Oracle® Fusion Middleware

Developing for Oracle WebCenter Portal

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Oracle Fusion Middleware Developing for Oracle WebCenter Portal, 12*c* (12.2.1.4.0)

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Preface

This guide explains how to build Oracle WebCenter Portal assets, extensions to WebCenter Portal Server, and shared libraries using JDeveloper. It provides in-depth information for all of the following tasks:

- How to set up and prepare your development environment
- How to build and deploy WebCenter Portal assets
- How to build and deploy extensions to WebCenter Portal
- How to build and deploy shared libraries that can be used in WebCenter Portal

Topics:

- Audience
- Documentation Accessibility
- Related Documents
- Conventions

Audience

This guide is intended for developers who provides support for Oracle WebCenter Portal. The developer is primarily responsible for developing assets (such as page templates, resource catalogs, skins, portlets, and task flows), which are published and leveraged by knowledge workers and application specialists. To develop assets, the developer works with JDeveloper and leverages one of three asset-related templates: the WebCenter Portal Asset template, the WebCenter Portlet Producer Application template, or the WebCenter Portal Server Extension template. For a complete description of this role and other WebCenter Portal personas, see Who's Who.

This guide also assumes that the audience has reviewed *Developing Fusion Web Applications with Oracle Application Development Framework* and is familiar with the following technologies:

- Java
- Oracle JDeveloper
- JavaServer Faces
- Oracle Application Development Framework (Oracle ADF) (purpose, basic architecture, basic development skills)
- Oracle ADF Faces components
- Oracle WebLogic Server

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Related Documents

Documentation for Oracle WebCenter Portal is available in the Oracle Fusion Middleware library on the Oracle Help Center.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Who's Who

The WebCenter Portal documentation is organized so that the tasks in a particular guide address a specific user *persona*. Each persona is associated with a set of skills required to work with WebCenter Portal, from basic to advanced.

This preface introduces you to the WebCenter Portal personas and describes the ways in which they might interact with WebCenter Portal. Each persona is assigned a default role provided out-of-the-box with WebCenter Portal. The default roles are given a unique set of permissions appropriate for the work that each persona will typically do. Note that you can modify these default roles or configure new roles to meet the unique needs of your organization.

The people who interact with WebCenter Portal typically work together as a team that is comprised of the following personas:

- Knowledge Worker
- Application Specialist
- Web Developer
- Developer
- System Administrator

This guide is aimed at the *developer* persona.

Knowledge Worker

Karen is a *knowledge worker* who typically uses WebCenter Portal to contribute and review content, participate in social interactions, and leverage the Home portal to manage her own documents and profile.

At the application level, Karen has permissions such as those granted to the default `Authenticated-User` role, which may be customized for the specific needs of the organization. At the portal level, the portal manager will likely assign Karen a role that includes `View Pages` and `Customize Pages` permissions.

For more information about roles and permissions, see About Roles and Permissions for a Portal in *Building Portals with Oracle WebCenter Portal*.

Knowledge Worker Tasks in WebCenter Portal

Tasks that are typical of a knowledge worker like Karen include:

- Editing and updating pages for which she has been assigned content contribution permissions
- Connecting to and collaborating with other WebCenter Portal users by sharing information, files, and links; and by interacting through instant messaging, mail, message boards, wikis, and blogs
- Uploading, sharing, and managing documents stored in Content Server
- Joining a team or project portal
- Keeping up with changes in WebCenter Portal by receiving notifications when content is updated, viewing the activities of the portals she is a member of and users she's connected to, and monitoring WebCenter Portal RSS feeds
- Staying organized through the use of favorites, notes, calendars, lists, links to portal objects, and tags

As Karen becomes more familiar with the functionality available in WebCenter Portal, she may begin to perform more advanced tasks, such as creating portals. As a more advanced knowledge worker, her role may evolve to overlap with application specialist tasks.

Information targeted to knowledge workers like Karen is in *Using Portals in Oracle WebCenter Portal*. Advanced tasks that overlap with those of an application specialist are covered in *Building Portals with Oracle WebCenter Portal*.

Application Specialist

Ari is an *application specialist* who works in WebCenter Portal to create and administer portals, their structure (hierarchy of pages, navigation, security), and their content (components on a page, layout, behavior, and so on). In a typical project, Ari coordinates the efforts of Karen (knowledge worker), Wendy (web developer), and Dave (developer).

At the application level, Ari has permissions such as those granted to the default `Application Specialist` role, which may be customized for the specific needs of the organization. In a portal that Ari creates, he performs actions available to the `Portal Manager` role to manage the portal.

For more information about roles and permissions, see About Roles and Permissions for a Portal in *Building Portals with Oracle WebCenter Portal*.

Application Specialist Tasks in WebCenter Portal

Tasks that are typical of an application specialist like Ari include:

- Planning and creating new portals
- Editing and administering the portals he owns
- Creating and building portal pages using the page editor and the resource catalog to add and configure page components
- Creating and managing portal assets, tools, and services
- Managing shared assets and portal templates across all portals

Information targeted for application specialists like Ari is in *Building Portals with Oracle WebCenter Portal*. To work with his personal view of the Home portal, Ari will also refer to *Using Portals in Oracle WebCenter Portal*.

Web Developer

Wendy is a *web developer* who focuses on delivering a consistent, branded look and feel to all portals. Wendy provides graphics designs and HTML markup from which Ari (application specialist in WebCenter Portal) or Dave (developer in JDeveloper) can create content or page style templates, skins, and so on. Once these assets are created, Ari can leverage them to create portal pages. Wendy typically does not interact with WebCenter Portal directly.

Web Developer Tasks in WebCenter Portal

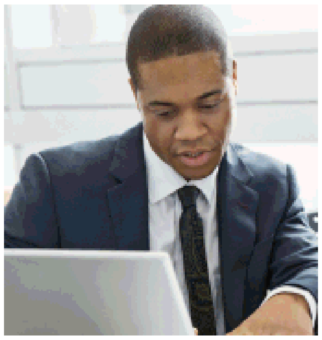
Tasks that are typical of a web developer like Wendy include:

- Developing a corporate portal look and feel

- Designing new page templates

Information targeted to web developers like Wendy is in Creating a Look and Feel for Portals in *Building Portals with Oracle WebCenter Portal*.

Developer



Dave is a *developer* who is primarily responsible for developing components (such as task flows, page templates, and content templates), which are published and leveraged by Ari (the application specialist). Dave works with JDeveloper to develop and extend assets for use in WebCenter Portal.

Developer Tasks

Tasks that are typical of a developer like Dave include:

- Developing custom assets such page templates and resource catalogs for portals in WebCenter Portal
- Developing Java portlets
- Developing and deploying task flows, managed beans, and other custom components
- Developing custom personalization components
- Maintaining the source control system
- Maintaining a build system

Information targeted to developers like Dave is in *Developing for Oracle WebCenter Portal*.

System Administrator

Syed is a *system administrator* who fields requests from IT employees and business users to set up new machines; clone or back up existing applications systems and databases; install patches, packages, and applications; and perform other administration-related tasks. As the system administrator, Syed works with other tools such as Fusion Middleware Control and command line tools. He leverages Enterprise Manager to configure portal settings, and also configures integrations such as WebCenter Content and other Fusion Middleware products and Oracle applications.

In WebCenter Portal, he has permissions such as those granted to the default `Administrator` role, which provides exclusive access to administer and set global options for all portals (including the Home portal).

For more information about application level roles and permissions, see About Application Roles and Permissions in *Administering Oracle WebCenter Portal*.

System Administrator Tasks

Tasks that are typical of a system administrator like Syed include:

- Uses WebCenter Portal administration to administer all portals (including import and export of portals) and security site-wide
- Uses WebCenter Portal administration to manage site-wide system pages, business role pages, and personal pages
- Leads security, taxonomy, metadata, workflow, governance
- Uses the management console for administrative functions
- Executes command line utilities for administrative functions
- Installs and configures production versions of developers' efforts
- Performs patching of the production versions and the operating system
- Creates clones and backups of the production versions
- Performs restores of production versions
- Monitors the operating system for issues with the production version
- Deploys and redeploys applications

Information targeted to system administrators like Syed is in *Administering Oracle WebCenter Portal* and *WebCenter WLST Command Reference Reference*.

Part I
Getting Started

This part of *Developing for Oracle WebCenter Portal* contains the following chapters:

1

Introduction to Developing for Oracle WebCenter Portal

As a WebCenter Portal developer, you'll develop custom components (such as page templates and page styles), portal extensions (such as task flows, data controls, and backing beans), WebCenter Portlet Producer applications.

Topics:

- What Is the Purpose of This Guide?
- What Is My Role as a WebCenter Portal Developer?

What Is the Purpose of This Guide?

This guide discusses developing WebCenter Portal assets, shared libraries and extensions to WebCenter Portal using Oracle JDeveloper.

Many of the tasks described in this guide involve activities that require Java, CSS, Application Development Framework (ADF), Expression Language (EL), and related experience.

Major activities described in this guide include:

Setting Up Your Environment

See the chapters on setting up your environment and your team environment in Setting Up a Development Environment.

Working with Assets

The chapters in Working with WebCenter Portal Assets explain how to develop WebCenter Portal assets such as layouts, page styles, page templates, skins, Content Presenter templates, and visualization templates. Several other parts of this guide also contain chapters devoted to working with other types of assets such as portlets, task flows, and shared libraries.

Working with Portlets

Portlets provide a means of presenting data from multiple sources in a meaningful and related way. Portlets can display excerpts of other web sites, generate summaries of key information, perform searches, and access assembled collections of information from a variety of data sources. Because several different portlets can be placed on a single page, users benefit from a single-source experience even though, in reality, the content may be derived from multiple sources. See the chapters of Working with Portlets for detailed information.

Working with Additional WebCenter Portal Customizations

You can provide additional functionality within WebCenter Portal by extending ADF assets, such as task flows, data controls, and managed beans, as a shared library, or provide page layout more suitable to mobile devices such as smartphones and tablets.

For more information on these and other ways in which to customize WebCenter Portal, see the chapters in Additional WebCenter Portal Customizations.

What Is My Role as a WebCenter Portal Developer?

In some cases, WebCenter Portal may require custom components that do not exist out-of-the-box or cannot easily be created with WebCenter Portal’s runtime. For example, design requirements might call for page templates, page styles, and skins that are branded and organized in a precise way. In this case, you may need to use ADF Faces and CSS to achieve the desired look and feel, and JDeveloper is well-suited to such development. Other use cases may include developing custom components that allow for interaction between portal elements and data (for example, using ADF task flows or portlets with event handling). For example, as a WebCenter Portal developer, you may be asked to create and configure:

- Portal infrastructure components like page templates and page styles
- Custom portal extensions like task flows, data controls, and backing beans
- WebCenter Portlet Producer applications

2

Setting Up a Development Environment

Get started by setting up a development environment to develop assets and extensions for WebCenter Portal using JDeveloper.

Topics:

- Introduction to Setting up a Development Environment
- Basic Setup Tasks
- Setup Tasks Specific to WebCenter Portlet Producer Applications

Introduction to Setting up a Development Environment

This chapter distinguishes between tasks that are general and tasks that are application-specific. General tasks apply no matter what kind of application you are developing. For instance, installing JDeveloper and the WebCenter Portal extensions are general setup tasks. Other tasks described in this chapter apply only if you are developing specific kinds of applications, like WebCenter Portal server extensions or WebCenter Portlet Producer applications.

Basic Setup Tasks

This section describes setup tasks that do not depend on the kind of application you are developing.

- Installing Oracle JDeveloper
- Installing the WebCenter Portal Extensions for JDeveloper
- Setting the User Home Directory Environment Variable
- Managing the Integrated WebLogic Server
- Creating Application Resource Connections

Installing Oracle JDeveloper

Oracle JDeveloper provides an integrated development environment (IDE) for developing portals and custom portal components. For information on obtaining and installing Oracle JDeveloper, see the Oracle JDeveloper page on OTN at:

`http://www.oracle.com/technetwork/developer-tools/jdev/overview/index.html`

Installing the WebCenter Portal Extensions for JDeveloper

The WebCenter Portal extensions is an add-in that provides JDeveloper with the complete set of WebCenter Portal capabilities and features. To install the WebCenter Portal extensions:

1. Start Oracle JDeveloper.
2. If the Select Default Roles dialog displays, select **Default Role** to enable all technologies, and click **OK**.
3. If a dialog opens asking if you want to migrate settings from an earlier version, click **No**.
4. From the **Help** menu, select **Check for Updates**.

> **Note:**
>
> If you are behind a firewall, you may need to configure a proxy server to access the extensions. From the Updates wizard, a dialog appears in which you can enter your HTTP Proxy Server settings. Click the **Help** button in any dialog for more information. For detailed information, see the "Proxy Settings and JDeveloper" topic in the Oracle JDeveloper online help.

5. On the Source page, select **Search Update Centers**.
6. Check **Oracle Fusion Middleware Products** and **Official Oracle Extensions and Updates** and click **Next**.
7. From the generated list, search for the **WebCenter Core Design Time** and **WebCenter Portal Design Time** extensions, select them, and then click **Finish**.
8. When prompted, restart JDeveloper.

Setting the User Home Directory Environment Variable

Oracle strongly recommends that you set an environment variable for the user home directory that is referenced by JDeveloper. By setting this variable, you can avoid receiving long pathname errors that are known to occur in some circumstances.

For detailed instructions on setting this variable on Windows, Linux, UNIX, and Mac OS X operating systems, see Setting the User Home Directory in *Installing Oracle JDeveloper*.

Managing the Integrated WebLogic Server

The following topics describe the Integrated WebLogic Server used by JDeveloper, and how to deploy and configure it:

- What is the Integrated WebLogic Server?
- Starting and Stopping Integrated WebLogic Server
- Configuring the JVM for the Integrated WebLogic Server

What is the Integrated WebLogic Server?

The Integrated WebLogic Server is a runtime service that references an instance of Oracle WebLogic Server and is bundled with JDeveloper. The Integrated WebLogic Server allows developers to run, test, and debug WebCenter Portal portlet producer and consumer applications from within JDeveloper. Note that you will need to publish and test assets within WebCenter Portal to determine their suitability within a particular portal and/or page.

Starting and Stopping Integrated WebLogic Server

For detailed information managing the Integrated WebLogic Server, see the topic "Deploying to Integrated WebLogic Server" in the JDeveloper Online Help. Other options, such as running in debug mode and logging into the WebLogic Server Administration Console, are also covered in that section.

Configuring the JVM for the Integrated WebLogic Server

Although it is not required, you have the option of changing the default Java Virtual Machine (JVM) settings the Integrated WLS in the `setDomainEnv.sh`. This file is located in `JDEV_SYSTEM_DIRECTORY/DefaultDomain/bin`.

The default memory values are:

```
-Xms512m -Xmx512m
```

When creating or referring to the `JDEV_SYSTEM_DIRECTORY`, keep in mind that, on a Windows platform, a WebCenter domain name cannot contain spaces, and the domain cannot be created in a folder that has a space in its path. Therefore, ensure that `DOMAIN_HOME` and `JDEV_SYSTEM_DIRECTORY` paths do not contain spaces.

Creating Application Resource Connections

Connections allow applications to access external data and services. For example, to use the Content Presenter task flow to display content from an Oracle WebCenter Content Server repository, you need to configure a connection to the repository. If you intend to consume portlets from a portlet producer, you need to configure the producer connection.

> **Tip:**
>
> A good practice is to create and test your connections once and check them into your source control system. Then, other developers on your team can check out the connections and use them. This technique also allows your team to keep in sync whenever a connection changes.

This section discusses connections and describes the different ways to access the wizards for creating new connections.

Where Are Connections Located?

Depending on how you invoke a wizard to create a connection, connections are placed in one of the following locations:

- Under Application Resources in the Application Navigator

  Connections created here can be used in the current application only. This is the most common way to create a repository connection.

For certain features, you can drag and drop a connection from Application Resources onto a page to create different types of task flow regions. To learn more, refer to the individual chapters on tools and services for WebCenter Portal.

- Under IDE Connections in the Resource Palette

  Connections created here can be reused across applications. To use these connections in an application, you just have to drag and drop the connection from the Resource Palette onto the Connections node in that application.

How Do I Access the Connection Wizards?

To access a connection wizard from the New Gallery:

1. From the **File** menu, choose **New**.
2. In the New Gallery dialog, expand **Connections**, select the type of connection you want to create, and click **OK**.

   Depending on your selection, the **Create <*Connection_Type*> Connection** dialog opens.
3. The **Create Connection in** option is set to **Application Resources** by default.

   You can select **IDE Connections** to create a connection in the Resource Palette.

To access a connection wizard from the Application Navigator:

1. Right-click the **Connections** node under Application Resources and select **New Connection**, then select the connection type from the context menu.
2. Depending on your selection, the **Create <*Connection_Type*> Connection** dialog or wizard opens.

   The **Create Connection in** option is set to **Application Resources** by default.

To access a connection wizard from the Resource Palette:

1. Click the **New** icon in the Resource Palette, select **New Connection**, then select the connection type from the context menu.
2. Depending on your selection, the **Create <*Connection_Type*> Connection** dialog or wizard opens.

   The **Create Connection in** option is set to **IDE Connections** by default.

Setup Tasks Specific to WebCenter Portlet Producer Applications

WebCenter Portal provides a variety of ready-to-use portlets that you can add to your portal pages. This section provides a brief description of the preconfigured producers and the portlets they provide. It contains the following subsections:

- Deploying the Preconfigured Portlet Producers
- WSRP Sample Portlet Producers and Portlets
- PDK-Java Sample Portlet Producer and Portlets

For more information about WebCenter Portlet Producer applications, see Introduction to Portlets.

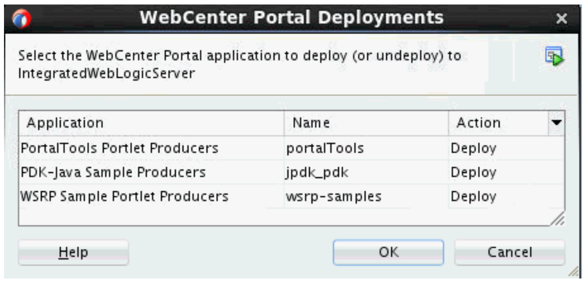
Deploying the Preconfigured Portlet Producers

The preconfigured portlet producers are not deployed by default, you must deploy them manually, as explained in this section.

> **Note:**
>
> These producer applications consume memory and require CPU time during deployment. This contributes to the WebLogic Server startup time and base memory footprint. For these reasons, it makes sense to only deploy the applications you need. For more information about tuning the deployment of internal applications, see On-demand Deployment of Internal Applications in *Deploying Applications to Oracle WebLogic Server*.

1. If it is not running, start the Integrated WebLogic Server. The server must be running for this feature to be enabled.
2. From the Run menu, select **WebCenter Portal Deployments**.
3. In the WebCenter Portal Deployments dialog (Figure 2-1), select the producer to deploy (or undeploy) and click **OK**. Each of the preconfigured producers is described in more detail in the following sections.

Figure 2-1 WebCenter Portal Deployments Dialog



Select the WebCenter Portal application to deploy (or undeploy) to IntegratedWebLogicServer

Application	Name	Action
PortalTools Portlet Producers	portalTools	Deploy
PDK-Java Sample Producers	jpdk_pdk	Deploy
WSRP Sample Portlet Producers	wsrp-samples	Deploy

WSRP Sample Portlet Producers and Portlets

The Integrated WLS includes sample WSRP portlet producers and portlets you can use with your application.

> **Note:**
>
> You can find the source code for the sample portlets is in the following EAR file:
>
> `JDEV_HOME/oracle_common/modules/oracle.wccore/wsrp-samples.ear`
>
> where *`JDEV_HOME`* is the location where JDeveloper is installed on your machine.

To access the WSRP sample portlet producers:

1. Start the Integrated WebLogic Server and open the WebCenter Portal Deployments dialog as described in Deploying the Preconfigured Portlet Producers.
2. Select **WSRP Sample Portlet Producers** and click **OK** to deploy them to the Integrated WebLogic Server.

   The Deployment - Log tab in JDeveloper displays a link that opens the WSRP Sample Producer Test Page.
3. Copy the Web Services Description Language (WSDL) URL for a WSRP producer —either WSRP v1 WSDL or WSRP v2 WSDL— and use it to register the producer. For more information about registering portlet producers, see Managing Portlet Producers in *Administering Oracle WebCenter Portal*.

PDK-Java Sample Portlet Producer and Portlets

The Integrated WLS includes sample PDK-Java portlet producers and portlets you can use to familiarize yourself with the types of functionality that are available through PDK-Java portlets.

To access PDK-Java sample portlet producers:

1. Start the Integrated WebLogic Server and open the WebCenter Portal Deployments dialog as described in Deploying the Preconfigured Portlet Producers.
2. Select **PDK-Java Sample Portlet Producers** and click **OK** to deploy the PDK-Java Sample Producers Test Page to the Integrated WebLogic Server.

   The Deployment - Log tab in JDeveloper displays a link that opens the provider test page.
3. Open a test page, copy the link and use it to register the producer.

   For information about registering a portlet producer, see Managing Portlet Producers in *Administering Oracle WebCenter Portal*.

Part II
Working with WebCenter Portal Assets

This part of *Developing for Oracle WebCenter Portal* contains the following chapters:

3 Introduction to WebCenter Portal Assets

Learn about the different assets available in WebCenter Portal, and an overview of the developer's role in developing and extending those assets.

Topics:

- About Working with WebCenter Portal Assets
- Developing Assets for WebCenter Portal

About Working with WebCenter Portal Assets

WebCenter Portal provides various built-in assets that users can leverage in their portals. Copies of these built-in assets can be modified within WebCenter Portal to meet specific local requirements. For more information about modifying built-in assets in WebCenter Portal, see Creating Assets in *Building Portals with Oracle WebCenter Portal*.

Some assets, such as page styles and layouts, cannot be created in WebCenter Portal. These resources must be created in JDeveloper and deployed to WebCenter Portal. In some cases, WebCenter Portal may also not be able to add all the required functionality.

WebCenter Portal assets rely on three application templates that can be used to create or modify asset applications in JDeveloper:

- WebCenter Portal Asset template – used to create or modify assets for page templates, skins, layouts, page styles, Content Presenter templates, and Visualization templates. The resulting asset applications include a default WebCenter Portal Asset Archive deployment profile that you can use to deploy the asset to WebCenter Portal across a Portal Server connection. For more information about creating an asset application for these types of assets, see Working with the WebCenter Portal Asset Application Template.
- WebCenter Portlet Producer Application template – used to develop portlets based on the JSR 286 standards. For more information, see Introduction to Portlets.
- WebCenter Portal Server Extension template – used to develop extensions to WebCenter Portal Server. For more information about developing extensions for Portal Server, see Developing Shared Libraries.

Developing Assets for WebCenter Portal

This section includes the following topic:

- Setting Up Your JDeveloper Environment for Asset Development

Setting Up Your JDeveloper Environment for Asset Development

Before you start, complete the following steps:

1. Download and install Oracle JDeveloper.

   For details, see Installing Oracle JDeveloper.

2. Install the WebCenter Portal Extension for JDeveloper.

   For details, see Installing the WebCenter Portal Extensions for JDeveloper.

3. Restart JDeveloper if it is open.

4 Working with the WebCenter Portal Asset Application Template

Use the WebCenter Portal asset application template to create, modify, and publish assets for use in WebCenter Portal.

Topics:

About the WebCenter Portal Asset Application Template

You can use the WebCenter Portal Asset application template to create asset applications for the following asset types:

- **Layouts** define the basic properties of a page, such as the number and relationship of columns, and are part of a page's page style. For more information, see Developing Layouts.
- **Page Styles** define the layout of a newly created page, and may also dictate the type of content the page supports. For more information, see Developing Page Styles.
- **Page Templates** define the interface that surrounds page content and help to apply a consistent look and feel across groups of pages. For more information, see Developing Page Templates.
- **Skins** define the appearance and look and feel, including colors and fonts, of a specific portal or the entire application. For more information, see Developing Skins.
- **Visualization Templates** determine the layout of content in a task flow that is created at runtime. Visualization templates can also include objects that can be bound to any data visualization that is added to the task flow. For more information, see Developing Visualization Templates.
- **Content Presenter Display Templates** define templates for displaying content. For more information, see Developing Content Presenter Display Templates.

The resulting asset applications include a default WebCenter Portal Asset Archive deployment profile that you can use to publish the asset to WebCenter Portal across a Portal Server Connection.

Creating a WebCenter Portal Asset Application

To create or edit WebCenter Portal assets in JDeveloper that can be published to WebCenter Portal, you start by creating a WebCenter Portal asset application using the WebCenter Portal Asset Application template. The application defines the *asset type* (for example, a page template) that you want to create or modify. Within that application, you can then define or edit properties for the asset, and finally, publish it to WebCenter Portal as a shared or portal-specific asset.

This section includes the following topics:

- How to Create a WebCenter Portal Asset Application
- What You May Need to Know About Asset Application Artifacts

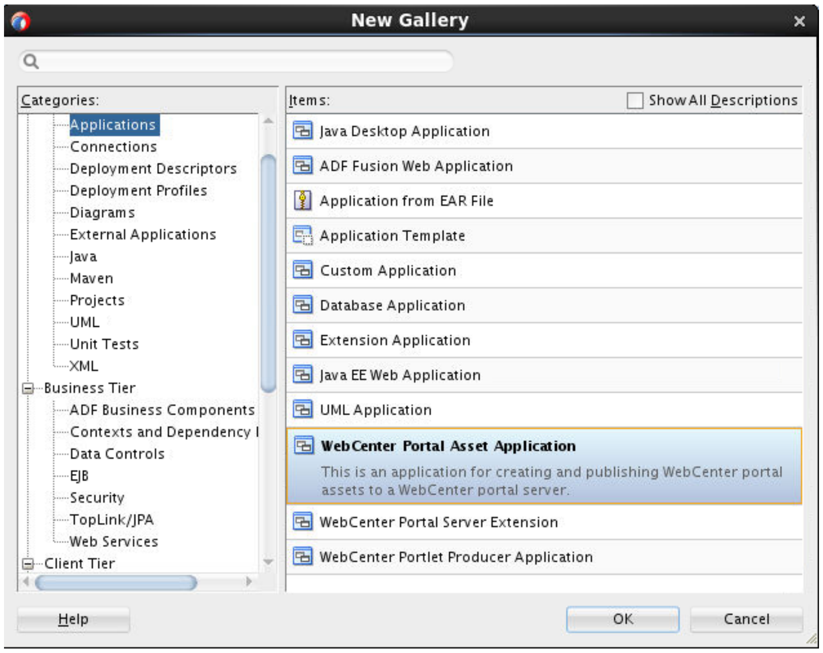
How to Create a WebCenter Portal Asset Application

To create a WebCenter Portal asset application:

1. From the Navigation pane, click **New Application** (or click the **New Gallery** icon and select **Application**).

   The New Gallery displays (Figure 4-1).

Figure 4-1 New Gallery

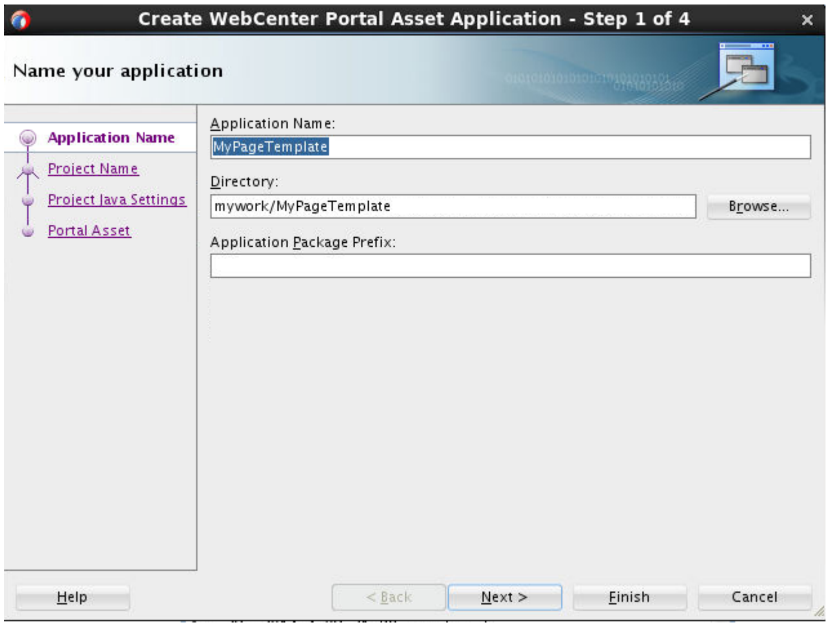


This is an application for creating and publishing WebCenter portal assets to a WebCenter portal server.

2. Select **WebCenter Portal Asset Application** and click **OK**.

   The Application Name page of the Create WebCenter Portal Application wizard displays (Figure 4-2).

Figure 4-2 Create WebCenter Portal Asset Application - Step 1



Application Name: MyPageTemplate

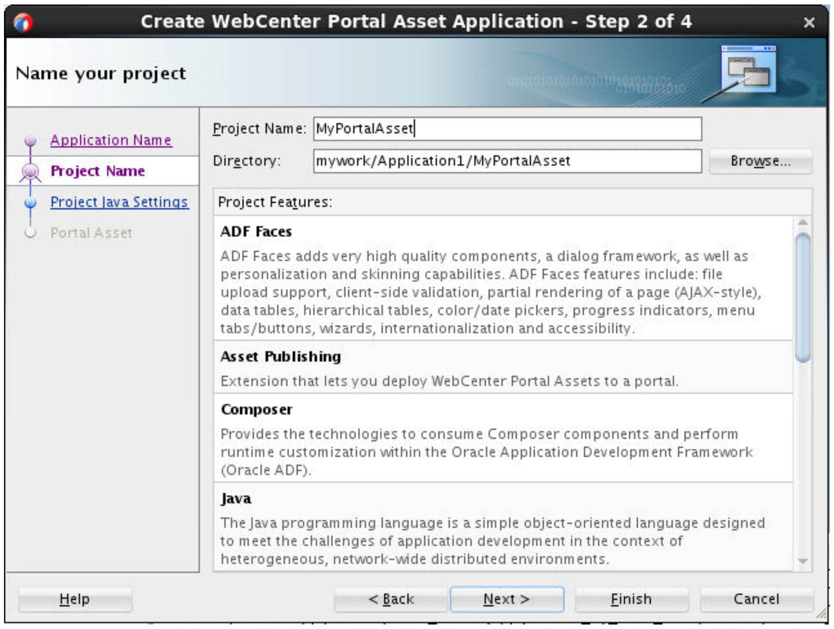
Directory: mywork/MyPageTemplate

Application Package Prefix:

3. Enter an **Application Name**, optionally choose a **Directory** other than the default to store your application, and then click **Next**.

   The Project name page of the Create WebCenter Portal Application wizard displays (Figure 4-3).

Figure 4-3 Create WebCenter Portal Asset Application - Step 2



Project Name: MyPortalAsset

Directory: mywork/Application1/MyPortalAsset

Project Features:

ADF Faces
ADF Faces adds very high quality components, a dialog framework, as well as personalization and skinning capabilities. ADF Faces features include: file upload support, client-side validation, partial rendering of a page (AJAX-style), data tables, hierarchical tables, color/date pickers, progress indicators, menu tabs/buttons, wizards, internationalization and accessibility.

Asset Publishing
Extension that lets you deploy WebCenter Portal Assets to a portal.

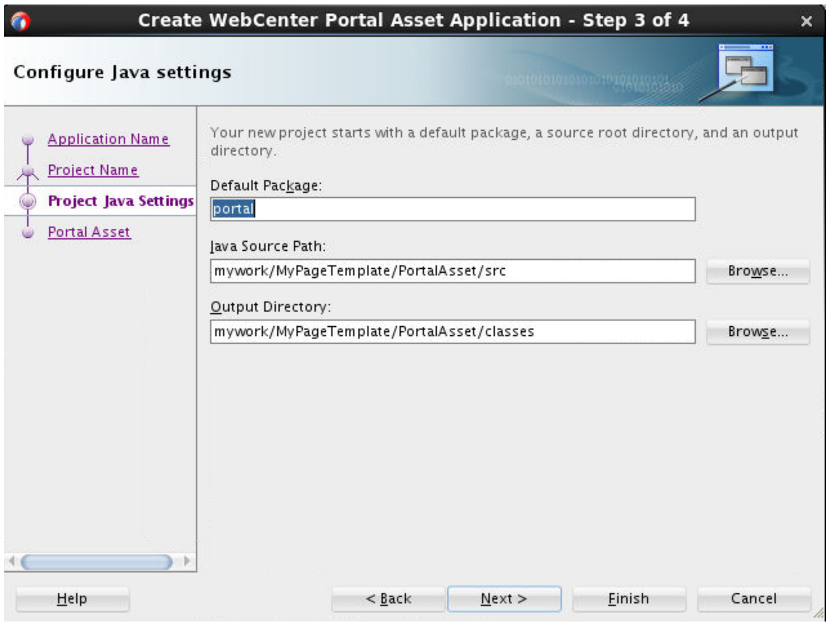
Composer
Provides the technologies to consume Composer components and perform runtime customization within the Oracle Application Development Framework (Oracle ADF).

Java
The Java programming language is a simple object-oriented language designed to meet the challenges of application development in the context of heterogeneous, network-wide distributed environments.

4. Enter a **Project Name** for the project and click **Next**.

   You can optionally change the **Directory** to store your project in, but note that the **Project Name** is automatically appended to the path. The Project Java Settings page of the Create WebCenter Portal Application wizard displays (Figure 4-4).

Figure 4-4 Create WebCenter Portal Asset Application - Step 3


Create WebCenter Portal Asset Application - Step 3 of 4

Configure Java settings

Your new project starts with a default package, a source root directory, and an output directory.

Default Package: portal

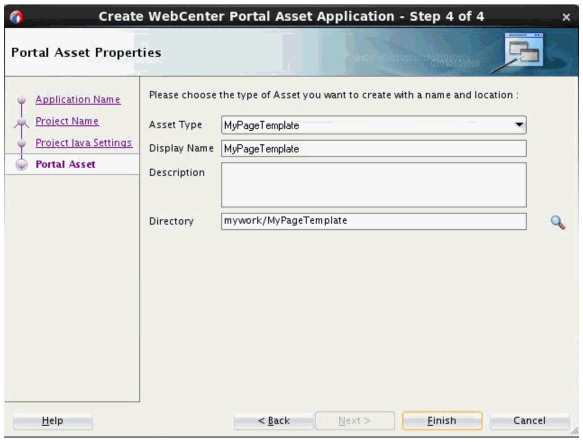
Java Source Path: mywork/MyPageTemplate/PortalAsset/src

Output Directory: mywork/MyPageTemplate/PortalAsset/classes

5. Optionally update the Project Java Settings fields for the asset project and click **Next.**

   The Portal Asset page of the Create WebCenter Portal Application wizard displays (Figure 4-5).

Figure 4-5 Create WebCenter Portal Asset Application - Step 4


Create WebCenter Portal Asset Application - Step 4 of 4

Portal Asset Properties

Please choose the type of Asset you want to create with a name and location :

Asset Type: MyPageTemplate

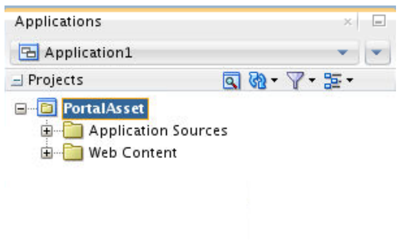
Display Name: MyPageTemplate

Description:

Directory: mywork/MyPageTemplate

6. Select the **Asset Type** (for example, `Page Template`), optionally change the **Display Name** (note that your changes will be applied to the directory path and file name), optionally add a **Description** for the asset project, optionally change the **Directory** where the asset will be created, and click **Finish**. After the asset application has been created it appears in the Navigation pane (Figure 4-6).

Figure 4-6 Newly Created Portal Asset Application



What You May Need to Know About Asset Application Artifacts

When you create a WebCenter Portal asset application, you create a single named workspace and a single named project (`PortalAsset` by default) in that workspace. A WebCenter Portal asset application project follows JDeveloper's standard for a Web application. It has the same structure and contains all of the features as an ADF Fusion Web application's ViewController project plus the following WebCenter Portal specific features:

- Asset Publishing - lets you publish an asset application to WebCenter Portal.
- Page Editor- lets you consume page components and perform runtime customizations within the Oracle Application Development Framework (Oracle ADF).
- Customization Components - also lets you consume Composer components and perform runtime customizations within the Oracle Application Development Framework (Oracle ADF).

The asset project is seeded with Fusion ViewController's default JSP Tag and JDeveloper libraries plus some WebCenter Portal specific JSP Tag and JDeveloper libraries. It contains a Default Package named `portal`, which is also used, for example, as the folder name for `DataBindings.cpx`.

After an asset application has been created, you can change the values for asset-specific properties, such as `displayName` and the `Description`, by editing the `assetDef.xml` file under `META-INF/assets/<assetName>`.

Creating and Editing WebCenter Portal Assets

After creating an asset application, as described in Creating a WebCenter Portal Asset Application, you are now ready to define or modify properties for the asset. Table 4-1 shows where to find further information about creating and modifying the different types of assets. After creating the asset, continue by publishing it to WebCenter Portal (see Publishing WebCenter Portal Assets) where you can test and debug it (see Testing WebCenter Portal Assets).

Table 4-1 Creating WebCenter Portal Assets

Asset Type	More Information
Layouts	Developing Layouts
Page Styles	Developing Page Styles
Page Templates	Developing Page Templates

Table 4-1 (Cont.) Creating WebCenter Portal Assets

Asset Type	More Information
Skins	Developing Skins
Visualization Templates	Developing Visualization Templates.
Content Presenter Display Templates	Developing Content Presenter Display Templates

Publishing WebCenter Portal Assets

This section describes the steps for publishing WebCenter Portal assets to WebCenter Portal as a shared or portal-specific asset.

This section contains the following topics:

- Creating a WebCenter Portal Server Connection
- Publishing a WebCenter Portal Asset

Creating a WebCenter Portal Server Connection

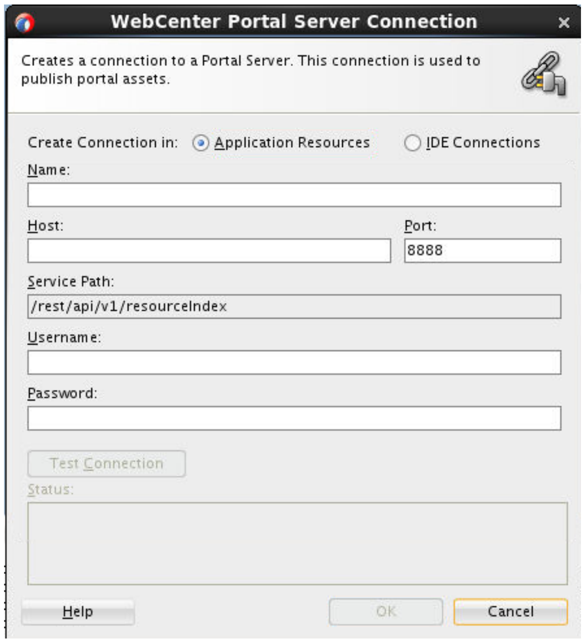
Before you can publish an asset to WebCenter Portal as a shared asset or to a specific portal, you need to set up a connection to the target Portal Server. Use the WebCenter Portal Server connection dialog to configure a connection to a Portal Server. You can set the connection up either as an application resource, or as an IDE connection that can be reused in other asset applications.

To create a WebCenter Portal Server connection:

1. Open the Portal Server Connection dialog by doing one of the following:
   - From the Resources Catalog, click **New** and select **IDE Connections > WebCenter Portal Server...**
   - From the Application Resources pane, right-click **Connections** and select **New Connection > WebCenter Portal Server...**

   The WebCenter Portal Server Connection dialog displays (Figure 4-7):

Figure 4-7 WebCenter Portal Server Connection Dialog


WebCenter Portal Server Connection
Creates a connection to a Portal Server. This connection is used to publish portal assets.
Create Connection in: (●) Application Resources ( ) IDE Connections
Name:
Host:
Port: 8888
Service Path: /rest/api/v1/resourceIndex
Username:
Password:
Test Connection
Status:
Help
OK
Cancel

2. For the **Create connection in** options, choose **Application Resources** to configure a Portal Server connection specific to the current application, or choose **IDE Connections** to save the connection as an IDE resource that can be used for other applications.

> **Tip:**
>
> If you will be creating and publishing multiple assets, Oracle recommends that you choose to save the connection in IDE Connections. To add an IDE connection to an asset application, select it from the IDE Connections node in the Resource Catalog, and either right-click the connection and select **Add to Application**, or drag it to the Connections node under the Application Resources node in the Applications panel.

3. Enter a name for the Portal Server connection you are setting up. Note that only alphanumeric characters can be used.
4. Enter the **Host** name and **Port** assignment for the Portal Server you are connecting to. For the host, you can enter either the fully qualified domain name, `localhost`, or the server name.
5. Enter a valid username and password for the Portal Server you are connecting to.
6. After completing your entries, click **Test Connection** to make sure the connection works. Note that if the connection test fails due to the server being offline, the connection will still be set up, and can be used once the server is again available.

Tip:

Although the **Service Path** field is not editable, you can use the field to copy and paste into a browser to determine the REST endpoint for the server connection.

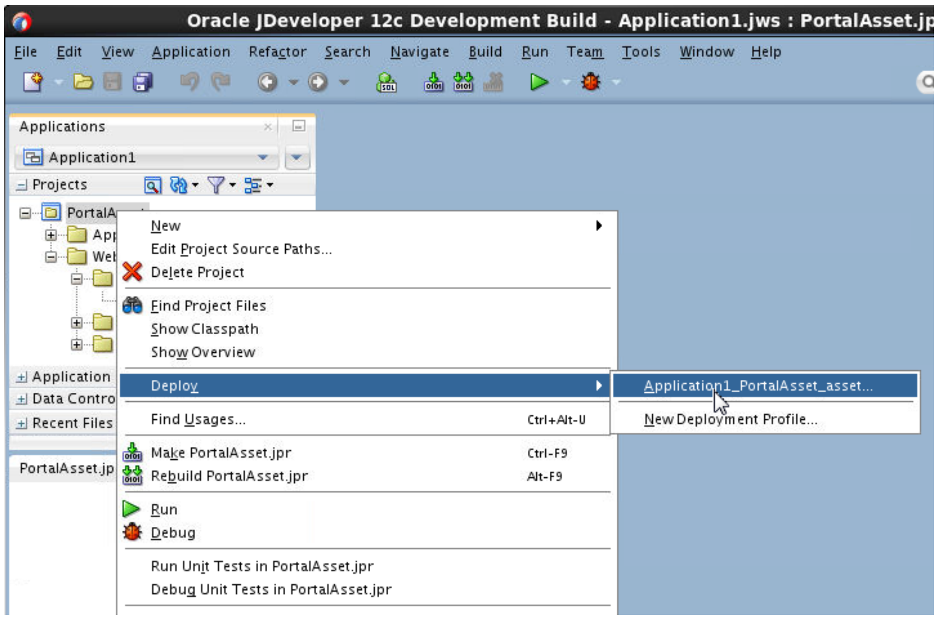
Publishing a WebCenter Portal Asset

After creating a WebCenter Portal asset, the next step is to publish it and test it in WebCenter Portal.

To publish a WebCenter Portal asset:

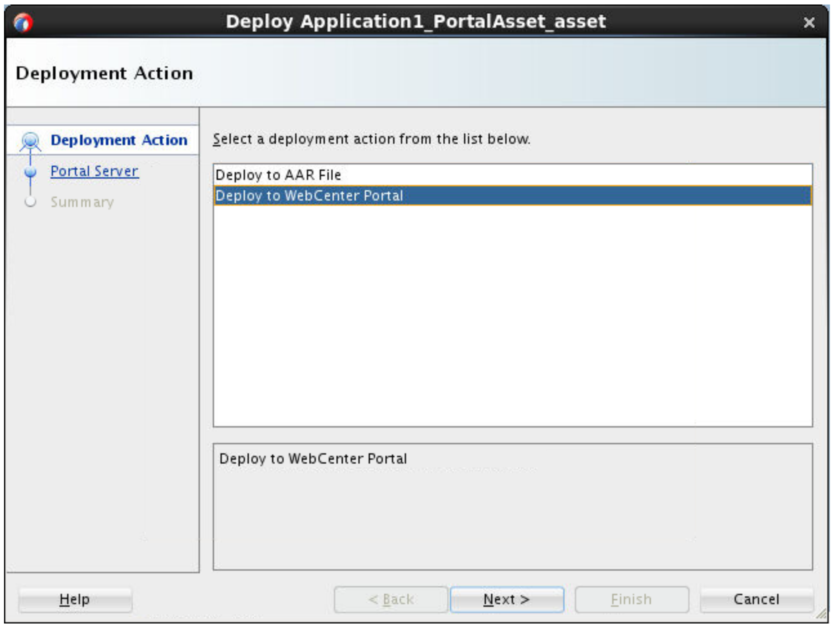
1. Right-click the Portal Asset project node and select **Deploy** and the default deployment profile to deploy (Figure 4-8).

Figure 4-8 Deploying a WebCenter Portal Asset


Oracle JDeveloper 12c Development Build - Application1.jws : PortalAsset.jp
File Edit View Application Refactor Search Navigate Build Run Team Tools Window Help
Applications
Application1
Projects
PortalA
App
Wel
Application
Data Contro
Recent Files
PortalAsset.jp
New
Edit Project Source Paths...
Delete Project
Find Project Files
Show Classpath
Show Overview
Deploy
Application1_PortalAsset_asset...
New Deployment Profile...
Find Usages... Ctrl+Alt-U
Make PortalAsset.jpr Ctrl-F9
Rebuild PortalAsset.jpr Alt-F9
Run
Debug
Run Unit Tests in PortalAsset.jpr
Debug Unit Tests in PortalAsset.jpr

The Deploy Asset wizard displays (Figure 4-9).

Figure 4-9   Deploy Asset Wizard - Deployment Action Page



Select a deployment action from the list below.

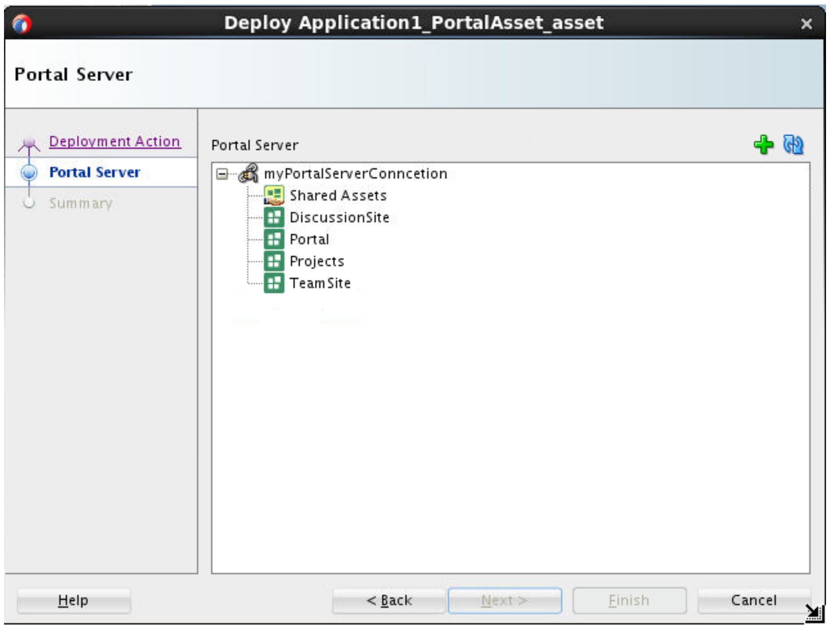
Deploy to AAR File
Deploy to WebCenter Portal

Deploy to WebCenter Portal

2. On the Deploy Action page, select **Deploy to WebCenter Portal** and click **Next**.

   The Portal Server page displays (Figure 4-10).

Figure 4-10   Deploy Asset Wizard - Portal Server Page



myPortalServerConncetion
Shared Assets
DiscussionSite
Portal
Projects
TeamSite

3. If you've configured a Portal Server connection, select **Shared Assets** or the specific portal for the Portal Server connection to which to publish the asset. If you have not previously configured a Portal Server connection, click the **Add** icon and complete the Portal Server connection fields as shown in Creating a WebCenter Portal Server Connection.

4. Click **Finish** to deploy the asset, or click **Summary** to see a summary of your deployment selections before deploying.

5. Open the Deployment - Log pane and check the status of the deployment. You can also click on the target URL on the Portal Server to view the recently deployed asset.

Testing WebCenter Portal Assets

After creating or modifying an asset application and publishing the asset to WebCenter Portal, you can continue by testing the runtime results. Note that you must test the asset within WebCenter Portal's runtime. You can iterate by modifying the asset in the JDeveloper, republishing to Portal Server, and then validating in WebCenter Portal. There are two ways to republish: you can either right-click on the **Portal Asset project node > Deploy > use the recently used deployment item**, or use the default **Alt-Shift-P** shortcut key.

Note:

To change or view shortcut key settings, go to **Tools > Preferences > Shortcut Keys >** and search for "Republish Portal Asset" or other shortcut key.

To help with the debug process, you can ask an Administrator (or someone with Administrator rights) for the test or staging environment to configure error messages and the calling stack to display in the runtime. For more information, see Viewing and Configuring Error Messages in WebCenter Portal in *Administering Oracle WebCenter Portal*.

5
Developing Layouts

Create or modify page layouts and publish them to WebCenter Portal as a shared or portal-specific asset.

Topics:

- About Developing Layouts
- Creating a Layout
- Editing a Layout
- Publishing a Layout

About Developing Layouts

When you create a new page, you select a page style for that page. Every page style includes a default layout, which is inherited by the new page. WebCenter Portal provides several built-in layouts that you can select on the **Shared Assets** or **Assets** pages.

If you want to change the layout for a page or page style, you can select a new existing layout for any page, or you can create a custom layout, and publish it as a shared or portal-specific asset. You can do this by either making a copy of a built-in layout and editing it in WebCenter Portal, or you can create a WebCenter Portal asset application, copy and paste the built-in layout and modify it in JDeveloper.

This chapter describes how to create or modify page layouts in a WebCenter Portal asset application, and publish them to WebCenter Portal as a shared or portal-specific asset. For information about modifying layouts in WebCenter Portal, see Working with Layouts in *Building Portals with Oracle WebCenter Portal*.

Creating a Layout

This section describes how to create a WebCenter Portal asset application for a page layout, and the artifacts that are created along with it.

This section includes the following topics:

- How to Create a Layout
- What You May Need to Know About Layout Artifacts

How to Create a Layout

This section describes how to create a WebCenter Portal Asset application for a new layout. Once the asset application with its associated artifacts has been created, you can continue by modifying the layout as described in Editing a Layout.

Note:

Oracle recommends that you store asset-related artifacts, such as images and icons, on your content server and that you create a folder structure on your content server specifically for asset artifacts so that content is easy to identify and move, if required.

To create a custom layout:

1. Create an asset application for the asset specifying `Layout` as the **Asset Type**.

   For more information about creating WebCenter Portal asset applications, see Creating a WebCenter Portal Asset Application. For information about the artifacts that are created when you create an asset application for a layout, see What You May Need to Know About Layout Artifacts.

2. In the Application Navigator, right-click the newly created layout's CSS and JSPX files, and choose **Open**. If you are using an existing WebCenter Portal layout as a starting point, copy and paste the source into the corresponding file in JDeveloper (for more information about using an existing asset as a starting point, see Copying an Asset in *Building Portals with Oracle WebCenter Portal*).

3. Continue by adding or modifying the layout as described in Editing a Layout.

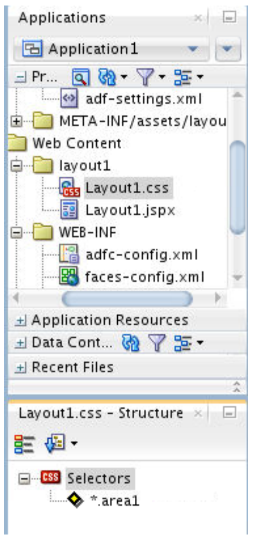
What You May Need to Know About Layout Artifacts

Creating a layout asset application produces a default layout, with the following artifacts:

- A CSS file (for example, `Layout1.css`)
- A JSF file (for example, `Layout1.jspx`)

Both of these files appear in the Navigation bar as shown in Figure 5-1.

Figure 5-1 Layout Asset Application Artifacts



The following examples show the JSPX file and corresponding CSS file for the built-in three column (Three Columns) layout from the **Shared Assets** page in WebCenter Portal.

Example Three-Column JSPX File

```
<?xml version='1.0' encoding='UTF-8'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1" xmlns:f="http://
java.sun.com/jsf/core" xmlns:h="http://java.sun.com/jsf/html" xmlns:af="http://
xmlns.oracle.com/adf/faces/rich">
   <jsp:directive.page contentType="text/html;charset=UTF-8"/>
   <af:componentDef var="attrs" componentVar="comp">
      <af:xmlContent>
         <component xmlns="http://xmlns.oracle.com/adf/faces/rich/component">
            <display-name>ThreeColumnFlow</display-name>
            <facet>
               <facet-name>area1</facet-name>
            </facet>
            <facet>
               <facet-name>area2</facet-name>
            </facet>
            <facet>
               <facet-name>area3</facet-name>
            </facet>
         </component>
      </af:xmlContent>
      <af:group id="threeColumnFlow">
         <af:resource type="css" source="${pageDocBean.layoutCssPath}"/>
         <div xmlns="http://www.w3.org/1999/xhtml" class="area1">
            <af:facetRef facetName="area1"/>
         </div>
         <div xmlns="http://www.w3.org/1999/xhtml" class="area2">
            <af:facetRef facetName="area2"/>
         </div>
         <div xmlns="http://www.w3.org/1999/xhtml" class="area3">
            <af:facetRef facetName="area3"/>
         </div>
      </af:group>
   </af:componentDef>
</jsp:root>
```

Example Three-Column Layout CSS File

```
/* one column */
.area1 {
}

.area2 {
}

.area3 {
}


/* two column with area3 under area2 */
@media only screen and (min-width : 481px) {
  .area1 {
    position:absolute;
    left: 0px;
    width:50%;
  }
  .area2 {
    position:relative;
    left:50%;
    width:50%;
  }
  .area3 {
    position: relative;
    left: 50%;
    width:50%;
  }
}

/* three column */
@media only screen and (min-width: 769px) {
  .area1 {
    position: static;
    left: auto;
    float:left;
    width:33%;
  }

  .area2 {
    position: static;
    left: auto;
    float:left;
    width:34%;
  }

  .area3 {
    position: static;
    left: auto;
    float:left;
    width:33%;
  }
}
```

Editing a Layout

After creating the asset application for the layout, as described in Creating a Layout, continue by modifying the CSS and JSPX files.

Note:

Oracle recommends that you store asset-related artifacts, such as images and icons, on your content server and that you create a folder structure on your content server specifically for asset artifacts so that content is easy to identify and move, if required.

To edit a layout:

1. In the Application Navigator, right-click the layout's CSS and JSPX files and choose **Open**.
2. If you are using an existing WebCenter Portal layout (that is, other than the one created by default when you create the asset application) as a starting point, copy and paste the source for the CSS and JSPX files into the corresponding file in

JDeveloper (see Copying an Asset in *Building Portals with Oracle WebCenter Portal*).

3. In the source code for the layout, make the appropriate changes. .
4. Save the CSS and JSPX files.
5. Publish and test the layout as shown in Publishing a Layout.

Publishing a Layout

After creating a WebCenter Portal asset application and making the changes you want to the layout, the next step is to publish it and test it in WebCenter Portal. For instructions on how to publish a layout to WebCenter Portal as a shared or portal-specific asset, see Publishing WebCenter Portal Assets.

6

Developing Page Styles

Use JDeveloper to create, edit, and publish page styles for use in WebCenter Portal.

Topics:

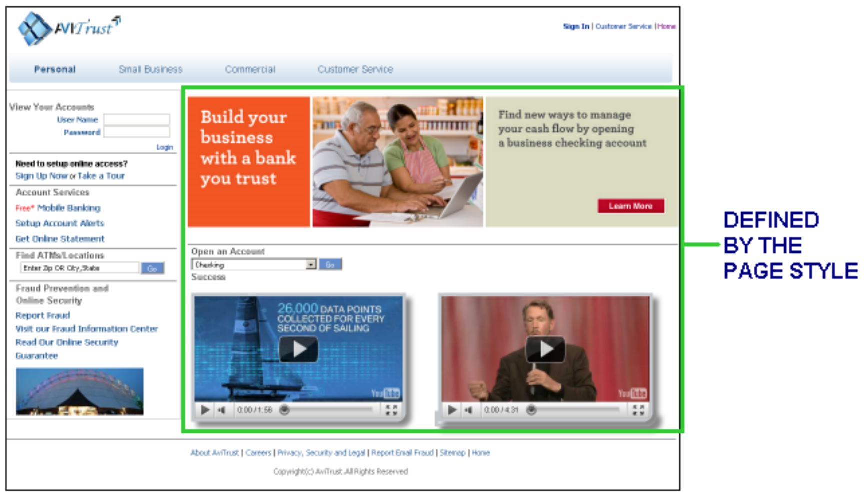
About Developing Page Styles

A page style is a JSPX page used for pages created at runtime. A page style describes the layout of a newly created page and may also dictate the type of content that the page supports.

When a user creates a page using a page style, the layout and initial content are copied from the page style to the newly created page. Unlike page templates, page styles are not reference-based. That is, if you change a page style, the change is not inherited in pages that use the style.

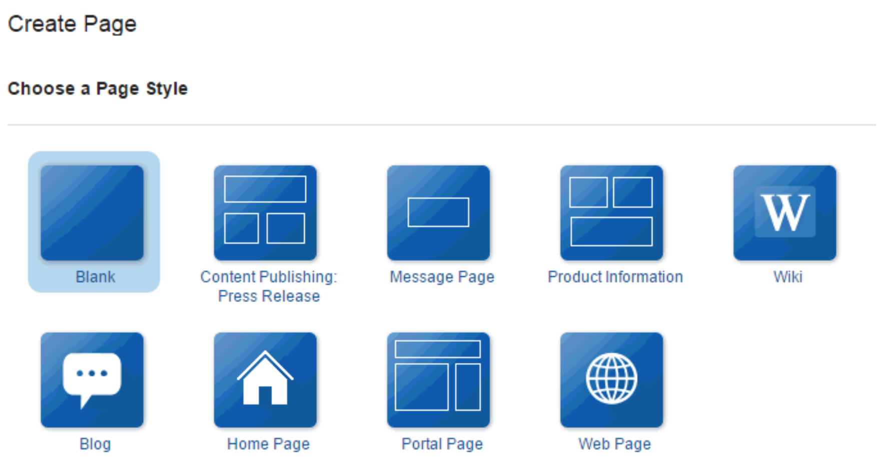
Typically, a page style contains components that enhance the usefulness and appearance of a given page. These include an in-place HTML text editor, images, layout boxes, hyperlinks, and so on. Content contributors can further populate the page with content. Figure 6-1 shows a sample portal page that is based on a page style.

Figure 6-1 Sample Page Using a Page Style


AVITrust
Sign In | Customer Service | Home
Personal
Small Business
Commercial
Customer Service
View Your Accounts
Build your business with a bank you trust
Find new ways to manage your cash flow by opening a business checking account
Learn More
Open an Account
DEFINED BY THE PAGE STYLE

You can create page styles in either JDeveloper, or from the WebCenter Portal **Shared Assets** page (or **Assets** page for individual portals), to use at runtime to create pages. In the runtime, a user creates pages based on the available page styles. When they choose **Add Page**, the Select a Style dialog displays a set of predefined styles, as shown in Figure 6-2. The user chooses a style and creates a page based on that style. As the layout is already in place in the new page, the user only needs to add content to different areas of the page.

Figure 6-2 Select a Style Dialog



Best Practices for Creating Page Styles

The following prerequisites and guidelines may be helpful when developing page styles to be exposed as WebCenter Portal assets:

- If a page style is based on a page template, then while designing the page style JSF (`.jspx`) file, add the `content` facet, or any other facet defined in the page template, to contain page content.
- To make the page customizable, add a `Page Customizable` component within the content facet. As the `Page Customizable` contains a child `panelCustomizable` component by default, users can add content to the page at runtime.
- To enable dynamic selection of the page template to use for the page style, in the page style JSF (`.jspx`) file, specify that the page template is defined in the page style's page definition, as follows:

  ```
  <af:pageTemplate value="#{bindings.pageTemplateBinding.templateModel}" id="T">
  ```

  You can then specify an EL value in the page style page definition to retrieve the name of the page template from the default page template setting, as follows:

  ```
  <page viewId="#{preferenceBean.defaultPageTemplateViewId}"
  id="pageTemplateBinding" Refresh="ifNeeded"/>
  ```

  At runtime, users with the appropriate permissions can switch to a different page template by selecting a new default page template in the runtime administration console. For more information, see Choosing a Default Page Template in *Administering Oracle WebCenter Portal*.

- You can create a managed bean that controls which page template to use, as shown in the following example:

  Example: Managed Bean to Control Page Template

  ```
  public class siteTemplatesManager {
  final private String templateA ="/templateA.jspx";
   final private String templateB ="/templateB.jspx";
   private String currentSiteTemplateViewId;

  public siteTemplatesManager() {
  super();
   currentSiteTemplateViewId =templateA;
   }
  public String gettemplateViewId() {
  return currentSiteTemplateViewId;
   }
  public void settemplateAViewId(ActionEvent ae) {
  currentSiteTemplateViewId =templateA;
   }
  public void settemplateBViewId(ActionEvent ae) {
  currentSiteTemplateViewId =templateB;
   }
  }
  ```

Creating a Page Style

This section describes how to create a WebCenter Portal asset application for a new page style. Once the asset application with its associated artifacts has been created, you can continue by modifying the page style's JSPX file as described in Editing a Page Style.

This section includes the following topics:

- How to Create a Page Style
- What You May Need to Know About Page Style Artifacts

How to Create a Page Style

This section describes how to create a WebCenter Portal asset application for a new page style. Once the asset application with its associated artifacts has been created, you can continue by modifying the page style's JSPX file as described in Editing a Page Style.

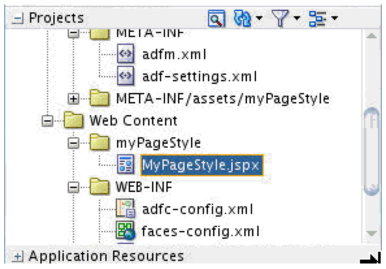
To create a custom page style:

1. Create a WebCenter Portal asset application for the asset, selecting `Page Style` as the **Asset Type**.

   See Creating a WebCenter Portal Asset Application for more information about creating WebCenter Portal asset applications. For information about the artifacts that are created when you create an asset application for a page style, see What You May Need to Know About Page Style Artifacts.

2. In the Application Navigator, right-click the newly created page style's JSPX file, and choose **Open** (Figure 6-3).

Figure 6-3 Page Style JSPX File



3. Continue by adding to or modifying the page style as shown in Editing a Page Style.

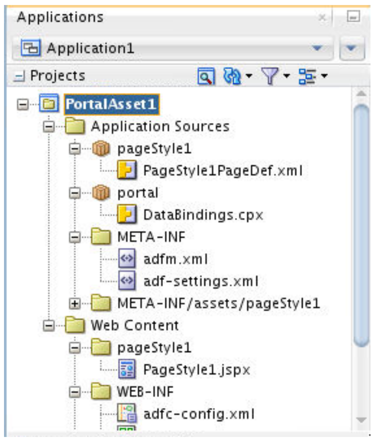
What You May Need to Know About Page Style Artifacts

Creating a page style asset application produces a default page style, with the following artifacts:

- A JSP file containing the page elements for the page style (for example, `PageStyle1.jspx`)
- The corresponding page definition file for the page style (for example, `PageStyle1PageDef.xml`)

Both of these files appear in the Navigation bar as shown in Figure 6-4.

Figure 6-4 Page Style Asset Application Artifacts



The following examples show the page style code for the JSPX file and associated page definition file for the built-in Three Column page style, which creates a basic page designed to flow and provide three columns.

JSPX File for Three Column Page Style

```
<?xml version='1.0' encoding='UTF-8'?>
<jsp:root version="2.1" xmlns:af="http://xmlns.oracle.com/adf/faces/rich"
xmlns:cust="http://xmlns.oracle.com/adf/faces/customizable" xmlns:f="http://
java.sun.com/jsf/core" xmlns:jsp="http://java.sun.com/JSP/Page" xmlns:trh="http://
myfaces.apache.org/trinidad/html">
   <jsp:directive.page deferredSyntaxAllowedAsLiteral="true"/>
   <jsp:directive.page contentType="text/html;charset=utf-8"/>
   <f:view>
      <af:document id="docrt" title="#{pageDocBean.title}">
         <f:facet name="metaContainer">
            <trh:meta content="#{bindings.SEO_KEYWORDS}" name="keywords"/>
         </f:facet>
         <af:form id="f1" usesUpload="true">
            <af:pageTemplate id="T"
value="#{bindings.shellTemplateBinding.templateModel}">
               <f:facet name="content">
                  <af:panelGroupLayout id="pgl1"
inlineStyle="replace_with_inline_style" layout="scroll"
styleClass="replace_with_scheme_name">
                     <af:declarativeComponent id="dclay"
viewId="#{pageDocBean.layoutViewId}">
                        <f:facet name="area1">
                           <cust:panelCustomizable id="pcarea1" layout="auto"/>
                        </f:facet>
                        <f:facet name="area2">
                           <cust:panelCustomizable id="pcarea2" layout="auto"/>
                        </f:facet>
                        <f:facet name="area3">
                           <cust:panelCustomizable id="pcarea3" layout="auto"/>
                        </f:facet>
                     </af:declarativeComponent>
                  </af:panelGroupLayout>
               </f:facet>
            </af:pageTemplate>
         </af:form>
      </af:document>
   </f:view>
</jsp:root>
```

Example: Page Definition File for Three Column Page Style

```
<?xml version='1.0' encoding='UTF-8'?>
<pageDefinition
Package="oracle.webcenter.siteresources.scopedMD.s8bba98ff_4cbb_40b8_beee_296c916a23e
d.pageStyle.gsr7ae8ef60_d5b9_4411_becb_11239bf4bb63" id="TemplateThreeColumnPageDef"
version="11.1.1.41.30" xmlns="http://xmlns.oracle.com/adfm/uimodel">
   <parameters>
      <parameter id="page_layout" value="gsr22bbc98b_834b_425d_8d48_c136d0956ec8"/>
      <parameter id="page_title" value="Three Column"/>
   </parameters>
   <executables>
      <page Refresh="ifNeeded" id="shellTemplateBinding"
viewId="#{WCAppContext.application.siteTemplatesManager.currentSiteTemplateViewId}"/>
   </executables>
   <bindings/>
   <permission
permissionClass="oracle.webcenter.page.model.security.CustomPagePermission"
target="ps_targetusage" xmlns="http://xmlns.oracle.com/adf/security">
      <privilege-map operation="administer" privilege="manage"/>
      <privilege-map operation="create" privilege="create"/>
      <privilege-map operation="delete" privilege="delete"/>
      <privilege-map operation="edit" privilege="update"/>
      <privilege-map operation="personalize" privilege="personalize"/>
      <privilege-map operation="view" privilege="view"/>
   </permission>
</pageDefinition>
```

Editing a Page Style

After creating the WebCenter Portal asset application for the page style, you can continue by adding content to the newly created page style file.

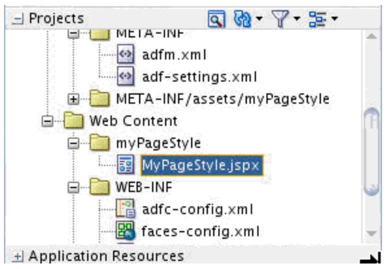
Note:

Oracle recommends that you copy an existing or built-in page style in WebCenter Portal and paste it into the page style JSPX file in JDeveloper. You can then use this page style as the starting point for your new page style and publish it back to WebCenter Portal once you've modified it. For more information about how to copy an asset in WebCenter Portal, see Copying an Asset in *Building Portals with Oracle WebCenter Portal*.

To edit a page style:

1. In the Application Navigator, right-click the page style's JSPX file, and choose **Open** (Figure 6-5).

Figure 6-5 Page Style JSPX File



2. In the visual editor, make any changes to the layout of content of the page style in the same way as you would edit any page.

   For information about best practices for defining the content of the page style, see Best Practices for Creating Page Styles. For information about the files created for a page style asset application, see What You May Need to Know About Page Style Artifacts.

3. Save your changes.

4. Publish and test the page style as shown in Publishing a Page Style.

Publishing a Page Style

After creating a WebCenter Portal asset application and editing the JSPX file for the page style, the next step is to publish it and test it in WebCenter Portal. For instructions on how to publish an asset to WebCenter Portal as a shared asset, or to a specific portal as a portal asset, see Publishing WebCenter Portal Assets.

7

Developing Page Templates

Use JDeveloper to create, edit, and publish page templates for use in WebCenter Portal.

Page templates provide the structure for common areas in portal pages. Using JDeveloper, you can design and develop new page templates for building portal pages.

Topics:

- Introduction to Developing Page Templates
- Best Practices for Developing Page Templates
- Creating a Page Template
- Editing a Page Template
- Publishing a Page Template
- Page Template Tutorials and Examples

Introduction to Developing Page Templates

This section includes the following topics:

- Understanding Page Templates
- Understanding Page Template Structure
- Understanding Page Template Layout
- Understanding Page Template Layout Components

Understanding Page Templates

Page templates define how individual pages and groups of pages display on a user's screen, and help to ensure that the pages in a portal are consistent in structure and layout.

If you change a page template, then all pages that reference that template automatically inherit the changes.

> **Note:**
>
> For general information about page templates, see Using Page Templates in *Developing Web User Interfaces with Oracle ADF Faces*.

For tips and best practices for creating page templates for use in Oracle WebCenter Portal, see Best Practices for Developing Page Templates. Oracle recommends that you use Oracle JDeveloper to develop page templates for use in WebCenter Portal. You can also develop page templates in WebCenter Portal, but the editing capabilities are limited.

When fully developed, you can publish page templates directly to WebCenter Portal as a shared asset or to a specific portal for immediate use or for testing. For more information, see Publishing a Page Template.

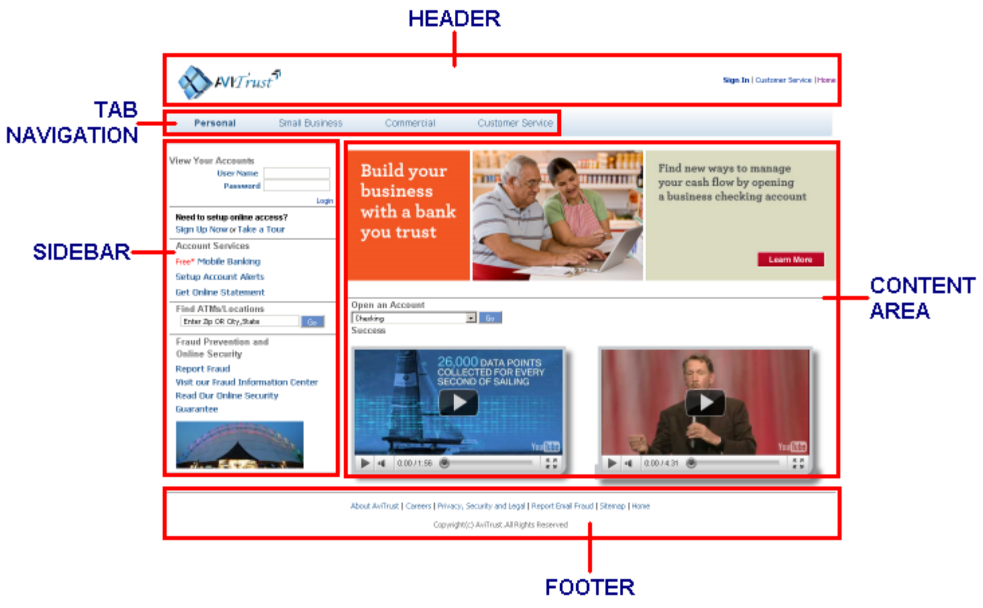
Understanding Page Template Structure

Typical elements of a page template include:

- Header, content area (different in each page), and footer. The header and footer commonly include brand-specific elements. For example, a header usually includes a logo and possibly a slogan, and a footer usually includes contact and copyright information.
- Navigation. A page template can expose the navigation for a portal in many ways. For example, on a mobile device, portal navigation may be shown as a popup or slide in/out. On a desktop browser, portal navigation is typically shown along the top of the page, or down the side of the page.
- Branding elements. For example, a page template my include a company logo, slogan, or copyright message.
- Links and actions. For example, a log in/log out link, drop-down menus, or global links (such as links to send a mail message to the web administrator or to display a privacy statement).
- Conditional elements. For example, some elements on the page might differ depending on whether the user is public or authenticated or depending on the user's role and privileges.

Figure 7-1 shows a sample application based on a page template that illustrates these elements.

Figure 7-1   Sample Portal that Uses a Page Template


HEADER
TAB NAVIGATION
SIDEBAR
CONTENT AREA
FOOTER
AVITrust
Personal
Small Business
Commercial
Customer Service
Build your business with a bank you trust
Find new ways to manage your cash flow by opening a business checking account
Learn More

Understanding Page Template Layout

One of the most important aspects of page template design is the layout of components, both elements of the template and page content.

There are two basic strategies:

- A *flowing* layout is the most typical layout. Components are arranged side by side or one below the other, displayed using their natural size. When the content of the page extends beyond the size of the browser window, the browser displays scroll bars on the page.
- A *stretching* layout may be a suitable choice when your page content fills a large area, or you want the page content to grow and shrink depending on the size of the browser window. Components are stretched to occupy the available space on the page. For example, a stretching layout may be suitable when a page contains a table or graph that you want to fill up the whole content area, no matter what size it is. Another example is a page that contains an editing area, where you want the editor to be exactly as tall and wide as the space given to the content area. This layout has a region for the page content, and adds scroll bars to the region on the page when the content cannot be contained within the size of the browser window. In other words, individual components display scroll bars (which might mean that you have multiple scroll bars on one page).

  Stretching enables you to maximize the usage of the viewable area. You can use tabs, accordions, menus, and popups to expand your viewable area. When scroll bars are added to the page, the navigation area, page header, and page footer remain in view while the content area scrolls.

Because most web sites use a flowing layout, you will probably also want to use a flowing layout as it will likely feel more familiar to your users. However, stretching layouts are good for dashboards and applications that are rich in nature or when you want to mimic a desktop experience. You can also combine flowing and stretching layout on the same page.

Vertical Behavior

Depending on whether your layout is flowing or stretching, the vertical behavior of the page differs as follows:

- **Flowing layout:**
  - The header and/or footer might not always be visible
  - The height of the page is calculated based on the page contents
  - The content is never stretched vertically
  - The browser might display a scroll bar
- **Stretching layout:**
  - The header and footer are always visible
  - The height of the page is determined by the browser window
  - The content is stretched vertically
  - The content area might display a scroll bar

Horizontal Behavior

Depending on whether your layout is flowing or stretching, the horizontal behavior of the page differs as follows:

- **Flowing layout:**
  - If your page includes a side bar (for example, left-side navigation), the side bar might not always be visible
  - The width of the page is calculated based on the components
  - Some components might be stretched to fill up existing space
  - The browser might display a scroll bar
- **Stretching layout:**
  - If your page includes a side bar (for example, left-side navigation), the side bar is always visible
  - The width of the page is determined by the browser window
  - The content is stretched horizontally
  - The content might display a scroll bar

Understanding Page Template Layout Components

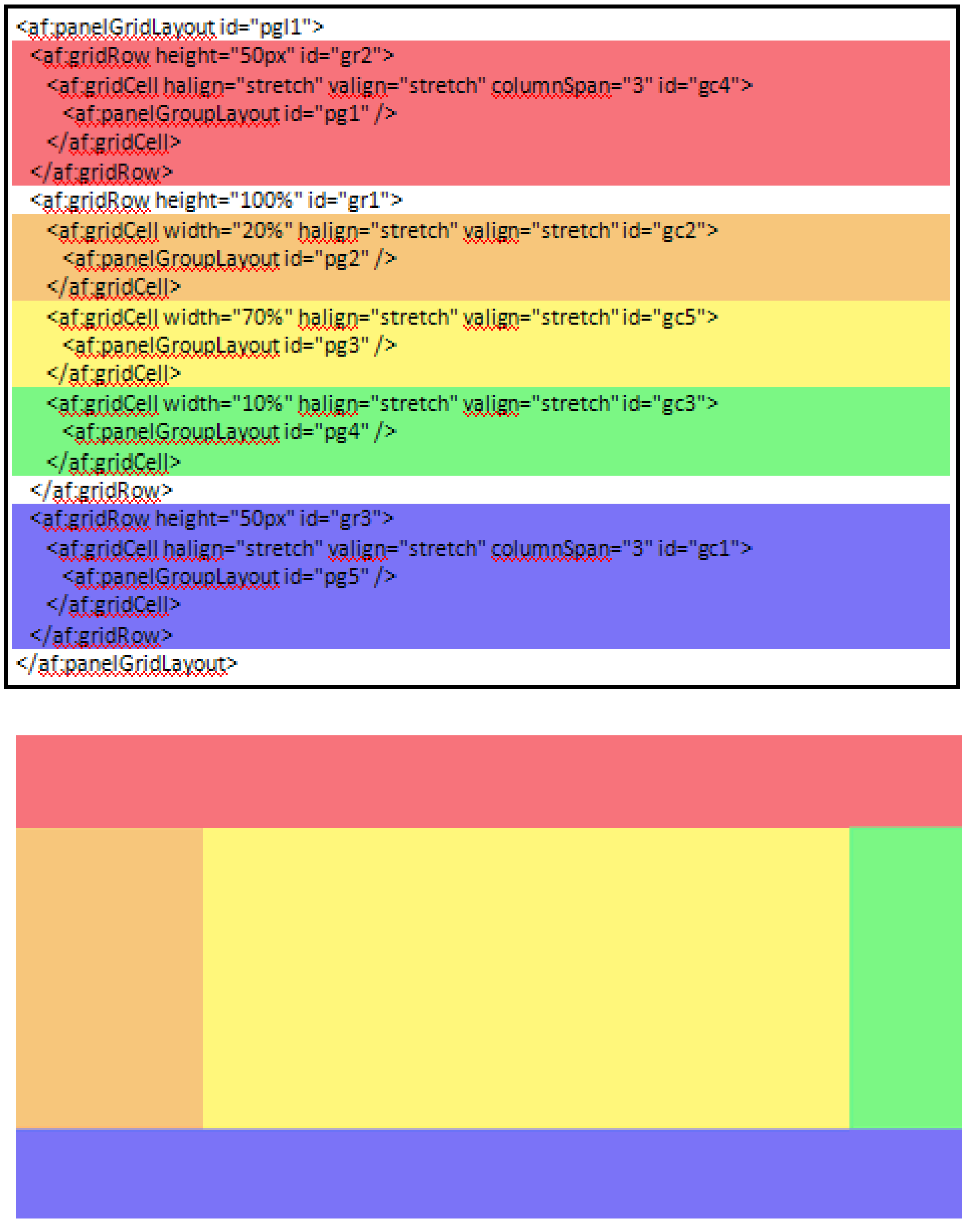
The underlying structure of a page template is provided by Oracle Application Development Framework (ADF) layout components.

After you decide on the appropriate layout to use for your page template (see Understanding Page Template Layout), you will use ADF layout components to create your page template. This is a complex task, and requires knowledge of the ADF components that will achieve the structure and layout you require, and best practices to employ (see Best Practices for Developing Page Templates).

Figure 7-2 and Figure 7-3 illustrate common ADF components used in a page template layout, showing the page template code followed by the generated layout:

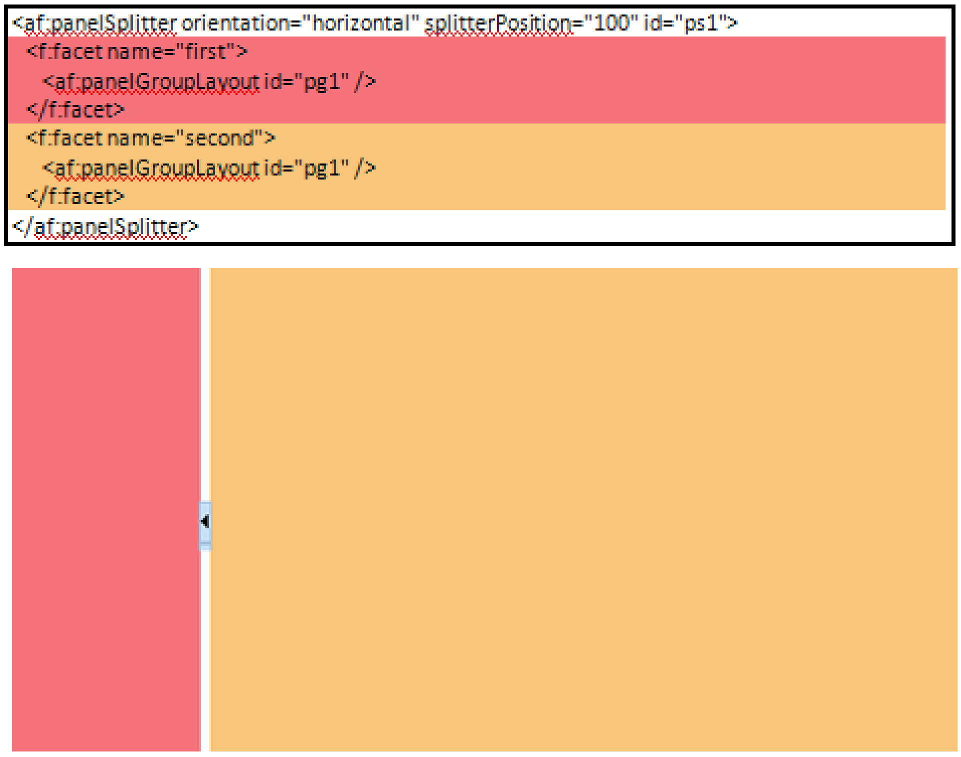
- `af:panelGridLayout`—a versatile layout component that uses rows (`gridRow`) and cells (`gridCell`) to define a structured layout. This component is the preferred general layout component as it offers a small client side footprint while being very flexible in layout capabilities. It allows you to more naturally define areas of the page to match your desired layout in the form of rows and columns. With `panelGridLayout`, you can easily specify fixed or variable column widths (% or pixels), which cannot be done as easily with other layout components. See Figure 7-2.
- `af:panelGroupLayout`—a flowing series of components arranged horizontally, vertically, or in scrollable structures. Typically, `panelGroupLayout` is used with flowing layouts, and with flowing content inside a stretching layout. It provides vertical and horizontal scroll bars if the content does not fit into the available space. See Figure 7-2 and Figure 7-3.
- `af:panelSplitter`—a stretched box divided into two user-modifiable sections. See Figure 7-3.

Figure 7-2 Page Template Code and Generated Stretching Layout: Example 1



```
<af:panelGridLayout id="pgl1">
 <af:gridRow height="50px" id="gr2">
   <af:gridCell halign="stretch" valign="stretch" columnSpan="3" id="gc4">
     <af:panelGroupLayout id="pg1" />
   </af:gridCell>
 </af:gridRow>
 <af:gridRow height="100%" id="gr1">
   <af:gridCell width="20%" halign="stretch" valign="stretch" id="gc2">
     <af:panelGroupLayout id="pg2" />
   </af:gridCell>
   <af:gridCell width="70%" halign="stretch" valign="stretch" id="gc5">
     <af:panelGroupLayout id="pg3" />
   </af:gridCell>
   <af:gridCell width="10%" halign="stretch" valign="stretch" id="gc3">
     <af:panelGroupLayout id="pg4" />
   </af:gridCell>
 </af:gridRow>
 <af:gridRow height="50px" id="gr3">
   <af:gridCell halign="stretch" valign="stretch" columnSpan="3" id="gc1">
     <af:panelGroupLayout id="pg5" />
   </af:gridCell>
 </af:gridRow>
</af:panelGridLayout>
```

Figure 7-3 Page Template Code and Generated Stretching Layout: Example 2



```
<af:panelSplitter orientation="horizontal" splitterPosition="100" id="ps1">
  <f:facet name="first">
    <af:panelGroupLayout id="pg1" />
  </f:facet>
  <f:facet name="second">
    <af:panelGroupLayout id="pg1" />
  </f:facet>
</af:panelSplitter>
```

Best Practices for Developing Page Templates

Because page templates are present in every page of a portal, the design of your page templates should be carefully planned to optimize their performance and conform to best practices.

This section provides tips for developing page templates for WebCenter Portal (as a shared asset), or a specific portal.

Note:

Oracle recommends that you use JDeveloper to develop page templates for portals. You can also develop page templates in Oracle WebCenter Portal, but the editing capabilities are limited.

When fully developed, you can publish page templates to WebCenter Portal as a shared asset or to a specific portal for immediate use or for testing. Alternatively, you can export the page template to a file and upload the page template to WebCenter Portal later.

For more information, see Creating a Page Template, Editing a Page Template, and Publishing a Page Template.

Table 7-1 provides a quick reference summary of considerations and guidance for achieving the best results out of your page templates.

