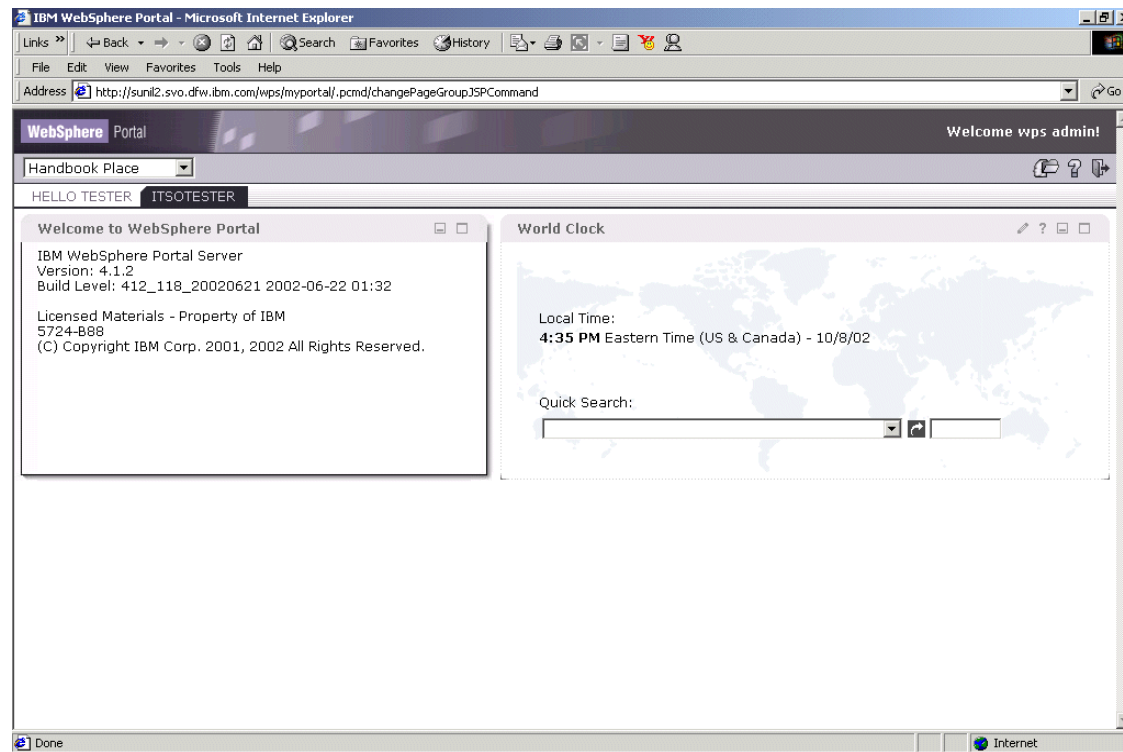
Figure 3-32   Changed skins for your portlet displayed on the page

▶ Click **Activate** for changes to take effect.

> **Note:** You can refer to Chapter 2, "WebSphere Portal administration" on page 25 for additional reference.

4

Web Services

This chapter describes how Web Services are used in WebSphere Portal V4.1 including scenarios using distributed portals.

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4.1 Web Services

Web Services are self-contained software components that are published, located, and invoked over the Internet or an intranet, using standard protocols and interfaces. Requesters and providers exist in todays architectures, but the standards based nature of Web Services adds powerful integration to the nature of distributed services.

For example, the Web Services architecture allows an application at one company to query a service at another company to determine the availability of a product. This is currently possible without using Web Services, though it requires each company modify it's applications so that the services can located and can interact with each other. Using standard enabling technologies, an application or service can be made available over the network without regard to platform, language, location, or implementation of the service.

WebSphere Portal uses the Web Services Architecture and technologies described in the following sections to provide the remote portlet capabilities.

4.1.1 Web Services concepts

This section gives a brief overview of the Web Services concepts used by WebSphere Portal.

Web Services architecture

To enable Web Services a service provider must make their service available, a service requester must locate the service and then the requester must invoke the service to complete the communication. This is accomplished via publish, find and bind in the services oriented architecture as seen in Figure 4-1.
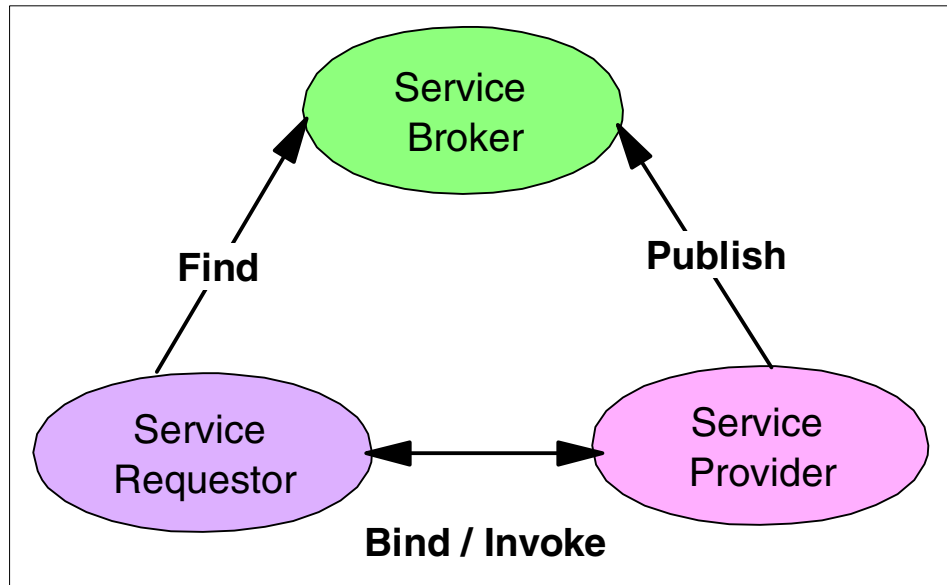
Figure 4-1   Web Services Publish, Find and Bind

Publish

Publishing and unpublishing involves promoting a service to a registry or removing those entries. When a service is listed in a UDDI registry, it can be discovered and subsequently invoked by the service requestor.

Find

The find operation is performed by service requestors and service brokers together. The service requestors describe the kinds of services they are looking for, and the service brokers deliver the results that best match the request.

Bind

The bind operation takes place between the service requestor and the service provider. After locating a particular service, the requestor can bind to the service using the SOAP protocol.

Service requestor

A service requestor uses an API to ask the service broker about the services it needs. When the service broker returns results, the service requestor can use those results to bind to a particular service. Those services can be invoked to create applications.

Service broker

The service broker helps service providers and service requestors find each other.

Service provider

The service provider deploys a service to a UDDI registry that makes those services available. The functions of a given Web service are described using the Web Services Description Language (WSDL).

Web Services technologies

Web Services rely on standard transport technologies (such as HTTP) and data encoding techniques (such as XML) to make it easier for applications and devices to share information across the Internet. This interaction uses an XML document to define the interface and describe the service, along with a network protocol (which could be HTTP, SMTP, or JMS). Because the service provider and the service requester do not know what platforms or languages each other are using, interoperability is achieved. The following figure shows the main components and operations of the Web service architecture.

UDDI (Universal Discovery, Description and Integration)

UDDI is a specification for information registries of Web Services. UDDI-based registry is where a Web service is discovered. UDDI's approach to discovery is to have a registry of services distributed across the Web. In that distributed registry, businesses and services are described in a common XML format. The structured data in those XML documents is easily searched, analyzed, and manipulated. Currently there exist a number of global registries that allow businesses to find each other across enterprise boundaries.

WSDL (Web Services Description Language)

WSDL is an XML-based language for describing the interface of Web Services. The service requestor can use WSDL to find a compliant service and the service provider uses WSDL to describe the service it is providing.

SOAP (Simple Object Access Protocol)

SOAP is a joint submission to World Wide Web Consortium (W3C) by IBM and Microsoft, and other industry leaders. It is an XML protocol for exchanging messages and defining how those messages are to be processed. These messages can be sent using standard transport protocols, such as HTTP or HTTPS.