Table 7-1 Best Practices Summary for Page Templates

Considerations	Best Practices
Performance	While all of this section is aimed at improving the performance of your page templates, there are a few general tips to keep in mind as overall best practices: • Minimize the use of embedded task flows. For examples, refer to the latest out-of-the-box page templates included with WebCenter Portal, described in About Built-in Page Templates in WebCenter Portal in *Building Portals with Oracle WebCenter Portal*. • Minimize the use of ADF layout components, using `panelGridLayout` to implement your page template structure. The fewer ADF layout components, the easier it is to apply skins. • Avoid using images for decorative purposes (such as rounded corners). Consider using CSS instead of images. • Defer loading of ADF components, such as menus and dialogs, where possible. This can be controlled through ADF such as `contentDelivery`, `childCreation`, and so on. • Avoid elements that require extra time in rendering page templates and try to substitute for elements that require less processing time.
Layout	One of the most important aspects of page template design is how to lay out components, both elements of the template and page content. Page templates can have a flowing layout or a stretching layout. For more details about these two strategies, see Understanding Page Template Layout. As a page template developer, you can control whether the content facet is in a stretching or flowing region of the page. Page content must be created taking the layout strategy into consideration. Once you decide on the best strategy for your page templates, see the following sections for tips on creating the layout you choose: • Best Practices for Creating Stretching Layouts • Best Practices for Creating Flowing Layouts

Table 7-1 (Cont.) Best Practices Summary for Page Templates

Considerations	Best Practices
Navigation	A page template can expose the navigation for a portal in many ways. For example, in a desktop browser, portal navigation is typically shown along the top of the page, or down the side of the page: • A *top navigation* page template exposes the portal navigation in header area. Top navigation makes effective use of the horizontal space on the page, and is recommended when there are seven or fewer top level pages in the portal navigation. This page template design generally has a header, page and footer sections, and is an ideal starting point for sites that require a flowing layout. • A *side navigation* page template exposes the portal navigation in a sidebar on the left side of the page. The vertical nature of side navigation allows for a more lengthy list of navigation items, and is recommended when there are more than seven top level pages in the portal navigation. Choose a side navigation template for more complex navigation models. On different devices, navigation can be exposed differently. For example, in page templates optimized for mobile devices, navigation can be provided as either a popup or slide in/out.
Skin	Each page template works together with a skin to determine the overall look and feel of the pages in your portal. While the page template controls the structure of components on the page, the skin controls the visual appearance of those components, such as the colors, fonts, and other aspects such as the position, height, and width of components on the page. Each page template can define a preferred skin to identify the skin that works best with that page template. When the page template is selected as the default page template for a portal or as the system default, the default skin automatically updates to the page template's preferred skin. For more information, see Developing Skins.
Runtime behavior	If you develop a page template in JDeveloper that you plan to allow authorized users to edit in Composer at runtime, follow the tips provided in Best Practices for Developing Page Templates That Can Be Edited at Runtime.
Components	Select **Page** or **Page Template** from the **View Source** menu for a component to see what tags and attributes are used as well as what the component structure looks like for the page. Because a page template layout can be changed, create pages and design custom components that display properly in flowing and stretching context. For tips on customizing the appearance of components, see Best Practices for Customizing the Appearance of Components.
Scrolling	Add scrollbars only around flowing island content. For tips on implementing scrollbars, see Best Practices for Defining Scrolling in a Page Template.

Table 7-1 (Cont.) Best Practices Summary for Page Templates

Considerations	Best Practices
Margins, borders, and padding	Due to browser CSS Box Model Rules, defining margins, borders and padding on components might be complex. For tips on resolving the complexities of defining margins, borders and padding on components, see Best Practices for Defining Margins, Borders, and Padding.
Attributes	Consider attributes that can be set in your page templates or pages that use the page templates. For example, `showFooter` specifies whether or not to show the page footer. A page template without attributes is syntactically correct. However, page template attributes are useful when you want to use one page template for several pages where the template should render slightly differently. Information about using attributes in your page templates is provided throughout this chapter, including Creating a Page Template.
Links	To add links to page templates, copy components provided in the out-of-the-box page templates to include links navigation, menus, breadcrumbs, buttons, and images. `go` components such as `goButton` and `goLink` have little to no client side footprint since they do not carry client side functionality. They are also preferred over command components (`commandButton`, `commandLink`) for general navigation in portals because they enable URLs that are optimized for search engines.
Internationalization	To create page templates with internationalization techniques in mind, see Guidelines for Building Multilanguage Portals for information about recommended practices such as storing static text in resource bundle files.
Naming page templates (display name)	The display name is exposed to users when creating a new page. For this reason, you should make the page template name something that helps users quickly identify which type of pages the template should be used for.

This section includes the following topics:

- Best Practices for Creating Stretching Layouts
- Best Practices for Creating Flowing Layouts
- Best Practices for Developing Page Templates That Can Be Edited at Runtime
- Best Practices for Customizing the Appearance of Components
- Best Practices for Defining Scrolling in a Page Template
- Best Practices for Defining Margins, Borders, and Padding

Best Practices for Creating Stretching Layouts

If your page template is best suited to a stretching layout, follow these tips as you develop the layout.

For more information about different layouts, see Understanding Page Template Layout.

- Build the outer structure with containers that can be stretched and can stretch their children. Inside your `document` component, use containers such as `panelGridLayout` (Figure 7-2) with rows (`gridRow`) and cells (`gridCell`), and `panelSplitter` (Figure 7-3).

  > **Note:**
  >
  > Each layout or panel component's tag documentation identifies whether it is stretchable and how to achieve it in its "Geometry Management" documentation. Some components have attributes to determine whether children will be stretched or not. For example: `document` has a `maximized` attribute, `showDetailItem` has a `stretchChildren` attribute.

- Create flowing islands. Inside of the stretchable outer structure, create islands of flowing (non-stretched) components. To make this transition from stretching to flowing, use `panelGroupLayout` with `layout="scroll"` or `layout="vertical"` since it supports being stretched but will not stretch its children.
- On stretching components, set `dimensionsFrom="auto"` so that the stretching component (for example, `panelStretchLayout`) will only try to stretch its child if it itself is being stretched. If it is not being stretched, then it will flow (not stretch) its children.
- Do not stretch something vertically (by using a height with a percent value) when inside a flowing container.
- Do not use the `position` CSS property in an `inlineStyle`. Doing so will impede the ability to override this property with a style specified in the skin.

> **Note:**
>
> The following components are just some of the components that cannot be reliably stretched:
>
> - Most input components
> - `panelBorderLayout`
> - `panelFormLayout`
> - `panelGroupLayout` (with `layout="default"`)
> - `panelGroupLayout` (with `layout="horizontal"`)
> - `panelHeader` (with `type="flow"`)
> - `panelLabelAndMessage`
> - `panelList`
> - `panelGrid`

Best Practices for Creating Flowing Layouts

If your page template is best suited to a flowing layout, follow these tips as you develop the layout.

For more information about different layouts, see Understanding Page Template Layout.

- Use `panelGridLayout` with rows (`gridRow`) and cells (`gridCell`) to define a structured layout that will flow.
- To avoid multiple scroll bars, do not nest scrolling `panelGroupLayout` components, instead use `layout="vertical"`.
- Most stretchable ADF components also work in flowing context with `dimensionsFrom="auto"`.
- To stretch a component horizontally, use `styleClass="AFStretchWidth"` (instead of `inlineStyle="width:100.0%"`).

Working with customizable components:

- In `panelCustomizable`, use `layout="auto"` to detect whether to stretch its children.
- To support flowing and stretching layouts, use `showDetailFrame` with `stretchChildren="auto"`.

Best Practices for Developing Page Templates That Can Be Edited at Runtime

To create a page template at design time (in Oracle JDeveloper) that is suited to being editable at runtime (in Oracle WebCenter Portal), follow these tips.

- Add components from the Composer group in the Component Palette.
- Do not add `pageCustomizable` to a page template.
- Add at least one `panelCustomizable` component, which provides a container with horizontal or vertical layout that holds other components.
- Inside a `panelCustomizable` component, add ADF components (such as `outputText`, `richTextEditor`, or `goLink`) surrounded by a `showDetailFrame`, which provides a chrome for a component that enables you to add actions like show, hide, and move. You can edit the frame or the embedded component properties.

> **Caution:**
>
> Use this technique sparingly, as `showDetailFrame` components impact processing time. If the end user is not expected to move components around, do not wrap them in a `showDetailFrame`.

Many of the components available to add to a page at design time are also available at runtime in the resource catalog. Table 7-2 maps design time components to runtime components.

Table 7-2 Component Mapping: Design time to Runtime

Design Time (JDeveloper)	Runtime (WebCenter Portal)
`panelCustomizable`	`Box`
`outputText`	`HTML Markup`
`goLink`	`Hyperlink`
`goImageLink`	`Image`
`showDetailFrame`	`Movable Box`
`richTextEditor`	`Text`
`inlineFrame`	`Web Page`

Best Practices for Customizing the Appearance of Components

To customize the appearance of components, follow these tips.

- For custom styling, use Cascading Style Sheets (CSS), which is easy to maintain and can be changed without changing the page template source. For example, make the background color of a page blue using the CSS code `background-color: blue`.
- Use a custom skin for consistently modified appearances if the existing skin doesn't provide all that you need.
- For instance-specific alternative styling, use the `styleClass` attribute. Keep the corresponding style definitions in an easy-to-maintain location such as in a custom skin (recommended) or in a style provided by the `af:resource` tag.
- As a last resort, use component attributes such as `inlineStyle`, `contentStyle`, and `labelStyle`. These are harder to maintain as they are scattered throughout components rather than collected in a single style sheet, contribute more to the page's raw HTML size, and may not even be needed if one or more of the above mechanisms are used. Styles are directly processed by the web browser, which gives you a great deal of power but at the cost of being error-prone.
- Browsers do not support all styles on all elements and certain combinations of styles produce non-obvious results. Here is some guidance on style configurations to avoid:
  - An `inlineStyle` with a `height` value with `%` units
  - An `inlineStyle` with a `width` value between `90%` and `100%` (use `styleClass="AFStretchWidth"` or `styleClass="AFAuxiliaryStretchWidth"` instead)
  - An `inlineStyle` with `height`, `top`, and `bottom` values
  - An `inlineStyle` with `width`, `left`, and `right` values
  - An `inlineStyle` with a `position` value

  – In a child being stretched by a parent component, an `inlineStyle` with `width` or `height` values

Best Practices for Defining Scrolling in a Page Template

To define scrolling in a page template, follow these tips.

- Try to avoid the need for end users to scroll horizontally by designing the page content to occupy the available screen size.
- Add scrollbars only around flowing island content. The recommended transition component for switching from a stretching outer frame into a flowing island is the `panelGroupLayout` with `layout="scroll"`. If the contents of this `panelGroupLayout` cannot fit in the space allocated, the browser will determine whether scrollbars are needed and will add them automatically.
- Do not nest scrolling `panelGroupLayout` components because this will make the user see multiple scrollbars. Also, this should only be used at transitions from stretching to flowing areas and since you should not have stretching areas inside of flowing areas, you would generally never end up with nested scrollbars. It is best to minimize the number of areas that users must scroll in order to see what they are looking to find. Take time to consider what scrolling users will need. In cases where undesired scrollbars exist, you may want to change the `layout` attribute of the `panelGroupLayout` to `vertical`.

Best Practices for Defining Margins, Borders, and Padding

Due to browser CSS Box Model Rules, defining margins, borders and padding on components can be complex. In many cases, to apply these kinds of styles, you need to use multiple components together.

- In a scrolling area, you can add an extra `panelGroupLayout` with `layout="vertical"` with the padding defined on it, inside of the outer `panelGroupLayout` with `layout="scroll"`.
- In a stretching area, you may need to wrap a `panelGroupLayout` component inside a `panelGridLayout` with spacers inside `gridCell` components. See Figure 7-2.

Creating a Page Template

This section contains the following subsections:

- About Creating Page Templates
- How to Create a Page Template
- What You May Need to Know About Page Template Artifacts

About Creating Page Templates

Before you can design your page template, you must first create a WebCenter Portal Asset application for the page template.

Before you create a page template, be sure to read through Best Practices for Developing Page Templates.

Note:

Oracle recommends that you use JDeveloper to develop page templates for Oracle WebCenter Portal. You can also develop page templates in WebCenter Portal, but the editing capabilities are limited.

When fully developed, you can publish a page template directly to WebCenter Portal as a shared asset or to a specific portal for immediate use or for testing. Alternatively, you can export the page template to a file and upload the page template to WebCenter Portal later

For more information, see Editing a Page Template and Publishing a Page Template.

For examples of features that you can include in your own page templates, refer to the built-in page templates provided with WebCenter Portal, specifically the latest responsive page templates (Mosaic and Unicorn), and other page templates that minimize the use of task flows and include the performance-optimizing `panelGridLayout` component, which uses rows (`gridRow`) and cells (`gridCell`) to define a structured layout. See About Built-in Page Templates in WebCenter Portal in *Building Portals with Oracle WebCenter Portal*.

You can start by copying and pasting one of one of the built-in templates into JDeveloper, or you can build an entirely new page template from scratch. Even if you do not intend to base your page templates on the built-in ones at all, it is still worth studying them for ideas. For example, the built-in page templates include a login form, and a good example of navigation visualization, which you can modify according to your requirements.

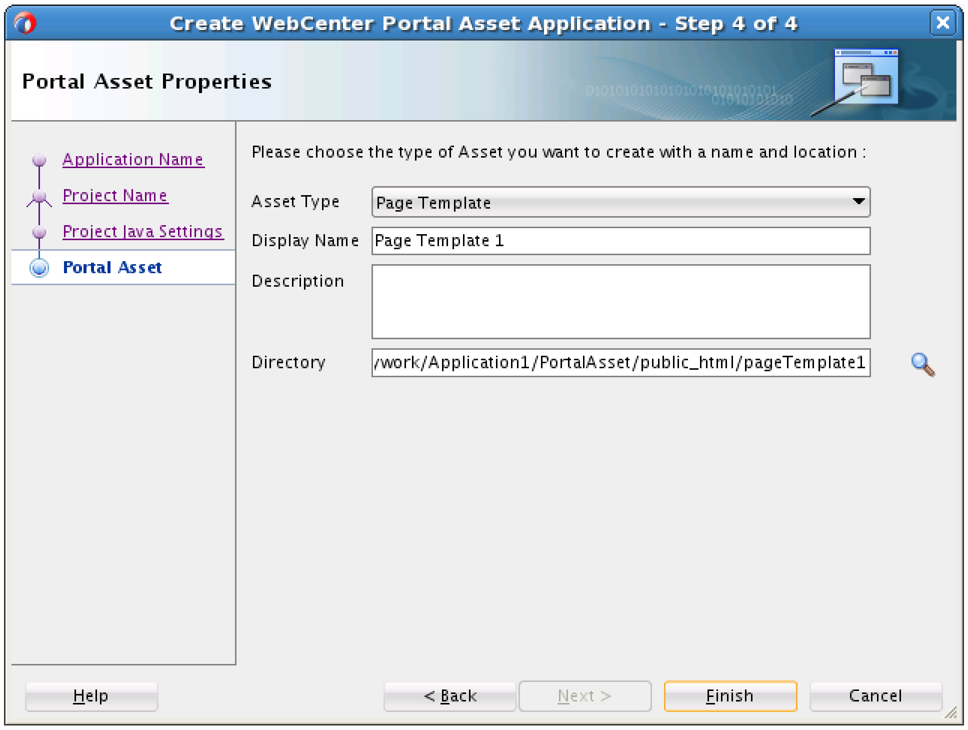
How to Create a Page Template

This section describes how to create a WebCenter Portal asset application for a new page template.

To create a custom page template:

1. Create a WebCenter Portal asset application for the asset, selecting **Page Template** as the **Asset Type**.

Figure 7-4   Page Template Asset Type


Create WebCenter Portal Asset Application - Step 4 of 4

Portal Asset Properties

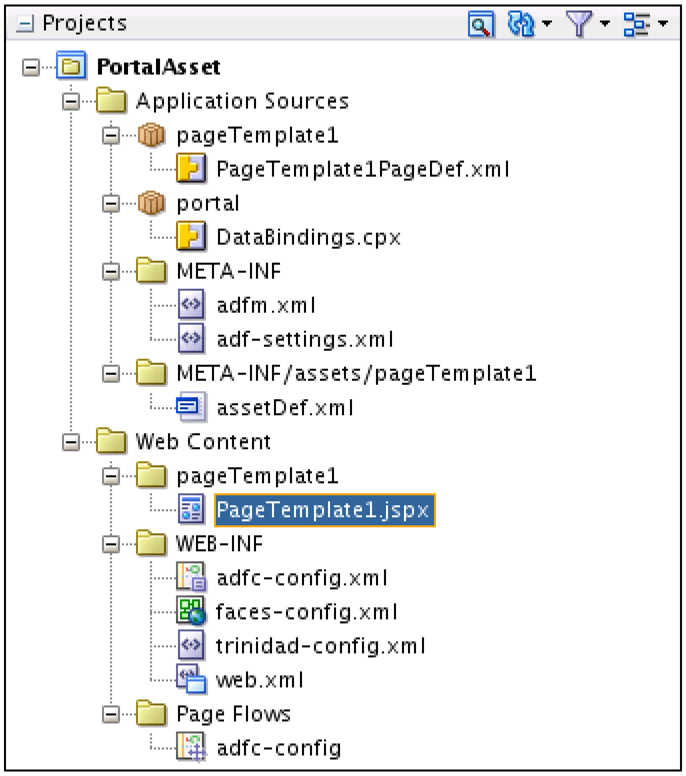
Please choose the type of Asset you want to create with a name and location :

Asset Type: Page Template
Display Name: Page Template 1
Description:
Directory: /work/Application1/PortalAsset/public_html/pageTemplate1

See Creating a WebCenter Portal Asset Application for more information about creating WebCenter Portal asset applications.

A JSPX file is created for the page template.

Figure 7-5   Page Template JSPX File



```
Projects
PortalAsset
    Application Sources
        pageTemplate1
            PageTemplate1PageDef.xml
        portal
            DataBindings.cpx
        META-INF
            adfm.xml
            adf-settings.xml
        META-INF/assets/pageTemplate1
            assetDef.xml
    Web Content
        pageTemplate1
            PageTemplate1.jspx
        WEB-INF
            adfc-config.xml
            faces-config.xml
            trinidad-config.xml
            web.xml
        Page Flows
            adfc-config
```

For more information about the artifacts created when you create an asset application for a new page template, see What You May Need to Know About Page Template Artifacts.

2. Continue by editing the contents of the JSPX file as described in Editing a Page Template.

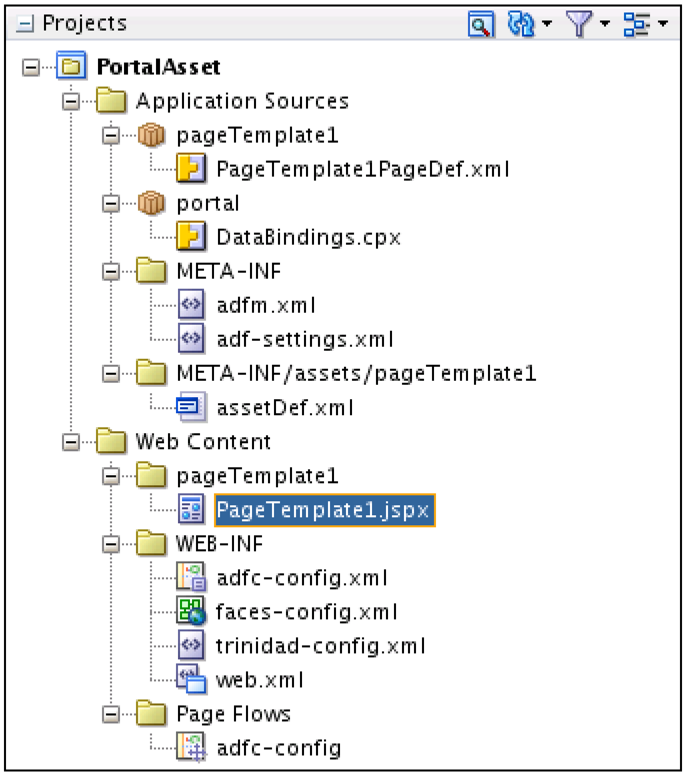
What You May Need to Know About Page Template Artifacts

Creating a page template asset application produces a default template, with the following artifacts:

- A JSPX file containing the page elements for the page template (for example, `PageTemplate1.jspx`)
- The corresponding page definition file for the page template (for example, `PageTemplate1PageDef.xml`)

Both of these files appear in the Application Navigator as shown in Figure 7-6.

Figure 7-6 Page Template Asset Application Artifacts



Editing a Page Template

After creating a WebCenter Portal asset application and initial page template, continue by adding or modifying elements.

To edit a page template:

1. In the Application Navigator, right-click the JSPX file of the page template that you want to edit, and choose **Open**.
2. In the editor, make required changes to the layout and content of the page template by dragging components from the Component Palette.

   For more information about how to build your page template, see Introduction to Developing Page Templates and Best Practices for Developing Page Templates.

   The built-in page templates provide useful examples of page templates, and see also Page Template Tutorials and Examples.

   For general information about JSF page templates, see Using Page Templates in *Developing Web User Interfaces with Oracle ADF Faces*.
3. Save your changes.

Adding Navigation to a Page Template

One of the key parts of a page template is the navigation visualization. This determines how the navigation looks and behaves in your portal.

You can add navigation to a page or page template using built-in navigation task flows, or you can add custom navigation using ADF navigation components and the Oracle WebCenter Portal navigation APIs, as described in this section.

Note:

You can add navigation visualization to a page, but typically you add it to a page template so that it can be defined in one place and propagated consistently across all pages in a portal.

- About Visualizing Portal Navigation
- Using the Navigation Expression Language APIs
- Tips for Visualizing Portal Navigation

About Visualizing Portal Navigation

The navigation visualization determines how the navigation appears in a portal. For example, navigation can be provided as a set of tabs along the top of each page, or perhaps as a tree structure along the side of the page. Another common navigation visualization is to provide a "master-detail" navigation of tabs along the top of the page, with each tab having additional navigation provided as a tree structure along the side of the page.

Typically, you add navigation visualization to page templates, so that it can be defined in one place and propagated consistently across the whole portal. However, you can also add navigation visualization to individual pages.

Oracle WebCenter Portal provides three built-in navigation task flows that you can add to pages or page templates to visualize the navigation. These built-in navigation task flows provide a quick way to test your navigation model, but they provide a fairly simple navigation visualization.

It is more likely that you will require a more advanced visualization. To do this, you must create your own navigation UI using ADF navigation components and the Oracle WebCenter Portal navigation APIs.

Note:

If the navigation model referenced by the page or page template includes External Link navigation items that use `mailto:` links, you must explicitly handle these. The example below uses JSTL to inspect the navigation item's `externalURL` to see if it starts with the string `mailto:`. If it does, an ADF Faces `goLink` component is used to render the link.

```
<c:choose>
  <c:when test="${fn:startsWith(node.externalURL, 'mailto:')}">
   <af:goLink id="pt_gl_mail" text="#{node.title}
       "destination="#{node.externalURL}"/>
  </c:when>
  <c:otherwise>
    ...
  </c:otherwise>
</c:choose>
```

Oracle WebCenter Portal provides two sets of APIs for adding navigation to your portal:

- Expression Language (EL) APIs—Use EL expressions to obtain the navigation model and navigation nodes. For more information, see Using the Navigation Expression Language APIs.
- REST APIs—Use standard HTTP methods to point to the navigation model and navigation nodes, returning a standard representation of any retrieved object. REST APIs can be used when using client-side programming languages (for example JavaScript + HTML, or environments, for example an iPhone). For more information, see Using the Navigation Expression Language APIs.

Note:

Any task flow that uses the navigation model to trigger navigation within an application must include a `parent-action` activity, named `wcnav_parentAction`, in the task flow definition that propagates the `wcnav_outcome` to the root level, as follows:

```
<parent-action id="wcnav_parentAction">
  <root-outcome>wcnav_outcome</root-outcome>
</parent-action>
```

Using the Navigation Expression Language APIs

Oracle WebCenter Portal provides a set of expression language (EL) APIs that you can use to obtain the navigation model and represent that navigation model as a runtime model. The runtime models can be bound directly to ADF Faces navigation components.

The available navigation EL expressions are listed in full in ELs Related to Navigation.

This section includes the following topics:

- Introduction to the Navigation Context
- Introduction to the Navigation Runtime Model
- Introduction to the Navigation Resource
- How to Render the Navigation Model as a List of Links
- How to Render the Navigation Model as a Tree
- How to Render the Navigation Model as a Three-Level Menu
- How to Render the Navigation Model as Breadcrumbs
- How to Render Master-Detail Navigation

Note:

This section includes some examples of how to use the navigation EL APIs. For a full working example, see the default page templates (`pageTemplate_globe.jspx` and `pageTemplate_swooshy.jspx`) created when you create a portal.

Introduction to the Navigation Context

The Navigation Context is the entry point to access all navigation elements within your system. Specifically, it enables you to access navigation models via preference, state, and direct reference, as well as providing the hooks to create custom UI to actually navigate to the nodes.

Navigation Model Access

- Default navigation model (preference)—This is the model specified by the ADF preference `oracle.webcenter.portalapp.navigation.model` in the `adf-config.xml` file. This enables you to define the general model to be used throughout your application and enables you to change the value in one place rather than having to go to each page and page template to set the value. The EL expression to retrieve the default navigation model is:

  ```
  #{navigationContext.defaultNavigationModel}
  ```

- Current navigation model (state)—This model is the one used to navigate to the current portal. The EL expression to retrieve the navigation model for the current portal is:

  ```
  #{navigationContext.currentNavigationModel}
  ```

  Using this expression enables you to have a single value within a page or page template (for example, for displaying breadcrumbs) and have it display the correct value without having to select a specific navigation model.

- Direct navigation model access (direct reference)—You can also select a specific navigation model by passing in the path to the XML definition of the model. The EL expression to retrieve a specific navigation model is:

```
#{navigationContext.navigationModel['modelPath=path']
```

where *path* is the path to the navigation model definition file, for example:

```
#{navigationContext.navigationModel['modelPath=/oracle/webcenter/portalapp/
navigations/myNavigation']}
```

> **Note:**
>
> You do not need to include the `.xml` file name extension.

Resource Navigation

Use these ELs for core bean operations for binding the navigation model to the UI component's `actionListener` attribute. For example:

```
#{navigationContext.processAction}
```

Example 7-1 Simple Tree Navigation UI

This example creates a simple tree UI using the Navigation Context to access the current navigation model and render the tree using `<af:outputText/>`

```
<af:tree var="node"

value="#{navigationContext.currentNavigationModel.treeModel['startNode=/,

  includeStartNode=true,
  depth=1']}"
  id="t1">
<f:facet name="nodeStamp">
    <af:outputText value="#{node.title}" id="ot1"/>
   </f:facet>
 </af:tree>
```

Example 7-2 Binding the Navigation Model to the UI Component

This example uses the Navigation Context's `processAction` listener to handle navigation for an ADF `commandImageLink` component, passing in the current node as the parameter called `node` as an attribute to the `actionListener`.

```
<af:tree var="node"

value="#{navigationContext.currentNavigationModel.treeModel['startNode=/,
       includeStartNode=true,
       depth=1']}"
    id="t1">
  <f:facet name="nodeStamp">
    <af:commandImageLink text="#{node.title}"
        id="sm_c1b"
        actionListener="#{navigationContext.processAction}"
         inlineStyle="#{node.selected ? 'font-weight:bold;' : ''}">
       <f:attribute name="node" value="#{node}"/>
    </af:commandImageLink>
  </f:facet>
</af:tree>
```

Introduction to the Navigation Runtime Model

The Navigation Runtime Model exposes the underlying XML definition as runtime models, as well as providing direct access to individual nodes. The runtime models take into account such factors as security and visibility to produce a session-specific representation that can be bound to UI objects.

Note:

Note the difference between the *navigation model* that you create to define the content, structure, and metadata of the navigation and the *navigation **runtime** model* that determines how the navigation model behaves at runtime.

You can access the whole model by using the default runtime model (`defaultTreeModel`, `defaultListModel`, `defaultMenuModel`, and `defaultSiteMap`), or access a specific sub-tree using the various parameters when creating the runtime model. For example:

```
#{navigationContext.defaultNavigationModel.menuModel['startNode=home,
    includeStartNode=false, depth=2']}
```

For more information about the underlying ADF Faces MenuModel, TreeModel, and ListModel, see Web User Interface Developer's Guide for Oracle Application Development Framework.

Model Access

You can create the following runtime models based on the underlying navigation model:

- UI Models
  - Tree model

    ```
    #{navigationContext.defaultNavigationModel.defaultTreeModel}
    #{navigationContext.defaultNavigationModel.treeModel['parameters']}
    ```

  - Menu model

    ```
    #{navigationContext.defaultNavigationModel.defaultMenuModel}
    #{navigationContext.defaultNavigationModel.menuModel['parameters']}
    ```

  - List model

    ```
    #{navigationContext.defaultNavigationModel.defaultListModel}
    #{navigationContext.defaultNavigationModel.listModel['parameters']}
    ```

- Search Engine Model

   – Sitemap

```
#{navigationContext.defaultNavigationModel.defaultSiteMap}
#{navigationContext.defaultNavigationModel.siteMap['parameters']}
```

Resource (or Node) Access

You can access specific nodes within the navigation model using the follow EL expressions:

- `#{navigationContext.defaultNavigationModel.currentSelection}`
- `#{navigationContext.defaultNavigationModel.rootNode}`
- `#{navigationContext.defaultNavigationModel.node['`*`path`*`']}`

Example 7-3   Rendering the Navigation Model as a Menu Model

This example renders the current navigation model's menu model as a breadcrumb.

```
<af:breadCrumbs id="bc1"
    var="node"
    value="#{navigationContext.currentNavigationModel.defaultMenuModel}">
  <f:facet name="nodeStamp">
    <af:commandNavigationItem id="cni1"
        text="#{node.title}"
        actionListener="#{navigationContext.processAction}"
        partialSubmit="true">
      <f:attribute name="node" value="#{node}"/>
    </af:commandNavigationItem>
  </f:facet>
</af:breadCrumbs>
```

Example 7-4   Producing a Sitemap

This example produces a Sitemap for the application based on the default navigation model.

```
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page"  version="2.1"
    xmlns:f="http://java.sun.com/jsf/core">
  <jsp:directive.page contentType="text/xml;charset=UTF-8" />
  <f:view>
    ${navigationContext.defaultNavigationModel.defaultSiteMap}
  </f:view>
</jsp:root>
```

Introduction to the Navigation Resource

The Navigation Resource provides access to individual properties against each node within the navigation model. These fall into the following categories:

- Attributes-Common properties that the user can specify against any navigation element and are used for rendering the node on the page, including:
  - Title—The title displayed for the node when the navigation model is rendered at runtime.

  - AccessKey—A key mnemonic (single character) that users can enter to access the node without using the mouse
  - Description—A description of the node.
  - IconURI—An icon to visually represent the node. This is displayed next to the Title when the navigation model is rendered at runtime.
  - Subject—Keywords to facilitate searching of the node.
  - Target—The location on the container page where the node is displayed when it is selected, either in the same browser window (`_self`), a new window (`_blank`), or a popup (`_popup`), or any other location supported by the navigation UI.
  - ToolTip—Text that displays to provide additional information about the node when users hover the mouse over the Title.
  - Modified—The date of the last modification of the node. This attribute is used for Sitemap creation.
  - Significance—The priority of this node relative to other nodes in the navigation model, within the range 0.0 to 1.0. This attribute is used for Sitemap creation.
  - ChangeFrequency—This attribute is used to specify how frequently the node is likely to change, for example, always, hourly, daily, weekly, monthly, yearly, never. This attribute is used for Sitemap creation.
  - ExternalId—An ID to enable a direct reference to any node in the navigation model from a static link in the page.
  - ActionsAllowed—This attribute is used to manage security permissions like grant, create, publish, delete, update, contribute, and view for the navigation resource.
  - hasChild—This attribute is used to verify whether the node or resource has any children or not.
- Parameters—User-defined properties that are specific to each node. These are name/value pairs and can contain any value.
- State—Built-in properties that you can query and use to navigate to the node. For example:
  - Type of node, for example, folder or separator
  - Whether the node is navigable
  - The path to the node
  - Parent, child, or sibling node access
  - Whether the node is the currently selected node within the navigation model or on the selected node's path

For a complete list, see ELs Related to Navigation

Example 7-5 Rendering a `commandImageLink` with Attributes

This example renders an ADF `commandImageLink` component with various attributes.

```
<af:commandImageLink text="#{node.title}"
    id="cil1"
    actionListener="#{navigationContext.processAction}"
    shortDesc="#{node.attributes['ToolTip']}"
    accessKey="#{node.attributes['AccessKey']}"
    inlineStyle="#{node.selected ? 'font-weight:bold;' : ''}">
  <f:attribute name="node" value="#{node}"/>
</af:commandImageLink>
```

Example 7-6 Passing Node Values to Page Parameters

This example accesses values passed from a node to the corresponding page through parameters.

```
homePageDef.xml

<pageDefinition xmlns="http://xmlns.oracle.com/adfm/uimodel"
    version="11.1.1.55.96" id="homePageDef"
    Package="oracle.webcenter.portalapp.pages">
  <parameters>
    <parameter id="NavigationParameter"

value="#{navigationContext.currentNavigationModel.currentSelection.paramete
rs['MyNavParam']}"/>
  </parameters>
```

Example 7-7 Conditionally Displaying Navigation Nodes

This example conditionally displays breadcrumb links based on whether you can navigate to the node. It also bases the UI component on the type of the node.

```
<af:breadCrumbs id="bc1"
                var="node"

value="#{navigationContext.currentNavigationModel.defaultMenuModel}">
  <f:facet name="nodeStamp">
    <af:switcher facetName="#{node.navigable}" id="swn1">
      <f:facet name="true">
        <af:commandNavigationItem id="cni1" text="#{node.title}"

actionListener="#{navigationContext.processAction}"
                                  partialSubmit="true">
          <f:attribute name="node" value="#{node}"/>
        </af:commandNavigationItem>
      </f:facet>
      <f:facet name="false">
        <af:outputText value="#{node.title}" rendered="#{!node.separator}"
id="ot3"/>
      </f:facet>
    </af:switcher>
  </f:facet>
</af:breadCrumbs>
```

How to Render the Navigation Model as a List of Links

One common way to visualize a portal's navigation is as a list of links. Clicking a link navigates to the resource associated with it.

Example 7-8 retrieves the list model for the current navigation model and renders it vertically on the page. The code iterates through the navigation model, binding each node in turn to an ADF `commandImageLink` component. If a node contains children, a second iterator renders those children on the page. If a node is not navigable, it is not rendered as a link. The currently selected node is displayed in bold.

Example 7-8   Navigation as a List of Links

```
af:panelGroupLayout id="pgl1" layout="vertical">
  <af:spacer id="sp1" height="20px"/>
  <af:iterator id="i1"

value="#{navigationContext.currentNavigationModel.listModel['startNode=/,
                     includeStartNode=false']}"
               var="node">
    <af:panelGroupLayout layout="vertical">
      <af:commandImageLink id="cil2" text="#{node.title}"

actionListener="#{navigationContext.processAction}"
                           action="pprnav"

icon="#{node.attributes[pageFlowScope.tnBean.iconKey]}"
                           disabled="#{not node.navigable}"
                           inlineStyle="#{node.onSelectedPath ? 'font-
weight:bold;' : ''}">
        <f:attribute name="node" value="#{node}"/>
      </af:commandImageLink>
      <af:iterator id="i2" value="#{node.children}" var="node2">
        <af:panelList id="pl1">
          <af:commandImageLink id="cil3" text="#{node2.title}"

actionListener="#{navigationContext.processAction}"
                               action="pprnav"

icon="#{node2.attributes[pageFlowScope.tnBean.iconKey]}"
                               disabled="#{not node2.navigable}"
                               inlineStyle="#{node2.onSelectedPath ? 'font-
weight:bold;' : ''}">
            <f:attribute name="node" value="#{node2}"/>
          </af:commandImageLink>
        </af:panelList>
      </af:iterator>
    </af:panelGroupLayout>
  </af:iterator>
  <af:spacer id="sp3" height="20px"/>
</af:panelGroupLayout>
```

How to Render the Navigation Model as a Tree

Another common way to visualize portal navigation is as a tree structure. A navigation tree is typically listed down the side of the page, so it is a useful way of displaying the entire navigation hierarchy. Users can navigate immediately to any node in the navigation. The advantage of using a tree structure over a simple list of links, is that users can expand and collapse the different nodes of the navigation model.

To include a tree structure in your page or page template, you can bind the ADF Faces `tree` navigation component to your navigation model. Example 7-9 shows how to do this. In the example, the second level of the navigation hierarchy is collapsed by default, but an icon enables users to expand a node to show its children.

Example 7-9 Navigation as a Tree

```
<af:panelGroupLayout id="pgl1" layout="vertical">
  <af:spacer id="sp2" height="20px"/>
  <af:tree id="tree1" var="node" initiallyExpanded="true"

value="#{navigationContext.currentNavigationModel.treeModel['includeStartNo
de=false']}">
    <f:facet name="nodeStamp">
      <af:commandImageLink id="cil2" text="#{node.title}"

actionListener="#{navigationContext.processAction}"
                           action="pprnav"

icon="#{node.attributes[pageFlowScope.tnBean.iconKey]}"
                           disabled="#{not node.navigable}"
                           inlineStyle="#{node.onSelectedPath ? 'font-
weight:bold;' : ''}">
        <f:attribute name="node" value="#{node}"/>
      </af:commandImageLink>
    </f:facet>
  </af:tree>
  <af:spacer id="sp3" height="20px"/>
</af:panelGroupLayout>
```

How to Render the Navigation Model as a Three-Level Menu

You can also render your navigation as a menu. In a menu, the top level of navigation is displayed. When the user hovers the mouse over a particular node, if that node has children, they are displayed as a popup menu.

Example 7-10 retrieves the list model for the current navigation model and renders it vertically on the page. The code iterates through the navigation model. If a node contains children, then a second iterator iterates through those children. Nodes without children are rendered as menu items. In the second level of the navigation model, if any of the nodes have children, then a third iterator is executed. Again, nodes without children are rendered as menu items. At the third level of the navigation mode, nodes are rendered as menu items. Non-navigable nodes are not rendered as links. The currently selected node is displayed in bold.

Example 7-10 Navigation as a Menu

```
<af:panelGroupLayout id="pgl1" layout="vertical">
  <af:spacer id="sp1" height="20px"/>
  <af:menuBar id="mb1">
    <af:iterator id="i1"

value="#{navigationContext.currentNavigationModel.listModel['startNode=/,
                       includeStartNode=false']}"
                 var="node">
```

```
      <af:switcher id="s1"
                   facetName="#{empty node.children ? 'leafNode' :
'parentNode'}">
        <f:facet name="parentNode">
          <af:menu id="m1" text="#{node.title}"
                   inlineStyle="#{node.onSelectedPath ? 'font-
weight:bold;' : ''}">
            <af:iterator id="i2" value="#{node.children}"
                         var="node2">
              <af:switcher id="s2"
                           facetName="#{empty node2.children ?
'leafNode' : 'parentNode'}">
                <f:facet name="parentNode">
                  <af:menu id="m2" text="#{node2.title}"
                           inlineStyle="#{node2.onSelectedPath ? 'font-
weight:bold;' : ''}">
                    <af:iterator id="i3" value="#{node2.children}"
                                 var="node3">
                      <af:commandMenuItem id="cml3"
                                          text="#{node3.title}"

actionListener="#{navigationContext.processAction}"
                                          action="pprnav"

icon="#{node3.attributes[pageFlowScope.tnBean.iconKey]}"
                                          disabled="#{not node3.navigable}"

inlineStyle="#{node3.onSelectedPath ?
                                                      'font-
weight:bold;' : ''}">
                        <f:attribute name="node" value="#{node3}"/>
                      </af:commandMenuItem>
                    </af:iterator>
                  </af:menu>
                </f:facet>
                <f:facet name="leafNode">
                  <af:commandMenuItem id="cml1"
                                      text="#{node2.title}"

actionListener="#{navigationContext.processAction}"
                                      action="pprnav"

icon="#{node2.attributes[pageFlowScope.tnBean.iconKey]}"
                                      disabled="#{not node2.navigable}"
                                      inlineStyle="#{node2.onSelectedPath ?
                                                  'font-weight:bold;' :
''}">
                    <f:attribute name="node" value="#{node2}"/>
                  </af:commandMenuItem>
                </f:facet>
              </af:switcher>
            </af:iterator>
          </af:menu>
        </f:facet>
        <f:facet name="leafNode">
```

```
          <af:commandMenuItem id="cml2" text="#{node.title}"

actionListener="#{navigationContext.processAction}"
                              action="pprnav"

icon="#{node.attributes[pageFlowScope.tnBean.iconKey]}"
                              disabled="#{not node.navigable}"
                              inlineStyle="#{node.onSelectedPath ? 'font-
weight:bold;' : ''}">
            <f:attribute name="node" value="#{node}"/>
          </af:commandMenuItem>
        </f:facet>
      </af:switcher>
    </af:iterator>
  </af:menuBar>
  <af:spacer id="sp3" height="20px"/>
</af:panelGroupLayout>
```

How to Render the Navigation Model as Breadcrumbs

To provide users with a quick way of orientating themselves within the portal navigation, you can provide a trail of breadcrumbs on the page. Breadcrumbs show the current location in the portal and the path taken through the navigation to get there. Users can then quickly return to any point along that path. Breadcrumbs are typically used on a page in addition to other forms of navigation.

To include breadcrumbs in your page or page template, you can bind the ADF Faces `breadCrumbs` navigation component to your navigation model. Example 7-11 shows how to do this.

Example 7-11 Navigation as Breadcrumbs

```
<af:panelGroupLayout id="pgl1" layout="vertical">
  <af:spacer id="sp1" height="20px"/>
  <af:breadCrumbs id="bc1" var="node"

value="#{navigationContext.currentNavigationModel.menuModel[
                        'includeStartNode=false']}">
    <f:facet name="nodeStamp">
      <af:commandNavigationItem id="cil1" text="#{node.title}"

actionListener="#{navigationContext.processAction}"
                                action="pprnav"

icon="#{node.attributes[pageFlowScope.tnBean.iconKey]}"
                                disabled="#{not node.navigable}">
        <f:attribute name="node" value="#{node}"/>
      </af:commandNavigationItem>
    </f:facet>
  </af:breadCrumbs>
  <af:spacer id="sp2" height="20px"/>
</af:panelGroupLayout>
```

How to Render Master-Detail Navigation

Often portals provide a "`master-detail`" navigation visualization, for example, as tabs along the top of the page, with each tab having additional navigation provided as a tree structure along the side of the page.

The master-detail navigation in Example 7-12 uses the same navigation model for the master and detail navigation. The master navigation renders the top level of the navigation model as a list of links along the top of the page. The detail navigation renders the children of the currently selected top level node as a tree.

Tip:

For the `c:set` tag to work correctly in the following examples, you must include the JSTL library by adding the following to the `jsp:root` tag

```
xmlns:c="http://java.sun.com/jsp/jstl/core"
```

Example 7-12 Master-Detail Navigation Using a Single Navigation Model

```
<af:panelGroupLayout id="pgl1" layout="vertical">
  <af:spacer id="sp1" height="20px"/>
  <!-- Master --><af:navigationPane id="np1" var="node" hint="bar"
level="1" value="#{navigationContext.navigationModel['modelPath=/oracle/
webcenter/portalapp/navigations/master'].defaultMenuModel}"><f:facet
name="nodeStamp">
      <af:commandNavigationItem id="cil1" text="#{node.title}"

actionListener="#{navigationContext.processAction}"
                                action="pprnav"

icon="#{node.attributes[pageFlowScope.tnBean.iconKey]}"
                                disabled="#{not node.navigable}"
                                inlineStyle="#{node.onSelectedPath ? 'font-
weight:bold;' : ''}">
        <f:attribute name="node" value="#{node}"/>
      </af:commandNavigationItem>
    </f:facet>
  </af:navigationPane>
  <af:spacer id="sp2" height="20px"/>
  <!-- Setup the parameters for detail query -->
  <c:set value="startNode=/${navigationContext.navigationModel[
               'modelPath=/oracle/webcenter/portalapp/navigations/master']
               .currentSelection.prettyUrlPath[1]}, includeStartNode=false"
         var="currSel" scope="session"/>
  <!-- Detail --><af:tree id="tree1" var="node2" initiallyExpanded="true"
value="#{navigationContext.navigationModel['modelPath=/oracle/webcenter/
portalapp/navigations/master'].treeModel[currSel]}">
    <f:facet name="nodeStamp">
      <af:commandImageLink id="cil2" text="#{node2.title}"
```

```
actionListener="#{navigationContext.processAction}"
                           action="pprnav"

icon="#{node2.attributes[pageFlowScope.tnBean.iconKey]}"
                           disabled="#{not node2.navigable}"
                           inlineStyle="#{node2.onSelectedPath ? 'font-
weight:bold;' : ''}">
        <f:attribute name="node" value="#{node2}"/>
      </af:commandImageLink>
    </f:facet>
  </af:tree>
  <af:spacer id="sp3" height="20px"/>
</af:panelGroupLayout>
```

Example 7-13 Master-Detail Navigation Using Multiple Navigation Models

Example 7-12 can also be written to use two different navigation models, one for the master navigation, and one for the detail navigation. This example shows how to write for two different navigation models.

```
<af:panelGroupLayout id="pgl1" layout="vertical">
  <af:spacer id="sp1" height="20px"/>
  <!-- Master -->
<af:navigationPane id="np1" var="node" hint="bar" level="1"
            value="#{navigationContext.navigationModel[
                 'modelPath=/oracle/webcenter/portalapp/navigations/
master']
                 .defaultMenuModel}">
  <f:facet name="nodeStamp">
      <af:commandNavigationItem id="cil1" text="#{node.title}"

actionListener="#{navigationContext.processAction}"
                                action="pprnav"

icon="#{node.attributes[pageFlowScope.tnBean.iconKey]}"
                                disabled="#{not node.navigable}"
                                inlineStyle="#{node.onSelectedPath ? 'font-
weight:bold;' : ''}">
        <f:attribute name="node" value="#{node}"/>
      </af:commandNavigationItem>
    </f:facet>
  </af:navigationPane>
  <af:spacer id="sp2" height="20px"/>
  <!-- Setup the parameters for detail query -->
  <c:set value="startNode=/${navigationContext.navigationModel[
               'modelPath=/oracle/webcenter/portalapp/navigations/master']
               .currentSelection.prettyUrlPath[1]}, includeStartNode=false"
         var="currSel" scope="session"/>
  <!-- Detail -->
<af:tree id="tree1" var="node2" initiallyExpanded="true"
          value="#{navigationContext.navigationModel
             ['modelPath=/oracle/webcenter/portalapp/navigations/master']
             .treeModel[currSel]}">
    <f:facet name="nodeStamp">
      <af:commandImageLink id="cil2" text="#{node2.title}"
```

```
actionListener="#{navigationContext.processAction}"
                           action="pprnav"

icon="#{node2.attributes[pageFlowScope.tnBean.iconKey]}"
                           disabled="#{not node2.navigable}"
                           inlineStyle="#{node2.onSelectedPath ? 'font-
weight:bold;' : ''}">
        <f:attribute name="node" value="#{node2}"/>
      </af:commandImageLink>
    </f:facet>
  </af:tree>
  <af:spacer id="sp3" height="20px"/>
</af:panelGroupLayout>
```

Tips for Visualizing Portal Navigation

When visualizing a portal navigation model, consider the following:

- Use ADF Faces layout components to organize your page or page template, rather than HTML `div` and `span` tags. For more information, see the Organizing Content on Web Pages in *Developing Web User Interfaces with Oracle ADF Faces*.
- If your portal is public facing, or you want to enable search engine optimization, add navigation visualization using the `af:goLink` component in conjunction with the `goLinkPrettyUrl` method. You can also use other variations, such as `goButton`, `goImageLink`, and `goMenuItem`.

  For example:

  ```
  <af.goLink
  destination="#{navigationContext.defaultNavigationModel.node['pagePath']
       .goLinkPrettyUrl"}
  text="mylink" />
  ```

- Manage styling, decorative images, and geometry using skins.
- Select the page template using the default page template setting in `adf-config.xml` or using the **Render URL in Page Template** option for individual navigation links.
- If you use the `af:commandLink` component, or one of its variations such as `commandButton; commandMenuItem;` and so on, to visualize your portal navigation, you must use the following web.xml parameters to force the ADF framework to redirect instead of using PPR navigation:

  ```
  oracle.adf.view.rich.pprNavigation.OPTIONS

  oracle.webcenter.navigationframework.REDIRECT_OPTIONS
  ```

For more information, see the Oracle WebCenter & ADF Architecture Team blog.

Adding a Floating Toolbar to a Page Template

When users with the `Contribute Page Content` permission view a page, they will see a floating toolbar with a Contribute option when the page template includes the toolbar.

To add the floating toolbar to a custom page template:

1. Include the following xml namespace declaration (if not already present):

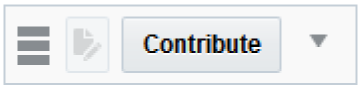
   ```
   xmlns:wcdc="http://xmlns.oracle.com/webcenter/spaces/taglib"
   ```

2. Within the xml namespace declaration, include the following reference to the floating toolbar:

   ```
   <wcdc:portalToolbar id="ptbdc"/>
   ```

   Figure 7-7 shows how the floating toolbar with the **Contribute** option will appear when the page template includes the toolbar.

   Figure 7-7 The Contribute Button in the Floating Toolbar



For more information, see About Content Contribution and Publishing in *Building Portals with Oracle WebCenter Portal*.

Publishing a Page Template

After creating a page template and editing its JSPX file, the next step is to publish and test the template in WebCenter Portal.

For instructions on how to publish a page template as a shared asset, or to a specific portal as a portal asset, see Publishing WebCenter Portal Assets.

Page Template Tutorials and Examples

The supplementary tutorials and examples listed in this section provide additional information about page templates.

- *Dissecting a Page Template*. Analyzes the details of a simple page template, including recommended practices.

  `http://www.oracle.com/technetwork/middleware/webcenter/portal/learnmore/dissectingapagetemplate-1926909.pdf`

- *Oracle WebCenter Portal Online Training: Creating and Using Page Templates in Oracle WebCenter Portal Applications*. Provides a recorded presentation and slides to create and use page templates for a portal in an earlier release.

  `http://www.oracle.com/technetwork/middleware/webcenter/portal/learnmore/pagetemplates-1438595.pdf`

- *Optimizing WebCenter Portal Mobile Delivery*. Identifies and analyzes some common WebCenter Portal performance bottlenecks related to page weight and describes a generic approach that can streamline a portal while improving the performance and response times. Of particular interest in the context of developing page templates is the section "Page Design and Component Choices." A sample application is available for download.

`http://www.ateam-oracle.com/webcenter-mobile-delivery/`

- *Working with Links in WebCenter Application*. Describes considerations for using links. Pertinent to page templates are links in menus, breadcrumbs, buttons, and images.

  `http://www.ateam-oracle.com/working-with-links-in-webcenter-application/`

8 Developing Skins

Use JDeveloper to create and edit skins for use in WebCenter Portal.

Topics:

Introduction to Developing Skins

Skins help you define the colors, fonts, images, and some dimensional details like the height and width of your application components to represent your company's preferred look and feel.

This section includes the following topics:

- About Skins
- About Runtime Management of Skins

About Skins

Skins are based on the Cascading Style Sheet (CSS) specification. A skin is a CSS file containing various skin selectors that define the styles of your application components. You can adjust the look and feel of any component by changing its style-related properties. Use of a skin in an application helps you to avoid specifying styles for each component individually or inserting a style sheet on each page. Every component automatically uses the styles defined in the skin. Skins help you to change an application's appearance without changing the portal pages themselves.

About Runtime Management of Skins

WebCenter Portal supports the runtime administration of skins to help users continue developing a portal even after it has been deployed. With runtime administration, authorized users can manage an application's skins, and create new ones, in a browser-based environment, with no requirement to install or understand JDeveloper. For more information, see Working with Skins in *Building Portals with Oracle WebCenter Portal*.

Best Practices for Developing Skins

You can approach creating or modifying a skin to be used in WebCenter Portal as two somewhat separate tasks. The first task is to apply basic styling elements to the larger elements on the page, such as the background and the center of the page, to provide the look and feel for your corporate brand. This is probably the first thing you will want to do. Secondarily, you may also want to apply styling to some of the smaller page elements to fine tune the look and feel.

In many cases a hybrid approach may also work well. Taking the larger elements (page background, main portion of the body, and so on) and applying traditional CSS styling with those, but then getting specific using ADF skinning to generate the overall appearance for WebCenter Portal.

When using CSS-based styling and other techniques in addition to ADF styling, it is often helpful to store the styling assets outside of WebCenter Portal. To do this you can use Content Server to manage all of the unstructured assets for WebCenter Portal. They can include things like CSS and images that you want manage within your environment and provides revision control and workflow. This best practice lets design teams access and work with WebCenter Portal without involving the development team for each and every change.

Creating a Skin

By default, WebCenter Portal uses the `portal` skin, which is defined in the `portal-skin.css` file. After creating a WebCenter Portal asset application, you can easily copy and paste this skin into JDeveloper to alter it to meet your specific requirements, or create a new skin from scratch. For more information about how to copy an asset in WebCenter Portal, see Copying an Asset in *Building Portals with Oracle WebCenter Portal*.

This section includes the following topics:

- How to Create a Skin
- What You May Need to Know About Skin Artifacts

How to Create a Skin

This section describes how to create a WebCenter Portal asset application for a new skin. Once the asset application with its associated artifacts has been created, you can continue by modifying the skin's CSS file as described in Editing a Skin.

Note:

Oracle recommends that you store asset-related artifacts, such as images and icons, on Content Server, and that you create a folder structure on your content server specifically for asset artifacts so that content is easy to identify and move, if required. This also allows other users to alter those types of content without involving a developer.

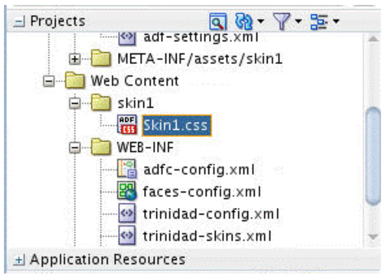
To create a WebCenter Portal asset application for a skin:

1. Create an asset application for the asset specifying `Skin` as the **Asset Type**.

   See Creating a WebCenter Portal Asset Application for more information about creating WebCenter Portal asset applications. For information about the artifacts that are created when you create an asset application for a skin, see What You May Need to Know About Skin Artifacts.

2. In the Application Navigator, right-click the newly created skin's CSS file, and choose **Open** (Figure 8-1).

Figure 8-1 Skin CSS File



3. Continue by editing the skin as described in Editing a Skin.

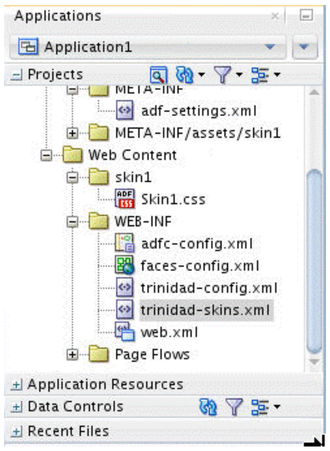
What You May Need to Know About Skin Artifacts

Creating a skin asset application produces a default skin, with the following artifacts:

- the CSS skin selector file (for example, `Skin1.css`)
- `trinidad-skins.xml`, the skin definition file

Both of these files appear in the Navigation bar as shown in Figure 8-2.

Figure 8-2 Skin Asset Application Artifacts



Editing a Skin

You can edit a skin after its initial creation by editing the CSS file to edit or add style selectors.

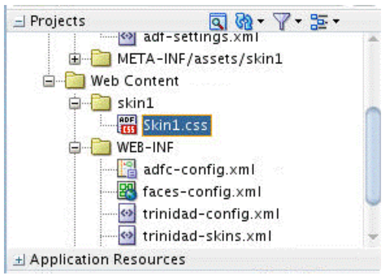
Note:

Oracle recommends that you copy an existing or built-in skin in WebCenter Portal and paste it into the page style CSS file in JDeveloper. You can then use this skin as the starting point for your new skin and publish it back to WebCenter Portal once you've modified it. For more information about how to copy an asset in WebCenter Portal, see Copying an Asset in *Building Portals with Oracle WebCenter Portal*.

To edit a skin:

1. In the Application Navigator, right-click the skin's CSS file and choose **Open** (Figure 8-3).

Figure 8-3 Skin CSS File



2. If you are using an existing WebCenter Portal skin (that is, other than the one created by default when you create the asset application) as a starting point (for example, the `portal` skin), copy and paste it into the CSS file (see Copying an Asset in *Building Portals with Oracle WebCenter Portal*).
3. In the source code for the skin, define the required ADF Faces skin selectors for the components in your application. For example, to define the font family for your application content, you can use the `.AFDefaultFont:alias` skin selector as shown here:

```
.AFDefaultFontFamily:alias {
font-family: Tahoma, Verdana, Helvetica, sans-serif;
}
```

For information about:

- ADF Faces skin selectors in general, refer to Customizing the Appearance Using Styles and Skins in *Developing Web User Interfaces with Oracle ADF Faces*. Also refer to the Oracle JDeveloper online help for information about the selectors that you can use in a skin. These are documented in the "Skin Selectors for Fusion's ADF Faces Components" and "Skin Selectors for Fusion's Data Visualization Tools Components" topics in the online help.

- Defining ADF Faces component style selectors, see Enabling End Users to Change an Application's ADF Skin and Changing the Style Properties of a Component in *Developing Web User Interfaces with Oracle ADF Faces*.

4. Save the CSS file.
5. Publish and test the skin as shown in Publishing a Skin.

Publishing a Skin

After creating a WebCenter Portal asset application and editing the CSS file for the skin, the next step is to publish it and test it in WebCenter Portal. For instructions on how to publish an asset to WebCenter Portal as a shared asset, or to a specific portal as a portal asset, see Publishing WebCenter Portal Assets.

Conditionally Changing Skins for Users

You can assign different skins per user, page, application, and so on, without impacting the actual application logic. To conditionally set a skin, you use the `<skin-family>` entry in the `trinidad-config.xml` file.

You can use EL expressions that can be evaluated dynamically to determine the skin to display. For example, if you want to use the German skin when the user's browser is set to the German locale, and to use the English skin otherwise, use the following `<skin-family>` entry in the `trinidad-config.xml` file:

```
<skin-family>#{facesContext.viewRoot.locale.language=='de' ? 'german' :
'english'}</skin-family>
```

For more information, see Enabling End Users to Change an Application's ADF Skin in *Developing Web User Interfaces with Oracle ADF Faces*.

> **Note:**
>
> The default value of `<skin-family>` is the name of the skin asset you created with the asset application (for example, `Skin1`) minus any spaces or special characters. If you change the default value, your application users cannot set skins at runtime in the Resource Manager.

You can also use the `SkinSetting` API to set the skin for a user conditionally. For more information, refer to *WebCenter Portal Javadoc API Java API Reference for Oracle WebCenter Portal*.

9

Developing Visualization Templates

Use JDeveloper to create and edit templates for visualizing data in WebCenter Portal.

Topics:

About Visualization Templates

Introduced in WebCenter Portal 12*c* (12.2.1) is the ability to retrieve data from a REST or SQL data source using a *business object*, simplifying the complexities of application integration. The retrieved data can be rendered on a portal page in a *data visualization* using a *visualization template*. For example, the data can be presented in one of the built-in visualization templates, or you can build a custom visualization template in JDeveloper if none of the built-in templates meet the needs of your organization.

See Also:

For information about the built-in visualization templates, see About Visualization Templates in *Building Portals with Oracle WebCenter Portal*

A visualization template is a JSFF file (JSP page fragment) that defines how the data retrieved by a business object is presented on a portal page. Unlike built-in visualization templates, which are generic presentation styles that can be used in multiple scenarios by binding to different business objects, a custom visualization template has little to no reusability as each custom template is designed to be used with a specific business object. Hence, a custom visualization template is also known as a *bound visualization template*.

When an application specialist or portal manager adds a data visualization component to a portal page in WebCenter Portal (as described in Adding a Data Visualization to a Page in *Building Portals with Oracle WebCenter Portal*), they configure the data visualization using the Define Data Visualization wizard to select the data source and visualization template, which is bound to the business object. The Options page of the wizard dynamically displays the selected template's attributes, either those of a built-in template or the placeholder EL specified in a custom template. For a custom visualization template, placeholder EL is bound to each business object attribute, which replaces the EL at runtime. For more information, see Configuring a Data Visualization in *Building Portals with Oracle WebCenter Portal*

Creating a Visualization Template

This section describes how to create a new custom visualization template in the following topics:

- How to Create a Visualization Template
- What You May Need to Know About Visualization Template Artifacts

How to Create a Visualization Template

This section describes how to create a WebCenter Portal asset application for a new visualization template. Once the asset application with its associated artifacts has been created, you can continue by modifying the visualization template as described in Editing a Visualization Template.

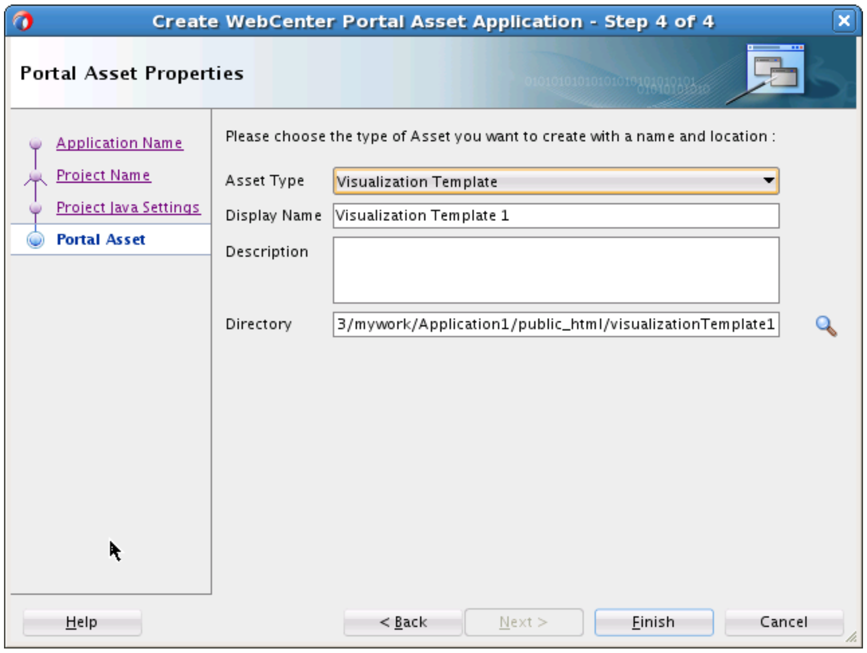
Note:

Oracle recommends that you store asset-related artifacts, such as images and icons, on your content server and that you create a folder structure on your content server specifically for asset artifacts so that content is easy to identify and move, if required.

To create a custom visualization template:

1. Create an asset application for the asset, specifying **Visualization Template** as the **Asset Type** (Figure 9-1).

Figure 9-1 Visualization Template Asset Type



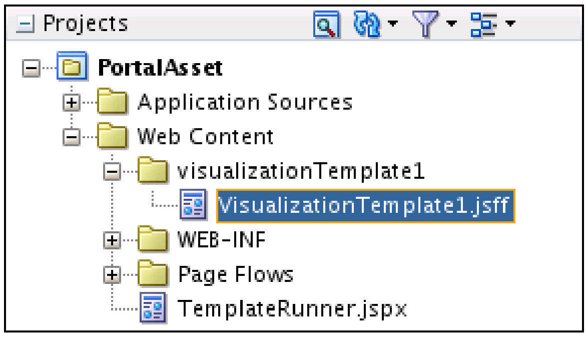
Please choose the type of Asset you want to create with a name and location :

Asset Type: Visualization Template
Display Name: Visualization Template 1
Description:
Directory: 3/mywork/Application1/public_html/visualizationTemplate1

See Creating a WebCenter Portal Asset Application for more information about creating WebCenter Portal asset applications. For information about the artifacts that are created when you create an asset application for a visualization template, see What You May Need to Know About Visualization Template Artifacts.

2. In the Application Navigator, right-click the newly created visualization template's page fragment file (Figure 9-2), choose **Open**, then switch to **Source** view.

Figure 9-2 Visualization Template Page Fragment File



3. Continue by editing the contents of the page fragment as described in Editing a Visualization Template.

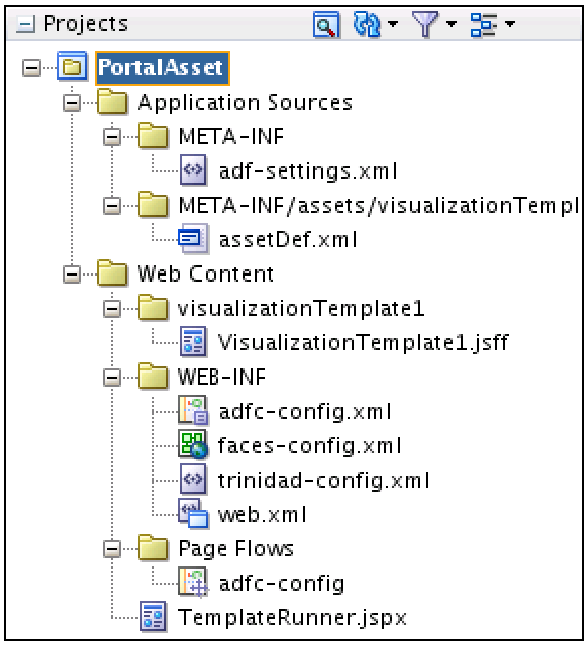
What You May Need to Know About Visualization Template Artifacts

Creating a visualization template asset application produces a default template, with the following artifact:

- A view fragment file (for example, `VisualizationTemplate1.jsff`)

This file appears in the Application Navigator as shown in Figure 9-3.

Figure 9-3 Visualization Template Asset Application Artifacts



To expose a visualization template for use when creating data visualizations at runtime, you must consider the following requirements:

- Create *only one* view fragment for a task flow that will be used as a visualization template. The view fragment JSFF file must be created in the same location as the task flow definition XML file.
- If the visualization template references code (for example, using an EL value), then that code must be present in the deployed application.

Editing a Visualization Template

After creating the initial framework of a visualization template (see How to Create a Visualization Template), you must edit it to define the template.

> **Note:**
>
> If changes are made to a custom visualization template that is already selected in a data visualization, you will need to configure a new data visualization and reselect the revised visualization template in order to reflect the changes in the data presented on the page.

To edit a visualization template:

1. In the Application Navigator, right-click the visualization template JSFF file, and choose **Open**.
2. In the editor, make required changes to the code of the visualization template.

   > **Notes:**
   >
   > - Use `af:subform` around the `root-element` to allow any user input required in the visualization template to be submitted, along with any input required by other components on the page. Without `af:subform`, user input in a custom visualization template may prevent the submission of other input, such as in another form on the page.
   > - To add placeholder EL to bind to business object attributes at runtime, see Placeholder EL Binding in Visualization Templates.

3. Save your changes.

Placeholder EL Binding in Visualization Templates

Custom visualization templates contain placeholder Expression Language (EL) that is bound to business object attributes at runtime. Using placeholder EL allows you to add a binding hint to the custom visualization template so that users creating the data visualization can select the placeholder EL in the Define Data Visualization wizard to bind to a business object attribute, parameter, or method at runtime.

The following ADF components support binding placeholder EL to a business object:

- `af:form`
- `af:image`
- `af:inputDate`
- `af:inputText`
- `af:iterator`
- `af:link`
- `af:listView`
- `af:outputFormatted`
- `af:outputText`
- `af:selectBooleanCheckbox`
- `af:selectOneChoice`
- `af:selectOneRadio`
- `af:selectBooleanRadio`
- `af:table`

Within these components, the syntax for binding custom visualization template placeholder EL to a business object is as follows:

Binding Template Placeholder EL to a Business Object Attribute

Placeholder EL syntax:

`#{owcp.appsint.data('`*`displayName`*`','`*`parentInformation`*`','`*`defaultValue`*`','`*`attribute binding hint`*`','')}` where:

- `owcp.appsint.data` is a keyword to indicate that this placeholder is to be bound to a business object *attribute*. Only placeholder EL that contains`owcp.appsint.data` will be bound to a business object attribute at runtime.
- *`displayName`* is the placeholder display name of the attribute that will be shown to the user in the Define Data Visualization wizard Options page.
- *`parentInformation`* is the value of the `id` attribute of the parent (iterator), if the attribute's component depends on a parent (iterator). For example, `af:outputText` inside `af:column` has *`parentInformation`* as the `id` of the containing `af:table` component:

  ```
  <af:table var="row" id="t1" value="#{owcp.appsint.data('DOCUMENT
  Details','','None','','')}" >
     <af:column headerText="Name" id="c1" >
        <af:outputText value="#{owcp.appsint.data('Name','t1','Name','','')}"
  id="ot1"/>
     </af:column>
   </af:table>
  ```

- *`defaultValue`* is the default value for the component to render it in JDeveloper for testing purposes.
- *`attribute binding hint`* is the xpath (*`operationName.accessor1.accessor2.attribute`*) for the attribute, so that the exposed placeholder in the EL is bound to the business object attribute by default.

For a SQL data source, the binding hint is `GET.ResultSet.`*`column_name`*. For example, for a SQL data source that retrieves `NAME` and `ID` values (`select NAME, ID from` *`some_table`*), the binding hint for `NAME` is `GET.ResultSet.NAME` and for `ID` is `GET.ResultSet.ID`.

Example JSFF to list employees for a SQL data source:

– Using table:

```
<af:table var="row" id="t1" value="#{owcp.appsint.data('Employee
List','','None','GET.ResultSet','')}" >
   <af::column headerText="Name" id="c1" >
      <af:outputText
value="#{owcp.appsint.data('Name','t1','Name','GET.ResultSet.NAME','')}"
id="ot1"/>
   </af:column>
</af:table>
```

– Using iterator:

```
<af:iterator id="i1" value="#{owcp.appsint.data('Employee
List','','None','GET.ResultSet','')}" var="row">
  <af:panelGroupLayout id="pgl2" layout="vertical">
    <af:outputText
value="#{owcp.appsint.data('Name','i1','John','GET.ResultSet.NAME','')}"
id="of1"/>
    <af:inputText label="ID : "
value="#{owcp.appsint.data('ID','i1','1','GET.ResultSet.ID','')}" id="it1"/>
  </af:panelGroupLayout>
</af:iterator>
```

For a REST data source, given the following example of returned data, where `emp` is repeating data:

```
<emps>
   <emp>
      <name>EMP1</name>
      <id>1</id>
   </emp>
   <emp>
      <name>EMP2</name>
      <id>2</id>
   </emp>
</emps>
```

The iterator hint is `GET.emps.emp` and the value hint is `GET.emps.emp.name`.

Example JSFF with binding hints to list employees for the REST data shown above:

```
<af:iterator id="i1" value="#{owcp.appsint.data('Employee
List','','None','GET.emps.emp','')}" var="row">
   <af:panelGroupLayout id="pgl2" layout="vertical">
      <af:outputText
value="#{owcp.appsint.data('Name','i1','John','GET.emps.emp.name','')}"
id="of1"/>
      <af:inputText label="ID : "
value="#{owcp.appsint.data('ID','i1','1','GET.emps.emp.id','')}" id="it1"/>
   </af:panelGroupLayout>
</af:iterator>
```

Note:

If the data type returned by the **Resource Path** URL (specified in the Define Data Visualization wizard) for the REST data source is in JSON format, then `methodReturn` must be added after *`operationName`* in the binding hint. For example: `GET.methodReturn.name`

Binding Template Placeholder EL to a Business Object Parameter

Placeholder EL syntax:

`#{owcp.appsint.parameter('`*`displayName`*`','','`*`defaultValue`*`','`*`parameter binding hint`*`','')}` where:

- `owcp.appsint.parameter` is a keyword to indicate that this placeholder is to be bound to a business object *parameter*. Only placeholder EL that contains `owcp.appsint.parameter` will be bound to a business object parameter at runtime.
- *`displayName`* is the placeholder display name of the attribute that will be shown to the user in the Define Data Visualization wizard Options page.
- *`defaultValue`* is the default value for the component to render it in JDeveloper for testing purposes.
- *`parameter binding hint`* is the xpath (*`operationName`*`.`*`parameter1`*) for the parameter, so that the exposed attribute in the EL is bound to the business object parameter by default.

  For a SQL data source, the binding hint is `GET.`*`bind_param_name`*. For example, for a SQL data source that retrieves data using a bind parameter named `type` (`select * from `*`some_table`*` where column= :type`), the binding hint is `GET.type`.

  For a REST data source, the binding hint is `GET.`*`query_param`* or `GET.`*`path_param`*, assuming a `GET` operation on REST.

Binding Template Placeholder EL to a Business Object Method

Placeholder EL syntax:

`#{owcp.appsint.method('`*`displayName`*`','','`*`defaultValue`*`','`*`method binding hint`*`','')}` where:

- `owcp.appsint.method` is a keyword to indicate that this placeholder is to be bound to a business object *method*. Only placeholder EL that contains `owcp.appsint.method` will be bound to a business object method at runtime.
- *`displayName`* is the placeholder display name of the attribute that will be shown to the user in the Define Data Visualization wizard Options page.
- `defaultValue` is the default value for the component to render it in JDeveloper for testing purposes.
- *`method binding hint`* is the xpath for the method, so that the exposed attribute in the EL is bound to the business object method by default.

Binding Template Placeholder EL to a Business Object Attribute and Parameter

Placeholder EL syntax:

`#{owcp.appsint.inout('`*`displayName`*`','','`*`defaultValue`*`','`*`attribute binding hint`*`','`*`parameter binding hint`*`')}` where:

- `owcp.appsint.inout` is a keyword to indicate that this placeholder is to be bound to a business object *attribute and parameter*.
- *`displayName`* is the placeholder display name of the attribute that will be shown to the user in the Define Data Visualization wizard Options page.
- *`defaultValue`* is the default value for the component to render it in JDeveloper for testing purposes.
- *`attribute binding hint`* is the xpath (*`operationName.accessor1.accessor2.attribute`*) for the attribute, so that the exposed attribute in the EL is bound to the business object attribute by default.
- *`parameter binding hint`* is the xpath (*`operationName.parameter1`*) for the parameter, so that the exposed attribute in the EL is bound to the business object parameter by default.

Example: Binding Template Placeholder EL to a Business Object Attribute

This template placeholder EL will display as `Name of the Employee` in the Define Data Visualization wizard Options page and it will be bound to the business object attribute. Parent information is empty for the table component, as the table component does not depend on any parent.

```
<af:outputText value="#{owcp.appsint.data('Name of the
Employee','row','John','GET.emp.name','')}" />
<af:table value="#{owcp.appsint.data('Name of the
Employee','' ,None,'GET.emps.emp','')}"   id=”t1”>
   <af:column sortable="false" headerText="#{owcp.appsint.data('Fourth
Column Header','t1','Column Header','GET.emps.emp.name','') }" id="c4">
      <af:outputText value="#{owcp.appsint.data('Fourth
Column','t1','Text','GET.emps.emp.name','')}" id="ot4"/>
   </af:column>
</af:table>
```

Example: Search and Update Employee Data

This example illustrates placeholder EL that binds to a business object parameter, method, and attribute/parameter.

Assuming the REST data source supports `GET` and `PUT` operations:

- For `GET` - Retrieve employee based on `id`:

  Query parameter: `id`
  Response Payload: `<employee><id>1</id><name>Arnold</name></employee>`
- For `PUT` - Update employee:

  Request Payload: `<employee><id>1</id><name>Arnold</name></employee>`

> **Note:**
>
> Request payload contains `id` to which the update applies.

The visualization template for this example may look as follows:

```
<?xml version='1.0' encoding='UTF-8'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1"
xmlns:af="http://xmlns.oracle.com/adf/faces/rich"

xmlns:f="http://java.sun.com/jsf/core">
   <af:panelGridLayout id="pgl1">
      <af:gridRow id="gr1">
         <af:gridCell halign="stretch" valign="stretch" id="gc3">
            <af:panelHeader text="Update portal details" id="ph3"/>
            <af:panelFormLayout id="pfl4">
               <af:inputText label="id" editable="always"
value="#{owcp.appsint.parameter('id','','','GET.id','')}" id="search1"/>
               <af:spacer height="20" id="s2"/>
               <af:button text="Search emp" id="b1"
actionListener="#{owcp.appsint.method('Search emp','','None','GET','')}"/>
               <af:inputText label="name"
value="#{owcp.appsint.inoutdata('name','','','GET.employee.name','PUT.emplo
yee.name')}"
                             id="it8" partialTriggers="::b1"/>
               <af:inputText label="id"
value="#{owcp.appsint.inoutdata('id','','','GET.id','PUT.employee.id')}"
                             id="it10" partialTriggers="::b1"/>
               <af:spacer height="20" id="s6"/>
               <af:button text="Update employee" id="b3"
actionListener="#{owcp.appsint.method('update
employee','','None','PUT','')}"/>
            </af:panelFormLayout>
         </af:gridCell>
      </af:gridRow>
   </af:panelGridLayout>
</jsp:root>
```

Publishing a Visualization Template

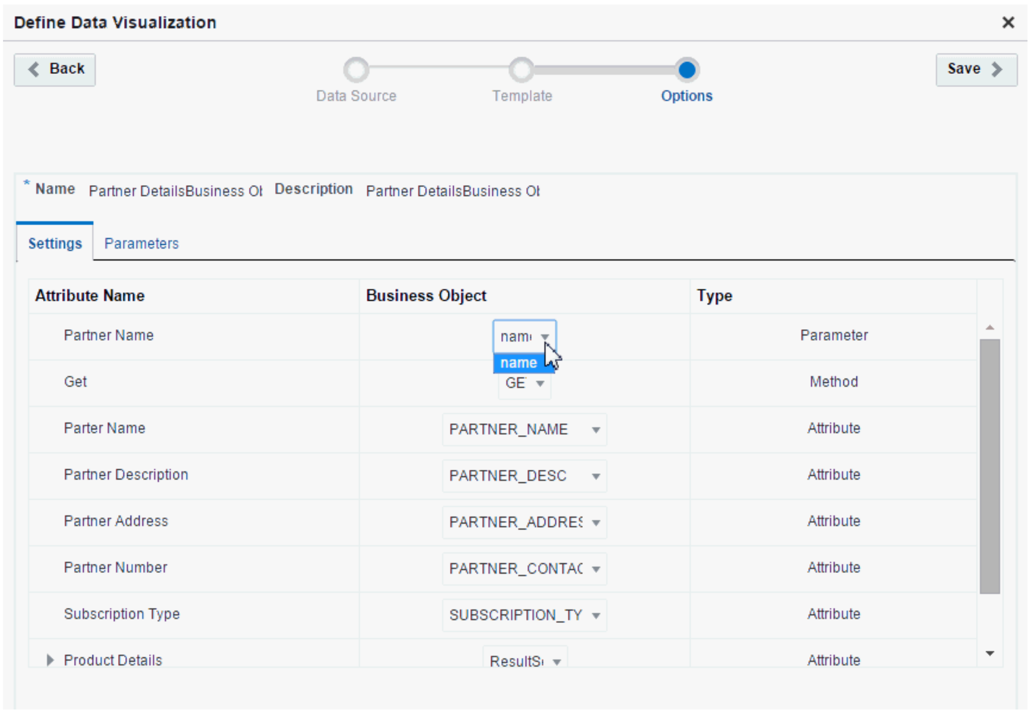
After creating a WebCenter Portal asset application and editing the JSFF file for the visualization template, the next step is to publish it and test it in WebCenter Portal. For instructions on how to publish a visualization template to WebCenter Portal as a shared asset, or to a specific portal as a portal asset, see Publishing WebCenter Portal Assets.

What Happens at Runtime

When an application specialist or portal manager configures a data visualization at runtime and selects a custom visualization template, WebCenter Portal dynamically renders the wizard’s **Options** page based on the placeholder EL that needs to be bound to business object attributes.

Figure 9-4 shows an example **Options** page for a custom visualization template selected in the Define Data Visualization wizard.

Figure 9-4   Define Data Visualization Wizard: Options Page



* Name Partner DetailsBusiness Ot   Description Partner DetailsBusiness Ot

Attribute Name	Business Object	Type
Partner Name	nam	Parameter
Get	GE	Method
Parter Name	PARTNER_NAME	Attribute
Partner Description	PARTNER_DESC	Attribute
Partner Address	PARTNER_ADDRES	Attribute
Partner Number	PARTNER_CONTAC	Attribute
Subscription Type	SUBSCRIPTION_TY	Attribute
Product Details	ResultS	Attribute

When the user clicks **Save** in the Define Data Visualization wizard, WebCenter Portal assigns the selected business object attributes to the visualization template. The page definition is also updated with the associated information. For example, before binding, the visualization template code for the Partner Name parameter value shown in Figure 9-4 may look like this:

```
...
<af:panelLabelAndMessage label="Partner Name" id="plam3">
   <af:inputText simple="true" value="#{owcp.appsint.parameter('Partner
Name','','None','GET.NAME','')}" id="it7"/>
</af:panelLabelAndMessage>
...
```

After binding, the visualization fragment will look like this:

```
...
<af:panelLabelAndMessage label="Partner Name" id="plam3">
   <af:inputText simple="true" value="#{bindings.name.inputValue}"
id="it7"/>
</af:panelLabelAndMessage>
...
```

10 Developing Content Presenter Display Templates

Use JDeveloper to create, edit, and publish new Content Presenter display templates for use in WebCenter Portal.

Note:

Content Presenter can only be used with Oracle WebCenter Content Server-based content. No other content repository connection types are supported.

Topics:

Introduction to Developing Content Presenter Display Templates

A *Content Presenter display template* is a JSFF file (JSF page fragment) that defines how Content Presenter renders content items (including images and text) on a portal page.

WebCenter Portal provides several out-of-the-box display templates to get you started, but you can also create your own templates to solve specific display requirements.

Some typical situations where Content Presenter display templates provide value are:

- Providing different layouts for different parts of a page. For example, you may have articles from different sources on the same page, each requiring its own layout (for more information, see How to Define a Multiple-Item Display Template).
- Presenting content based on the capabilities of the viewing device. You can provide display templates that respond to whether the viewing device is a standard monitor, tablet, or smart phone (for more information, see How to Use Responsive Templates).

Making content available through Content Presenter display templates lets you solve complex display issues through a standardized template rather than doing each individual layout by hand. By making display templates available to others you enable them to solve layout requirements based on predefined department or company standards without developer involvement.

Tip:

You can find sample display templates in `$ORACLE_HOME/jdeveloper/webcenter/samples/contentpresenter`. These sample files were installed as part of WebCenter Portal's extension for Oracle JDeveloper.

Display templates can use the full set of Rich ADF components, so you can quickly and easily create robust and attractive templates to display your content. Note however, that you are not required to use these components in your template.

A Content Presenter display template can handle either single-content items, multiple-content items, or combinations of the two. For example, a multiple content item template might render tabs for each item and then call a single item template to render the details of a selected item.

Each content item is associated with a specific *content type* defined in the Oracle WebCenter Content Server repository. A content type defines the properties of the content item. Content types can map to WebCenter Content Server profile definitions and Site Studio region definitions.

Tip:

Oracle recommends that you use Content Presenter display templates to integrate Site Studio and WebCenter Portal instead of Site Studio region templates. The recommended flow is:

- Develop region definitions in Site Studio.
- Develop Content Presenter display templates referencing region definitions using JDeveloper.
- Publish the templates to WebCenter Portal.
- Use Content Presenter to render the content and to enable users to contribute content.

Content types are created on the content repository (that is, WebCenter Content Server). As a Content Presenter display template developer, you need to know the names of the properties defined for the associated content type so that you can define how to display the selected content item(s) on the page.

Tip:

One way to determine the properties for the existing content types defined in WebCenter Content Server is to use the Content Presenter Configuration dialog in a portal. For a detailed description of this technique, see How to Discover Content Type Property Names.

At runtime, an authorized end user can choose a display template in the Content Presenter Configuration dialog. For more information about best practices and determining when and how to use Content Presenter templates, see the blog entry at:

`http://www.ateam-oracle.com/portal-and-content-content-integration-best-practices`.

Creating a Content Presenter Display Template

This section describes how to create a new custom visualization template and includes the following topics.

- How to Create a Content Presenter Display Template
- What You May Need to Know About Content Presenter Display Templates

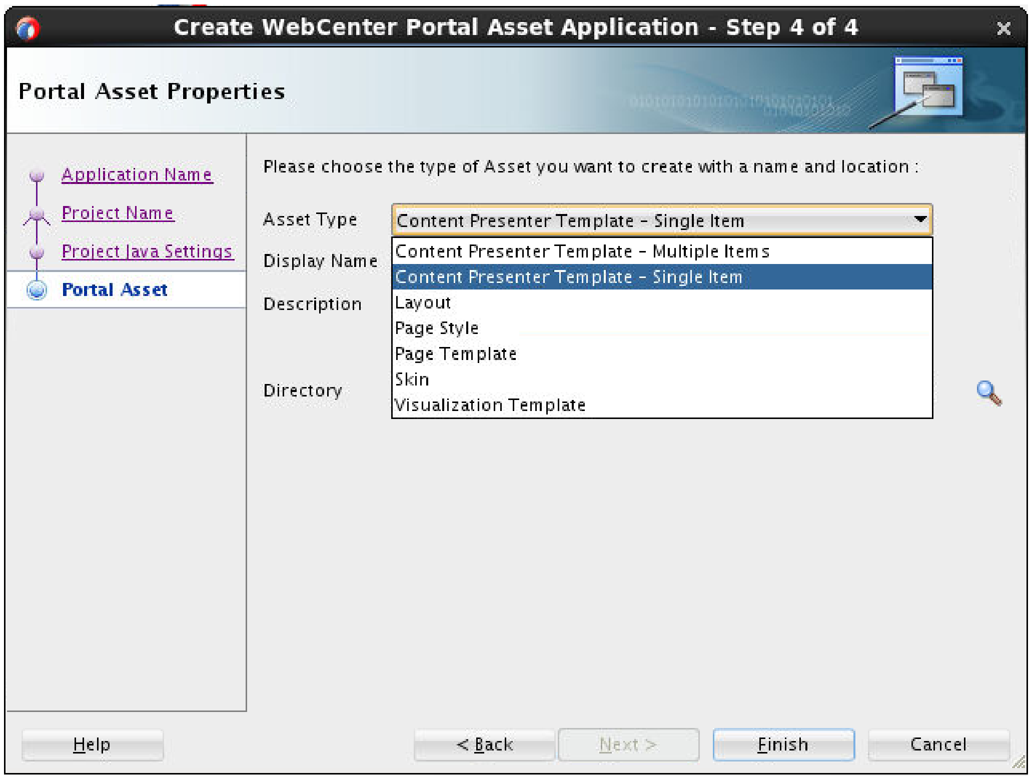
How to Create a Content Presenter Display Template

This section describes how to create a WebCenter Portal asset application for a new Content Presenter display template.

To create a WebCenter Portal asset application for a Content Presenter display template:

1. Create an asset application, specifying the **Asset Type** as either **Content Presenter Template - Single Item** or **Content Presenter Template - Multiple Items** (Figure 10-1).

Figure 10-1 Content Presenter Display Template Asset Type


Create WebCenter Portal Asset Application - Step 4 of 4

Portal Asset Properties

Please choose the type of Asset you want to create with a name and location :

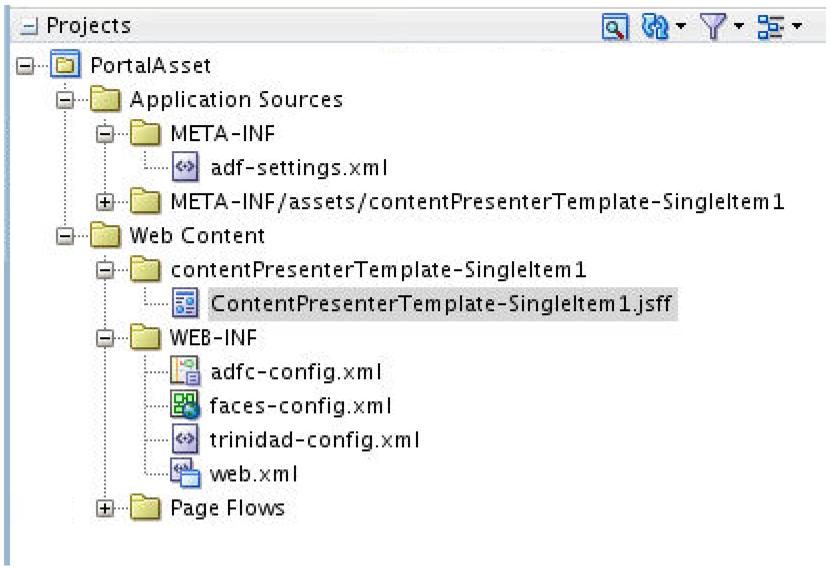
Asset Type: Content Presenter Template - Single Item

Content Presenter Template - Multiple Items
Content Presenter Template - Single Item
Layout
Page Style
Page Template
Skin
Visualization Template

See Creating a WebCenter Portal Asset Application for more information about creating WebCenter Portal asset applications. For information about the artifacts that are created when you create an asset application for a Content Presenter display template see What You May Need to Know About Content Presenter Display Templates.

2. In the Application Navigator, right-click the newly created Content Presenter display template's page fragment file (Figure 10-2), choose **Open**, then switch to **Source** view.

Figure 10-2 Content Presenter Display Template Page Fragment File



3. Continue by editing the contents of the page fragment as described in Editing a Content Presenter Display Template.

What You May Need to Know About Content Presenter Display Templates

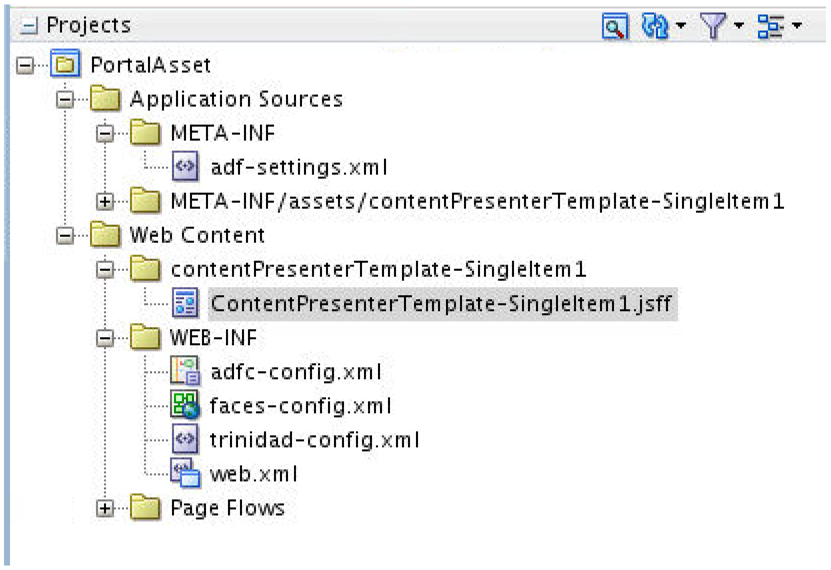
Depending on your needs, the approach you take to defining Content Presenter display templates will vary. Typically, you define display templates for specific single items of content, then define a multiple content item display template that includes calls to the single item display templates.

Creating a visualization template asset application produces a default template, with the following artifact:

- A view fragment file (for example, `ContentPresenterTemplate-SingleItem1.jsff`)

This file appears in the Application Navigator as shown in Figure 10-3.

Figure 10-3 Content Presenter Display Template Asset Application Artifacts



```
PortalAsset
  Application Sources
    META-INF
      adf-settings.xml
    META-INF/assets/contentPresenterTemplate-SingleItem1
  Web Content
    contentPresenterTemplate-SingleItem1
      ContentPresenterTemplate-SingleItem1.jsff
    WEB-INF
      adfc-config.xml
      faces-config.xml
      trinidad-config.xml
      web.xml
    Page Flows
```

Template definitions can include calls to other display templates in any of the following ways:

- A single content item display template can call another single content item display template.
- A multiple content item display template can call a single content item display template (as shown in the examples below).
- A multiple content item display template can call another multiple content item display template.

The basic tasks for creating Content Presenter display templates include:

- Deciding whether to create a single or multiple item display template. See How to Define a Single-Item Display Template and How to Define a Multiple-Item Display Template.
- Deciding what kind of information you want to display about the selected content items. Consider also, for example, using WebCenter Portal's EL expressions in your template to retrieve and display this information. See How to Use EL Expressions to Retrieve Content Item Information and Expression Language Expressions for more information about using EL expressions.
- Designing the look and feel of the template. In addition to standard JSFF constructs, display templates can use ADF components (see *Developing Web User Interfaces with Oracle ADF Faces*).
- Publishing the template, either as a shared or portal-specific asset. See Publishing a Content Presenter Display Template.
- Configuring Content Presenter to use Coherence as the caching mechanism for production (optional, but recommended) and HA environments (required) as described in Modifying Cache Settings for Content Presenter in *Administering Oracle WebCenter Portal*.

Editing a Content Presenter Display Template

After creating the initial framework of a Content Presenter display template, you must edit it to define the template.

This section discusses these topics:

How to Define a Single-Item Display Template

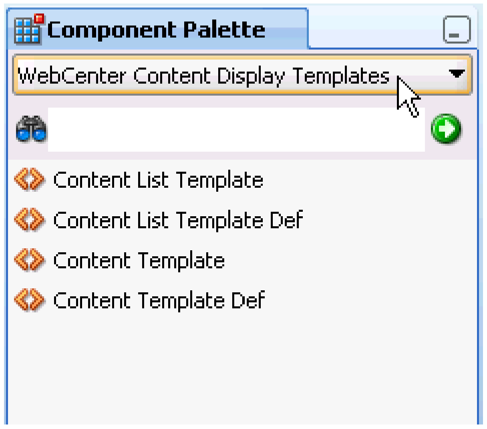
Examples of single content items for which you may want to create Content Presenter display templates are:

- Individual items to display with a specific look and feel on a page.
- Different views of a specific type of item (such as short and detailed views of an article).
- Different versions of a similar item (such as Press Releases that may be formatted differently for different groups and using a different set of properties).

To define a single-item display template:

1. In the Application Navigator, right-click the display template JSFF file, and choose **Open**.
2. If necessary, select **Window**, then **Components** to open the Component Palette.
3. From the dropdown list at the top of the Component Palette (Figure 10-4):
   - Select **WebCenter Content Display Templates** for a list of display template tags.
   - Select **WebCenter Content Management Faces** for the `renderProperty` tag.

Figure 10-4 Content Display Template Tags in Component Palette



4. In Source view, drag and drop the required display template tags from the Component Palette onto the page to define your template. Refer to Content Display Template Tags for Single Content Items for information about each tag and required parameter values.

The following two examples show sample single content item display template definitions. These examples illustrate a use case where a certain kind of document (a press release) is produced by two different departments inside a company, and each department has defined its own content type and properties. These sample Content Presenter display templates allow these two different content types to be displayed in a consistent manner.

The template shown in the first example handles a press release that uses a property named `xHeading` to describe the heading of the press release document, and `xDestinationUrl` to describe the location of the document. To learn how you can retrieve these property names for a given content type, see How to Discover Content Type Property Names.

```
<?xml version = '1.0'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page"
          version="2.1"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich"
          xmlns:dt="http://xmlns.oracle.com/webcenter/content/templates">
   <dt:contentTemplateDef var="node">
      <af:goImageLink text="#{node.propertyMap['xHeading'].value}"
                      id="gil1"
                      icon="#{node.icon.smallIcon}"
                      destination="#{node.propertyMap['xDestinationUrl'].value}"
                      targetFrame="_blank">
      </af:goImageLink>
   </dt:contentTemplateDef>
</jsp:root>
```

The template shown in the next example handles a press release that uses a property named `dDocTitle` to describe the heading of the press release document, and `xLinkUrl` to describe the location of the document.

```
<?xml version = '1.0'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page"
          version="2.1"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich"
          xmlns:dt="http://xmlns.oracle.com/webcenter/content/templates">
   <dt:contentTemplateDef var="node">
```

```
        <af:goImageLink text="#{node.propertyMap['dDocTitle'].value}"
                        id="gil1"
                        icon="#{node.icon.smallIcon}"
                        destination="#{node.propertyMap['xLinkUrl'].value}"
                        targetFrame="_blank">
        </af:goImageLink>
    </dt:contentTemplateDef>
</jsp:root>
```

Content Display Template Tags for Single Content Items

The definition of a single content item display template uses the JSP tasks listed below.

Table 10-1 Content Display Template Tags for Single Content Items

JSP Tag	Description	Example

`contentTemplateDef`	Required. Defines a single content item template.
	Attributes:
	`var` - Specifies the content node that will be rendered by this display template. In the template definition code, you can use the EL expressions described in How to Retrieve Basic Information About a Content Item to retrieve required information about the node.
		`<dt:`**`contentTemplateDef`**` var="node">`
		` <af:outputText value="#{node.name}" />`
		`</dt:`**`contentTemplateDef`**`>`

Table 10-1 (Cont.) Content Display Template Tags for Single Content Items

JSP Tag	Description	Example

`renderProperty`	Optional. Retrieves and renders the string value(s) of the specified node property inline.
	Attributes:
	`id` - Identifies this component. This value must be unique within the closest parent component that is a naming container.
	`name` - Specifies the name of the property to get. If this is a system property (`cm_createdBy`, `cm_createdDate`, `cm_modifiedDate`, and `cm_path`) then the value on the node will be used. If not specified, then the `primaryProperty` will be used if defined.
	`node` - Specifies the node to use. This value can either be a bound attribute to a managed bean, or a request attribute variable.
	`blockSize` - Specifies the size of the blocks in bytes, to read the bytes of a binary property. Default is 2048 bytes.
	`startIndex` - Specifies the index (from 0) in the document's bytes at which to start printing. Defaults to 0.
	`endIndex` - Specifies the index (from 0) in the document's bytes at which to stop printing. Defaults to value of `blockSize`.
	`rendered` - Specifies whether or not this component should be rendered (during Render Response Phase), or processed on any subsequent form submit. The default value is `true`.
		`<!--`
		` Handling of text-based primary`
		` properties (HTML, text, etc.).`
		`-->`
		`<dt:contentTemplateDef`
		`var="node">`
		` <cmf:`**`renderProperty`**` id="rp1"`
		`name="#{node.primaryProperty.name`
		`}"`
		`node="#{node}"/>`
		`</dt:contentTemplateDef>`

Table 10-1 (Cont.) Content Display Template Tags for Single Content Items

JSP Tag	Description	Example

`contentTemplate`	Optional. Nested under `contentTemplateDef`.
	Calls another single item template.
	Attributes:
	`node` - Required. Specifies the content repository node that should be displayed.
	`nodesHint` - Optional. When the display template is called in an iterating component, allows the pre-inclusion of all possible templates. This attribute is not needed when `contentTemplate` is used inside a `contentTemplateDef` tag.
	`view` - Optional. Specifies the target view name.
	`id` - Optional. Specifies the JSF component ID.
	`rendered` - Optional. Specifies whether the component should be rendered.
		`<dt:contentTemplateDef var="node">`
		` <af:outputText value="#{node.name}" >`
		` <dt:`**`contentTemplate`**` node="#{node}" view="templates.pressrelease.item"`
		`/>`
		` </af:outputText>`
		`</dt:contentTemplateDef>`

How to Define a Multiple-Item Display Template

Examples of multiple content items for which you may want to create Content Presenter display templates are:

- A group of similar items that you want to display on a page, such as a list of books or an employee directory of pictures.
- Query results, such as all documents modified in the last week.
- A list of all documents in an Oracle WebCenter Content Server folder.

A Content Presenter display template can also combine both single and multiple items. For example, a multiple content item template might render tabs for each item and then call a single item template to render the details of a selected item. For an example of how to do this, see the blog entry at:

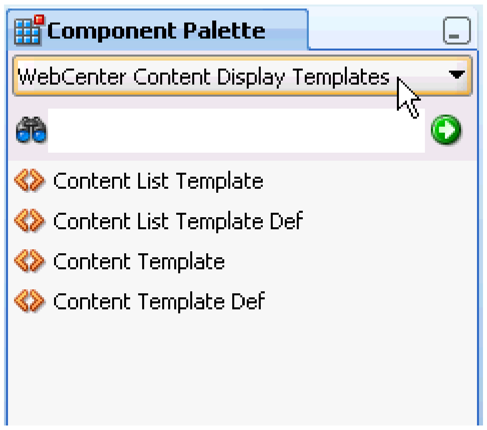
`http://www.ateam-oracle.com/enable-content-editing-of-iterative-components`

To define a multiple-item display template:

1. In the Application Navigator, right-click the display template JSFF file, and choose **Open**.
2. If necessary, select **Window**, then **Components** to open the Component Palette.
3. From the dropdown list at the top of the Component Palette (Figure 10-5):
   - Select **WebCenter Content Display Templates** for a list of display template tags.

- Select **WebCenter Content Management Faces** for the `renderProperty` tag.

Figure 10-5 Content Display Template Tags in Component Palette



4. In Source view, drag and drop the required display template tags from the Component Palette onto the page. Refer to Content Display Template Tags for Multiple Content Items for information about each tag and required parameter values.

The following example shows a sample multiple content item display template definition.

This template definition iterates over the data items selected for display, and processes them according to the referenced view (`view="mycorp.content.templates.pressrelease.listitem"`).

```
<?xml version = '1.0'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich"
          xmlns:dt="http://xmlns.oracle.com/webcenter/content/templates">
   <dt:contentListTemplateDef var="nodes">
      <af:panelGroupLayout layout="scroll" id="nodeListPanel" valign="middle">
        <af:iterator rows="0" var="node" varStatus="iterator" value="#{nodes}">
           <dt:contentTemplate node="#{node}"
               view="mycorp.content.templates.pressrelease.listitem"
               nodesHint="#{nodes}"/>
        </af:iterator>
      </af:panelGroupLayout>
   </dt:contentListTemplateDef>
</jsp:root>
```

Content Display Template Tags for Multiple Content Items

The definition of a multiple content item display template uses the JSP tags listed below.

Table 10-2 Content Display Template Tags for Multiple Content Items

JSP Tag	Description	Example
`contentListTemplateDef`	Required. Defines the multiple content item template. **Attributes**: `var` - Specifies the content node that will be rendered by this display template. In the template definition code, you can use the EL expressions described in How to Retrieve Basic Information About a Content Item to retrieve required information about the node.	`<dt:contentListTemplateDef var="nodes"> <af:iterator value="#{nodes}" var="node"> <af:outputText value="#{node.name}" /> </af:iterator> </ dt:contentListTemplateDef>`
`contentListTemplate`	Optional. Nested under `contentListTemplateDef`. Calls another multiple item template. **Attributes**: `nodes` - Required. Provides the list of VCR nodes that should be displayed `category` - Required. Specifies the target template category. `view` - Required. Specifies the target view name. `id` - Optional. Specifies the JSF component ID. `rendered` - Optional. Specifies whether the component should be rendered.	`<dt:contentListTemplateDef var="nodes"> <!-- Reuse the default bulleted list view, but indent it with a <blockquote> --> <f:verbatim> <blockquote> </f:verbatim> <dt:contentListTemplate nodes="#{nodes}" category="oracle.webcenter.content. templates.default.category" view="oracle.webcenter.cont ent. templates.default.list.bull eted"/> <f:verbatim> </blockquote> </f:verbatim> </ dt:contentListTemplateDef>`

Table 10-2 (Cont.) Content Display Template Tags for Multiple Content Items

JSP Tag	Description	Example
`contentTemplate`	Optional. Nested under `contentListTemplateDef`. Calls a single item template. **Attributes**: `node` - Required. Specifies the content repository node that should be displayed. `nodesHint` - Optional. When the display template is called in an iterating component, allows the pre-inclusion of all possible templates. This attribute is usually required when `contentTemplate` is used inside a `contentListTemplateDef` tag. `view` - Optional. Specifies the target view name. `id` - Optional. Specifies the JSF component ID. `rendered` - Optional. Specifies whether the component should be rendered.	`<dt:contentListTemplateDef var="nodes">` `<af:iterator rows="0" var="node"` `varStatus="iterator" value="#{nodes}">` `<dt:`**`contentTemplate`** `node="#{node}"` `view="templates.pressrelease.listitem"` `nodesHint="#{nodes}"/>` `</af:iterator>` `</dt:contentListTemplateDef>`

How to Use Responsive Templates

This section includes the following topics:

- About Responsive Templates
- Prerequisites for Responsive Templates
- Displaying Multiple Articles
- Using CSS3 Media Queries

About Responsive Templates

Using CSS3 media queries, you can render content to adapt to conditions such as screen resolution.

The out-of-the-box Content Presenter display templates `Articles View` and `Full Articles View` are examples of how CSS3 media queries can be used in a Content Presenter display template for a responsive layout. For information about how these responsive templates can be extended, see How to Extend Responsive Templates. For information about optimizing viewport settings for mobile devices such as smart phones and tablets, see Optimizing Portals for Mobile Devices in *Building Portals with Oracle WebCenter Portal*.

Prerequisites for Responsive Templates

The out-of-the-box Content Presenter templates `Articles View` and `Full Articles View` rely on the Site Studio `RD_ARTICLE` region definition.

Consequently, Site Studio must be enabled in Oracle WebCenter Content Server to enable the `Articles View` and `Full Article View` Content Presenter display templates to be used.

Follow the steps below to enable Site Studio and seed WebCenter Content Server with the `RD_ARTICLE` region definition:

1. Enable Site Studio (see Understanding Site Studio Integration in *Building Portals with Oracle WebCenter Portal*).
2. Start (or restart) WebCenter Portal after Site Studio has been enabled (this will seed the `RD_ARTICLE` region definition).

Displaying Multiple Articles

The template definition in the following example iterates over the data items selected for display, and uses three style classes:

- **`article`** - applied to each content item
- **`article-3`** - applied to each content item that will be in the first column if the page is split into rows of three columns
- **`article-2`** - applied to each content item that will be in the first column if the page is split into rows of two columns

The style classes are defined in the `articles.css` style sheet.

```
<?xml version = '1.0'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich"
          xmlns:dt="http://xmlns.oracle.com/webcenter/content/templates"
          xmlns:f="http://java.sun.com/jsf/core"
          xmlns:h="http://java.sun.com/jsf/html"
          xmlns:rah="http://xmlns.oracle.com/webcenter/resourcehandler"
          <dt:contentListTemplateDef var="nodes">
      <af:resource type="css" source="/oracle/webcenter/content/templates/seeded/
articles.css"/>
      <af:iterator rows="0" var="node" varStatus="iterator" value="#{nodes}"
                   id="it0">
         <h:panelGroup styleClass="#{(iterator.index % 3 == 0) ? 'article-3 ' :
''}#{(iterator.index % 2 == 0) ? 'article-2 ' : ''}article"
                       id="pg1">
            <af:commandLink immediate="true" partialSubmit="true" id="cl2">
               <rah:resourceActionBehavior id="rah1"

serviceId="oracle.webcenter.content.presenter"
                                           resourceId="#{node.id}"

resourceTitle="#{node.propertyMap['RD_ARTICLE:TITLE'].asTextHtml}"
                                           useResourcePopup="never"/>
               <f:attribute name="taskFlowInstId"
                            value="a5fafea8-90e6-4972-997d-314401b6c98b"/>
               <f:attribute name="datasourceType" value="dsTypeSingleNode"/>
               <f:attribute name="datasource"
```

```
value="#{node.id.repositoryName}#dDocName:#{node.propertyMap['dDocName'].value}"/>
               <f:attribute name="templateView"

value="oracle.webcenter.content.templates.sitestudio.fullarticle"/>
               <f:attribute name="regionTemplate" value="#{false}"/>
               <af:outputText
value="#{node.propertyMap['RD_ARTICLE:IMAGE'].asTextHtml}"
                              escape="false" id="ot4"/>
               <tr:panelHeader
text="#{node.propertyMap['RD_ARTICLE:TITLE'].asTextHtml}"
                               id="ph1">
                  <af:outputText
value="#{node.propertyMap['RD_ARTICLE:SUMMARY'].asTextHtml}"
                                 escape="false" id="ot3"/>
               </af:panelHeader>
            </af:commandLink>
         </h:panelGroup>
      </af:iterator>
   </dt:contentListTemplateDef>
</jsp:root>
```

Using CSS3 Media Queries

The style sheet in the following example uses media queries to render the content in different ways depending on the width of the browser.

```
/* Default styles */
.article {
  display: block;
  float: left;
  width: 31.623931623931625%;
  margin-left: 2.564102564102564%;
  margin-bottom: 1em;
}
.article-3 {
  margin-left: 0;
  clear: both;
}
.article img {
  width: 100%;
  margin: 0 0 .25em;
  float: none;
  padding-top: 0;
  display: block;
  border: 0;
}
.article h1 {
  font-size: 1.5em;
}

@media only screen and (max-width : 480px) {
  /* up to width of iPhone (excluding iPhone 5 in landscape) */
  .article {
    margin-top: .5em;
    float: left;
    display: inline;
    width: 100%;
    margin-left: 0;
  }
  .article-3 {
    width: 100%;
    clear: none;
  }
  .article img {
    margin-right: 4%;
    width: 48%;
    float: left;
  }
  .article {
    font-size: 1em;
  }
  .article h1 {
    font-size: 1.25em;
  }
}

@media only screen and (min-width : 481px) and (max-width : 780px) {
  /* up to the width of iPad in portrait and iPhone 5 in landscape */
  .article {
    display: block;
    float: left;
    width: 48.717948717948718%;
    margin-left: 2.564102564102564%;
    clear: none;
  }
  .article-3 {
    margin-left: 2.564102564102564%;
    clear: none;
  }
  .article-2 {
    margin-left: 0;
    clear: both;
  }
  .article h1 {
    font-size: 1.25em;
  }
}

@media only screen and (min-width : 769px) and (max-width : 1024px) {
  /* up to the width of iPad in landscape */
}

@media only screen and (min-width : 1025px) {
  /* desktop */
}
```

How to Extend Responsive Templates

These sections describe the steps required to modify the out-of-the-box templates if they don't meet your local requirements.

For information about optimizing viewport settings for mobile devices such as smart phones and tablets, see Optimizing Portals for Mobile Devices in *Building Portals with Oracle WebCenter Portal*.

This section includes the following topics:

- How to Extend the Articles View Template
- How to Extend the Full Article View Template

- How to Adapt the Out-of-the-Box Templates

How to Extend the Articles View Template

To extend the `Articles View` template follow the steps below:

1. Create an empty template for displaying multiple items (see How to Define a Multiple-Item Display Template) and copy the contents of `articles.jsff` (located in the `JDEVELOPER/webcenter/samples/contentpresenter/` directory) into the empty template.
2. Embed the CSS used by `artices.jsff` into the new template by changing:

   ```
   <af:resource type="css" source="/oracle/webcenter/content/templates/seeded/
   articles.css"/>
   ```

   To:

   ```
   <af:resource type="css">
   /* Default styles */
   .article {
     display: block;
     float: left;
     width: 31.623931623931625%;
     margin-left: 2.564102564102564%;
     margin-bottom: 1em;
   }
   .article-3 {
     margin-left: 0;
     clear: both;
   }
   .article img {
     width: 100%;
     margin: 0 0 .25em;
     float: none;
     padding-top: 0;
     display: block;
     border: 0;
   }
   .article h1 {
     font-size: 1.5em;
   }

   @media only screen and (max-width : 480px) {
     /* up to width of iPhone */
     .article {
       margin-top: .5em;
       float: left;
       display: inline;
       width: 100%;
       margin-left: 0;
     }
     .article-3 {
       width: 100%;
       clear: none;
     }
     .article img {
       margin-right: 4%;
       width: 48%;
       float: left;
     }
   ```

```
  .article {
    font-size: 1em;
  }
  .article h1 {
    font-size: 1.25em;
  }
}

@media only screen and (min-width : 481px) and (max-width : 780px) {
  /* up to the width of iPad in portrait */
  .article {
    display: block;
    float: left;
    width: 48.71794871794871%;
    margin-left: 2.564102564102564%;
    clear: none;
  }
  .article-3 {
    margin-left: 2.564102564102564%;
    clear: none;
  }
  .article-2 {
    margin-left: 0;
    clear: both;
  }
  .article h1 {
    font-size: 1.25em;
  }
}

@media only screen and (min-width : 769px) and (max-width : 1024px) {
  /* up to the width of iPad in landscape */
}

@media only screen and (min-width : 1025px) {
  /* desktop */
}
</af:resource>
```

3. Edit the new template to adapt it to your requirements (see How to Adapt the Out-of-the-Box Templates).
4. Publish the new template as a portal asset (see Publishing a Content Presenter Display Template).

How to Extend the Full Article View Template

Follow the steps below to extend the `Full Article View` template:

1. Create an empty template for displaying a single content item (see How to Define a Single-Item Display Template) and copy the contents of `full-article.jsff` (located in the `JDEVELOPER/webcenter/samples/contentpresenter/` directory) into the empty template.
2. Embed the CSS used by `full-artice.jsff` into the new template by changing:

   ```
   <af:resource type="css" source="/oracle/webcenter/content/templates/seeded/
   articles.css"/>
   ```

   To:

```
<af:resource type="css">
/* Default styles */
.full-article h1 {
  font-size: 1.5em;
}
.full-article-image img {
  margin-left: 4%;
  width: 48%;
  float: right;
}

@media only screen and (max-width : 480px) {
  /* up to width of iPhone */
  .full-article-image img {
    margin-left: 0;
    width: 100%;
    float: none;
  }
}

@media only screen and (min-width : 481px) and (max-width : 780px) {
  /* up to the width of iPad in portrait */
}

@media only screen and (min-width : 769px) and (max-width : 1024px) {
  /* up to the width of iPad in landscape */
}

@media only screen and (min-width : 1025px) {
  /* desktop */
}
</af:resource>
```

3. Edit the new template to adapt it your requirements (see How to Adapt the Out-of-the-Box Templates).
4. Publish the new template as a portal asset (see Publishing a Content Presenter Display Template).

How to Adapt the Out-of-the-Box Templates

This section describes changes you may want to make to the `Articles View` and `Full Article View` templates, and outlines how you could go about making those changes.

For example:

- You may want to update the templates to support a responsive layout on older browsers like Internet Explorer 8.
- You may want to update the templates to work with a different region definition.

These extensions are described in the following sections:

- How to Support Responsive Layouts for Older Browsers
- How to Use Different Region Definitions
- How to Update the Layout in a Template

How to Support Responsive Layouts for Older Browsers

The current responsive templates rely on CSS3 media queries, which are not supported by older browsers, so you may want to use a third-party JavaScript library that can take the media queries and use JavaScript to enable a responsive design.

To support responsive layouts for older browsers:

1. Create and deploy a custom Shared Library for WebCenter Portal containing the third-party JavaScript library.

   See Developing Shared Libraries.

2. Add a reference to a third-party JavaScript library to the template (where *path/to/3rd/party/library.js* is the path to the JavaScript file within the Custom Shared Library):

   ```
   <af:resource type="javascript" source="path/to/3rd/party/library.js"/>
   ```

How to Use Different Region Definitions

This section shows you how you can modify the region definitions in your responsive template.

For example, you might have a region definition called RD_NEWS with four elements: TITLE, LEAD, IMAGE, and BODY (see How to Reference Site Studio Region Elements in a Custom View). You could then update the template to reference this new region definition by changing references of RD_ARTICLES to RD_NEWS and changing the references of SUMMARY to LEAD.

News View

This template displays a list of news items (of type RD_NEWS) based on the Articles View template:

```
<?xml version = '1.0'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich"
          xmlns:dt="http://xmlns.oracle.com/webcenter/content/templates"
          xmlns:f="http://java.sun.com/jsf/core"
          xmlns:h="http://java.sun.com/jsf/html"
          xmlns:rah="http://xmlns.oracle.com/webcenter/resourcehandler"
          xmlns:tr="http://myfaces.apache.org/trinidad">
   <dt:contentListTemplateDef var="nodes">
      <af:resource type="css" source="/oracle/webcenter/content/templates/seeded/
articles.css"/>
      <af:iterator rows="0" var="node" varStatus="iterator" value="#{nodes}"
                   id="it0">
         <h:panelGroup styleClass="#{(iterator.index % 3 == 0) ? 'article-3 ' :
''}#{(iterator.index % 2 == 0) ? 'article-2 ' : ''}article"
                       id="pg1">
            <af:commandLink immediate="true" partialSubmit="true" id="cl2">
               <rah:resourceActionBehavior id="rah1"

serviceId="oracle.webcenter.content.presenter"
                                           resourceId="#{node.id}"

resourceTitle="#{node.propertyMap['RD_NEWS:TITLE'].asTextHtml}"
```

```
                                        useResourcePopup="never"/>
                <f:attribute name="taskFlowInstId"
                             value="a5fafea8-90e6-4972-997d-314401b6c98b"/>
                <f:attribute name="datasourceType" value="dsTypeSingleNode"/>
                <f:attribute name="datasource"

value="#{node.id.repositoryName}#dDocName:#{node.propertyMap['dDocName'].value}"/>
                <f:attribute name="templateView"
                             value="oracle.webcenter.content.templates.newsitem"/>
                <f:attribute name="regionTemplate" value="#{false}"/>
                <af:outputText value="#{node.propertyMap['RD_NEWS:IMAGE'].asTextHtml}"
                               escape="false" id="ot4"/>
                <tr:panelHeader text="#{node.propertyMap['RD_NEWS:TITLE'].asTextHtml}"
                                id="ph1">
                   <af:outputText
value="#{node.propertyMap['RD_NEWS:LEAD'].asTextHtml}"
                                  escape="false" id="ot3"/>
                </tr:panelHeader>
             </af:commandLink>
          </h:panelGroup>
       </af:iterator>
    </dt:contentListTemplateDef>
</jsp:root>
```

News Item View

This template displays a full news item (`View ID: oracle.webcenter.content.templates.newsitem`) based on the `Full Articles View` template:

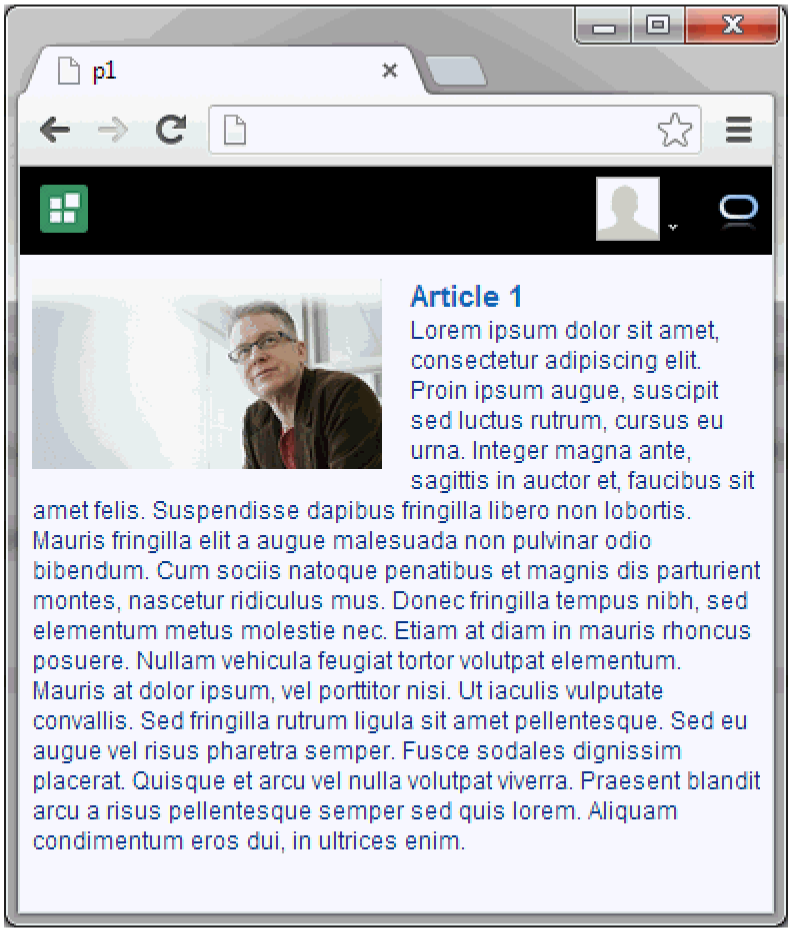
```
<?xml version = '1.0'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich"
          xmlns:dt="http://xmlns.oracle.com/webcenter/content/templates"
          xmlns:f="http://java.sun.com/jsf/core"
          xmlns:h="http://java.sun.com/jsf/html"
          xmlns:tr="http://myfaces.apache.org/trinidad">
     <dt:contentTemplateDef var="node">
        <af:resource type="css" source="/oracle/webcenter/content/templates/seeded/
articles.css"/>
        <af:panelGroupLayout id="psl1" layout="vertical">
            <tr:panelHeader text="#{node.propertyMap['RD_NEWS:TITLE'].asTextHtml}"
                            styleClass="full-article" id="ph1">
                <tr:panelGroupLayout id="pgl1" styleClass="full-article-image">
                    <af:outputText
value="#{node.propertyMap['RD_NEWS:IMAGE'].asTextHtml}"
                                   escape="false" id="ot4"/>
                </tr:panelGroupLayout>
                <af:outputText value="#{node.propertyMap['RD_NEWS:BODY'].asTextHtml}"
                               escape="false" id="ot3"/>
            </tr:panelHeader>
        </af:panelGroupLayout>
    </dt:contentTemplateDef>
</jsp:root>
```

How to Update the Layout in a Template

You might want to change the layout of the templates to better suit your content.

For example, in the single column layout the `Articles View` template will flow the text of an article summary under the image if the text is sufficiently long:

Figure 10-6 Article with Wide Layout

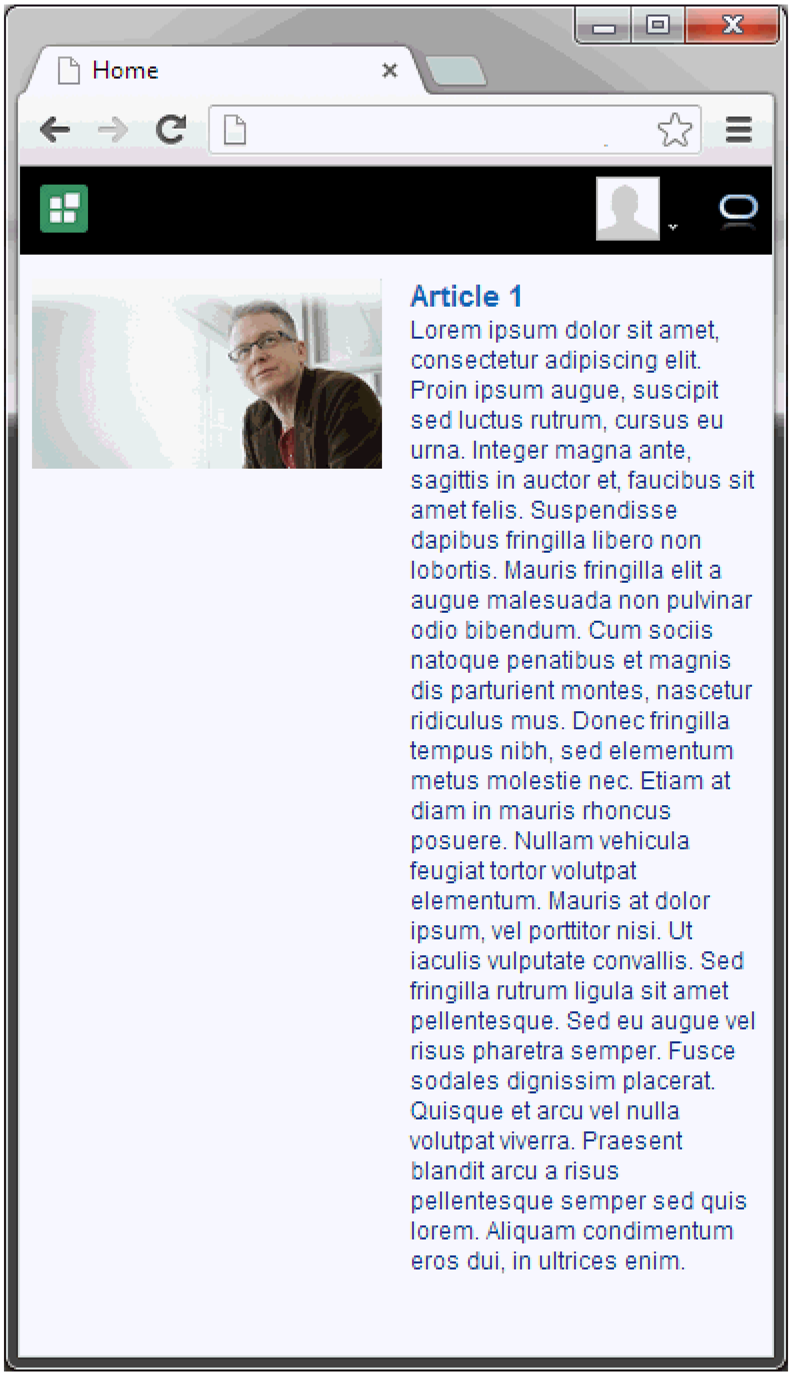


Article 1

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin ipsum augue, suscipit sed luctus rutrum, cursus eu urna. Integer magna ante, sagittis in auctor et, faucibus sit amet felis. Suspendisse dapibus fringilla libero non lobortis. Mauris fringilla elit a augue malesuada non pulvinar odio bibendum. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Donec fringilla tempus nibh, sed elementum metus molestie nec. Etiam at diam in mauris rhoncus posuere. Nullam vehicula feugiat tortor volutpat elementum. Mauris at dolor ipsum, vel porttitor nisi. Ut iaculis vulputate convallis. Sed fringilla rutrum ligula sit amet pellentesque. Sed eu augue vel risus pharetra semper. Fusce sodales dignissim placerat. Quisque et arcu vel nulla volutpat viverra. Praesent blandit arcu a risus pellentesque semper sed quis lorem. Aliquam condimentum eros dui, in ultrices enim.

You could change this so that the text doesn't flow under the image:

Figure 10-7 Article with Narrow Layout



Article 1

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin ipsum augue, suscipit sed luctus rutrum, cursus eu urna. Integer magna ante, sagittis in auctor et, faucibus sit amet felis. Suspendisse dapibus fringilla libero non lobortis. Mauris fringilla elit a augue malesuada non pulvinar odio bibendum. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Donec fringilla tempus nibh, sed elementum metus molestie nec. Etiam at diam in mauris rhoncus posuere. Nullam vehicula feugiat tortor volutpat elementum. Mauris at dolor ipsum, vel porttitor nisi. Ut iaculis vulputate convallis. Sed fringilla rutrum ligula sit amet pellentesque. Sed eu augue vel risus pharetra semper. Fusce sodales dignissim placerat. Quisque et arcu vel nulla volutpat viverra. Praesent blandit arcu a risus pellentesque semper sed quis lorem. Aliquam condimentum eros dui, in ultrices enim.

To do this, you could create a new template based on the `Articles View` template, add a style class to the block of text (`article-text`), and set the display CSS property for this style class to `table-cell` for the narrow layout:

```
<?xml version = '1.0'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich"
          xmlns:dt="http://xmlns.oracle.com/webcenter/content/templates"
          xmlns:f="http://java.sun.com/jsf/core"
```

```
            xmlns:h="http://java.sun.com/jsf/html"
            xmlns:rah="http://xmlns.oracle.com/webcenter/resourcehandler"
      <dt:contentListTemplateDef var="nodes">
        <af:resource type="css">
        /* Default styles */
        .article {
          display: block;
          float: left;
          width: 31.623931623931625%;
          margin-left: 2.564102564102564%;
          margin-bottom: 1em;
        }
        .article-3 {
          margin-left: 0;
          clear: both;
        }
        .article img {
          width: 100%;
          margin: 0 0 .25em;
          float: none;
          padding-top: 0;
          display: block;
          border: 0;
        }
        .article h1 {
          font-size: 1.5em;
        }

        @media only screen and (max-width : 480px) {
          /* up to width of iPhone */
          .article {
            margin-top: .5em;
            float: left;
            display: inline;
            width: 100%;
            margin-left: 0;
          }
          .article-3 {
            width: 100%;
            clear: none;
          }
          .article img {
            margin-right: 4%;
            width: 48%;
            float: left;
          }
          .article {
            font-size: 1em;
          }
          .article h1 {
            font-size: 1.25em;
          }
          /* Set the display CSS property to table-cell for the article-text style
class in the narrow layout */
          .article-text {
            display: table-cell;
          }
        }

        @media only screen and (min-width : 481px) and (max-width : 780px) {
          /* up to the width of iPad in portrait */
          .article {
            display: block;
            float: left;
            width: 48.717948717948715%;
            margin-left: 2.564102564102564%;
            clear: none;
          }
          .article-3 {
            margin-left: 2.564102564102564%;
            clear: none;
          }
          .article-2 {
            margin-left: 0;
            clear: both;
          }
          .article h1 {
            font-size: 1.25em;
          }
        }

        @media only screen and (min-width : 769px) and (max-width : 1024px) {
          /* up to the width of iPad in landscape */
        }

        @media only screen and (min-width : 1025px) {
          /* desktop */
        }
        </af:resource>
        <af:iterator rows="0" var="node" varStatus="iterator" value="#{nodes}"
                     id="it0">
           <h:panelGroup styleClass="#{(iterator.index % 3 == 0) ? 'article-3 ' :
''}#{(iterator.index % 2 == 0) ? 'article-2 ' : ''}article"
                         id="pg1">
              <af:commandLink immediate="true" partialSubmit="true" id="cl2">
                 <rah:resourceActionBehavior id="rah1"

serviceId="oracle.webcenter.content.presenter"
                                             resourceId="#{node.id}"

resourceTitle="#{node.propertyMap['RD_ARTICLE:TITLE'].asTextHtml}"
                                             useResourcePopup="never"/>
                 <f:attribute name="taskFlowInstId"
                              value="a5fafea8-90e6-4972-997d-314401b6c98b"/>
                 <f:attribute name="datasourceType" value="dsTypeSingleNode"/>
                 <f:attribute name="datasource"

value="#{node.id.repositoryName}#dDocName:#{node.propertyMap['dDocName'].value}"/>
                 <f:attribute name="templateView"

value="oracle.webcenter.content.templates.sitestudio.fullarticle"/>
                 <f:attribute name="regionTemplate" value="#{false}"/>
                 <af:outputText
value="#{node.propertyMap['RD_ARTICLE:IMAGE'].asTextHtml}"
                                escape="false" id="ot4"/>
                 <af:panelHeader
text="#{node.propertyMap['RD_ARTICLE:TITLE'].asTextHtml}"
                                 id="ph1" styleClass="article-text">
                    <af:outputText
value="#{node.propertyMap['RD_ARTICLE:SUMMARY'].asTextHtml}"
                                   escape="false" id="ot3"/>
                 </af:panelHeader>
            </af:commandLink>
         </h:panelGroup>
      </af:iterator>
   </dt:contentListTemplateDef>
</jsp:root>
```

How to Use Image Renditions in Content Presenter Display Templates

This section includes the following topics:

- About Image Renditions
- Prerequisites for Image Renditions
- Retrieving Image Rendition Information for Image Documents
- Retrieving Image Renditions for Site Studio Region Definitions

About Image Renditions

In some cases you may want to use different renditions of an image in different circumstances.

For example, you might want to use a large, high resolution image when the page containing the image is displayed using a desktop browser. However, if the same page is displayed on a mobile device, a large, high resolution image might not be appropriate given the smaller screen size and possible slower download speed. For mobile devices it would be better to display a smaller, lower resolution version, or rendition, of the image. Content Presenter display templates provide the capability of specifying which rendition of an image to display under which circumstances.

To enable the use of different image renditions, you can use EL expressions in your Content Presenter display templates to determine which image renditions to use when.

Note:

Image renditions are not supported through CMIS.

Prerequisites for Image Renditions

For full image rendition support, the Oracle WebCenter Content Server where your images are checked in must have Digital Asset Management (DAM) enabled.

If DAM is not enabled, there is support for separate `web` and `thumbnail` renditions only. For information about enabling DAM, see Enabling Digital Asset Manager in *Administering Oracle WebCenter Portal*.

When DAM is enabled, different renditions are automatically created when an image is checked in, determined by the rendition set specified during check in. DAM provides some built-in rendition sets but the WebCenter Content Server administrator can also create new rendition sets. The individual renditions can then be referenced by name in Content Presenter display templates by using the appropriate EL expression.

For more information about DAM and rendition sets, see Working with Image and Video Conversions in *Managing Oracle WebCenter Content*.

> **Note:**
>
> WebCenter Portal supports multiple renditions for images only, not video.

In addition, the following other prerequisites must also be met:

- You must be using Oracle WebCenter Content Release 11*g*R1 (11.1.1.9.0) or later.
- WebCenter Portal and WebCenter Content must be using the same OHS front end.
- The `webContextRoot` parameter must be set in line with the common OHS front end so that WebCenter Portal can find WebCenter Content objects, for example, `/cs`.
- Single sign-on must be enabled across WebCenter Portal and WebCenter Content.

Retrieving Image Rendition Information for Image Documents

To retrieve image rendition information for image documents in your Content Presenter display template, use the following EL expression:

```
node.renditionsMap['renditionName:renditionProperty']
```

Where:

- *`renditionName`* is:
  - for DAM implementations, the name of the rendition from the appropriate rendition set. For example, `web`, `thumbnail`, `preview`, or `lowres`.
  - for non-DAM implementations, either `web` or `thumbnail`.

  > **Note:**
  >
  > The *`renditionName`* is not case sensitive, therefore `preview` refers to the same rendition as `Preview`.

- *`renditionProperty`* is the required rendition information.

  In most cases, you will want to retrieve the URL of the image rendition so that the rendition can be displayed on a page. To do this use the `url` property.

  You can also retrieve other information about the rendition, such as `name`, `type`, `width`, `height`, `resolution`, `size`, or `contentType`.

> **Note:**
>
> For `web` and `thumbnail` renditions, only `size`, `contentType`, and `url` are applicable; `name` returns the name of the native file, not of the web or thumbnail rendition.

For example to display the `preview` rendition of an image, add the following to your display template:

```
<af:image source="#{node.renditionsMap['preview:url']}" shortDesc="Preview
rendition" id="imageContent3"/>
```

> **Note:**
>
> Wherever possible, `url` points to a static rendition URL for the image rendition on the WebCenter Content Server. If the static URL cannot be determined, the `url` uses the WebCenter Portal `showProperty` servlet.

The following example shows a Content Presenter display template that displays a carousel of images. If the carousel is displayed on a desktop device (`rendered="#{DeviceAgent.desktop}`), then the `a200` rendition is used for the images (`node.renditionsMap['a200:url']`). If the carousel is displayed on a mobile device (`rendered="#{DeviceAgent.mobile}`), then the smaller `thumbnail` rendition is used (`node.renditionsMap['thumbnail:url']`).

```
<?xml version='1.0' encoding='utf-8'?>
<!-- Copyright (c) 2014 Oracle and/or its affiliates.
All rights reserved. -->

<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich"
          xmlns:dt="http://xmlns.oracle.com/webcenter/content/templates"
          xmlns:f="http://java.sun.com/jsf/core">
  <dt:contentListTemplateDef var="nodes">
    <af:carousel id="c1"
                 value="#{nodes}"
                 var="node"
                 emptyText="#{templateBundle.EMPTY_NODES}"
                 inlineStyle="#{DeviceAgent.desktop ? '' : 'height:200px;'}">
      <f:facet name="nodeStamp">
        <af:carouselItem id="ci1"
                         text="#{node.isFolder ? node.name : (empty
node.propertyMap['dDocTitle'] ?
                               node.name :
node.propertyMap['dDocTitle'].value.stringValue)}"
                         shortDesc="#{not empty
node.propertyMap['xComments'].value.stringValue ?
                                    node.propertyMap['xComments'].value.stringValue :
                                    node.primaryProperty.value.binaryValue.name}">
          <af:image id="cimg1"
                    source="#{node.primaryProperty.isImage ?
node.renditionsMap['a200:url'] :
                            node.icon.largeIcon}"
                    shortDesc="#{node.primaryProperty.value.binaryValue.name}"
                    rendered="#{DeviceAgent.desktop}"/>
          <af:image id="cimg2"
                    source="#{node.primaryProperty.isImage ?
node.renditionsMap['thumbnail:url'] : node.icon.largeIcon}"
                    shortDesc="#{node.primaryProperty.value.binaryValue.name}"
                    rendered="#{DeviceAgent.mobile}"/>

                </af:carouselItem>
            </f:facet>
        </af:carousel>
    </dt:contentListTemplateDef>
</jsp:root>
```

Retrieving Image Renditions for Site Studio Region Definitions

The handling of image renditions for images in Site Studio region definitions is determined by way the region definitions are defined in Site Studio.

You can either have a region definition that includes a single region element that defines the base image or a region definition that includes separate region elements for each image rendition. Your Content Presenter display template must use the appropriate EL expression according to how the region definition is set up.

For example, your region definition could have a single region element (`myimage`) for the base image, therefore to display a particular image rendition, you must use an EL expression where you can specify which rendition to retrieve from Oracle WebCenter Content Server, for example, `highres` or `lowres`. Alternatively, if your region definition has separate region elements for the different image renditions, say one element (`desktop`) for a rendition suitable for desktop browsers and one (`mobile`) for a rendition more suited to mobile devices, you can use an EL expression that refers directly to the region element that defines the rendition that you want to use.

Tip:

If you anticipate adding further image renditions in the future, for example for new devices, it makes sense to create region definitions with single image region elements so that as new renditions are added, they can be included in your Content Presenter display templates without having to create new region elements.

- If the region definition includes a single region element that defines the base image, you can also specify which rendition of the image you want to use:

  ```
  node.propertyMap['regionDefinitionName:elementName/
  Rendition:renditionName'].asTextHtml
  ```

- To reference a region element within a region definition that defines a specific image rendition, use the following EL expression:

  ```
  node.propertyMap['regionDefinitionName:elementName'].asTextHtml
  ```

Where:

- *`regionDefinitionName`* is the name of the region definition.
- *`elementName`* is the name of the region element.
- *`renditionName`* is:

- for DAM implementations, the name of the rendition from the appropriate rendition set. For example, `web`, `thumbnail`, `highres` or `lowres`.
- for non-DAM implementations, either `web` or `thumbnail`.

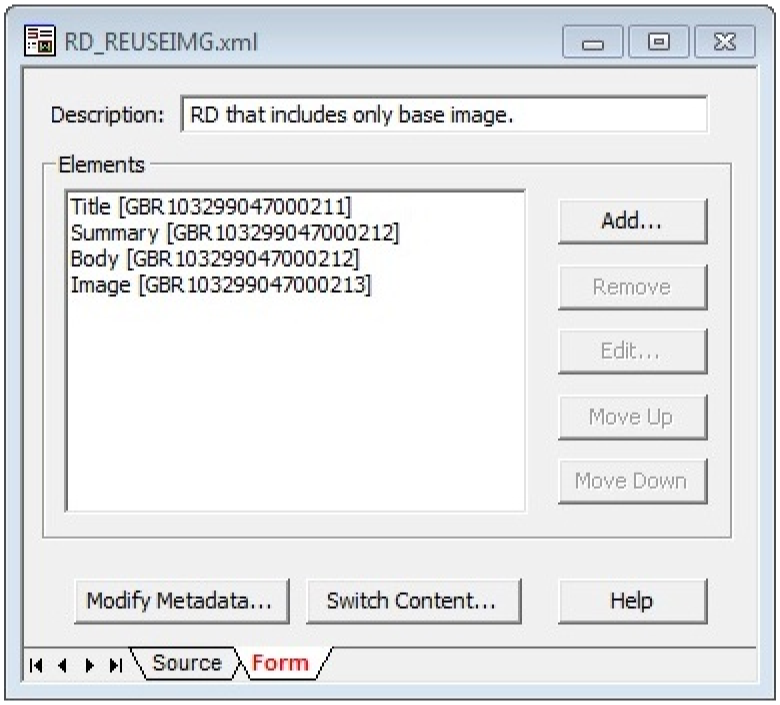
> **Note:**
>
> The *`renditionName`* is not case sensitive, therefore `preview` refers to the same rendition as `Preview`.

The EL expressions return an HTML `img` tag with a `src` element that points to the URL of the appropriate image rendition.

> **Note:**
>
> Wherever possible, the `src` URL points to a static rendition URL for the image rendition on WebCenter Content Server. If the static URL cannot be determined, the `url` uses the WebCenter Portal `showProperty` servlet.

Figure 10-8 shows a Site Studio region definition (`RD_REUSEIMG`) for an article. The definition includes region elements for the title, summary, body and image of the article. The single image region element defines the original image (`Image`).

Figure 10-8   Region Definition with Single Image Region Element


RD_REUSEIMG.xml

Description: RD that includes only base image.

Elements
Title [GBR103299047000211]
Summary [GBR103299047000212]
Body [GBR103299047000212]
Image [GBR103299047000213]

To use a lower resolution rendition (`lowres`) of the image on a mobile device, use the following code:

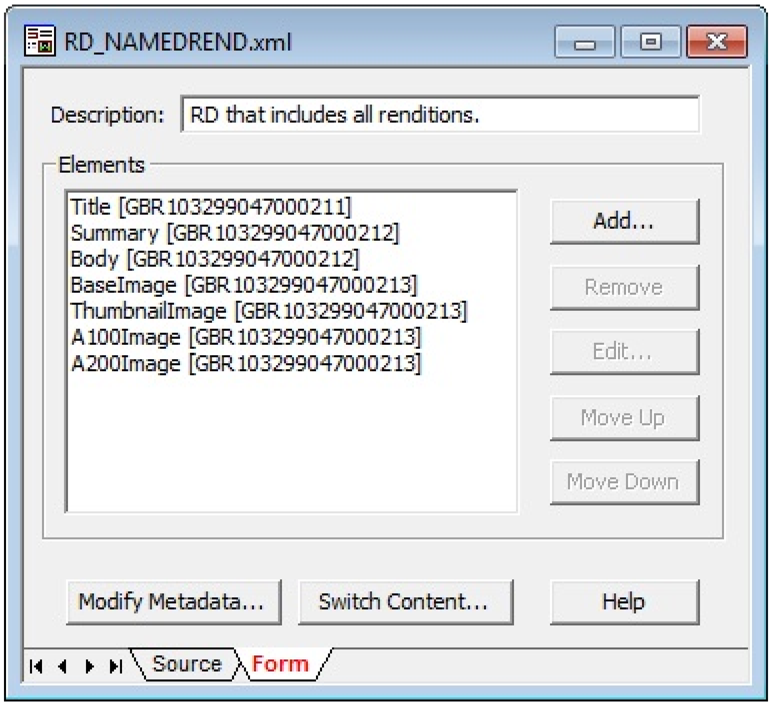
```
<af:outputText value="#{node.propertyMap['RD_REUSEIMG:Image/
Rendition:lowres'].asTextHtml}" escape="false" id="olmaget"
rendered="#{DeviceAgent.mobile}"/>
```

Note:

If the specified *`renditionName`* does not exist for the image, the image's primary rendition is used instead.

Figure 10-9 shows a different region definition (`RD_NAMEDREND`) for a different article that includes separate region elements for the different possible renditions of the article image: `BaseImage`, `ThumbnailImage`, `A100Image`, and `A200Image`.

Figure 10-9 Region Definition with Region Elements for Named Renditions



Description: RD that includes all renditions.

Elements

Title [GBR103299047000211]
Summary [GBR103299047000212]
Body [GBR103299047000212]
BaseImage [GBR103299047000213]
ThumbnailImage [GBR103299047000213]
A100Image [GBR103299047000213]
A200Image [GBR103299047000213]

To use the `ThumbnailImage` region element to render the image on a mobile device, use the following code:

```
<af:outputText value="#{node.propertyMap['RD_NAMEDREND:ThumbnailImage'].asTextHtml}"
escape="false" id="olmaget" rendered="#{DeviceAgent.mobile}"/>
```

Note:

If you use an EL expression with a specified *renditionName* for an region element that explicitly references a particular image rendition (rather than the base image), the rendition defined by the region element is returned (not the rendition specified by *renditionName*).

Within a WYSIWYG or static list region element you can reference a specific rendition of an image using the `node.propertyMap['`*`regionDefinitionName`*`:`*`elementName`*`']` EL expression. Alternatively, you can reference base images in the WYSIWG or static list region elements and then use the `node.propertyMap['`*`regionDefinitionName`*`:`*`elementName/`*`Rendition:`*`renditionName`*`']` EL expression to use a specific rendition for all images within the element.

The following example shows how a particular rendition (`Preview`) is used for images within a static list region element (`paragraph`).

```
<af:iterator value="#{node.propertyMap['RD_MYREGION:paragraph/
Rendition:Preview'].values}"
             var="row"
             id="i1"
             rendered="#{DeviceAgent.desktop}">
  <af:showDetailItem text="#{row.nestedValue[0].value}" id="sdi1"
stretchChildren="first">
    <af:panelGroupLayout layout="horizontal" id="tt" inlineStyle="padding:5px;">
      <af:outputText escape="false" value="#{row.nestedValue[1].value}" id="ld1"/>
      <af:outputText escape="false" value="#{row.nestedValue[2].value}" id="ld2"/>
    </af:panelGroupLayout>
  </af:showDetailItem>
</af:iterator>
```

In the following example `RD_MYREGION:body` corresponds to a WYSIWYG region element. All images within that WYSIWYG element will be rendered using the `A100` rendition.

```
<af:outputText value="#{node.propertyMap['RD_MYREGION:body/
Rendition:A100'].asTextHtml}"
               escape="false" id="ot5"/>
```

Note:

If the WYSIWYG or static list element explicitly references a particular rendition of an image, that rendition supersedes any rendition specified using the `Rendition:`*`renditionName`* syntax.

How to Use EL Expressions to Retrieve Content Item Information

This section describes the EL expressions that you can use in your Content Presenter display template definitions to retrieve and display specific information about content items.

Use the EL expressions described in the following tables as you define your Content Presenter display templates as explained in How to Define a Single-Item Display Template and How to Define a Multiple-Item Display Template. These expressions are used with the JSP tags described in Table 10-1 and Table 10-2.

This section contains the following topics:

- How to Retrieve Basic Information About a Content Item
- How to Work with Content Item Properties and Values
- How to Work with Content Item Icons and URLs
- How to Work with Image Renditions
- How to Work with Group Portal Information

How to Retrieve Basic Information About a Content Item

The EL expressions listed in this section enable you to display basic information about a content item in a display template.

Table 10-3 EL Expressions for Retrieving Basic Content Information

EL Expression	Description
`#{node.createdBy}`	Returns the user name of the node's creator.
`#{node.createdDate}`	Returns the node's creation date.
`#{node.hasParentNode}`	Returns `true` if the current node has a valid parent node ID, or a node that has no parent.
`#{node.icon}`	Returns the icon service defined in the current web application.
`#{node.id}`	Returns the node's identifier.
`#{node.isFolder}`	Returns `true` if this node is associated with a folder or container.
`#{node.isInherited}`	Returns `true` if this node is inherited by another object class definition.
`#{node.modifiedBy}`	Returns the user name of the node's last modifier.
`#{node.modifiedDate}`	Returns the node's last modification date.
`#{node.name}`	Returns the node's name.
`#{node.parentId}`	Returns the parent node's identifier.
`#{node.path}`	Returns the node's path.
`#{node.primaryProperty}`	Returns the node's primary property, if available.
`#{node.propertyMap}`	Creates and returns a map of wrapped property objects, keyed by property name. Properties can be accessed as `#{node.propertyMap['myProp']}` or `#{node.propertyMap.myProp}`.
`#{node.url}`	Returns an instance of the node property URL service for the primary property of this node (if any). By default, it resolves to `#{node.url.renderUrl}`. This is a shortcut for `#{node.primaryProperty.url}`.

How to Work with Content Item Properties and Values

Use the EL expressions described in this section to perform actions on content item node properties and property values.

Tip:

To determine the names of the properties defined for a given content type, see How to Discover Content Type Property Names.

Table 10-4 EL Expressions for Content Item Node Properties

EL Expression	Description
`#{node.propertyMap['myProp'].asTextHtml}`	Returns this property as text or HTML if the type is text or HTML. If `isHTML` or `isPlainText` is `true`, the text or HTML is returned as a string.
`#{node.propertyMap['myProp'].hasValue}`	Returns `true` if a value is associated with this property.
`#{node.propertyMap['myProp'].icon}`	Returns the icon service defined in the current web application.
`#{node.propertyMap['myProp'].indexedName}`	Returns the indexed name of a multi-valued property. For example, if a multi-valued node property named `color` contains `blue`, `red`, `orange`, the indexed name of the `red` value is `color[1]`. The following EL expression references the color `orange` in this list: `#{node.propertyMap['color[2]'].value.stringValue}`
`#{node.propertyMap['myProp'].isAudio}`	Returns `true` if the property's mime type is '`audio/`'.
`#{node.propertyMap['myProp'].isBinary}`	Returns `true` if the current property is of type `Property.BINARY`.
`#{node.propertyMap['myProp'].isBoolean}`	Returns `true` if the current property is of type `Property.BOOLEAN`.
`#{node.propertyMap['myProp'].isCalendar}`	Returns `true` if the current property is of type `Property.CALENDAR`.
`#{node.propertyMap['myProp'].isDouble}`	Returns `true` if the current property is of type `Property.DOUBLE`.
`#{node.propertyMap['myProp'].isExcel}`	Returns `true` if the property's mime type is '`application/vnd.ms-excel`', '`application/excel`', '`application/x-excel`', or '`application/x-msexcel`'.
`#{node.propertyMap['myProp'].isGIF}`	Returns `true` if the property's mime type is '`image/gif`'.
`#{node.propertyMap['myProp'].isHTML}`	Returns `true` if the property's mime type is '`text/html`'.
`#{node.propertyMap['myProp'].isImage}`	Returns `true` if the property's mime type is '`image/`'.

Table 10-4 (Cont.) EL Expressions for Content Item Node Properties

EL Expression	Description
`#{node.propertyMap['myProp'].isJPEG}`	Returns `true` if the property's mime type is '`image/jpeg`'.
`#{node.propertyMap['myProp'].isLink}`	Returns `true` if the current property is of type `Property.LINK`.
`#{node.propertyMap['myProp'].isLong}`	Returns `true` if the current property is of type `Property.LONG`.
`#{node.propertyMap['myProp'].isMSWord}`	Returns `true` if the property's mime type is '`application/vnd.ms-word`' or '`application/msword`'.
`#{node.propertyMap['myProp'].isMultiValued}`	Returns `true` if this property is multi-valued.
`#{node.propertyMap['myProp'].isNested}`	Returns `true` if the current property is of type `Property.NESTED`.
`#{node.propertyMap['myProp'].isPDF}`	Returns `true` if the property's mime type is '`application/pdf`'.
`#{node.propertyMap['myProp'].isPlainText}`	Returns `true` if the property's mime type is '`text/plain`'.
`#{node.propertyMap['myProp'].isPNG}`	Returns `true` if the property's mime type is '`image/png`'.
`#{node.propertyMap['myProp'].isPowerPoint}`	Returns `true` if the property's mime type is '`application/vnd.ms-powerpoint`', '`application/mspowerpoint`', or '`application/x-mspowerpoint`'.
`#{node.propertyMap['myProp'].isPrimaryProperty}`	Returns `true` if this property is the primary property.
`#{node.propertyMap['myProp'].isRequired}`	Returns `true` if this property is required/mandatory.
`#{node.propertyMap['myProp'].isRetricted}`	Returns `true` if this property is restricted.
`#{node.propertyMap['myProp'].isRichText}`	Returns `true` if the property's mime type is '`text/richtext`'.
`#{node.propertyMap['myProp'].isString}`	Returns `true` if the current property is of type `Property.STRING`.
`#{node.propertyMap['myProp'].isTextBased}`	Returns `true` if this property is text-based (`isHTML`, `isPlainText`, `isString`, `isCalendar`, `isBoolean`, `isDouble`, `isLong`).
`#{node.propertyMap['myProp'].isVideo}`	Returns `true` if the property's mime type is '`video/`'.
`#{node.propertyMap['myProp'].isXML}`	Returns `true` if the property's mime type is '`text/xml`'.
`#{node.propertyMap['myProp'].isZip}`	Returns `true` if the property's mime type is '`application/zip`'.

Table 10-4 (Cont.) EL Expressions for Content Item Node Properties

EL Expression	Description
`#{node.propertyMap['myRefNode'].linkAsNode}`	Returns the `myRefNode` property as a node, where `myRefNode` is a link property type. Properties can be referenced in EL expressions. **Example**:`#{node.propertyMap['myRefNode'].linkAsNode.primaryProperty.url.renderUrl}`
`#{node.propertyMap['myProp'].name}`	Returns the property's name.
`#{node.propertyMap['myProp'].nestedProperty}`	Retrieves nested properties for this single-valued property, and returns a list of properties.
`#{node.propertyMap['myProp'].type}`	Returns the data type of this property value. For example: `String`, `Integer`, `Long`, and so on.
`#{node.propertyMap['myProp'].url}`	Returns a URL service for this property.
`#{node.propertyMap['myProp'].value}`	Returns the value service for this property.

#{node.propertyMap['myProp'].nestedProperties}	Returns elements from a static list. For example:
	`<af:iterator var="listItem"`
	
	`value="#{node.propertyMap['ARTICLE_RGD:Paragraphs'].nestedProperties}"`
	` varStatus="vs">`
	` <af:outputText id="ot1"`
	`value='#{listItem[0].value}'/>`
	` <af:outputText id="ot3"`
	`value="#{listItem[1].value}"/>`
	` </af:iterator>`

`#node.propertyMap['regionDefName:elementName'].asTextHtml}`	Returns Site Studio data as HTML text. For example: `#node.propertyMap['RD_NEWS:LEAD'].asTextHtml}` The element name (`LEAD`) is prefixed by the Region Definition name (`RD_NEWS`). See also How to Reference Site Studio Region Elements in a Custom View.

Table 10-5 EL Expressions for Content Item Node Property Values

EL Expression	Description
`#{node.propertyMap['myProp'].value.binaryValue}`	Returns custom attributes for a binary property type or attachment. Attributes available on `binaryValue` are: • `contentType` –Returns the mime type of the binary content (for example, `text` or `html`). • `name` –Returns the filename of the binary content (for example, `index.html`). • `size` –Returns the size of the binary content, or `-1` if the size is unavailable.
`#{node.propertyMap['myProp'].value.booleanValue}`	Returns the value of this property as `java.lang.Boolean`.

Table 10-5 (Cont.) EL Expressions for Content Item Node Property Values

EL Expression	Description
`#{node.propertyMap['myProp'].value.calendarValue}`	Returns the value of this property as `java.util.Calendar`.
`#{node.propertyMap['myProp'].value.doubleValue}`	Returns the value of this property as `java.lang.Double`.
`#{node.propertyMap['myProp'].value.longValue}`	Returns the value of this property as `java.lang.Long`.
`#{node.propertyMap['myProp'].value.orderedPosition}`	Returns the "index" of the property when the property is multi-valued. **Example**:`#{node.propertyMap['address[0]'].value.orderedPosition}`,
`#{node.propertyMap['myProp'].value.stringValue}`	Returns the value of this property as `java.lang.String`. **Example**:`#{node.propertyMap['firstName'].value.stringValue}`

How to Work with Content Item Icons and URLs

Use the the EL expressions described in this section to work with icons and URLs associated with content items and properties.

Table 10-6 EL Expressions for Content Item Node or Property Icons

EL Expression	Description

`#{node.icon.largeIcon}`
`#{node.propertyMap['myDoc'].icon.largeIcon}`
	Returns a URL to an image resource for a large icon.
	Example: `<af:image source="#{node.propertyMap['projectFolder'].largeIcon}"/>`

`#{node.icon.smallIcon}`
`#{node.propertyMap['myDoc'].icon.smallIcon}`
	Returns a URL to an image resource for a small icon.
	Example: `<af:image source="#{node.icon.smallIcon}" />`

Table 10-7 EL Expressions for Content Item Node URLs

EL Expression	Description
`#{node.url.downloadUrl}`	Creates a URL to the binary content. Forces a download, and the underlying operating system renders the content based on the content type. **Example**: `<af:goLink destination="#{node.url.downloadUrl}" targetFrame="_blank"/>`

Table 10-7 (Cont.) EL Expressions for Content Item Node URLs

EL Expression	Description
`#{node.url.renderUrl}`	Creates a URL to the binary content. Allows the browser to render the content based on the content type. By default, `#{node.url}` resolves to `#{node.url.renderUrl}`. **Example**: `<af:goLink destination="#{node.url.renderUrl}" targetFrame="_blank"/>`

How to Work with Image Renditions

This section lists the EL expressions available to retrieve information about specific renditions of image documents and Site Studio region elements, including the URL to render the image using that rendition.

For more information about image renditions, see How to Use Image Renditions in Content Presenter Display Templates.

Table 10-8 EL Expressions for Image Renditions of Image Documents

EL Expression	Description
`#{node.renditionsMap['`*`renditionName`*`:url']}`	Returns the URL of the image rendition. For example: `http://mymachine.example.com:8888/cs/groups/personalspaces/@pewebcenter/@799c4d7d-255c-46c8-80f5-0d06c848dd65/documents/document/awrf/mdax/~edisp/~extract/ID_001642~3~staticrendition/preview.gif` Wherever possible, `url` points to a static rendition URL for the image rendition on Oracle WebCenter Content Server. If the static URL cannot be determined, the `url` uses the WebCenter Portal `showProperty` servlet.
`#{node.renditionsMap['`*`renditionName`*`:name']}`	Returns the name of the rendition, for example `web`, `thumbnail`, or `highres`. For `web` and `thumbnail` renditions, `name` returns the name of the native file, not of the web or thumbnail rendition.
`#{node.renditionsMap['`*`renditionName`*`:type']}`	Returns the file type of the image rendition, for example, `preview`. The `type` property is not valid for `web` and `thumbnail` renditions.
`#{node.renditionsMap['`*`renditionName`*`:width']}`	Returns the width of the image rendition in pixels, for example `250`. The `width` property is not valid for `web` and `thumbnail` renditions.

Table 10-8 (Cont.) EL Expressions for Image Renditions of Image Documents

EL Expression	Description
`#{node.renditionsMap['`*`renditionName`*`:height']}`	Returns the height of the image rendition in pixels, for example 34. The `height` property is not valid for `web` and `thumbnail` renditions.
`#{node.renditionsMap['`*`renditionName`*`:resolution']}`	Returns the resolution (DPI) of the image rendition, for example `96 dpi`. The `resolution` property is not valid for `web` and `thumbnail` renditions.
`#{node.renditionsMap['`*`renditionName`*`:size']}`	Returns the file size of the image rendition, for example, `3133`.
`#{node.renditionsMap['`*`renditionName`*`:contentType']}`	Returns the MIME type of the image rendition, for example. `image/gif`.

Table 10-9 EL Expressions for Image Renditions of Site Studio Region Elements

EL Expression	Description
`#{node.propertyMap['`*`regionDefinitionName`*`:`*`elementName`*`'].asTextHtml}`	Returns an HTML `img` tag with the `src` element set to the URL of the image defined in the specified element. For example: `<img src="http://mymachine.example.com:9400/cs/idcplg?IdcService=GET_FILE&amp;dDocName=id_038497&amp;RevisionSelectionMethod=LatestReleased" alt="S3-1" class="">` Use this EL to reference a Site Studio region element that defines a specific rendition of an image. Wherever possible, the URL points to a static rendition URL for the image rendition on WebCenter Content Server. If the static URL cannot be determined, the `url` uses the WebCenter Portal `showProperty` servlet.

Table 10-9 (Cont.) EL Expressions for Image Renditions of Site Studio Region Elements

EL Expression	Description
`#{node.propertyMap['`*`regionDefinitionName`*`:`*`elementName/`*`Rendition:`*`renditionName`*`'].asTextHtml}`	Returns an HTML `img` tag with the `src` element set to the URL of the specified image rendition of the image defined in the specified element. For example: `<img src="/cs/groups/wc081512c/@sb5cdcaa4610341a8bb8387effdf21790/documents/document/awrf/mdm4/~edisp/~extract/ID_038497~1~staticrendition/preview.gif" alt="S3-1" class="">` If the specified image rendition does not exist for the image, then the base image URL is returned. Use this EL to reference a Site Studio region element that defines the base image for which you want to display the specified *`renditionName`*. Wherever possible, the URL points to a static rendition URL for the image rendition on WebCenter Content Server. If the static URL cannot be determined, the `url` uses the WebCenter Portal `showProperty` servlet.

How to Work with Group Portal Information

This section lists the EL expressions you can use to work with group portal information in your Content Presenter display templates.

Table 10-10 EL Expressions for Basic Group Portal Information

EL Expression	Description

`#{spaceContext.currentSpace.metadata.createdBy}`
`#{spaceContext.space[portalName].metadata.createdBy}`
	Returns the user who created the current or specified group portal.

`#{spaceContext.currentSpace.metadata.creationDate}`
`#{spaceContext.space[portalName].metadata.creationDate}`
	Returns a `java.util.Calendar` object representing the date and time on which the current or specified portal was created.

`#{spaceContext.currentSpace.metadata.customAttributes[attributeName]}`
`#{spaceContext.space[portalName].metadata.customAttributes[attributeName]}`
	Returns the value of a specific custom attribute of the name `attributeName` for the portal.

`#{spaceContext.currentSpace.metadata.defaultLanguage}`
`#{spaceContext.space[portalName].metadata.defaultLanguage}`
	Returns the default language for the current or specified portal.

Table 10-10 (Cont.) EL Expressions for Basic Group Portal Information

EL Expression	Description

`#{spaceContext.currentSpace.metadata.description}`
`#{spaceContext.space[portalName].metadata.description}`
	Returns the description associated with the current portal with the display name in the language in which the portal was created. If the portal name has been translated, the translated name is not shown.
	Example:
	`#{spaceContext.space['FinanceProject'].metadata.description}`
	Evaluates to conglomeration of all teams involved in financial activities.

`#{spaceContext.currentSpace.metadata.displayName}`
`#{spaceContext.space[portalName].metadata.displayName}`
	Returns the display name associated with the current or specified portal in the language in which the portal was created. If the portal name has been translated, the name in which the portal was created will be shown.
	Example:
	If a group portal called "Web20Portal" has the display name "Web 2.0 Portal", then:
	`#{spaceContext.space['Web20Portal'].metadata.displayName}`
	will evaluate to "Web 2.0 Portal".

`#{spaceContext.currentSpace.metadata.guid}`
`#{spaceContext.space[portalName].metadata.guid}`
	Returns the unique ID associated with the current or specified portal.

`#{spaceContext.space[portalName].metadata.icon}`
`#{spaceContext.currentSpace.metadata.icon}`
	Returns a URL to the icon associated with the current or specified portal.

`#{spaceContext.currentSpace.metadata.keywords}`
`#{spaceContext.space[portalName].metadata.keywords}`
	Returns a comma-separated list of searchable keywords associated with the current or specified portal.

`#{spaceContext.currentSpace.metadata.lastUpdatedDate}`
`#{spaceContext.space[portalName].metadata.lastUpdatedDate}`
	Returns the `java.util.Calendar` object representing the date-time on which the current or specified portal was last updated.

`#{spaceContext.space[portalName].metadata.logo}`
`#{spaceContext.currentSpace.metadata.logo}`
	Returns the path to the image associated with the logo of the current or specified portal.

`#{spaceContext.currentSpace.metadata.name}`
`#{spaceContext.space[portalName].metadata.name}`
	Returns the name of the current or specified portal used generally at the back end of the portal and is used with the pretty URL.

`#{spaceContext.currentSpace.metadata.groupSpaceURI}`
`#{spaceContext.space[portalName].metadata.groupSpaceURI}`
	Returns the pretty URL of the current or specified portal.

Table 10-10 (Cont.) EL Expressions for Basic Group Portal Information

EL Expression	Description
`#{spaceContext.currentSpace.metadata.closed}` `#{spaceContext.space[portalName].metadata.closed}`	Returns Boolean value indicating whether the portal has been kept closed.
`#{spaceContext.currentSpace.metadata.discoverable}` `#{spaceContext.space[portalName].metadata.discoverable}`	Returns Boolean value indicating whether users will be able to discover the existence of the portal by searching for it or getting it listed in My Portals.
`#{spaceContext.currentSpace.metadata.offline}` `#{spaceContext.space[portalName].metadata.offline}`	Returns Boolean value indicating whether the portal has been taken offline.
`#{spaceContext.currentSpace.metadata.publishRSS}` `#{spaceContext.space[portalName].metadata.publishRSS}`	Returns Boolean value, indicating whether the portal publishes RSS feeds.
`#{spaceContext.currentSpace.metadata.selfRegistration}` `#{spaceContext.space[portalName].metadata.selfRegistration}`	Returns a Boolean value indicating whether users are allowed to subscribe themselves to the portal.
`#{spaceContext.currentSpace.metadata.unsubscriptionApprovalRequired}` `#{spaceContext.space[portalName].metadata.unsubscriptionApprovalRequired}`	Returns a Boolean value representing whether approval is required to unsubscribe from the current or specified portal.

Table 10-11 EL Expressions for Portal UI Information

EL Expression	Description
`#{spaceContext.space[portalName].metadata.uiMetadata.gsSiteTemplateId}` `#{spaceContext.currentSpace.metadata.uiMetadata.gsSiteTemplateId}`	Returns the ID of the page template associated with the current or specified portal.
`#{spaceContext.space[portalName].metadata.uiMetadata.rcForGSPages}` `#{spaceContext.currentSpace.metadata.uiMetadata.rcForGSPages}`	Returns the ID of the resource catalog associated with the current or specified portal.
`#{spaceContext.space[portalName].metadata.uiMetadata.rcForGSSiteTemplates}` `#{spaceContext.currentSpace.metadata.uiMetadata.rcForGSSiteTemplates}`	Returns the ID of the resource catalog associated with the page template of the current portal.

Table 10-11 (Cont.) EL Expressions for Portal UI Information

EL Expression	Description
`#{spaceContext.space[portalName].metadata.uiMetadata.gsSiteStructureId}` `#{spaceContext.currentSpace.metadata.uiMetadata.gsSiteStructureId}`	Returns the ID of the navigation model associated with the current portal.
`#{spaceContext.space[portalName].metadata.uiMetadata.skin}` `#{spaceContext.currentSpace.metadata.uiMetadata.skin}`	Returns the ADF Faces skin family associated with the current portal.
`#{spaceContext.space[portalName].metadata.uiMetadata.footerHidden}` `#{spaceContext.currentSpace.metadata.uiMetadata.footerHidden}`	Returns the Boolean value representing whether the footer of the portal is hidden.
`#{spaceContext.space[portalName].metadata.uiMetadata.copyrightMessage}` `#{spaceContext.currentSpace.metadata.uiMetadata.copyrightMessage}`	Returns the copyright message used by the portal.
`#{spaceContext.space[portalName].metadata.uiMetadata.privacyPolicyUrl}` `#{spaceContext.currentSpace.metadata.uiMetadata.privacyPolicyUrl}`	Returns the URL to the privacy policy document followed.

How to Discover Content Type Property Names

As a Content Presenter display template developer, you will need to know the names of the properties defined for the associated content type so that you can define how to display the selected content item(s) on the page.

Each content item is associated with a specific *content type* defined in the Oracle WebCenter Content Server repository. Content types can map to WebCenter Content Server profile definitions and Site Studio region definitions. Types are created in WebCenter Content Server and define the properties of the content item. The property names of a content item's content type, however, are different than the display names, and need to be obtained from WebCenter Content Server. For more information, see Defining Content Types in *Managing Oracle WebCenter Content*.

Note:

You can also use REST services to obtain content type property names. For more information see Using the WebCenter Portal REST APIs.

How to Reference External Files in Display Templates

In some cases, a display template needs to reference an external file, like a CSS file. All such references must be either an absolute path or a path that is relative to the root of the web application.

For example:

- **absolute path** –`http://host:port/mypath/file.css`
- **relative path** –`/webcenter/mypath/file.css`

Do not use local references to external files. Local references to external files do not work because they are not included when you publish a Content Presenter display template as an asset, as explained in Publishing a Content Presenter Display Template.

How to Reference Site Studio Region Elements in a Custom View

You can use custom display templates to display Site Studio Region Definition elements.

For example, you might have a Site Studio Region Definition called `RD_NEWS` with four elements: `TITLE`, `LEAD`, `IMAGE`, and `BODY`. A Content Presenter display template can reference these elements using the node property EL expression like this:

```
#node.propertyMap['RD_NEWS:LEAD'].asTextHtml}
```

The following example illustrates how these Site Studio Region elements can be included in a `contentTemplateDef` definition:

```
<dt:contentTemplateDef var="node">
   <af:panelGroupLayout layout="vertical" id="pgl3">
     <af:panelGroupLayout layout="horizontal" valign="top" inlineStyle="background-
color:#FFF; padding:10px;" id="pgl4">
         <af:panelGroupLayout layout="vertical" id="pgl2" valign="top">
            <af:outputText
value="#{node.propertyMap['dInDate'].value.calendarValue}" id="ot3"
styleClass="bodytext" converter="javax.faces.DateTime"/>
          </af:panelGroupLayout>
          <af:spacer width="10px;" id="s1" inlineStyle="background-color:#DDD;
color:white;"/>
          <af:panelGroupLayout layout="vertical" id="pgl1" valign="top">
             <af:outputText value="#{node.propertyMap['xTargetGroup'].value}"
id="ot12" inlineStyle="background-color:#0A9FC0; color:white; text-align:left;
padding:5px;"/>
            <af:goLink text="#{node.propertyMap['RD_NEWS:TITLE'].asTextHtml}"
id="gil1"
                destination="#{'/faces/home/news-viewer?
news_id='}#{node.propertyMap['dDocName'].value}" styleClass="newstitle"/>
           <af:outputText value="#{node.propertyMap['RD_NEWS:LEAD'].asTextHtml}"
id="ot2" styleClass="bodytext"/>
         </af:panelGroupLayout>
       <af:panelGroupLayout layout="vertical" id="pgl32" valign="top"
styleClass="newsimage">
         <af:outputText value="#{node.propertyMap['RD_NEWS:IMAGE'].asTextHtml}"
escape="false" id="ot1"  inlineStyle="max-width:100px;"/>
       </af:panelGroupLayout>
     </af:panelGroupLayout>
```

```
      <af:panelGroupLayout layout="horizontal" id="aaaa">
      </af:panelGroupLayout>
    </af:panelGroupLayout>
</dt:contentTemplateDef>
```

For a complete, end-to-end example illustrating how to reference Site Studio Region elements in multiple templates, see the WebCenter Architecture Team blog entry at:

`http://www.ateam-oracle.com/content-presenter-cmis-complete`

Publishing a Content Presenter Display Template

After creating a Content Presenter display template and editing the page fragment, the next step is to publish and test the template in WebCenter Portal.