4.2 Web Services in WebSphere Portal

As Web Services become the predominant method for making information and applications available programmatically on the Internet, portals need to allow for integration of Web Services as data sources and as remote application components. WebSphere Portal makes use of the Web Services technologies to provide remote portlet capability. In this section we will look at how WebSphere Portal integrates with the Web Services technologies to provide remote portlets.

There are two kinds of portlets:

► **Local portlets** - Portlets that run on the Portal server itself.

   Local portlets are installed using the standard methods of Archive files described in "Step 5 Deploy the WAR file" on page 13.

► **Remote portlets** - Portlets that run as Web Services on remote servers.

   Remote portlets are published as services to a UDDI registry. When the administrator adds a remote portlet to the portal, a portlet proxy is registered in the Portal's portlet registry. The portlet proxy is a generic placeholder that invokes a portlet located on a remote server via the Remote Portlet Invocation (RPI) protocol based on SOAP.

One possible application of portlets as Web Services, is in a federated portal scenario. Consider the ability to expose portlets from multiple portals into a composite portal. Within a large organization, it may be desirable to have separate portals for various divisions within the organization. In cases where the need exists for the same portlets across several portals, Web Services gives you the flexibility to install the common portlets on just one server and use Web Services to surface the portlet on another portal. From the end user perspective, the remote portlet is seamlessly integrated into the rest of the portal when in fact it is actually running remotely, on the original Portal server that published it. The effect is to have a federated portal, where portlets may be running at any location in the network of portals.

Individual portlets can also use Web Services internally to deliver their functionality as seen in Figure 4-2. For example, a search portlet might query the user for a search string, then use a search Web service to search the Internet; or, a calendar portlet might act as a front end, providing views for a calendar Web service. WebSphere Studio Application Developer provides development tools for quickly developing Web Services and for generating proxy classes from WSDL descriptions. In the case of remote portlets, the portlet is actually running on a remote server and is accessed via the Portlet Proxy making transparent to the local user. In the case of a local portlet calling a Web Service, the portlet is running locally and the Web Service is running remotely also access by a proxy. The difference being where the portlet itself runs.
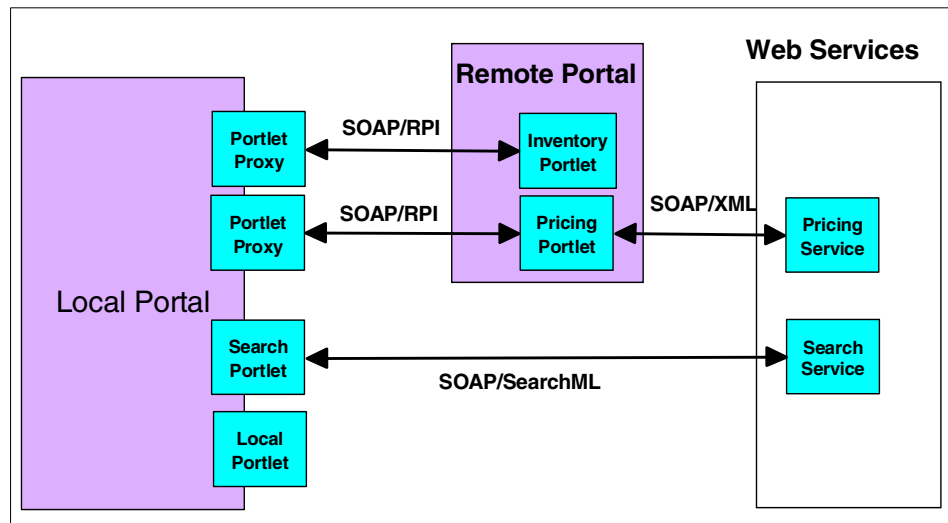
Figure 4-2   Portals and Web Services

Web Services are accessible as portlets to WebSphere Portal as long as they expose the Remote Portlet Web Service (RPWS) interface. Once a service requestor locates a Web service to use in a portal, the requestor binds with the Web service through the Simple Object Access Protocol (SOAP). Not all Web Services use SOAP. It is the definition of the service through WSDL that actually defines it to be a Web Service.

For remote portlets to be dynamically integrated into a portal, the portlets have to be provided as a Web Service. This requires a Remote Portlet Web Service (RPWS) interface description in WSDL. The WSDL description defines a common set of methods for all remote portlets along with the required parameters and return values for each method. This RPWS description is produced and placed into the UDDI registry when the WebSphere Portal administrator publishes the portlet (Figure 4-3).

Since the WSDL describes simply the methods, parameters and return values, the implementation does not have to be Java. As long as the service described conforms to the RWPS interface it can be used as a remote portlet.
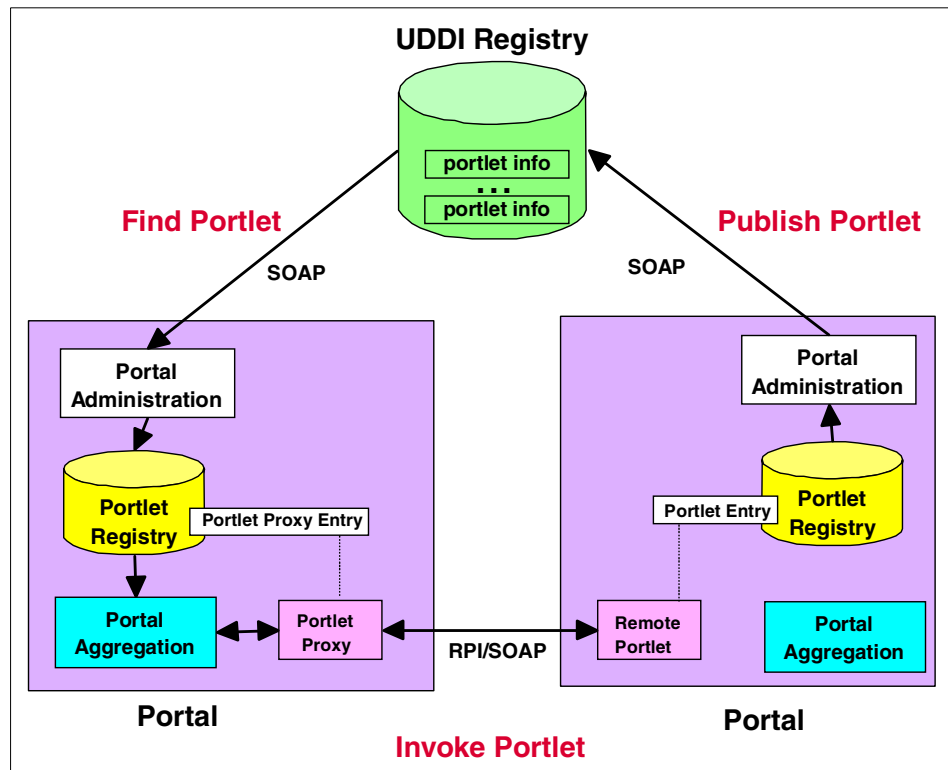
Figure 4-3   WebSphere Portal and remote portlets

Once the remote portlet is published to the UDDI registry, a portal administrator searches the registry for services that implement the RPWS interface and add them to their portal's registry. As discussed earlier, a portlet proxy actually gets registered on the portal registry. Once the portals are in the registry, user can add them to their portal Web pages.

When the page that references a remote portlet gets rendered by the portal aggregation, the portal uses the portlet proxy to invoke the remote portlet Web service via the Remote Portlet Invocation (RMI) protocol (Figure 4-4). The portlet invokes the portlet proxy the same way it would a local portlet passing portlet request and portlet response objects.
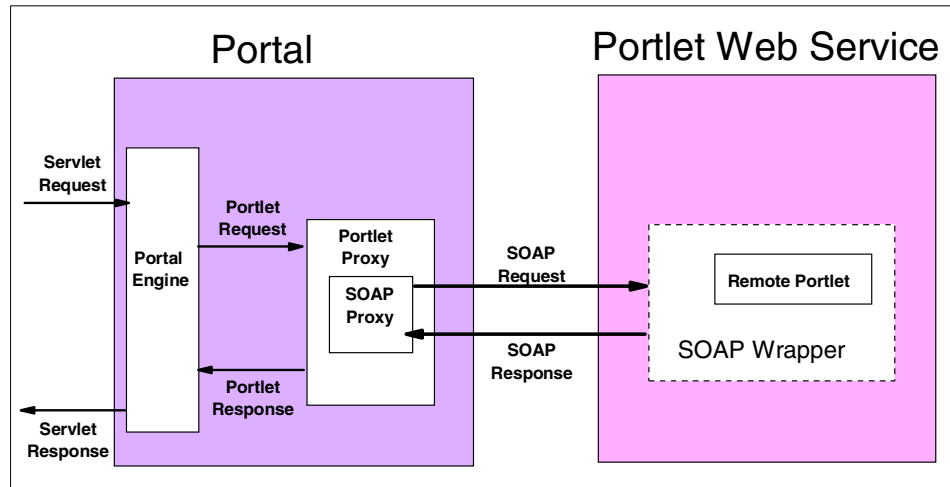
Figure 4-4   Remote Portlet Invocation (RPI)

The portlet proxy internally invokes the SOAP Proxy that marshals all the parameters and invokes the SOAP Wrapper. The SOAP Wrapper on the Web Service side unmarshals the parameters and invokes the Web Service. On return the response in returned in a SOAP response from the Web Service via the SOAP Wrapper. The SOAP Wrapper marshals the response and send a SOAP response to SOAP Proxy who in turn unmarshals the response for the portlet proxy. The portlet proxy finally returns a portlet response identically to the way a local portlet would return a portlet response. The response is then returned by the portal and the user transparently see the response form the remote portlet as if it were a local portlet.

The WebSphere portal administration function for Web Services as seen in 2.2.5, "Managing Web Services" on page 64, describes the functions performed by the portal administrator to publish and find Portlet Web Services. Through these functions the WSDL description of the RPWS interface is automatically generated and placed in the UDDI registry and the Portlet Proxy is generated and placed in the portal registry for you.

4.3 The WebSphere UDDI Registry and WebSphere Portal

There are four ways of working with Web Services in WebSphere Portal:

▶ **Publishing portlets**

Administrators publish portlets to the UDDI registry for use in other portals a remote portlets.

► **Finding and binding**

Administrators can locate remote portlets via the UDDI registry and add them to the portal to be invoked.

► **Using remote portlets**

Users invoke remote portlets transparently from their local portal.

► **Advanced finding and using remote portlets**

The UDDI registry can be browsed by an advanced user to locate a remote portlet and make use of it's services.

The key to WebSphere Portal remote portlets, is the use of the UDDI registry. WebSphere Portal provides the ability to define portlets as Web Services. Through the portal user interface, you can access a UDDI registry to:

► Publish a portlet as a Web service

► Search for a portlet on the registry to add to your portal.

In 2.2.5, "Managing Web Services" on page 64, we used the IBM test registry to publish and locate a portlet Web service. In this section we install and configure the IBM WebSphere UDDI registry for use with WebSphere Portal.

4.3.1 Installing the IBM UDDI Registry V1.1.1

Prerequisites

The IBM WebSphere UDDI Registry assumes that the following products are already installed on the user's system:

► DB2 Enterprise Edition 7.2 FP5 or FP6

> **Important:** Please note that if DB2 is not installed in the default location of C:\Program Files\SQLLIB, then you will have to perform some additional steps after completing the installation.   **See ????**

► A Web server, such as IBM HTTP Server 1.3.19, Internet Information Server 5.0, or any other Web server supported by WebSphere Application Server (see "http://www-4.ibm.com/software/Webservers/appserv/doc/v40/prereqs/ae_v403.htm")

► WebSphere Application Server Advanced Edition (AE) v4.0.3 or WebSphere Application.

– WebSphere Server Advanced Edition - Developer Only Option (AEd) V4.0.3. can also be used for the WebSphere UDDI registry. We do not explore the use of AEd in this chapter.

> **Important:** It is recommended that you install the UDDI registry on an independent server. At the writing of this book this is required because WebSphere Portal does not run on WebSphere Application Server 4.0.3 which is required for the UDDI registry.

► A browser:

– Internet Explorer V5.5 with SP2 and security fix Q321232 (which must be applied in that order),

– or Netscape Navigator 6.1 or later.

The IBM WebSphere UDDI Registry will run on the following platforms:

► Windows 2000 Advanced Server SP1 or SP2

► Windows 2000 Server SP1 or SP2

► Windows NT Server 4.0 SP 6a

► Red Hat Linux 7.1, 2.4 kernel

► SuSE Linux for Intel 7.1, 2.4 kernel

Download the IBM WebSphere UDDI Registry V1.1.1 zip or tar file from http://www7b.boulder.ibm.com/wsdd/downloads/UDDIregistry.html.

Expand the downloaded file into a temporary directory to begin installation.

Preinstallation

Several steps are necessary to ensure a successful install. These steps are as follows:

► Ensure that you have upgraded the JDBC drivers for DB2 to the 2.0 level. Installation of DB2 defaults the JDBC drivers to 1.0 level. You must upgrade these drivers to 2.0 level by running the usejdbc2.bat command file.

On Windows systems, usejdbc2.bat is located in <DB2-install-dir>\Java12, where <DB2-install-dir> is the install directory for DB2 (the default for <DB2-install-dir> is C:\Program Files\SQLLIB).

On Linux systems, usejdbc12 is located in $HOME/sqllib/Java12, where $HOME is the home directory of the DB2 instance.

Note that the 'DB2 JDBC Applet Server' must be stopped (for example, via the 'Services' menu under Windows) when you run usejdbc2.bat (usejdbc12 under Linux), otherwise you will get a 'file locked error'.

Failure to run usejdbc2.bat on Windows, or usejdbc12 on Linux, will cause the WebSphere Application Server to fail on startup with an error code of 10.

► If you do not have security turned on in your WebSphere Application Server, then you are recommended to install the IBM WebSphere UDDI Registry before enabling WebSphere security. If you have security turned on, then the UDDI Registry installation program prompts you for your WebSphere userid and password several times. You must provide your WebSphere userid and password within a few minutes of being prompted, otherwise some of the WebSphere set-up done by the installation will fail.

► Ensure that DB2 is started.

– On Windows operating systems, it will be started automatically, unless you have changed the installed defaults. You can check whether DB2 is started, and start it manually, from the Windows 'Services' application (accessed via the Control Panel for Windows NT and via the 'Administrative Tools' option in the Control Panel for Windows 2000). The service name is DB2-DB2.

– On Linux operating systems, you should switch to the DB2 instance you intend to use for the UDDI Registry, using su - db2inst1 where db2inst1 is the instance id, then ensure that sqllib/db2profile has been executed, either by having been called from the id's profile, or by executing '../sqllib/db2profile'. You can then run db2start to start DB2.

► Ensure that you have a DB2 userid (and password) with administrative privileges, needed to create and access the UDDI Registry database. This userid should obey the rules for DB2 user ids. You will be prompted for this userid and its password during the UDDI installation.

► As part of the installation process, the module visibility of your application server is changed to 'Application' which is required by the UDDI Registry application.

Installation

Please note that the WebSphere Application Server will be recycled during this install, so you should stop any other WebSphere work before running setup.exe, and close the WebSphere Administrative Console.

To start the installation of the IBM WebSphere UDDI Registry,

► Run the set up program extracted from the UDDI registry download.

► Click **OK** on the UDDI Registry Welcome window, as seen in Figure 4-5.

Figure 4-5   IBM WebSphere UDDI Registry install welcome window

The setup program checks:

► Whether you already have an instance of the IBM WebSphere UDDI Registry installed on your system. If you do, then it will give you the option to overwrite the existing installation, or to abort the install process. Unless you are re-installing the same service level of the product, you should abort the install process and remove the existing installation using Add/Remove Programs from the Control Panel, before running setup.exe again.

► That you have the prerequisite level of database product installed (see "Prerequisites" on page 171).