For instructions on how to publish a Content Presenter display template as a shared asset, or to a specific portal as a portal asset, see Publishing WebCenter Portal Assets.

Optimizing Performance for Content Presenter Display Templates

When content nodes are retrieved for display in a Content Presenter display template, most content item node property values are retrieved immediately along with the node, but some are loaded later only if needed. Other than the performance difference, the selective loading of node property values is transparent to the user or developer.

As a Content Presenter display template developer, you can optimize performance of your template if you are aware when different property values are loaded. For example, a typical list display template will render faster if you refer only to properties that are immediately loaded when the node is first retrieved and avoid properties that are loaded later when needed.

A secondary consideration is dependent on how the node is retrieved: through search versus fetched by parent ID. A property that may be loaded immediately on node retrieval for searches (such as Results of a Query) may be loaded later for other retrieval methods (such as Contents Under a Folder). Table 10-12 shows whether or not node properties are loaded immediately upon node retrieval, by retrieval mechanism.

Table 10-12 Loading of Node Properties By Node Retrieval Mechanism

OCS Global Profile Properties	Loaded When Node Is First Retrieved?		
	GET BY PARENT ID (Contents Under a Folder)	SEARCH (Results of a Query)	GET BY UUID (Single Content Item and List of Items)
`VaultFileSize`	**N**	Y	Y
`dCheckoutUser`	Y	**N**	Y
`dCreateDate`	Y	Y	Y
`dDocAccount`	Y	Y	Y
`dDocAuthor`	Y	Y	Y

Table 10-12 (Cont.) Loading of Node Properties By Node Retrieval Mechanism

OCS Global Profile Properties	Loaded When Node Is First Retrieved?		
	GET BY PARENT ID (Contents Under a Folder)	SEARCH (Results of a Query)	GET BY UUID (Single Content Item and List of Items)
`dDocName`	Y	Y	Y
`dDocTitle`	Y	Y	Y
`dDocType`	Y	Y	Y
`dFormat`	Y	Y	Y
`dID`	Y	Y	Y
`dInDate`	Y	Y	Y
`dIsCheckedOut`	Y	**N**	Y
`dOutDate`	Y	Y	Y
`dReleaseDate`	Y	**N**	Y
`dReleaseState`	Y	**N**	Y
`dRevClassID`	Y	**N**	Y
`dRevLabel`	Y	Y	Y
`dRevRank`	Y	**N**	Y
`dRevisionID`	Y	Y	Y
`dSecurityGroup`	Y	Y	Y
`dStatus`	Y	**N**	Y
`dWebExtension`	Y	Y	Y
`dWorkflowState`	**N**	**N**	Y
`idcPrimaryFile`	Y	Y	Y
`idcRenditions`	**N**	**N**	Y
`xCollectionID`	Y	Y	Y
`xComments`	Y	Y	Y
`xForceFolderSecurity`	Y	Y	Y
`xHidden`	Y	Y	Y
`xInihibitUpdate`	Y	Y	Y
`xReadOnly`	Y	Y	Y

Using Content Presenter (Tips, Tutorials, and Examples)

The following supplementary tutorials and examples further illustrate how Content Presenter can be used.

- *UCM, Site Studio and Templates* - describes the components (Content Server, Site Studio, and Content Presenter) that drive content interactions in WebCenter Portal.

  `http://www.ateam-oracle.com/portal-and-content-components-part-1-ucm-site-studio-and-templates-2-of-7`

- *Content Presenter-CMIS-Complete* - steps you through using Content Presenter-based pages and complex CMIS and custom templates to create a filterable content list viewer.

  `http://www.ateam-oracle.com/content-presenter-cmis-complete`

- *Portal and Content - Content Integration - Best Practices* - highlights some of the best practices to consider when integrating content into your portal.

  `http://www.ateam-oracle.com/portal-and-content-content-integration-best-practices/`

Part III

Working with Portlets

This part of *Developing for Oracle WebCenter Portal* contains the following chapters:

11 Introduction to Portlets

Learn about portlets, their uses, and the resources you can use to create portlets that best suit your needs.

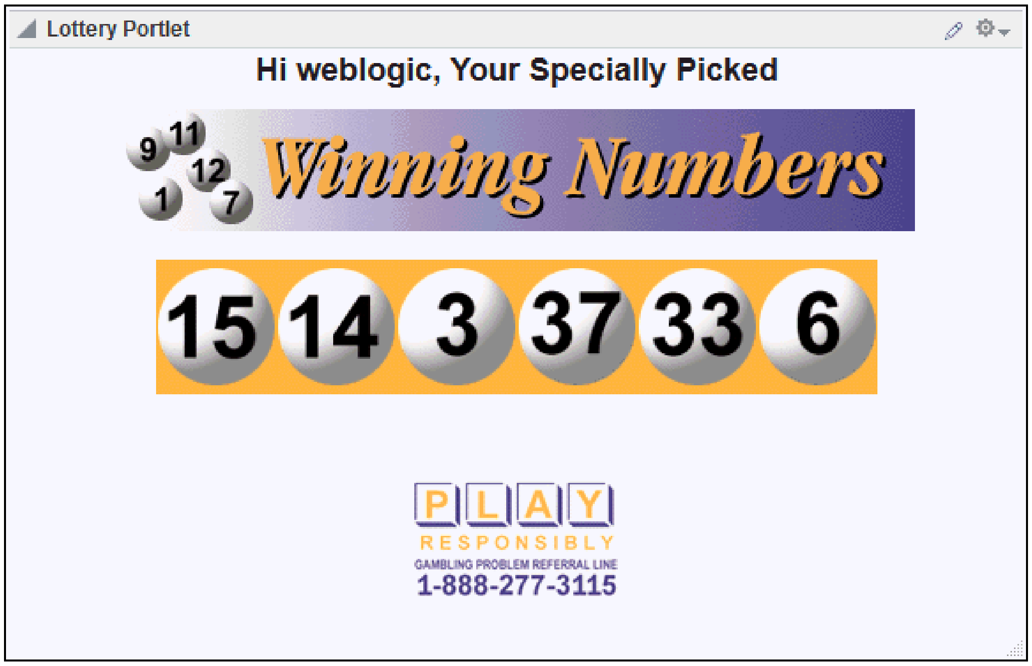
Topics:

About Portlets

A portlet is a reusable web component that can draw content from many different sources. Portlets can contain anything from static HTML content to Java controls to complex web services and process-heavy applications.

Portlets provide a means of presenting data from multiple sources in a meaningful and related way. Portlets can display excerpts of other web sites, generate summaries of key information, perform searches, and access assembled collections of information from a variety of data sources. Because several different portlets can be placed on a page, users benefit from a single-source experience even though, in reality, the content may be derived from multiple sources.

Figure 11-1 Lottery Sample Portlet



Portlets can communicate with each other using events and other techniques. A single portlet can also have multiple instances—in other words, it can appear on a variety of different pages within a single portal, or even across multiple portals. Page designers can customize portlets to meet the needs of their specific audience. With the correct privileges, individual end users can further personalize portlets for their own particular requirements.

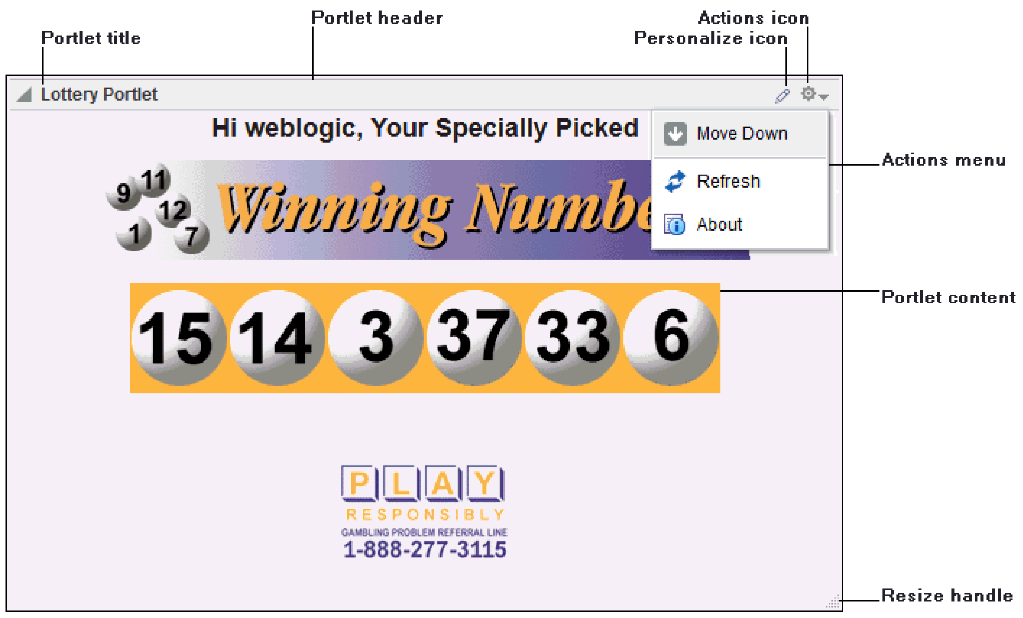
WebCenter Portal supports the development of portlets using JSR 286, an industry standard. You can also create portlets from existing JSF applications using the Oracle JSF Portlet Bridge. For more information, see About Portlet Resources.

About Portlet Anatomy

Portlet anatomy is the visual representation of the portlet on a page.

Figure 11-2 shows some aspects of portlet anatomy that you might expect to see in a typical portlet in WebCenter Portal. Note that the same portlet displayed in a different application could look different.

Figure 11-2 Sample Portlet Showing Typical Portlet Anatomy



Aspects of portlet anatomy (some, but not all, of which are illustrated in Figure 11-2) include:

- **Portlet chrome**—A collective term for the different types of decoration that surround the portlet, including the header, shadow, resize handle, Actions menu, and icons.
- **Portlet header**—The area of the portlet that displays the portlet icon, title, **Actions** menu, and **Customize** and **Personalize** icons.
- **Portlet icon**—A small image in the portlet header used to visually identify the portlet.

- **Portlet title**—Text in the portlet header that indicates the purpose of the portlet. End users may be able to personalize this title at runtime to make it more meaningful to their particular usage.
- **Personalize icon**—An icon in the portlet header that enables end users to make changes to the portlet that only they can see.

  The **Personalize** icon is displayed only to authenticated users (that is, users who are logged in). It does not display to public users or unauthenticated users. You must implement some form of application security for users to be able to personalize their portlet views.
- **Customize icon**—An icon in the portlet header that enables application administrators to make changes to the default settings of the portlet at runtime. These changes are visible to all users.

  A typical customization setting is the portlet title. At runtime, the application administrator can determine what title should appear in the portlet header.
- **Actions icon**—An icon in the portlet header that displays the **Actions** menu when clicked.
- **Actions menu**—A menu that lists various actions that users can perform on the portlet. The actions listed depend on whether the user is logged in, what privileges that user has, the functionality provided by the portlet, and the options specified when the portlet was added to the page at design time. Actions include **Move**, **Remove**, **Refresh**, **Move Up**, and **Move Down**. The **Actions** menu also provides access to other portlet modes available for the portlet, such as About, Help, Configure, and Print.

  If the user who added the portlet to the page chose to not display the portlet header, the **Actions** menu is displayed on a fade in/fade out toolbar that displays on mouse rollover.
- **Resize handle**—An area at the bottom right of the portlet that enables users to change the size of the portlet.
- **Scroll bars**—Display when the portlet content does not fit the width and height specified for the portlet, providing access the content that is not initially displayed.
- **Portlet content**—The actual content of the portlet as determined by the portlet logic.

The portlet anatomy rendered on the page is controlled by two factors:

- The portlet's own logic, as determined by the portlet developer. This includes which portlet modes are supported by the portlet.
- The attributes of the portlet tag that binds the portlet to the page, as determined by the application developer who added the portlet to the page at design time.

For example, when designing the portlet, the portlet developer may implement Help mode for the portlet. When a page designer adds the portlet to the page, he or she can determine, using the portlet property `isHelpModeAvailable`, whether or not to include the **Help** command in the portlet's **Actions** menu. If the page designer sets `isHelpModeAvailable` to false, the **Help** command is not included in the **Actions** menu even though it is provided in the portlet logic. Conversely, if the portlet developer has not implemented Help mode for a portlet, the **Help** command is not displayed in the **Actions** menu, even if `isHelpModeAvailable` is set to `true`.

About Portlet Resources

The portlets in your applications can come from a variety of sources, including other Oracle products and third-party vendors.

Portlet resources also include custom built Java portlets built using WebCenter Portal's Java portlet wizard for JSR 286. Each of these resources offers different product features and are targeted toward users with different levels of experience.

This section includes the following topics:

- About Prebuilt Portlets
- About Java Server Faces (JSF) Portlets
- About Custom Java Portlets
- Portlet Technologies
- Portlets Versus Task Flows

About Prebuilt Portlets

Oracle provides integration with other Oracle applications by enabling you to expose functionality as portlets:

What Are They?

Supported applications include:

- **Peoplesoft**—You can expose Peoplesoft applications as WSRP portlets. For more information, see Integrating PeopleSoft Applications in *Administering Oracle WebCenter Portal*.
- **JD Edwards**—You can expose JD Edwards standalone regions as portlets. For more information, see Integrating JD Edwards Applications in *Administering Oracle WebCenter Portal*.
- **Oracle E-Business Suite**—Oracle E-Business Suite provides several prebuilt portlets, such as Applications Navigator, Favorites, and Worklist, that you can add to WebCenter Portal. For more information, see Integrating E-Business Suite Applications in *Administering Oracle WebCenter Portal*.
- Other prebuilt portlets are available through Oracle's partnerships with leading system integrators, software vendors, and content providers.

Who Is the Intended User?

Fully developed, downloadable portlets are best suited for use by portal developers who understand how to download, install, and register producers in WebCenter Portal. They are available for use by all levels of experience.

When Should They Be Used?

Use prebuilt portlets when your needs are met by the functions the portlets offer and the level of personalization readily available is sufficient to complete the desired task.

Consider alternatives when you want to extend or personalize the portlet, for example, when you need a different user interface or when the functionality you require is not available out of the box.

About Java Server Faces (JSF) Portlets

JSF portlets are created from JSF applications using the Oracle JSF Portlet Bridge.

What Are They?

The Oracle JSF Portlet Bridge enables application developers to expose their existing JSF applications and task flows as JSR 286 Java portlets. The Oracle JSF Portlet Bridge simplifies the integration of JSF applications with WSRP portlet consumers, such as WebCenter Portal.

JSF portlets do not require separate source code from that of the JSF application. Since these portlets are created using the Oracle JSF Portlet Bridge, you need only maintain one source for both your application and your portlets. Similarly, when you deploy your portletized JSF application, the JSF portlets are also deployed with it. Therefore, using the Oracle JSF Portlet Bridge eliminates the requirement to store, maintain, and deploy your portlets separately from your application.

For more information about creating JSF portlets, see Creating Portlets from JSF Applications Using the Oracle JSF Portlet Bridge.

Who Is the Intended User?

Application developers with knowledge of Faces.

When Should They Be Used?

JSF portlets are best suited when application developers intend to display content from a JSF application or from individual task flows within the application as a portlet, without hosting the entire application or without separately building a portlet for the same. When portletized, the consumption of the portlet is the same as any WSRP producer.

About Custom Java Portlets

Custom Java portlets are portlets that you write yourself, in Java, using the Java Portlet Specification 2.0 (JSR 286).

What Are They?

WebCenter Portal provides a declarative wizard in JDeveloper for simplifying the creation of standards-based JSR 286 Java portlets. This wizard assists in the construction of the framework within which you create the portlet.

Note:

You can consume legacy JSR 168 and WSRP 1.0 portlets in your portals, for example from Oracle WebLogic Portal. There is no need to convert these portlets to JSR 286 first. However, when creating new Java portlets we recommend using JSR 286 to take advantage of features such as public render parameters and portlet events.

You can also consume legacy Oracle PDK-Java portlets in your portals.

Who Is the Intended Audience?

Use of the wizard is easy, but creation of the portlet logic is best performed by experienced and knowledgeable Java developers who are comfortable with JSR 286 and who understand the configuration of producers.

When Should They Be Used?

Consider using custom Java portlets when you cannot find a prebuilt portlet or existing JSF application to address your requirements.

Use custom Java portlets when you have very specialized business rules or logic, or when you require personalized authentication, granular processing of dynamic results, or complete user interface control.

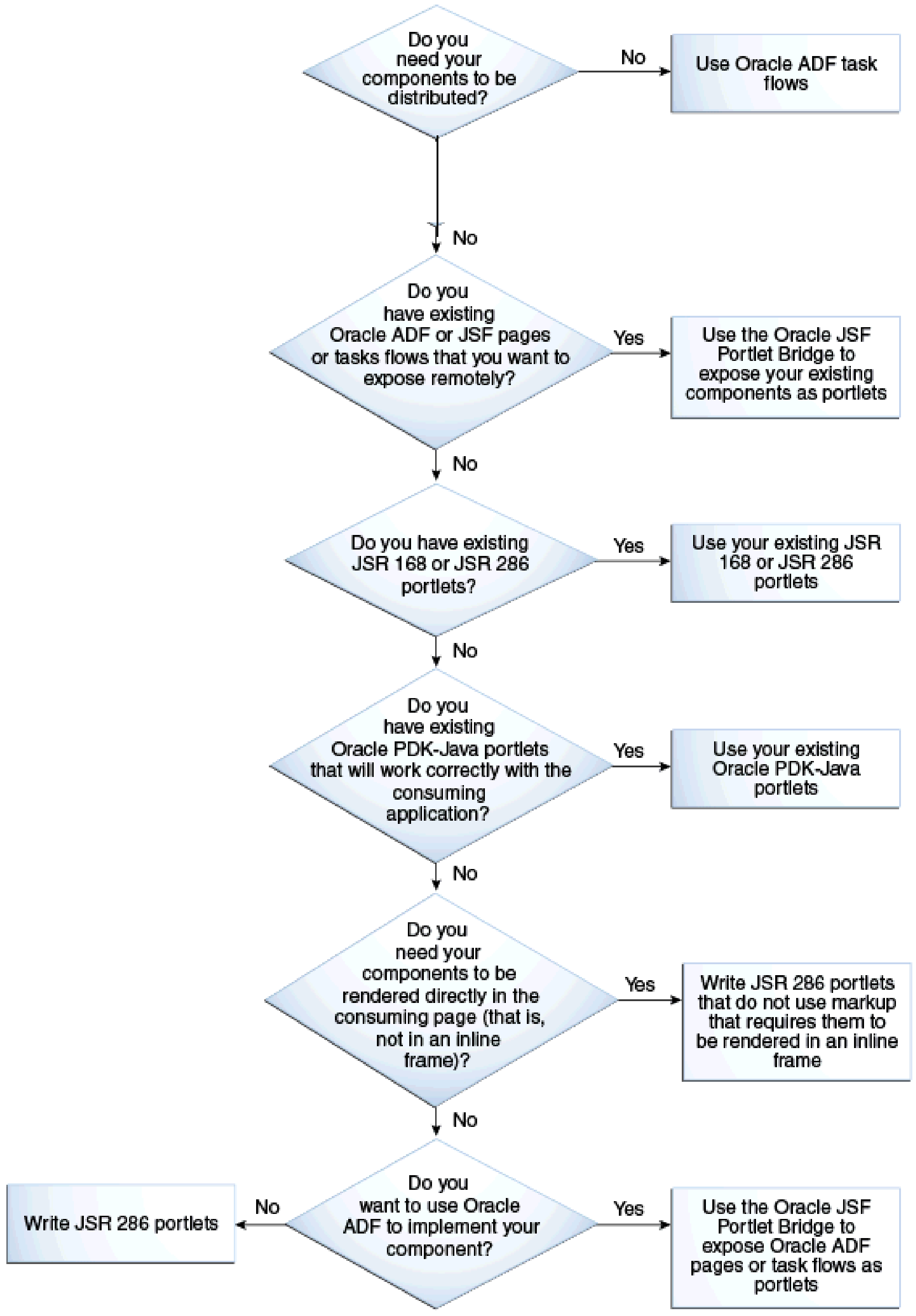
For more information about creating custom Java portlets, see Building Standards-Based Java Portlets Using JSR 286.

Portlet Technologies

When creating new portlets, there are several different technologies you can use. The technology you use depends on several factors.

The figure below provides a decision tree to enable you to determine which portlet implementation technology best fits your environment and requirements. The list below the figure presents the same information in a non-graphical format and provides additional notes.

Figure 11-3 Decision Tree for Portlet Technologies


Do you need your components to be distributed?
No
Use Oracle ADF task flows
No
Do you have existing Oracle ADF or JSF pages or tasks flows that you want to expose remotely?
Yes
Use the Oracle JSF Portlet Bridge to expose your existing components as portlets
No
Do you have existing JSR 168 or JSR 286 portlets?
Yes
Use your existing JSR 168 or JSR 286 portlets
No
Do you have existing Oracle PDK-Java portlets that will work correctly with the consuming application?
Yes
Use your existing Oracle PDK-Java portlets
No
Do you need your components to be rendered directly in the consuming page (that is, not in an inline frame)?
Yes
Write JSR 286 portlets that do not use markup that requires them to be rendered in an inline frame
No
Do you want to use Oracle ADF to implement your component?
No
Write JSR 286 portlets
Yes
Use the Oracle JSF Portlet Bridge to expose Oracle ADF pages or task flows as portlets

1. Do you need your components to be distributed?

- **Yes**—Go to Question 2.
- **No**—You don't need portlets. Use Oracle ADF task flows (or some other technology) that are local to your consuming application. For more information, see Creating ADF Task Flows in *Developing Fusion Web Applications with Oracle Application Development Framework*.

Having a distributed environment results in a more complicated deployment and potentially makes it more difficult to track down issues. However, it also means that you can spread the processing load across multiple servers and enables your components to be used by several different consumers.

2. Do you have existing Oracle ADF or JSF pages or task flows that you want to expose remotely?
   - **Yes**—Use the Oracle JSF Portlet Bridge to expose your existing components. For more information, see Creating Portlets from JSF Applications Using the Oracle JSF Portlet Bridge.
   - **No**—Go to Question 4.

   Using existing Oracle ADF components in this way provides a very convenient way of developing portlets, but be aware of the implications of using Oracle ADF to implement portlets, as outlined in Table 11-1.
3. Do you have existing JSR 168 or JSR 286 portlets?
   - **Yes**—Use your existing JSR 168 or JSR 286 portlets. For more information, see Registering WSRP Producers.
   - **No**—Go to Question 5.

   WebCenter Portal exposes JSR 168 and JSR 286 portlets over WSRP, which are fully compatible with the WebCenter consumer, assuming such portlets do not make assumptions that are specific to a particular consumer.
4. Do you have existing Oracle PDK-Java portlets that will work correctly with the WebCenter Portal consumer?
   - **Yes**—Use your existing PDK-Java portlets. For more information, see Registering an Oracle PDK-Java Portlet Producer
   - **No**—Go to Question 6.
5. Do you have a requirement for your components to be rendered directly in the consumer page (that is, not in an inline frame)?
   - **Yes**—Write JSR 286 portlets that do not use markup that requires them to be rendered in an inline frame. For more information, see Building Standards-Based Java Portlets Using JSR 286.
   - **No**—Go to Question 7.
6. Do you want to use Oracle ADF to implement your component?
   - **Yes**—Use the Oracle JSF Portlet Bridge to expose Oracle ADF pages or task flows as portlets. For more information, see Creating Portlets from JSF Applications Using the Oracle JSF Portlet Bridge.
   - **No**—Write JSR 286 portlets. For more information, see Building Standards-Based Java Portlets Using JSR 286.

   The decision of whether to use Oracle ADF for implementing portlets is broadly the same as whether you would choose to use it for implementing a normal web application. However, the additional network hop (for markup, resource, and PPR) and consumer processing that is inherent when using remote portlets may make Oracle ADF a less attractive option than it is in the non-portlet case.

Also, see the Oracle ADF Overview white paper on OTN for specific benefits of using Oracle ADF to develop Java EE applications. Another benefit of using an Oracle ADF task flow is that you can later run the same task flow locally if you encounter any issues running in an inline frame.

Table 11-1 outlines the implications of choosing a particular portlet technology for implementing components for use with WebCenter Portal against various criteria.

Table 11-1 Portlet Building Technologies Comparison Matrix

Type	Local Oracle ADF Pages and Task Flows	JSR 286 Portlets	JSF Portlets
Distributed Architecture	No.	Yes, using WSRP SOAP/ HTTP.	Yes, using WSRP SOAP/ HTTP.
Navigation/Control Flow Support	Provides comprehensive support for declarative navigation.	No restrictions, but must be implemented by the portlet developer, possibly using a third party framework.	Provides comprehensive support for declarative navigation.
Richness of UI	Provides a rich, web-based UI with many AJAX-enabled components.	No restrictions, but must be implemented by the portlet developer, possibly using a third party framework.	Provides a rich, web-based UI with many AJAX-enabled components.
Security	Fully integrated with the application	User identity propagated using WS-Security or asserted by consumer using WSRP. Authorization checks must be implemented by the developer. User profile information can be passed using WSRP user profile items.	User identity propagated using WS-Security. Authorization is implemented by Oracle ADF.
Inter-Component Communication (Events)	ADF contextual events enable task flows to communicate.	Full support for JSR 286 events, including automatic event delivery between portlets and event mapping between portlet events and ADF contextual events in the consumer.	As per JSR 286 portlets in addition to ADF contextual events allowing task flows to communicate as in the local case.
Consumer to Component Interaction (Parameters)	Task flow input parameters can take values from various sources.	Full support for JSR 286 parameters, including passing public parameter values to and from the consumer and automatic sharing of parameter values between portlets.	As per JSR 286 portlets in addition to task flow input parameters taking values from various sources in the consumer application as in the local case.

Table 11-1 (Cont.) Portlet Building Technologies Comparison Matrix

Type	Local Oracle ADF Pages and Task Flows	JSR 286 Portlets	JSF Portlets
Performance and Caching	No additional network hop since the component runs on the local server.	Remote component requires additional network hop. Resources should be proxied by the consumer. Component performance depends on implementation. Expires and validation based caching are supported and controlled by the portlet developer.	Remote component requires additional network hop. Many resources are proxied via the consumer. Heavyweight nature of framework means simple applications are likely to suffer performance-wise versus handcrafted JSR 286 equivalents. However, for applications offering more complex functionality, the performance benefits of using the framework (for example, partial page rendering) become more apparent. JavaScript, CSS, and other resources are cached in the browser. Caching is controlled by the framework.
Concurrency	Multiple task flows are invoked sequentially.	Portlets are invoked in parallel.	Portlets are invoked in parallel.
Geometry Management	Components are rendered directly in the containing page.	Portlet geometry and inline versus framed rendering is controlled by the portlet developer. Complex UIs are more likely to require rendering in an inline frame.	Portlets must be rendered in an inline frame.
Use of JavaScript	JavaScript used heavily as a fundamental part of the framework to provide a rich user experience. Developer does not generally need to write JavaScript.	Level of JavaScript use and packaging are controlled by the portlet developer. Developers must be aware of special considerations regarding the use of JavaScript if portlets are to be rendered inline.	JavaScript used heavily as a fundamental part of the framework to provide a rich user experience. Developer does not generally need to write JavaScript. All scripts must be proxied via the consumer.

Table 11-1 (Cont.) Portlet Building Technologies Comparison Matrix

Type	Local Oracle ADF Pages and Task Flows	JSR 286 Portlets	JSF Portlets
Skills Requirements/Ease of Development	Requires knowledge of ADF and possibly Java. ADF provides an integrated framework across all layers. JDeveloper provides a fully integrated environment for developing ADF applications. This includes declarative options for all layers of the framework.	Requires knowledge of Java, Java portlets, and any other frameworks used to implement components. Development time comparable with that required to develop a servlet-based component.	Requires knowledge of ADF and possibly Java. Development time is likely to be reduced (versus handcrafted portlets) for all but the most simple of applications due to the rich UI and control framework provided by ADF. ADF provides an integrated framework across all layers. JDeveloper provides a fully integrated environment for developing ADF applications. This includes declarative options for all layers of the framework.
Debugging	JDeveloper provides a comprehensive solution for debugging application code.	Made more difficult by remote nature of deployment. Producer provides tool for monitoring consumer-producer communication. JDeveloper provides a comprehensive solution for debugging application code.	Made more difficult by remote nature of deployment. Producer provides tool for monitoring consumer-producer communication. JDeveloper provides a comprehensive solution for debugging application code.
Deployment	Components are deployed as part of the client application. Entire application can be packaged into a single EAR file and deployed.	Made more complex by distributed nature of deployment and multiple applications.	Made more complex by distributed nature of deployment and multiple applications. Components can easily be run standalone if required.
Level of Support	The ADF framework is an Oracle product and is supported as such.	The JSR 286 producer is an Oracle product and is supported as such.	The ADF framework, Oracle JSF Portlet Bridge, and JSR 286 producer are Oracle products and are supported as such.

Portlets Versus Task Flows

A common question asked when creating portal is when to use portlets versus task flows.

Portlets are reusable Web components that can draw content from many different sources. Portlets can manage and display anything from static HTML to Java controls to complex web services and process-heavy applications.

A single portlet can also have multiple instances—in other words, it can appear on a variety of different pages within a single portal, or even across multiple portals if the portlet is enabled for Web Services for Remote Portlets (WSRP). You can customize portlets to meet the needs of specific users or groups.

Task flows let you build customizable applications with reusable units of business logic. They represent a modular approach for defining control flow in an application. Each task flow represents a reusable piece of business logic. With isolated memory and transaction scopes, task flows are decoupled from the surrounding application. This decoupling allows task flows to be included in Oracle WebCenter Portal's page editor, for instance.

A task flow encapsulates control flow rules, activities, and managed beans to implement business modules. Task flows are easily reusable within portals built with WebCenter Portal. You can drag and drop task flows onto any customizable WebCenter Portal portal page. In this sense, you can think of a task flow as a "local portlet" that can be reused and dropped into any ADF application.

While task flows are high-level implementations of business processes, they do not host data-access or business logic. Task flows must interact with data controls and declarative bindings for these purposes. These data controls and bindings in turn interact with the ADF Business Components framework.

Following the Oracle-submitted standard JSR 329, you can expose your task flows as standards based portlets. When you revise your application, the portlets are naturally and automatically updated right along with it, rather than requiring a separate development project. To support JSR 329, WebCenter Portal provides the Oracle JSF Portlet Bridge. For more information about the Oracle JSF Portlet Bridge, see Creating Portlets from JSF Applications Using the Oracle JSF Portlet Bridge.

In addition to consuming task flows as portlets, you can consume task flows as shared libraries in a JSF application to enable you to embed these JSF fragments directly. You can wrap the transactions around the task flows along with the other functionality in their application. For more information, see Getting Started with ADF Task Flows in the *Developing Fusion Web Applications with Oracle Application Development Framework.*

For more information about when to use portlets versus task flows, see the "Oracle WebCenter & ADF Architecture Team" blog.

About Portlet Development

You can develop your portlet producers in Oracle JDeveloper.

This section includes the following topics:

- About Portlet Producer Applications
- How to Create a Portlet Producer Application
- Portlet Modes
- Interportlet Communication
- Portlet Personalization and Customization
- Portlet Performance
- Multilanguage Portlets

- Portlet Deployment

Portlet Producer Applications

This section includes the following topics:

- About Portlet Producer Applications
- How to Create a Portlet Producer Application

About Portlet Producer Applications

A portlet producer application is an application specifically configured for building and deploying Java portlets.

To readily find and use the appropriate components in your portlet producer application, you must ensure that the appropriate technology scopes are set, tag libraries added, and required Java classes are added to the class path. Once you do this, relevant components are included in the Component Palette and relevant context menus become available in JDeveloper.

JDeveloper provides an application template to ensure that scopes are set properly and the right tag and Java libraries are added to create portlet producer applications. The WebCenter Portlet Producer Application template provides a way of easily creating an application with a single project scoped for the creation of Java portlets.

How to Create a Portlet Producer Application

To create portlets, you must first create a portlet producer application.

To create an application using the WebCenter Portlet Producer Application template:

1. Access the New Gallery dialog in any of the following ways:
   - From the **File** menu, choose **New**, then **Application**.
   - From the **Application** menu, choose **New**.
   - If you have an existing application open, in the Application Navigator, click the application name and choose **New Application**.
   - If you have an existing application open, then in the Application Navigator, right-click the application name and choose **New**, then **Application**.
2. In the New Gallery dialog, select **WebCenter Portlet Producer Application**, and then click **OK**.
3. In the Name your application page of the Create WebCenter Portlet Producer Application wizard, in the **Application Name** field, enter a name for the application.
4. In the **Directory** field, accept the default path or enter a path to the directory where the application should be stored.

   For example:

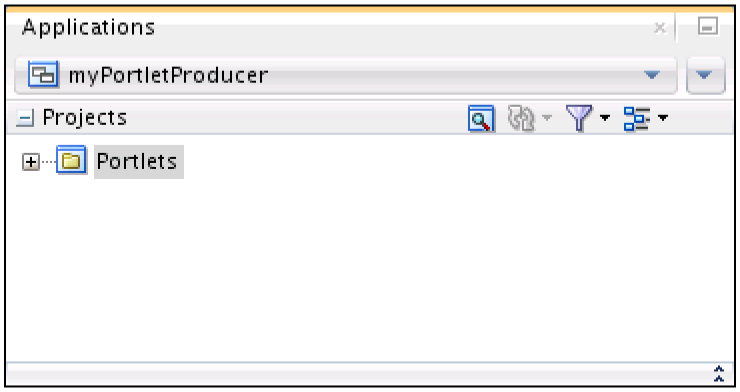
   ```
   C:\JDeveloper\mywork\myApplication
   ```

   Optionally, click the **Browse** button to navigate to the desired directory.

5. If required, in the **Application Package Prefix** field, enter a prefix to use for packages to be created within the application.
6. Click **Finish** to create the portlet producer application with default project configurations.

Figure 11-4 shows a newly created portlet producer application, with its single Portlets project, in the Application Navigator.

Figure 11-4 New Portlet Producer Application in the Application Navigator



Options exposed in the Oracle JDeveloper user interface are limited to those appropriate for developing portlets.

For information about how to create portlets within this application, see Building Standards-Based Java Portlets Using JSR 286.

Portlet Modes

This section includes the following topics:

- About Portlet Modes
- View Mode
- Edit Mode
- Edit Defaults Mode
- Help Mode
- About Mode

About Portlet Modes

Portlet modes exhibit the runtime functionality seen by users. WebCenter Portal supports the following standard portlet modes:

- View mode
- Edit mode
- Edit Defaults mode
- Help mode

- About mode

WebCenter Portal defines an extended set of modes that it supports. Different modes are available to JSR 286 portlets. For example, the Create JSR 286 Java Portlet Wizard includes Print mode, which you can use to provide a printer-friendly version of the portlet.

If you are coding portlets to JSR 286, then you can also declare your own custom portlet modes in the `portlet.xml` file. You can use these to accommodate any other functionality you may want the portlet to provide.

Defining custom portlet modes is especially useful if the portlet must interoperate with portal implementations from other vendors. You can offer any of these modes to users. In fact, it is recommended that some modes like Edit Defaults are offered.

Note:

Third party portal products may have their own set of extended modes (JSR 286 custom modes) that producers can offer. Arbitrary custom modes that a third party or custom portlet producer offers are ignored and therefore are not supported.

View Mode

A portlet uses *View mode* to appear on a page with other portlets. This is the mode most people think about when they envision a portlet. A JSR 286 portlet must have a View mode, other modes are optional.

When developing portlets, you must consider all of the factors that may influence the portlet's appearance on the page, such as the portlet's containing object and the other portlets with which your portlet shares the page. For example, suppose you choose to place your portlet inside an HTML table cell. The portlet should display only content that can be rendered within a table cell. Furthermore, the actual size of the table cell may vary depending on end user settings, the browser width, and the amount and style of content in the portlet.

HTML Guidelines for Rendering Portlets

Plain HTML is the most basic way to render portlets and provides a great deal of flexibility to portlet developers. You can use almost any standard HTML paradigm, such as links, forms, images, and tables, if it can display within an HTML table cell. Improperly written HTML may appear inconsistently across different browsers and, in the worst case, could cause parts of your page to not appear at all. Ensure that you adhere to the following rules:

- **Use standard HTML**—The official HTML specification is available from the W3C. For more information, see `http://www.w3c.org/`.
- **Avoid lengthy, complex HTML**—The HTML you use affects the perceived performance of your site. Users judge performance based on how long it takes for them to see the page they requested, and browsers require time to interpret and display HTML. If portlets must render complex HTML or wait for external resources, such as third party applications, then it can greatly slow down the rendering of the page.

- **Avoid unterminated and extraneous tags**—The behavior of pages with improperly terminated tags is unpredictable because it depends on what the browser chooses to do.
- **Consider restrictions imposed by container objects**—If your portlet is contained inside an HTML element, such as a table cell, then you must ensure that your portlet can be rendered within that container. For example, if you place a portlet in a table cell, then you cannot use frames in the portlet because they do not appear when inserted in a table.
- **Keep portlet content concise**—Do not try to take full screen content and expose it through a small portlet. You may end up with portlet content too small or cramped for smaller monitors.
- **Do not create fixed-width HTML tables in portlet**—You have no way to tell how wide a column your portlet has on a user's page. If your portlet requires more room than given, then it might overlap with another portlet in some browsers.
- **Avoid long, unbroken lines of text**—The result is similar to what happens with fixed-width tables. Your portlet might overlap other portlets in some browsers.
- **Check behavior when resizing the page**—Test your portlet's behavior when the browser window is resized to ensure that it works in different browser window sizes.
- **Check behavior when the default browser font changes**—End users may choose whatever font size they want and they can change it at any time. Your portlet should handle these situations gracefully.

CSS Guidelines for Rendering Portlets

The fonts and colors of every portlet on a page should match the style settings chosen by the user. To accomplish this goal, these style selections are embedded automatically using Cascading Style Sheets (CSS). The portlets access these settings for their fonts and colors, either directly or using the Application Programming Interface (API).

While different browsers have implemented varying levels of the full CSS specification, WebCenter Portal uses a very basic subset of this specification to allow for consistent fonts and colors. CSS implementation levels should not affect the consistency of your pages across browsers. Consider the following guidelines for using CSS:

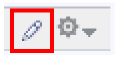
- **Use CSS instead of hard coding**—Hard coding fonts and colors is not advised. If you hard code fonts and colors, then your portlet may look out of place if the end user changes the page style settings. Since you have no way of knowing the end user's font and color preferences, you might also choose to hard code a font color that turns out to be the same as the user's chosen background color, in which case your portlet's content will not be visible to that user.
- **Avoid using CSS for absolute positioning**—Since users may be able to personalize pages, you cannot guarantee that your portlet can appear in a particular spot on the page.
- **Follow accessibility standards**—You should ensure that you code your style sheets according to existing accessibility standards. For more information, see `http://www.w3c.org/TR/WCAG10-CSS-TECHS`.

Edit Mode

A portlet uses *Edit mode* to enable users to *personalize* the behavior of the portlet. Personalizations are visible only to the user who performs them, not to other users. Edit mode provides a list of settings that the user can change. These settings may include the title, type of content, formatting, amount of information, defaults for form elements, and anything else that affects the appearance or content of the portlet.

Users typically access a portlet's Edit mode by clicking the **Personalize** icon in the portlet header (Figure 11-5).

Figure 11-5 Personalize Icon



When users click **Personalize**, a new page appears in the same browser window. The portlet typically creates a web page representing a dialog to choose the portlet's settings. After applying the settings, users automatically return to the original page.

Guidelines for Edit Mode Operations

The following guidelines should govern what you expose to users in Edit mode:

- **Enable users to personalize the title of the portlet**—The same portlet may be added to the same page several times. Enabling the end user to personalize the title helps alleviate confusion.
- **If using caching, invalidate the content**—If personalizations cause a change in portlet display or content, then you must ensure that the portlet content is regenerated from the cache. If you do not do this, the user may see incorrect content.
- **Do not use Edit mode as an administrative tool**—Edit mode is meant to give end users a way of changing the behavior of portlets. If you want to change producer settings or perform other administrative tasks, then you should create secured portlets specifically for these tasks.

Guidelines for Buttons in Edit Mode

For consistency and user convenience, Edit mode should implement the following buttons in the order listed:

- **OK**—Saves the end user's personalizations and returns the portlet to View mode.
- **Apply**—Saves the end user's personalizations and reloads the current page.
- **Cancel**—Returns the portlet to View mode without saving changes.

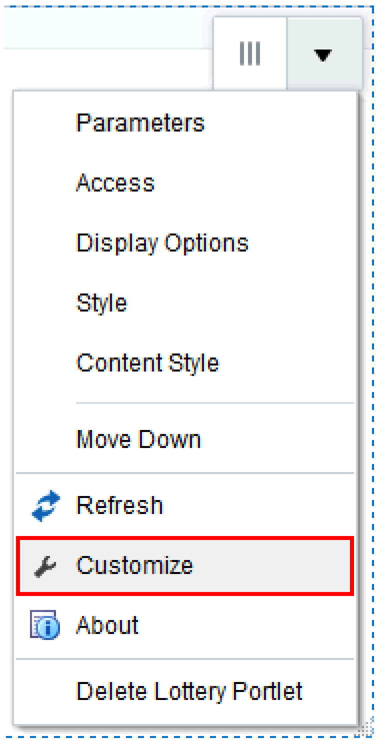
Edit Defaults Mode

A portlet uses *Edit Defaults mode* to enable application administrators to customize the default behavior of a particular portlet instance at runtime. Edit Defaults mode provides a list of settings that the application administrator can change. These settings may include the title, type of content, formatting, amount of information, defaults for form elements, or anything that affects the appearance or content of the portlet.

Whereas personalizations affect a portlet instance for an individual user, *customizations* made in Edit Defaults mode affect the portlet instance for all users. Because Edit Defaults mode defines the system-level defaults for what a portlet displays and how it displays it, this mode should not be used as an administrative tool or for managing other portlets.

Application administrators access Edit Defaults mode, when editing a page, by choosing **Customize** from the component's View Actions menu (Figure 11-6).

Figure 11-6 Customize Portlet



When users click **Customize**, a new page appears in the same browser window. The portlet typically creates a web page representing a dialog to customize the portlet instance settings. After applying the settings, users are automatically returned to the original page.

Guidelines for Edit Defaults Mode Operation

The following guideline should govern what you expose to application administrators in Edit Defaults mode:

- **Do not use Edit Defaults mode as an administrative tool**—Edit Defaults mode gives application administrators a way of changing the behavior of their portlets. If you want to change producer settings or do other administrative tasks, then you should create secured portlets specifically for those tasks.

Guidelines for Buttons in Edit Defaults Mode

For consistency and user convenience, Edit Defaults mode should implement the following buttons in the order listed:

- **OK**—Saves the application administrator's customizations and returns the portlet to View mode.
- **Apply**—Saves the application administrator's customizations and reloads the current page.
- **Cancel**—Returns the portlet to View mode without saving changes.

Guidelines for Rendering Customization Values

When you show the forms used to change customization settings, you should default the values so that the application administrator does not have to constantly reenter settings. When rendering customization values, use the following sequence to provide consistent behavior:

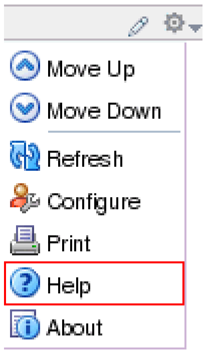
- **Instance preferences**—Query and display system defaults for the portlet instance.
- **Portlet defaults**—If no system default customizations are found, then display general portlet defaults, which may be blank. General portlet defaults are sometimes hard coded into the portlet but should be overwritten by system defaults.

Help Mode

A portlet uses *Help mode* to display information about the functionality of the portlet and how to use it. The user should be able to find useful information about the portlet, its contents, and its capabilities with this mode.

Users access a portlet's Help mode by choosing **Help** from the **Actions** menu (Figure 11-7).

Figure 11-7 Help Option in the Portlet Actions Menu



Guidelines for Help Mode

The following guideline should govern what you expose in Help mode:

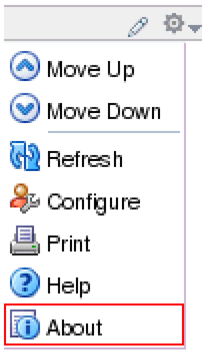
- **Describe how to use the portlet**—Users may not be able to ascertain all the features your portlet offers just from its interface. Describe the features and how to get the most out of them.

About Mode

A portlet uses *About mode* to provide users with information such as the version of the portlet that is currently running, its publication and copyright information, and how to contact the portlet developer. Portlets that require registration could also use About mode to link to a web-based registration application or contact information.

Users access a portlet's About mode by choosing **About** from the **Actions** menu (Figure 11-8).

Figure 11-8 About Option in the Portlet Actions Menu



A new page appears in the same browser window. The portlet can either generate the content for this page or take the user to an existing page or application.

Guidelines for About Mode

The following guideline should govern what you expose to users in About mode:

- **Display relevant copyright, version, and developer information**—Users want to know what portlet they are using and where they can get more information. The About page may become important when supporting your portlets.

Interportlet Communication

Interportlet communication enables portlets to share data and react to events. WebCenter Portal supports interportlet communication through parameters and events:

- **Parameters**—Public render parameters enable interportlet communication by sharing parameter values between portlets. For example, if a Map portlet and a Weather portlet are both configured to use a Zipcode parameter, entering a zip code in the Map portlet updates the same parameter value in the Weather portlet.

  For information about public render parameters, see How to Use Public Render Parameters in JSR 286 Portlets.
- **Events**—Events enable interportlet communication by providing portlets with the ability to respond to actions that occur outside of the portlet itself, for example, an

action performed on the page that contains the portlet or on another portlet on the same page. Portlet events can be cascaded so that a portlet may respond to an event by triggering an event of its own, which in turn affects other portlets on the page.

For information about portlet events, see How to Use Portlet Events in JSR 286 Portlets.

In WebCenter Portal, interportlet communication happens automatically by default, as long as parameters and events share the same name or define an appropriate alias. You do not need to supply any extra code to enable this communication.

For interportlet communication guidelines specific to portlets created using the Oracle JSF Portlet Bridge, see Using Events to Link JSF Portlets with Other Portlets.

Portlet Personalization and Customization

Portlet preferences enable end users to personalize or customize portlets at runtime. Personalizations are visible only to the user that performs them; not to other users. Customizations are visible to all users who have not personalized the portlet.

Portlet preferences greatly enhance the reusability of portlets. The same portlet can be instantiated on multiple pages, or multiple times on the same page. Using portlet preferences, each instance of the portlet can behave in a different way, but still use the same code and user interface.

For example, by default when you create a JSR 286 portlet using the JDeveloper wizard, a portlet preference is created to enable users to change the title of the portlet at runtime. You can create additional portlet preferences, either during portlet creation or by editing the `portlet.xml` file after portlet creation, to enable users to perform other modifications on the portlet at runtime.

Portlet preferences are stored in the persistence store, along with information about the registration and portlet instances, such as registration and portlet handles. Portlet producers can use one of three types of persistence store:

- **Consumer**—A consumer persistence store ties the producer metadata to the consumer application. It is recommended that you should use a consumer persistence store in your production environment.
- **Database**—A database persistence store persists data using a relational database.
- **File**—A file-based persistence store persists data using the file system.

A file-based or consumer persistence store may be used for testing, since it removes the dependency on a database. But, for production configurations, it is recommended that you use a consumer persistence store.

By default, JSR 286 and JSF portlets use a consumer persistence store. For information about how to change this default setting, see Setting Up a Persistence Store for a WSRP Producer.

For information about migrating the persistence store, for example, when moving from a test to production environment, see Migrating a WSRP Producer Persistence Store.

Portlet Performance

Caching is a common technique for enhancing the performance of web sites that include a great deal of dynamic content. The overhead involved in retrieving data and generating the output for dynamic content can be significantly reduced by proxying requests through a local agent backed by a large, low-latency data store, known as a cache. The cache agent responds to a request in one of two ways:

- If a valid version of the requested content exists in the cache, then the agent simply returns the existing cache copy, thus skipping the costly process of content retrieval and generation. This condition is known as a *cache hit*.
- If a valid version of the requested content does not exist in the cache, then the agent forwards the request to its destination and awaits the return of the content. The agent returns the content to the requester and stores a local copy in its cache for reuse if a subsequent request for the same content arises. This condition is known as a *cache miss*.

Portlet producers generate dynamic content (that is, portlets) and they reside remotely from the WebCenter Portal instance on which they are deployed. As such, caching might improve their performance. The architecture lends itself well to caching. You can cache the portlets rendered by your producer and reuse the cached copies to handle subsequent requests, minimizing the overhead your producer imposes on page assembly. Portlet caching is key to rapid response to user requests.

For JSR 286 portlets there are two different caching methods. The methods differ mainly in how they determine whether content is still valid:

- **Expiry-based caching**—When a producer receives a render request, it stamps its response with an expiry time. The rendered response remains in the cache and fills all subsequent requests for the same content until its expiry time passes. This caching scheme is perhaps the simplest and most performant because the test for cache validity requires very little overhead and does not involve any network round trips. Expiry-based caching suits applications where the content has a well-defined life span. For content with a less certain life span however, expiry-based caching is less effective.

  Consider using expiry-based caching when the portlet content is static or when it is not critical that the most up-to-date content be displayed.

  For information about how to implement expiry-based caching for your portlets, see Implementing Expiry-Based Caching in JSR 286 Portlets.
- **Validation-based caching**—When a producer receives a render request, it stamps a response with a version identifier (or ETag). The response goes into the cache, but before the consumer can reuse the cached content, it must determine whether the cached content is still valid. It sends the producer a render request that includes the version identifier of the cached content. The producer determines whether the version identifier remains valid. If the version identifier is still valid, then the producer immediately sends a lightweight response to the consumer without any content that indicates that the cached version can be used. Otherwise, the producer generates new content with a new version identifier, which replaces the previously cached version. In this form of caching, the consumer must always confirm with the producer whether the content is up to date. The validity of the cached copy is determined by some logic in the producer. The advantage of this approach is that the producer controls the use of cached content, rather than relying on a fixed period.

Consider using validation-based caching for portlets with dynamic content that changes frequently or unpredictably.

For information about how to implement validation-based caching for your portlets, see Implementing Validation-Based Caching in JSR 286 Portlets.

Caching rules can be specified at a portlet's container level, encoded in the portlet's own logic, or established through the portlet wizard.

JSF portlets and custom Java portlets support expiry- and validation-based caching.

At the application level, WebCenter Portal uses Coherence for the establishment of application-level caching rules. The WebCenter Portal portlet client provides a default cache configuration file for portlets:

```
<?xml version="1.0"?>


<cache-config xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
              xmlns="http://xmlns.oracle.com/coherence/coherence-cache-
config"
              xsi:schemaLocation="http://xmlns.oracle.com/coherence/
coherence-cache-config
coherence-cache-config.xsd">
   <defaults>
      <scope-name>portlets</scope-name>
   </defaults>
   <caching-scheme-mapping>
      <cache-mapping>
         <cache-name>portlet-consumer-content-cache-*</cache-name>
         <scheme-name>portlet-thin-direct</scheme-name>
      </cache-mapping>
   </caching-scheme-mapping>
   <caching-schemes>
      <distributed-scheme>
         <scheme-name>portlet-thin-direct</scheme-name>
         <local-storage>true</local-storage>
      </distributed-scheme>
   </caching-schemes>
</cache-config>
```

You can create your own cache configuration file to use for the portlet consumer cache and update the portlet client configuration information in `adf-config.xml` to point to your file. For more information, see Editing the Portlet Client Configuration in *Administering Oracle WebCenter Portal*. Base your file on the default cache configuration file to ensure that it defines a mapping for the cache name `portlet-consumer-content-cache-*`. For more information about Coherence, see Improving Data Caching Performance in *Administering Oracle WebCenter Portal*.

Multilanguage Portlets

There are three steps involved in making your portlets available in multiple languages:

- Declare the locales supported by the portlet using the `<supported-locale>` element in the `portlet.xml` file. For example:

```
<portlet id="1328624289503">
 ...
 <supported-locale>en</supported-locale>
 <supported-locale>fr</supported-locale>
 <supported-locale>es</supported-locale>
 ...
</portlet>
```

- Make the portlet metadata that is displayed in the portlet (for example, the portlet title, description, keywords, and so on) translatable.

  You can include the translations directly in the `portlet.xml` file, for example:

  ```
  <portlet id="1328624289503">
   <portlet-name>LotteryPortlet</portlet-name>
   <display-name xml:lang="en">Lottery Numbers</display-name>
   <display-name xml:lang="fr">Numéros de Loterie</display-name>
   <display-name xml:lang="es">Números de la Lotería</display-name>
   ...
   <supported-locale>en</supported-locale>
   <supported-locale>fr</supported-locale>
   <supported-locale>es</supported-locale>
   ...
  </portlet>
  ```

  Alternatively, you can provide translations in a separate resource bundle. You must declare the resource bundle in the `portlet.xml` file, for example:

  ```
  <portlet id="1328624289503">
   <portlet-name>LotteryPortlet</portlet-name>
   <display-name>Lottery Numbers</display-name>
   ...
   <supported-locale>en</supported-locale>
   <supported-locale>fr</supported-locale>
   <supported-locale>es</supported-locale>
   <resource-bundle>portlet.resource.LotteryPortletBundle</resource-bundle>
   ...
  ```

  Then, provide the translations in the resource bundle, for example:

  ```
  # English Resource Bundle
  #
  # filename: LotteryPortletBundle_en.properties
  javax.portlet.display-title=Lottery Numbers

  # French Resource Bundle
  #
  # filename: LotteryPortletBundle_fr.properties
  javax.portlet.display-title=Numéros de Loterie

  # Spanish Resource Bundle
  #
  # filename: LotteryPortletBundle_es.properties
  javax.portlet-title=Números de la Lotería
  ```

- Make the portlet content translatable the same way as you would for any other web application.

Portlet Deployment

Before a portlet can be registered with and consumed by an application, you must first deploy it. JSR 286 portlets are deployed to a *WSRP producer*, which is remote and communicates with the consumer application through Web Services for Remote Portlets (WSRP). JSF portlets are deployed as JSR 286 portlets, that is, to a WSRP producer, either from JDeveloper or manually.

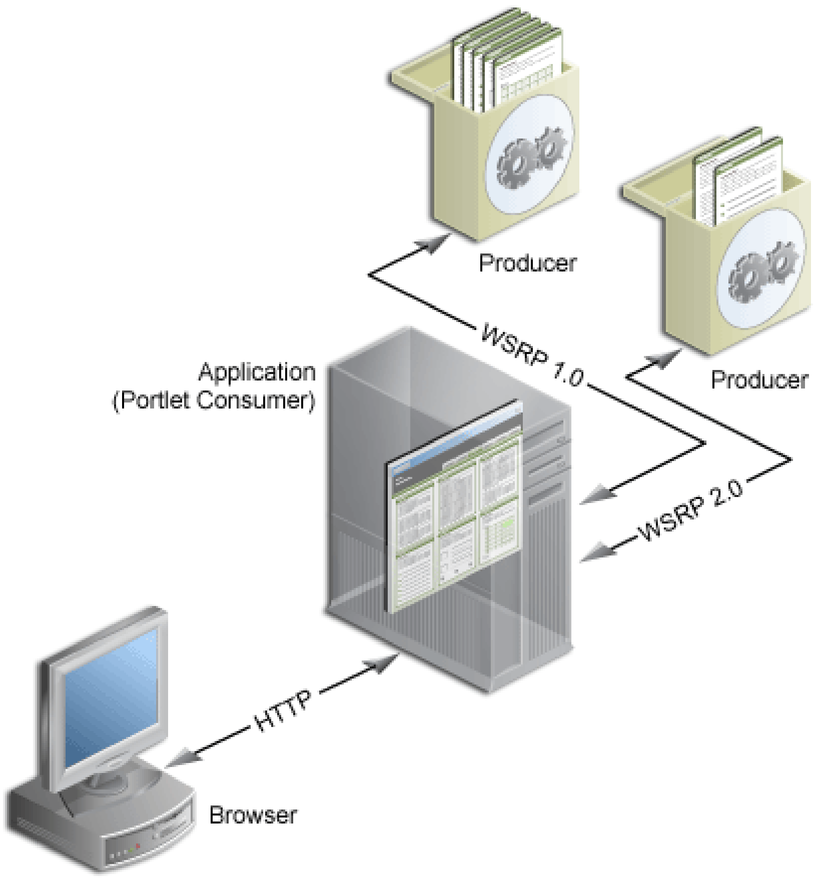
WebCenter Portal supports WSRP versions 1.0 and 2.0. This standard provides support for interportlet communication and export or import of portlet customizations.

WSRP is a communication protocol between portlet consumer applications and portlet containers. WSRP is a standard that enables the plug-and-play of visual, user-facing web services with intermediary web applications.

Being a standard, WSRP enables interoperability between a standards-enabled container based on a particular language (such as JSR 286, Perl) and any WSRP portal. So, a portlet (regardless of language) deployed to a WSRP-enabled container can be rendered on any application that supports this standard.

Figure 11-9 illustrates the basic architecture of WSRP producers.

Figure 11-9 WSRP Producer Architecture



When end users display a page in their web browsers, the flow of the request works as follows:

1. The end user requests a page from the web browser by entering a URL in the browser's Location field.
2. The browser transmits the request to the consumer application over HTTP.
3. The application contacts the portlet producers that provide the portlets that display on the requested page.

   The producers make the necessary calls to their portlets so that the portlets generate the portlet content in the form of HTML or XML code.
4. The producers return the portlet content back to the consumer application using the WSRP 1.0 or 2.0 protocol:
5. The consumer application transmits the portlet content to the browser over HTTP.

To make standards-based portlets available to a consumer application in WebCenter Portal, you must package them in a Portlet Producer application and deploy them to a WSRP container.

12 Creating Portlets from JSF Applications Using the Oracle JSF Portlet Bridge

Use the Oracle JSF Portlet Bridge to expose a JSF application as a portlet.

Topics:

Note:

The Oracle JSF Portlet Bridge extends the Apache Reference implementation of JSR 329. JSR 329 is the standards effort to define the functionality for the Portlet 2.0 Bridge for JavaServer Faces. Oracle is the specification lead for this standard. More information is available at:

`http://www.jcp.org/en/jsr/detail?id=329`

About Creating Portlets from JSF Applications Using the Oracle JSF Portlet Bridge

The Oracle JSF Portlet Bridge enables application developers to quickly and easily expose their existing JSF applications and Oracle ADF applications and task flows as JSR 286 portlets.

Note:

Unless otherwise noted, the term JSF applications encompasses Oracle ADF applications.

The Oracle JSF Portlet Bridge:

- Simplifies portlet development by enabling you to provide portlet functionality using JSF rather than relying on the JSR 286 portlet APIs.
- Simplifies exposing your JSF application to JSR 286 portlet consumers, such as WebCenter Portal.
- Eliminates the requirement to store, maintain, and deploy your portlets separately from your application by enabling the application to run simultaneously as a regular web application and as a portlet from the same installation.
- Enables you to create portlets at a more granular level by exposing task flows as portlets. Because portletized task flows are JSR 286 portlets, this also enables you to use your task flows in a distributed environment.

Note:

The Oracle JSF Portlet Bridge uses WSRP extensions that may prevent JSF portlets working as intended with third party WSRP consumers.

Creating a Portlet from a JSF Application

The Oracle JSF Portlet Bridge enables you to expose a JSF application or task flow as a portlet. You do this declaratively, using the Create Portlet Entry dialog; no coding is required. Using the Create Portlet Entry dialog, you can configure Oracle JSF Portlet Bridge on a JSF application to expose the application as a JSR 286 portlet. As part of this configuration, you indicate the initial JSF view (or task flow) to invoke when the portlet is rendered. From that point on the Oracle JSF Portlet Bridge works with the JSF application to navigate through the additional views that are reachable from this initial view. So in the typical situation when you are exposing the entire JSF application as the portlet, you configure the Oracle JSF Portlet Bridge to render the application's initial view in the portlet and the rest of the navigation works naturally within that same portlet.

This section includes the following topics:

- How to Create a JSF Portlet Based on a Page
- How to Create a JSF Portlet Based on a Task Flow
- What You May Need to Know When Creating a JSF Portlet

How to Create a JSF Portlet Based on a Page

The simplest way to create a portlet from a JSF application is to generate a portlet based upon a page. In the JSF application, either `Facelets` or `jsff` should be used for the view handler technology.

To create a JSF portlet from an existing application page:

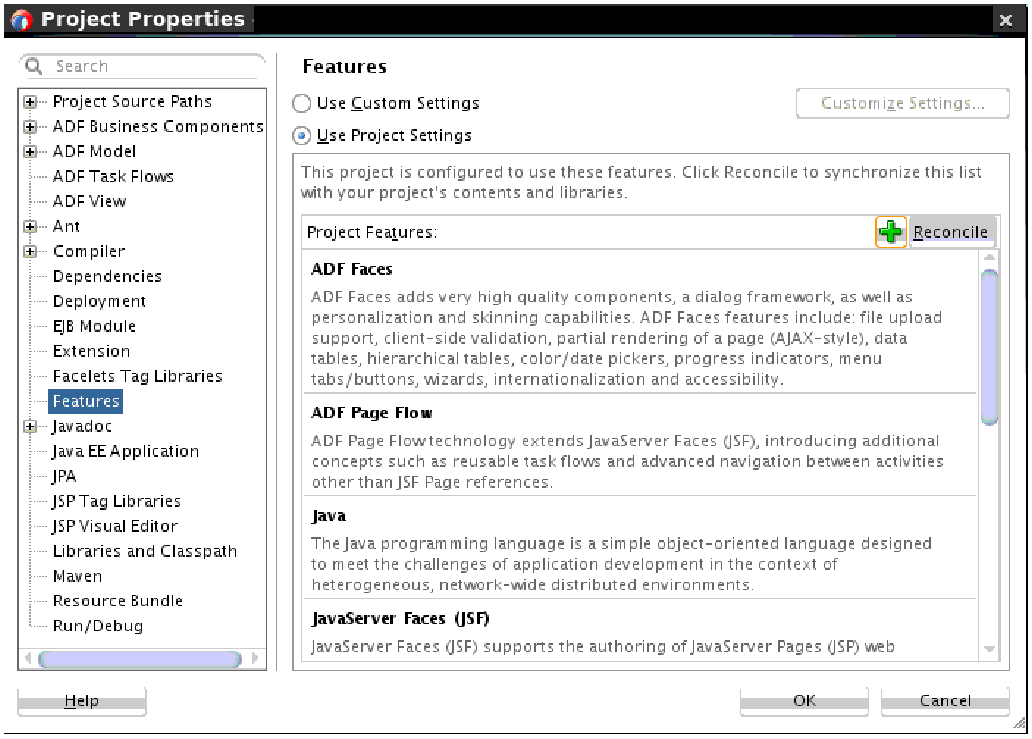
1. In JDeveloper, open the application that contains the JSF page that you want to portletize.
2. In the Application Navigator, right-click on the project that contains the JSF page and select **Project Properties**.

Note:

You cannot generate a portlet based on a page that contains a portlet.

3. In the Project Properties dialog, select the **Features** node.

Figure 12-1 Project Properties Dialog



This project is configured to use these features. Click Reconcile to synchronize this list with your project's contents and libraries.

ADF Faces

ADF Faces adds very high quality components, a dialog framework, as well as personalization and skinning capabilities. ADF Faces features include: file upload support, client-side validation, partial rendering of a page (AJAX-style), data tables, hierarchical tables, color/date pickers, progress indicators, menu tabs/buttons, wizards, internationalization and accessibility.

ADF Page Flow

ADF Page Flow technology extends JavaServer Faces (JSF), introducing additional concepts such as reusable task flows and advanced navigation between activities other than JSF Page references.

Java

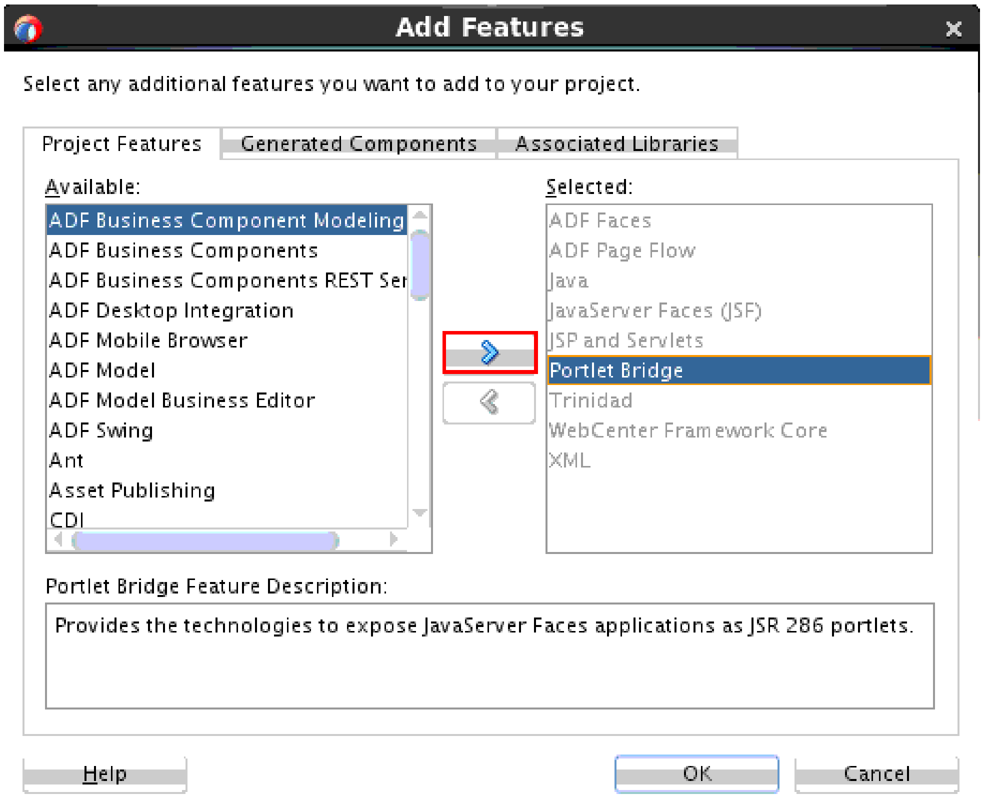
The Java programming language is a simple object-oriented language designed to meet the challenges of application development in the context of heterogeneous, network-wide distributed environments.

JavaServer Faces (JSF)

JavaServer Faces (JSF) supports the authoring of JavaServer Pages (JSP) web

4. On the Features page, click the Add Features (✚) icon.
5. In the Add Features dialog, select **Portlet Bridge** from the Available list.

Figure 12-2 Add Features



Select any additional features you want to add to your project.

Available:
- ADF Business Component Modeling
- ADF Business Components
- ADF Business Components REST Ser
- ADF Desktop Integration
- ADF Mobile Browser
- ADF Model
- ADF Model Business Editor
- ADF Swing
- Ant
- Asset Publishing
- CDI

Selected:
- ADF Faces
- ADF Page Flow
- Java
- JavaServer Faces (JSF)
- JSP and Servlets
- Portlet Bridge
- Trinidad
- WebCenter Framework Core
- XML

Portlet Bridge Feature Description:

Provides the technologies to expose JavaServer Faces applications as JSR 286 portlets.

6. Click the shuttle button to transfer your selection to the Selected list.
7. Click **OK**.
8. In the Application Navigator, right-click the JSF page and select **Create Portlet Entry**.
9. In the Create Portlet Entry dialog, in the **Portlet Name** field, enter a name for the portlet.
10. In the **Display Name** field, enter a descriptive name for your portlet.
11. In the **Portlet Title** field, enter a descriptive title for your portlet.

    The portlet title is displayed in the Resource Palette or Application Resources panel, so make the title something to help users decide whether the portlet is useful to them. The portlet title is also displayed on the portlet header when the portlet appears on a page.
12. In the **Short Title** field, enter a shorter title for your portlet. This short title is displayed on the portlet header when the portlet appears on a page on a mobile device.
13. In the **Description** field, enter a description for your portlet.
14. Select **Create portlet events for contextual events** to create portlet events in the `portlet.xml` file for any contextual events exposed by the page. This option is selected by default.

    Portlet events enable a portlet to communicate with the page on which it resides and with other portlets on that page.
15. Click **OK.**

When you create a JSF portlet based on a page, a `portlet.xml` file is created (or updated if it already exists) to contain the portlet entry (see example below) for the page. The file is opened ready for viewing or editing. By default, the file is opened in Design view. To view or edit the source code, click the **Source** tab.

```
<portlet id="adf_jsf__testPage_jspx">
 <description>PortletBridgeApplication_testPage_jspx</description>
 <portlet-name>PortletBridgeApplication_testPage_jspx</portlet-name>
 <display-name>PortletBridgeApplication_testPage_jspx</display-name>
 <portlet-class>
 oracle.portlet.bridge.adf.application.ADFBridgePortlet
 </portlet-class>
 <init-param>
 <name>javax.portlet.faces.defaultViewId.view</name>
 <value>/myPage.jspx</value>
 </init-param>
 <supports>
 <mime-type>text/html</mime-type>
 <portlet-mode>VIEW</portlet-mode>
 </supports>
 <supported-locale>en</supported-locale>
 <portlet-info>
 <title>PortletBridgeApplication_testPage_jspx</title>
 <short-title>PortletBridgeApplication_testPage_jspx</short-title>
 </portlet-info>
 <supported-processing-event id="DepartmentSelectedEvent">
 <qname xmlns:x="http://xmlns.oracle.com/adfm/contextualEvent">
 x:DepartmentSelectedEvent
 </qname>
 <supported-publishing-event id="DepartmentSelectedEvent">
 <qname xmlns:x="http://xmlns.oracle.com/adfm/contextualEvent">
 x:DepartmentSelectedEvent
 </qname>
 </supported-publishing-event>
 <supported-public-render-parameter>
 _adf_event_DepartmentSelectedEvent
 </supported-public-render-parameter>
 <container-runtime-option>
 <name>com.oracle.portlet.requireIFrame</name>
 <value>true</value>
 </container-runtime-option>
 <container-runtime-option>
 <name>com.oracle.portlet.minimumWsrpVersion</name>
 <value>2</value>
 </container-runtime-option>
</portlet>
```

The page you selected is used as the entry point for the portlet View mode. This is indicated in the `portlet.xml` file by the `javax.portlet.faces.defaultViewId.view` initialization parameter. You can manually edit the `portlet.xml` file to define the pages for other default and extended portlet modes supported by WebCenter Portal:

- Edit mode: `javax.portlet.faces.defaultViewId.edit`
- Help mode: `javax.portlet.faces.defaultViewId.help`
- About mode: `javax.portlet.faces.defaultViewId.about`
- Config mode: `javax.portlet.faces.defaultViewId.config`
- Edit Defaults mode: `javax.portlet.faces.defaultViewId.edit_defaults`

- Preview mode: `javax.portlet.faces.defaultViewId.preview`
- Print mode: `javax.portlet.faces.defaultViewId.print`

> **Note:**
>
> The value for the `defaultViewId` is relative to the application context root and must always start with a `/`. In the example above, the value for `defaultViewId.view` is `/myPage.jspx`.
>
> If you add `defaultViewId` for other portlet modes, then ensure that you also add the mode to the `<supports>` tag. For example, `<portlet-mode>HELP</portlet-mode>`.

For information about portlet modes, see Portlet Modes.

How to Create a JSF Portlet Based on a Task Flow

This section includes the following topics:

- About Creating Portlets from Tasks Flows
- Creating a Portlet From a Task Flow Using the Create Portlet Entry Dialog
- Creating a Portlet From a Task Flow Using the Manage Portlet Entries of Task Flows Dialog

About Creating Portlets from Tasks Flows

An advantage of using Oracle ADF is the existence of task flows, which provide a modular approach for defining control flow in an application. Instead of representing an application as a single large JSF page flow, you can break it up into a collection of reusable task flows. In each task flow, you identify application activities, the work units that must be performed in order for the application to complete. An activity represents a piece of work that can be performed when running the task flow.

Task flows can be unbounded or bounded:

- An **unbounded task flow** is a set of activities, control flow rules, and managed beans interacting to allow a user to complete a task. An unbounded task flow consists of all activities and control flows in an application that are not included within any bounded task flow.
- A **bounded task flow** is a specialized form of task flow, having a single entry point and one or more exit points. It contains its own set of private control flow rules, activities, and managed beans. An Oracle ADF bounded task flow allows reuse, parameters, transaction management, and reentry. It can have zero to many exit points. Bounded task flows can use pages or page fragments, however only those that use page fragments can be portletized.

A typical application is a combination of an unbounded and one or more bounded task flows. The application can then call bounded task flows from activities within the unbounded task flow. For more detailed information about bounded and unbounded task flows, see About ADF Task Flows in *Developing Fusion Web Applications with Oracle Application Development Framework*.

Creating a Portlet From a Task Flow Using the Create Portlet Entry Dialog

Use the Create Portlet Entry dialog to create a portlet from a single task flow.

To make a portlet from a task flow using the Create Portlet Entry dialog:

1. In JDeveloper, open the JSF application that contains the task flow from which you want to make a portlet.
2. In the Application Navigator, right-click the task flow that you want to portletize, and choose **Create Portlet Entry.**
3. In the Create Portlet Entry dialog, in the **Portlet Name** field, enter a name for the portlet.
4. If the task flow is unbounded, the **Entry Point View** drop-down list displays all the view activities of the task flow. From this drop-down list, choose the view activity to use as the entry point for the portlet. By default, the first view activity in the task flow is chosen.

   If the task flow is bounded, there is only a single possible entry point, so you do not see the **Entry Point View** drop-down list.
5. In the **Display Name** field, enter a descriptive name for your portlet.
6. In the **Portlet Title** field, enter a descriptive title for your portlet.

   The portlet title is displayed in the Resource Palette or Application Resources panel, so make the title something to help users decide whether the portlet is useful to them. The portlet title is also displayed on the portlet header when the portlet appears on a page.
7. In the **Short Title** field, enter a shorter title for your portlet. This short title is displayed on the portlet header when the portlet appears on a page on a mobile device.
8. In the **Description** field, enter a description for your portlet.
9. Select **Create portlet events for contextual events** to create portlet events in the `portlet.xml` file for any contextual events exposed by the task flow. This option is selected by default.

   Portlet events enable a portlet to communicate with the page on which it resides and with other portlets on that page.
10. Click **OK.**

When your portlet, or portlets, have been created, you should receive a message that says:

```
New portlet has been successfully created
```

In addition, the `portlet.xml` file is created. The `portlet.xml` file contains the portlet entry (see example below) and is opened ready for viewing or editing.

```
<portlet id="adf_taskflow_WEB_INF_department_xml">
 <description>PortletBridgeApplication department</description>
 <portlet-name>PortletBridgeApplication_department</portlet-name>
 <display-name>PortletBridgeApplication department</display-name>
 <portlet-class>oracle.portlet.bridge.adf.application.ADFBridgePortlet</portlet-
class>
 <init-param>
 <name>javax.portlet.faces.defaultViewId.view</name>
 <value>
 /adf.task-flow?adf.tfDoc=/WEB-INF/adfp-portlet-bridge-container.xml
 &amp;adf.tfId=adfp-portlet-bridge-container&amp;_fragmentTaskFlowDoc=/WEB-INF/
 department.xml&amp;_fragmentTaskFlowId=department
 </value>
 </init-param>
 <supports>
 <mime-type>text/html</mime-type>
 <portlet-mode>VIEW</portlet-mode>
 </supports>
 <supported-locale>en</supported-locale>
 <portlet-info>
 <title>PortletBridgeApplication department</title>
 <short-title>PortletBridgeApplication department</short-title>
 </portlet-info>
 <supported-publishing-event id="DepartmentSelectedEvent">
 <qname xmlns:x="http://xmlns.oracle.com/adfm/contextualEvent">
 x:DepartmentSelectedEvent
 </qname>
 </supported-publishing-event>
 <supported-public-render-parameter>
 _adf_event_DepartmentSelectedEvent
 </supported-public-render-parameter>
 <container-runtime-option>
 <name>com.oracle.portlet.requireIFrame</name>
 <value>true</value>
 </container-runtime-option>
 <container-runtime-option>
 <name>com.oracle.portlet.minimumWsrpVersion</name>
 <value>2</value>
 </container-runtime-option>
</portlet>
```

Note:

The `portlet.xml` file can include multiple portlets and can have a combination of pages and task flows exposed as portlets. The file can also include standard JSR 286 (non bridge) portlets.

Creating a Portlet From a Task Flow Using the Manage Portlet Entries of Task Flows Dialog

If your project includes a lot of task flows, you may find it easier to select the task flows to create as portlets from a list. You can do this using the Manage Portlet Entries of Task Flows dialog. This dialog also lets you create portlets from multiple task flows at the same time, rather than having to create them individually.

To create a portlet from a task flow using the Manage Portlet Entries of Task Flows dialog:

1. From the main menu, choose **File** and then **New.**
2. In the New Gallery, expand **Web Tier,** select **Portlets** and then **Manage Portlet Entries of Task Flows,** and click **OK.**

3. In the Manage Portlet Entries of Task Flows dialog, use the shuttle buttons to select which task flows you want to create as portlets.
4. Select **Create portlet events for contextual events** to create portlet events in the `portlet.xml` file for any contextual events exposed by the task flows. This option is selected by default.

   Portlet events enable a portlet to communicate with the page on which it resides and with other portlets on that page.
5. Click **OK** to create portlets for the selected task flows.

When your portlet, or portlets, have been created, you should receive a message that says:

```
New portlet has been successfully created
```

In addition, the `portlet.xml` file is created. The `portlet.xml` file contains the portlet entry (see example below) and is opened ready for viewing or editing.

```
<portlet id="adf_taskflow_WEB_INF_department_xml">
 <description>PortletBridgeApplication department</description>
 <portlet-name>PortletBridgeApplication_department</portlet-name>
 <display-name>PortletBridgeApplication department</display-name>
 <portlet-class>oracle.portlet.bridge.adf.application.ADFBridgePortlet</portlet-
class>
 <init-param>
 <name>javax.portlet.faces.defaultViewId.view</name>
 <value>
 /adf.task-flow?adf.tfDoc=/WEB-INF/adfp-portlet-bridge-container.xml
 &amp;adf.tfId=adfp-portlet-bridge-container&amp;_fragmentTaskFlowDoc=/WEB-INF/
 department.xml&amp;_fragmentTaskFlowId=department
 </value>
 </init-param>
 <supports>
 <mime-type>text/html</mime-type>
 <portlet-mode>VIEW</portlet-mode>
 </supports>
 <supported-locale>en</supported-locale>
 <portlet-info>
 <title>PortletBridgeApplication department</title>
 <short-title>PortletBridgeApplication department</short-title>
 </portlet-info>
 <supported-publishing-event id="DepartmentSelectedEvent">
 <qname xmlns:x="http://xmlns.oracle.com/adfm/contextualEvent">
 x:DepartmentSelectedEvent
 </qname>
 </supported-publishing-event>
 <supported-public-render-parameter>
 _adf_event_DepartmentSelectedEvent
 </supported-public-render-parameter>
 <container-runtime-option>
 <name>com.oracle.portlet.requireIFrame</name>
 <value>true</value>
 </container-runtime-option>
 <container-runtime-option>
 <name>com.oracle.portlet.minimumWsrpVersion</name>
 <value>2</value>
 </container-runtime-option>
</portlet>
```

Note:

The `portlet.xml` file can include multiple portlets and can have a combination of pages and task flows exposed as portlets. The file can also include standard JSR 286 (non bridge) portlets.

What You May Need to Know When Creating a JSF Portlet

You must code your JSF pages such that they produce markup that conforms with JSR 286 portlet markup fragment rules. If you have chosen to use Oracle ADF, the markup in your page comes mainly from the Oracle ADF Faces components, which naturally render markup in a style that is either compatible with JSF portlets or can be automatically interpreted by the Oracle JSF Portlet Bridge into a compatible style (for example, by rendering the portlet in an inline frame).

The sections that follow provide some guidance on how to avoid common issues that you may encounter as you code Oracle ADF pages that you later choose to publish as portlets.

This section includes the following topics:

- General Guidelines for Creating a JSF Portlet
- Portlet Guidelines
- Security Guidelines
- JSF Guidelines
- Oracle ADF Guidelines

General Guidelines for Creating a JSF Portlet

Consider the following general guidelines when creating a JSF portlet:

- **Application Must Run as a Web Application.** Prior to creating a portlet from your JSF application, the application, including all of its pages and task flows, must run properly after you deploy it to Integrated WLS. If it cannot run as a regular web application, it cannot run as a portlet producer either.
- **The Portlet Is Contained by a Different Page.** One area that you should consider when creating task flows that will be exposed as portlets is that the page on which you render the task flow as a portlet is different to the one in the original producer application.

  Some common errors that occur include:

  – Expecting to access JavaScript in the consuming page.

  – Expecting to find managed beans or objects added to scopes as part of the consuming page.

  – Expecting components in the JSF component tree from the consumer to be present.
- **Servlet Dependencies.** When writing an application that is supposed to run in both servlet and portlet environments, avoid casting to `HttpServlet` objects (or you get a `ClassCastException` when running as a portlet). Instead, use the

abstraction provided by the Faces `ExternalContext` object. For example, instead of:

```
HttpServletRequest request =getRequestFromFacesContext();
String localContextPath =request.getContextPath();
```

Use the following:

```
String localContextPath=
FacesContext().getCurrentInstance().getExternalContext().getRequestContextPath();
```

To the extent that `ExternalContext` does not provide that abstraction for you, you can write servlet or portlet specific code. You can use the method shown in the example below to check if the application runs as portlet:

```
public static boolean isPortletRequest()
 {
Map<String, Object> m =
FacesContext.getCurrentInstance().getExternalContext().getRequestMap();
 Object phase =m.get("javax.portlet.faces.phase");
 if (phase != null)
 {
return true;
 }
else
 {
return false;
 }
}
```

- **Secured Applications.** If your application is secured, ensure that you have secured identity propagation.
- **Deep Links.** For normal interactions with a portlet, there is a session maintained between the consumer and the producer. This is done by storing a session cookie in the consumer and sending it to the producer on each request. On the original request, the session is established and on subsequent requests, the portlet sends the session cookie to the producer and the session is reused.

  For deep links, that is, links from the portlet to the producer application, the request is from the browser direct to the producer application. In this case, the session cookie cannot be sent so a new session is established. If a shared session is required for deep links, then this must be implemented by the developer. A common implementation is to write this state to a common location, accessible from the producer and the application, and pass a reference to this state in the deep link.
- **Java EE Authentication.** Java EE login is not supported. Java EE applications can be configured with different authentication techniques, such as Basic and Digest. As portlets are fragments incorporated into a consumer's page, it is generally expected that direct authentication occurs between the client and the consumer, not the client and the portlet producer. As a result, these authentication techniques are not supported in JSR 286. In the JSR 286 case, Java EE authentication occurs through WS-Security mechanisms that allow the Web service consumer to be authenticated and verified by the producer, and propagate the user identity for user authentication and authorization. Published Oracle ADF artifacts must not contain login links that trigger Java EE authentication.
- **Timeout Period.** For applications that take a long time to render, consider increasing the time out period when you register a producer that was created by the Oracle JSF Portlet Bridge. Note however that the time out period specified

during producer registration is limited by the maximum time out period (`maximumTimeout` element) specified in `adf-config-xml`.

Portlet Guidelines

Consider the following portlet guidelines when creating a JSF portlet:

- Portlet Sizing. When consuming a JSF portlet, the consumer application automatically renders the portlet content within an inline frame. This means that any inline popup is then confined within the inline frame. You should take this into consideration when specifying the size of the portlet.

  If the JSF portlet is a portletized page, then you have full control of the content and can decide how that content fills the inline frame window, utilizing exactly the same techniques as you would to determine how the content would fill the browser window.

  If the portlet is being stretched by its ancestor in the consumer application, then the `maximized` attribute is set to `true` on the `af:document` component in the document produced by the Oracle JSF Portlet Bridge. This means that components that support it, such as `panelStretchLayout`, will fill the entire inline frame.
- **Resources and Links.** For resources and links, you must specify the location relative to the `web-app-context-root`. Otherwise, your images and other resources cannot be found by the portlet. Do not use relative (../) path notation. Portlets in Oracle WebCenter Portal run remotely and are accessed using a SOAP protocol (WSRP). The latter means that the regular web application concept of request path does not apply in a JSR 286 container. The JSR 286 specification reflects this by mandating that all resource URLs either be absolute or context path relative.
- **Redirecting Requests.** Do not redirect or forward a request within your JSP. JSR 286 only supports `requestDispatcher.include()`. The use of `httpServletResponse.sendRedirect()` or `requestDispatcher.forward()` results in exceptions and errors. To work properly in a portlet environment, you must implement JSF navigation rules in `faces-config.xml` or Oracle ADF task flow control flow rules.
- **Memory Consumption.** The Oracle JSF Portlet Bridge stores the content of the request scope between requests so that the request scope is preserved between a portlet Action and a portlet Render (which are two separate requests). Because of this, to minimize overall memory consumption, you must especially avoid storing too much data in the request scope when the application contains JSF portlets.
- **WSRP Version.** The Oracle JSF Portlet Bridge makes use of Portlet 2.0 features. Consequently, it should be used only with WSRP V2. The portlet's `minimumWsrpVersion` container runtime option should be set to `2`. For more information, see How to Customize the Runtime Environment for JSR 286 Portlets.
- If your portlet does not display as expected, check the HTML tagging. For example, in a portlet container, the `<head>` tag may conflict with the WebCenter Portal page `<html>` tags. Consider using an `iframe` or removing conflicting `<html>` tags in the portlet container.