– If you have the required level of one of the prerequisite database products installed, the installation uses this product for the UDDI registry. If you have more than one of the prerequisite database products installed, then you will be asked which you would like to use for the UDDI Registry database.

– If you do not have a prerequisite level of database product installed, the installation will offer you the choice of continuing the installation (by answering 'Yes') or aborting the installation (by answering 'No'). You should only answer 'Yes' if you are planning to do a custom install of just the Information Center, the UDDI4J package, the Samples, or the EJB client files.

– Checks for the version of WebSphere Application Server installed on the system. If the appropriate level is not installed, then the installation offers

you the choice of continuing the installation (by answering 'Yes') or aborting the installation (by answering 'No').

> **Important:** You should only reply 'Yes' if you are planning to do a custom install of just the Information Center, the UDDI4J package, the Samples, or the EJB client files.

You are asked to accept the licence terms and conditions (Figure 4-6). These are the licence terms and conditions that you accepted when you obtained the product; for example, from the download site.
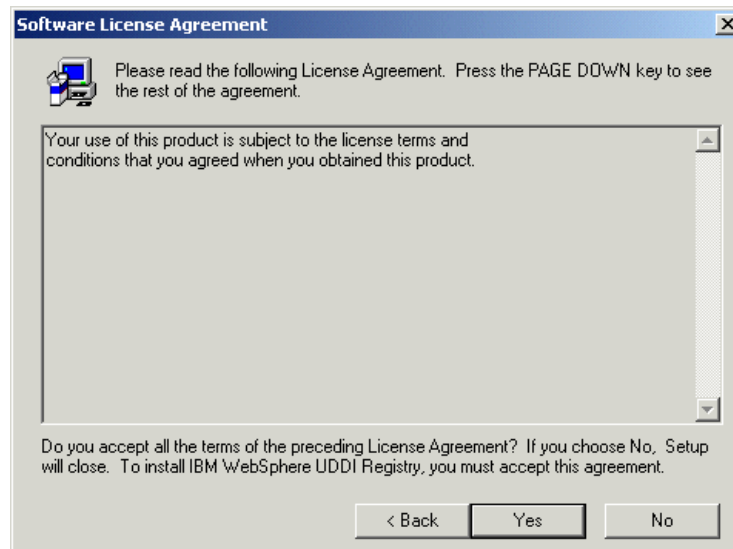
Figure 4-6   IBM WebSphere UDDI Registry License Agreement

► Click **OK**.
► Next, you are given the option to override the installation directory location (Figure 4-7).

   To override the default directory location,

   – Select **Browse** and then either browse to find a suitable directory location or type an alternative location,
   – Click **OK**.

     If the directory does not exist, you are asked if you want to create it.

     • Click **Next** to continue.

   In the rest of these instructions, the directory location is referred to as *<UDDI-install-dir>*.
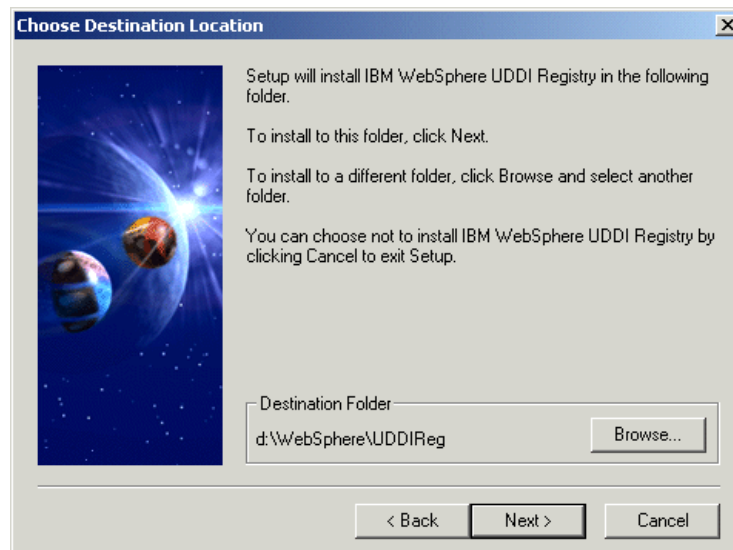
Figure 4-7   IBM WebSphere UDDI Registry installation directory

► Next, select either a Custom or a Typical install:

Typical install is the default.

This installs all the components of the IBM WebSphere UDDI Registry that you need to use it.

The Custom install allows you to select one or more of the following components:

- UDDI Registry Files
- UDDI4J
- InfoCenter
- Sample Files
- Setup UDDI Registry Database
- EJB

The main purpose of the Custom Install option is to allow you to install other components, such as the Information Center, or the Samples, or the UDDI4J package, on a separate machine from the UDDI registry files. The components that can be selected on a Custom Install are:

– **UDDI Registry Files** - Installs the IBM WebSphere UDDI Registry program.

If this is your first installation then you must select Setup UDDI Registry Database. The InfoCenter is automatically selected.

If you select UDDI Registry Files, which installs the IBM WebSphere UDDI registry program, then you should also select at least the 'Setup UDDI Registry Database' component as well.

– **UDDI4J -** Installs the UDDI4J package.

– **InfoCenter** - Installs the Information Center.

– **Sample Files** - Installs the installation verification programs and the other UDDI sample programs.

– **Setup UDDI Registry DB** - This choice will install the code that will load your UDDI database.

It is essential you select this option if this is a new installation.

You can choose not to setup the UDDI Registry database (by not selecting Setup UDDI Registry Database); for example, if you are installing on top of a previous version of the IBM UDDI Registry Database, and want to preserve existing data in the registry. However, be aware that the format of the registry data might have changed, so that your old registry database might no longer be compatible.

– **EJB** - Installs the EJB client classes and Javadocs for the EJB interface.

► Select **Typical** and click **Next** as seen in Figure 4-8.
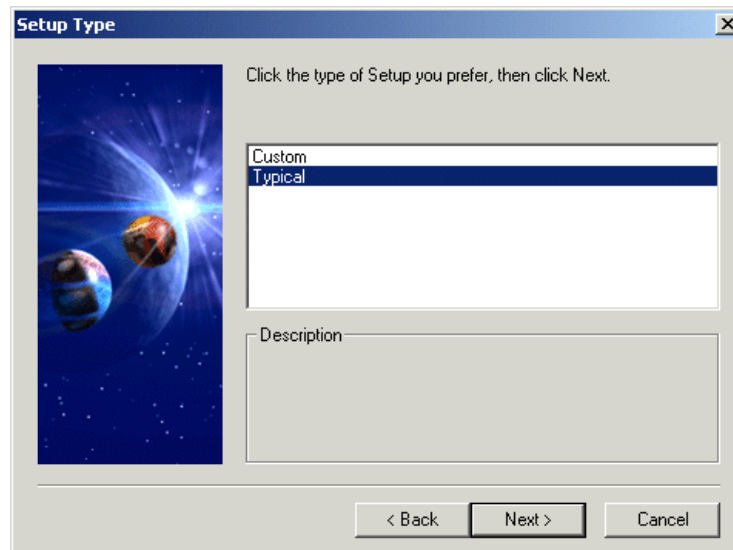
Figure 4-8   IBM WebSphere UDDI Registry installation type

► Next, you are prompted for the database user id and password as seen in Figure 4-9.

This userid is used to create and access the UDDI Registry database, and should be a userid with administrative privileges which obeys the rules for DB2 user ids.
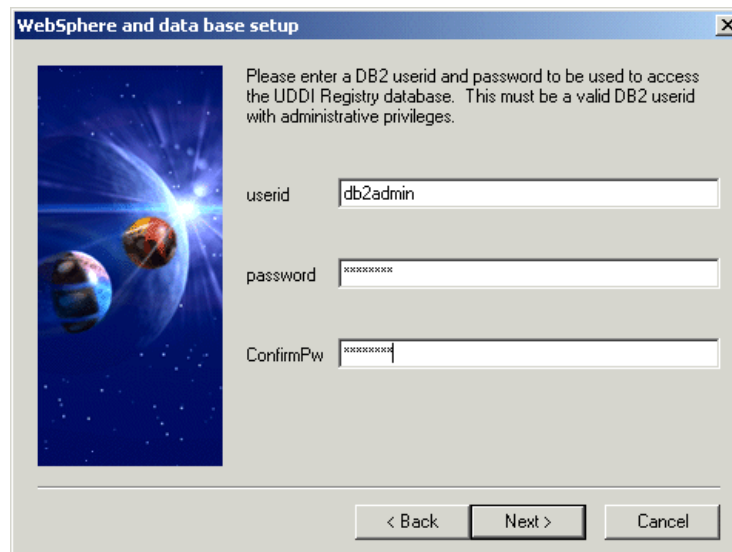
Figure 4-9   IBM WebSphere UDDI Registry database settings

► Next the UDDI registry install sets up and configures the database used by the registry.

Some of this setup needs the WebSphere Administrative Server to be running; if it is not, the installation process starts it for you.

The database setup completes the following steps:

• Create a JDBC provider in your WebSphere Application Server called 'UDDI JDBC Driver' and an associated data source (UDDI data source). If you already have a JDBC provider called 'UDDI JDBC Driver' then this, together with any associated data source, is replaced.
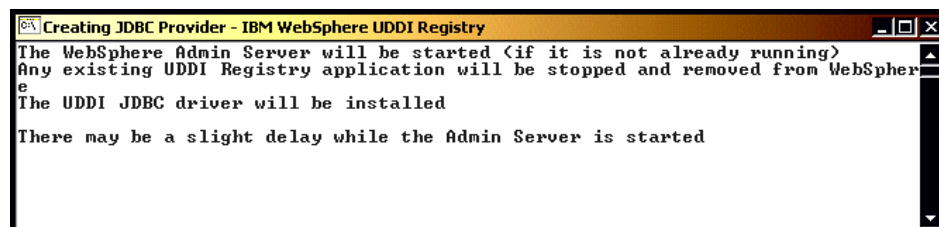
Figure 4-10   IBM WebSphere UDDI Registry JDBC drive installation
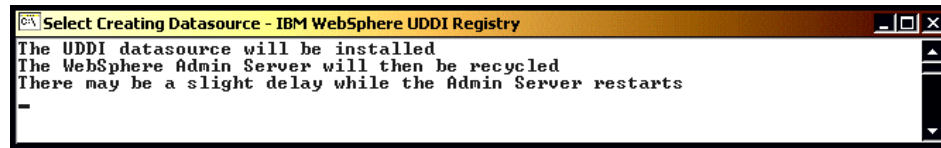
Figure 4-11   IBM WebSphere UDDI Registry datasource configuration

- Create a database called UDDI20 and populate it with the tables and standard categorization schemes that are required for the UDDI Registry. If you already have a database called UDDI20, then this will be replaced (unless you choose not to 'Setup UDDI Registry Files', as part of a Custom install).

Figure 4-12   IBM WebSphere UDDI Registry database creation

► The installation process then places the uddi.ear into the <UDDI-install-dir>, copy it into the installableApps subdirectory of the WebSphere application server installation, and deploys it into WebSphere.

> **Note:** the UDDI registry will be installed on the default application server.
>
> Also the module visibility will be set to *Application.* This is required to make the UDDI registry work as it is composed of Web Modules and EJB modules.
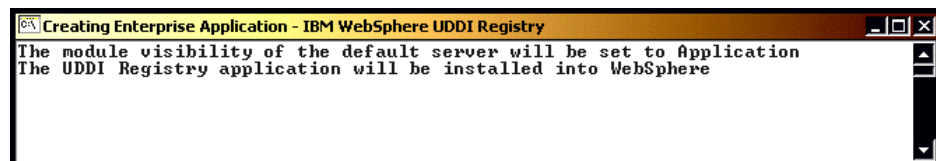
Figure 4-13   IBM WebSphere UDDI Registry module visibility

► When the installation has finished, you will see a window asking you if you want to look at the readme. If you wish to view the readme then check the box.

► Click **Finish** to complete the installation.
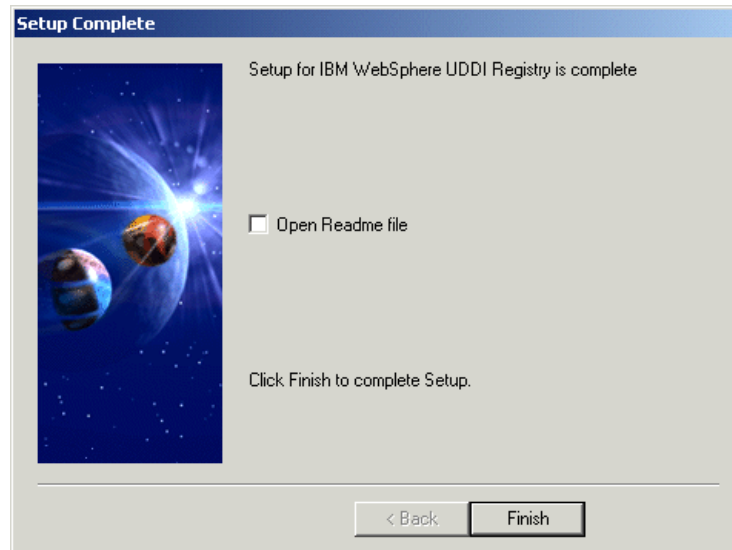
Figure 4-14   IBM WebSphere UDDI Registry install complete

After completing the installation you will be able to see the UDDI Registry application using the WebSphere Administrative Console as follows:

– Start the WebSphere Administrator's Console if it is not already running.

– In the navigation pane, expand the administrative domain so that you can see 'Enterprise Applications', and expand that to show the applications that are installed. An application called 'UDDI Registry' should be shown as seen in Figure 4-15.
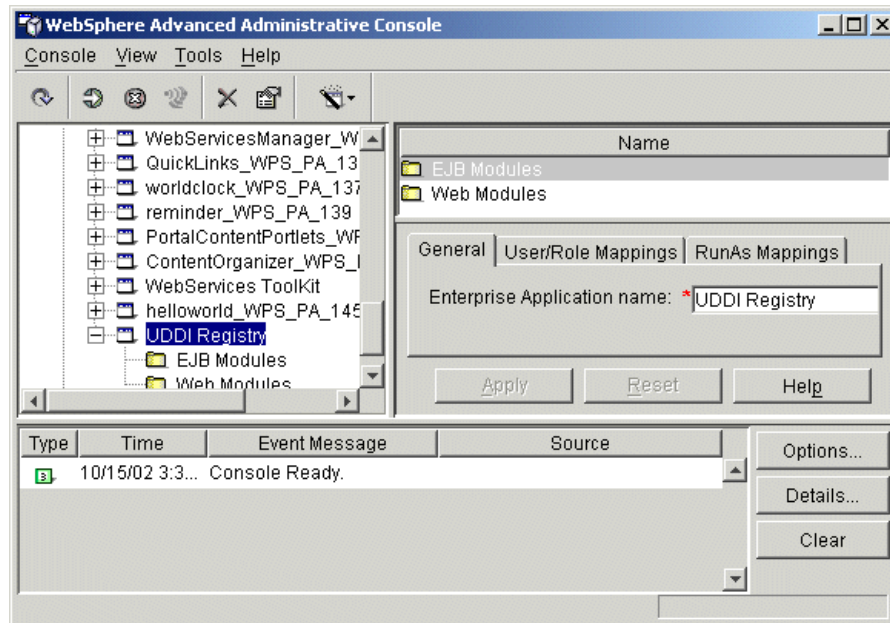
Figure 4-15   WebSphere UDDI Registry Enterprise Application

You have now successfully installed the WebSphere UDDI Registry. The next section details the steps necessary for verification.

4.3.2 Verification

In order to use the IBM WebSphere UDDI Registry, start the WebSphere default server (or stop and restart it if it is already running).

From the WebSphere Administrative console,

► Expand the tree view in the left pane to show Nodes -> node-name -> AppServers -> Defaults Server,

► Right-click **Default Server** and select **Start**.