Security Guidelines

Consider the following security guidelines when creating a JSF portlet:

- **Oracle ADF Secured Applications.** When you use the Create Portlet Entry or Manage Portlet Entries of Task Flows dialog to portletize a task flow in an Oracle ADF secured application (the security scheme being Authentication and Authorization), you must manually grant permission to the following wrapper task flow in the `jazn-data.xml` file of the producer application:

  ```
  /WEB-INF/adfp-portlet-bridge-container.xml#adfp-portlet-bridge-container
  ```

  If you do not grant the permissions, the portlet does not render.

  For example, if you have an application with two roles: authenticated-role, with view permission; and testrole, with customize, edit, grant, personalize, and view permissions, you must add the following entries inside the `<permissions>` tag of each role:

  - For authenticated-role:

    ```
    <permission>
     <class>oracle.adf.controller.security.TaskFlowPermission</class>
     <name>
     /WEB-INF/adfp-portlet-bridge-container.xml#adfp-portlet-bridge-container
     </name>
     <actions>view</actions>
    </permission>
    ```

  - For testrole:

    ```
    <permission>
     <class>oracle.adf.controller.security.TaskFlowPermission</class>
     <name>
     /WEB-INF/adfp-portlet-bridge-container.xml#adfp-portlet-bridge-container
     </name>
     <actions>customize,edit,grant,personalize,view</actions>
    </permission>
    ```

- **Role Based Authorization.** If you are portletizing a task flow or page that has role based authorization (that is, the task flow or page has been granted certain roles), WS-Security is required to propagate the user correctly. If you set up WS-Security, the JSF portlet does not render the content if the propagated user does not have permission to view the task flow.

JSF Guidelines

Consider the following JSF guidelines when creating a JSF portlet:

- **Using h:commandLink.** When using the `h:commandLink` JSF standard HTML component ensure that you set the `externalizeJavaScript` parameter in `web.xml` so that the JSF Reference Implementation does not generate any external JavaScript resource (see example below). This is to work around an issue in the JSF Reference Implementation where the reference to the JavaScript resource is not properly encoded.

  ```
  <context-param>
   <param-name>com.sun.faces.externalizeJavaScript</param-name>
   <param-value>false</param-value>
  </context-param>
  ```

Oracle ADF Guidelines

Consider the following ADF guidelines when creating a JSF portlet:

- **Task Flow Returns.** When an ADF bounded task flow completes it may use a task flow return to send control back to the calling task flow. In a portletized task flow, there is no calling task flow, so the task flow return does not make any sense in this context. This may cause what appears to be an empty portlet to display as the task flow navigates to a state where there is no view selected. The task flow will stay in this state until it is refreshed either when the input parameters change or the session on the producer is reset.

  If you plan to portletize your task flow, you should avoid using task flow returns. If you must use a task flow return, you can provide a dummy task flow with a default activity of the task flow that you want to portletize. When the task flow return is executed, it returns to the dummy task flow. The dummy task flow then executes its default activity, which is to call back to the original task flow and thus restart the task flow when the portlet is next called.

- **Mismatched Style Sheets.** In general, when you consume a task flow using the Oracle JSF Portlet Bridge, the portlet producer tries to use the skin of the consumer page. When the producer cannot match the consumer skin, the portlet generates and references its own style sheet. This is known as a *mismatched skin*. A mismatched skin can occur when:

  – The consumer and producer use different versions of ADF Faces. In this case, the producer still uses the consumer skin.

  – The consumer has additional `skin-additions` that the producer does not have, or vice versa. In this case, the producer still uses the consumer skin.

  – The producer does not have the consumer skin. In this case, the producer uses the portlet skin.

  Mismatched skins can cause performance problems because the browser has to fetch an extra style sheet and the generated portlet markup uses uncompressed styles resulting in larger markup.

  If a mismatched skin occurs, the producer log includes the following:

  ```
  The skin skinName specified on the requestMap will not be used because the
  styleSheetDocument id on the requestMap does not match the local skin's
  styleSheetDocument's id. It could mean the jars are not identical. For example,
  one might have trinidad-skins.xml skin-additions in a jar file on the class path
  that the other does not have.
  ```

  The portlet markup inside the inline frame also includes a link tag to the portlet style sheet resource, for example:

  ```
  <link rel=\"stylesheet\" charset=\"UTF-8\" type=\"text/css\" href=\"http:.../
  resourceproxy/portletId...252525252Fadf%252525252Fstyles%252525252Fcache
  %252525252Fblafplus-rich-portlet-d1062g-en-ltr-gecko.css...
  ```

  You can use an HTTP monitoring tool to see that a request is made to the portlet style sheet resource.

  There are a number of reasons for mismatched skins. For a skin to match, the producer and consumer must be the same for all the following conditions:

  – The ADF Faces version; a different version of ADF Faces may have different style selectors.

  – The style compression, defined in `web.xml`, for example:

  ```
  <context-param>
   <param-name>
  ```

```
 org.apache.myfaces.trinidad.DISABLE_CONTENT_COMPRESSION
 </param-name>
 <param-value>false</param-name>
</context=param>
```

  – Tonal style or themes, defined in `web.xml`, for example:

```
<context-param>
 <param-name>xyz</param-name>
 <param-value>xyz</param-value>
</context-param>
```

  – Availability of skin additions. Skin additions are defined in `META-INF/trinidad-skins.xml` in a JAR file. These are then aggregated from all the JAR files in the class path. If there are any JAR files that exist on the producer but not on the consumer, or vice versa, you get a mismatch.

```
<skin-addition>
 <skin-id>blafplus-rich.desktop</skin-id>
 <style-sheet-name>
 adf/styles/flexComponents-blafplus-rich-desktop.css
 </style-sheet-name>
</skin-addition>
```

    To determine if the JAR files match, turn on Trinidad logging to show which `skin-addition` it is processing. To do this, update the `logging.xml` log level of both the producer and consumer WebLogic Servers to `FINEST` then restart the servers:

```
<logger name="org.apache.myfaces.trinidad.skin.SkinUtils" level=FINEST"/>
```

    When you run the consumer page, any skin entries that do not match in the consumer and producer log files are the cause of the skin mismatch.

- **ADF Faces Dialog Framework.** ADF Faces Dialog Framework is not supported. If your application includes any buttons or icons that launch secondary browser windows, then the contents of the new windows are not displayed properly when the application is run as a portlet. As such, you should avoid using these components if you plan to portletize your application. Examples of components that launch secondary windows are:
  – `<tr:inputDate>`
  – `<tr:inputColor>`
  – `<tr:popup>`
  – the `useWindow` attribute of `<af:commandButton>`
- **Composer Components.** Portletization of pages that contain Composer components is not supported.
- **The fileDownloadActionListener Component.** The `<af.fileDownloadActionListener>` component is not supported.
- **The prepareModel Phase.** Oracle ADF components/code that handle `prepareModel` must be idempotent. Any code running during the `prepareModel` phase must be rerunnable without effect to the underlying data/business logic. When running in the portlet environment, `prepareModel` is called twice during the complete JSF lifecycle as opposed to being called once when running within a regular web application.

The reason for this difference is that the Oracle JSF Portlet Bridge runs JSF in two requests not one. It is implemented as if every JSF request redirected before the render phase. The consequence of this approach is that the JSF `restoreView` phase is called both when the request is first submitted and then again when request to render is received.

- **Accessing Request Parameters.** Do not access or reference request parameters from model code except in page parameters. Besides being a cleaner MVC2 implementation, following this guideline avoids problems when such artifacts are published as portlets. Where regular JSF artifacts run their entire lifecyle in a single request, the Oracle JSF Portlet Bridge runs these artifacts in two requests, as if every JSF request redirected before the render phase.

  This two phase model enables the clearing of submitted parameters before rendering in a manner that allows such clearing to be communicated all the way back to the client, which makes this request something you could bookmark. As a result, request parameters do not exist during the render phase. As described previously, `prepareModel` is invoked again in this rendering phase. Therefore, any references to request parameters in this phase handler fail. You should avoid code like either of the following fragments:

  ```
  <invokeAction id="doExecuteWithParams"
  Binds="ExecuteWithParams"
  Refresh="prepareModel"
  RefreshCondition="${param.id != null}"
  />

  <invokeAction id="doExecuteWithParams"
  Binds="ExecuteWithParams"
  Refresh="renderModel"
  RefreshCondition="${param.id != null}"
  />
  ```

- **Referencing Page Parameters.** Do not reference page parameters in the `prepareModel` phase. This issue relates to the same problem described for request parameters in the previous guideline. Generally, page parameters depend on request parameters and are evaluated during the `restoreView` phase. As this phase is called a second time during portlet rendering and request parameters are not available, such use fails. Instead, move any dependency on a page parameter value into the model before JSF transitions from its execute phases to its render phase.

- **Using ADF Faces Client-Side APIs to Find Components.** Because a portlet is a naming container, special consideration should be taken when using ADF Faces client-side APIs to find components. An example component ID:

  – When run as a regular web application: `id="demoTemplate:popup"`

  – When run as a Portlet Producer application: `id="__ns12345678:demoTemplate:popup"`

  Things to watch out for specifically are:

  – Avoid using the `AdfPage.PAGE.findComponentByAbsoluteId()` API. Use `getSource()` and `findComponent()` methods instead. For example:

    ```
    <trh:script text="
    function showPopup(event) {
    event.cancel();
     //var popup =
    //AdfPage.PAGE.findComponentByAbsoluteId("demoTemplate:popup");
    ```

```
 var source =event.getSource();
 var popup =source.findComponent("popup");
 popup.show({align:"after_end", alignId:"button"});
}
"/>
```

  – Use a relative path for `clientId` instead of an absolute path (starting with a ':'). For example, use:

    ```
    <af:showPopupBehavior popupId="demoTemplate:iteratorpop"
     triggerType="mouseHover"/>
    ```

    Instead of:

    ```
    <af:showPopupBehavior popupId=":demoTemplate:iteratorpop"
     triggerType="mouseHover"/>
    ```

  – For more information, see What You May Need to Know About Using Naming Containers in the *Developing Web User Interfaces with Oracle ADF Faces*.

- **Encoded URLs.** By default, URLs in the portletized page or task flow are encoded such that they are proxied by the consumer application. In some circumstances, you may not want to encode these URLs, for example, when requesting JavaScript libraries from content delivery networks or accessing resources directly from the user's browser to make use of a locally configured HTTP proxy.

  Another example is if your task flow includes an inline frame (for example, using an `af:inlineFrame` tag). In this case you need to ensure that the inline frame URL does not get encoded to go via the portlet resource proxy in the consumer. If you do not do this, any relative URLs in the content inside the inline frame will not work because they will be relative to the URL to the resource proxy rather than their correct location relative to the original URL for the inline frame.

  To bypass the URL encoding, set the `_xEncodeUrl` parameter to `false` on URLs that are passed to the Oracle JSF Portlet Bridge for encoding. This parameter is picked up by the Oracle JSF Portlet Bridge, which ensures that the URL does not get encoded via the resource proxy. The parameter is ignored if the task flow is not running as a portlet.

  For example, replace:

  ```
  <af:inlineFrame source="http://myiframe.example.com">
  ```

  with:

  ```
  <af:inlineFrame source="http://myiframe.example.com?_xEncodeUrl=false">
  ```

  > **Note:**
  >
  > Do not use this parameter to access resources that reside on the producer server. These resources must be accessed using the portlet client's proxy.

- **Issues with goLink.** The `adf:goLink` component encodes the link URL as an action for the current JSF application. In other words, it encodes the link using `ExternalContext.encodeActionURL(...)`. This is different to the JSF `h:outputLink` component, which encodes the URL as a resource URL using `ExternalContext.encodeResourceURL(...)`. If you are using `goLink` to link to a resource that is not a Faces View, then the URL must be encoded as a Resource

URL. To do this, you must tell the Oracle JSF Portlet Bridge the link is not a Faces View by adding the following parameter to the URL:

```
javax.portlet.faces.ViewLink=false
```

For example:

```
<af:goLink text="goLink 1" id="gl1" destination="/mynonfaceslink?
javax.portlet.faces.ViewLink=false"/>
```

- **In-Protocol Resource Requests.** Within a JSF application running under the Oracle JSF Portlet Bridge, when a resource URL is created using `ExternalContext.encodeResourceURL(...)`, that resource URL is encoded in such a way that it is executed as an out-of-protocol resource request. This means that when the portlet consumer accesses that resource it does so by making a direct call to the target URL. It is also possible for resource URLs to be in-protocol. This means that the portlet consumer accesses the resource by making a WSRP web service call to the producer application, which in turn ultimately leads to the `serverResource` method being called on the portlet. It is then the portlet's responsibility to provide the resource which is sent back in the WSRP response. When that portlet is the Oracle JSF Portlet Bridge, it serves the resource by using a request dispatcher to forward to the target URL.

  Generally out-of-protocol resource requests are to be preferred as they do not incur the additional overhead of the web service call. In-protocol requests can also cause large amounts of memory to be allocated as the WSRP SOAP response is constructed, if the resource being served is large. In the case of the Oracle JSF Portlet Bridge, the only time that you would want to use in-protocol resources is when you need to share the portlet scoped HTTP session between the resource requests and the other portlet requests, such as portlet action or render requests.

  To cause the Oracle JSF Portlet Bridge to encode resource URLs as in-protocol resource requests, add the following parameter to the URL, before `ExternalContext.encodeResourceURL(...)` is called:

  ```
  javax.portlet.faces.InProtocolResourceLink=true
  ```

  For example:

  ```
  <af:goLink text="goLink 1" id="gl1" destination="/mynonfaceslink?
  javax.portlet.faces.ViewLink=false&javax.portlet.faces.InProtocolResourceLink=tru
  e"/>
  ```

Updating the Portlet Entry for a Portletized Page or Task Flow

If you edit a page or task flow that has been previously portletized, if those edits include updates to the task flow or page's parameters or events, then you must update the portlet entry for the page or task flow to keep the portlet in sync with the underlying page or task flow.

> **Note:**
>
> If you delete a page that has been portletized, you must manually remove the portlet entry for that page from the `portlet.xml` file.

To update the portlet entry for a portletized page or task flow:

1. In the Application Navigator, open the JSF application that contains the portletized page or task flow that you want to update.
2. Right-click the page or task flow, and choose **Update Portlet Entry.**
3. If the portlet entry is for an unbounded task flow, then a dialog prompts you to select the view activity that was used to create the portlet.

When you update the portlet entry for a portletized page or task flow, the portlet entry is updated as follows:

- The **Create portlet events for contextual events** option is set to true.
- No updates are made to the portlet name, display name, title, short title, or description.
- Any `event-definition` elements (at the portlet application level) are created as necessary.
- None of the existing `event-definition` elements are deleted or updated.
- Any `public-render-parameter` elements (at the portlet application level) are created as necessary.
- None of the existing `public-render-parameter` elements are deleted or updated.
- The list of `supported-processing-event`, `supported-publishing-event`, and `supported-public-render-parameter` elements in the portlet entry are re-created to reflect the current events and input parameters of the page or task flow. This means that some existing portlet events and public parameters may be deleted and new ones added.

Testing a Portletized Page or Task Flow in JDeveloper

After you have portletized a page or task flow, you must test it to ensure that it is working correctly. Testing a portletized page or task flow requires the following steps:

1. Portletize the page or task flow to create a portlet entry in the `portlet.xml` file.
2. Deploy the portletized application to a portlet server.
3. Create an application to consume the portletized page or task flow.
4. Register the portletized application with the consumer application.
5. Create a page in the consumer application and add the portletized page or task flow to it.
6. Deploy the consumer application and display the page that contains the portletized page or task flow.

Testing a JSF Portlet Using the Integrated WebLogic Server

When you have created your JSF portlet you can test it using the Integrated WebLogic Server that comes packaged with JDeveloper.

Before You Begin

Before you test your portletized page or task flow, it is a good idea to first test that the page or task flow works correctly in the running ADF application. You can do this, using the Integrated WebLogic Server, by running the page or, for task flows, adding the task flow to a page and running that page.

For more information, see Running an ADF application in Integrated WebLogic Server in the *Developing Fusion Web Applications with Oracle Application Development Framework*.

To test a JSF portlet:

1. From the main menu, choose **Run** and then **Start Server Instance.**

   It may take a few moments for the Integrated WLS to start. When the instance has started, you should see a message similar to the following in your Log panel:

   ```
   IntegratedWebLogicServer started.
   ```

   For more information, see Managing the Integrated WebLogic Server.

2. You are now ready to run your Portlet Producer application on the Integrated WLS. Because your web application and Portlet Producer application are one and the same (the Portlet Producer application is your existing web application with additional portlet artifacts), you can run your web application as you normally would (see Running an ADF application in Integrated WebLogic Server in *Developing Fusion Web Applications with Oracle Application Development Framework*) or you can run your portlet following the instructions in How to Run a WSRP Portlet Producer on Integrated WebLogic Server.

3. When the application is deployed, you can view the WSRP Producer Test Page by going to:

   ```
   http://host:port/context-root/info
   ```

   where:

   - *host* is the server to which the application has been deployed.
   - *port* is the HTTP Listener port. Typically it is 7101. When the server is started, the port is displayed in the console.
   - *context-root* is the web application's context root.

4. Once you have successfully deployed the application containing the portlet, you can register it as a portlet producer with any other application.

   Note:

   Because the Oracle JSF Portlet Bridge uses WSRP 2.0 features, you should register the producer using the **WSRP v2 WSDL** URL listed in the WSRP Producer Test Page.

   You can continue to access the application as a regular web application or consume it as a portlet producer.

5. Now that your portlet producer is deployed and registered, you can consume your JSF portlet as you would any other portlet.

Deploying JSF Portlets to a WebLogic Managed Server

When you are satisfied that the application works correctly both as a web application and a portlet application, you can deploy it to your production Oracle WebLogic Managed Server.

Because your web application and portlet application are one and the same (the portlet application is your existing web application with additional portlet artifacts), deploying the web application also deploys the portlet producer application.

For information about how to deploy an application to a WebLogic Managed Server, see Deploying Fusion Web Applications in the *Developing Fusion Web Applications with Oracle Application Development Framework*.

Note:

Ensure that you deploy your application to a Java EE container with the Oracle Portlet Container installed. The Integrated WLS has the container installed, which is why it is recommended for testing.

After successful deployment, you can access both the application and the portlet producer test page. For example, the application URL would be similar to:

```
http://host:port/appcontextroot/faces/pagename.jspx
```

And the portlet producer test URL would be similar to:

```
http://host:port/appcontextroot/info
```

Using Events to Link JSF Portlets with Other Portlets

This section includes the following topics:

- About Linking JSF Portlets with Other Portlets
- How to Link a JSF Portlet to Another JSF Portlet
- How to Link a JSF Portlet to a JSR 286 Portlet
- How to Link a JSR 286 Portlet to a JSF Portlet
- What You May Need to Know About Portlet Events in the Oracle JSF Portlet Bridge

About Linking JSF Portlets with Other Portlets

If you portletize an Oracle ADF task flow that triggers a contextual event, the Oracle JSF Portlet Bridge creates a JSR 286 portlet event to wrap the contextual event. This means that when the portletized task flow is consumed on a page, it can be linked to other JSF portlets or to JSR 286 portlets.

The examples in this section use the following portlets:

- **Departments portlet**, a portletized ADF task flow that displays a list of departments. The list of departments can be restricted by location ID. This portlet raises a contextual event, `departmentSelected`, when a department row is selected in the portlet. The payload of the departmentSelected event is an object of type hr.Department (a Java object representing one row of the Departments table).
- **Employees portlet**, a portletized ADF task flow that displays a list of employees. The list of employes can be restricted by department ID.
- **Department Address portlet**, a JSR 286 portlet that displays the address of a specified department.
- **Department Locations portlet**, a JSR 286 portlet that displays a list of locations. This portlet raises a portlet event, named `locationId` with the namespace `http://xmlns.oracle.com/adfm/contextualevent`, when one of the listed locations is selected.

How to Link a JSF Portlet to Another JSF Portlet

The Departments task flow raises a contextual event, `departmentSelected`, when a department row is selected within the task flow. The event is ultimately raised by an `eventBinding` which is triggered from a row selection listener (see example below).

The payload of the event (an object of type `hr.Department`, a Java object representing one row of the departments table) is generated by using the `customPayload` attribute which points to the current row from the `departments` table iterator.

For more information about standard ADF contextual event techniques, like the ones used in this example, see About Creating Contextual Events in the *Developing Fusion Web Applications with Oracle Application Development Framework*.

```
<eventBinding Listener="org.apache.myfaces.trinidad.event.SelectionListener"
 id="DepartmentSelectedEvent">
 <events xmlns="http://xmlns.oracle.com/adfm/contextualEvent">
 <event name="departmentSelected"
 customPayLoad="#{bindings.departments.currentRow.dataProvider}"/>
 </events>
</eventBinding>
```

When the Departments task flow is portletized, using the steps described in How to Create a JSF Portlet Based on a Task Flow, a `portlet.xml` file is created containing a definition for a portlet event that is used to transfer the corresponding contextual event during portlet communication with the portlet over WSRP:

```
<portlet id="adf_taskflow_WEB_INF_departments_xml">
 ...
 <supported-publishing-event id="departmentSelected">
 <qname xmlns:x="http://xmlns.oracle.com/adfm/contextualEvent">
 x:departmentSelected
 </qname>
 </supported-publishing-event>
 ...
</portlet>
```

There is also a corresponding event definition in `portlet.xml` for the Departments portlet's `departmentSelected` event:

```
<event-definition id="departmentSelected">
 <qname xmlns:x="http://xmlns.oracle.com/adfm/contextualEvent">
 x:departmentSelected
 </qname>
 <value-type>
 oracle.portlet.bridge.adf.lifecycle.ADFmPayloadWrapper
 </value-type>
</event-definition>
```

Note:

The namespace for contextual events that are converted into portlet events is always:

```
http://xmlns.oracle.com/adfm/contextualEvent
```

The payload type is always:

```
oracle.portlet.bridge.adf.lifecycle.ADFmPayloadWrapper
```

The `ADFmPayloadWrapper` is used to ensure that any serializable contextual event payload is wrapped in a JAXB marshallable wrapper. It also ensures that a fixed type can be declared for the portlet event, even though it is not possible to know the payload type until the event is raised. The payload is unwrapped when extracting the contextual event from the portlet event.

The Employees task flow uses standard ADF techniques to handle a `departmentSelected` event. This is in the form of a `methodAction` binding that invokes a method on a data control, delivering the event payload from the `departmentSelected` event as a parameter to that method. The example below shows the definition of the `methodAction` binding.

```
<methodAction id="updateTableForDepartmentId" RequiresUpdateModel="true"
 Action="invokeMethod" MethodName="updateTableForDepartmentId"
 IsViewObjectMethod="false" DataControl="EmployeesDataControl"
 InstanceName="EmployeesDataControl.dataProvider">
 <NamedData NDName="departmentIdPayLoad" NDType="hr.Department"/>
</methodAction>
```

The `updateTableForDepartmentId` method takes the `hr.Department` object, passed as the payload of the `departmentSelected` event, and filters the data queried from the `EmployeesDataControl` so that it shows only employees who are in the selected department. It also takes steps to ensure that the iterator is re-executed and that the table view component is marked as needing to be re-rendered in this request.

The Employees task flow includes an event map to specifically map the incoming event onto the appropriate `methodAction` when the task flow is portletized:

```
<eventMap xmlns="http://xmlns.oracle.com/adfm/contextualEvent">
 <event name="departmentSelected">
 <producer region="*">
 <consumer region="" handler="updateTableForDepartmentId"
 handleCondition="${ADFPortletBridge.bridgeRequest}">
 <parameters>
 <parameter name="p1" value="#{payLoad}"/>
 </parameters>
 </consumer>
 </producer>
 </event>
</eventMap>
```

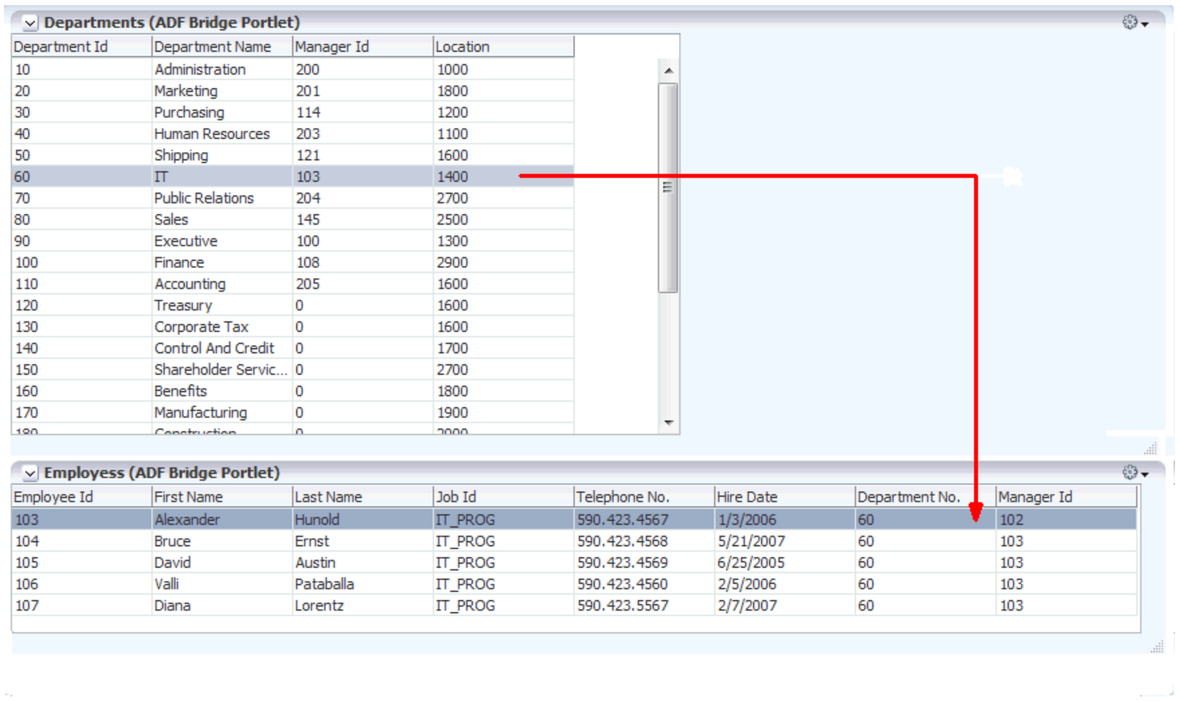
Note:

The `<producer region="*">` attribute accepts events from any region. This is because when the task flow is running as a portlet, with the event coming into the portlet from a remote application, the remote application does not have any knowledge of the producer region.

The EL expression within `handleCondition="${ADFPortletBridge.bridgeRequest}"` evaluates to `true` if the current request is running under the Oracle JSF Portlet Bridge. This ensures that this event map is used only when the task flow is running as a portlet. It is not essential to have this `handleCondition`. However it can be useful to be able to define a separate `eventMap` which is used only when the task flow is running as a portlet.

When the two portletized task flows are added to a page, as long as the name of the event triggered by the Departments portlet is the same as that expected by the Employees portlet, no further coding is required; the portlets are automatically linked and when a department is selected in the Departments portlet, the Employees portlet is updated to display employees belong to the selected department.

Figure 12-3   Linked JSF Portlets



Departments (ADF Bridge Portlet)

Department Id	Department Name	Manager Id	Location
10	Administration	200	1000
20	Marketing	201	1800
30	Purchasing	114	1200
40	Human Resources	203	1100
50	Shipping	121	1600
60	IT	103	1400
70	Public Relations	204	2700
80	Sales	145	2500
90	Executive	100	1300
100	Finance	108	2900
110	Accounting	205	1600
120	Treasury	0	1600
130	Corporate Tax	0	1600
140	Control And Credit	0	1700
150	Shareholder Servic...	0	2700
160	Benefits	0	1800
170	Manufacturing	0	1900
180	Construction	0	2000

Employess (ADF Bridge Portlet)

Employee Id	First Name	Last Name	Job Id	Telephone No.	Hire Date	Department No.	Manager Id
103	Alexander	Hunold	IT_PROG	590.423.4567	1/3/2006	60	102
104	Bruce	Ernst	IT_PROG	590.423.4568	5/21/2007	60	103
105	David	Austin	IT_PROG	590.423.4569	6/25/2005	60	103
106	Valli	Pataballa	IT_PROG	590.423.4560	2/5/2006	60	103
107	Diana	Lorentz	IT_PROG	590.423.5567	2/7/2007	60	103

You may choose to not use automatic event listening, for example, if you have multiple portlets on the same page that use the same events and you wish to control the flow of events between them. Or perhaps the names of the contextual events used by the JSF portlets that you want to link do not match. In this case you must explicitly create an event map in the page definition of the page containing the portletized task flows. This event map links the portlet events of the portlets that you want to wire together. The example below shows how this would work in our example if the Employees task flow was expecting an event named `departmentId` instead of `departmentSelected`.

```
<eventMap xmlns="http://xmlns.oracle.com/adfm/contextualEvent">
 <event name="departmentSelected">
 <producer region="EventSampleProducerdepartments1_1">
 <consumer handler="EventSampleProduceremployees1_1.
 {http://xmlns.oracle.com/adfm/contextualEvent}departmentId"/>
 </producer>
 </event>
</eventMap>
```

Note:

In the case of portletized task flows, the `handler` attribute must specify not only the specific binding object that is to handle the event, it must also specify the full QName of the portlet event, using the format `<portletBindingId>.<eventQName>`. The namespace does not have to be the ADFm namespace; it can be any portlet event, provided the payload is compatible.

How to Link a JSF Portlet to a JSR 286 Portlet

As well as linking JSF portlets to other JSF portlets, you can also link a JSF portlet to a regular JSR 286 portlet. To do this, you must ensure that the JSR 286 portlet explicitly declares that it can to receive contextual events.

For example, we can link the Departments task flow from our previous example to a Department Address portlet, a JSR 286 portlet, to display the address of a selected department.

For automatic event wiring to work, the Department Address portlet must declare that it can receive the contextual event from the Department portlet. It can do this in two ways:

- The Department Address portlet directly supports the `departmentSelected` contextual event:

  ```
  <supported-processing-event id="departmentSelected">
   <qname xmlns:x="http://xmlns.oracle.com/adfm/contextualEvent">
   x:departmentSelected
   </qname>
  </supported-processing-event>
  ```

- The event definition for the Department Address portlet's event, `department`, provides an alias to associate it with the `departmentSelected` contextual event:

  ```
  <event-definition id="department">
   <qname xmlns:x="http://xmlns.oracle.com/portlet/EventSample">
   x:department
   </qname>
   <alias xmlns:x="http://xmlns.oracle.com/adfm/contextualEvent">
  ```

```
  x:departmentSelected
  </alias>
  <value-type>hr.Department</value-type>
</event-definition>
```

Note:

The namespace for portlet events used to carry contextual event is always:

`http://xmlns.oracle.com/adfm/contextualEvent`

The namespace is used in the event declarations or alias given above. This namespace indicates to the consumer that the portlet wishes to receive a contextual event with the given name as a portlet event. This is essential for automatic event wiring to work.

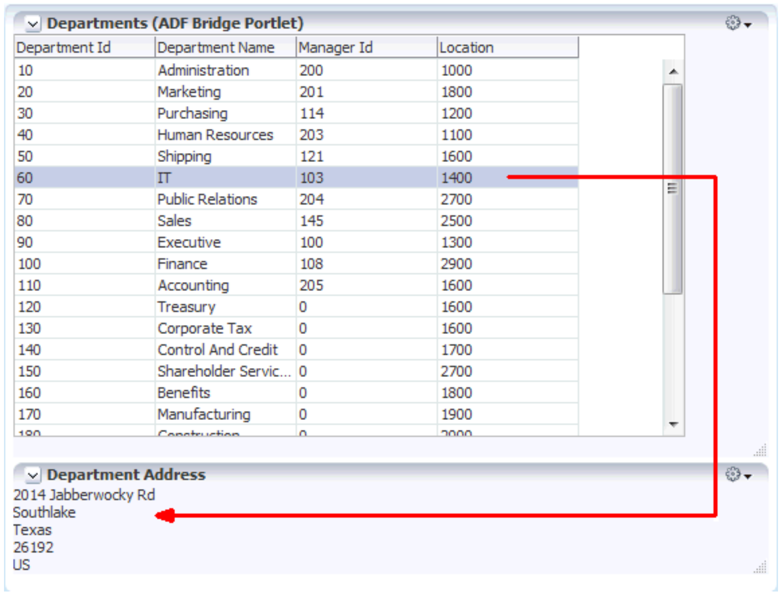
The Department Address portlet includes code in its `processEvent` implementation to handle the event. This method looks for either the `departmentSelected` or the `department` event with the alias as defined above. The payload type for both of these events is `hr.Department`. However, the method shown in the example below illustrates how to use the `ADFmPayloadWrapper` to unwrap the payload. `ADFmPayloadWrapper` is the event type that the Oracle JSF Portlet Bridge uses by default when raising events.

```
public void processEvent(EventRequest request, EventResponse response)
 throws PortletException, IOException
 {
response.setRenderParameters(request);

Event event =request.getEvent();
 String eventName =event.getName();
 if ("departmentSelected".equals(eventName)
"department".equals(eventName))
 {
Object payload =event.getValue();
 if (payload instanceof ADFmPayloadWrapper)
 {
payload =((ADFmPayloadWrapper)payload).getPayload();
 }
if (payload instanceof Department)
 {
Department department =(Department)payload;
 int locationId =department.getLocation();
 response.setRenderParameter("locationId", Integer.toString(locationId));
 }
}
}
```

When these two portlets are displayed together on a page, selecting a department in the Departments portlet automatically updates the Department Address portlet to display the address of the selected department.

Figure 12-4 JSF Portlet Linked to a JSR 286 Portlet



Department Id	Department Name	Manager Id	Location
10	Administration	200	1000
20	Marketing	201	1800
30	Purchasing	114	1200
40	Human Resources	203	1100
50	Shipping	121	1600
60	IT	103	1400
70	Public Relations	204	2700
80	Sales	145	2500
90	Executive	100	1300
100	Finance	108	2900
110	Accounting	205	1600
120	Treasury	0	1600
130	Corporate Tax	0	1600
140	Control And Credit	0	1700
150	Shareholder Servic...	0	2700
160	Benefits	0	1800
170	Manufacturing	0	1900
180	Construction	0	2000

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US

If the Department Address portlet does not explicitly support the `departmentSelected` event or define an appropriate alias, you can still link the two portlets by creating an event map in the page definition:

```
<eventMap xmlns="http://xmlns.oracle.com/adfm/contextualEvent">
 <event name="departmentSelected">
 <producer region="EventSampleProducerdepartments1_1">
 <consumer handler="DepartmentAddress1_1.
 {http://xmlns.oracle.com/portlet/EventSample}department"/>
 </producer>
 </event>
</eventMap>
```

The result of this event mapping is that when the `departmentSelected` contextual event is raised by the `EventSampleProducerdepartments1_1` portlet binding, the event is delivered to the `DepartmentAddress1_1` portlet binding, which in turn sends the event on to the portlet using the portlet event, `department`.

Note:

The payload of the `departmentSelected` contextual event is a `hr.Departments` object. This is the same payload type that the portlet's `department` portal event is expecting, so that matches and everything works correctly. It is also possible for the portlet to declare that it expects a payload of type `ADFmPayloadWrapper`. In this case, the portlet consumer detects this and automatically wraps the contextual event payload in an `ADFmPayloadWrapper` object.

How to Link a JSR 286 Portlet to a JSF Portlet

You can also send portlet events from a JSR 286 portlet to a JSF portlet. The portlet event is converted into a contextual event by the Oracle JSF Portlet Bridge and is then delivered into the producer ADF application to be consumed using standard contextual event techniques.

The Departments task flow contains a `methodAction` binding that binds to a method on the `DepartmentsDataControl`:

```
<methodAction id="updateTableForLocationId" RequiresUpdateModel="true"
 Action="invokeMethod" MethodName="updateTableForLocationId"
 IsViewObjectMethod="false"
 DataControl="DepartmentsDataControl"
 InstanceName="DepartmentsDataControl.dataProvider">
 <NamedData NDName="locationId" NDType="int"/>
</methodAction>
```

The `updateTableForLocationId` method receives, as a parameter, a location ID that causes the list of departments returned by the data control to be filtered by that location ID.

The task flow contains an event map to map the contextual event onto the appropriate `methodAction`:

```
<eventMap xmlns="http://xmlns.oracle.com/adfm/contextualEvent">
 <event name="locationId">
 <producer region="*">
 <consumer region="" handler="updateTableForLocationId"
 handleCondition="${ADFPortletBridge.bridgeRequest}">
 <parameters>
 <parameter name="p1" value="#{payLoad}"/>
 </parameters>
 </consumer>
 </producer>
 </event>
</eventMap>
```

Note:

The event map cannot reference the region where the event originates because it is not present when the task flow is running as a portlet, so we use a wildcard as the event source in the event map

In the Department Locations portlet, when a location is selected, the `processAction` method raises a portlet event, `locationId`, giving the location ID of the selected location:

```
public void processAction(ActionRequest request, ActionResponse response)
 throws PortletException
 {
String locationId =request.getParameter("locationId");
 Location location =getLocation(Integer.parseInt(locationId));

if (location != null)
```

```
 {
//QName matches the event declared as a supported-publishing-event in
 //portlet.xml for this portlet.

//LocationId event. Raised in the ContextualEvent namespace makes it readily
 //consumable by ADF Bridge portlets. Likewise we wrap with the
 //ADFmPayloadWrapper payload object that the ADF Bridge expects.
 response.setEvent(new QName("http://xmlns.oracle.com/adfm/contextualEvent",
 "locationId"),
 new ADFmPayloadWrapper(Integer.valueOf(location.getLocationId())));
 }
}
```

Note:

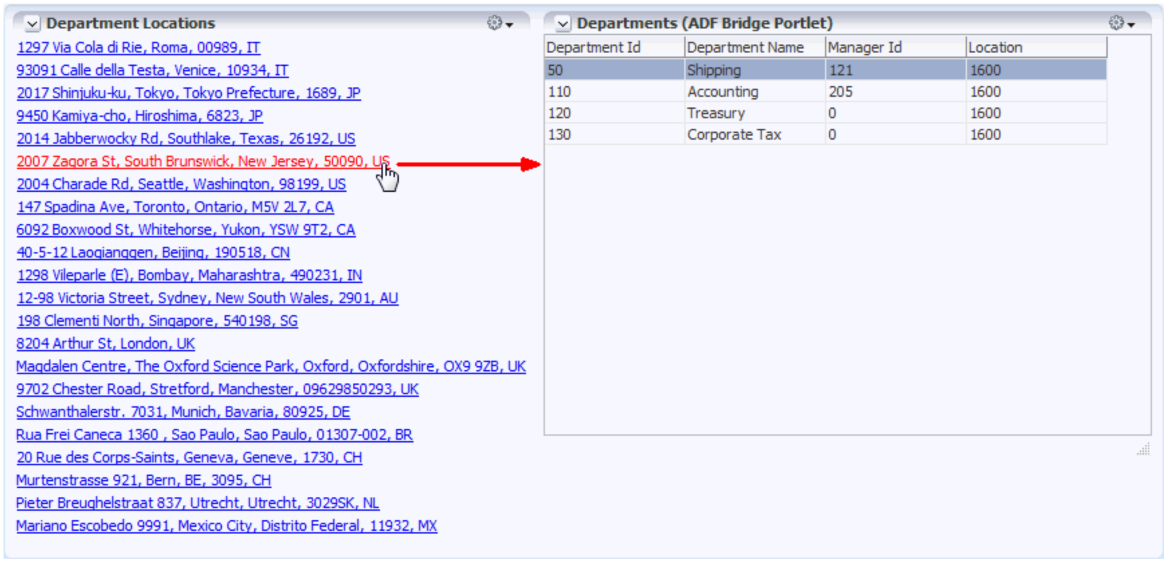
The `locationId` event raised in the `processAction` method has a payload of type of `Integer`. However, because JSF portlets always expect portlet events with the contextual event payloads wrapped with `ADFmPayloadWrapper`, we must wrap the payload to suit the receiving portlet's requirements if we want automatic delivery of events to work.

Likewise, the QName for the event we raise must be:

```
{http://xmlns.oracle.com/adfm/contextualEvent}locationId
```

When you drop the portlets on a page, selecting a location in the Department Location portlet automatically updates the Departments portlet to display the departments at the selected location.

Figure 12-5 JSR 286 Portlet Linked to a JSF Portlet



Department Locations

1297 Via Cola di Rie, Roma, 00989, IT
93091 Calle della Testa, Venice, 10934, IT
2017 Shinjuku-ku, Tokyo, Tokyo Prefecture, 1689, JP
9450 Kamiya-cho, Hiroshima, 6823, JP
2014 Jabberwocky Rd, Southlake, Texas, 26192, US
2007 Zagora St, South Brunswick, New Jersey, 50090, US
2004 Charade Rd, Seattle, Washington, 98199, US
147 Spadina Ave, Toronto, Ontario, M5V 2L7, CA
6092 Boxwood St, Whitehorse, Yukon, YSW 9T2, CA
40-5-12 Laogianggen, Beijing, 190518, CN
1298 Vileparle (E), Bombay, Maharashtra, 490231, IN
12-98 Victoria Street, Sydney, New South Wales, 2901, AU
198 Clementi North, Singapore, 540198, SG
8204 Arthur St, London, UK
Magdalen Centre, The Oxford Science Park, Oxford, Oxfordshire, OX9 9ZB, UK
9702 Chester Road, Stretford, Manchester, 09629850293, UK
Schwanthalerstr. 7031, Munich, Bavaria, 80925, DE
Rua Frei Caneca 1360 , Sao Paulo, Sao Paulo, 01307-002, BR
20 Rue des Corps-Saints, Geneva, Geneve, 1730, CH
Murtenstrasse 921, Bern, BE, 3095, CH
Pieter Breughelstraat 837, Utrecht, Utrecht, 3029SK, NL
Mariano Escobedo 9991, Mexico City, Distrito Federal, 11932, MX

Departments (ADF Bridge Portlet)

Department Id	Department Name	Manager Id	Location
50	Shipping	121	1600
110	Accounting	205	1600
120	Treasury	0	1600
130	Corporate Tax	0	1600

If the two portlets do not declare events with matching names (for example the contextual event from the Departments portlet is called `locId`), or if automatic event listening is disabled, you can still link the two portlets by creating an event map in the page definition to map the contextual event from the Departments portlet to the portlet event from the Department Location portlet:

```
<eventMap xmlns="http://xmlns.oracle.com/adfm/contextualEvent">
 <event name="locationId">
 <producer region="DepartmentLocations1_1">
 <consumer handler="DepartmentsADFBridgePortlet1_1.
 {http://xmlns.oracle.com/adfm/contextualEvent}locId">
 </consumer>
 </producer>
 </event>
</eventMap>
```

What You May Need to Know About Portlet Events in the Oracle JSF Portlet Bridge

This section includes the following topics:

- What You May Need to Know About Using a Serialized Type for the Contextual Event Payload
- What You May Need to Know About Raising Undeclared Events
- What You May Need to Know About Partial Page Rendering

What You May Need to Know About Using a Serialized Type for the Contextual Event Payload

Part of the JSR 286 event's payload is the wrapped contextual event payload, which is serialized. Therefore, while contextual event payloads can be any object type, when you are sending contextual events via WSRP, only serialized types are supported.

When this wrapped contextual event is delivered, the contextual event payload must be deserialized on the consumer before the contextual event can be forwarded into the consumer application. To deserialize the event, the payload class must be available on the consumer as well as on the producer. This condition is automatically met when the original payload is a Java Runtime Environment class, such as `java.lang.String`.

What You May Need to Know About Raising Undeclared Events

If your Oracle ADF task flow includes ADFm events that do not have corresponding portlet events declared in the `portlet.xml` file, you can enable the Oracle JSF Portlet Bridge to raise these undeclared events.

To raise undeclared events, set the following container runtime option for the portletized task flow:

```
<portlet id="Application5untitled1jspx1_1">
 ...
 <container-runtime-option>
 <name>oracle.portlet.bridge.adf.raiseUndeclaredContextualEvents</name>
 <value>true</value>
 </container-runtime-option>
 ...
</portlet>
```

Setting this option to `true` means that any ADFm event raised is forwarded on as a portlet event. If this option is not provided or is set to `false`, then only events with corresponding portlet event declarations are forwarded. For information about setting container runtime options, see Setting Container Runtime Options for Individual Portlets.

You can also enable undeclared portlet events to automatically be forwarded on from the portlet binding in the consumer application as ADFm events.

In the portlet binding, set the `raiseUndeclaredContextualEvent` attribute to `true`, for example:

```
<portlet id="Application5untitled1jspx1_1"
 portletInstance="/oracle/adf/portlet/WsrpPortletProducer4/ap/
 Application5untitled1jspx_2943bd23_012e_1000_8004_0aa7c0849010"
 class="oracle.adf.model.portlet.binding.PortletBinding"
 retainPortletHeader="false"
 listenForAutoDeliveredPortletEvents="true"
 listenForAutoDeliveredParameterChanges="true"
 raiseUndeclaredContextualEvents="true"
 xmlns="http://xmlns.oracle.com/portlet/bindings"/>
```

Setting this option to `true` means that if a portlet event is received, a corresponding ADFm event is raised, even if there is no event declaration in the portlet binding. The name of the ADFm event is directly taken from the QName of the portlet event. This is so that ADFm events raised from the Oracle JSF Portlet Bridge have the same name as that used when the event was raised on the remote application.

What You May Need to Know About Partial Page Rendering

The Oracle JSF Portlet Bridge uses portlet events to transport contextual events to and from the consumer application. However, partial page rendering (PPR) requests are implemented using Portlet 2.0 resource requests. It is not possible to send or receive portlet events in resource requests. Therefore proprietary mechanisms are used to transport the contextual events from the JSF Portlet to the consumer application in the case of PPR requests.

13

Building Standards-Based Java Portlets Using JSR 286

Use the Java Portlet Specification JSR 286 to build standards-based Java portlets.

Topics:

About Building Standards-Based Java Portlets Using JSR 286

WebCenter Portal supports standards-based Java portlets built using the JSR 286 standard.

JSR 286 is a specification that defines a set of APIs to enable interoperability between portlets and portals, addressing the areas of aggregation, personalization, presentation, and security. JSR 286 defines container services that provide:

- A portlet API for coding portlet functionality
- The URL-rewriting mechanism for creating user interaction within a portlet container
- The security and personalization of portlets
- Interportlet communication using portlet events and public render parameters

For more information, see the JSR 286 specification at:

`http://jcp.org/en/jsr/detail?id=286`

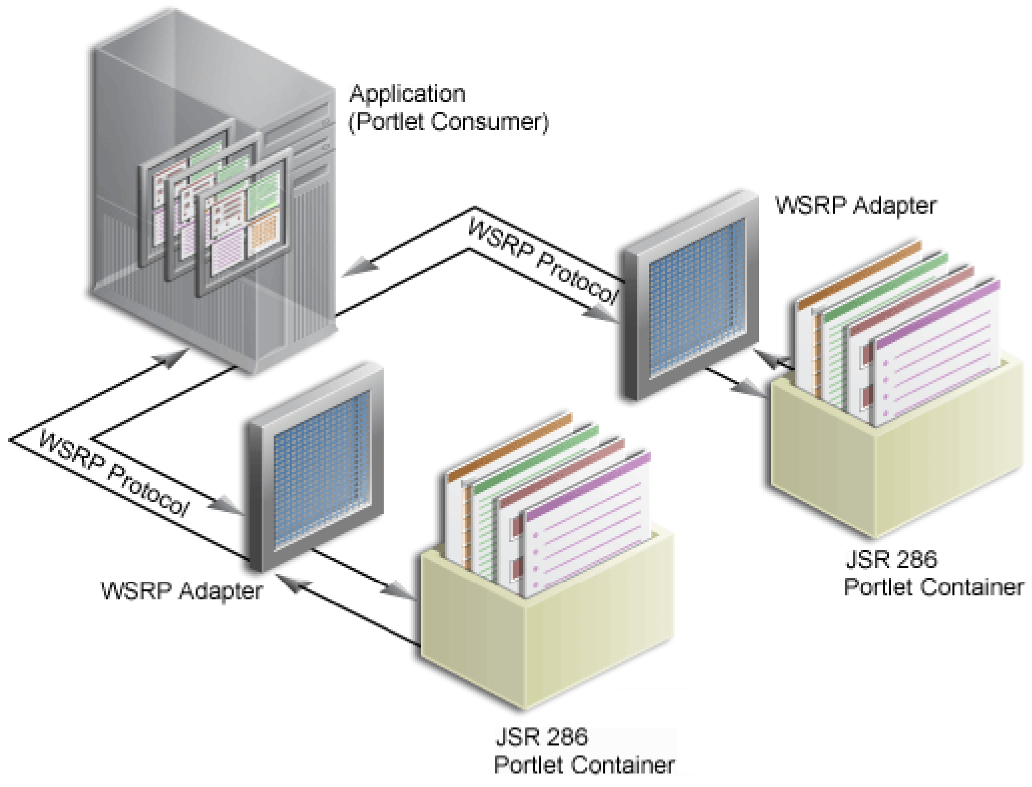
WSRP is a web services standard that enables the plug-and-play of visual, user-facing web services with portals or other intermediary web applications. Being a standard, WSRP enables interoperability between a standards-enabled container and any WSRP portal. WSRP defines:

- Web Services Definition Language (WSDL) interface for the invocation of WSRP services
- Markup fragment rules for markup emitted by WSRP services
- The methods to publish, find, and bind WSRP services and metadata

WSRP provides communication between a portlet client and a portlet container running on a remote server. JSR 286 describes the Java Portlet API for running portlet producer applications. Combining these standards enables developers to integrate their applications from any internal or external source as portlets with WSRP portals. Building pages becomes as simple as selecting portlets from the JDeveloper Resource Palette or Application Resources pane of the Application Navigator.

Figure 13-1 shows the architecture of the WSRP specification with JSR 286 portlets.

Figure 13-1 WSRP Specification Architecture



Creating a JSR 286 Java Portlet

WebCenter Portal provides a wizard, available in JDeveloper, for quickly and easily creating the initial framework of your JSR 286 standards-based Java portlets.

In the Create JSR 286 Java Portlet wizard, you can choose which portlet modes you want to implement and the implementation method (JSP, HTTP servlet, Java class, or HTML) to use for each mode. The wizard then creates a simple implementation for each of the selected modes.

To create a JSR 286 Java portlet using the JDeveloper wizard:

1. In JDeveloper, open the portlet producer application under which you want to create your portlet, or create a new portlet producer application.

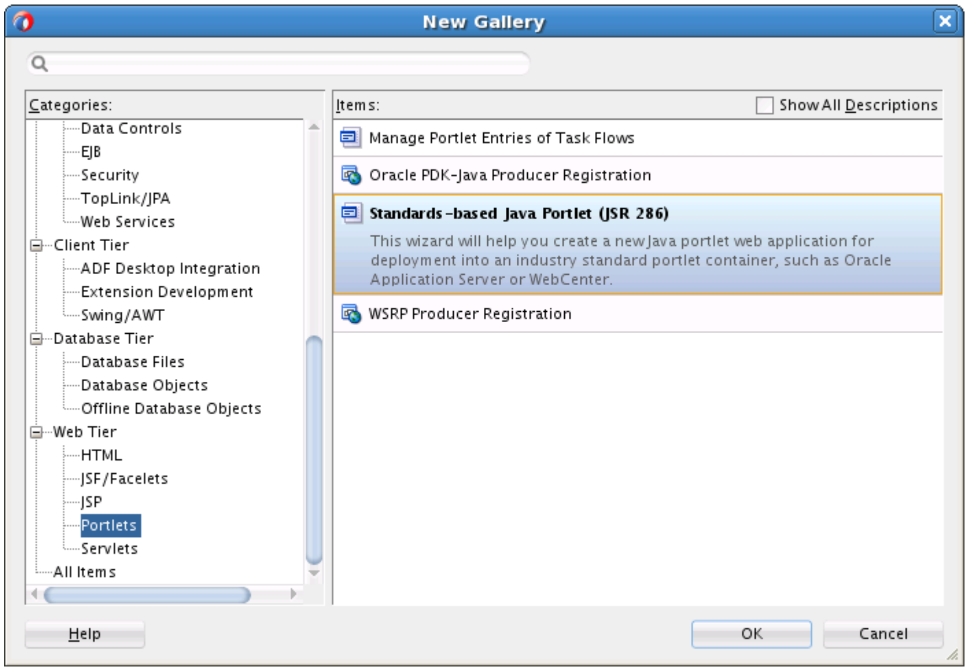
   For information about how to create a portlet producer application, see Portlet Producer Applications.

Note:

If you do not use the WebCenter Portal - Portlet Producer Application template to create the portlet producer application, you must manually add the appropriate portlet building technology scopes to the application.

2. Right-click the project under which you want to create your portlet (for example **Portlets**), and choose **New.**
3. In the New Gallery (Figure 13-2), expand **Web Tier,** select **Portlets** and then **Standards-based Java Portlet (JSR 286),** and click **OK.**

Figure 13-2 Standards-based Java Portlet (JSR 286) Option in the New Gallery



This wizard will help you create a new Java portlet web application for deployment into an industry standard portlet container, such as Oracle Application Server or WebCenter.

Tip:

If the project already contains JSR 286 portlets, you can also create a new portlet by:

- Right-clicking `portlet.xml` and choosing **Add Portlet**.
- Opening `portlet.xml`, clicking the **Design** tab, and clicking the **Add** icon on the **Portlets** tab.

4. On the General Portlet Information page of the Create JSR 286 Java Portlet wizard, replace the default name provided in the **Name** field with one that better describes the purpose of the portlet.

5. In the **Class** field, enter a name for the class for the portlet. You can accept the default name provided or supply your own. If you supply your own name, it must be a valid Java name.
6. From the **Package** drop-down list, select the package in which to create the class, or enter a package name.

   Click the **Browse** button to find packages within the project, if required. If you do not select a specific package, the wizard uses the default package of the project.
7. From the **Language** drop-down list, select the default language that your portlet supports. The wizard uses English by default.
8. Select **Enable users to edit portlet content** if you want your portlet to support Edit mode. In the wizard, this option is selected by default.

   Edit mode enables users to personalize the portlet at runtime. For more information, see Edit Mode.

   If you select this option, you can specify implementation details for the portlet's Edit mode later on in the wizard.
9. Click **Next**.
10. On the Additional Portlet Information page, in the **Portlet Title** field, enter a descriptive title for your portlet.

    The portlet title is displayed in the resource catalog, so make the title something to help users decide whether the portlet is useful to them. The portlet title is also displayed on the portlet header when the portlet appears on a page.

    Tip:

    The **Display Name**, **Short Title**, **Description**, and **Keyword** attributes are not implemented in WebCenter Portal. You do not need to enter any values for these fields unless your portlet is likely to be consumed by other applications.
11. At this point in the wizard, you can click **Finish** to create the portlet immediately, using the default values for all remaining settings.

    To provide additional details for your portlet, click **Next** and follow the remaining steps.
12. On the Content Types and Portlet Modes page, in the **Content Types and Portlet Modes** list, select **view**.
13. In the Implementation Method section, select how you want to implement View mode for your portlet (for more information about View mode, see View Mode):
    - Select **Generate JSP** to generate a skeleton JSP file for the portlet mode. Enter a name for the JSP in the corresponding field, or accept the default.

      When you complete the wizard, the generated JSP displays in the Application Navigator where you can select it for further development. This is the default selection for all portlet display modes.
    - Select **Generate ADF-Faces JSPX** to generate a page to which you can add ADF-Faces components. Enter a name for the JSF page in the corresponding field, or accept the default.

If you choose this option, the portlet implementation class is created as a subclass of `oracle.portlet.bridge.adf.application.ADFBridgePortlet`, instead of as a subclass of `javax.portlet.GenericPortlet`. That is, the wizard generates a portlet producer application which uses the Oracle JSF Portlet Bridge. For more information about the Oracle JSF Portlet Bridge, see Creating Portlets from JSF Applications Using the Oracle JSF Portlet Bridge.

- Select **Map to Path** to map the portlet mode to a web resource in the portlet producer application, such as a page. The resource is not generated by the wizard. Enter the name and path in the corresponding field. You can create this resource after completing the wizard if necessary.

  With this selection, you must write the targeted resource or file yourself. The target could be, for example, a JSP, a servlet, or an HTML file. This selection enters code in the generated portlet Java class that routes requests for the given mode to the specified target.
- Select **Custom Code** to implement the portlet mode through a custom coded object. You must create this object later. This selection generates a skeleton method to render content (`private void do`*`MODE_NAMECONTENT_TYPE`*) in the generated portlet java class. You must update this code to render useful content.

> **Tip:**
>
> If you want this portlet mode to support a different content type, for example `text/xml`, see Step 16.

14. If you selected **Enable users to edit portlet content** on the first page of the wizard, select **edit** and then select the implementation method for Edit mode (for information about Edit mode, see Edit Mode), as described in step 13.
15. To implement another portlet mode for your portlet:
    a. In the **Content Types and Portlet Modes** list, select an existing mode (for example, **view**) under the appropriate content type (for example, **text/html**).
    b. Click **Add**.
    c. In the Portlet Modes dialog, move the required mode or modes to the **Selected** list and click **OK**.

       The Portlet Modes dialog lists the standard modes supported by JSR 286 and the extended modes supported by WebCenter Portal.

       For more information, see Portlet Modes.
    d. Select each of the portlet modes and specify the implementation method to use for rendering content, as described in step 13.
16. The content type identifies what type of content the portlet supports. Portlets can support multiple content types. By default, portlets created using the Create JSR 286 Java Portlet wizard support the `text/html` content type.

    To add a different content type:
    a. In the **Content Types and Portlet Modes** list, select an existing content type (for example, **text/html**).
    b. Click **Add**.

c. In the Content Types dialog, move the required content types to the **Selected** list and click **OK**.
   - **text/html**—The portlet supports text encoded with HTML. This is the default selection.
   - **text/xml**—The portlet supports text encoded with XML.
   - **text/plain**—The portlet supports plain, unencoded text.
   - **text/vnd.oracle.mobilexml**—The portlet supports text encoded with Oracle Mobile XML. Note, however, that WebCenter Portal does not support Oracle Mobile XML.
   - **application/xhtml+xml**—The portlet supports text encoded with XHTML.
   - **application/xml**—The portlet supports any XML content, including XHTML.

17. Click **Next.**

    If you selected **Enable users to edit portlet content** on the General Portlet Information page earlier in the wizard, then you can create portlet preferences to enable users of the portlet to specify values for the portlet at runtime. Go to step 18.

    If you did not select this option, go to step 24.

18. On the Customization Preferences page, click **Add** to add a new portlet preference to the portlet.

    By default, the wizard includes a portlet preference to enable users to customize the portlet title.

19. In the Add New Preference dialog, in the **Name** field, enter a name for the new preference.

    The name must be unique in the portlet and cannot contain spaces.

20. In the **Default Values** field, enter one or more default values for the new preference. Separate multiple values with commas.

21. Select the **Translate Preference** check box if you want to be able to make the preference available in different languages.

    For example, if the portlet is likely to be consumed by a multilingual portal you want to ensure that the preference displays in the appropriate language.

    If you enable this option, then entries for the preference are added to the resource bundle class that JDeveloper generates for the portlet.

    > **Tip:**
    >
    > Edit the resource bundle to provide translations for the preference name and default values. The name will almost always require translating, but the default values may not, for example, if the value is an integer.

22. Click **OK**.

23. Repeat the preceding steps to add more preferences. When you are done click **Next.**

24. On the Security Roles page, to add an existing security role to your portlet, select the security role and move it to the **Selected** list.

    Security roles enable you to set tiered levels of access to the portlet. For example, a `View` user can view the portlet but cannot edit it; a `Customize` user can customize portlet settings; a `Manage` user can perform all available functions associated with the portlet.

    The **Available** list displays the security roles defined for the application in which you are creating the portlet. Moving a security role to the **Selected** list creates a reference of the security role in the application's portlet deployment file (`portlet.xml`) that refers to the security role in the application's web deployment file (`web.xml`).

    You can create new security roles for the application by editing `web.xml`. For more information, see the JDeveloper online help.

25. Click **Next.**

26. On the Caching Options page, select **Cache Portlet** to enable expiry-based caching for your portlet.

    For more information about expiry-based caching, see Portlet Performance and Implementing Expiry-Based Caching in JSR 286 Portlets.

    Selecting this option indicates that portlet caching is managed by the portlet container. The portlet itself may choose to cache content for any given response. The settings on this page apply only when the portlet itself does not specify a caching condition for a response.

    If you do not want any default caching for this portlet, choose **Do Not Cache By Default.** In this case, the wizard actually sets a cache duration of 0 seconds. As stated earlier, this cache setting only comes into play when the portlet itself does not specify a caching condition for a response.

    If you choose no caching here and you later decide to implement default caching for the portlet, then you can change the cache duration value in the `portlet.xml` file, which is generated by the wizard, to a number greater than zero.

    For information about how to implement validation-based caching, see Implementing Validation-Based Caching in JSR 286 Portlets.

27. If you chose to cache the portlet, in the Default Expiry Conditions section, select:

    - **Cache Content Expires After []seconds** to expire the cached portlet content after a certain amount of time. Specify the time limit in the corresponding field.
    - **Cache Content Never Expires** to never expire the cached portlet content. You may want to select this option if the portlet contains static content that is unlikely to change.

28. Click **Next.**

29. On the Initialization Parameters page, you can add initialization parameters to your portlet.

    Initialization parameters provide the application developer, who decides what goes into the WAR file, an alternative to JNDI variables for configuring the behavior of all of the different components of the application (for example, servlets and portlets) in a compatible way. These initialization parameters are added to the `portlet.xml` file.

For example, you might want to turn on some kind of debugging mode for the portlet or display different menu options in different environments.

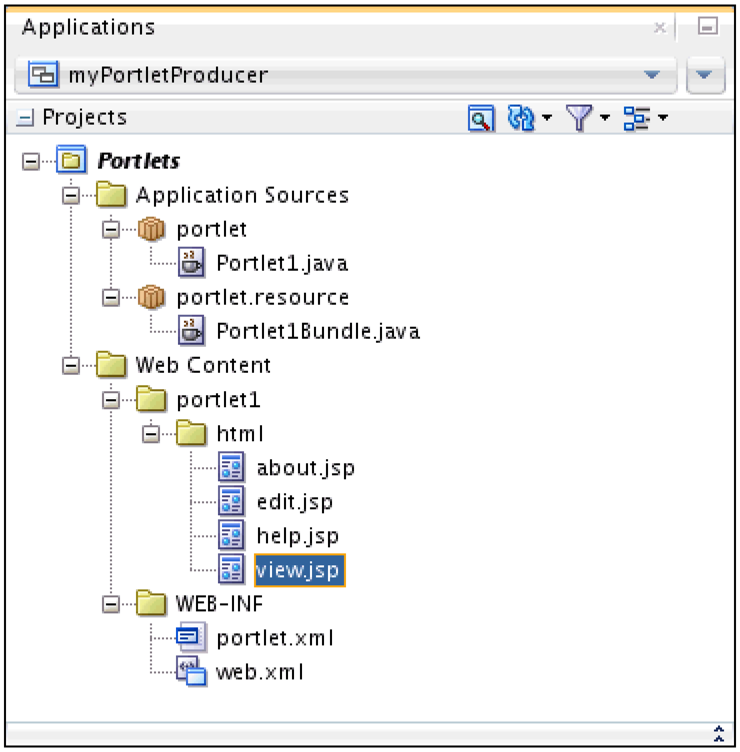
a. Click **New** to add a new initialization parameter to the portlet.
b. In the newly added row, double-click each field to provide a **Name**, default **Value**, and **Description** for the parameter.
c. Repeat these steps to add more initialization parameters.
d. When you are done, click **Finish** to create the portlet.

When you use the Create JSR 286 Java Portlet wizard, JDeveloper generates a default implementation of the portlet. Specifically, the following files are created:

- Java classes:
  - `*portletName*.java` is invoked by the portlet container and contains all the methods required by the portlet standards.
  - `*portletName*Bundle.java` contains all the translation strings for the portlet.
  - `*portletName*Backing.java` contains the JSF backing bean for the JSF pages that implement portlet modes. This class is created if you implement portlet modes as ADF-Facelets JSP pages.
- `portlet.xml` is the portlet deployment descriptor file for the application.
- `web.xml` is the web deployment descriptor file for the application.
- Files for each portlet mode you selected for the portlet:
  - If you selected **Generate JSP** for the portlet mode, a JSP page is created for the mode, for example, `view.jsp`.
  - If you selected **Generate ADF-Faces JSPX**, a JSF (`.jspx`) page is created for the mode, for example, `view.jspx`. You can add Faces components to this page.
  - If you selected **Map to Path,** no additional files are created as the code for the portlet mode resides in an existing resource. Code is added to the portlet's Java class to route requests to the specified target.
  - If you selected **Custom Code**, no additional files are created, but the code for the portlet mode resides in the portlet's Java class.
- `faces-config.xml` is a configuration file that registers an application's resources, such as custom validators and managed beans and describes the page flow of the application. This file is created if you implement portlet modes as ADF-Facelets JSF pages.

You can see all the files in the Application Navigator, as shown in Figure 13-3.

Figure 13-3 Files Generated for a JSR 286 Java Portlet



Developing JSR 286 Java Portlets

When you have built your initial portlet implementation using the Create JSR 286 Java Portlet wizard, the next step is to create the code that drives the portlet content and behavior. Because JSR 286 portlets adhere to the Java standards, you can find substantial information about enhancing them from many different sources, such as third-party books and web pages, including:

`http://jcp.org/en/jsr/detail?id=286`

This section includes the following topics:

- Example Portlet Deployment Descriptor File
- How to Edit the Portlet Deployment Descriptor File
- Portlet Modes for JSR 286 Portlets
- How to Add Custom Portlet Modes to JSR 286 Portlets
- How to Access User Information in JSR 286 Portlets
- How to Customize the Runtime Environment for JSR 286 Portlets
- How to Use Public Render Parameters in JSR 286 Portlets
- How to Use Portlet Events in JSR 286 Portlets
- How to Add Portlet Preferences to JSR 286 Portlets
- How to Use Portlet Filters in JSR 286 Portlets
- How to Implement Interportlet Communication Across Different Pages

- How to Enhance JSR 286 Portlet Performance with Caching
- How to Implement Rewritten URLs for Resource Proxy
- How to Implement Stateless Resource Proxying
- How to Manage the Persistence Store for JSR 286 Portlets

Example Portlet Deployment Descriptor File

The following example shows an example portlet deployment descriptor file.

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<portlet-app version="2.0"
 xsi:schemaLocation="http://java.sun.com/xml/ns/portlet/portlet-app_2_0.xsd
 http://java.sun.com/xml/ns/portlet/portlet-app_2_0.xsd"
 xmlns="http://java.sun.com/xml/ns/portlet/portlet-app_2_0.xsd"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <portlet id="1328624289503">
 <portlet-name>myPortlet</portlet-name>
 <display-name xml:lang="en-US">Portlet1</display-name>
 <display-name xml:lang="en">English Display Name</display-name>
 <portlet-class>portlet.Portlet1</portlet-class>
 <expiration-cache>300</expiration-cache>
 <supports>
 <mime-type>text/html</mime-type>
 <portlet-mode>edit</portlet-mode>
 </supports>
 <supported-locale>en-US</supported-locale>
 <resource-bundle>portlet.resource.Portlet1Bundle</resource-bundle>
 <portlet-info>
 <title>This Is My Portlet</title>
 <short-title>My Portlet</short-title>
 <keywords/>
 </portlet-info>
 <portlet-preferences>
 <preference>
 <name>portletTitle</name>
 </preference>
 </portlet-preferences>
 </portlet>
 <custom-portlet-mode>
 <portlet-mode>about</portlet-mode>
 </custom-portlet-mode>
 <custom-portlet-mode>
 <portlet-mode>config</portlet-mode>
 </custom-portlet-mode>
 <custom-portlet-mode>
 <portlet-mode>edit_defaults</portlet-mode>
 </custom-portlet-mode>
 <custom-portlet-mode>
 <portlet-mode>preview</portlet-mode>
 </custom-portlet-mode>
 <custom-portlet-mode>
 <portlet-mode>print</portlet-mode>
 </custom-portlet-mode>
</portlet-app>
```

How to Edit the Portlet Deployment Descriptor File

The portlet deployment descriptor file for the application, `portlet.xml`, specifies the portlet resources in the application. After you have created your JSR 286 portlet using the wizard, you can edit the `portlet.xml` file to edit the portlet resources.

When you open the `portlet.xml` file in JDeveloper, you can edit the source code or you can use the Overview Editor to edit portlet resources without having to manually modify it in the Source view.

To edit the portlet deployment descriptor file:

1. In the Application Navigator, open the portlet producer application.
2. Expand the portlet project (for example, **Portlets**).
3. Expand the **Web Content** node and then the **WEB-INF** node.
4. Right-click **portlet.xml** and choose **Open**.
5. Click the **Design** tab to open the Overview Editor for `portlet.xml`.

   Tip:

   If you prefer to edit the source code directly, click the **Source** tab.

6. The Overview Editor for `portlet.xml` contains the following tabs:
   - **Application**—Use to specify general information for the portlet producer application. These properties apply to all portlets within the application.
   - **Portlets**—Use to specify information for individual portlets within the application. For example, you can specify the portlet events and public render parameters supported by a portlet.
   - **Events**—Use to create and manage portlet events for use by all portlets in the application. For more information, see How to Use Portlet Events in JSR 286 Portlets.
   - **Parameters**—Use to create and manage public render parameters for use by all portlets in the application. For more information, see How to Use Public Render Parameters in JSR 286 Portlets.
   - **Filters**—Use to specify filter information for the portlets in the application. For more information, see How to Use Portlet Filters in JSR 286 Portlets.
   - **Filter Mappings**—Use to assign portlet filters to individual portlets. For more information, see How to Use Portlet Filters in JSR 286 Portlets.

Portlet Modes for JSR 286 Portlets

The standard modes supported by JSR 286 are:

- View
- Edit
- Help

WebCenter Portal supports the following additional custom modes for JSR 286 portlets:

- About
- Config
- Edit Defaults
- Preview
- Print

How to Add Custom Portlet Modes to JSR 286 Portlets

In the Create JSR 286 Java Portlet wizard, you add portlet modes by adding them to a list on the Content Types and Portlet Modes page. For more information about using the wizard, see Creating a JSR 286 Java Portlet.The wizard enables you to implement the standard modes supported by JSR 286 and the extended modes provided by WebCenter Portal.

After the initial creation of the portlet, you can also define your own custom portlet modes.

The principles of implementing portlet modes are the same for all modes.

To add a custom portlet mode:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. Click the **Application** tab, if necessary.
3. Expand the Custom Modes section, if necessary.

   This section lists all the custom modes available to the portlets within the application. It includes the WebCenter Portal extended portlet modes.
4. Click the **Add Custom Mode** icon to create a new row for the portlet mode.
5. In the **Portlet Mode** field, enter the name of the portlet mode.

   The name must be unique within the application.
6. In the **Description** field, enter a brief description to explain the purpose of the mode.
7. Deselect the **Portal Managed** check box if applications that consume the portlet do not need to be aware of the portlet mode, that is, the mode is used internally by the portlet.
8. Save the `portlet.xml` file.
9. After adding the custom portlet mode to the application, you must then create the code for the mode in the portlet implementation file.

How to Access User Information in JSR 286 Portlets

You can create user attributes in the portlet producer application to access commonly used user information, such as `user.login.id` or `user.name.family`. At runtime, these user attributes are mapped to the actual attributes of the current user. Portlets can use this information to obtain information about the current user.

To access user information:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. Click the **Application** tab, if necessary.
3. Expand the User Attributes section, if necessary.
4. Click the **Add User Attribute** icon to create a new row for the attribute.
5. In the **Name** field, enter the name of the user attribute, for example `user.login.id`.

   For a list of attribute names, see User Information Attribute Names appendix in the Java Portlet Specification.

   > **Tip:**
   >
   > For a list of the user information attributes supported by WebCenter Portal, see Mapping User Attributes to LDAP Directories in *Securing Applications with Oracle Platform Security Services*.
6. In the **Description** field, enter a description for the user attribute.
7. Save the `portlet.xml` file.

   At runtime, the portlet container maps the defined user attributes to the appropriate values. For example, if the current user is John Doe, then the `user.name.family` user attribute is mapped to Doe. Portlets can obtain a `Map` object containing the user attributes from the `PortletRequest` interface.

How to Customize the Runtime Environment for JSR 286 Portlets

When a portlet is run, the portlet container provides the runtime environment and provides an interface between the portlet producer application and the portlet.

Container runtime options provide a way to customize the behavior of the portlet container and therefore customize the runtime environment.

This section includes the following topics:

- Supported Container Runtime Options
- Setting Container Runtime Options for All Portlets in an Application
- Setting Container Runtime Options for Individual Portlets

Supported Container Runtime Options

Table 13-1 lists the container runtime options supported by the WebCenter Portal portlet container.

For more information about the JSR 286 container runtime options, see the JSR 286 specification at:

`http://jcp.org/en/jsr/detail?id=286`

Table 13-1 Supported Container Runtime Options

Container Runtime Option	Supported by	JSR 286 Standard
javax.portlet.actionScopedRequestAttributes	Application Portlet	Yes
javax.portlet.escapeXml	Application Portlet	Yes
java.portlet.renderHeaders	Not supported	Yes
javax.portlet.servletDefaultSessionScopejavax.portlet.servletDefaultSessionScope	Application Portlet	Yes
com.oracle.portlet.allowEventPayloadsWithoutJAXBBinding	Application	No
com.oracle.portlet.allowWsrpExport	Application	No
com.oracle.portlet.compatibilityMode	Application Portlet	No
com.oracle.portlet.defaultProxiedResourceRequiresWsrpRewrite	Application Portlet	No
com.oracle.portlet.defaultServedResourceRequiresWsrpRewrite	Application Portlet	No
com.oracle.portlet.disallowResourceServing	Application Portlet	No
com.oracle.portlet.escapeXmlEncodeUrls	Application Portlet	No
com.oracle.portlet.eventPayloadsXmlType	Application	No
com.oracle.portlet.excludedActionScopeRequestAttributes	Application Portlet	No
com.oracle.portlet.externalScopeRequestAttributes	Application Portlet	No
com.oracle.portlet.importCssToIFrame	Application Portlet	No
com.oracle.portlet.minimumWsrpVersion	Application Portlet	No
com.oracle.portlet.offerPortletOverWsrp	Application Portlet	No
com.oracle.portlet.portalInfoProvider	Application Portlet	No
com.oracle.portlet.redirectAfterAction	Application Portlet	No
com.oracle.portlet.renderHeaders	Application Portlet	No

Table 13-1 (Cont.) Supported Container Runtime Options

Container Runtime Option	Supported by	JSR 286 Standard
com.oracle.portlet.requireIFrame	Application Portlet	No
com.oracle.portlet.streamingOptimized	Application Portlet	No
com.oracle.portlet.suppressWsrpOptimisticRender	Application Portlet	No
com.oracle.portlet.trapWsrpRenderExceptions	Application Portlet	No
com.oracle.portlet.trimEncodeUrls	Application Portlet	No
com.oracle.portlet.useWsrpUserContextForUserAuthentication	Application	No
com.oracle.portlet.wsrpHeaderMode	Application Portlet	No
com.oracle.portlet.wsrpLegacyPortletHandle	Portlet	No
com.oracle.portlet.wsrpPortletHandle	Portlet	No
oracle.portlet.bridge.adf.raiseUndeclaredContextualEvents	Portlet	No

javax.portlet.actionScopedRequestAttributes

Specifies whether to store action-scoped request attributes so that they are available to portlets until a new action occurs.

You can use the WebCenter Portal-specific `excludedActionScopeRequestAttributes` container runtime option to limit which request attributes are stored in the scopes.

Valid values:

- `true`—store request attributes starting at `processAction` until the next `processAction`. You can specify a second value of `numberOfCachedScopes` and a third value indicating the number of scopes to be cached by the portlet container.
- `false`—do not store request attributes.

javax.portlet.escapeXml

Specifies whether to XML encode URLs returned from `actionUrl`, `renderUrl`, and `resourceUrl` JSR 286 tag library tags.

You can override this option on a per-tag basis using the `encodeXml` attribute.

Valid values:

- `true`—(default) the URLs returned by the `actionUrl`, `renderUrl`, and `resourceUrl` tags are XML encoded (using ampersand entities for parameter separation).
- `false`—the URLs returned by the actionUrl, renderUrl, and resourceUrl tabs are not XML encoded (and use just ampersand characters).

> **Note:**
>
> This option does not have any effect on the return value of `PortletURL.toString()` or `ResourceURL.toString()`. In both these cases, for JSR 286, the output uses only ampersand characters. To use ampersand entities or to be able to specify the XML encoding to use when generating URLs not using the tag libraries, see the `BaseURL.write()` methods.

javax.portlet.servletDefaultSessionScope

Specifies the scope of the session object provided to servlets or JSPs that are included or forwarded from a Java portlet.

Valid values:

- `APPLICATION_SCOPE`—(default) map the portlet session with application scope.
- `PORTLET_SCOPE`—map the portlet session with portlet scope.

com.oracle.portlet.allowEventPayloadsWithoutJAXBBinding

Allows event payload types declared in `portlet.xml` and event payloads sent from JSR 286 portlets to bypass the JSR 286 spec requirement that these types have a valid JAXB binding.

Valid values:

- `true`—event payloads without valid JAXB bindings are allowed.
- `false`—event payloads without valid JAXB bindings are not allowed, per the JSR 286 specification.

com.oracle.portlet.allowWsrpExport

Specifies whether the WSRP export-portlets operation should be supported for the web application.

This option is used mainly for backward-compatibility; it is preferred to control the export-portlets operation through the `wsrp-producer-config.xml` setting.

Valid values:

- `true`—(default) export-portlets is allowed.
- `false`—export-portlets is not allowed. This overrides the setting in `WEB-INF/wsrp-producer-config.xml`.

com.oracle.portlet.compatibilityMode

Set to `owc168` to invoke the WebCenter Portal JSR 286 container JSR 168 compatibility mode.

This also automatically sets the `disallowResourceServing` runtime option to `true` if no other value for that option is specified.

com.oracle.portlet.defaultProxiedResourceRequiresWsrpRewrite

Specifies the default WSRP `requiresRewrite` flag to use when encoding URLs for resources not served by the portlet. This setting is used for all URLs returned by the `PortletResponse.encodeURL()` method, unless overridden by the presence of the `oracle.portlet.server.resourceRequiresRewriting` request attribute when the `PortletResponse.encodeURL()` method is called.

Valid values:

- `true`—(default) the `requiresRewrite` flag is set to `true`, indicating that the resource should be rewritten by the consumer.
- `false`—the `requiresRewrite` flag is set to `false`, indicating that the resource does not necessarily need to be rewritten by the consumer.

com.oracle.portlet.defaultServedResourceRequiresWsrpRewrite

Specifies the default WSRP `requiresRewrite` flag to use when generating resource URLs for portlet-served resources.

This setting is used for all resource URLs created by the portlet, unless overridden by the presence of the `resourceRequiresRewriting` request attribute when the resource URL methods `write()` or `toString()` are called. This setting is also used to specify the WSRP `requiresRewriting` flag on the served resource response, but can be overridden by the presence of the `resourceRequiresRewriting` request attribute when the portlet's `serveResource()` method returns.

Valid values:

- `true`—the `requiresRewrite` URL flag and `requiresRewriting` response flag are set to `true`, indicating that the resource should be rewritten by the consumer
- `false`—the `requiresRewrite` URL flag and `requiresRewriting` response flag are set to `false`, indicating that the resource does not necessarily need to be written by the consumer, although the consumer may choose to rewrite the URL.

If unspecified, the `requiresRewrite` URL flag is not given a value, and the `requiresRewriting` response flag for a `serveResource` operation is based on the MIME type of the response.

com.oracle.portlet.disallowResourceServing

Specifies whether portlets are allowed to serve resources. This is useful if JSR 168 portlets are run in the 286 container, as any JSR 168 portlet extending `javax.portlet.GenericPortlet` automatically inherits the JSR 286 functionality, which automatically forwards resource requests to a file in the web application named after the resource ID, creating a potential security problem. For the same security reason, JSR 286 portlets that do not serve resources are safest to disallow resource serving.

Valid values:

- `true`—portlets are not allowed to serve resources.
- `false`—portlets are allowed to serve resources.

com.oracle.portlet.escapeXmlEncodeUrls

Specifies whether the JSR 286 container should XML-encode URLs generated from the `PortletResponse.encodeURL()` method.

Valid values:

- `true`—URLs generated by the `PortletResponse.encodeURL()` method are XML-encoded.
- `false`—(default) URLs generated by `PortletResponse.encodeURL()` are not XML-encoded.

com.oracle.portlet.eventPayloadsXmlType

Specifies optional XML schema types for JAXB-bindable Java object event payloads if events are sent over WSRP. This is a multi-valued runtime option; each value consists of a Java class name and QName pair, separated by a colon (`:`). The QName should use the standard Java String representation of a QName (`{`*`namespace`*`}`*`localpart`*). For each value specified, the QName is used as the XML schema type to annotate WSRP event payloads of the specified Java object type after the object has been marshalled to XML. This may be useful when using events to communicate across portlets on multiple producers.

com.oracle.portlet.excludedActionScopeRequestAttributes

This is a multi-valued property with each value being a regular expression. Request attributes which match any of the regular expressions are not stored as action-scoped request attributes if the `javax.portlet.actionScopedRequestAttributes` container runtime option is used, in addition to any request parameters whose values match the regular expressions defined in the `com.oracle.portlet.externalScopeRequestAttributes` container runtime option.

com.oracle.portlet.externalScopeRequestAttributes

This is a multi-valued property with each value being a regular expression. Request attributes which match any of the regular expressions are considered outside of portlet scope, and are shared with the underlying portal request.

If the `javax.portlet.actionScopedRequestAttributes` option is used, any request attributes matching the regular expressions declared in `externalScopeRequestAttributes` are not stored in the action scope request attributes.

com.oracle.portlet.importCssToIFrame

Specifies to a portal consumer whether the CSS file should be imported to an IFRAME portlet.

Valid values:

- `false`—(default) nothing is done.
- `true`—the CSS file from the consumer is applied to an IFRAME portlet.

com.oracle.portlet.minimumWsrpVersion

Specifies minimum required WSRP version for the portlet to work. If the WSRP version being used is less than the value specified, the portlet will not be included in a WSRP `GetServiceDescription`, `GetPortletDescription`, `GetMarkup` and other WSRP responses.

Valid values:

- `1`
- `2`

com.oracle.portlet.offerPortletOverWsrp

Specifies whether the portlet is offered in the WSRP producer's service description.

Any `offerRemote` setting in a `.portlet` file referencing the JSR 168/286 portlet overrides this container runtime option.

Valid values:

- `true`—(default) the portlet is offered in the WSRP producer's service description.
- `false`—the portlet is not included in the service description.

If not specified at all, the default value specified in the `WEB-INF/producer-config.xml` is used.

com.oracle.portlet.portalInfoProvider

Specifies the class name of an optional implementation of `com.bea.portlet.container.IPortalInfo` interface. This implementation defines the value returned by the JSR 286 container's `request.getPortalContext().getPortalInfo()`. The default implementation returns the producer/local server name and version, but a custom implementation could pass both the consumer server information and the producer server information in a WSRP scenario.

com.oracle.portlet.redirectAfterAction

Causes the JSR 286 container to send a redirect to the browser to the portlet's render URL after a `processAction` is run (and after events are handled) so that reloading the resulting page will not result in another `processAction`.

Valid values:

- `true`—a redirect is issued after every portlet action.
- `false`—no redirect is not automatically issued after portlet actions.

com.oracle.portlet.requireIFrame

Specifies whether the portlet must be rendered inside an IFRAME.

Valid values:

- `true`—renders the portlet inside an IFRAME.
- `false`—does not force the portlet to be rendered inside an IFRAME.

com.oracle.portlet.streamingOptimized

Indicates the portlet is optimized to run in streaming mode, which may enhance performance.

Valid values:

- `true`—the portlet is optimized to run in streaming mode.
- `false`—the portlet is not optimized to run in streaming mode.

com.oracle.portlet.suppressWsrpOptimisticRender

Suppresses the optimistic render of a portlet after the action and/or event lifecycles if the portlet is being run over WSRP.

Valid values:

- `true`—optimistic render is always suppressed.
- `false`—optimistic render may be performed.

com.oracle.portlet.trapWsrpRenderExceptions

Specifies whether the JSR 286 container should send exceptions during render as WSRP SOAP faults, or render an exception message for the portlet markup instead.

Valid values:

- `true`—exceptions are not sent as SOAP faults but instead as rendered exception stack traces.
- `false`—(default) exceptions generated by the portlet during render are treated as SOAP faults.

com.oracle.portlet.trimEncodeUrls

Specifies whether the JSR 286 container should trim whitespace from URLs passed to the `PortletResponse.encodeURL()` method.

Valid values:

- `true`—(default) leading and trailing whitespace is trimmed from the URL passed into `PortletResponse.encodeURL()`.
- `false`—whitespace is not trimmed from the URL passed into `PortletResponse.encodeURL()`.

com.oracle.portlet.useWsrpUserContextForUserAuthentication

Specifies whether the PortletRequest methods `getRemoteUser()`, `getUserPrincipal()` and `isUserInRole()` are based on the WSRP user context information or on standard J2EE security.

Valid values:

- `true`—the user information is based on the WSRP user context, if the portlet is run over WSRP. This can be a security problem so use this option with care.
- `false`—(or the portlet is not being run over WSRP) the user information is based on the J2EE authenticated user.

com.oracle.portlet.wsrpHeaderMode

Used only when portlets are being rendered as WSRP remote portlets, to indicate where cookies and headers should be put in the WSRP SOAP response as a hint to the WSRP consumer for the header or cookie's intended final destination.

When portlets are run locally (not over WSRP), headers and cookies set by portlets are always assumed to go to the client. Setting this container runtime option sets a default value for the `PortletRequest` attribute `com.oracle.portlet.wsrpHeaderMode`, which can still be overridden by the portlet at runtime on a per-header basis.

Valid values:

- `client`—headers and cookies set by the portlet are directed to go to the client (for example, the browser).
- `consumer`—headers and cookies set by the portlet are directed to go to the consumer and not passed on to the client.
- `both`—headers and cookies set by the portlet are directed to go to the client and the consumer.

If not set, the portlet container assumes the default value for the producer as specified in the `WEB-INF/wsrp-producer-config.xml` file.

com.oracle.portlet.wsrpLegacyPortletHandle

Allows the specification of a legacy WSRP portlet handle to be used for the portlet, which must be unique within the web application. This is useful for backward-compatibility with WebCenter Portal consumers that use the legacy, portlet-position-based WSRP portlet handles.

If specified, the legacy portlet handle is published in the WSRP serviceDescription as a legacy-handle extension on the portlet, and consumers are able to access the portlet using the legacy portlet handle, although the portlet will not be published in the WSRP serviceDescription under the legacy portlet handle.

com.oracle.portlet.wsrpPortletHandle

Allows the specification of the WSRP portlet handle to be used for the portlet, which must be unique within the web application.

oracle.portlet.bridge.adf.raiseUndeclaredContextualEvents

Allows the Oracle JSF Portlet Bridge to raise ADFm events that do not have corresponding portlet events declared in the `portlet.xml` file.

Valid values:

- `true`—any ADFm event raised is forwarded on as a portlet event.
- `false`—only events with corresponding portlet event declarations are forwarded.

Setting Container Runtime Options for All Portlets in an Application

Setting container runtime options at the application level affects all the portlets in the application.

To set application-level container runtime options:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. Click the **Application** tab, if necessary.
3. Expand the Container Runtime Options section, if necessary.
4. Click the **Add Container Runtime Option** icon to display a list of available options.

   The list includes all container runtime options supported by the WebCenter Portal portlet container, which are listed in Table 13-1.

   If you are using a different portlet container that supports additional container runtime options that are not listed, select **Customize** and enter the name of the option in the **Name** field.

   If you specify a container runtime option that is not supported by the portlet container, it is ignored.
5. In the **Value** field, enter a value for the container runtime option.

   The container runtime option is added to the `portlet.xml` code, as shown below.

   ```
   <container-runtime-option>
    <name>com.oracle.portlet.requireIFrame</name>
    <value>true</value>
   </containter-runtime-option>
   ```
6. Save the `portlet.xml` file.

Setting Container Runtime Options for Individual Portlets

You can set container runtime options at the individual portlet level to override the application-wide settings.

To set portlet-level container runtime options:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. Click the **Portlets** tab, if necessary.

3. Click the **Advanced** tab.
4. Click the **Add Container Runtime Option** icon to display a list of available options.

   The list includes all container runtime options supported by the WebCenter Portal portlet container, which are listed in Table 13-1.

   If you are using a different portlet container that supports additional container runtime options that are not listed, select **Customize** and enter the name of the option in the **Name** field.

   If you specify a container runtime option that is not supported by the portlet container, it is ignored.
5. In the **Value** field, enter a value for the container runtime option.

   The container runtime option is added to the `portlet.xml` code, as shown below.

   ```
   <container-runtime-option>
    <name>com.oracle.portlet.requireIFrame</name>
    <value>false</value>
   </containter-runtime-option>
   ```
6. Save the `portlet.xml` file.

How to Use Public Render Parameters in JSR 286 Portlets

This section includes the following topics:

- About Public Render Parameters
- Declaring a Public Render Parameter at the Application Level
- Defining a Public Render Parameter for a Portlet
- Using Public Render Parameters: An Example

About Public Render Parameters

Public render parameters enable portlets to share parameter values, allowing a form of interportlet communication.

For example, if a Map portlet and a Weather portlet are both configured to use a Zipcode public render parameter, entering a zip code in the Map portlet updates the same parameter value in the Weather portlet.

Any public render parameters supported by a portlet must be declared in the application section of the portlet deployment descriptor file (`portlet.xml`). Public render parameters defined at the application level in this way are available to all the portlets in the application.

Individual portlets within the application can then specify which of these public render parameters they want to use.

If you declare and define public render parameters as described below, interportlet communication happens automatically, without any further coding required on your part.

For more information about public render parameters and how to implement them, see the JSR 286 specification at:

http://jcp.org/en/jsr/detail?id=286

Declaring a Public Render Parameter at the Application Level

For a public render parameter to be available to a portlet, it must first be declared in the application section of the portlet deployment descriptor file (`portlet.xml`).

To define a public render parameter at the application level:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. Click the **Parameters** tab.
3. Click the **Add** icon to create a new public render parameter.
4. From the drop-down list, select whether you are specifying a fully qualified name (QName) for the parameter, or just the local part of the name.
   - **Qualified Name**—A *QName* uniquely identifies the public render parameter across applications by specifying a namespace for the parameter as well as a local name. Within the portlet code, a public render parameter is accessed by its identifier, which identifies the parameter uniquely within the application. However, a page typically contains multiple portlets which may come from different applications. Using QNames ensures that public render parameters from one portlet do not unintentionally interfere with the other portlets on a page regardless of where those portlets come from.
   - **Unqualified Name**—If the namespace for the parameter is the same as the application default namespace, you can omit the namespace when defining the parameter by specifying an unqualified name. If the application default namespace has not been defined, a parameter with an unqualified name uses the XML default namespace.

   Tip:

   To check whether an application default namespace has been defined, click the **Application** tab and see if a value has been entered in the **Default Namespace** field.
5. Enter a name for the parameter.
   - If you selected **Qualified Name**—in the **Namespace** field, enter the namespace for the parameter and in the **Name** field, enter the local part of the parameter name.
   - If you selected **Unqualified Name**—in the **Name** field, enter the local part of the parameter name. The parameter uses the application default namespace as the namespace for the parameter (or the XML default namespace if no default namespace is defined for the application).
6. In the **Identifier** field, enter a name to identify the public render parameter within the application.

   The identifier must be unique within the application and is used to identify the parameters used by a portlet and in the portlet code to access the parameter. Using the identifier means that portlet developers do not need to be aware of the parameter's fully qualified name; they simply need to know the simpler application-specific identifier.

7. In the **Description** field, enter a description for the public render parameter. The description should provide enough information so that portlet developers can determine how to use this parameter in their portlets.
8. (Optional) In the Aliases panel, you can provide a list of aliases so that the parameter can accept values from other public render parameters even if they have different QNames.
   a. Click the **Create** icon to create a new alias for the parameter.
   b. In the **Namespace** field, enter the namespace of the parameter to use for the alias.
   c. In the **Name** field, enter the local part of the parameter to use for the alias.

   Tip:

   When creating aliases for public render parameters, it is a good idea to set up reciprocal aliases. So if a parameter in portlet A has an alias to a parameter in portlet B, you should also, if possible, create an alias for the parameter in portlet B to the parameter in portlet A.

9. The public render parameter is added to the application definition section of the `portlet.xml` file, as shown below.