► Click **OK** when the start completes.

Installation diagnostic output
The output from the various steps that are performed is logged into log files in the <UDDI-install-dir>/logs directory, where <UDDI-install-dir> is the target directory you used when installing the UDDI code.

Installation Verification Program (IVP)

This section describes how to run the installation verification programs (IVPs) to verify that the IBM UDDI Registry has been installed correctly. It assumes the samples are installed on the same system as the Registry code.

There are two IVP SOAP samples called SOAPSampleIVPa and SOAPSampleIVPb. They are intended to verify the successful installation of the product, and should be used in conjunction with the UDDI Users Console (GUI). SOAPSampleIVPa saves some data to the registry which you can then find using the GUI. Finally you can delete the data by running SOAPSampleIVPb.

The IVP samples are installed into the same target directory as the other SOAP samples and they use the same XML files as the basic Java SOAP samples.

SOAPSampleIVPa saves three businesses, six services (2 per business) and three tModels. The data structures are very basic and consist only of a name. The keys returned by the save_* UDDI API calls are then written to a file, SOAPSampleIVPa.out. SOAPSampleIVPb then reads in these keys from the file in order to delete the saved data from the UDDI registry.

> **Note:** Each time you run SOAPSampleIVPa, it overwrites the output file SOAPSampleIVPa.out so, if you wish to use SOAPSampleIVPb to delete the data, you must run this before you next run SOAPSampleIVPa.

To run the IVPs, complete the following steps on the same system as the UDDI Registry:

► Ensure that DB2 and the WebSphere Admin Server are started.

   For SOAP samples to work, you need to ensure that the Client JDK is either the one shipped with IBM WebSphere Application Server or a later IBM JDK.:

   – For Windows - ensure that C:\WebSphere\AppServer\Java\bin is present in the PATH statement before any other JDK's

   – For Linux - ensure that /opt/WebSphere/AppServer/Java/bin is present in the PATH statement before any other JDK's

> **Note:** You must use the IBM WebSphere supplied JDK or a later level of the IBM JDK.

For Windows, the default system path can be set via:

Start -> Settings -> Control Panel -> Settings-> System-> Advanced Properties-> Environment Variables

Alternatively, this can be accomplished just for the shell where you plan to run the samples by modifying the path within the shel

– For Windows - set path=c:\WebSphere\AppServer\Java\bin;%path%
– For Linux - export PATH=/opt/WebSphere/AppServer/Java/bin:$PATH

Copy the samples from <UDDI-install-dir>\samples\soap and *.xml to a directory, and compile and run them there as follows:

► Compile both SOAPSampleIVPa and SOAPSampleIVPb by typing 'Javac SOAPSampleIVPa.Java' and 'Javac SOAPSampleIVPb'.

► Run SOAPSampleIVPa by typing 'Java SOAPSampleIVPa'. This should publish a number of businesses and services and service types into the registry.

► Start your Web browser on the same system as the UDDI Registry.

► To display the UDDI GUI home page, type one of the following URLs:

– If you have WebSphere security disabled:
  `http://localhost:9080/uddigui`
– If you have WebSphere security enabled:
  `https://localhost:9433/uddigui`

► On the find page, complete the following steps:

– Select the business radio button

– In the data entry field, type % (percent is the wild card symbol)

– Click **Find**

  You should get a results page returned with three businesses (mybusiness1, mybusiness2, and mybusiness3). This demonstrates that the API and the UDDI Console are working correctly.

► To see the services that are available for a business,

– Click the Show Services option next to the business.

► To delete all of the IVP data, run SOAPSampleIVPb (from the command prompt as before - by typing 'Java SOAPSampleIVPb')

► On the find page, complete the following steps:

– Select the business radio button

– In the data entry field, type % (percent is the wild card symbol)

– Click **Find**

– You should get an empty results page returned

4.4 Configuring WebSphere Portal with the WebSphere UDDI Registry

In this section, we walk through configuring WebSphere Portal to work with the IBM WebSphere UDDI Registry.

4.4.1 Setting up SSL as not required

Review and perform the instructions listed in this section.

UDDI GUI

For the purposes of this example, we will not set up SSL. By default the WebSphere UDDI Registry installs such that publishing through the UDDI GUI requires SSL. To change this we must:

► Open for editing the file

  <WAS-Root>/installedApps/UDDI_Registry.ear/gui.war/Web-INF/Web.xml

► Search for the tag <transport-guarantee> and change its content to NONE, for example,

    <transport-guarantee>**NONE**</transport-guarantee>

► Make sure both <transport-guarantee> tags are set to NONE

► Save the file

► Restart the UDDI registry application

  – Locate UDDI Registry, right-click on it, stop and start it

► Invoke the registry GUI, click on publish

    You should see a prompt for authentication, use wpsadmin / wpsadmin

Inquiry and publish URIs

► Open for editing the file

  <WAS-Root>/installedApps/UDDI_Registry.ear/soap.war/Web-INF/Web.xml

► Search for the tag <transport-guarantee> and change its content to NONE, for example,

    <transport-guarantee>NONE</transport-guarantee>

► Make sure all <transport-guarantee> tags are set to NONE

► Save the file

► In WebSphere Application Server Admin console restart the "Default Server"

► For verification, invoke the publish and inquiry URLs

– http://<uddi_machine_name>:9080/uddisoap/inquiryapi

– http://<uddi_machine_name>:9080/uddisoap/publishapi

In both cases you should get a soap message, i.e. an xml file displayed, indicating the SOAP fault that the URL cannot respond to HTTP as seen in Figure 4-16.

Figure 4-16   SOAP Fault - Protocol error

4.4.2 Web Services administration

To work with Web Services in WebSphere Portal you must first log into the Portal as an administrator.

► Select **Portal Administration pages** and the **Manage Web Services** task as seen in Figure 4-17.
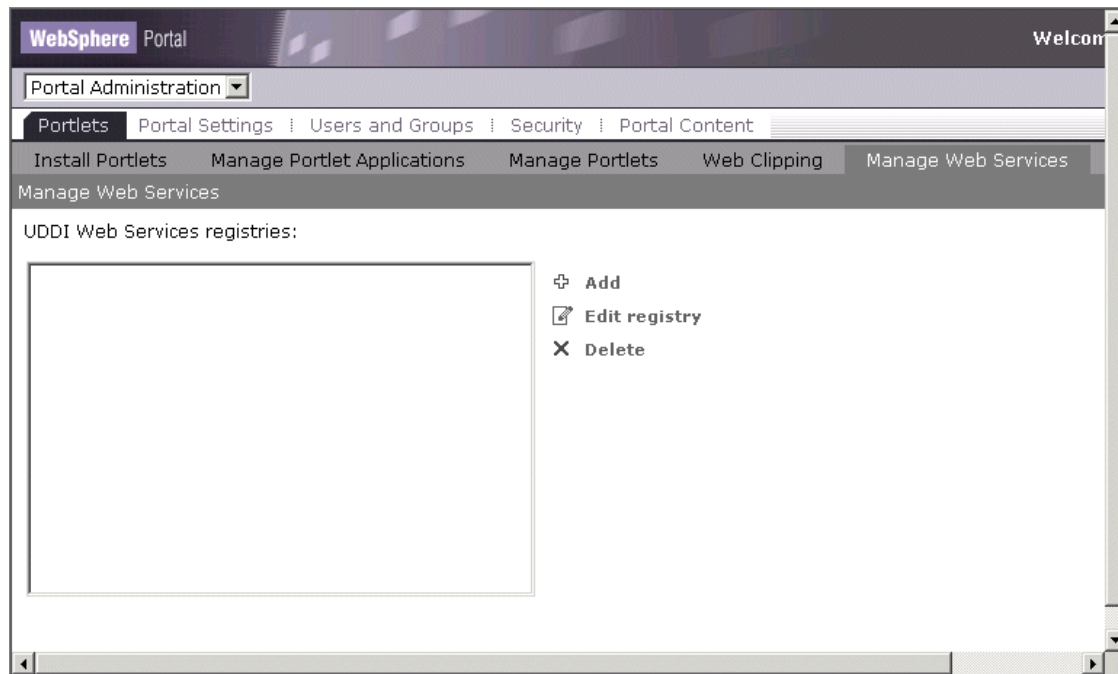
Figure 4-17   Administration Pages - Manage Web Services

- ► Add the UDDI Registry by
  - – Click **Add** next to the UDDI Web Services registries list
- ► Next specify the registry parameters as seen in Figure 4-18.

Figure 4-18   WebSphere UDDI Registry definition

▶ Specify the UDDI registry parameters as

–   Display Name for Registry

This is the display name you want for the UDDI registry you are configuring. This can be any name you choose.

We choose ITSO UDDI Registry

–   Registry Inquiry and Publish URIs

These are the URIs used to Query and Find information in the registry. Given a default installation (and we have disabled SSL) these are

•   Inquiry URI

http://<UDDI host>:9080/uddisoap/inquiryapi

•   Publish URI

http://<UDDI host>:9080/uddisoap/publishapi

–   tModel Key

The tModel key is a key in the registry that identifies the service type. There is no straight forward way to determine this value. We must define the service type and then obtain it's tModel Key to place in this field.

We have used the Model key of: UUID:3A29EC6935-3ECF-4D02-825C-037A05F12AFB

For information on defining a service type and determining the tModel Key see Determining the tModel Key.

► Click **OK** to add the registry definition.

When the addition of the registry is successful you will see it added to the list of registries on the Administration pages for managing Web Services as seen in Figure 4-19.
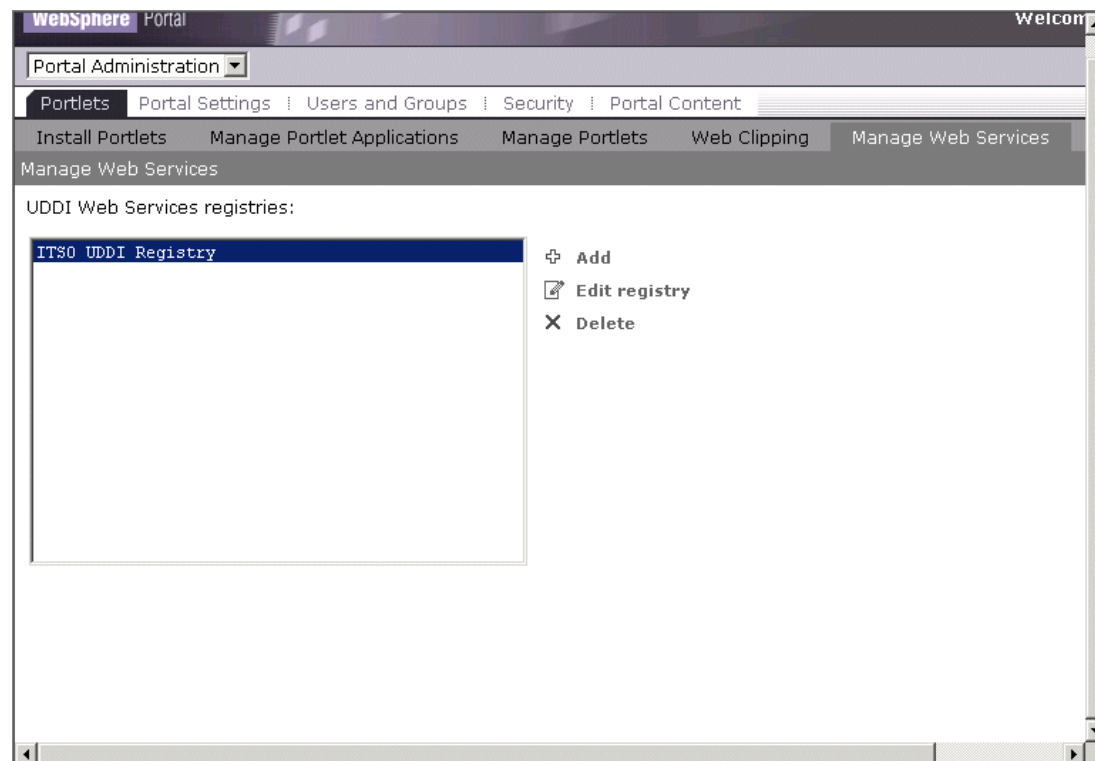
Figure 4-19   WebSphere UDDI registry added

This completes the configuration of WebSphere Portal for use with the IBM WebSphere UDDI Registry.

Determining the tModel Key

In order to determine the tModel Key that will be used we must:

► Define a Business Entity

► Add a service to the business entity

► Determine the tModelKey for the service type we have defined.

This section walks through the steps in determining the ModelKey to be used with the UDDI registry.

Invoke the UDDI GUI via the URL

http://<uddi server>:9080/uddigui

Note, the UDDI Registry GUI runs by default as a Web Application on the internal HTTP server, thus we must specify port 9080 in the URL.

First, define a business as seen in Figure 4-20.
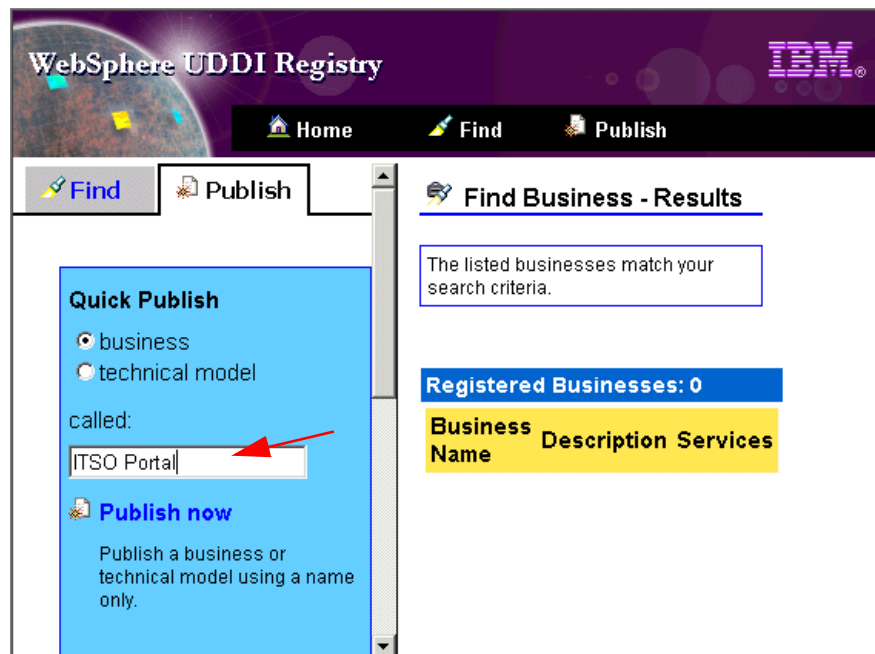
Figure 4-20   IBM WebSphere UDDI Registry - Publish Business

– Select UDDI GUI **Publish** tab.

– Select **business** under Quick Publish.

– Enter the name of the business.

We have chosen a business called ITSO Portal.

► Click **Publish** now to publish the business.

Next we must add a service to our business.
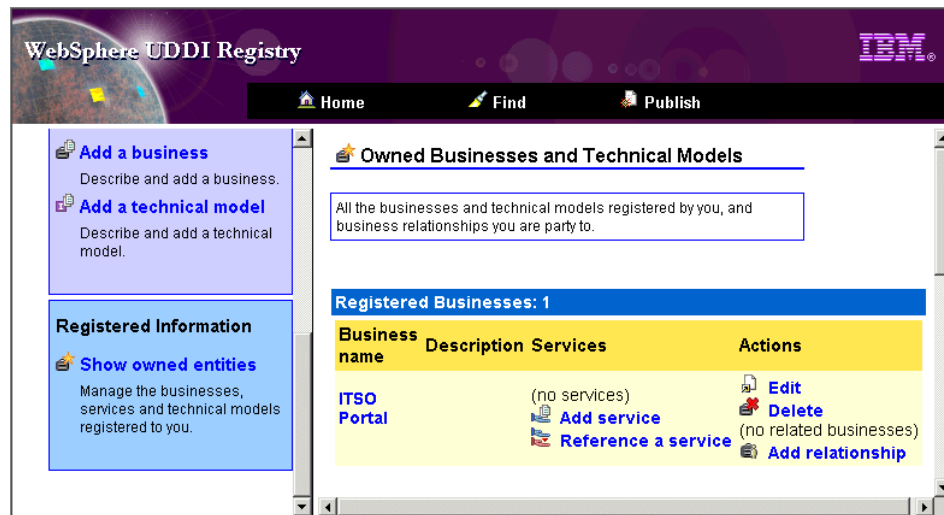
Figure 4-21   IBM WebSphere UDDI Registry - Show owned entities

► From the Publish tab in the UDDI GUI:

– Click **Show owned entities**.