```
<public-render-parameter>
 <description>Parameter for zip code</description>
 <identifier>Zip</identifier>
 <qname xmlns:x="http://example.com/params">x:Zip</qname>
 <alias xmlns:x="http://example.com/params">x:ZipCode</alias>
</public-render-parameter>
```

10. Save the `portlet.xml` file.

Defining a Public Render Parameter for a Portlet

If you want a portlet to support a public render parameter, add it to the portlet.

To add a public render parameter to a portlet:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. If the public render parameter has not yet been defined within the Portlet Producer application, you must do this first.

   For more information, see Declaring a Public Render Parameter at the Application Level.
3. Click the **Portlets** tab and select the portlet in which you want to use the public render parameter.
4. Click the **Parameters** tab.

   In the Publishing Events panel, the **Available** list shows all the portlet events that have been defined for the application.

5. Click the **Parameters** tab.

   In the Public Render Parameters panel, the **Available** list shows all the public render parameters that have been defined for the application.

6. Select the public render parameter that you want to use in the portlet and click the **Add** icon to move it to the **Selected** list.

   This adds the public render parameter to the portlet definition in `portlet.xml`, as shown below.

   ```
   <supported-public-render-parameter>Zip</supported-public-render-parameter>
   ```

7. Save the `portlet.xml` file.

8. You can now use this public render parameter in the code for your portlet.

Using Public Render Parameters: An Example

The following example shows how to use public parameters to link the behavior of two portlets using parameters with different names. In the example, we take a generic Parameter Form portlet that allows us to update public render parameters, and show how that can be linked to a Stock Price portlet that renders stock prices, taking the stock symbol from a public render parameter. The generic name of the parameter from the Parameter Form portlet (`parameter1`) does not match the name of the parameter in the Stock Price portlet (`stocksymbol`), so the developer of the Stock Price portlet uses an alias to provide a link between the two parameters.

The example below shows an excerpt from the `portlet.xml` file for the portlet producer application that contains the Parameter Form portlet. The portlet producer application defines a public render parameter (`parameter1`) that is supported by the Parameter Form portlet.

```
<portlet-app ...>
 <portlet id="1234567890">
 ...
 <supported-public-render-parameter>
 parameter1
 </supported-public-render-parameter>
 ...
 </portlet>
 ...
 <public-render-parameter>
 <description xml:lang="en">First parameter set by portlet</description>
 <identifier>parameter1</identifier>
 <qname xmlns:op="http://xmlns.oracle.com/portlet/oracle-portlet-app">
 op:parameter1
 </qname>
 </public-render-parameter>
 ...
</portlet-app>
```

The code for the Parameter Form portlet sets the value of the `parameter1` portlet when a value is entered in the portlet:

```
public void processAction(ActionRequest request,
 ActionResponse actionResponse)
 throws PortletException, IOException
{
 //
//Read the new parameter value posted in the portlet form
```

```
 //
String param1 =actionResponse.getParameter("form_param1");

 //
//Set the new parameter values. These will be intepreted by the
 //container as public render parameters as the names match the names
 //of the declared parameters.
 //
actionResponse.setRenderParameter("parameter1", param1);
}
```

The following example shows an excerpt from the `portlet.xml` file for the portlet producer application that contains the Stock Price portlet. This portlet producer application also defines a public render parameter (`stocksymbol`) that is supported by the Stock Price portlet. For the `stocksymbol` parameter to link to the Parameter Form portlet's parameter, an alias for `parameter1` is added.

```
<portlet-app ...>
 <portlet>
 ...
 <supported-public-render-parameter>
 stocksymbol
 </supported-public-render-parameter>
 ...
 </portlet>
 ...
 <public-render-parameter>
 <description xml:lang="en">The stock symbol</description>
 <identifier>stocksymbol</identifier>
 <qname xmlns:s="http://www.oracle.com/stocks">s:stocksymbol</qname>
 <!-- Alias matches the Parameter Form portlet's first parameter name -->
 <alias xmlns:op="http://xmlns.oracle.com/portlet/oracle-portlet-app">
 op:parameter1
 </alias>
 </public-render-parameter>
 ...
</portlet-app>
```

The code for the Stock Price portlet reads the value of the public render parameter posted by the Parameter Form portlet:

```
public void doView(RenderRequest request, RenderResponse response)
 throws PortletException, IOException
{
 response.setContentType("text/html; charset=UTF-8");
 PrintWriter out =response.getWriter();

//Retrieve any values for the public render parameter.
 //The parameter is looked up in the request using its identifier in portlet.xml
 //(not it's name or alias).
 String symbol =request.getParameter("stocksymbol");
 ...
}
```

When these two portlets are dropped onto the same page, they are automatically linked together. Entering a value in the first parameter field of the Parameter Form portlet causes the Stock Price portlet to be updated with the new value.

How to Use Portlet Events in JSR 286 Portlets

This section includes the following topics:

- About Portlet Events
- Declaring a Portlet Event at the Application Level
- Defining a Processing Event for a Portlet
- Defining a Publishing Event for a Portlet
- Using Portlet Events: An Example

About Portlet Events

Portlet events are a JSR 286 feature that enables interportlet communication by providing portlets with the ability to respond to actions that occur outside of the portlet itself, for example an action performed on the page that contains the portlet or on another portlet on the same page. Portlet events can be cascaded so that a portlet may respond to an event by triggering an event of its own, which in turn affects other portlets on the page.

Any portlet events supported by a portlet must be declared in the application section of the portlet deployment descriptor (`portlet.xml`). Portlet events defined at the application level in this way are available to all the portlets in the application.

Individual portlets within the application can then specify which of these portlet events they want to use. Portlets can declare events that they are interested in receiving, called *processing events*, and events that they trigger, called *publishing events*.

If you declare and define portlet events as described below, interportlet communication happens automatically, without any further coding required on your part.

For more information about portlet events and how to implement them, see the JSR 286 specification at:

`http://jcp.org/en/jsr/detail?id=286`

Declaring a Portlet Event at the Application Level

For a portlet event to be available to a portlet, it must first be declared in the application section of the portlet deployment descriptor file (`portlet.xml`).

To define a portlet event at the application level:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. Click the **Events** tab.
3. Click the **Add** icon to create a new portlet event.
4. From the drop-down list, select whether you are specifying a fully qualified name (QName) for the portlet event, or just the local part of the name.
   - **Qualified Name**—A *QName* uniquely identifies the portlet event across applications by specifying a namespace for the event as well as a local name. A page typically contains multiple portlets which may come from different

applications. Using QNames ensures that portlet events from one portlet do not unintentionally interfere with the other portlets on a page regardless of where those portlets come from.

- **Unqualified Name**—If the namespace for the portlet event is the same as the application default namespace, you can omit the namespace when defining the event by specifying an unqualified name. If the application default namespace has not been defined, a portlet event with an unqualified name uses the XML default namespace.

> **Tip:**
>
> To check whether an application default namespace has been defined, click the **Application** tab and see if a value has been entered in the **Default Namespace** field.

5. Enter a name for the portlet event.
   - If you selected **Qualified Name**—In the **Namespace** field, enter the namespace for the portlet event and in the **Name** field, enter the local part of the event name.
   - If you selected **Unqualified Name**—In the **Name** field, enter the local part of the portlet event name. The event uses the application default namespace as the namespace for the event (or the XML default namespace if no default namespace is defined for the application).
6. In the **Payload Type** field, enter or browse for the data type of the payload provided by the portlet event.
7. In the **Description** field, enter a description for the portlet event.
8. (Optional) In the Aliases panel, you can provide a list of aliases so that a portlet event can be recognized by the portlet even if it has a different QName from the one defined by the portlet.
   a. Click the **Create** icon to create a new alias for the portlet event.
   b. In the **Namespace** field, enter the namespace of the portlet event to use for the alias.
   c. In the **Name** field, enter the local part of the portlet event to use for the alias.
9. The portlet event is added to the application definition section of the `portlet.xml` file, as shown below.

```
<event-definition id="latLong">
 <qname xmlns:x="http://xmlns.oracle.com/portlet/EventSample">
 x:latLong
 </qname>
 <value-type>portlet.LatLong</value-type>
</event-definition>
```

10. Save the `portlet.xml` file.

Defining a Processing Event for a Portlet

If you want a portlet to listen for a particular portlet event, define it as a processing event.

To add a processing event to a portlet:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. If the portlet event has not yet been defined within the Portlet Producer application, you must do this first.

   For more information, see Declaring a Portlet Event at the Application Level.
3. Click the **Portlets** tab and select the portlet in which you want to use the portlet event.
4. Click the **Events** tab.

   In the Processing Events panel, the **Available** list shows all the portlet events that have been defined for the application.
5. Select the portlet event that you want to use in the portlet and click the **Add** icon to move it to the **Selected** list.

   This adds the portlet event as a processing event to the portlet definition in `portlet.xml`, as shown below.

   ```
   <supported-processing-event id="latLong">
    <qname xmlns:x="http://xmlns.oracle.com/portlet/EventSample">
    x:latLong
    </qname>
   </supported-processing-event>
   ```
6. Save the `portlet.xml` file.

   You can now use this portlet event in the code for your portlet.

Defining a Publishing Event for a Portlet

If you want a portlet to trigger a particular portlet event, define it as a publishing event.

To add a publishing event to a portlet:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. If the portlet event has not yet been defined within the Portlet Producer application, you must do this first.

   For more information, see Defining a Publishing Event for a Portlet.
3. Click the **Portlets** tab and select the portlet in which you want to use the portlet event.
4. Click the **Events** tab.

   In the Publishing Events panel, the **Available** list shows all the portlet events that have been defined for the application.
5. Select the portlet event that you want to use in the portlet and click the **Add** icon to move it to the **Selected** list.

   This adds the portlet event as a publishing event to the portlet definition in `portlet.xml`, as shown below.

   ```
   <supported-publishing-event>
    <qname xmlns:x="http://xmlns.oracle.com/portlet/EventSample">
   ```

```
 x:latLong
 <qname>
</supported-publishing-event>
```

6. Save the `portlet.xml` file.

   You can now use this portlet event in the code for your portlet.

Using Portlet Events: An Example

The following example shows how to use portlet events to use the actions in one portlet to affect another portlet on the same page. In the example, we have a portlet, the Department Locations portlet, that lists the geographical locations of a company's various offices. The example shows how that portlet can be linked to another portlet, the Map portlet, which displays a Google map of the location selected in the Department Locations portlet.

The example below shows an excerpt from the `portlet.xml` file for the portlet producer application that contains the two portlets. The portlet producer application defines a portlet event (`latLong`) that is supported by the two portlets. The payload of the event is an object that encapsulates the latitude and longitude of a location.

```
<event-definition id="latLong">
 <qname xmlns:x="http://xmlns.oracle.com/portlet/EventSample">x:latLong</qname>
 <value-type>portlet.LatLong</value-type>
</event-definition>
```

The next example shows that the Department Locations portlet uses the `latLong` event as a publishing event. That is, it raises the event under particular circumstances.

```
<portlet id="locations">
 ...
 <supported-publishing-event>
 <qname xmlns:x="http://xmlns.oracle.com/portlet/EventSample">x:latLong<qname>
 </supported-publishing-event>
 ...
</portlet>
```

The Department Locations portlet raises the `latLong` event in its `processAction` method if a location is selected in the portlet (see example below). It also sets the payload of the event to the latitude and longitude of the selected location.

```
public void processAction(ActionRequest request, ActionResponse response)
 throws PortletException
 {
String locationId =request.getParameter("locationId");
 Location location =getLocation(Integer.parseInt(locationId));

 if (location != null)
 {
//QName matches the event declared as a supported-publishing-event in
 //portlet.xml for this portlet.

 //LatLong event used by the Map portlet.
 response.setEvent(new QName("http://xmlns.oracle.com/portlet/EventSample",
"latLong"),
 new LatLong(location.getLatitude(), location.getLongitude()));

 }
}
```

The example below shows another portlet, the Map portlet, that also uses the `latLong` event, but this time as a processing event. That is, it listens out for the event and takes a particular action if the event is raised elsewhere on the page.

```
<portlet id="map">
 ...
 <supported-processing-event id="latLong">
 <qname xmlns:x="http://xmlns.oracle.com/portlet/EventSample">x:latLong</qname>
 </supported-processing-event>
 ...
</portlet>
```

The `processEvent` method for the Map portlet receives the `latLong` event and uses the payload from that event to set the `LAT_LONG_PARAMETER` render parameter, which the portlet uses during rendering to determine the location to display in the Google map:

```
@Override
 public void processEvent(EventRequest request,
 EventResponse response)
 throws PortletException, IOException
 {
response.setRenderParameters(request);

Event event =request.getEvent();
 if (event.getName().equals("latLong"))
 {
response.setRenderParameter(LAT_LONG_PARAMETER, event.getValue().toString());
 }
}
```

Tip:

In this case, the events used by the Department Locations and Map portlets have the same name (`latLong`). If the Map portlet listens for an event using a different name (for example, `geolocation`), the two portlets could still be automatically linked by defining an alias for the `geolocation` event in the `portlet.xml` file as follows:

```
<event-definition id="geolocation"> <qname xmlns:x="http://
xmlns.oracle.com/portlet/Map">
 x:geolocation
 </qname> <alias xmlns:x="http://xmlns.oracle.com/portlet/EventSample">
 x:latLong
 </alias>
 <value-type>portlet.LatLong</value-type>
</event-definition>
```

Note, however, that the payload type of the two events must be the same for automatic linking to work.

Note:

For an event payload to be passed between portlets it must be possible to form an XML payload from event payload. For this to be possible one of the following must be true:

- The payload must have a JAXB binding, for example by adding the `XmlRootElement` annotation to the portlet class:

  ```
  package portlet;

  import java.io.Serializable;
  import javax.xml.bind.annotation.XmlRootElement;

  @XmlRootElement(namespace="http://xmlns.oracle.com/portlet/
  EventSample")
  public class LatLong implements Serializable
  {
   private final double _latitude;
   private final double _longitude;
  ...
  ```

- The `allowEventPayloadsWithoutJAXBBindings` container runtime option must be set to `true` in `portlet.xml`.

  For more information, see How to Customize the Runtime Environment for JSR 286 Portlets.

How to Add Portlet Preferences to JSR 286 Portlets

This section includes the following topics:

- About Portlet Preferences
- Adding a Portlet Preference to a JSR 286 Portlet
- Adding Simple Portlet Personalization: An Example

About Portlet Preferences

Portlet preferences enable end users to personalize or customize portlets at runtime. Personalizations are visible only to the user that performs them; not to other users. Customizations are visible to all users who have not personalized the portlet.

By default, when you create a JSR 286 portlet using the JDeveloper wizard, a portlet preference is created to enable users to change the title of the portlet at runtime. You can create additional portlet preferences, either during portlet creation or by editing the `portlet.xml` file after portlet creation, to enable end users to make other modifications to the portlet at runtime.

For information about how to add a portlet preference to the `portlet.xml` file after portlet creation, see Adding a Portlet Preference to a JSR 286 Portlet. For information about how to add a portlet preference during portlet creation, see Creating a JSR 286 Java Portlet.

Adding a Portlet Preference to a JSR 286 Portlet

To enable users to modify portlet behavior or content at runtime, you must create portlet preferences for those attributes of the portlet that you want users to be able to modify.

To add a portlet preference to a portlet:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. Click the **Portlets** tab and select the portlet for which you want to add the portlet preference.
3. Click the **Advanced** tab.

   The Preferences panel lists any existing portlet preferences that exist for the portlet, for example, the `portletTitle` preference.
4. Click the **Add** icon to create a new portlet preference.
5. In the **Name** field, enter a name for the preference.

   The name must be unique within the portlet.
6. In the **Value** field, enter one or more default values for the preference.

   Separate multiple entries with commas.
7. Select **Read-only** if you do not want users to be able to update the value of the preference.

   The portlet preference is added to the application definition section of the `portlet.xml` file, as shown below.

   ```
   <portlet-preference>
    <name>portletTitle</name>
   </portlet-preference>
   <portlet-preference>
    <name>myPreference</name>
    <value>7</value>
   </portlet-preference>
   ```
8. Save the `portlet.xml` file.

   You can now use this preference in your portlet code using the `getPreference` method.

   Tip:

   If you want the preference to be translatable, you must add the appropriate key-value pairs to the resource bundle class.

Adding Simple Portlet Personalization: An Example

The following example provides a simple illustration of how you can enable personalization in portlets.

To add simple personalization to a portlet:

1. In JDeveloper, create a Portlet Producer application, accepting the default values.
2. Create a JSR 286 portlet, accepting the default values.
3. In the Application Navigator, expand the **Portlets** project.
4. Right-click `portlet.xml` and choose **Open**.
5. Click the **Portlets** tab and select **portlet1**.
6. Click the **Advanced** tab.
7. Click the **Add** icon to create a new portlet preference.
8. In the **Name** field, enter `portletContent`.
9. In the Application Navigator, right-click `view.jsp` and choose **Open.**
10. In the visual editor, click the **Source** tab and add the code indicated in bold in the example below to display the `portletContent` portlet preference:

```
<%@ page contentType="text/html"
 import="javax.portlet.*,java.util.*,Portlets.Portlet1,
 Portlets.resource.Portlet1Bundle"%>
<%@ taglib uri="http://java.sun.com/portlet" prefix="portlet"%>

<portlet:defineObjects/>
<%
String[] str ={"Portlet Content"};
PortletPreferences prefs =renderRequest.getPreferences();
str =prefs.getValues("portletContent",str);
for (int i=0; i<str.length; i++)
{
%><%=(i<str.length-1)?str[i]+", ":str[i]%><%}%>
```

11. In the Application Navigator, right-click `edit.jsp` and choose **Open.**

    Notice that the JSP consists of a form field, a form input field, and two form button fields.

12. In the visual editor, click the **Source** tab and add the code indicated in bold in the example below to implement a form field for users to enter a value for the `portletContent` customization preference:

```
<%@ page contentType ="text/html; charset=windows-1252"
 pageEncoding ="windows-1252"
 import ="javax.portlet.*, java.util.*,
Portletenhance.Portletenhance,
Portletenhance.resource.PortletenhanceBundle"%>
@ <%@ taglib uri ="http://java.sun.com/portlet" prefix="portlet"%>
<portlet:defineObjects/>
<%
 PortletPreferences prefs =renderRequest.getPreferences();
 ResourceBundle res =
portletConfig.getResourceBundle(renderRequest.getLocale());
%>
<form action="<portlet:actionURL/>" method="POST">
 <table border="0">
 <tr>
 <td width="20%">
 <p class="portlet-form-field" align="right">
 <%= res.getString(PortletenhanceBundle.PORTLETCONTENT) %>
 </p>
 </td>
 <td width="80%">
 <input class="portlet-form-input-field"
 type="TEXT"
 name="<%= Portletenhance.PORTLETCONTENT_KEY %>"
 value="<%= Portletenhance.buildValue(prefs,
Portletenhance.PORTLETCONTENT_KEY) %>"
 size="20">
 </td>
 </tr>
 <tr>
 <td width="20%">
 <p class="portlet-form-field" align="right">
 <%= res.getString(PortletenhanceBundle.PORTLETTITLE) %>
 </p>
 </td>
 <td width="80%">
 <input class="portlet-form-input-field"
 type="TEXT"
 name="<%= Portletenhance.PORTLETTITLE_KEY %>"
 value="<%= prefs.getValue(Portletenhance.PORTLETTITLE_KEY,
res.getString("javax.portlet.title")) %>"
 size="20">
 </td>
 </tr>
 <%
 String[] str ={"Portlet Content"};
 str =prefs.getValues("portletContent",str);
%>
<tr><td width="20%">
<p class="portlet-form-field" align="right">
Content
</p>
</td><td width="80%">
<textarea rows="10" cols="60" class="portlet-form-input-field"
 name="portletContent"><%
for (int i=0; i<str.length; i++)
{%><%= (i<str.length-1) ? str[i]+", " : str[i] %><%}%>
</textarea>
</td></tr>
 <tr>
 <td colspan="2" align="center">
 <input class="portlet-form-button" type="submit"

name="<%=Portletenhance.OK_ACTION%>"

value="<%=res.getString(PortletenhanceBundle.OK_LABEL)%>">
 <input class="portlet-form-button" type="submit"

name="<%=Portletenhance.APPLY_ACTION%>"

value="<%=res.getString(PortletenhanceBundle.APPLY_LABEL)%>">
 </td>
 </tr>
 </table>
</form>
```

13. In the Application Navigator, right-click `Portlet1.java` and choose **Open.**
14. In the visual editor, click the **Source** tab and add the code in bold in the example below to the `processAction` method.

```
// Save the preferences.
PortletPreferences prefs =request.getPreferences();
```

```
String param =request.getParameter(PORTLETTITLE_KEY);
prefs.setValues(PORTLETTITLE_KEY, buildValueArray(param));
String contentParam =request.getParameter("portletContent");
if (contentParam != null)
{
 prefs.setValues("portletContent", buildValueArray(contentParam));
}
prefs.store();
```

When this portlet is available on a page, users can personalize it. The Edit mode of the portlet provides a **Portlet Content** field, where users can enter text. The text entered is then displayed as the content of the portlet.

How to Use Portlet Filters in JSR 286 Portlets

This section includes the following topics:

- About Portlet Filters
- Adding a Portlet Filter to an Application
- Applying a Portlet Filter to a Portlet

About Portlet Filters

Portlet filters are a JSR 286 feature that enables you to alter the content of a portlet at runtime. A *portlet filter* is a reusable Java component that can transform the content of portlet requests and portlet responses. Filters do not generally create a response or respond to a request as portlets do, rather they modify or adapt the requests and responses.

For more information about portlet filters and how to implement them, see the JSR 286 specification at:

`http://jcp.org/en/jsr/detail?id=286`

Adding a Portlet Filter to an Application

For a portlet to be able to use a portlet filter, the filter must first be defined within the application.

To add a portlet filter to an application:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. Click the **Filters** tab.
3. Click the **Add** icon to create a new portlet filter.
4. In the Create Portlet Filter dialog you can either create a new portlet filter, or select a previously created portlet filter:
   - To create a new portlet filter:
     a. Select **New Portlet Filter**.
     b. In the **Name** field, enter a name for the portlet filter.

        The name must be unique within the application and use only letters, numbers, and the underscore character.

c. In the **Package** field, enter or browse for the package to contain the new filter class.

d. Select one or more of the **Lifecycle Phase** check boxes to specify which of the `javax.portlet.filter` interfaces the filter class implements:

   Action—The filter class implements the `ActionFilter` interface

   Event—The filter class implements the `EventFilter` interface.

   Render—The filter class implements the `RenderFilter` interface.

   Resource—The filter class implements the `ResourceFilter` interface.

   Tip:

   When you create a new filter class using the Create Portlet Filter dialog, you can specify which of the filter interfaces the filter class implements. After the filter class has been created, you cannot add or remove filter interfaces through the Overview Editor. Instead, you must edit the source of the filter class directly to manually add or remove the interfaces and the `doFilter` methods defined for those interfaces.

- To select an existing portlet filter:

  a. Select **Choose from Existing Class**.

  b. Enter or browse for the filter class.

5. Click **OK**.
6. In the **Display Name** field, enter a more user-friendly name for the portlet filter.
7. In the **Description** field, enter a description for the portlet filter.
8. In the Initialization Parameters panel, you can specify initialization parameters that pass values to the `init()` method of the filter class.

   a. Click the **Add** icon to specify an initialization parameter for the portlet filter.

   b. In the **Name** field, enter the name of the initialization parameter.

   c. In the **Value** field, enter the value to pass to the initialization parameter.

   d. In the **Description** field, enter a description of the initialization parameter.

   The portlet filter is added to the application definition section of the `portlet.xml` file, as shown below.

```
<filter>
 <display-name>Test Filter</display-name>
 <filter-name>filter_1</filter-name>
 <filter-class>javaportlets.MyFilter</filter-class>
 <lifecycle>ACTION_PHASE</lifecycle>
 <lifecycle>RENDER_PHASE</lifecycle>
</filter>
```

9. Save the `portlet.xml` file.

Applying a Portlet Filter to a Portlet

After the portlet filter has been defined in the application, you can then apply it to one or more portlets within the application. You can also specify the order in which portlet filters are applied to portlets.

To apply a portlet filter to a portlet:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. Click the **Filter Mappings** tab.
3. Click the **Add** icon to add a row to the filter mappings table.
4. From the **Filter Name** drop-down list, select the portlet filter that you want to apply to the portlet.

   The drop-down list is populated with all the portlet filters that are defined in the `portlet.xml` file.
5. From the **Portlet Name** drop-down list, select the portlet to which you want to apply the portlet filter.

   The drop-down list is populated with all the portlets that are defined in the `portlet.xml` file.

   Alternatively, you can use wildcards to apply the portlet filter to more than one portlet. For example, you can enter `*`to apply the portlet filter to all the portlets in the application.

   The filter mapping is added to the application definition section of the `portlet.xml` file. The example below shows the `filter_1` portlet filter applied to the portlet named `Portlet1`.

   ```
   <filter-mapping>
    <filter-name>filter_1</filter-name>
    <portlet-name>Portlet1</portlet-name>
   </filter-mapping>
   ```
6. Use the **Top**, **Up**, **Down**, and **Bottom** icons to order the portlet filters in the `portlet.xml` file. The order of the portlet filters determines the order in which the filters are applied to the portlets.

   Note:

   Portlet filters can be mapped to multiple portlets. If you have multiple portlets mapped to (sharing) a filter, arbitrarily changing the filter order can produce undesired side effects. That is, if you change the order in which filters are applied in one portlet, the reordering will apply to all other portlets that share the filter.
7. Save the `portlet.xml` file.

How to Implement Interportlet Communication Across Different Pages

Generally, interportlet communication occurs between portlets that are displayed on the same page. However, it is possible to communicate between portlets on different pages, as shown in the following example.

To implement interportlet communication across different pages:

1. Create a custom data control and expose a method to capture the event that initiates the interportlet communication.

```
public void handleEvent(Object payload) {
    if(!(payload instanceof HashMap)){
            throw new IllegalArgumentException("Payload not a 
HashMap<String,String>.");
    }
        String p1 = "",p2 = "",p3 = "";
        HashMap map = (HashMap) payload;
        String[] pa1 = (String[])map.get("parameter1");
        String[] pa2 = (String[])map.get("parameter2");
        String[] pa3 = (String[])map.get("parameter3");
        if(pa1 != null)
            p1 = pa1[0];
        if(pa2 != null)
            p2 = pa2[0];
        if(pa3 != null)
            p3 = pa3[0];
        //Only forward when all 3 parameters have values
        if(!p1.equals("") && !p2.equals("") && !p3.equals("")){
            HashMap<String,String> paramMap = new HashMap<String,String>();
            paramMap.put("parameter1", p1);
            paramMap.put("parameter2", p2);
            paramMap.put("parameter3", p3);
            Map<String, Object> pageFlowScope = 
ADFContext.getCurrent().getPageFlowScope();
            pageFlowScope.put("paramMap", paramMap);
            //now the navigation
            FacesContext fctx = FacesContext.getCurrentInstance();
            Application application = fctx.getApplication();
            NavigationHandler navHandler = application.getNavigationHandler();
            navHandler.handleNavigation(fctx, null, "target");
        }
    }
```

2. Add this method to the page bindings and create an event from it.

```
<methodAction id="handleEvent" InstanceName="EventDataControl.dataProvider"
                  DataControl="EventDataControl" RequiresUpdateModel="true"
                  Action="invokeMethod" MethodName="handleEvent"
                  IsViewObjectMethod="false">
      <NamedData NDName="payload" NDType="java.lang.Object"/>
      <events xmlns="http://xmlns.oracle.com/adfm/contextualEvent">
        <event name="handleEvent"/>
      </events>
   </methodAction>
```

3. Wire the event to the portlet event. This ensures that the payload of the event triggered by the portlet is passed to the custom method.

```
<eventMap xmlns="http://xmlns.oracle.com/adfm/contextualEvent">
    <event name="ParameterFormPortlet1_1_Event">
```

```
          <producer region="*">
            <consumer region="" handler="handleEvent" handleCondition="">
              <parameters>
                <parameter name="payload" value="#{payLoad}"/>
              </parameters>
            </consumer>
          </producer>
        </event>
      </eventMap>
```

4. Create a `HashMap` to pass the payload to the `pageFlowScope` of the page that contains the second portlet.

```
HashMap<String,String> paramMap = new HashMap<String,String>();
 paramMap.put("parameter1", p1);
 paramMap.put("parameter2", p2);
 paramMap.put("parameter3", p3);
 Map<String, Object> pageFlowScope = ADFContext.getCurrent().getPageFlowScope();
 pageFlowScope.put("paramMap", paramMap);
```

5. Define a navigation rule in the `faces-config.xml` file to navigate to the target page.

```
FacesContext fctx = FacesContext.getCurrentInstance();
 Application application = fctx.getApplication();
 NavigationHandler navHandler = application.getNavigationHandler();
 navHandler.handleNavigation(fctx, null, "target");
```

6. Pass the parameters in the `pageFlowScope` to the target portlet using the `parameterMap` attribute.

```
<portlet id="ParameterDisplayPortlet1_1"
             portletInstance="/oracle/adf/portlet/PortletExample/ap/
Ei2default_354ce3c1_013d_1000_8002_c0a83801a490"
            class="oracle.adf.model.portlet.binding.PortletBinding"
             retainPortletHeader="false"
             listenForAutoDeliveredPortletEvents="true"
             listenForAutoDeliveredParameterChanges="true"
             xmlns="http://xmlns.oracle.com/portlet/bindings"
             parameterMap="#{pageFlowScope.paramMap}">
      <events>
        <event eventType="ParametersChange"
               name="ParameterDisplayPortlet1_1_Event"/>
      </events>
    </portlet>
```

Tip:

You can also create a single generic `eventHandler` and add it to the page template. By adding a method binding in the page template, this is available on all pages. By using a wildcard for the publisher, you can also make sure that it listens to all events with a specific name.

For more information and to download a sample application, see the blog entry at:

http://www.ateam-oracle.com/inter-portlet-communication-between-pages/

How to Enhance JSR 286 Portlet Performance with Caching

This section includes the following topics:

- About Portlet Caching
- Implementing Expiry-Based Caching in JSR 286 Portlets
- Implementing Validation-Based Caching in JSR 286 Portlets

About Portlet Caching

When you have completed the basic functionality of your portlet, you may want to turn your attention to portlet performance.

Caching is a common technique for enhancing the performance of web sites that include a great deal of dynamic content. JSR 286 portlets support expiry-based and validation-based caching.

For more information about caching, see Portlet Performance.

Implementing Expiry-Based Caching in JSR 286 Portlets

You can choose to implement expiry-based caching when you first create a portlet using the Create JSR 286 Portlet Wizard. However, during the initial development of a portlet, you may prefer to turn portlet caching off and implement it later in the development cycle when the portlet content becomes more stable. You may also want to edit the expiration period, or change the cache scope.

To implement expiry-based caching:

1. Open the Overview Editor for the `portlet.xml` file.

   For more information, see How to Edit the Portlet Deployment Descriptor File.
2. Click the **Portlets** tab and select the portlet for which you want to implement expiry-based caching.
3. Click the **Advanced** tab.
4. In the Cache Management panel, select **Cache Portlet**.

   > **Note:**
   >
   > To disable portlet caching, deselect **Cache Portlet**. This sets the cache expiration period to `0`, meaning that the cached content is always expired.

5. Select the **Cache Scope**:
   - Select **Public** to share the cached content across users
   - Select **Private** if the cached content should not be shared across users.
6. Specify the cache expiration period:
   - Select **Cache Content Never Expires** to set the cache expiration period to -1. This means that the cached content never expires and the content is always

retrieved from the cache. Use this option if you are confident that the portlet contains static content that is unlikely to change. Setting this option results in the following code being added to the `portlet.xml` file:

```
<expiration-cache>-1</expiration-cache>
```

- Select **Cache Content Expires After** to expire the cached portlet content after a specified number of seconds. Enter the expiration period (*n*), in seconds, in the adjacent field. Setting this option results in the following code being added to the `portlet.xml` file:

```
<expiration-cache>n</expiration-cache>
```

7. Save the `portlet.xml` file.

Implementing Validation-Based Caching in JSR 286 Portlets

Implementation of validation-based caching takes place after the initial portlet creation and requires hand coding.

The example below shows how a `GenericPortlet` would typically implement its `doView()` method such that the consumer caches the markup using validation-based caching. The example also shows how expiry-based caching can be defined programmatically (using the `CacheControl.setExpirationTime()` method) and used in conjunction with validation-based caching to further reduce the load on the producer. This would work equally well for `serveResource()`.

```
protected void doView (RenderRequest request, RenderResponse response)
 throws PortletException, IOException
{
CacheControl cacheControl =response.getCacheControl();
 String eTag =request.getETag();
 if (isMarkupStillValid(eTag))
{
//Wait 30 seconds before checking ETag again
 cacheControl.setExpirationTime(30);
//Tell consumer to use its cached content
 cacheControl.setUseCachedContent(true);
 return;
 }
//ETag not valid so set a new one ...
 //Define a new ETag
 cacheControl.setETag(generateETag(...));
 //Wait 60 seconds before checking ETag again
 cacheControl.setExpirationTime(60);
 //... and generate fresh portlet markup
 createMarkup(request, response);
}
private boolean isMarkupStillValid(String eTag)
{
 if (eTag ==null)
 {
return false; //No ETag was supplied
 }
//Perform portlet specific checks for the consumer's cached
//copy of the markup still being valid based on the given ETag
 ...
}
private String generateETag(...)
{
 //Portlet specific code to generate an ETag, for example, a hash
//of the data on which the portlet's markup is based
 ...
 return eTag;
}
```

For more information about validation-based caching in JSR 286 portlets, see the JSR 286 specification at:

http://jcp.org/en/jsr/detail?id=286

How to Implement Rewritten URLs for Resource Proxy

Resource proxying is the standard way to retrieve resources with WSRP. To avoid problems with URLs within your portlet, you can set a flag to rewrite all of the URLs within a specified resource. For example, if you have an HTML fragment that contains URLs, then you could set this flag to rewrite its URLs taking into account the WSRP resource proxying.

To indicate that URLs should be rewritten, set the `PortletRequest` attribute, `oracle.portlet.server.resourceRequiresRewriting`, to `true`. For example, you might include code similar to the excerpt in the code below to use resource proxying for a URL that you are encoding. Encapsulate this code within a method to avoid repeating it for every URL individually.

```
request.setAttribute("oracle.portlet.server.resourceRequiresRewriting",
Boolean.TRUE);
String url =response.encodeURL(pathToResourceForRewriting);
request.removeAttribute("oracle.portlet.server.resourceRequiresRewriting");
```

If you do not specifically set `oracle.portlet.server.resourceRequiresRewriting`, then it defaults to `false`, meaning that URLs are not rewritten. You must explicitly activate the feature by setting this attribute to `true`.

You can use the `defaultProxiedResourceRequiresWsrpRewrite` container runtime option to specify the default WSRP `requiresRewrite` flag to use. The option specified by this container runtime option (which is set to `true` by default) is used unless overridden by the request attribute. For more information, see "com.oracle.portlet.defaultProxiedResourceRequiresWsrpRewrite."

How to Implement Stateless Resource Proxying

If you have out of protocol resources that do not require rewriting, you may want to use stateless resource proxying. Stateless resource proxying means that the URLs returned to the browser do not require portlet IDs or any other contextual information. This increases the cache hit ratio for such resources. You might find stateless resource proxying useful for functionality such as static JavaScript files, static images, and so on.

To indicate that stateless proxying is required, set the `PortletRequest` attribute `oracle.portlet.server.useStatelessProxying` to `true`. For example, you might include code similar to the excerpt in the code below to use stateless proxying for a URL that you are encoding. Encapsulate this code within a method to avoid repeating it for every URL individually.

```
request.setAttribute("oracle.portlet.server.useStatelessProxying", Boolean.TRUE);
String url =response.encodeURL(pathToResource);
request.removeAttribute("oracle.portlet.server.useStatelessProxying");
```

If you do not specifically set `oracle.portlet.server.useStatelessProxying`, it defaults to `false`. You must explicitly activate the feature by setting this attribute to `true`.

How to Manage the Persistence Store for JSR 286 Portlets

This section includes the following topics:

- About the Persistence Store
- Setting Up a Persistence Store for a WSRP Producer
- Migrating a WSRP Producer Persistence Store

About the Persistence Store

The portlet persistence store is used for persisting consumer registration handles and portlet preference data. Portlet producers can use one of three types of persistence store:

- **Consumer**—Ties the producer metadata to the consumer application. This is the recommended method.
- **Database**—Persists data using a relational database. This is mainly provided for backward compatibility but may be useful if there is likely to be a large number of customizations.
- **File**—Persists data using the file system. This is provided for backward compatibility. You should not use a file based persistence store in your production environment as it does not support multi-tier or high availability environments. You may, however, want to use a file based persistence store while testing your application using Integrated WLS.

For more information, see Portlet Personalization and Customization.

JNDI Variables for WSRP Producer Persistence Store

Table 13-2 lists and describes the JNDI variables used to specify the persistence store for WSRP producers.

Table 13-2 WSRP Producer Database Preference Store-Related JNDI Variable

Variable Name	Variable Value	Description

`oracle/portal/wsrp/server/persistentStore`	`Database`
	`File`
	`Consumer`
		Determines which data store (File, Database, or Consumer) is used for persisting a portlet producer application's consumer registration handles and portlet preferences.

Table 13-2 (Cont.) WSRP Producer Database Preference Store-Related JNDI Variable

Variable Name	Variable Value	Description
`oracle/portal/wsrp/server/fileStoreRoot`	`portletdata`	Defines the path to the root directory to be used by the file preference store. Absolute paths are interpreted relative to the file system root. Relative paths are interpreted relative to the *`WC_ORACLE_HOME/`*`portal` directory. Note that all producers running within the same WebLogic Server must use the same path for this variable. Otherwise, you get a `Portlet unavailable` error for some portlets.

Setting Up a Persistence Store for a WSRP Producer

WSRP portlet producers use a JNDI variable (`persistentStore`) to determine which type of persistence store to use. When you create a portlet for the first time in an application, by default this variable is set to `Consumer`. You can change the value of this variable in the `web.xml` file of the portlet producer application.

Note:

If you create a portlet in an application that already contains other portlets, the existing persistence store setting is maintained.

If you use a File persistence store, you must also use the `fileStoreRoot` JNDI variable to specify the path to the root directory to be used by the persistence store. See JNDI Variables for WSRP Producer Persistence Store.

To set up the persistence store for a WSRP portlet producer:

1. In JDeveloper, open the portlet producer application for which you want to set up the persistence store.
2. Expand the portlet project (for example, **Portlets**).
3. Expand the **Web Content** node and then the **WEB-INF** node.
4. Right-click **web.xml** and choose **Open**.
5. Click the **Source** tab.
6. To specify a Database persistence store, add the following code:

```
<env-entry>
    <env-entry-name>oracle/portal/wsrp/server/persistentStore</env-entry-name>
    <env-entry-type>java.lang.String</env-entry-type>
    <env-entry-value>Database</env-entry-value>
</env-entry>
```

To specify a File-based persistence store, add the following code:

```
<env-entry>
 <env-entry-name>oracle/portal/wsrp/server/persistentStore</env-entry-name>
 <env-entry-type>java.lang.String</env-entry-type>
 <env-entry-value>File</env-entry-value>
</env-entry>
<env-entry>
 <env-entry-name>oracle/portal/wsrp/server/fileStoreRoot</env-entry-name>
 <env-entry-type>java.lang.String</env-entry-type>
 <env-entry-value>myPrefStore</env-entry-value>
</env-entry>
```

To specify a Consumer persistence store, add the following code:

```
<env-entry>
    <env-entry-name>oracle/portal/wsrp/server/persistentStore</env-entry-name>
    <env-entry-type>java.lang.String</env-entry-type>
    <env-entry-value>Consumer</env-entry-value>
</env-entry>
```

7. Save the `web.xml` file.
8. Restart your WebLogic Server.

Migrating a WSRP Producer Persistence Store

If you want to change the type of persistence store used by your portlet producer, for example when moving from a testing to production environment, you can migrate the existing data from the old to the new persistence store.

This section includes the following topics:

- Migrating a Database or File-Based Persistence Store
- Migrating to or from a Consumer Persistence Store
- Moving a WSRP Portlet Producer

Migrating a Database or File-Based Persistence Store

The WSRP portlet producer persistence store migration utility, `PersistenceMigrationTool`, enables you to migrate existing data between Database and File-based persistence stores (for example, from a File-based persistence store used for testing to a production Database persistence store). This utility also enables upgrading users to ensure that their existing locale-specific portlet preference data uses a naming format compatible with the latest JPS release. You can also use this utility to migrate between source and destination stores of the same type, enabling data to be moved from one database store to another.

Note:

There are several libraries that must be referenced in the classpath when running the `PersistenceMigrationTool` utility:

- `wcs-producer-spi.jar`
- `portlet-utils.jar`
- `portlet-producer-container-common.jar`
- `portlet-producer-container-persistence.jar`
- `oracle-portlet-api.jar`
- `wsrp-container.jar`
- `oracle-portlet-tags.jar`
- `ojdbc6.jar`

The `ojdbc6.jar` library referenced in the classpath must be the same as the one used by your database.

To migrate a database or file-based persistence store:

1. Ensure that the appropriate libraries are referenced in the classpath:

```
./java -classpath
ORACLE_COMMON_HOME/modules/oracle.wccore/portlet-producer-container-
persistence.jar:
ORACLE_COMMON_HOME/modules/oracle.wccore/portlet-producer-container-common.jar:
ORACLE_COMMON_HOME/modules/oracle.adf.share.ca/adf-share-base.jar:
ORACLE_COMMON_HOME/modules/oracle.wccore/portlet-utils.jar:
ORACLE_COMMON_HOME/modules/oracle.wccore/wcs-producer-spi.jar:
ORACLE_COMMON_HOME/modules/oracle.adf.share/adflogginghandler.jar:
DB_ORACLE_HOME/jdbc/lib/ojdbc6.jar
```

2. Run the `PersistenceMigrationTool` using the following syntax:

```
java oracle.portlet.server.containerimpl.PersistenceMigrationTool
-sourceType [file db]
-destType [file db]
{-sourcePath [dir
-sourceUsername username -sourcePassword password -sourceDatabase db
 -sourceDriver srcDriver]}
{-destPath [dir destUsername username -destPassword password -destDatabase db
 -destDriver dstDriver]}
[-debug]
```

where:

- `sourceType` indicates whether the source store is in a file (`file`) or database (`db`). You can have source and destination stores of the same type. Hence, you can migrate from one database to another or one file system to another.
- `destType` indicates whether the destination store is in a file (`file`) or database (`db`). You can have source and destination stores of the same type. Hence, you can migrate from one database to another or one file system to another.

- `sourcePath` is the location of a file-based persistence store. This argument is required when `sourceType` is `file`.
- `sourceUsername` is the database user name for a persistence store database. This argument is required when `sourceType` is `db`.
- `sourcePassword` is the database password for a persistence store database. This argument is required when `sourceType` is `db`.
- `sourceDatabase` is the name of a persistence store database. This argument is required when `sourceType` is `db`.
- `sourceDriver` is the name of a database driver to use. For example, for a SQL Server database, the database driver is `com.microsoft.sqlserver.jdbc.SQLServerDriver`. If you do not specify a value for this argument, the migration tool attempts to determine the correct driver to use from the `sourceDatabase` argument.
- `destPath` is the location of a file-based persistence store. This argument is required when `destType` is `file`.
- `destUsername` is the database user name for a persistence store database. This argument is required when `destType` is `db`.
- `destPassword` is the database password for a persistence store database. This argument is required when `destType` is `db`.
- `destDatabase` is the name of a persistence store database. This argument is required when `destType` is `db`.
- `destDriver` is the name of a database driver to use. For example, for a SQL Server database, the database driver is `com.microsoft.sqlserver.jdbc.SQLServerDriver`. If you do not specify a value for this argument, the migration tool attempts to determine the correct driver to use from the `destDatabase` argument.
- `debug` turns on full logging through standard output to enable users to diagnose issues that arise when the tool runs.

The example below demonstrates running the `PersistenceMigrationTool` utility. In this example, preferences from a File store are copied to a Database store.

```
./java -classpath

ORACLE_COMMON_HOME/modules/oracle.wccore/portlet-producer-container-persistence.jar:
ORACLE_COMMON_HOME/modules/oracle.wccore/portlet-producer-container-common.jar:
ORACLE_COMMON_HOME/modules/oracle.adf.share.ca/adf-share-base.jar:
ORACLE_COMMON_HOME/modules/oracle.wccore/portlet-utils.jar:
ORACLE_COMMON_HOME/modules/oracle.wccore/wcs-producer-spi.jar:
ORACLE_COMMON_HOME/modules/oracle.adf.share/adflogginghandler.jar:
DB_ORACLE_HOME/jdbc/lib/ojdbc6.jar
oracle.portlet.server.containerimpl.PersistenceMigrationTool
-sourceType file \
-sourcePath /data/prefs
-destType db \
-destUsername scott \
-destPassword tiger \
-destDatabase abc.mycompany.com:1521:yourdatabase \
```

where:

- *`ORACLE_COMMON_HOME`* is your Oracle Common home

- *`DB_ORACLE_HOME`* is your database Oracle home if it is on the same machine as the WebCenter Portal Oracle home. If the database Oracle home is on a separate machine, then you must copy the *`DB_ORACLE_HOME/jdbc/lib`* directory into a temporary directory on the WebCenter Portal Oracle home and reference the `ojdbc6.jar` library from this temporary directory in the classpath.

Migrating to or from a Consumer Persistence Store

You cannot use the persistence store migration utility to migrate to or from a consumer persistence store. To migrate to or from a consumer persistence store, you must export the data from one producer from the consumer and import into another.

To migrate a consumer persistence store:

1. Export the producer metadata from your consumer application to an EAR file.

   This contacts the remote producer to get customization data, and so on. You can use WLST to do this, see `exportPortletClientMetadata` in *WebCenter WLST Command Reference Reference*.
2. Either remap the producer connection to another producer, which can be using any persistence store type, or change the preference store configuration of the current producer, and restart it.
3. Import from the exported EAR file back to your consumer application. This pushes the relevant metadata back to the producers, which then store it in their configured persistence store.

Moving a WSRP Portlet Producer

If you move a portlet producer to a different server, you may also have to move the persistence store for the producer.

After installing the new producer, move the persistence store according to the following:

- Consumer persistence store—Because the data is stored with the consumer, there is no requirement to move the persistence store.
- Database persistence store—Perform one of the following:
  - Configure the new producer to point the WebLogic Server data source to the same database as the original producer.
  - Migrate the persistence store using the Persistence Store Migration Utility (see Migrating a WSRP Producer Persistence Store for more information).
- File persistence store—Perform one of the following:
  - Configure the new producer to point the same file system location as the original producer.
  - Migrate the persistence store using the Persistence Store Migration Utility (see Migrating a WSRP Producer Persistence Store for more information).

Finally, update the URL of the producer registration by using Enterprise Manager Fusion Middleware Control or the WLST command `setWSRPProducerRegistration`.

Testing JSR 286 Portlets

Before making your portlets available in a production environment, it is highly advisable to test them first to make sure that they behave as expected.

This section includes the following topics:

- How to Run a WSRP Portlet Producer on Integrated WebLogic Server
- How to Deploy a WSRP Portlet Producer to the Integrated WebLogic Server
- How to Hide or Remove the WSRP Test Page

How to Run a WSRP Portlet Producer on Integrated WebLogic Server

The Integrated WebLogic Server (Integrated WLS) provides a quick and easy way of testing your portlets because it is preconfigured so that you can run applications within JDeveloper without needing to create deployment profiles.

To test a JSR 286 portlet on Integrated WLS:

1. In JDeveloper, open the portlet producer application that owns the portlet that you want to test.
2. Expand the portlet project (for example, **Portlets**).
3. Expand the **Web Content** node and then the **WEB-INF** node.
4. Right-click **portlet.xml** and choose **Run**.

   Running `portlet.xml` triggers the packaging and deployment of your portlet producer application on an Integrated WLS instance named after the application.
5. Check the IntegratedWebLogicServer - Log window to monitor the deployment progress. The log shows the URL of the application page. The WSRP producer URL uses the following syntax:

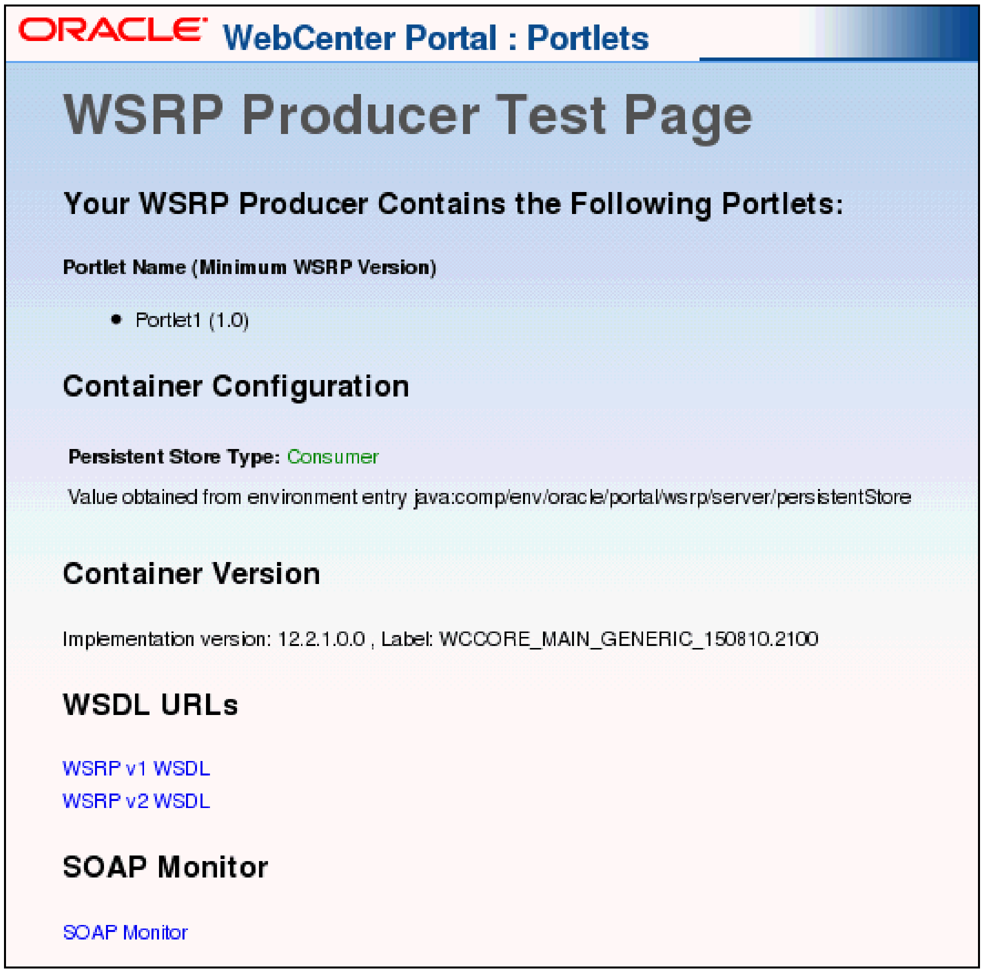
   `http://`*`host:port/applicationname`*`-Portlets-context-root/info`

   where:

   - `host` is the server to which your producer has been deployed.
   - `port` is the HTTP Listener port. Typically, it is `7101`. When the server is started, the port is displayed in the console.
   - `context-root` is the Web application's context root.

   A test page similar to Figure 13-4displays in a browser window.

Figure 13-4 WSRP Producer Test Page


ORACLE WebCenter Portal : Portlets

WSRP Producer Test Page

Your WSRP Producer Contains the Following Portlets:

Portlet Name (Minimum WSRP Version)

- Portlet1 (1.0)

Container Configuration

Persistent Store Type: Consumer

Value obtained from environment entry java:comp/env/oracle/portal/wsrp/server/persistentStore

Container Version

Implementation version: 12.2.1.0.0 , Label: WCCORE_MAIN_GENERIC_150810.2100

WSDL URLs

WSRP v1 WSDL
WSRP v2 WSDL

SOAP Monitor

SOAP Monitor

6. While the application is running, you can switch back and forth between JDeveloper and your browser to make changes at design time in your application, save the changes, and then refresh the test page in your browser.
7. When the producer is successfully running, you should register it with an application and add one or more portlets to a page to check that it is working correctly. A producer gives applications the information they require to locate and communicate with that producer. After you register a producer, it is exposed as a connection, and the producer and its portlets become available in the Application Resources panel under the Connections node, or in the Resource Palette.
8. To stop an Integrated WLS instance, in the Run Manager tab, select **DefaultServer** and click the red **Stop** icon. When the instance stops, the application is undeployed, and therefore, becomes unavailable.

> **Tip:**
>
> You can also stop an Integrated WLS instance by clicking the red **Stop** icon in the IntegratedWebLogicServer - Log window and selecting **DefaultServer**.

What Happens When You Run a WSRP Portlet Producer on Integrated WebLogic Server

These configurations vary depending upon the portlet requirements.

- WSDLs and other configuration files are added to the WEB-INF directory to configure the portlets as a web service.
- The `web.xml` file is updated with listener and server classes, filters, parameters, and other configurations that are required to run the JSR 286 portlet producer application successfully.

  For example, the `oracle.portlet.server.adapter.web.ServerContextListener` class, `WSRP_v2_PortletManagement_Service` and `WSRPBaseService` filters, and so on.
- Libraries required for JSR 286 portlets are added to the `weblogic.xml` file, for example, `oracle.portlet-producer.wsrp`.

When you run a WSRP portlet producer on Integrated WLS, the following happens:

How to Deploy a WSRP Portlet Producer to the Integrated WebLogic Server

When you run a WSRP portlet producer application on the Integrated WLS instance, when the instance stops, the application is undeployed and therefore becomes unavailable. For a more persistent testing scenario, you can deploy your portlet producer application to the Integrated WLS so that it is always available while the Default Server is running.

If you choose this method, then you must first create deployment profiles. If you deploy your application to the Integrated WLS, then the Deployment Configuration dialog displays to enable you to configure and customize deployment settings. The file system MDS repository precreated by JDeveloper displays in the **Repository Name** field.

How to Hide or Remove the WSRP Test Page

For security purposes, you may want to hide the WSRP test page so that it is visible only to administrators, or you may want to remove it entirely.

This section includes the following subsections:

- Hiding the WSRP Test Page
- Removing the WSRP Test Page

Note:

There is also a Webservice test page, which enables you to build up SOAP requests to the producer in a web browser. For WSRP portlet producers this test page is disabled by default. Although this test page does not provide any useful information for testing your portlet producers, you can enable it, if desired, by extracting the `oracle-webservices.xml` file from the deployed producer's WAR file, setting the `expose-testpage` flag to `true` for both WSRP v1 and WSRP v2 producers, and then repacking the WAR and EAR files and redeploying the producer.

Hiding the WSRP Test Page

If you do not want all users to be able to see the WSRP test page, you can protect it so that only administrators can see it.

To hide the WSRP test page:

1. In JDeveloper, open the portlet producer application for which you want to hide the test page.
2. Expand the portlet project (for example, **Portlets**).
3. Expand the **Web Content** node and then the **WEB-INF** node.
4. Right-click **web.xml** and choose **Open**.
5. Click the **Source** tab.
6. Add the following code:

```
<security-role>
 <description>AdministratorRole</description>
 <role-name>Admin</role-name>
</security-role>
<security-constraint>
 <display-name>TestPageInfo</display-name>
 <web-resource-collection>
 <web-resource-name>TestPageInfo</web-resource-name>
 <description>Protect the test page servlet.</description>
 <url-pattern>/info/*</url-pattern>
 </web-resource-collection>
 <auth-constraint>
 <description>Administrators</description>
 <role-name>Admin</role-name>
 </auth-constraint>
 <user-data-constraint>
 <transport-guarantee>NONE</transport-guarantee>
 </user-data-constraint>
</security-constraint>
```

7. Save the `web.xml` file.

Removing the WSRP Test Page

You can remove the WSRP test page completely.

To remove the WSRP test page, you must edit an element that is injected into the `web.xml` file at packaging time, so you must edit the `web.xml` file in the resulting EAR file.

To remove the WSRP test page:

1. Extract the `web.xml` file from the EAR file created at packaging time and open it in an editor of your choice.
2. Comment out the following code:

   ```
   <servlet-mapping>
    <servlet-name>WSRPTestPage</servlet-name>
    <url-pattern>/info</url-pattern>
   </servlet-mapping>
   ```

3. Save the `web.xml` file and add the edited file to the EAR file.

Migrating WebLogic Portal Portlets to WebCenter Portal

In general, JSR 286 standard portlets (Java portlets) that were developed with the WebLogic Portal's Eclipse IDE can be moved directly to a WebCenter Portal/ JDeveloper environment. Simply copy all of the portlet artifacts (`portlet.xml`, `.java` files, `.jsp` files, and so on) into a JDeveloper Portlet Producer application project.

Note:

Any WebLogic Portal specific APIs used by the portlet must be rewritten to use WebCenter Portal APIs. WebLogic Portal specific APIs will not work in a WebCenter environment.

Tip:

You can use the WebLogic Portal Export feature to export your Java portlets to an archive file and then import the archive file into your JDeveloper project. This technique may be simpler than manually copying all the portlet artifacts from one environment to another. See Exporting Java Portlets for Use on Other Systems in the *Portlet Development Guide for Oracle WebLogic Portal*.

Moving portlets from a WLP development environment to a WebCenter Portal development environment is not directly supported. In general, this process can involve substantial rewriting or refactoring of the migrated portlet code and related files.

> **Note:**
>
> If a portlet (regardless of type) was capable of running over WSRP in WebLogic Portal, the portlet can be consumed directly from the WebLogic Portal's portlet producer in a WebCenter Portal consumer. See WSRP Interoperability with Oracle WebCenter Portal and Oracle Portal in the *Federated Portals Guide for Oracle WebLogic Portal*.

Below are some general guidance on moving WLP portlets into WebCenter Portal's portlet producer environment.

- **JSP portlets** –Moving JSP portlets directly into a WebCenter Portal project is not supported. You can consider refactoring the JSP portlet into a JSR286 portlet and then migrate it.
- **JSR 168/286 portlets** –Most Java (JSR 168 /286) portlets can be directly imported to a WebCenter Portal portlet producer and run as JSR286 portlets. Some JSR168 portlets that take advantage of specific error conditions guaranteed by the JSR168 specification may need to be run in a JSR168 compatibility mode. See JSR-286/JSR-168 Portlet Compatibility in the *Portlet Development Guide for Oracle WebLogic Portal*. JSR168 portlets using WLP's proprietary eventing (event subscriptions declared in a `.portlet` file) must be re-written to use JSR286 events.
- **Java Page Flow portlets** –JPF portlets are not supported by WebCenter Portal's portlet producer and must be either consumed from a WebLogic Portal WSRP producer or refactored to become JSR286 or JSF portlets.
- **JSF portlets** –If the portlet is written to the JSR329 JSF Portlet bridge in WLP, it should run on a WebCenter producer with no changes. For portlets using the WLP "native" JSF portlet bridge, the portlet must be consumed from a WebLogic Portal producer or upgraded to a JSF 1.2 portlet using the JSR329 bridge. See also Working With JSF-Java Portlets in the *Portlet Development Guide for Oracle WebLogic Portal*.
- **Struts portlets** –Moving Struts portlets directly into a WebCenter Portal project is not supported. You can consider refactoring the JSP portlet into a JSR286 portlet and then migrate it.
- **Content Presenter portlets** –WLP Content Presenter portlets will not work over WSRP and will not work with WebCenter Portal. However, equivalent functionality is available in WebCenter Portal's Content Presenter. See Publishing Content Using Content Presenter in *Building Portals with Oracle WebCenter Portal*.
- **Remote (WSRP) portlets** –Remote (WSRP) portlets consumed in WLP can be consumed in a WebCenter Portal's consumer instead. Remote portlets taking advantage of WLP-specific WSRP features may need modification. For example the custom data transfer feature must be replaced by using events or shared parameters to convey data. See WSRP Interoperability with Oracle WebCenter Portal and Oracle Portal and Configuring WSRP Security Between WLP and a WebCenter Portal: Framework Application in the *Federated Portals Guide for Oracle WebLogic Portal*.

Problems inherent in moving WebLogic Portal portlets directly to a WebCenter Portal project in JDeveloper can include the following:

- **URL Generation** –Some URL types supported by WebLogic Portal do not work in WebCenter Portal, including DesktopURL, CustomEventURL, PageURL, WindowURL, StandalonePortletURL, and possibly others.
- **Events** –The WebCenter Portal consumer does not generate all of the events that the WebLogic Portal framework generates. These unsupported events include Init, LookAndFeelReinit, Notification, Refresh, WindowActivation, WindowDeactivation, and possibly others.
- **Render Dependencies** –WLP render dependencies do not work in WebCenter Portal.
- **WLP Framework APIs** –Many WLP APIs are not supported in WebCenter Portal.

Files Related to JSR 286 Portlets

This section describes the files that are created for you when you build a JSR 286 portlet. It includes the following topics:

- portlet.xml
- oracle-portlet-tags.jar
- portlet_mode.jsp
- portlet_name.java
- portlet_nameBundle.jar
- web.xml

portlet.xml

`portlet.xml` defines the characteristics of your JSR 286 portlet. For complete details on `portlet.xml`, you should see the Java Portlet Specification available at:

`http://jcp.org/en/jsr/detail?id=168`

The example below provides a sample fragment from a `portlet.xml` file. Note that this example does not include all of the available elements of `portlet.xml`.

Example **portlet.xml**

```
<portlet>
 <description xml:lang="en">JSR 286 map portlet </description>
 <portlet-name>portlet1</portlet-name>
 <display-name xml:lang="en">Map Portlet</display-name>
 <portlet-class>jsrportlet.MapPortlet</portlet-class>
 <expiration-cache>0</expiration-cache>
 <supports>
 <mime-type>text/html</mime-type>
 <portlet-mode>edit</portlet-mode>
 <portlet-mode>help</portlet-mode>
 <portlet-mode>about</portlet-mode>
 </supports>
 <supported-locale>en</supported-locale>
 <resource-bundle>jsrportlet.resource.MapPortletBundle</resource-bundle>
 <portlet-info>
 <title>Map Portlet</title>
 <short-title>Map</short-title>
 <keywords/>
 <portlet-preferences>
 <preference>
 <name>portletTitle</name>
 </preference>
 </portlet-preferences>
 <security-role-ref>
 <role-name>viewer</role-name>
 </security-role-ref>
</portlet>
```

For JSR 286 portlets, the `portlet.xml` file contains all information related to portlets and their settings. Note that not all of these settings are used in the previous sample.

- `<description>` describes the portlet, providing details to the end user.
- `<portlet-name>` uniquely identifies the portlet within the Portlet Producer application.
- `<display-name>` is used when presenting a list of available portlets to the user.
- `<portlet-class>` contains the fully qualified class name of the class implementing the `javax.portlet.Portlet` interface or extending the `GenericPortlet` abstract class that becomes the entry point for the portlet logic. The portlet container uses this class when it invokes the portlet lifecycle methods. For JSF portlets created using the Oracle JSF Portlet Bridge, this is `oracle.portlet.bridge.adf.application.ADFBridgePortlet`.
- `<expiration-cache>` the default duration (in seconds) of the expiration cache.
- `<init-param>` defines initialization parameters for configuring the behavior of the portlet. The Oracle JSF Portlet Bridge uses initialization parameters to identify the entry points for the different portlet modes supported by the portlet, for example, for View mode:

  ```
  <init-param>
   <name>javax.portlet.faces.defaultViewId.view</name>
   <value>/myPage.jspx</value>
  </init-param>
  ```

  Initialization parameters for other WebCenter Portal-supported modes are:

  – Edit mode: `javax.portlet.faces.defaultViewId.edit`
  – Help mode: `javax.portlet.faces.defaultViewId.help`
  – About mode: `javax.portlet.faces.defaultViewId.about`
  – Config mode: `javax.portlet.faces.defaultViewId.config`
  – Edit Defaults mode: `javax.portlet.faces.defaultViewId.edit_defaults`
  – Preview mode: `javax.portlet.faces.defaultViewId.preview`
  – Print mode: `javax.portlet.faces.defaultViewId.print`

Note:

The value for the `defaultViewId` is relative to the application context root and must always start with a /. In the example provided, the value for `defaultViewId.view` is `/myPage.jspx`.

If you add a `defaultViewId` for other portlet modes, then you must also add the mode to the `<supports>` tag. For example, `<portlet-mode>HELP</portlet-mode>`.

- `<supports>` provides information about the portlet modes supported for each content type. Portlet modes supported by WebCenter Portal include: `edit`, `help`, `about`, `config`, `edit_defaults`, `preview`, and `print`.
- `<supported-locale>` lists the locales supported by the portlet at runtime.
- `<resource-bundle>` is the fully qualified class name of the resource bundle used to provide language specific portlet information, such as title and keywords.
- `<title>` is the static title of the portlet, usually displayed in the portlet decoration on the portlet window.
- `<short-title>` is the title that is used on devices (such as mobile phones) that have limited display capabilities.
- `<keywords>` are used by applications that offer search capabilities for their users.
- `<portlet-preferences>` are preference attribute definitions.
- `<supported-processing-event>` are events that the portlet can receive.
- `<supported-publishing-event>` are events that the portlet raises.
- `<supported-public-render-parameter>` is a public render parameter supported by the portlet.
- `<container-runtime-option>` an option for defining additional runtime behavior.
- `<security-role-ref>` maps a role name to a security role in `web.xml`. The list of roles in `web.xml` that the `<security-role-ref>` maps to is published to the consumer as the producer's user categories. In `web.xml`, `<security-role>` appears similar to the following:

```
<security-role>
 <description>Viewer role</description>
 <role-name>viewer</role-name>
</security-role>
```

oracle-portlet-tags.jar

`oracle-portlet-tags.jar` is the Oracle implementation of the JSP tag library defined by the Java Portlet Specification.

portlet_mode.jsp

Depending on the implementation style of the portlet mode that you choose to create for your portlet, a corresponding JSP file is created in your *`portlet_name`*`\html` directory to define that mode. For example, if you choose to have View and Edit modes for your portlet, then you need `view.jsp` and `edit.jsp` in your *`portlet_name`*

`\html` directory. For JSR 286 portlets, you can have the following JSP files for your portlet modes:

- `about.jsp`
- `config.jsp`
- `edit_defaults.jsp`
- `edit.jsp`
- `help.jsp`
- `preview.jsp`
- `print.jsp`
- `view.jsp`

For further explanation of portlet modes, see Portlet Modes.

portlet_name.java

`portlet_name``.java` is the class that acts as the entry point for the portlet logic. This class must implement the `javax.portlet.Portlet` interface or extend the `GenericPortlet` abstract class. The portlet container uses this class when it invokes the portlet lifecycle methods.

portlet_nameBundle.jar

`portlet_name``Bundle.jar` is a resource bundle class, containing translation of the strings used by the portlet.

web.xml

`web.xml` is a Java EE standard descriptor that contains details about Web applications. For more information about `web.xml`, see Configuring the web.xml File for Application Server Compatibility in *Developing Fusion Web Applications with Oracle Application Development Framework*.

14 Consuming Portlets

Register portlets to add them to portal pages in WebCenter Portal.

Topics:

Introduction to Consuming Portlets

WebCenter Portal enables you to consume a portlet by registering its producer with the ADF application. Your ADF application can consume portlets that you build and portlets that you receive from a third party, such as a packaged-application vendor.

In addition to WebCenter Portal, a producer application can also be consumed in other ADF applications. This enables you to use portlets in any applications based on ADF. Users developing portlets can tests the functionality in ADF application with JDeveloper.

You can register portlet producers in two ways:

- Register the portlet producer with an ADF application. Use this option if you are not likely to register the producer with other applications.
- Register the portlet producer using the Resource Palette. Use this option to use the producer's portlets in multiple applications.

A portlet that is available in the Resource Palette can be added to any of your application by dropping it on the page or by adding it to Application Resources. You can drag and drop a whole producer connection from the Resource Palette into the Application Resources panel of the Application Navigator. This registers the producer with the application. Alternatively, you can right-click a producer in the Resource Palette and choose **Add to Application** from the context menu to register the producer with the currently open application.

JDeveloper provides wizards for registering both WSRP producers and Oracle PDK-Java producers.

There are many options associated with portlet consumption. For example, you can choose to place portlets directly onto a page or nest them in a Composer component, you can adjust many attributes of the portlet tag, and you can wire portlets to each other.

Registering a WSRP Portlet Producer with WebCenter Portal

When you register a WSRP portlet producer, you provide basic information that describes the producer's operational parameters. This information is used by the portlet-consuming application to communicate with the producer and with the portlets through the producer.

WebCenter Portal supports both WSRP 1.0 and WSRP 2.0 producers. The WSRP 2.0 standard, among others, provides support for inter-portlet communication and export and import of portlet customizations. You can leverage the benefits of WSRP 2.0 while building standards-based JSR 286 portlets.

This section includes the following topics:

- How to Register a WSRP Portlet Producer using JDeveloper
- How to Map a Producer's Declared User Categories to an Application's Defined Java EE Security Roles

How to Register a WSRP Portlet Producer using JDeveloper

You can register a WSRP portlet producer using JDeveloper.

The **Register WSRP Portlet Producer** wizard is the entry point for registering both WSRP 1.0 and 2.0 producers. When registration is successful, the newly registered producer displays in JDeveloper either in the Application Resources panel of the Application Navigator, or in the Resource Palette, depending on where you created the connection. You can then select portlets from the producer for placement on your application (`.jspx`) pages.

Note:

If you are registering a producer provided by Oracle WebLogic Portal, and the portlet uses ADF Rich Components, you should register the WSRP 2.0 WSDL URL to ensure that the portlet functions correctly.

You also use the Register WSRP Portlet Producer wizard to register JSF portlets, which are portletized JSF applications or portletized ADF task flows. Once you create a portlet from a JSF application, you can deploy the portlet to a WLS instance and register the JSF portlet producer as you would register any WSRP portlet producer. The Oracle JSF Portlet Bridge exposes JSF applications and task flows as JSR 286 portlets.

To register a WSRP portlet producer:

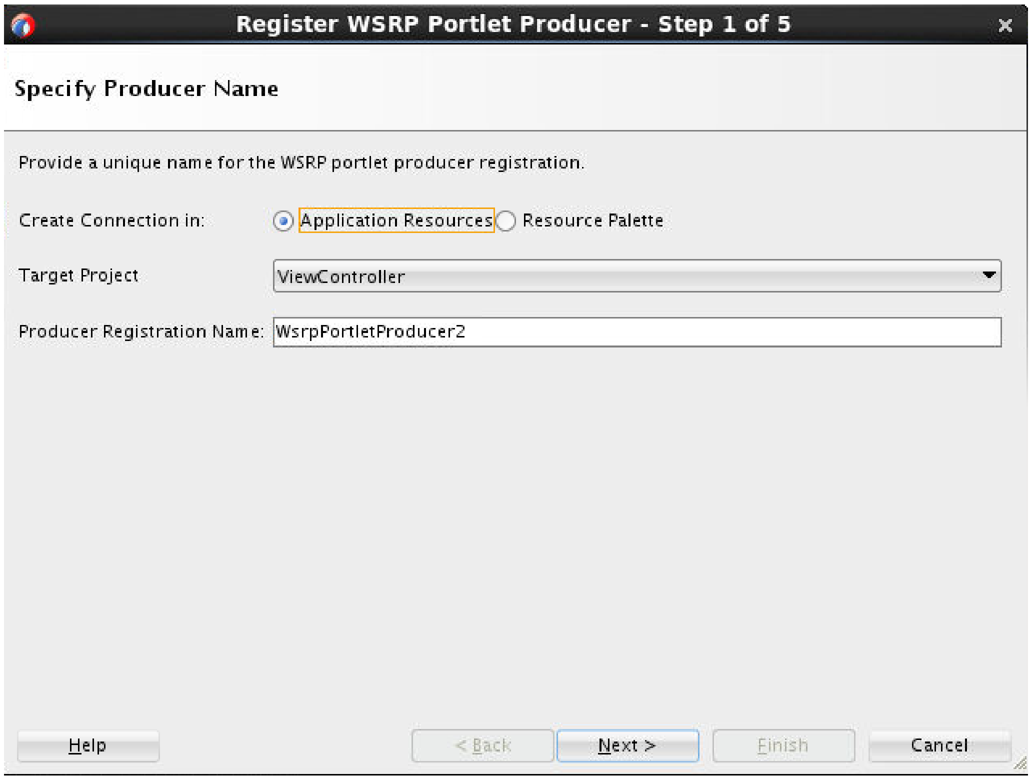
Note:

In the Register WSRP Portlet Producer wizard, if you click **Cancel** after you have clicked **Finish**, the registration is not canceled.

1. Open Oracle JDeveloper.
2. In the Application Navigator, expand Application Resources node.
3. In the Application Resources, right-click **Connections**, and select **New Connection**, then select **WSRP Producer** from the context menu.

   The **Specify Producer Name page of the Register WSRP Portlet Producer** wizard opens.

Figure 14-1 Specify Producer Name page of the Register WSRP Portlet Producer



Provide a unique name for the WSRP portlet producer registration.

Create Connection in: [✓ Application Resources] Resource Palette

Target Project: ViewController

Producer Registration Name: WsrpPortletProducer2

4. On the Specify Producer Name page, enter the WSRP portlet producer details.

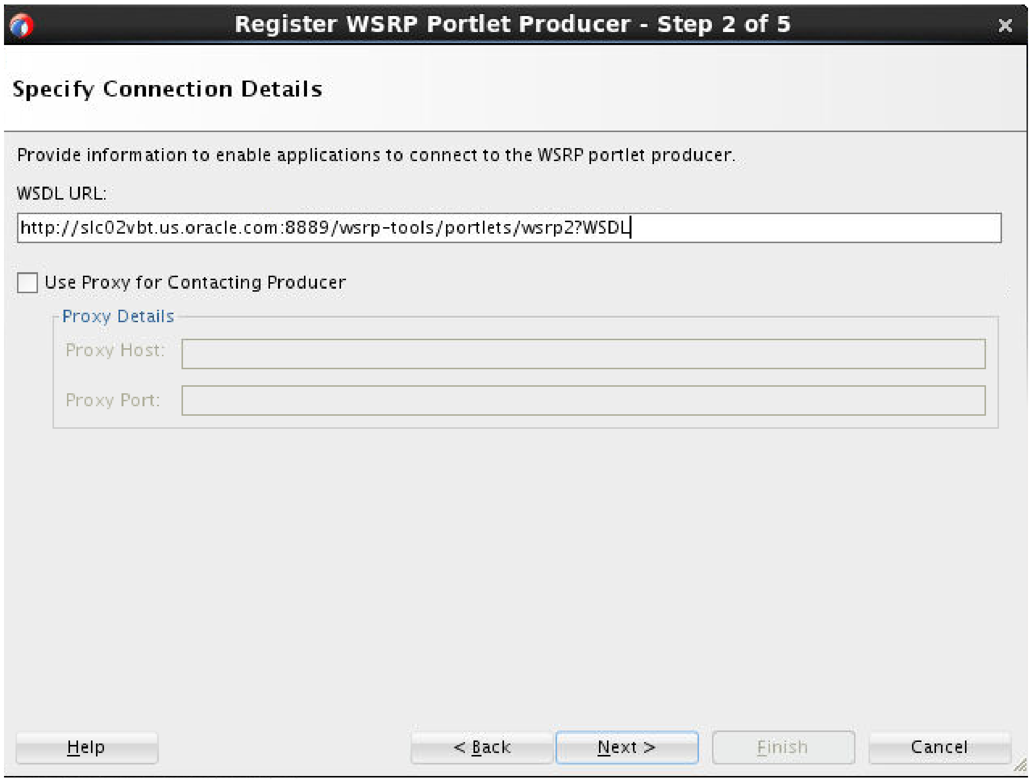
Fields	Description
Create Connection in	Select the create connection option depending on how you accessed the wizard. • **Application Resources**—Choose this option if you invoked the wizard from an application. This is the default selection. • **Resource Palette**—Choose this option if you invoked the wizard from the Resource Palette.

Fields	Description
Target Project	Select the project to be configured in which you intend to consume the portlets for the WSRP producer connection. **Note**: You can change this option only if you invoked the wizard from the Application Navigator.
Producer Registration Name	Enter a name for the producer registration that is unique among all connections.

5. Click **Next**.

   The **Specify Connection Details** page of the Register WSRP Portlet Producer wizard opens.

Figure 14-2 Specify Connection Details page of the Register WSRP Portlet Producer


Register WSRP Portlet Producer - Step 2 of 5

Specify Connection Details

Provide information to enable applications to connect to the WSRP portlet producer.

WSDL URL:

http://slc02vbt.us.oracle.com:8889/wsrp-tools/portlets/wsrp2?WSDL

☐ Use Proxy for Contacting Producer

Proxy Details

Proxy Host:

Proxy Port:

6. On the Specify Connection Details page, enter the connection details for the WSRP portlet producer.

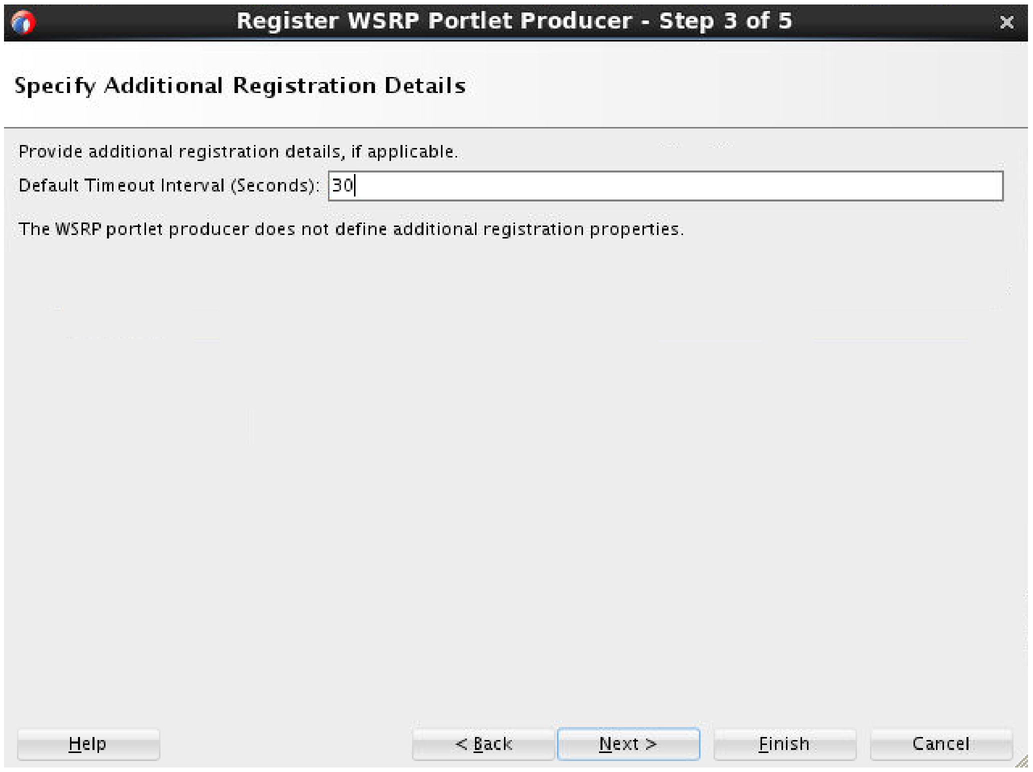
Fields	Description
WSDL URL	Enter the producer's URL. The syntax varies according to your WSRP implementation, for example, the sample WSRP producer uses the following syntax: • `http://host:port/context-root/portlets/wsrp1?WSDL` • `http://host:port/context-root/portlets/wsrp2?WSDL` • `http://host:port/context-root/portlets?WSDL` (WSRP 1.0 for backward compatibility) Where: • `host` is the server to which your producer has been deployed. • `port` is the port to which the server is listening for HTTP requests. • `context-root` is the Web application's context root. • `portlets[/wsrp(1|2)]?WSDL` is static text. The text entered here depends on how the producer is deployed. For example: `http://myhost.example.com:7101/portletapp/portlets/wsrp2?WSDL` You can access the producer test page through the URL: `http://host:port/context-root/info`
Use Proxy for Contacting Producer	Select the option if your application and the producer are separated by a firewall. An HTTP proxy is needed for communication between the application and the producer, if it is separated by a firewall. Specify the URL and port number of the proxy. **Note**: The proxy fields in this step default to the proxy preferences set in JDeveloper Preferences (from the main menu, choose **Tools** then **Preferences**, and then select **Web Browser and Proxy**).

7. Click **Next**.

   The connection to the producer is tested. If there are any problems, an error message displays. You must resolve any problems before you can continue.

   The **Specify Additional Registration Details** page of the Register WSRP Portlet Producer wizard opens.

Figure 14-3 Specify Additional Registration Details page of the Register WSRP Portlet Producer wizard


Register WSRP Portlet Producer - Step 3 of 5
Specify Additional Registration Details

Provide additional registration details, if applicable.

Default Timeout Interval (Seconds): 30

The WSRP portlet producer does not define additional registration properties.

Help
< Back
Next >
Finish
Cancel

8. On the **Specify Additional Registration Details** page, enter the number of seconds to wait for the producer to respond during design time operations.

   Some producers define additional registration properties. In such cases, the properties are displayed in a table on this page of the wizard. You can enter values for these additional properties in the table. These properties are producer-specific and are used only at registration time. That is, they collect information that consumer applications send to producers at registration time; the producers store this information against the consumers and use it subsequently.

9. Choose one of the following options.

   - Click **Finish**, if you are registering the producer in the Resource Palette to complete the registration.

     If the producer declares user categories, when you click **Finish**, the **Register WSRP Portlet Producer** dialog displays. Click **Yes** and see How to Map a Producer's Declared User Categories to an Application's Defined Java EE Security Roles. Click **No** to decline this opportunity and complete the registration process.

     Note:

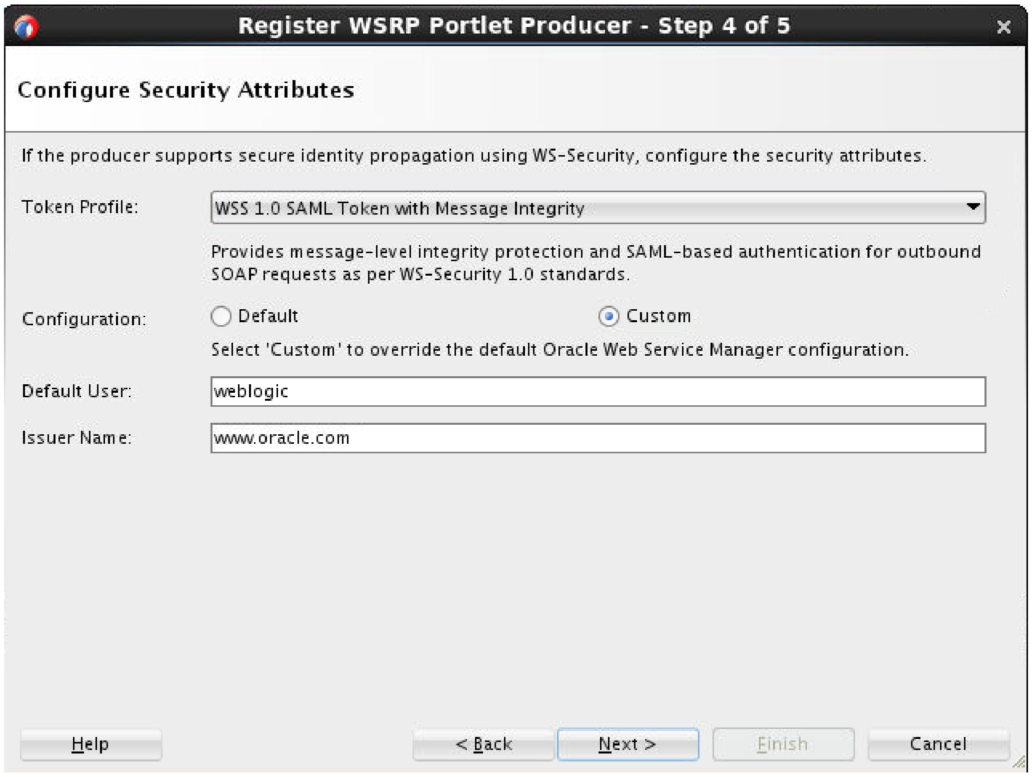
     If you decline to map the user categories to security roles at this point, you can do so later by editing the producer registration.

- Click **Next**, if you are registering the producer in the Application Resources panel, and plan to request authentication whenever the producer (and consequently, its portlet) is accessed.

  If you do not want to configure security, click **Finish**.

If you click **Next**, the **Configure Security Attributes** page of the Register WSRP Portlet Producer wizard opens.

Figure 14-4 Configure Security Attributes of the Register WSRP Portlet Producer wizard



Register WSRP Portlet Producer - Step 4 of 5

Configure Security Attributes

If the producer supports secure identity propagation using WS-Security, configure the security attributes.

Token Profile: WSS 1.0 SAML Token with Message Integrity

Provides message-level integrity protection and SAML-based authentication for outbound SOAP requests as per WS-Security 1.0 standards.

Configuration: Default [✓ Custom]

Select 'Custom' to override the default Oracle Web Service Manager configuration.

Default User: weblogic

Issuer Name: www.oracle.com

10. In the **Configure Security Attributes** page, specify the type of security token used for authentication with the WSRP producer.

Fields	Description
Token Profile	Select the type of token profile to use for authentication with the WSRP producer: • **None**—No token; no WS-Security header is attached to the SOAP message. If you select this option, you do not want to complete the rest of the wizard. Click **Finish**. • **WSS 1.0 SAML Token with Message Integrity** • **WSS 1.0 SAML Token with Message Protection**— When you select this policy, you must also specify the **Recipient Alias** in the **Specify Key Store** page. • **WSS 1.0 User Name Token without Password**— Use this token profile if the WSRP producer has a different identity store. You must define an external application pertaining to the producer and associate the external application with this producer. The external application defined here is used to retrieve and propagate the user credentials to the producer. The producer verifies this against the identity store configured for the external application. • **WSS 1.0 User Name Token with Password**—When you select this policy, you must also specify the **Recipient Alias** in the **Specify Key Store** page. When you select this policy, you must also specify the **Recipient Alias** • **WSS 1.0 SAML Token** —This policy does not require any keystore configuration. • **WSS 1.1 SAML Token with Message Protection** For more information on the Token Profile, see WSRP Producer Security Connection Parametersin *Administering Oracle WebCenter Portal*
Configu ration	Select the configuration type. • **Default**—If you choose default, then all the default keystore attributes, that is location, password, keystore type, signature key and alias, encryption key and alias are picked up from the JPS (Java Platform Security) configuration. The value for Recipient Alias is taken from the policy being used. The WebLogic Server where the application is deployed must be configured for WS-Security. For more information, see Securing a WSRP Producer with WS-Security in *Administering Oracle WebCenter Portal*. • **Custom**—If you select this option, then you must enter the appropriate keystore attributes in the next page of the wizard.
Default User	Enter a user name to assert to the remote producer when the user has not authenticated to the application. When unauthenticated, the identity `anonymous` is associated with the application user. OWSM does not currently support the propagation of an anonymous identity, so you must specify an alternative identity here. Keep in mind though, that in this case, the application has not authenticated the user so the default user you specify should be a low privileged user in the remote producer that is an appropriate identity to use for showing public content. For example, you may want to create a guest account in the identity store for this purpose. If the user has authenticated to the application, then the user's identity is asserted rather than the default user. **Note:** • If you specify a **Default User**, the remote producer must be set up to accept this information. • The **Default User** field does not appear if you selected **User Name Token with Password**.

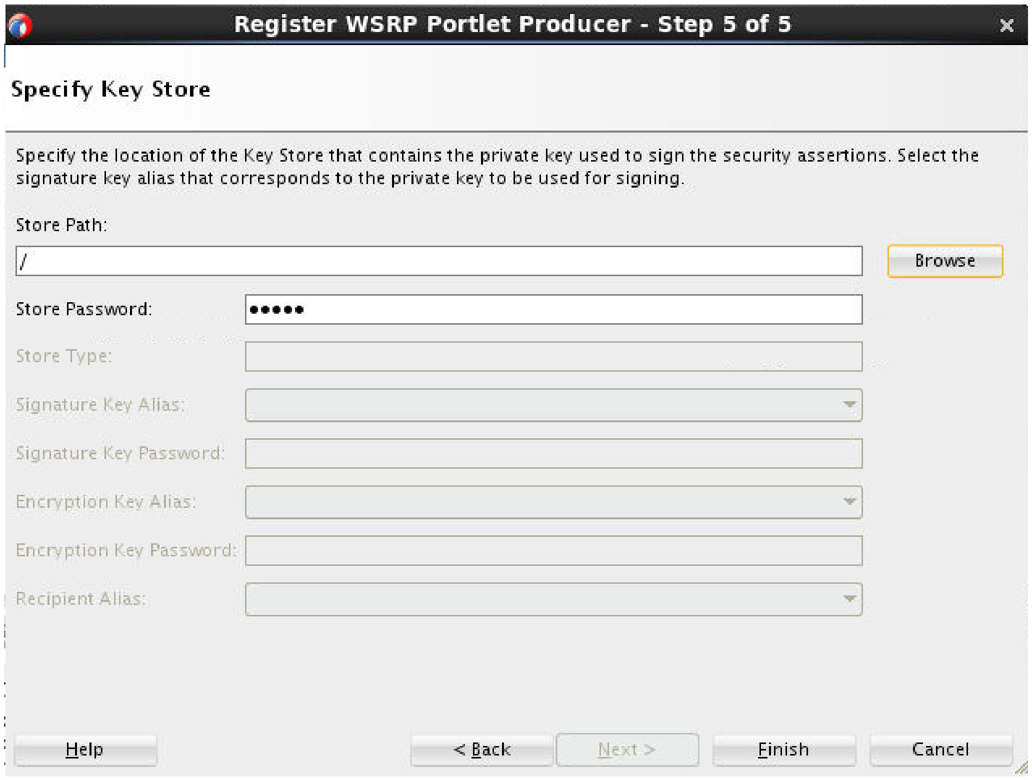
Fields	Description
Issuer Name	Enter the name of the issuer of the SAML Token, for example `www.oracle.com`. This field appears only if you selected an SAML Token option from the **Token Profile** drop-down list, and **Custom** from the **Configuration** options. The issuer name is the attesting entity that vouches for the verification of the subject.
Associate Producer with External Application	Select the application, if this producer must provide authentication to an external application. This option is available only if you selected `User Name Token with Password`.

11. Choose one of the following options.
    - Click **Finish**, if you selected **Default** as the configuration option the fields on the Specify Key Store page are disabled.

      If the producer declares user categories, when you click **Finish**, the Register WSRP Portlet Producer dialog displays. Click **Yes** and see How to Map a Producer's Declared User Categories to an Application's Defined Java EE Security Roles. Click **No** to decline this opportunity and complete the registration process.
    - Click **Next** to continue.

    If you selected Next, the **Specify Key Store** page of the Register WSRP Portlet Producer wizard opens.

Figure 14-5 Specify Key Store of the Register WSRP Portlet Producer wizard


Register WSRP Portlet Producer - Step 5 of 5

Specify Key Store

Specify the location of the Key Store that contains the private key used to sign the security assertions. Select the signature key alias that corresponds to the private key to be used for signing.

Store Path: /

Store Password: ●●●●●

Store Type:

Signature Key Alias:

Signature Key Password:

Encryption Key Alias:

Encryption Key Password:

Recipient Alias:

12. On the Specify Key Store page, specify the keystore details.

Fields	Description
Store Path	Provide the full path to the keystore that contains the certificate and the private key that is used for signing some parts (security token and SOAP message body) of the SOAP message. If you are not sure of the full path, click **Browse** to navigate to and select the file. The selected file should be a keystore created with the Java keytool.
Store Password	Provide the password to the keystore that was set when the keystore was created. The keystore password must be correct for the **Store Type** field and the **Signature Key Alias** drop-down list to populate. If an incorrect keystore path or password is entered, then an error message appears stating that the password is invalid and must be corrected. All fields on this screen except for **Store Path** and **Store Password** are disabled until you specify the correct values.
Store Type	The store type is always JKS (Java Key Store). The Store Type value is read from the keystore and is never editable.
Signature Key Alias	Select the signature key alias. This list populates automatically when the correct password is entered in the Store Password field. The Signature Key Alias is the identifier for the certificate associated with the private key that is used for signing. The key aliases found in the specified keystore are available in the list. Select the one to be used for signing.
Signature Key Password	Specify the password for accessing the key identified by the alias specified in Signature Key Alias.
Encryption Key Alias	(Optional) Select the encryption key alias. This list populates automatically when the correct password is entered in the Store Password field. The key aliases found in the specified keystore are available in the list. Select the one to be used for encryption.
Encryption Key Password	Specify the password for accessing the key identified by the alias specified in Encryption Key Alias.
Recipient Alias	Select the keystore alias that is associated with the producer's certificate. This certificate is used to encrypt the message to the producer. This field is not displayed if you selected **SAML Token with Message Integrity** as the **Token Profile** in the Configure Security Attributes page of the wizard.

13. Click **Finish**.

If the producer declares user categories, when you click **Finish**, a dialog displays asking whether you want to map the user categories to Java EE roles. Click **Yes** and see How to Map a Producer's Declared User Categories to an Application's Defined Java EE Security Roles. Click **No** to decline this opportunity and complete the registration process.

If the producer declares user categories, when you click **Finish**, a dialog displays asking whether you want to map the user categories to Java EE roles. Click **Yes** and see How to Map a Producer's Declared User Categories to an Application's Defined Java EE Security Roles. Click **No** to decline this opportunity and complete the registration process.

How to Map a Producer's Declared User Categories to an Application's Defined Java EE Security Roles

The producer-declared user categories come from the portlets it contains. For example, if the producer contains one or more JSR 286 portlets created with the Standards-based Java Portlet (JSR 286) wizard, then any security roles added during portlet creation are included in the **user categories the producer declares**. Java EE security roles can be specified through the application's `web.xml` file properties.
To map producer-declared user categories with application-defined Java EE security roles:

1. After you click **Finish** in the **Register WSRP Portlet Producer** wizard, click **Yes** in the resulting dialog.
2. In the User Categories dialog, for each **User Category**, click the corresponding field in the **J2EE Security Role** column.

   The User Categories dialog is also accessible when you edit producer registration settings.
3. From the resulting list, select the security role to map to the producer user category.
4. Click **OK** when all user categories are mapped.

Registering an Oracle PDK-Java Portlet Producer with WebCenter Portal

When you register a PDK-Java portlet producer, you provide basic information that describes the producer's operational parameters. This information is used by the portlet-consuming application to communicate with the producer and with the portlets through the producer.
When registration is successful, the newly registered producer is displayed in JDeveloper either in the Application Resources panel of the Application Navigator, or in the Resource Palette, depending on where you created the connection. You can then select portlets from the producer for placement on your application (.jspx) page.

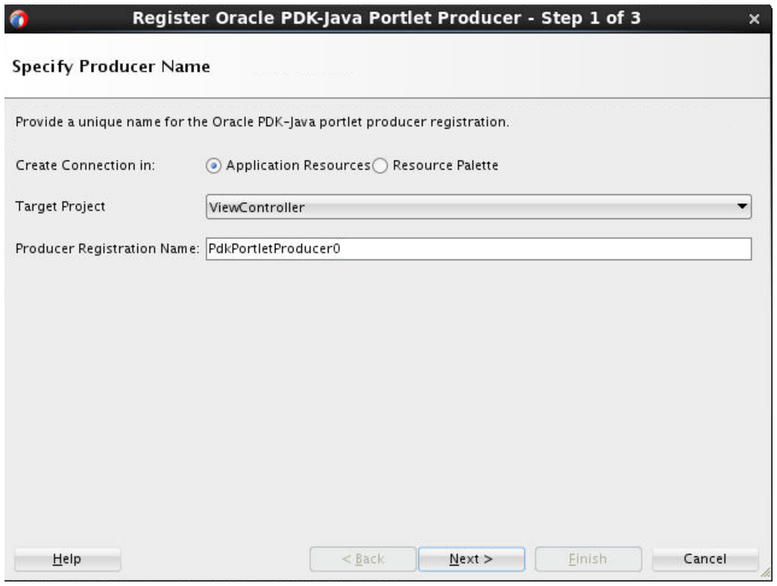
> **Note:**
>
> In the Register Oracle PDK-Java Portlet Producer wizard, if you click Cancel after you have clicked Finish, the registration is not canceled.

To register a PDK-Java portlet producer:

1. Open Oracle JDeveloper.
2. In the Application Navigator, expand Application Resources node.
3. In the Application Resources, right-click **Connections** , and select **New Connection**, then select **Oracle PDK-Java Producer** from the context menu.

   The **Specify Producer Name** page of the **Register Oracle PDK-Java Producer Producer** wizard opens.

Figure 14-6 Specify Producer Name of the Register Oracle PDK-Java Producer Producer



Provide a unique name for the Oracle PDK-Java portlet producer registration.

Create Connection in: [✓ Application Resources] Resource Palette

Target Project: ViewController

Producer Registration Name: PdkPortletProducer0

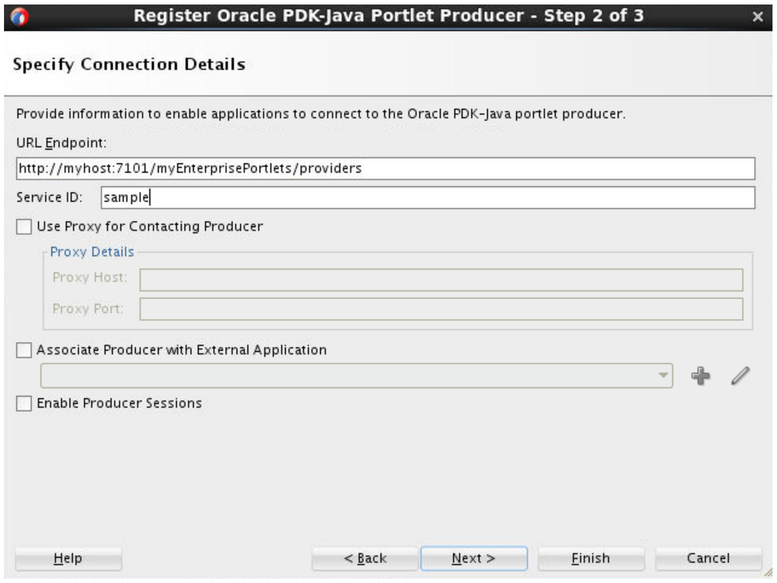
4. On the **Specify Producer Name page**, enter the PDK-Java Producer details.

Fields	Description
Create Connection in	Select the create connection option depending on how you accessed the wizard. • **Application Resources**—Choose this option if you invoked the wizard from an application. This is the default selection. • **Resource Palette**—Choose this option if you invoked the wizard from the Resource Palette.
Target Project	Select the project to be configured for the PDK-Java producer connection. **Note**: You can change this option only if you invoked the wizard from the Application Navigator.
Producer Registration Name	Enter a name for the producer registration that is unique among all connections.

5. Click **Next.**

   The **Specify Connection Details** page of the **Register Oracle PDK-Java Producer** wizard opens.

Figure 14-7 Specify Connection Details of the Register Oracle PDK-Java Producer Wizard


Register Oracle PDK-Java Portlet Producer - Step 2 of 3
Specify Connection Details

Provide information to enable applications to connect to the Oracle PDK-Java portlet producer.

URL Endpoint: http://myhost:7101/myEnterprisePortlets/providers

Service ID: sample

☐ Use Proxy for Contacting Producer

Proxy Details

Proxy Host:

Proxy Port:

☐ Associate Producer with External Application

☐ Enable Producer Sessions

Help
< Back
Next >
Finish
Cancel

6. In the **Specify Connection Details** page, enter the connection details for Oracle PDK-Java Producer.

Fields	Description

URL Endpoint	Enter the producer's URL using the following syntax:
	`http://host:port/context-root/providers`
	Where:
	• `host` is the server to which your producer has been deployed.
	• `port` is the port to which the server is listening for HTTP requests.
	• `context-root` is the Web application's context root.
	• `providers` is static text. The text entered here depends on how the producer is deployed.
	For example:
	`http://myhost.example.com:7101/myEnterprisePortlets/providers`

Fields	Description

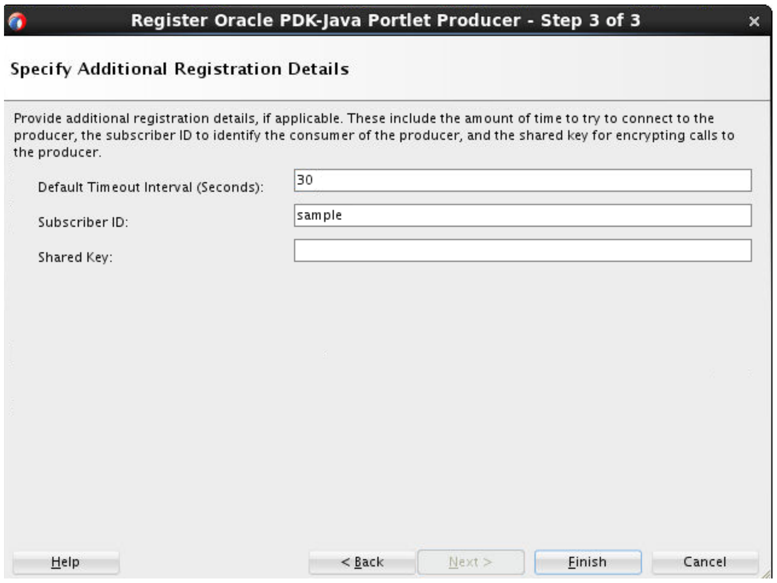
Service ID	Enter the unique identifier for this producer.
	PDK-Java enables you to deploy multiple producers under a single adapter servlet. The producers are identified by their unique service IDs. A service ID is required only when a service ID or producer name is not appended to the URL endpoint.
	For example the following URL endpoint requires the service ID, `sample`:
	`http://myhost:7101/myEnterprisePortlets/providers`
	However, the following URL endpoint, does not require a service ID:
	`http://myhost:7101/myEnterprisePortlets/providers/sample`

Use Proxy for Contacting Producer	Select the option if your application and the producer are separated by a firewall. An HTTP proxy is needed for communication between the application and the producer, if it is separated by a firewall. Specify the URL and port number of the proxy. **Note**: The proxy fields in this step default to the proxy preferences set in JDeveloper Preferences (from the main menu, choose **Tools** then **Preferences**, and then select **Web Browser and Proxy**).
Associate Producer with External Application	If this producer must provide authentication to an external application, select the option, then select the application from the drop-down list.
Enable Producer Sessions	Select to enable sessions between the producer and the consuming application. When sessions are enabled, the server maintains session-specific information, such as user name. Message authentication uses sessions, so if the shared key is set, then this option should also be selected. For sessionless communication between the producer and the server, deselect this option.

7. Choose one of the following options:
   - You can click **Finish** to complete the registration, using the default values for all remaining steps.
   - You can click **Next** to provide additional details and follow the remaining steps.

   If you click **Next**, the **Specify Additional Details** page of the **Register Oracle PDK-Java Producer Producer** wizard opens.

Figure 14-8 Specify Additional Details of the Register Oracle PDK-Java Producer Wizard


Register Oracle PDK-Java Portlet Producer - Step 3 of 3
Specify Additional Registration Details

Provide additional registration details, if applicable. These include the amount of time to try to connect to the producer, the subscriber ID to identify the consumer of the producer, and the shared key for encrypting calls to the producer.

Default Timeout Interval (Seconds): 30

Subscriber ID: sample

Shared Key:

Help
< Back
Next >
Finish
Cancel

8. In the **Specify Additional Details** page enter additional PDK-Java Producer details.

Fields	Description
Default Timeout Interval (Seconds)	Enter the number of seconds to wait for the producer to respond during design time operations.
Subscriber ID	Enter a string to identify the consumer of the producer being registered. When a producer is registered, a call is made to the producer. During the call, the consumer passes the value for Subscriber ID to the producer. This value is also passed every time a portlet call is made. If the producer does not see the expected value for Subscriber ID, then it might reject the registration call. **Note:** Editing the producer registration to change the Subscriber ID after the initial registration has no effect. To specify a different Subscriber ID, you must reregister the producer.
Shared Key	Enter a shared key to use for producers that are set up to handle encryption. The shared key is used by the encryption algorithm to generate a message signature for message authentication. Producer registration fails if the producer is set up with a shared key and you enter an incorrect shared key here. The shared key can contain between 10 and 20 alphanumeric characters.

9. Click **Finish**.

Managing Portlet Producer Connections

After registering a portlet producer, you can edit the registration settings, test the connection, refresh the producer to obtain the latest list of portlets, or delete the connection to the portlet producer.

This section includes the following topics:

- Editing Portlet Producer Registration Settings
- Testing a Portlet Producer Connection
- Refreshing a Portlet Producer
- Deleting a Portlet Producer

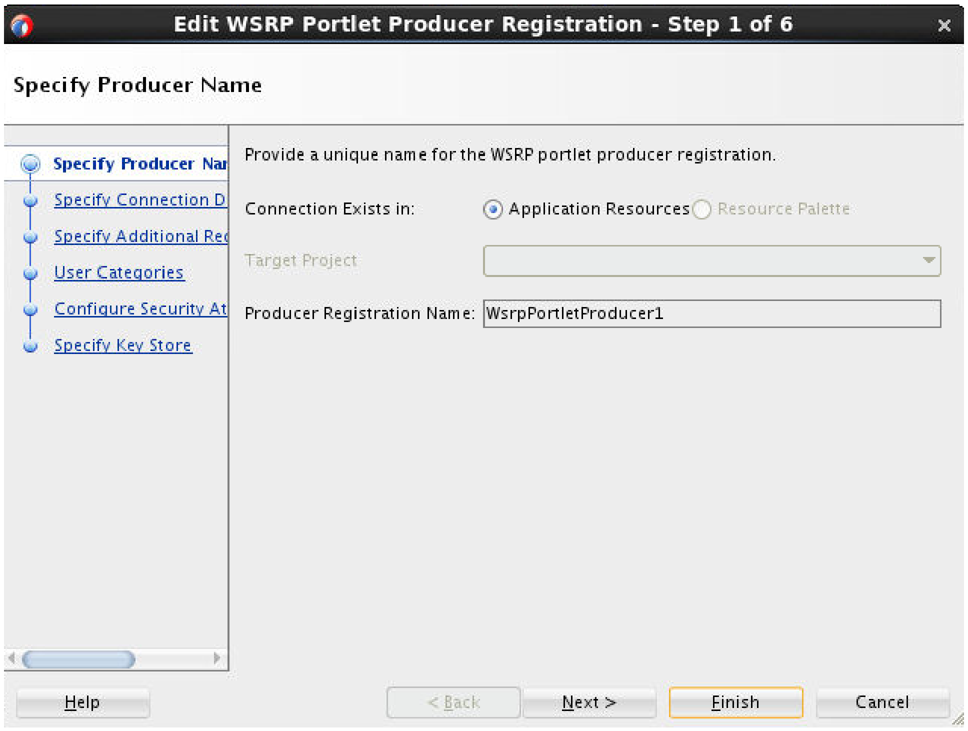
Editing Portlet Producer Registration Settings

Both the WSRP and PDK-Java portlet producer registration wizards enable you to access and revise many of the values you entered when you registered the producer.

To edit portlet producer registration settings:

1. Open Oracle JDeveloper.
2. In the Application Navigator, expand Application Resources node.
3. Navigate to the producer and right-click to edit, then choose **Properties**.
4. Edit the producer registration properties as required, click **Next** to step through the pages of the wizard.

Figure 14-9 Edit Portlet Producer



Provide a unique name for the WSRP portlet producer registration.

Connection Exists in: [✓ Application Resources] Resource Palette

Target Project

Producer Registration Name: WsrpPortletProducer1

You can also click the links in the navigation panel on the left side of the wizard to go directly to a specific step.

- For information about WSRP Producer settings, see Registering a WSRP Portlet Producer with WebCenter Portal
- For information about Oracle PDK-Java Producer settings, see Registering an Oracle PDK-Java Portlet Producer with WebCenter Portal

You cannot edit the **Producer Registration Name**.

5. When you have changed all the necessary settings, click **Finish**.
6. Editing some properties, such as the **WSDL URL** or **URL Endpoint**, requires a producer refresh. When you make such a change, a dialog displays allowing you to refresh the producer immediately, save the changes but do not refresh the producer, or return to the edit producer registration wizard. Click **Yes**, **No**, or **Cancel** as appropriate.

> **Note:**
>
> While you can edit the value of the **WSDL URL** field, you can point to a different producer only if the new producer has access to the preference store of the old producer, or if the preference store of the old producer has been migrated to that of the new producer.

7. Click **OK** when the producer has been successfully refreshed, if necessary.
8. Once you have completed your edits, consider testing the producer connection to be sure the connection information is valid. For more information, see Testing a Portlet Producer Connection.

Testing a Portlet Producer Connection

The connection testing feature provides a means of testing the validity of a portlet producer connection.

To test a portlet producer connection:

1. Open Oracle JDeveloper.
2. In the Application Navigator, expand Application Resources node.
3. Navigate to the producer and right-click the producer to test, and choose **Test Producer Connection**.
4. A progress bar appears while the test is underway. A success or failure dialog displays when the test is complete. Click **OK** to close this dialog.

   If the failure dialog displays, consider editing the producer registration details and retesting the producer connection. Additionally, especially if the failure dialog takes a long time to display, ensure that the producer is available. For example, if the producer is provided through the Integrated WLS, ensure that the Integrated WLS is running, and then retest the connection.

Refreshing a Portlet Producer

When you refresh a portlet producer, the portlets from that producer are also refreshed. Newly added portlets and any updates to existing portlets become available to any applications that are consuming portlets from this producer.

Tip:

When a portlet is removed from a producer, be sure to manually delete the portlet from all application pages on which it has been placed. For more information, see Deleting a Portlet Producer

To refresh a portlet producer:

1. Open Oracle JDeveloper.
2. In the Application Navigator, expand Application Resources node.
3. Navigate to the producer and right-click the producer you want to refresh, and choose **Refresh Producer Registration**.
4. In the Portlet Producer Refresh dialog, click **Yes**.

Deleting a Portlet Producer

If you no longer want to use a particular producer with your application, you can delete the producer.

Note:

If you delete a producer, any pages that consume portlets from that producer display an error message that the portlet is unavailable. The portlets continue to be unavailable even if you re-register the producer using the same name.

To delete a portlet producer:

1. Open Oracle JDeveloper.
2. In the Application Navigator, expand Application Resources node.
3. Navigate to the producer and right-click the producer you want to delete, and choose **Delete**.
4. In the Delete Confirmation dialog, click **Yes**.

Adding Portlets to a Page

Placing a portlet on a page is a simple matter of dragging the portlet from the Application Resources panel or Resource Palette and dropping it on the page.

Before You Begin

Before you can place a portlet on a page, there are a few preparatory steps you must perform before you can take this simple action. These include:

1. Creating an ADF application
2. Creating an application page in the ADF application.
3. Registering the portlet's producer with the application.
4. Some of the portlets you plan to consume may come from applications that handle their own authentication. In such cases, you must register the application as an external application and identify it to the portlet producer that provides it.
5. Some of the portlets you plan to consume may come from producers that are Secure Sockets Layer (SSL) enabled. When you try to access an SSL-enabled producer, you may be presented with a Security Alert dialog, prompting you to view the producer's certificate and add it to the list of trusted certificates. The Security Alert dialog displays only if the producer uses a security certificate issued by a certificate authority that is not widely accepted. To consume portlets from such a producer, you must first add the producer's security certificate to the keystore.

Topics:

How to Add a Portlet to a Page

You can add a portlet to a page by dragging and dropping it from the Application Resources panel of the Application Navigator or from the Resource Palette.
To add a portlet to a page:

1. Open Oracle JDeveloper.
2. In the Application Navigator, open the application that contains the page (`.jspx` file) to which you want to add the portlet.
3. Expand the project that contains the page.
4. Locate the page, right-click it, and then choose **Open**.

> **Tip:**
>
> You can also double-click the page to open it.

5. Under the Connections node in the Application Resources panel, or in the Resource Palette,
   - Expand the **WSRP Producer** node, if the producer is a WSRP producer.
   - Expand the **Oracle PDK-Java Producer** node, if the producer is a PDK-Java producer.
6. Expand the node for the portlet producer that contains the portlet to add to the page.

   Under the selected producer, all portlets contained by that producer are listed.
7. Drag the portlet from the producer node directly onto the page.

   You should drag the portlet onto a form on the page. If you do not, a dialog displays prompting you to create a form to contain the portlet.
   - Select **ADF Faces-Form** if the page contains rich client components. This adds an `af:form` component to the page.
   - Select **JSF HTML-Form** if the page contains HTML components (for example, if it is an upgraded 10.1.3.2 page). This adds an h:form or `tr:form` component to the page, depending on the surrounding document tag.

   Do not select HTML - Form as this is not valid for portlets.

Note:

You can include any Oracle ADF Faces component or task flow as a child component of a `Show Detail Frame` component. However, portlets contain headers similar to those provided by the `Show Detail Frame` component and can be added to a Panel Customizable component directly. There are no additional benefits to including portlets in `Show Detail Frame` components.

Note:

If you add a portlet as a Trinidad component, that is, inside a `tr:form` component, and the portlet implements modes other than View mode, you must include the following in the application's `web.xml` file:

```
<context-param>
  <param-name>
    oracle.adf.view.rich.newWindowDetect.OPTIONS
  </param-name>
  <param-value>off</param-value>
</context-param>
```

Note:

If you are adding a PeopleSoft portlet to a page, you must set the `renderPortletInIFrame` portlet tag attribute to `true`.

For more information, see Setting Attribute Values for the Portlet Tag.

What Happens When You Add a Portlet to a Page

When you add a portlet to a page, a portlet tag (`adfp:portlet` or `adfph:portlet`) is added to the page source. This is the tag that represents the portlet component. This tag includes attributes that you can edit using the Property Inspector, or in the page source, to further control the behavior and appearance of the portlet. For information about these attributes, see Setting Attribute Values for the Portlet Tag.

The type of portlet tag used is determined by the following:

- If the project is configured for rich client components alone, the `adfp:portlet` tag is used.
- If the project is configured for Trinidad components alone, the `adfph:portlet` tag is used.
- If the project is configured for both rich client and Trinidad components, a dialog displays where you can choose which portlet tag to use.
- If the project is not configured for rich client or Trinidad components, the `adfp:portlet` tag is used and the project is automatically configured for rich client components.

This is so that the look and feel of the portlet matches that of other components on the page. In this case, the portlet is added using the `adfp:portlet tag`, as shown in the following example:.

Example 14-1 Rich Client Page Containing a Portlet

```
<?xml version='1.0' encoding='US-ASCII'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.0"
          xmlns:h="http://java.sun.com/jsf/html"
          xmlns:f="http://java.sun.com/jsf/core"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich"
          xmlns:adfp="http://xmlns.oracle.com/adf/faces/portlet">
  <jsp:directive.page contentType="text/html;charset=US-ASCII"/>
  <f:view>
    <af:document>
      <af:form>
         <adfp:portlet value="#{bindings.Portlet11_1}"
               id="portlet1"
                  renderPortletInIFrame="true"/>
     </af:form>
    </af:document>
  </f:view>
</jsp:root>
```

If you are working with an upgraded **10.1.3.2** application or an application that contains Trinidad components, the application uses HTML components, rather than rich client components. In this case, when you drag a portlet onto a page, the `adfph:portlet` tag is used, as shown in the following example.

Example 14-2 Trinidad Page Containing a Portlet

```
<?xml version='1.0' encoding='US-ASCII'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.0"
          xmlns:h="http://java.sun.com/jsf/html"
          xmlns:f="http://java.sun.com/jsf/core"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich"
          xmlns:tr="http://myfaces.apache.org/trinidad"
          xmlns:adfph="http://xmlns.oracle.com/adf/faces/portlet/html">
  <jsp:directive.page contentType="text/html;charset=US-ASCII"/>
  <f:view>
    <tr:document title="Title 1">
      <tr:form><adfph:portlet value="#{bindings.Portlet12_1}
              "id="portlet1"/>
      </tr:form>
    </tr:document>
  </f:view>
</jsp:root>
```

If the application page includes one or more Composer components, this may influence where the portlet is placed. For example, in the Structure panel, a portlet placed on a page with a `cust:panelCustomizable` tag, would be placed as illustrated in the following example:

Example 14-3 Hierarchical Placement of the Portlet Tag

```
af:document
  af:form
   cust:panelCustomizable
     adfp:portlet
```

Note:

We recommend that you do not mix ADF Faces rich client components with HTML or Trinidad components on the same page. Doing so may produce unexpected results at runtime. Therefore, do not place a rich client portlet inside a Composer HTML component or an HTML portlet inside a Composer rich client component.

What You May Need to Know About Interportlet Communication

One way to make your application more interactive is by linking related components such that their contents are synchronized based upon the context. For example, suppose you have two stock portlets on a page, one provides data about a stock's price while the other provides headline news items for a stock. Both portlets are based upon the stock ticker symbol, hence it would make sense that, when the ticker symbol is changed in the stock price portlet, the stock headlines portlet picks up that change and refreshes itself with headlines pertaining to the same ticker symbol.

The JSR 286 standard introduces public render parameters, which you can use to link portlets on a page. See How to Use Public Render Parameters in JSR 286 Portlets.

The JSR 286 standard also supports portlet events. You can use portlet events to drive the content of a portlet based on actions that occur elsewhere on the page. Portlet events can be cascaded so that a portlet may respond to an event by triggering an event of its own, which in turn affects other portlets on the page. Portlet events can also be consumed by ADF contextual events and contextual events can be consumed by portlets. You can use this to contextually link portlets and task flows. See How to Use Portlet Events in JSR 286 Portlets.

When you add a portlet to a page, a portlet binding is added to the page definition file. This portlet binding includes attributes that specify whether the portlet should automatically listen for parameter changes and events.

Example 14-4   Portlet Binding

```
<portlet id="LotteryPortlet2_1"
         portletInstance="oracle/adf/portlet/SamplePortlets/ap/
Ei7default_03ba18be_012d_1000_8002_0ae8827e9493"
         class="oracle.adf.model.portlet.binding.PortletBinding"
         retainPortletHeaders="false"
         listenForAutoDeliveredPortletEvents="true"
         listenForAutoDeliveredParameterChanges="true"
         xmlns="http://xmlns.oracle.com/portlet/bindings"/>
```

Setting these attributes to `true` (the default) means that any parameters that are changed or events that are raised elsewhere on the page that match those supported by the portlet (that is, they have the same QName) automatically cause the portlet to be updated accordingly. In addition, the portlet can define aliases for its parameters and events to match parameters and events with different QNames.

You can set these attributes to false to disable this automatic parameter and event listening. For example, your page might contain multiple instances of the same portlet that require values to come from different sources. If you disable automatic parameter and event listening, or if your portlet defines parameters or events with names that do not match those you want to use for linking, you must manually configure the portlet wiring. See Manually Wiring Parameters and Events in JSR 286 Portlets.

What You May Need to Know About Inline Frames

Rendering a portlet directly on a page provides a better user experience as compared to placing it in an inline frame (`iframe`). However, at times, it may be required to include the portlet markup inside an inline frame. You can use the `renderPortletInIFrame` attribute to determine whether or not a portlet should be rendered in an inline frame.

The default setting of the `renderPortletInIFrame` attribute is `auto`. This causes the portlet consumer to attempt to rewrite the portlet markup whenever possible, so that it renders correctly within the Oracle ADF page without the need for an inline frame.

However, in the following circumstances, the portlet is rendered within an inline frame:

- The parser throws an exception as it is not able to parse the markup.
- The portlet code contains a multi-part form post.
- The portlet code contains a file upload element.
- The portlet developer explicitly requested that the portlet be rendered in an inline frame by setting the `com.oracle.portlet.requireIFrame` container runtime option in the `portlet.xml` file to true.

> **Note:**
>
> Portlets created using the Oracle JSF Portlet Bridge have the `requireIFrame` container runtime option set to true as these portlets are too complex to render directly on Oracle ADF pages due to JavaScript issues.

In some circumstances, the portlet consumer may be unable to rewrite the portlet markup and JavaScript to accommodate the portlet in the Oracle ADF page. If this is the case, you may find that the portlet does not behave as expected, for example, buttons do nothing or you get JavaScript errors in the console. If this happens, you should set the `renderPortletInIFrame` attribute to `true` so that the portlet is always rendered in an inline frame.

Some examples of when you should set `renderPortletInIFrame` to true are when:

- The portlet code builds up element names dynamically in JavaScript.
- The portlet code uses multiple forms and references them in JavaScript by index.
- JavaScript library code references elements within the portlet.

If you render a portlet within an inline frame, then manipulating `window.location` may give unexpected results. If your portlet uses `window.location`, then you should ensure that your JavaScript is robust enough to handle the case where the portlet renders itself inside an inline frame.

If you want to ensure that a portlet is never rendered in an inline frame, for example for accessibility reasons, set the `renderPortletInIFrame` attribute to `false`. Note however, that HTML markup from a portlet that is not rendered in an inline frame may interfere with other components on the Oracle ADF page.

For more information about the accessibility implications of using inline frames, see WebCenter Portal Accessibility Features.

What You May Need to Know About Portlet Sizing

ADF Faces components can stretch their children, or not. It is usually a requirement that a parent only contains a single child for it to be able to stretch that child. Components also support being stretched or not. When a component that supports being stretched is placed inside a parent that is stretching its child, the dimension of the child is determined by those of the parent. The child is said to be stretched by the parent and it is sized to fill the parent.

When a component is not stretched by its parent, it is said to be in a flow layout. Here it is not taking its size from its parent. It must determine its own size, either from its children or from dimension style settings specified by the page designer.

The portlet Faces component supports being stretched by its parent. It does not explicitly stretch its children.

There are three ways the size of a portlet component is determined, depending on the portlet's parent component and attributes set on the portlet component itself.

- If the portlet is being stretched by its parent, the size is determined only by the parent. The portlet is in a stretch layout.
  - It does not matter how big the content is, this is irrelevant to the size of the portlet. If the content is bigger than the portlet, scrollbars are provided to enable users to display all the content.
  - If you specify a height for the portlet, it is ignored; stretching takes precedence.
  - This is the preferred layout method; it is always reliable.
  - The ADF Faces Tag documentation tells you whether each component stretches its children or not.
- If the portlet is not being stretched by its parent and explicit sizes are set, they are used.
  - This is also always reliable; you'll get the size you specified.
  - If the content is bigger than the specified size, scrollbars are provided to enable users to display all the content.
  - The size is fixed; the size of the content is not taken into account.
- If the portlet is not being stretched by its parent and no explicit sizes are set, the portlet attempts to auto-size to the content.

Auto-Sizing

When a portlet is in a flow layout and has no explicit size set, it attempts to set the size of the portlet so that it is exactly big enough to display all of the portlet content without scrollbars.

The portlet does this by asking the browser how much space is required to show the content without scrollbars and using that to set the height of the portlet. More specifically, it looks at the `scrollHeight` property of the inline frame window.

How well this works depends on what is inside the portlet. Some layouts have a nice intrinsic size which auto-sizes well. However, some layouts and components inside the portlet, typically those that allow their content to overflow invisibly or with scrollbars, effectively hide the size of their contents. In specific terms of the HTML markup are HTML elements with overflow setting of `hidden`, `auto`, or `scroll`. This can come from inline styles or CSS styles applied to the element.

The problem arises because the `scrollHeight` is the minimum height required to correctly display the content. If you have, for example, a `div` element with an `overflow="auto"`, then if that `div` is smaller than its content, then it uses scroll bars. So, when you ask what minimum size is needed to display the `div`, unless it has an explicit height or minimum height set, the answer is 0. That means that the content of this `div`, even if it has a definite height does not contribute to the overall scroll height of the content.

In ADF terms, this is often associated with components that expect to take their dimensions from their parents, for example panelStretchLayout with dimensionFrom="parent" or that scroll their contents, for example, panelGroupLayout with layout="scroll". These are the components that tend to have hidden or scrollable overflows.

Thinking about the ADF Faces layout model also gives us an alternative way of understanding the problem. The ADF Faces layout guidelines dictate starting with an unbroken chain of the components that are stretched by their parents and within that islands of flow layout, usually initiated by an af:panelGroupLayout where the components have fixed heights or take their dimensions from their children. If in the root of the portlet, we have that unbroken chain of components looking to take their dimensions from their parent but the portlet itself is in a flow layout and therefore is looking to take its dimensions from the content there is an impasse. The portlet is looking to take its dimensions from its parent for the size. It should be clear then that the solution to this is to stretch the portlet (that is, take it out of the flow layout island), set a height on the portlet, or make the content of the portlet entirely and island of flow layout content.

If the content cannot be auto-sized, the height defaults to 200px in Firefox and 0px in Internet Explorer. The fact that Internet Explorer is 0 is caused by incorrect behavior where the `scrollHeight` does not correctly respect the `min-height` CSS style setting. In Firefox, the 200px height comes from the `minheight` setting on the region that renders the portletized task flow. To work around this, you can set the `height` or `min-height` CSS in the consumer.

Auto-Sizing Best Practice

To get the best results when using the portlet in a flow layout where you want it auto-size the content:

- Make the portlet content an unbroken chain of components that take their dimensions from their children.
- Use the `dimensionsFrom="children"` attribute on components that support it, for example, `af:panelStretchLayout`, to make them take their dimensions from their children.
- Use `layout="vertical"` rather than `layout="scroll"` on `panelGroupLayout` to make the size of its children contribute to the overall auto-sized dimensions.
- When switching from the flow layout chain of components to a stretch layout, set an explicit height on the first component that stretches its children. Typically, this will be where you have used `panelStretchLayout` with `dimensionsFrom="parent"`.

What You May Need to Know About Minimize, Restore, and Move

To accommodate the needs of the development environment, the behavior of the actions Minimize, Restore, and Move for Show Detail Frame and portlet components differs between design time and runtime. At design time, these actions persist in a given WLS session, but do not persist over sessions (session means the time between starting and stopping WLS). At runtime, these actions persist both during a given WLS session and across sessions.

This difference has been introduced to enable an automatic reset of an application page at design time.

If persisting across sessions is not required at runtime, then a simple modification to the application's web.xml file can turn it off. Go to the following parameter setting in the application's web.xml file.

Example 14-5 Persistence Setting in the Application's web.xml File

```
<context-param>
  <param-name>oracle.adf.view.faces.CHANGE_PERSISTENCE</param-name>
  <param-value>oracle.adfinternal.view.faces.change.HybridChangeManager</
param-value>
</context-param>
```

Replace it with the following example.

Example 14-6 Turning Runtime Persistence Off in the Application's web.xml File

```
<context-param>
  <param-name>oracle.adf.view.faces.CHANGE_PERSISTENCE</param-name>
  <param-value>oracle.adf.view.faces.change.SessionChangeManager</param-
value>
</context-param>
```

If security has been implemented on the application, then the Minimize, Restore, and Move actions display only to users with Customize privileges. They do not display to users with Personalize privileges. Customize users can test the effect of these actions by following these steps at design time:

1. Run the application page using JDeveloper's Integrated WLS.
2. Log in as the administrator.
3. Minimize a portlet, move portlets around, make whatever changes you want using the relevant actions commands.
4. Log out, then log in as a user and check the effects of your actions.

What Happens at Runtime

Once you place a portlet on a page, right-click the page and choose Run. This displays the page and runs the portlet in your default browser using JDeveloper's Integrated WLS. Different portlets may require additional runtime configuration. For more information about portlets generally, see Introduction to Portlets.

When running a portlet that has an Edit mode (this renders as a Personalize icon (pencil icon) in the portlet header), the Personalize icon displays only to authenticated users (that is, users who have logged in). Anonymous or public users do not see the option to personalize the portlet. Some form of security must be implemented for the portlet-consuming application before users can personalize their view of a portlet. If you are a developer creating portlets and pages, you may want to test your portlet's Edit mode without creating a complete security model for your application. For information about how to add security to enable testing of a portlet's Edit mode.

Note:

To be able to add portlets to your page at runtime, you must add at least one portlet to that page at design time. Adding a portlet at design time ensures that the following is added to the <definitionFactories> element of the DataBindings.cpx file:

```
<factory nameSpace="http://xmlns.oracle.com/portlet/bindings"
className="oracle.adf.model.portlet.binding.PortletBindingDefFactor
yImpl"/>
<dtfactory
className="oracle.adfdtinternal.view.faces.portlet.PortletDefinitio
nDTFactory"/>
```

This entry is required to enable consumption of portlets at runtime.

If a portlet supports parameters or events and the automatic parameter and event listening is enabled, any changes to the supported parameters and events (or to parameters and events that are aliased) automatically update the portlet.

When running a portlet from a producer associated with an external application, a link to update login information is displayed. Clicking the link displays a credential provisioning page for entering external application credentials. After specifying valid credentials the portlet displays content appropriately. For more information about external applications.

Setting Attribute Values for the Portlet Tag

In the source code view of a page, each portlet is represented by an `adfp:portlet` tag (or `adfph:portlet tag`), which includes a set of required and optional attributes. Required attributes, `value` and `portletType`, are provided automatically by the framework , and must not be altered. Optional attribute values are relevant when support for the attribute is built into the portlet. For example, you can set `isAboutModeAvailable` to `true`, but if no About mode has been defined for the portlet, then the attribute setting does not affect the portlet.

Portlets also support a set of style-related attributes.

The portlet tag uses many attributes, which you can set at design time either through the JDeveloper Property Inspector or in the source code as attributes of the tag.

Topics:

- How to Set Attribute Values for the Portlet Tag Using the Property Inspector
- How to Set Attribute Values for the Portlet Tag in Source Code
- Common Attributes of the Portlet Tag
- Appearance Attributes of the Portlet Tag
- Behavior Attributes of the Portlet Tag
- Portlet Modes Attributes of the Portlet Tag
- Style Attributes of the Portlet Tag

- Binding Attributes of the Portlet Tag
- Customization Attributes of the Portlet Tag
- Other Attributes of the Portlet Tag

How to Set Attribute Values for the Portlet Tag Using the Property Inspector

The Property Inspector provides a quick and easy way to set attribute values for the portlet tag without having to edit the source code yourself.
To set attribute values for the portlet tag using the Property Inspector:

1. In the Application Navigator, open the application that contains the page on which the portlet appears.
2. Expand the project that contains the page.
3. Locate the page, right-click it, and then choose **Open**.

   Tip:

   You can also double-click the page to open it.

4. In the design view, select the portlet whose attributes you want to set.
5. In the Property Inspector, click the appropriate tab and set the desired attribute.

   Repeat this step as often as required.
6. Save your changes.
7. To test the changes you have made, right-click the page and choose **Run**.

How to Set Attribute Values for the Portlet Tag in Source Code

To set attribute values for the portlet tag directly in the source code:

1. In the Application Navigator, open the application that contains the page on which the portlet appears.
2. Expand the project that contains the page.
3. Locate the page, right-click it, and then choose **Open**.

   Tip:

   You can also double-click the page to open it.

4. In the design view, select the portlet whose attributes you want to set.
5. Click the **Source** tab.

   The portlet that you selected is highlighted in the source code.
6. Make your changes directly to the source code.

The following example shows an edited portlet tag.

```
<adfp:portlet value="#{bindings.portlet1}"
              portletTypes="/oracle/adf/portlet/WsrpPortletProducer1/
applicationPortlets/

E0default_b452f828_010a_1000_8002_82235f57eaa8"
                               allModesSharedScreen="true"
                            />
```

7. Save your changes.
8. To test the changes you have made, right-click the page and choose **Run**.

Common Attributes of the Portlet Tag

The following describes the common attributes of the portlet tag.

Table 14-1 Common Attributes of the Portlet Tag

Attribute	Value	Description
`id`	Text string. For example: `id="newsBrief"`	The unique identifier of the portlet. This attribute is populated with a unique value by default when you add the portlet to a page. The value must follow a subset of the syntax allowed in HTML: • Must not be a zero-length string. • First character must be an ASCII letter (A-Z a-z) or an underscore (_). • Subsequent characters must be ASCII letter or digits (a-Z a-z 0-9), underscores (_), or dashes (-).

Table 14-1 (Cont.) Common Attributes of the Portlet Tag

Attribute	Value	Description
`title`	Text string. For example: `title="Announcements"`	The portlet title, which is displayed in the portlet header. The value specified here takes precedence over any title specified elsewhere (for example, in the portlet markup). If no value is specified here, the portlet extracts its title from the portlet markup (response). If no value is specified either here or in the portlet markup, the portlet extracts its title from the portlet definition. **Note**: Supplying a value to the title attribute at design time means that any change made to the title at runtime in Edit or Edit Defaults mode is ignored.

`width`	Number expressed in pixels or as a percentage of available area:
	• For pixels, enter npx, for example:
	`width = 300px`
	• For percentage, enter n%, for example:
	`width = 50%`
		The width of the area to allow for portlet display.
		If the actual portlet width is larger than the `width` value entered here, a scrollbar appears, provided `displayScrollBar` is set to `auto` or `true`. If `displayScrollBar` is set to `false`, and the actual portlet width exceeds the value expressed for the `width` attribute, the `width` attribute value is considered and the portlet content is truncated.

`height`	Number expressed in pixels, for example: `height = 300px`	The height of the area to allow for portlet display. If the actual portlet height is larger than the `height` value entered here, a scrollbar appears, provided `displayScrollBar` is set to `auto` or `true`. If `displayScrollBar` is set to `false`, and the actual portlet height exceeds the value expressed for the `height` attribute, the height attribute value is considered and the portlet content is truncated.

Table 14-1 (Cont.) Common Attributes of the Portlet Tag

Attribute	Value	Description
`icon`	URI to an image. For example: `icon="coffee.png"`	A URI specifying the location of an image to use as an icon, displayed to the left of the portlet title in the portlet header. You can use the icon to indicate the portlet's purpose, to reinforce branding, as a content indicator, or for some other reason. In the Property Inspector, click the Property Menu icon next to the field and then choose **Edit** to locate and select the required image. The value must be an absolute URI or a URI that is resolvable relative to the current page or the application context root. The URI provided in the preceding example is stored at the application context root, therefore a full path is not required.
`partialTriggers`	One or more component IDs. For example: `partialTriggers="_id1 _id2 componentID5"` Separate component IDs with spaces.	The IDs of the components that trigger a partial update. The portlet listens on the specified trigger components. If a trigger component receives a trigger event that causes it to update in some way, this portlet also requests to be updated.

Appearance Attributes of the Portlet Tag

The following table describes the appearance attributes of the portlet tag.

Table 14-2 Appearance Attributes of the Portlet Tag

Attribute	Value	Description
`expansionMode`	`minimized` `normal` Default: `normal`	The default state of the portlet: • `minimized`—The portlet's default display mode is collapsed (minimized). • `normal`—The portlet's default display made is neither collapsed nor expanded to the width of the page.

Table 14-2 (Cont.) Appearance Attributes of the Portlet Tag

Attribute	Value	Description

`allModesSharedScreen`	`auto`
	`false`
	`true`
	Default: `auto`
		Whether a change in portlet mode renders the new mode on a new page, rather than the page on which the portlet resides.
		• `auto`—All portlet modes are displayed inline if the remote portlet is configured, through the `com.oracle.portlet.requireIFrame` container runtime option in its `portlet.xml` file, to require an inline frame (IFRAME). This ensures that Oracle Bridge portlets are displayed inline.
		• `false`—All portlet modes, except View (JSR 286) or Show (PDK-Java), are rendered each on their own page.
		• `true`—All portlet modes are displayed inline. One mode is swapped out for another on the same page. In other words, this attribute enables all portlet modes to display without leaving the context of a given page.

`renderPortletInIFrame`	`auto`
	`false`
	`true`
	Default: `auto`
		Whether the portlet is rendered in an IFRAME:
		• `auto`—Whenever possible, the portlet consumer attempts to rewrite the portlet markup so that it renders correctly in an ADF page. Otherwise, the portlet is rendered in an IFRAME.
		• `false`—The portlet is never rendered in an IFRAME.
		• `true`—The portlet is always rendered in an IFRAME.
		For more information, see What You May Need to Know About Inline Frames.

Table 14-2 (Cont.) Appearance Attributes of the Portlet Tag

Attribute	Value	Description

`displayScrollBar`	`auto`
	`false`
	`true`
	Default: `auto`
		Whether a scroll bar is displayed:
		• `auto`—Render a scroll bar if the portlet content does not fit the `width` and `height` specified.
		• `false`—Never render a scroll bar. If the portlet content does not fit the `height` and `width` specified, the portlet renders in its actual size.
		• `true`—Always render a scroll bar.

`displayHeader`	`false`
	`true`
	Default: `true`
		Whether the portlet header is displayed:
		• `false`—The portlet header is not displayed. Icons and links normally displayed in the header are hidden. If `isSeededInteractionAvailable` is set to `true`, users can access portlet menus and icons by rolling the mouse over the portlet. A fade-in/fade-out toolbar appears, from which users can select Actions menu options.
		• `true`—The portlet header is displayed. Consequently, header-based icons and links are displayed.

`displayShadow`	`false`
	`true`
	Default: `true`
		Whether to display a shadow decoration around the portlet:
		• `false`—Do not display a shadow decoration.
		• `true`—Display a shadow decoration.

Table 14-2 (Cont.) Appearance Attributes of the Portlet Tag

Attribute	Value	Description

`rendered`	`false`
	`true`
	Default: `true`
		Whether the portlet is rendered.
		• `false`—Do not render the portlet. No output is rendered.
		• `true`—Render the portlet. This is the recommended setting. Setting this attribute to `false` causes problems when you run the page.

`background`	`dark`
	`light`
	`medium`
	Default: `medium`
		The style selector to apply to the skin used by the portlet:
		• `dark`—Apply the dark style selector to the skin.
		• `light`—Apply the light style selector to the skin.
		• `medium`—Apply the medium style selector to the skin.
		This provides a way for you to apply a different look and feel to each portlet on an page.

`shortDesc`	Text string. For example: `shortDesc="Portlet for entering display text in place."`	A short description of the portlet.

`displayActions`	`always`
	`onHover`
	Default: `always`
		Whether seeded interactions for the portlet are shown:
		• `always`—Always show seeded interactions.
		• `onHover`—Show seeded interactions when users move the mouse over the portlet.

`showMoveAction`	`menu`
	`none`
	Default: `menu`
		Whether to display the Move command in the portlet's Action menu:
		• menu—Display the Move command on the portlet's Action menu.
		• none—Do not display the Move command.
		There is a difference in the way that the Move command behaves at design time and at runtime. For more information, see What You May Need to Know About Minimize, Restore, and Move

Table 14-2 (Cont.) Appearance Attributes of the Portlet Tag

Attribute	Value	Description

`showRemoveAction`	`menu`
	`none`
	Default: `menu`
		Whether to display the Remove icon on the portlet chrome:
		• menu—Display the Remove command on the portlet's Action menu.
		• none—Do not display the Remove icon.
		There is a difference in the way that the Remove icon behaves at design time and at runtime. For more information, see What You May Need to Know About Minimize, Restore, and Move.
		Note: This attribute is available only for the `adfp:portlet` tag and not for the `adfph:portlet` tag.

`showResizer`	`always`
	`never`
	Default: `always`
		Whether to display the resize handle at the bottom right corner of the portlet.
		• always—Always display the resize handle.
		• never—Never display the resize handle.
		Note: This attribute is available only for the `adfp:portlet` tag and not for the `adfph:portlet` tag.

`showMinimizeAction`	`chrome`
	`none`
	Default: `chrome`
		Whether to display the Minimize icon on the portlet chrome:
		• chrome—Display the Minimize icon on the portlet chrome.
		• none—Do not display the Minimize icon.
		There is a difference in the way that the Minimize icon behaves at design time and at runtime. For more information, see What You May Need to Know About Minimize, Restore, and Move.

Behavior Attributes of the Portlet Tag

The following table describes the behavior attributes of the portlet tag.

Table 14-3 Behavior Attributes of Portlet Tag

Attribute	Value	Description
`partialTriggers`	One or more component IDs. For example: `partialTriggers="_id1 _id2 componentID5"` Separate component IDs with spaces.	The IDs of the components that trigger a partial update. The portlet listens on the specified trigger components. If a trigger component receives a trigger event that causes it to update in some way, this portlet also requests to be updated.

`submitUrlParamters`	`false`
	`true`
	Default: `false`
		Whether parameters in portlet links that point to the page on which the portlet is placed are made available to the page:
		• `false`—Parameters are not made available to the page. Rather, they are available only inside the portlet initiating the request.
		• `true`—Parameters available on the container page.

Portlet Modes Attributes of the Portlet Tag

Portlet Modes attributes control the rendering of mode-switching UI actions, such as entering edit mode. The ability to render a portlet in a particular mode depends on the modes supported by the portlet and the user authorization. For example, if the `isCustomizeModeAvailable` attribute is set to true, but the action is not supported in the portlet, then the attribute setting does not affect the portlet.

Portlet Modes attributes, described in the following table, are value binding expressions that evaluate to `true` or `false`:

- `true` means the portlet is allowed to render in the named mode.
- `false` means the portlet is not allowed to render in the named mode.

Table 14-4 Portlet Modes Attributes of the Portlet Tag

Attribute	Value	Description

`isAboutModeAvailable`	`true`
	`false`
	Default: `true`
		Whether to render an `About` command on the portlet's **Actions** menu.
		Users choose **About** to invoke the portlet's About mode.

Table 14-4 (Cont.) Portlet Modes Attributes of the Portlet Tag

Attribute	Value	Description

`isConfigModeAvailable`	`true`
	`false`
	Default: `true`
		Whether to render a `Configure` command on a JSR 286 portlet's **Actions** menu.
		Users choose **Configure** to open the portlet's Configuration settings.

`isCustomizeModeAvailable`	`true`
	`false`
	Default: `true`
		Whether to render a **Customize** icon in the portlet header.
		Site administrators choose **Customize** to edit a portlet's default personalization data.

`isDetailModeAvailable`	`true`
	`false`
	Default: `true`
		Whether to render a `Details` command on a PDK-Java portlet's **Actions** menu.
		Users **choose** Details to open the portlet in Full Screen mode.

`isHelpModeAvailable`	`true`
	`false`
	Default: `true`
		Whether to render a **Help** command on the portlet's **Actions** menu.
		Users choose Help to open the portlet's Help page.

`isPrintModeAvailable`	`true`
	`false`
	Default: `true`
		Whether to render a `Print` command on a JSR 286 portlet's **Actions** menu.
		Users choose **Print** to displays a printer-friendly version of the portlet.

`isNormalModeAvailable`	`true`
	`false`
	Default: `true`
		Whether to render a `Refresh` command on the portlet's **Actions** menu.
		Users choose **Refresh** to redraw the portlet independent of any other content on the page (also known as a partial-page refresh).

Table 14-4 (Cont.) Portlet Modes Attributes of the Portlet Tag

Attribute	Value	Description

`isPersonalizeModeAvailable`	`true`
	`false`
	Default: `true`
		Whether to render a **Personalize** icon in the portlet header.
		Users choose **Personalize** to alter their personal view of the portlet. This mode is equivalent to the Edit mode selection in the Standards-based Java Portlet (JSR286) Wizard.
		The **Personalize** icon displays only to authenticated users (that is, users who are logged in). It does not display to public or unauthenticated users. You must implement some form of application security for users to be able to personalize their portlet views.
		If you are a developer creating portlets, and you want to test the Personalize mode without creating a complete security model for your application.
		
		Note: A typical personaliza

Table 14-4 (Cont.) Portlet Modes Attributes of the Portlet Tag

Attribute	Value	Description
		tions setting is PortletTitle. You can set PortletTitle at design time,

Table 14-4 (Cont.) Portlet Modes Attributes of the Portlet Tag

Attribute	Value	Description
		by providing a value for the `title` attribute. Consider however t

Table 14-4 (Cont.) Portlet Modes Attributes of the Portlet Tag

Attribute	Value	Description
		hat supplying a value to the `title` attribute at design time preven

Table 14-4 (Cont.) Portlet Modes Attributes of the Portlet Tag

Attribute	Value	Description
		ts personalization and customization of the portlet title at runtim

Table 14-4 (Cont.) Portlet Modes Attributes of the Portlet Tag

Attribute	Value	Description
		e .

`isPreviewModeAvailable`	`true`
	`false`
	Default: `false`
		Whether to enable previewing of portlet content.
		This mode has no particular application in Framework applications, but it is used in Oracle Portal's Portlet Repository, where it renders as a magnifying glass icon, which users click to preview a portlet.

Style Attributes of the Portlet Tag

The following table describes the style attributes of the portlet tag.

Table 14-5 Style Attributes of the Portlet Tag

Attribute	Value	Description
`contentStyle`	One or more CSS styles. These should be in compliance with, at least, CSS 2.0 and take the following format: `contentStyle="color:rgb(255,0,255); font-family:Arial Helvetica Geneva sans-serif;font-size:large;"`	The CSS style to apply to the portlet content. Values entered here take precedence over styles specified in the inlineStyle attribute and those included in a CSS or skin on the specific portlet instance.
`inlineStyle`	One or more CSS styles. These should be in compliance with, at least, CSS 2.0 and take the following format: `inlineStyle="color:rgb(255,0,255); font-family:Arial Helvetica Geneva sans-serif;font-size:large;"`	The CSS style to apply to the whole portlet. Values entered here take precedence over styles included in a CSS or skin on the specific portlet instance.

Binding Attributes of the Portlet Tag

The following table describes the binding attributes of the portlet tag.

Table 14-6 Binding Attributes of the Portlet Tag

Attribute	Value	Description
`binding`	Name of a managed bean. For example: `binding="#{frameActions Bean.Binding}"` In the Property Inspector, click the Property Menu icon next to the field and then choose Edit to select a managed bean and specify the relevant managed bean property.	A binding reference to store the component instance. The binding reference binds an instance of the portlet to a managed bean property. Managed beans are any JavaBeans used by the application that are registered in the JSF `faces-config.xml` file.

Customization Attributes of the Portlet Tag

The following table describes the customization attributes of the portlet tag.

Table 14-7 Customization Attributes of the Portlet Tag

Attribute	Value	Description

`customizationAllowed`	`false`
	`true`
	Default: `true`
		Whether design time customizations of the portlet tag are allowed on this portlet.

`customizationAllowedBy`	Text string	Text string

Other Attributes of the Portlet Tag

The following table describes the other attributes of the portlet tag.

Table 14-8 Other Attributes of the Portlet Tag

Attribute	Value	Description

`iframeDtd`	`loose`
	`none`
	`strict`
	Default: `loose`
		Which DTD, if any, is specified in the `doctype` declaration that is created when portlet content is rendered inside an IFRAME:
		• `none`—No DTD is specified. This relaxes the restrictions on the HTML content being technically conformant HTML. Browsers usually handle such HTML acceptably, however, because some CSS style sheet from the ADF Faces page consuming the portlet is also imported into the IFRAME document, for that style sheet to work correctly, it may be necessary to declare the content conformant to the loose or strict DTDs.
		• `loose`—The DTD `http://www.w3.org/TR/html/loose.dtd` is used.
		• `strict`—The DTD `http://www.w3.org/TR/html/strict.dtd` is used

Manually Wiring Parameters and Events in JSR 286 Portlets

If the portlet that you add to your page defines parameters or events that it uses to dynamically alter its content, for the most part this happens automatically. See What You May Need to Know About Interportlet Communication.

However, in some circumstances you may find it necessary to turn off the default automatic parameter and event listening, or you may be using portlets with parameters or events with names that do not match or define appropriate aliases. In such situations, you must manually wire the parameters and events in your portlets.

Topics:

- How to Manually Link Portlets with Public Render Parameters
- How to Manually Link Portlets with Portlet Events

How to Manually Link Portlets with Public Render Parameters

When you place a portlet on a page, any public render parameters with the same QName are automatically linked. For example, if one portlet publishes a value to a parameter with the name `myParam`, then if a second portlet on the page accepts values from a parameter with the same name, the second portlet is automatically updated with the appropriate value.

Portlets can also link together using parameters with different QNames if the portlet developer has set up aliases for the parameter.

The following example shows how to use public render parameters to link the behavior of two portlets using parameters with different names and no defined aliases. In the example, we take a generic Parameter Form portlet that allows us to update public render parameters, and show how that can be linked to a Stock Price portlet that renders stock prices, taking the stock symbol from a public render parameter.

When these two portlets are dropped onto the same page, they are not automatically linked together. This is because none of the generic parameter names in the Parameter Form portlet match the `stocksymbol` parameter in the Stock Price portlet, and the Stock Price portlet does not define any aliases for the `stocksymbol` parameter that match the generic parameter names in the Parameter Form portlet.

There are two methods for manually linking parameters:

- Manually Linking Parameters Using Page Variables
- Manually Linking Parameters Using the ParametersChange ADF Contextual Event

Manually Linking Parameters Using Page Variables

When the portlets are dropped onto a page, page variables are created for each of the parameters supported by the portlets. In our example, there are three page variables for the Parameter Form portlet and one for the Stock Price portlet.

Example 14-7 Page Variables Created for Portlet Parameters

```
<pageDefinition ...>
  <parameters/>
  <executables>
    <variableIterator id="variables">
      <variable Name="ParameterFormPortlet1_1_Parameter1"
                Type="java.lang.Object"/>
      <variable Name="ParameterFormPortlet1_1_Parameter2"
                Type="java.lang.Object"/>
      <variable Name="ParameterFormPortlet1_1_Parameter3"
                Type="java.lang.Object"/>
      <variable Name="StockPricePortlet1_1_stocksymbol"
                Type="java.lang.Object"/>
    </variableIterator>
    <portlet id="ParameterFormPortlet1_1"
             ...>
      <parameters>
        <parameter name="Parameter1"
                   pageVariable="ParameterFormPortlet1_1_Parameter1"/>
        <parameter name="Parameter2"
                   pageVariable="ParameterFormPortlet1_1_Parameter2"/>
        <parameter name="Parameter3"
                   pageVariable="ParameterFormPortlet1_1_Parameter3"/>
      </parameters>
      <events>
        <event eventType="ParametersChange"
               name="ParameterFormPortlet1_1_Event"/>
      </events>
    </portlet>
    <portlet id="StockPricePortlet1_1"
             ...>
      <parameters>
        <parameter name="stocksymbol"
                   pageVariable="StockPricePortlet1_1_stocksymbol"/>
      </parameters>
      <events>
        <event eventType="ParametersChange"
               name="StockPricePortlet1_1_Event"/>
      </events>
    </portlet>
  </executables>
  <bindings/>
</pageDefinition>
```

To link the portlets, you can make the Stock Price portlet use the value from one of the page variables created for the Parameter Form portlet..

Example 14-8   Linking Portlet Parameters Using Page Variables

```
<portlet id="StockPricePortlet1_1"
         ...>
  <parameters>
    <parameter name="stocksymbol"
         pageVariable="ParameterFormPortlet1_1_Parameter1"/>
  </parameters>
  <events>
    <event eventType="ParametersChange"
           name="StockPricePortlet1_1_Event"/>
  </events>
</portlet>
```

Now, entering a value in the first parameter field of the Parameter Form portlet sets the corresponding page variable to the same value, which in turn causes the Stock Price portlet to be updated with the new value.

Manually Linking Parameters Using the ParametersChange ADF Contextual Event

When you drop a portlet that supports parameters, as well as the page variables (see Manually Linking Parameters Using Page Variables), an ADF `ParametersChange` contextual event is created for the portlet. This event is triggered when the values of the portlet's parameters change. The payload of the event is the new value of the parameter. You can use this event to set the value of another portlet's parameter by creating an event map in the page definition that maps the payload of the first portlet's event to the second portlet's parameter. The following example shows how this event map would look.

Example 14-9   Linking Portlet Parameters Using the ParametersChange ADF Contextual Event

```
<eventMap xmlns="http://xmlns.oracle.com/adfm/contextualEvent">
  <event name="ParameterFormPortlet1_1_Event">
    <producer region="ParameterFormPortlet1_1">
      <consumer handler="StockPricePortlet1_1">
        <parameters>
          <parameter name="stocksymbol">
                     value="${payLoad.Parameter1}"/>
        </parameters>
      </consumer>
    </producer>
  </event>
</eventMap>
```

Entering a value in the first parameter field of the Parameter Form portlet triggers the `ParametersChange` event. The payload of this event, the new parameter value, is then sent to the Stock Price Portlet and used to specify the value of the `stocksymbol` parameter.

How to Manually Link Portlets with Portlet Events

The following example shows how to manually link portlets using portlet events in the case where the names of the events defined for the different portlets do not match.

Tip:

You can download a ZIP file containing the example in this section from: http://www.oracle.com/technetwork/middleware/webcenter/ps3-samples-176806.html

In the example, we have a portlet, the Department Locations portlet, which lists the geographical locations of a company's various offices. The Department Locations portlet raises a portlet event (latLong) when a particular department is selected in the portlet.

There is another portlet, the Map portlet, which displays a Google map. The Map portlet listens out for a portlet event (geolocation) to use to determine a location to display on a map.

When the two portlets are dropped on a page, there is no way for the Map portlet to know that the event raised by the Department Locations portlet provides information that it can use to display a map. To make this link between the two portlets, you must edit the page definition to explicitly create the mapping between the two events, as shown in the following example:

Example 14-10 Explicit Event Mapping in the Page Definition

```
<pageDefinition ...>
  <parameters/>
  <executables>
    <variableIterator id="variables"/>
    <portlet id="DepartmentLocations1_1"
             ...
      <events>
        <event name="latLong">
          <portletevent namespace-uri="http://xmlns.oracle.com/portlet/
EventSample"
                        localpart="latLong"/>
        </event>
      </events>
    </portlet>
    <portlet id="Map1_1"
             ...
      <events>
        <event name="geolocation">
          <portletevent namespace-uri="http://xmlns.oracle.com/portlet/
EventSample"
                        localpart="geolocation"/>
        </event>
      </events>
    </portlet>
  </executables>
  <bindings/>
  <eventMap xmlns="http://xmlns.oracle.com/adfm/contextualEvent">
    <event name="{http://xmlns.oracle.com/portlet/EventSample}latLong">
        <producer region="DepartmentLocations1_1">
          <consumer handler="Map1_1.{http://xmlns.oracle.com/portlet/
EventSample}geolocation"/>
       </producer>
    </event>
  </eventMap>
</pageDefinition>
```

Copying Portlets

When you copy portlets, the portlets and their copies must reside within the same application. For example, you can copy a portlet from one page in an application to another page in the same project in that application, or from one place on a page to another place on the same page. You can also copy a portlet from one project to another project in the same application, if the target project is configured for consuming portlets. The copies are references to the same portlet instance, so customizations or personalizations made to any instance of the portlet (original or copy) affect all the other instances.

Copying a portlet is more than a matter of copying and pasting the portlet view tag. It involves copying portlet-related entries from the application page's source. It may also involve copying portlet-related entries from the page definition file and removing duplicate portlet binding information or creating a new method in the copied portlet's binding bean.

When a portlet is copied, the target page must be an Oracle ADF Faces page. Any preexisting code on the target page must reflect that. This is quite easy to accomplish. When JDeveloper creates a new JSF page, it contains pure JSF tags. The first time you drop an Oracle ADF Faces component onto the page, tags are automatically updated to be Oracle ADF Faces tags. For example, an `<html>` tag becomes `<afh:html>`, `<head>` and `<title="title">` tags become `<afh:head title="title">`, and so on. Therefore, a simple way to ensure the conversion of the target page to an Oracle ADF Faces page is to place any Oracle ADF Faces component on the target page. This performs any required code conversion for you automatically.

Topics:

- How to Copy a Portlet and Place it on the Same Page
- How to Copy a Portlet from One Application Page to Another

How to Copy a Portlet and Place it on the Same Page

Because all of the page's resources are available to both portlet instances when you copy a portlet to the same page, there is no requirement to copy portlet-related information from the page's Page Definition file. It is just a matter of copying and pasting the portlet's view tag, and assigning a unique identifier to the copy.
To copy and place a portlet on the same page:

1. In the Application Navigator, open the application that contains the page on which the portlet to copy appears.

2. Expand the project that contains the page.
3. Locate the page, right-click it, and then choose **Open**.

> **Tip:**
>
> You can also double-click the page to open it.

4. In the design view, select the portlet to copy.
5. Click the **Source** tab.

   The portlet that you selected is highlighted in the source code.
6. Copy the portlet tag.

   Code Fragment to be Copied When Copying a Portlet

```
<f:view>
  <afh:html binding="#{backing_portlet_page.html1}" id="html1">
    <afh:head title="portlet_page"
binding="#{backing_portlet_page.head1}"
      id="head1">
      <meta http-equiv="Content-Type"
        content="text/html;charset=windows-1252"/>
    </afh:head>
    <afh:body binding="#{backing_portlet_page.body1}" id="body1">
      <h:form binding="#{backing_portlet_page.form1}" id="form1">
           <adfp:portlet value="#{bindings.portlet1}"
            portletType="/oracle/adf/portlet/
            pdksampleproducer_1153245807295/applicationPortlets/
            Portlet2_82d49b79_010c_1000_8006_82235ffc4e2b"
            binding="#{backing_portlet_page.portlet1}"
            id="portlet1"
            isCustomModesAvailable="true"/>
      </h:form>
    </afh:body>
  </afh:html>
</f:view>
```

7. Paste the copied code fragment into the desired location of the page source.
8. Provide a unique value for the copy's id attribute.

   Changing the Portlet ID

```
<adfp:portlet value="#{bindings.portlet1}"
  portletType="/oracle/adf/portlet/
  pdksampleproducer_1153245807295/applicationPortlets/
  Portlet2_82d49b79_010c_1000_8006_82235ffc4e2b"
  binding="#{backing_portlet_page.portlet1}"
   id="portlet2"
  isCustomModesAvailable="true"/>
```

> **Note:**
>
> On a given page, each portlet must have a unique ID.

9. In the page source, if the copied portlet's adfp:portlet tag has a binding attribute, for example

   ```
   binding="#{backing_untitled2.portlet1}"
   ```

   Then either remove this binding, or create a new method in the binding bean by opening the managed bean class for this managed bean and defining the new method.
   For example, if portlet1 is copied, the pasted copy becomes portet2 in the managed bean class, as shown in

   Creating a New Method for a Managed Bean in the Managed Bean Class

   ```
   .
   private PortletBase portlet2;
   public void setPortlet2(PortletBase portet2) {
      this.portlet2 = portlet2;
   }
   .
   public PortletBase getPortlet2() {
      return portlet2;
   }
   ```

10. From the main menu, choose **File** and select **Save All**.

How to Copy a Portlet from One Application Page to Another

When you copy a portlet from one page to another in an application, portlet-related code must also be copied from the source page's Page Definition file. This section describes the steps related to both copying from one application page to another and from one application project to another.
To copy a portlet from one page to another:

1. In the Application Navigator, open the application that contains the page on which the portlet to copy appears.
2. Expand the project that contains the page.
3. Locate the page, right-click it, and then choose **Open**.

   > **Tip:**
   >
   > You can also double-click the page to open it.

4. In the design view, select the portlet to copy.
5. Click the **Source** tab.

   The portlet that you selected is highlighted in the source code.
6. Copy the portlet tag.

Code Fragment to be Copied When Copying a Portlet

```
<f:view>
  <afh:html binding="#{backing_portlet_page.html1}" id="html1">
    <afh:head title="portlet_page"
binding="#{backing_portlet_page.head1}"
      id="head1">
      <meta http-equiv="Content-Type"
        content="text/html;charset=windows-1252"/>
    </afh:head>
    <afh:body binding="#{backing_portlet_page.body1}" id="body1">
      <h:form binding="#{backing_portlet_page.form1}" id="form1">
           <adfp:portlet value="#{bindings.portlet1}"
           portletType="/oracle/adf/portlet/
           pdksampleproducer_1153245807295/applicationPortlets/
           Portlet2_82d49b79_010c_1000_8006_82235ffc4e2b"
           binding="#{backing_portlet_page.portlet1}"
           id="portlet1"
           isCustomModesAvailable="true"/>
      </h:form>
    </afh:body>
  </afh:html>
</f:view>
```

7. Go to the application page to which to copy the portlet (the target page).

   Portlets can reside only on Oracle ADF Faces pages. If the target page does not contain Oracle ADF Faces components, then ensure that the container objects—that is, any tags the portlet tag is nested in—use Oracle ADF tags.
   If you are copying the portlet to a page in a different project, the target project must be configured for consuming portlets. To configure the project, you must register a portlet producer with the project. For information, see Registering an Oracle PDK-Java Portlet Producer with WebCenter Portal.

8. Click the Source tab and paste the copied code fragment into the desired location of the page source.

9. In the Application Navigator, right-click the source page (the page from which the portlet was copied), and choose Go to Page Definition.

10. Click the Source tab and copy the portlet binding from the source page's page definition file.

    Code Fragment to Be Copied From a Page Definition File

```
<portlet id="portlet1"
  portletInstance="/oracle/adf/portlet/pdksampleproducer_1153245/
applicationPortlets/Portlet2_82d49_010c_1000_8006_82235"
 class="oracle.adf.model.portlet.binding.PortletBinding"
 xmlns="http://xmlns.oracle.com/portlet/bindings"/>
```

Note:

When the portlet being copied includes parameters, be sure to include the copied portlet's portlet parameters and the page variables linked to the portlet parameters in the copy.

11. In the Application Navigator, right-click the target page and choose Go to Page Definition.

    If a page definition does not exist for the page, you are asked if you want to create one. Click Yes.

12. Click the Source tab and paste the portlet binding you copied from the source (along with relevant portlet parameters and the page variables associated with those parameters).

    Paste the code between the `<executables>` tags. You may need to add a closing </executables> tag and ensure that the opening tag does not contain a slash (/).

13. From the main menu, choose **File** then select **Save All**.

Deleting Portlets from Application Pages

When you delete a portlet from an application page, if the portlet had parameters, then you should also delete page variables associated with those parameters from the application page's Page Definition file.

To delete a portlet and its related page variables from a page:

1. In the Application Navigator, open the application that contains the page on which the portlet to delete appears.
2. Expand the project that contains the page.
3. Locate the page, right-click it, and then choose **Open**.

   Tip:

   You can also double-click the page to open it.

4. In the design view, right-click the portlet to delete and choose **Delete**.

   This deletes the portlet from the page and the portlet binding from the Page Definition file.

5. If the portlet included variables, in the Application Navigator, right-click the page and select **Go to Page Definition**.
6. Click the Source tab and locate the page variables associated with the deleted portlet, and delete them from the page definition file.

   For example, if you deleted portlet1, you would also delete the highlighted variables