– The business we previously defined will be displayed as seen in Figure 4-21.

– Click **Add Service** and the Add services form will be displayed as seen in Figure 4-22.

We must now specify the name of the service we would like to define and publish it.

Figure 4-22   IBM WebSphere UDDI Registry - Publish Service

► Enter the Name of the name of the service to publish

Our service name is ITSO Remote Portlets.

► Click **Publish Service**.

It is the tModel of our service that we must specify in the UDDI registry definition. Unfortunately there is no straight forward way to determine the tModelKey. To find the tModelKey for our service, do the following.

► From the Publish tab in the UDDI GUI

– Click **Show owned entities**.

– Scroll down to the Technical Models at the bottom of the page as seen in

Figure 4-23.
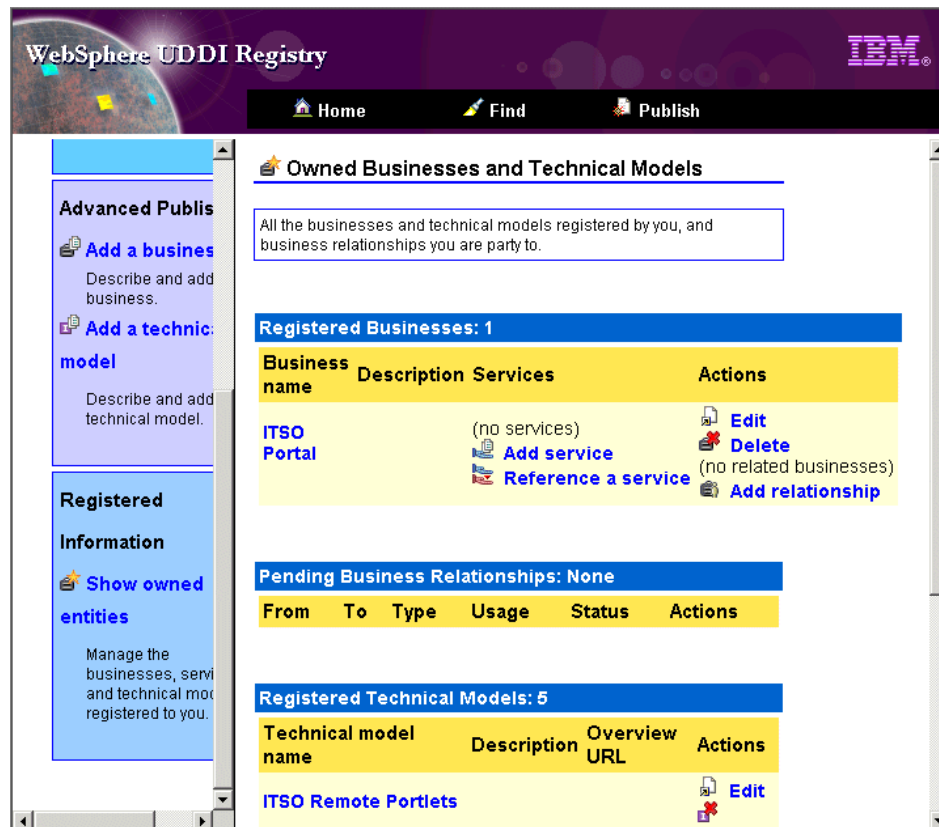
Figure 4-23   IBM WebSphere UDDI Registry - Registered tModels

– To find the tModelKey you must select the tModel and open it another window.

In our case, right click **ITSO Remote Portlets** and select **Open in New Window**.

– The URL in the new window contains the tModelKey as seen in Figure 4-24.
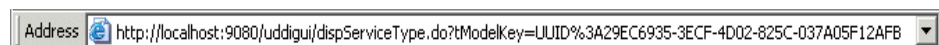
Figure 4-24   IBM WebSphere UDDI Registry - tModel key

The tModel Key is the portion of the URL that starts with UUID. In our example the tModel Key is UUID:3A29EC6935-3ECF-4D02-825C-037A05F12AFB.

Note the substring **%3A** is replaced by a colon, ':'.

Abbreviations and acronyms

IBM	International Business Machines Corporation		**JVM**	Java Virtual Machine
ITSO	International Technical Support Organization		**KDE**	K Desktop Environment
abbreviation3	Description3		**LDAP**	Lightweight Directory Access Protocol
abbreviation4	Description4		**LTPA**	Lightweight Third Party Authentication
B2B	Business-to-Business		**LUM**	License Use Management
B2C	Business-to-Customer		**PDA**	Personal Digital Assistant
B2E	Business-to-Employee		**RDN**	Relative Distinguish Name
CRM	Customer Relationship Management		**RPM**	Red Hat Package Manager
DMT	Directory Management Tool		**SASL**	Simple Authentication and Security Layer
DN	Distinguished Name		**SCM**	Supply Chain Management
DNS	Directory Naming Service		**SMIT**	System Management Interface Tool
DNS	Domain Name Services		**SSL**	Secure Socket Layer
EJB	Enterprise JavaBeans		**URI**	Uniform Resource Identifier
ERP	Enterprise Resource Planning		**URL**	Uniform Resource Locator
GNOME	GNU Network Object Model Environment		**WCM**	WebSphere Content Manager
GNU	UNIX-like operating system		**WCP**	Web Content Publisher
HTML	Hypertext Markup Language		**WML**	Wireless Markup Language
IBM	International Business Machines Corporation		**WMS**	WebSphere Member Services
IHS	IBM HTTP Server		**WPS**	WebSphere Portal
IIOP	Internet Inter-ORB Protocol		**XML**	Extensible Markup Language
ITSO	International Technical Support Organization		**XSLT**	Extensible Stylesheet Language Transformations
J2EE	Java 2 Platform, Enterprise Edition			
JDBC	Java Database Connectivity			
JDK	Java Development Kit			
JRE	Java Runtime Environment			
JSP	Java Server Pages			

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The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this redbook.

IBM Redbooks

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- ► Description2

  `http://????????.???.???/`

- ► Description3

  ```
  http://????????.???.???/
  http://machine.domain.com/wps/config
  http://www.ibm.com/software/Webservers/portal/portlet/catalog
  ftp://ftp.software.ibm.com/software/Webserver/portal/V41PortletDevel
  http://completedomainname/wps/portal
  http://uddi.ibm.com/testregistry/registry.html
  ```

```
https://uddi.ibm.com/ubr/registry.html
http://uddi.microsoft.com/default.aspx
http://hpmiddleware.com/products/hp_Web_services/registry/default.html
http://dwuddi.austin.ibm.com/uddisoap/inquiryapi
http://dwuddi.austin.ibm.com/uddisoap/publishapi
http://<your_server_name>/foldername
http://????????.???.???
http://java.sun.com/j2ee/dtds/Web-app_2.2.dtd">
http://localhost:9080/uddigui
https://localhost:9433/uddigui
http://www7b.boulder.ibm.com/wsdd/downloads/UDDIregistry.html
http://www-4.ibm.com/software/Webservers/appserv/doc/v40/prereqs/ae_v4
http://<uddi_machine_name>:9080/uddisoap/publishapi
http://<UDDI
http://<uddi_machine_name>:9080/uddisoap/inquiryapi
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