```
<?xml version="1.0" encoding="UTF-8" ?>
<pageDefinition xmlns="http://xmlns.oracle.com/adfm/uimodel"
    version="10.1.3.38.97" id="untitled1PageDef"
    Package="project1.pageDefs">
  <parameters/>
  <executables>
    <variableIterator id="variables">
    <variable Name="portlet1_param1" Type="java.lang.Object"/>
    <variable Name="portlet1_param2" Type="java.lang.Object"/>
    <variable Name="portlet2_param1" Type="java.lang.Object"/>
    <variable Name="portlet2_param2" Type="java.lang.Object"/>
 </variableIterator>
    <portlet id="portlet2" portletInstance="/oracle/adf/portlet/
        PdkPortletProducer2_1154100666247/applicationPortlets/
        Portlet1_b5e49696_010c_1000_8008_8c5707ef9c4f"
        class="oracle.adf.model.portlet.binding.PortletBinding"
        xmlns="http://xmlns.oracle.com/portlet/bindings">
      <parameters>
         <parameter name="param1" pageVariable="portlet2_param1"/>
         <parameter name="param2" pageVariable="portlet2_param2"/>
      </parameters>
    </portlet>
  </executables>
  <bindings/>
</pageDefinition>
```

7. From the main menu, select **File** and then select **Save All**.

Troubleshooting Portlets

This section includes the following topics:

- Diagnostic Tools for Troubleshooting Portlets
- Configuring the Portlet Logging File
- Portlet Displays a Portlet Consumer Error
- Portlet Displays a Portlet Timeout
- Portlet Displays a Remote Portlet Communication Error
- Portlet Displays a Remote Portlet Error

Diagnostic Tools for Troubleshooting Portlets

There is a set of tools available for both the consumer and producer to help identify and resolve issues with portlets.

If you encounter a portlet error message when a portlet is rendered, or if the portlet displays but you cannot interact correctly with it, there are some general steps using these tools that you should follow to diagnose the issue.

This section includes the following topics:

- Identify the Portlet Instance
- Examine the Portlet Consumer Test Page
- Examine the Producer Test Page

Identify the Portlet Instance

The first step when you encounter a portlet error, is to identify which portlet producer and portlet instance is being invoked. Execute the `portletDebugShow()` JavaScript from your browser to display this information in the main portlet content area.

To identify the portlet instance:

1. Enter the following command in the Location field of your browser:

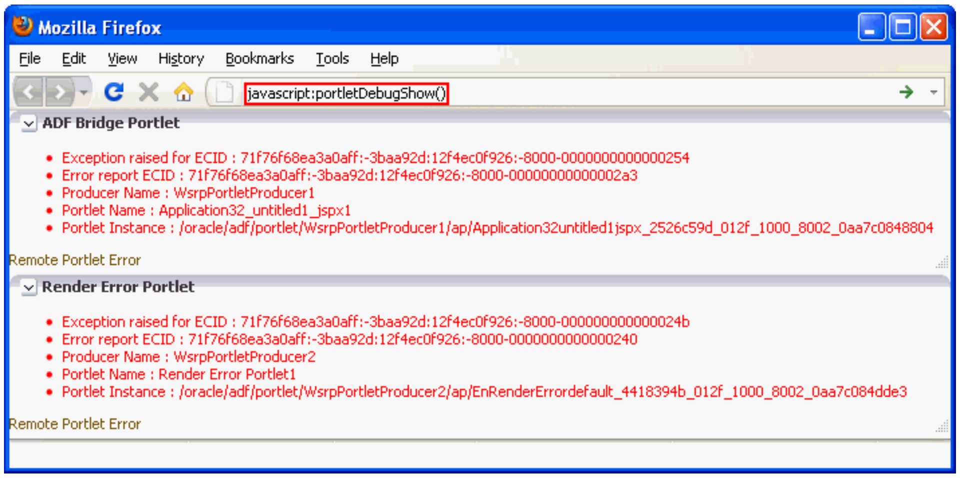
   ```
   javascript:portletDebugShow()
   ```

   > **Tip:**
   >
   > In Internet Explorer and Google Chrome, you must type this command in the Location field. If you paste the command into the field, the `javascript` piece is removed.
   >
   > In Firefox 6 and above, you cannot enter JavaScript in the Location field, you must enter the command in JavaScript console.

2. After running the script, every portlet now displays the following information:
   - Producer name
   - Portlet name
   - Portlet instance ID
   - Execution Context IDs (ECIDs)

     The ECIDs are unique IDs used to identify a portlet request. Use the ECIDs to correlate the messages across different consumer and producer log files using Fusion Middleware Control. The same ECID is propagated from the consumer to the producer.

     > **Note:**
     >
     > Broken portlets show two ECIDs: one for the request in which the error occurred and one for request in which the error was reported. For inline portlets (that is, portlets that are not displayed in an IFRAME), these two ECIDs are the same.
     >
     > For IFRAME portlets, for example Oracle JSF Portlet Bridge portlets, the ECIDs are different. This is because the error is reported in a later request than the one in which the original exception occurred. When checking the logs, you should look for both ECIDs, as either may contain relevant information.


Mozilla Firefox
File Edit View History Bookmarks Tools Help
javascript:portletDebugShow()

ADF Bridge Portlet

```
• Exception raised for ECID : 71f76f68ea3a0aff:-3baa92d:12f4ec0f926:-8000-0000000000000254
• Error report ECID : 71f76f68ea3a0aff:-3baa92d:12f4ec0f926:-8000-00000000000002a3
• Producer Name : WsrpPortletProducer1
• Portlet Name : Application32_untitled1_jspx1
• Portlet Instance : /oracle/adf/portlet/WsrpPortletProducer1/ap/Application32untitled1jspx_2526c59d_012f_1000_8002_0aa7c0848804

Remote Portlet Error
```

Render Error Portlet

```
• Exception raised for ECID : 71f76f68ea3a0aff:-3baa92d:12f4ec0f926:-8000-000000000000024b
• Error report ECID : 71f76f68ea3a0aff:-3baa92d:12f4ec0f926:-8000-0000000000000240
• Producer Name : WsrpPortletProducer2
• Portlet Name : Render Error Portlet1
• Portlet Instance : /oracle/adf/portlet/WsrpPortletProducer2/ap/EnRenderErrordefault_4418394b_012f_1000_8002_0aa7c084dde3

Remote Portlet Error
```

You can use this information in the subsequent diagnostic steps to help locate the issue.

Note:

The ECIDs shown in the portlet diagnostic information do not reflect partial page rendering requests that have been made to the portlet producer (using the portlet consumer resource proxy). These requests may update the portlet, but the ECIDs are not recorded in the portlet diagnostic information. Errors that occur during these requests are logged on the producer and by the portlet resource proxy on the consumer but you cannot use the ECID information reported in the portlet diagnostic information to help you determine the ECIDs for the relevant log entries.

3. When you have finished debugging the portlets, enter the following command to hide the portlet debugging information:

```
javascript:portletDebugHide()
```

Tip:

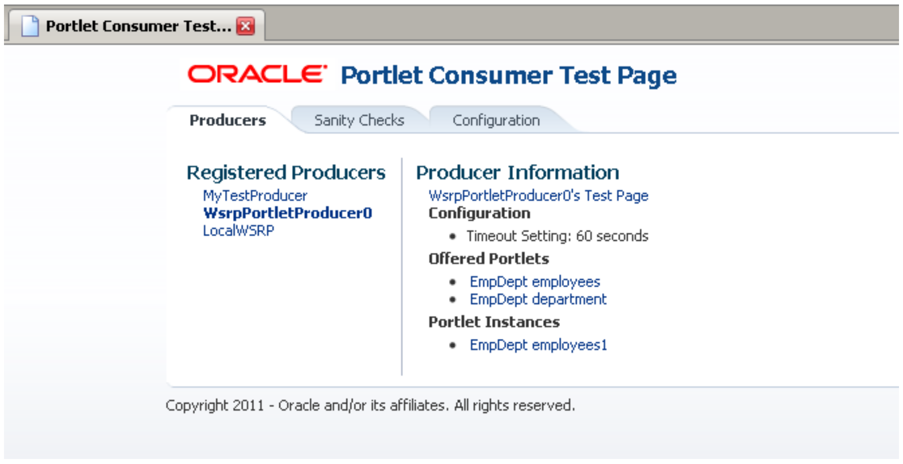
In Internet Explorer and Google Chrome, you must type this command in the Location field. If you paste the command into the field, the `javascript` piece is removed.

In Firefox 6 and above, you cannot enter JavaScript in the Location field, you must enter the command in JavaScript console.

Examine the Portlet Consumer Test Page

The next step in diagnosing a portlet error is to access the Portlet Consumer Test Page (shown in Figure E–2) to locate the portlet producer and, if necessary, test the portlet in isolation.

Figure 14-10 The Portlet Consumer Test Page



Registered Producers
MyTestProducer
WsrpPortletProducer0
LocalWSRP

Producer Information
WsrpPortletProducer0's Test Page
Configuration
- Timeout Setting: 60 seconds

Offered Portlets
- EmpDept employees
- EmpDept department

Portlet Instances
- EmpDept employees1

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The Portlet Consumer Test Page contains three tabs:

- **Producers:** This tab lists all the producers registered with the consumer application. Selecting a producer provides specific information about that producer.
- **Sanity Checks:** This tab may contain a predefined set of portlet instances and required parameters that can be run in the consumer application, as configured by the consumer application developer. Any failures within these portlets indicate a problem with the corresponding producer and/or portlet.
- **Configuration:** This tab enables you to identify the consumer configuration entries for portlet consumption. You cannot change these values as they are stored within the application; they are displayed for reference information only.

After accessing the Portlet Consumer Test Page, you can perform further diagnostic steps.

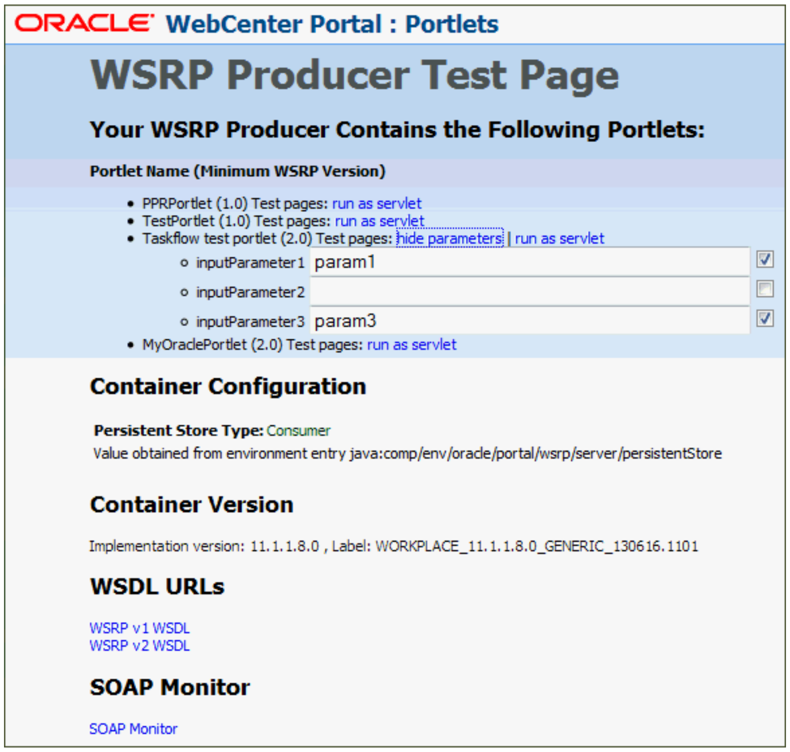
This section describes how to use the Portlet Consumer Test Page to diagnose portlet issues. It includes the following topics:

- Access the Portlet Consumer Test Page
- Locate the Portlet Producer
- Locate and Run the Portlet Instance
- Perform Sanity Checks
- Check Consumer Configuration Entries

Examine the Producer Test Page

If you cannot identify the cause of the error in the consumer application, the next step is to use the Producer Test Page (shown in Figure E–5) to identify potential issues with the portlet producer application.

Figure 14-11 The Producer Test Page



ORACLE WebCenter Portal : Portlets

WSRP Producer Test Page

Your WSRP Producer Contains the Following Portlets:

Portlet Name (Minimum WSRP Version)

- PPRPortlet (1.0) Test pages: run as servlet
- TestPortlet (1.0) Test pages: run as servlet
- Taskflow test portlet (2.0) Test pages: hide parameters | run as servlet
  - inputParameter1 param1 ✓
  - inputParameter2
  - inputParameter3 param3 ✓
- MyOraclePortlet (2.0) Test pages: run as servlet

Container Configuration

Persistent Store Type: Consumer
Value obtained from environment entry java:comp/env/oracle/portal/wsrp/server/persistentStore

Container Version

Implementation version: 11.1.1.8.0 , Label: WORKPLACE_11.1.1.8.0_GENERIC_130616.1101

WSDL URLs

WSRP v1 WSDL
WSRP v2 WSDL

SOAP Monitor

SOAP Monitor

Access to the main Producer Test Page is public, but links to the test pages for each portlet are accessible only to users granted permission on the underlying pages and task flows.

The Producer Test Page contains five sections:

- Portlets

  A list of all the portlets within the producer. For Oracle JSF Portlet Bridge portlets, each portlet also provides a separate link to run the portlet as a servlet (this is a prerequisite to running them as portlets: if a portlet does not run as a servlet, it cannot run as a portlet).
- Container Configuration

  Information on where the consumer preference information is stored.
- Container Version

  The version number of the Portlet Producer Container.
- WSDL URLs

  Links to the Web Service Definition Language (WSDL) documents to use for registration.
- SOAP Monitor

  A link to the WSRP SOAP monitor where users with the `Monitor` or `Admin` role can track the SOAP messages between the consumer and producer.

After accessing the Producer Test Page, you can perform further diagnostic steps.

This section includes the following topics:

- Access the Producer Test Page
- Run the JSF Portlet as a Servlet
- Examine the SOAP Monitor

Access the Producer Test Page

The Producer Test Page provides diagnostic information about the portlet producer.

To access the Producer Test Page:

1. In your browser, enter the URL for the Producer Test Page:

   ```
   http://host:port/context-root/info
   ```

2. In the Producer Test Page, you can perform further diagnostic steps as described in the following sections.

Run the JSF Portlet as a Servlet

To verify that an Oracle JSF Portlet Bridge portlet producer is running correctly, you must first verify that the producer application runs correctly through standard HTTP requests. If the artifacts the producer exposes as portlets do not run as servlets, they will not run as portlets.

To run a JSF portlet as a servlet:

1. In the Producer Test Page, click the **run as servlet** link next to the portlet.
2. The portlet is called using standard HTTP to request the underlying page or task flow. The results of the request are displayed in a new browser window.

   If the resulting page or task flow does not render correctly, then there is a problem with the producer application that must be resolved before you can run the page or task flow as a portlet.
3. If the portlet accepts parameters, click **show parameters** to list them and provide values. When you click **run as servlet**, the portlet call includes the parameter values.

Examine the SOAP Monitor

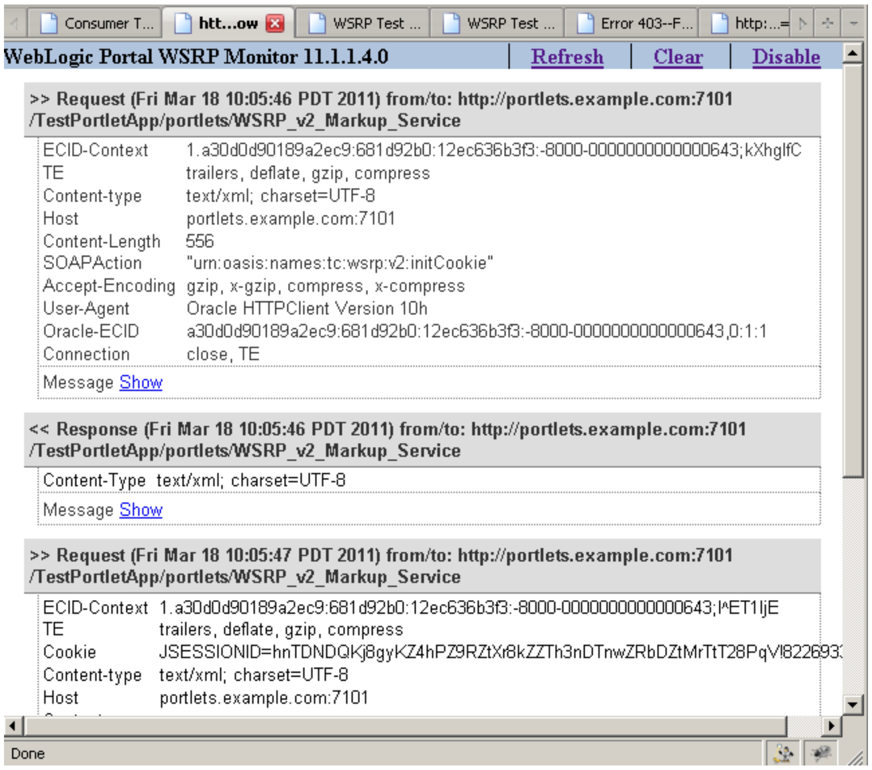
The SOAP monitor provides access to the SOAP requests between the consumer and producer when rendering a portlet. This is very useful in diagnosing problems at the communication level.

To examine the SOAP monitor:

1. In the Producer Test Page, click the SOAP Monitor link at the bottom of the page.
2. When prompted, enter your user name and password.

> **Note:**
>
> To access the SOAP monitor you must be a member of the `Monitors` or `Administrators` role in the Identity Management System.

3. By default, the SOAP monitor is disabled, so the page is empty. You must first enable the monitor by clicking the **Enable** link at the top of the page.
4. The page does not automatically refresh, so to display SOAP messages, you must click the **Refresh** link.
5. To force a request to the failing portlet, go to the Portlet Consumer Test Page: Portlet page for the portlet and select **Refresh Portlet**.
6. When the portlet has rendered, or failed, click the Refresh link in the SOAP monitor to display the captured request.



WebLogic Portal WSRP Monitor 11.1.1.4.0

```
>> Request (Fri Mar 18 10:05:46 PDT 2011) from/to: http://portlets.example.com:7101
/TestPortletApp/portlets/WSRP_v2_Markup_Service
ECID-Context    1.a30d0d90189a2ec9:681d92b0:12ec636b3f3:-8000-0000000000000643;kXhglfC
TE              trailers, deflate, gzip, compress
Content-type    text/xml; charset=UTF-8
Host            portlets.example.com:7101
Content-Length  556
SOAPAction      "urn:oasis:names:tc:wsrp:v2:initCookie"
Accept-Encoding gzip, x-gzip, compress, x-compress
User-Agent      Oracle HTTPClient Version 10h
Oracle-ECID     a30d0d90189a2ec9:681d92b0:12ec636b3f3:-8000-0000000000000643,0:1:1
Connection      close, TE
Message Show

<< Response (Fri Mar 18 10:05:46 PDT 2011) from/to: http://portlets.example.com:7101
/TestPortletApp/portlets/WSRP_v2_Markup_Service
Content-Type  text/xml; charset=UTF-8
Message Show

>> Request (Fri Mar 18 10:05:47 PDT 2011) from/to: http://portlets.example.com:7101
/TestPortletApp/portlets/WSRP_v2_Markup_Service
ECID-Context 1.a30d0d90189a2ec9:681d92b0:12ec636b3f3:-8000-0000000000000643;l^ET1ljE
TE           trailers, deflate, gzip, compress
Cookie       JSESSIONID=hnTDNDQKj8gyKZ4hPZ9RZtXr8kZZTh3nDTnwZRbDZtMrTtT28PqV!822693
Content-type text/xml; charset=UTF-8
Host         portlets.example.com:7101
```

7. Now, you can investigate the SOAP messages that were sent and the responses to try to narrow down the cause of the problem.

> **Note:**
>
> If, after rerunning the portlet and refreshing the SOAP monitor, you see no messages displayed, this indicates that there may be a security issue between the producer and the consumer. You must verify that the correct WS-Security settings are set up for the producer and consumer to communicate.

Configuring the Portlet Logging File

To troubleshoot portlet issues, it is useful to add portlet log-handlers and loggers to the logging configuration file, `logging.xml`.

The example below shows how to add the portlet log-handlers and loggers. The example assumes that you are running the consumer and producer applications on the same WebLogic Server instance. If you are running the consumer and producer applications on different instances, you must split them up appropriately.

> **Note:**
>
> Add the log entries at the end of the file to ensure that they override any seeded settings.

Example: Configuring Log Files for Troubleshooting Portlet Issues

```
<!-- NOTE: You need to change the path where the logfile is located -->
<log_handlers>
...
 <!-- Portlet Consumer -->
 <log_handler name="portlet-consumer-handler" class="oracle.core.ojdl.logging.ODLHandlerFactory">
 <property name="format" value="ODL-Text"/>
 <property name="path" value="/scratch/logs/portlet-consumer.log"/>
 </log_handler>

 <!-- Portlet Producer -->
 <log_handler name="portlet-producer-handler" class="oracle.core.ojdl.logging.ODLHandlerFactory">
 <property name="format" value="ODL-Text"/>
 <property name="path" value="/scratch/logs/portlet-producer.log"/>
 </log_handler>

 <!-- Portlet Bridge -->
 <log_handler name="portlet-bridge-handler" class="oracle.core.ojdl.logging.ODLHandlerFactory">
 <property name="format" value="ODL-Text"/>
 <property name="path" value="/scratch/logs/portlet-bridge.log"/>
 </log_handler>
...
</log_handlers>

<loggers>
...
 <!-- Portlet Consumer -->
 <logger name="oracle.portlet.client" level="FINEST" useParentHandlers="false">
 <handler name="portlet-consumer-handler"/>
 </logger>

 <!-- Portlet Servers -->
 <logger name="com.bea.portlets" level="FINEST" useParentHandlers="false">
 <handler name="portlet-producer-handler"/>
 </logger>
 <logger name="com.bea.netuix" level="FINEST" useParentHandlers="false">
 <handler name="portlet-producer-handler"/>
 </logger>
 <logger name="com.bea.wsrp" level="FINEST" useParentHandlers="false">
 <handler name="portlet-producer-handler"/>
 </logger>
 <logger name="oracle.portlet.producer" level="FINEST" useParentHandlers="false">
 <handler name="portlet-producer-handler"/>
 </logger>

 <!-- Portlet Bridge -->
 <logger name="oracle.portlet.bridge" level="FINEST" useParentHandlers="false">
 <handler name="portlet-bridge-handler"/>
 </logger>
 <logger name="oracle.portlet.server.bridge" level="FINEST" useParentHandlers="false">
 <handler name="portlet-bridge-handler"/>
 </logger>
...
</loggers>
```

The logging configuration file is located in:

`DOMAIN_HOME/config/fmwconfig/servers/server/logging.xml`

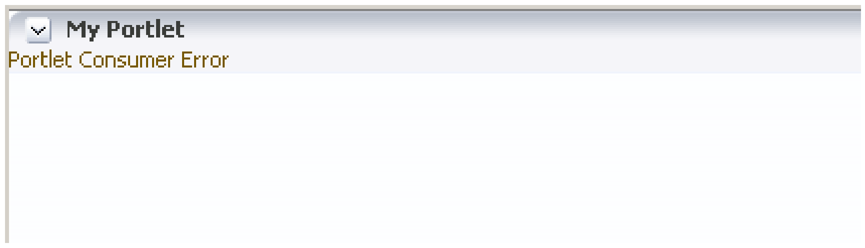
The log file name is also defined in `logging.xml`. By default the log file name is:

`DOMAIN_HOME/servers/server/logs/server-diagnostic.log`

Portlet Displays a Portlet Consumer Error

The message **Portlet Consumer Error** (shown in Figure E–6) typically indicates that an error occurred within the operation of the portlet parts of the portlet consumer application.

Figure 14-12 Portlet Displaying a Portlet Consumer Error



Problem

An error has occurred within the operation of the portlet parts of the portlet consumer application. In other words, the error is unrelated to the remote portlet producer application.

Solution 1

Consult the diagnostic log file to determine the cause of the exception.

If the `DebugErrorRenderer` is enabled, the cause exception is displayed in the portlet along with links to the log file. If running in production mode, then consult the consumer-side logs.

The exception that caused the error message to be displayed is logged. Wherever possible, a message is included in the log at the start of the exception stack to indicate for which portlet binding the exception occurred. The following example shows a message logged for a portlet error:

Example Message Logged for a Portlet Error

```
<PortletRenderer> <setErrorState> An error has occured for Portlet Binding
portlet1.
oracle.portlet.client.container.PortletContentTypeException: Unexpected content
type "null" in WSRPGetMarkup response.
...
```

Pay particular attention to the cause exceptions in the stack as this is likely to indicate what the real underlying problem is.

The cause is likely to be an internal error and the appropriate course of action is to contact Oracle Support.

Problem 2

The portlet queue is full and the pool is not able to process the new request. This can happen if the portal is under a particularly high load. When the portlet queue is full, no new portlet requests are processed.

If this is the cause of the problem, the diagnostic log contains an error message similar to the one shown in the following example:

Example Message Logged for Portlet Queue Full

```
Message oracle.portlet.client.container.PortletQueueFullException: Queue Full
[cause=na submittedTasks=8,361 queuedTasks=20 queueFreeSpace=0
completedTasks=8,331 activeThreads=10 corePoolSize=10 keepAliveTime=9,223,372,036
largestPoolSize=10 maxPoolSize=10 poolSize=10 isShutdown=false isTerminated=false
isTerminating=false]
```

Solution 2

The portlet queue size is determined by the `parallelPoolSize` and `parallelQueueSize` parameters in `adf-config.xml`.

- `parallelPoolSize` indicates the number of threads to use for parallel execution of tasks. The default value is `10`.
- `parallelQueueSize` determines the size of the queue of tasks waiting for parallel execution. Tasks are rejected when the queue size is reached. The default value is `20`.

The default values should be adequate for most portals. However, if you experience recurring errors due to the portlet queue becoming full, you might want to consider increasing the value of the `parallelQueueSize` parameter. To boost performance, you might also consider increasing the `parallelPoolSize` to increase the number of threads opened to handle the portlet requests from the queue.

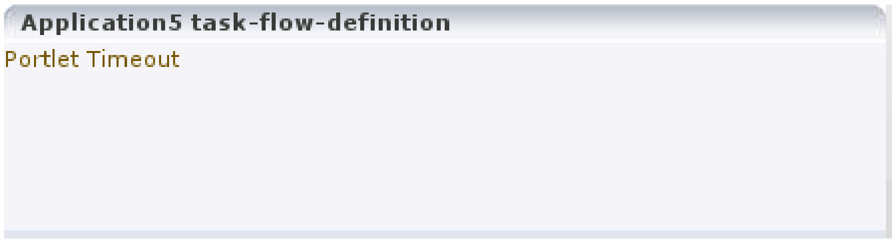
Note:

Increasing the queue and pool size should be done carefully and in small increments. If the value of either parameter is set too high the increased usage of hardware resources could be counterproductive.

Portlet Displays a Portlet Timeout

If a **Portlet Timeout** is displayed in the area of the page that you would expect to contain a portlet (as shown in Figure E–7), this means that the consumer waited for a configured period of time for the producer to respond and did not get a response during that time, or the response did not complete during that time. There are a number of possible causes.

Figure 14-13 Portlet Displaying a Portlet Timeout Error


Application5 task-flow-definition

Portlet Timeout

Problem 1

The producer machine is overloaded.

Solution 1

Check the load on the producer managed server (the tools used to do this vary depending on the operating system that is running on the producer). If the load is high, check whether a particular process is causing this high load, and whether such a process could be run on another machine, or at a less busy time. If no single process is causing the high load, or if the Oracle WebLogic Serveris causing the high load, and if the load is consistently high, consider whether the producer hardware is adequate, or whether it is necessary to upgrade it (or add further nodes to the cluster). Also consider adjusting the Oracle WebLogic Serverconfiguration to increase the size of the request thread pool. For more information, see Oracle WebLogic Server documentation.

Problem 2

The network is overloaded, or there are problems with the network affecting communication between the consumer and producer.

Solution 2

Check that you can ping the producer machine from the consumer machine. Check that you can access the producer's WSRP Producer Test Page in your local browser. If this works, check that you can access this same page from a browser running on the consumer machine. If any of these steps cause problems, and the machine is not overloaded, this could be a network problem, which should be investigated by a system administrator.

Problem 3

There is a deadlock (or a stuck thread) on the producer machine causing the request thread to hang.

Solution 3

This should not happen during normal operation. If it does occur, there will generally be an error in the producer's log files indicating the point at which the deadlock occurred. This may help diagnose the problem. In some cases, it may be possible to alleviate this by modifying the configuration of Oracle WebLogic Server. For more information, see the Oracle WebLogic Serverdocumentation.

Problem 4

The producer application is running slowly (for example, due to processing large quantities of data).

Solution 4

In this case, the producer application may be processing large quantities of data, causing it to spend too long building the response. If the application will regularly deal with large quantities of information, it may be necessary to either add or improve producer hardware, or to increase the portlet timeout duration. The portlet timeout can be configured on the producer connection in the consumer application using Enterprise Manager or the WLST `setWSRPProducerConnection` command. Additionally, minimum and maximum timeouts for all producer connections within the application can be configured within the portlet section of the `adf-config.xml` file.

Problem 5

The producer application is waiting for a response from another resource, such as a database, that is taking too long (for example, if the database is overloaded).

Solution 5

Check that the resource in question is functioning correctly. If it is, the solution is same as Solution 4.

Problem 6

The portlet timeout values have been misconfigured such that the timeout period is too short.

Solution 6

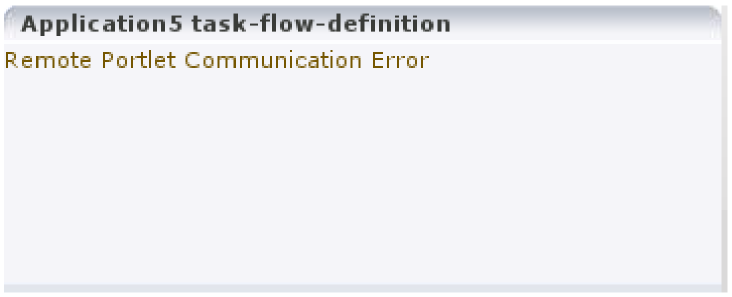
Typically, the timeout for a portlet is set on the registration of the producer. This may have been set to a value that does not give time for the portlet to respond.

Also, the portlet section of the `adf-config.xml` file allows minimum, maximum, and default values for portlet timeouts to be configured across the whole application. The maximum timeout imposes an upper limit on timeouts specified by portlet producers, so if the maximum timeout is too short, this could cause unwanted portlet timeout errors even if the timeout specified on the producer connection is longer.

Portlet Displays a Remote Portlet Communication Error

When a section of the screen shows the **Remote Portlet Communication Error** message (as shown in Figure E–8), and there is an otherwise blank region surrounding it, this area is expected to be filled with a portlet, which the application is not able to contact.

Figure 14-14 Portlet Displaying a Remote Portlet Communication Error


Application5 task-flow-definition

Remote Portlet Communication Error

Problem 1

The producer is down.

Solution 1

It could be that the producer application is not running, or the managed server on which it is deployed is not started. In this case, it will need to be started. Identify the application that needs to be started based on the task being attempted at the time of the portlet failure.

Problem 2

The web services security is incorrectly configured.

Solution 2

Troubleshooting steps for web services security depend on the type of security profile being used, for example AuthN, SSL, or Message Security.

For more information about troubleshooting web service security, see the olink:WSSEC1693 chapter in the *Administering Web Services*.

Problem 3

The producer managed server cannot be reached.

Solution 3

The producer may be in a location that cannot be reached by the consumer application, due to intervening firewalls or incorrect routing rules. In an environment that is installed by Oracle's provisioning software, this should not be the case, but it is worth checking that you are able to access the WSDL endpoint for the producer from the machine hosting the consumer, by going to:

```
http://host:port/context-root/portlets/wsrp2?WSDL
```

Where:

- `host` is the server to which the portlet producer is deployed
- `port` is the port to which the server is listening for HTTP requests
- `context-root` is the producer web application's context root

For example:

```
http://portlets.example.com:9999/sample/portlets/wsrp2?WSDL
```

Portlet Displays a Remote Portlet Error

If the portlet displays a Remote Portlet Error, this indicates that the producer responded with an error message. The error message is returned in the form of a SOAP fault message inside the response document. There are a number of reasons the producer might return an error. The best strategy to diagnose these errors is to first find the corresponding exception stack trace in the consumer diagnostic logs. This stack trace shows what kind of fault was returned by the producer, plus any further information required in the response. Some faults you may encounter are listed in the following sections.

Problem 1

`OperationFailedException`. This is the most common type of Remote Portlet Error and it is a catch-all for most unhandled exceptions raised in the producer application.

Solution 1

To resolve an `OperationFailedException`, examine the exception in the consumer diagnostic logs. This generally shows any exception that was raised in the producer application to trigger the fault response as the final `Caused by` exception.

Problem 2

`InvalidRegistrationException`. This error indicates that the producer has not been properly registered with the consumer before the consumer attempted to communicate with it. This could also occur if the producer's preference store has been moved or deleted since the consumer registered it.

Solution 2

The most likely cause is a problem during provisioning. It is also worth checking the producer application's web.xml file setting to ensure that the entry shown in the example is present.

Example 14-11   Persistent Store Setting in web.xml

```
<env-entry>
  <env-entry-name>oracle/portal/wsrp/server/persistentStore</env-entry-
name>
  <env-entry-type>java.lang.String</env-entry-type>
  <env-entry-value>Consumer</env-entry-value>
</env-entry>
```

Problem 3

`InvalidHandleException`. This indicates that the consumer has asked the producer to render, or otherwise interact with, a portlet instance that the producer does not know about. This could occur if the producer's preference store has been corrupted in some way since the portlet was added to the page.

Solution 3

This error is most likely caused by a problem during provisioning, or a missing `persistentStore` setting in the `web.xml` file, as described in **Solution 2**.

Problem 4

`AccessDeniedException`. This indicates that the producer application decided that the current user did not have access to the portlet or task flow in question.

Solution 4

This could either be a legitimate error message or an indication of a configuration problem. In most cases, WebCenter Portal should deal with authorization errors gracefully, without a Portlet Remote Error being displayed.

Part IV
Additional WebCenter Portal Customizations

This part contains the following chapters:

15

Developing Shared Libraries

Develop, extend, and deploy ADF assets such as task flows, data controls, and managed beans as a shared library for use in WebCenter Portal.

Topics:

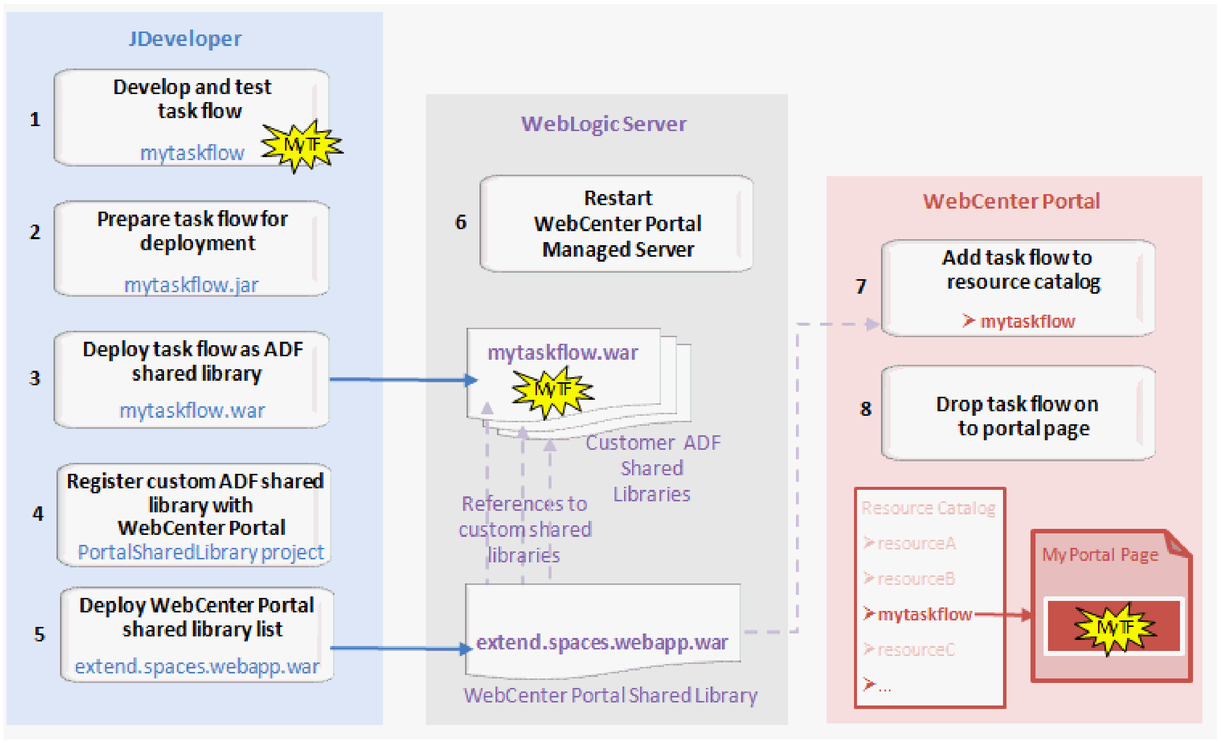
- Developing Shared Libraries for Use in WebCenter Portal
- Packaging and Deploying ADF Components for Use in WebCenter Portal

Developing Shared Libraries for Use in WebCenter Portal

WebCenter Portal provides built-in tools targeted at knowledge workers and developers to quickly and easily create portals, intranets, extranets, and self-service applications that offer portal users a more effective and efficient way to access and interact with information, business applications, and process. WebCenter Portal can be customized using browser-based tools and also using JDeveloper.

To help you understand how you can develop, test, deploy, and use your own ADF task flows, data controls, and managed beans in WebCenter Portal, Figure 15-1 shows the development lifecycle of a single task flow (called *mytaskflow*). Development steps 1 through 5 are described in Packaging and Deploying ADF Components for Use in WebCenter Portal.

Figure 15-1 Development Lifecycle for an ADF Task Flow


JDeveloper
1
Develop and test task flow
mytaskflow
MyTF
2
Prepare task flow for deployment
mytaskflow.jar
3
Deploy task flow as ADF shared library
mytaskflow.war
4
Register custom ADF shared library with WebCenter Portal
PortalSharedLibrary project
5
Deploy WebCenter Portal shared library list
extend.spaces.webapp.war
WebLogic Server
6
Restart WebCenter Portal Managed Server
mytaskflow.war
Customer ADF Shared Libraries
References to custom shared libraries
extend.spaces.webapp.war
WebCenter Portal Shared Library
WebCenter Portal
7
Add task flow to resource catalog
mytaskflow
8
Drop task flow on to portal page
Resource Catalog
resourceA
resourceB
mytaskflow
resourceC
...
My Portal Page

Packaging and Deploying ADF Components for Use in WebCenter Portal

This section describes how you can package and deploy your ADF task flows, data controls, and managed beans in your own custom shared libraries (WAR files) for use in WebCenter Portal.

WebCenter Portal provides a JDeveloper template called *WebCenter Portal Server Extension* that enables you to specify one or more custom shared libraries that you want to use with WebCenter Portal.

You can also use the same *WebCenter Portal Server Extension* template as a starter template to build and deploy ADF library components, such as task flows, data controls, and managed beans for use in WebCenter Portal.

This section includes the following topics:

- Understanding the WebCenter Portal Server Extension Template
- Understanding Shared Library Development for WebCenter Portal
- Creating a WebCenter Portal Server Extension Workspace
- Using Additional Shared Libraries with WebCenter Portal
- Deploying Extensions to the WebCenter Portal Shared Library (extend.spaces.webapp.war)
- Developing ADF Library Components for WebCenter Portal Using the PortalExtension Project

Understanding the WebCenter Portal Server Extension Template

The WebCenter Portal Server Extension template creates a workspace with two projects:

- **PortalSharedLibrary** – A project that when deployed creates `extend.spaces.webapp.war`, a shared library that:
  – References one or more custom shared libraries for WebCenter Portal.
  – Wraps the ADF Library JAR created from the PortalExtension project (only if used).

  > **Note:**
  >
  > Do not add any code to this project; this project only contains descriptor files that reference other shared libraries and/or includes ADF Library JARs.

- **PortalExtension** – A starter project in which you create custom ADF components, such as task flows, data controls, and managed beans. You can deploy this project to an ADF Library, which is added to the `extend.spaces.webapp.war` shared library.

The components you create in a PortalExtension project typically require Java, ADF, and other related software development skills.

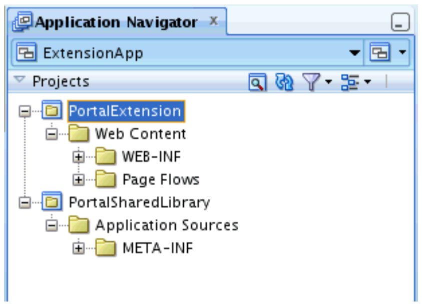
This section describes:

- How the WebCenter Portal Server Extension Workspace Is Organized
- The PortalSharedLibrary Project
- The PortalExtension Project

How the WebCenter Portal Server Extension Workspace Is Organized

The WebCenter Portal Server Extension workspace contains two default projects, PortalExtension and PortalSharedLibrary, each containing specific libraries and default files (Figure 15-2).

Figure 15-2 WebCenter Portal Server Extension Workspace in Application Navigator



The PortalSharedLibrary Project

The PortalSharedLibrary project, shown in Figure 15-3, enables you to register one or more custom shared libraries that you want to use in WebCenter Portal and also provides a convenient mechanism for deploying task flows, data controls, and managed beans (developed in the PortalExtension project) to a managed server running WebCenter Portal.

The PortalSharedLibrary project includes a WAR deployment profile called `extend.spaces.webapp`. When you deploy to `extend.spaces.webapp.war`, all the custom shared libraries that you register (in `weblogic.xml`) and any ADF library that you create and using a PortalExtension project are automatically included as dependencies of `extend.spaces.webapp.war`.

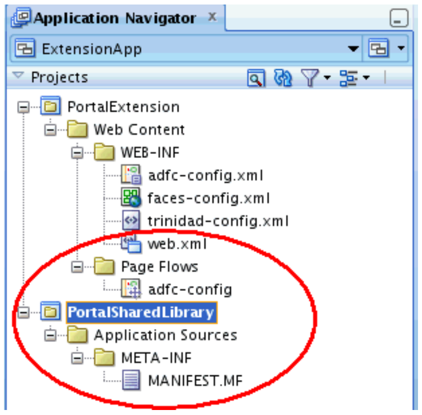
See Using Additional Shared Libraries with WebCenter Portal and Deploying Extensions to the WebCenter Portal Shared Library (extend.spaces.webapp.war).

Note:

Do not add any code to the PortalSharedLibrary project; this project only contains descriptor files that reference other shared libraries or include ADF Library JARs.

For general information on shared libraries, see General Documentation for Shared Library Deployment.

Figure 15-3 PortalSharedLibrary Project



```
PortalExtension
  Web Content
    WEB-INF
      adfc-config.xml
      faces-config.xml
      trinidad-config.xml
      web.xml
    Page Flows
      adfc-config
PortalSharedLibrary
  Application Sources
    META-INF
      MANIFEST.MF
```

Versioning extend.spaces.webapp.war

The PortalSharedLibrary project contains a `MANIFEST.MF` file. Each time you update and deploy `extend.spaces.webapp.war`, edit this `MANIFEST.MF` file to increment the shared library implementation version. With each iteration, you must increment the `Implementation-Version` number in the `MANIFEST.MF` file, as shown in the example Manifest File for extend.spaces.webapp. The default implementation version is 12.2.1.0.1.

Manifest File for extend.spaces.webapp

```
Manifest-Version: 1.0
Ant-Version: Apache Ant 1.7.1
Created-By: 23.7-b01 (Oracle Corporation)
Extension-List: bpmSpaces
bpmSpaces-Extension-Name: oracle.bpm.spaces
Package:
Specification-Version: 2.0
Implementation-Version: 12.2.1.0.1
Implementation-Label: 12.2.1.0.1
Implementation-Vendor: Oracle
Implementation-Patch-Number:
Implementation-Patch-List:
Implementation-Title: Oracle WebCenter Spaces App Extension View V2
Extension-Name: extend.spaces.webapp
```

For detailed steps on how to change the implementation version, see Deploying Extensions to the WebCenter Portal Shared Library (extend.spaces.webapp.war).

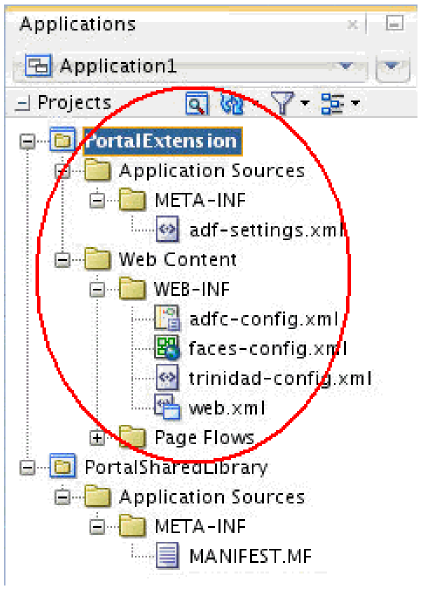
The PortalExtension Project

The PortalExtension project is a standard ADF project where you can create custom components like task flows, data controls, and managed beans.

A PortalExtension project is deployed to an ADF Library. This library is automatically added as a dependency to the `extend.spaces.webapp.war` shared library file generated from the PortalSharedLibrary project. See Developing ADF Library Components for WebCenter Portal Using the PortalExtension Project.

For more information on ADF Libraries, see General Documentation for ADF Library Development.

Figure 15-4 The PortalExtension Project

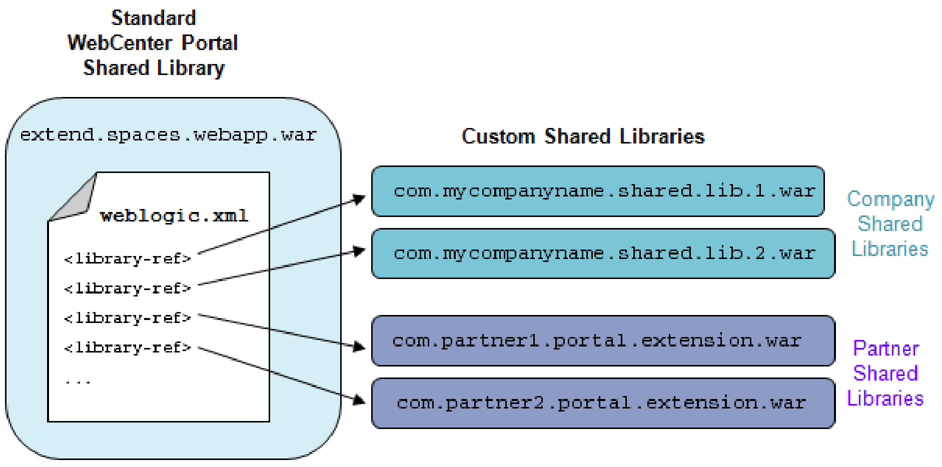


Understanding Shared Library Development for WebCenter Portal

WebCenter Portal includes the standard shared library `extend.spaces.webapp.war`. This WAR file can include a deployment descriptor (`weblogic.xml`) which references other shared libraries containing custom ADF library components.

If you have custom code or task flows deployed in several shared libraries from multiple sources that you want to use in WebCenter Portal you can list them in `extend.spaces.webapp.war`, as illustrated in Figure 15-5.

Figure 15-5 Reference Multiple Custom Shared Libraries in extend.spaces.webapp.war



This development model provides an easy way to use additional shared libraries in WebCenter Portal from multiple contributors, including developers, customers, and partners.

Whenever you deploy a new shared library that includes extensions for WebCenter Portal you must register the name of your shared library with WebCenter Portal and redeploy `extend.spaces.webapp.war`. For details, see Using Additional Shared Libraries with WebCenter Portal.

This *Guide* does not attempt to teach you how to develop ADF task flows, data controls, and managed beans and package them into custom shared libraries since those techniques and procedures are not specific to WebCenter Portal. If you are new to shared library development, Oracle recommends that you familiarize yourself with the documentation listed at:

- General Documentation for ADF Library Development
- General Documentation for Shared Library Deployment

This *Guide* explains how to reference shared libraries that you want to use in WebCenter Portal using the WebCenter Portal Server Extension template. Table 15-1 provides an overview of the ADF library and shared library development processes, highlighting information that is specific to WebCenter Portal and pointing to other documentation where applicable.

Table 15-1 Developing and Deploying ADF Libraries and Shared Libraries for WebCenter Portal

Subject	WebCenter Portal Documentation	General Documentation
Creating ADF library components	WebCenter Portal supports several component types deployed to ADF Library JARs: task flows, data controls, and managed beans Create task flows, data controls, or managed beans for WebCenter Portal the same way as any standard ADF Library component. Alternatively, use the starter project supplied with WebCenter Portal. See Developing ADF Library Components for WebCenter Portal Using the PortalExtension Project.	About Reusable Components in *Developing Fusion Web Applications with Oracle Application Development Framework* describes various types of reusable ADF components, such as a task flows, that you can deploy to an ADF Library JAR. Note that Extension Libraries *does not* apply to WebCenter Portal. See also, Creating Reusable Components in *Developing Fusion Web Applications with Oracle Application Development Framework*.
- Naming conventions	Every ADF Library JAR file that you want to use with WebCenter Portal must have a unique file name. You cannot add two ADF Library JAR files with the same name even if their content is completely different.	See also, Naming Conventions in *Developing Fusion Web Applications with Oracle Application Development Framework*.
- Managing connections	If your ADF Library JAR uses a connection, you must manually register that connection with WebCenter Portal using the same connection name and details (just including the connection within the ADF Library JAR *does not* expose that connection in WebCenter Portal). To create connections for WebCenter Portal, you must use Fusion Middleware Control or WLST commands. To add a WebCenter Portal specific connection, refer to Managing Tools and Services in *Administering Oracle WebCenter Portal*. To add a database connection, refer to Creating and Managing JDBC Data Sources in the *Administering Oracle Fusion Middleware*. To add a web service connection, configure the ADFConnections MBean using the System MBean Browser. Refer to System MBean Browser in *Administering Oracle WebCenter Portal* and Web Service Connection in the *Administering Oracle ADF Applications*.	See also, Naming Considerations for Connections in *Developing Fusion Web Applications with Oracle Application Development Framework*.
- Including descriptors	Descriptors in custom shared libraries, such as `web.xml` and `application.xml`, merge with corresponding descriptors deployed with the WebCenter Portal application. To avoid corrupting your WebCenter Portal installation, Oracle recommends that you *do not* include descriptor files in your custom shared libraries.	

Table 15-1 (Cont.) Developing and Deploying ADF Libraries and Shared Libraries for WebCenter Portal

Subject	WebCenter Portal Documentation	General Documentation
- Versioning	Each time you redeploy the WebCenter Portal shared library WAR file (`extend.spaces.wepapp.war`) to add an ADF library JAR or to reference a custom shared library you must increment the shared library implementation version number. For details, see Versioning extend.spaces.webapp.war and Deploying Extensions to the WebCenter Portal Shared Library (extend.spaces.webapp.war).	
Packaging components into ADF Library JAR	Package your task flow, data control, or managed bean into a standard ADF Library JAR. Alternatively, use the starter **PortalExtension** project. For details, see Developing ADF Library Components for WebCenter Portal Using the PortalExtension Project.	Packaging a Reusable ADF Component into an ADF Library in *Developing Fusion Web Applications with Oracle Application Development Framework* describes how to package a reusable component, such as a task flow, to a ADF Library JAR file. Note that How to Place and Access JDeveloper JAR Files *does not* apply to WebCenter Portal.

Table 15-1 (Cont.) Developing and Deploying ADF Libraries and Shared Libraries for WebCenter Portal

Subject	WebCenter Portal Documentation	General Documentation
Adding ADF library components to a shared library	To use ADF Library components in WebCenter Portal, you must: 1. Deploy your ADF Library components to a shared library WAR file. See, Creating Shared Java EE Libraries and Optional Packages in *Developing Applications for Oracle WebLogic Server*. 2. Deploy your shared library to the managed server on which WebCenter Portal is deployed. 3. Register your shared library in the WebCenter Portal shared library (`extend.spaces.webapp.war`). 4. Deploy a new version of the WebCenter Portal shared library (`extend.spaces.webapp.war`). 5. Use Fusion Middleware Control or WLST to create any connections that your custom ADF Library components require. 6. Restart the managed server on which WebCenter Portal is deployed. **Note:** You can add ADF Library components directly to the WebCenter Portal shared library WAR (`extend.spaces.webapp.war`). For details, see Deploying Extensions to the WebCenter Portal Shared Library (extend.spaces.webapp.war).	Adding ADF Library Components into Projects in *Developing Fusion Web Applications with Oracle Application Development Framework* describes how to deploy ADF library components, such as a task flow, to a project. The information in this section *does not* apply to WebCenter Portal.

Table 15-1 (Cont.) Developing and Deploying ADF Libraries and Shared Libraries for WebCenter Portal

Subject	WebCenter Portal Documentation	General Documentation
Using ADF library components	An ADF Library adapter in WebCenter Portal's resource catalog automatically picks up any task flows, data controls and managed beans that you deploy and reference through `extend.spaces.webapp.war` and adds them to WebCenter Portal's resource registry. Custom components in the resource registry are exposed to WebCenter Portal users through resource catalogs as components that you can drop onto portal pages. 1. Log in to WebCenter Portal. 2. Add your custom component to a resource catalog. See, Adding a Resource to a Resource Catalog in *Building Portals with Oracle WebCenter Portal*. 3. Open a page with access to the resource catalog. 4. Add your custom component to the page. See, Adding a Component to a Page in *Building Portals with Oracle WebCenter Portal*.	What You May Need to Know About Using ADF Library Components in *Developing Fusion Web Applications with Oracle Application Development Framework* describes how various different ADF Library component types appear in JDeveloper. For WebCenter Portal, only the information pertaining to task flows, data controls, and managed beans applies.
Creating a shared library WAR	The WebCenter Portal Server Extension template provides a deployment profile for the WebCenter Portal shared library WAR `extend.spaces.webapp.war`. For details, see Creating a WebCenter Portal Server Extension Workspace.	Creating Shared Java EE Libraries in *Developing Applications for Oracle WebLogic Server* describes how to create a shared library WAR file.
Deploying a shared library WAR	The WebCenter Portal Server Extension template enables you to redeploy the WebCenter Portal shared library WAR `extend.spaces.webapp.war`. For details, see Deploying Extensions to the WebCenter Portal Shared Library (extend.spaces.webapp.war).	Deploying Shared Java EE Libraries and Dependent Applications in *Developing Applications for Oracle WebLogic Server* describes how to deploy any shared library WAR file.
Reverting to a previous library version	Use the WebLogic Server Administration Console to revert to a previous shared library WAR version or remove unwanted versions. For details, see Reverting to a Previous WebCenter Portal Shared Library Version.	Removing an ADF Library JAR from a Project in *Developing Fusion Web Applications with Oracle Application Development Framework* describes how to remove ADF Library components in JDeveloper. The information in this section *does not* apply to WebCenter Portal.

General Documentation for ADF Library Development

- For information about creating ADF task flows, data controls, and managed beans, see Getting Started with ADF Task Flows, About ADF Data Controls, and Creating Contextual Events Using Managed Beans in *Developing Fusion Web Applications with Oracle Application Development Framework*.
- See also, Reusing Application Components in *Developing Fusion Web Applications with Oracle Application Development Framework*.

General Documentation for Shared Library Deployment

- For additional information on versioning of shared libraries, see Deploying Shared Java EE Libraries and Dependent Applications in *Developing Applications for Oracle WebLogic Server*.
- See also, Deploying Shared Java EE Libraries and Dependent Applications in *Developing Applications for Oracle WebLogic Server*.

Creating a WebCenter Portal Server Extension Workspace

This section explains how to create a WebCenter Portal Server Extension workspace in JDeveloper in which you can:

- Register one or more custom shared libraries to use with WebCenter Portal.
- Create and deploy a custom ADF component for WebCenter Portal such as a task flow, data control, or managed bean.

To create a WebCenter Portal Server Extension workspace:

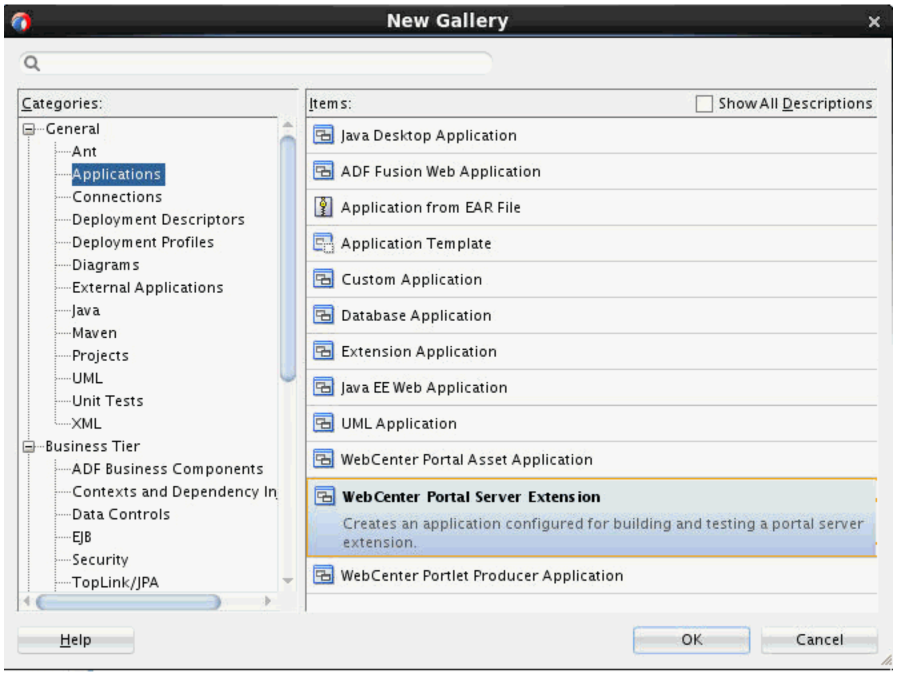
1. Download and install Oracle JDeveloper 12c (12.2.1.0.0).

   For details, see Installing Oracle JDeveloper.
2. Install the WebCenter Portal Extension for JDeveloper (12.2.1.0.0).

   For details, see Installing the WebCenter Portal Extensions for JDeveloper.
3. Open JDeveloper and choose **File** > **New**.
4. In the New Gallery dialog, open the **General** node and select **Applications**.
5. In the Items list, select **WebCenter Portal Server Extension**, and click **OK**.

   See Figure 15-6.

Figure 15-6 New Gallery Dialog



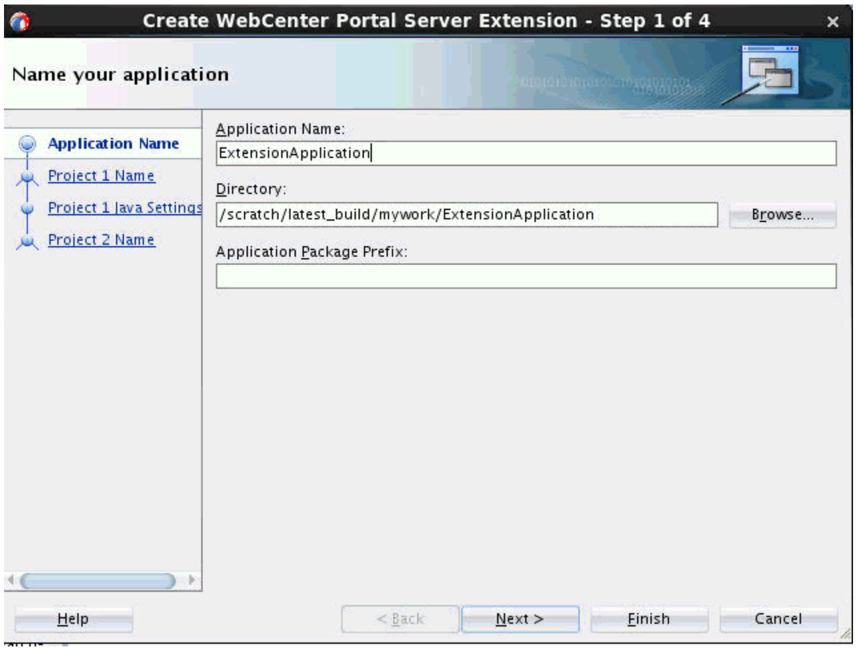
Creates an application configured for building and testing a portal server extension.

Note:

At this point, you are on the first page of the Create WebCenter Portal Server Extension wizard. The wizard includes four pages, which are explained in the following steps.

6. In the Create WebCenter Portal Server Extension dialog, enter a name for the workspace in the **Application Name** field, as shown in Figure 15-7.

Figure 15-7 Create WebCenter Portal Extension Wizard Step 1 of 4


Create WebCenter Portal Server Extension - Step 1 of 4

Name your application

Application Name: ExtensionApplication

Directory: /scratch/latest_build/mywork/ExtensionApplication

Application Package Prefix:

7. In the **Directory** field, enter a path to the base directory in which to store the workspace, or accept the default path.

   For example:

   ```
   /scratch/latest_build/mywork/ExtensionApplication
   ```

   Optionally, click the **Browse** button to navigate to the desired directory.

8. Optionally, enter an **Application Package Prefix**.

   This prefix is used for Java classes, interfaces, and packages created within the workspace. For example, a common prefix pattern is `com.companyDomainName`, like `com.oracle`.

   Tip:

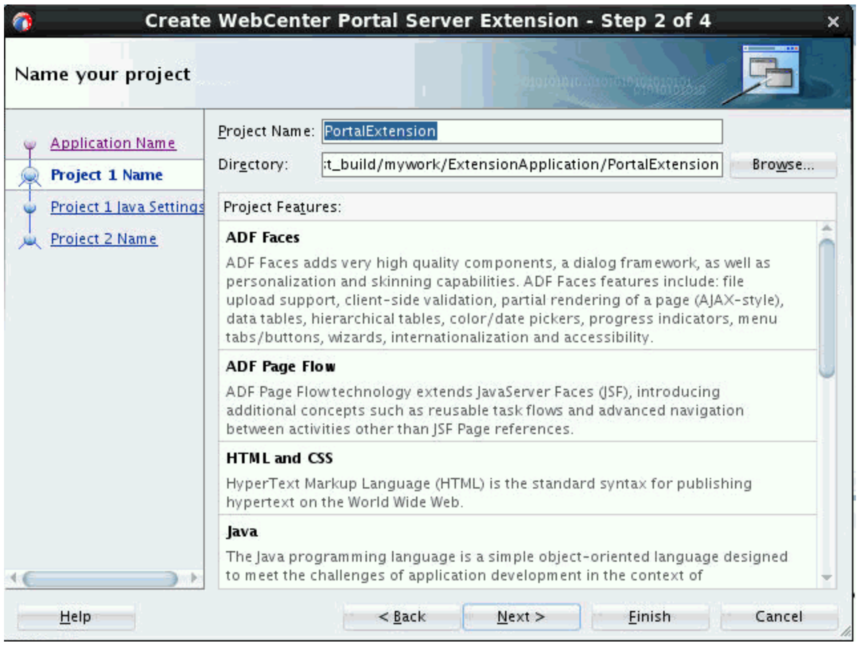
   At this point, you could click **Finish** to create a project with default portal project names and directories. The following steps continue and review the rest of the wizard pages.

9. Click **Next**.

10. In the Project 1 Name part of the wizard, enter a **Project Name**, or use the default name as shown in Figure 15-8.

    This project provides all of the project technology components that are required for building and testing custom ADF components for WebCenter Portal (task flows, data controls, and managed beans).

Figure 15-8 Create WebCenter Portal Server Extension Wizard Step 2 of 4


Create WebCenter Portal Server Extension - Step 2 of 4

Name your project

Project Name: PortalExtension

Directory: :t_build/mywork/ExtensionApplication/PortalExtension

Project Features:

ADF Faces

ADF Faces adds very high quality components, a dialog framework, as well as personalization and skinning capabilities. ADF Faces features include: file upload support, client-side validation, partial rendering of a page (AJAX-style), data tables, hierarchical tables, color/date pickers, progress indicators, menu tabs/buttons, wizards, internationalization and accessibility.

ADF Page Flow

ADF Page Flow technology extends JavaServer Faces (JSF), introducing additional concepts such as reusable task flows and advanced navigation between activities other than JSF Page references.

HTML and CSS

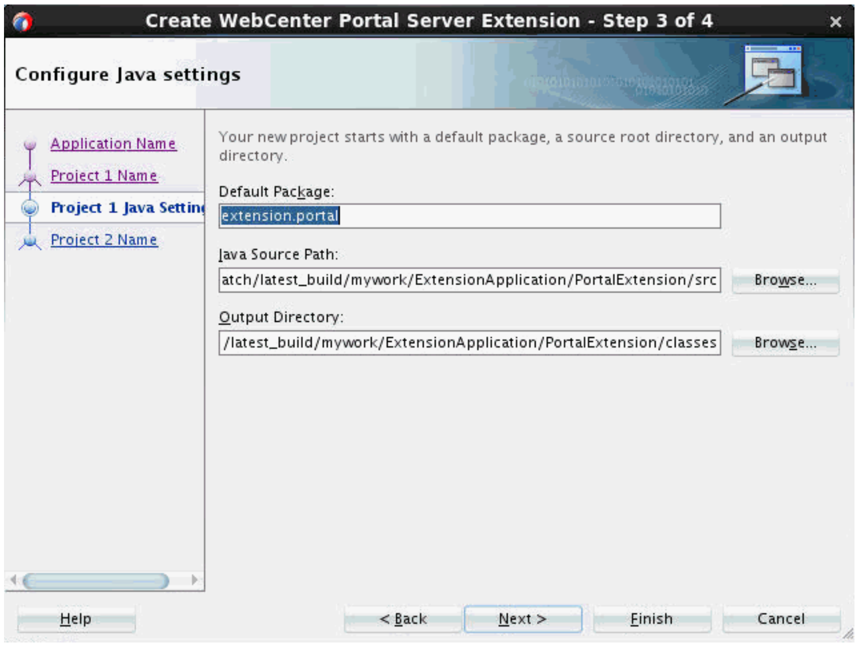
HyperText Markup Language (HTML) is the standard syntax for publishing hypertext on the World Wide Web.

Java

The Java programming language is a simple object-oriented language designed to meet the challenges of application development in the context of

11. If you want to change the default directory for the project, enter it or use the **Browse** button to select a directory.
12. Click **Next**.
13. Optionally, edit the default package name and directories for Java source files and output class files for the project, as shown in Figure 15-9.

Figure 15-9 Create WebCenter Portal Server Extension Wizard Step 3 of 4


Create WebCenter Portal Server Extension - Step 3 of 4

Configure Java settings

Your new project starts with a default package, a source root directory, and an output directory.

Default Package: extension.portal

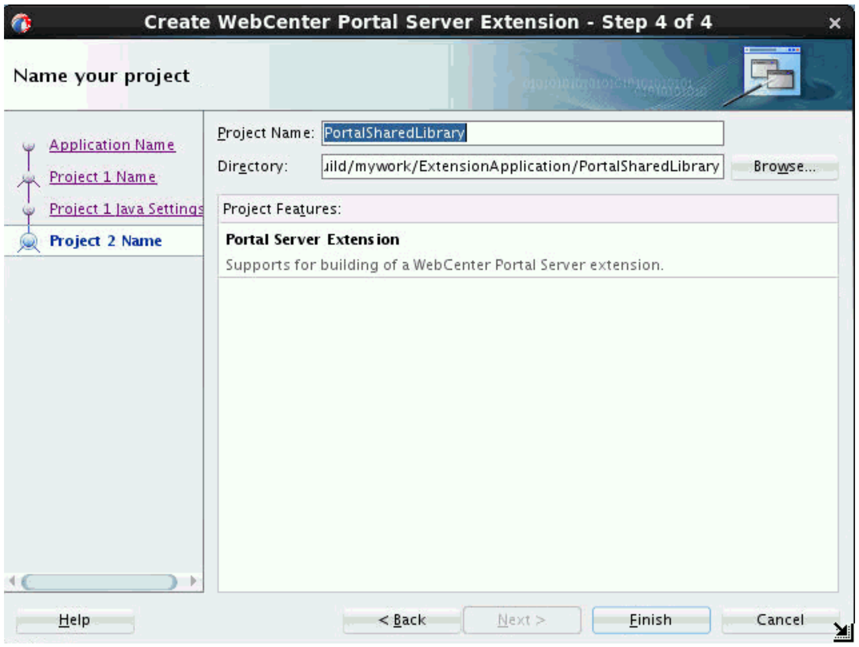
Java Source Path: atch/latest_build/mywork/ExtensionApplication/PortalExtension/src

Output Directory: /latest_build/mywork/ExtensionApplication/PortalExtension/classes

14. In the Project 2 Name part of the wizard, enter a **Project Name**, or use the default name as shown in Figure 15-10.

This project allows you to register one or more shared libraries that you want to use in WebCenter Portal, as well as deploy custom ADF components built using the PortalExtension project. See Deploying Extensions to the WebCenter Portal Shared Library (extend.spaces.webapp.war).

Figure 15-10 Create WebCenter Portal Server Extension Wizard Step 4 of 4



Project Name: PortalSharedLibrary
Directory: uild/mywork/ExtensionApplication/PortalSharedLibrary
Project Features:
Portal Server Extension
Supports for building of a WebCenter Portal Server extension.

15. If you want to change the default directory for the project, enter it or use the **Browse** button to select a directory.
16. Click **Finish**.

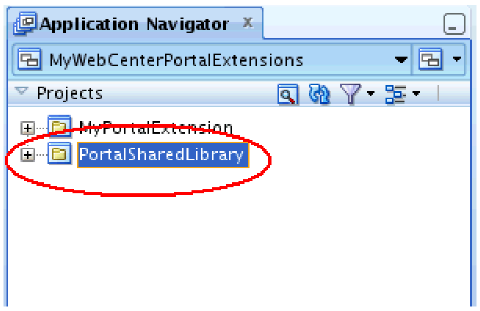
Using Additional Shared Libraries with WebCenter Portal

If you have one or more shared libraries containing custom task flows, data controls or managed beans that you want to use in WebCenter Portal, you must register them in the `weblogic.xml` file associated with WebCenter Portal's shared library `extend.spaces.webapp.war`.

1. Select the **PortalSharedLibrary** project (Figure 15-11).

   If you have not created a WebCenter Portal Extension workspace yet, refer to Creating a WebCenter Portal Server Extension Workspace.

Figure 15-11 PortalSharedLibrary Project



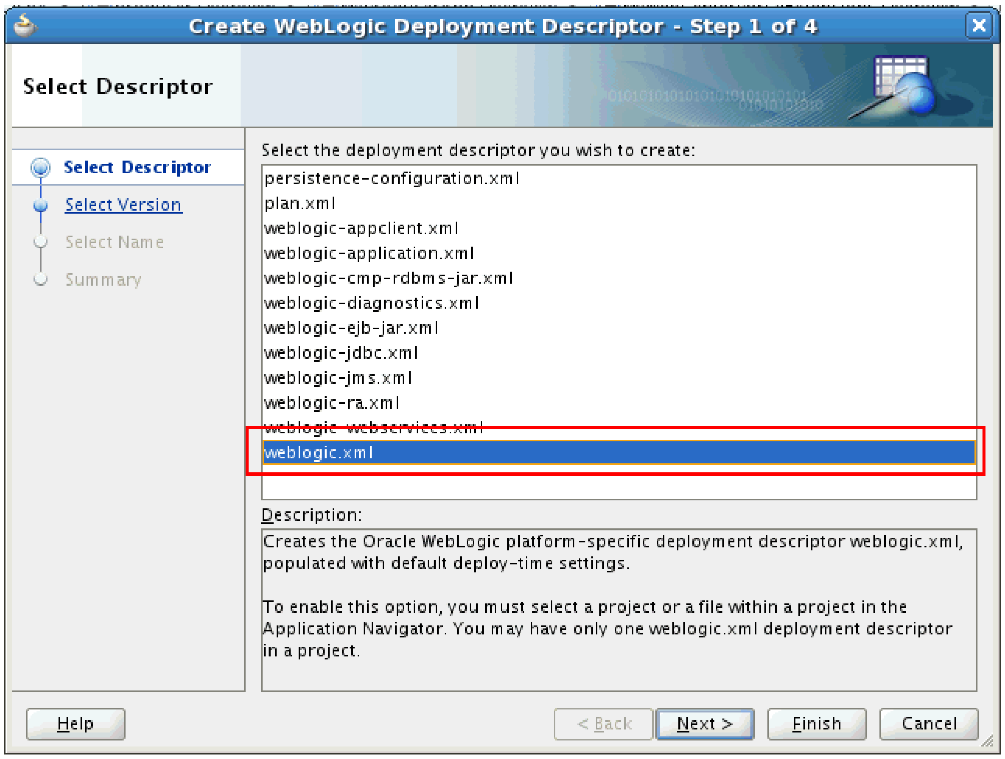
2. If the deployment descriptor `weblogic.xml` does not exist yet under `PortalSharedLibrary\Web Content\WEB-INF`, create the deployment descriptor as follows:

   a. Select **New > Deployment Descriptors > WebLogic Deployment Descriptor**

   b. Select **OK**.

   c. Select `weblogic.xml` from the list (Figure 15-12).

Figure 15-12 Create WebLogic Deployment Descriptor weblogic.xml



Select the deployment descriptor you wish to create:

persistence-configuration.xml
plan.xml
weblogic-appclient.xml
weblogic-application.xml
weblogic-cmp-rdbms-jar.xml
weblogic-diagnostics.xml
weblogic-ejb-jar.xml
weblogic-jdbc.xml
weblogic-jms.xml
weblogic-ra.xml
weblogic-webservices.xml
weblogic.xml

Description:

Creates the Oracle WebLogic platform-specific deployment descriptor weblogic.xml, populated with default deploy-time settings.

To enable this option, you must select a project or a file within a project in the Application Navigator. You may have only one weblogic.xml deployment descriptor in a project.

   d. Select **Finish**.

3. Open `weblogic.xml` (under `PortalSharedLibrary\Web Content\WEB-INF`).

   Initially, no additional shared libraries are listed in the file.

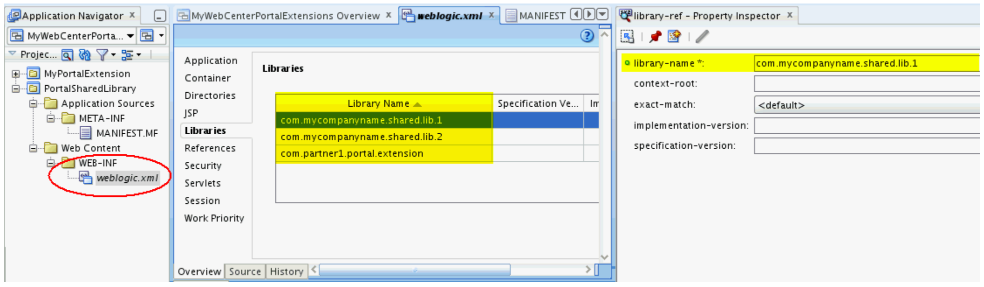
4. In the Overview page, select **Libraries**.

5. Specify the **Library Name** for each shared library that you want to use in WebCenter Portal.

   You can register a single shared library or multiple shared libraries, as shown in Figure 15-13.

   Click the Help icon for more information, if required.

Figure 15-13 weblogic.xml - Multiple Shared Library References



Libraries

Library Name	Specification Ve...	Im
com.mycompanyname.shared.lib.1		
com.mycompanyname.shared.lib.2		
com.partner1.portal.extension		

library-name *:	com.mycompanyname.shared.lib.1
context-root:	
exact-match:	<default>
implementation-version:	
specification-version:	

6. Ensure each shared library that you reference is deployed on the WebCenter Portal managed server (named `WC_Portal` by default).

7. Redeploy a new version of the WebCenter Portal shared library WAR (`extend.spaces.webapp.war`) that includes your shared library references.

   Remember to increment the version number in `MANIFEST.MF`. For details, see Deploying Extensions to the WebCenter Portal Shared Library (extend.spaces.webapp.war).

Deploying Extensions to the WebCenter Portal Shared Library (extend.spaces.webapp.war)

This section explains how to deploy extensions to the WebCenter Portal shared library (`extend.spaces.webapp.war`) where your extensions are either:

- Existing shared libraries containing task flows, data controls, or managed beans that you have registered in `weblogic.xml`.

  See Using Additional Shared Libraries with WebCenter Portal

- An ADF Library JAR created from the PortalExtension project and included in the WebCenter Portal shared library.

  See Developing ADF Library Components for WebCenter Portal Using the PortalExtension Project

This section includes the following topics:

- Deploying Extensions Directly to the Portal Server
- Deploying Extensions to an Archive
- Reverting to a Previous WebCenter Portal Shared Library Version

Deploying Extensions Directly to the Portal Server

Before deploying extensions to WebCenter Portal from JDeveloper:

- Verify that you have at least the WebLogic `Monitor` role.

  For information on roles, see Users, Groups, And Security Roles in *Securing Resources Using Roles and Policies for Oracle WebLogic Server*.

- Ensure a connection exists to the WebCenter Portal server.

  For information about creating a connection see Creating a WebCenter Portal Server Connection.

- Review background information on shared libraries in Creating Shared Java EE Libraries and Optional Packages in *Developing Applications for Oracle WebLogic Server*.

To deploy extensions for WebCenter Portal from JDeveloper:

1. In JDeveloper, open the workspace containing extensions to be deployed.

   See also Using Additional Shared Libraries with WebCenter Portal and Developing ADF Library Components for WebCenter Portal Using the PortalExtension Project.

2. In the Application Navigator, navigate to the `PortalSharedLibrary` > `Application Sources` > `META-INF` folder.

3. Open the `MANIFEST.MF` file in a text editor.

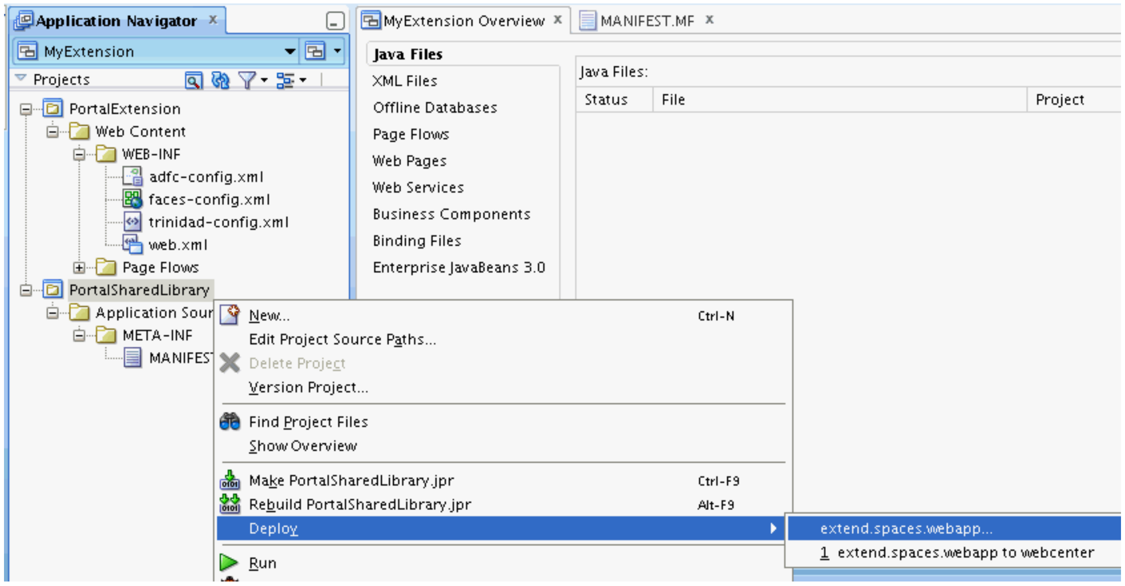
4. Increment the `Implementation-Version` number. The default version is `Implementation-Version: 12.2.1.0.1`.

   > **Note:**
   >
   > You must increment the shared library `Implementation-Version` number each time you update and redeploy the WebCenter Portal shared library `extend.spaces.webapp.war`. Otherwise, an error is reported from WebLogic Server in the Deployment - Log tab. For more information, see The PortalSharedLibrary Project.

5. In the Application Navigator, right-click the **PortalSharedLibrary** project, select **Deploy**, and then select **extend.spaces.webapp** (Figure 15-14).

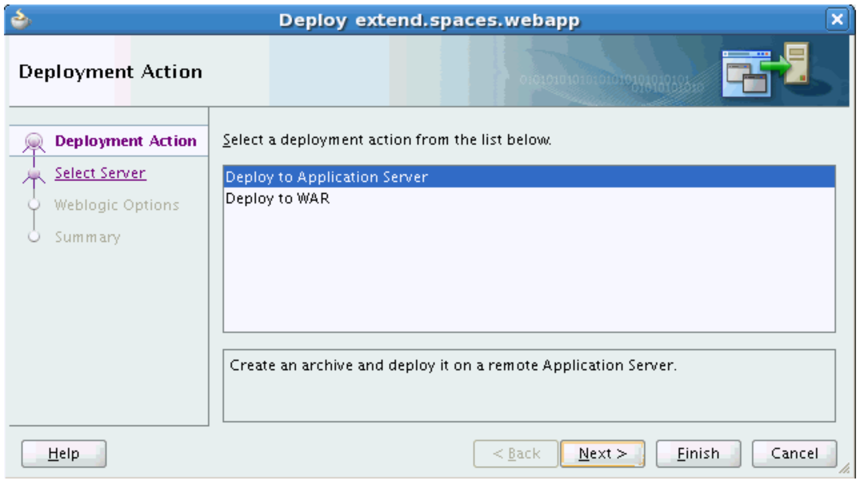
   > **Note:**
   >
   > Note that `extend.spaces.webapp` is the name of the deployment profile for the shared library that you are deploying to the server. The shared library created by a subsequent deployment action is called `extend.spaces.webapp.war`.

Figure 15-14   Selecting the Shared Library extend.spaces.webapp



6. In the Deploy dialog, select **Deploy to Application Server** and click **Next** (Figure 15-15).

Figure 15-15   Portal Extension Deployment Actions

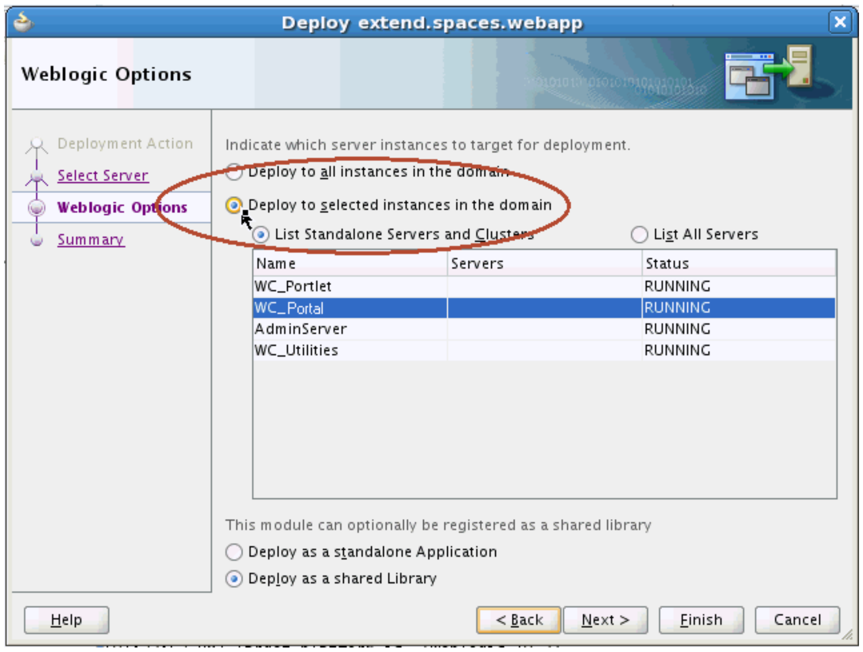


Select a deployment action from the list below.

Create an archive and deploy it on a remote Application Server.

7. Select the connection that points to the WebLogic Server where you want to deploy the shared library, for example, `WC_Portal`, and click **Next**.
8. In the Deploy extend.spaces.webapp dialog, select **Deploy to selected instances in the domain**, as shown in Figure 15-16.

Figure 15-16 Selecting Deployment Option



Indicate which server instances to target for deployment.

Deploy to all instances in the domain [✓ Deploy to selected instances in the domain]

[✓ List Standalone Servers and Clusters] List All Servers

Name	Servers	Status
WC_Portlet		RUNNING
WC_Portal		RUNNING
AdminServer		RUNNING
WC_Utilities		RUNNING

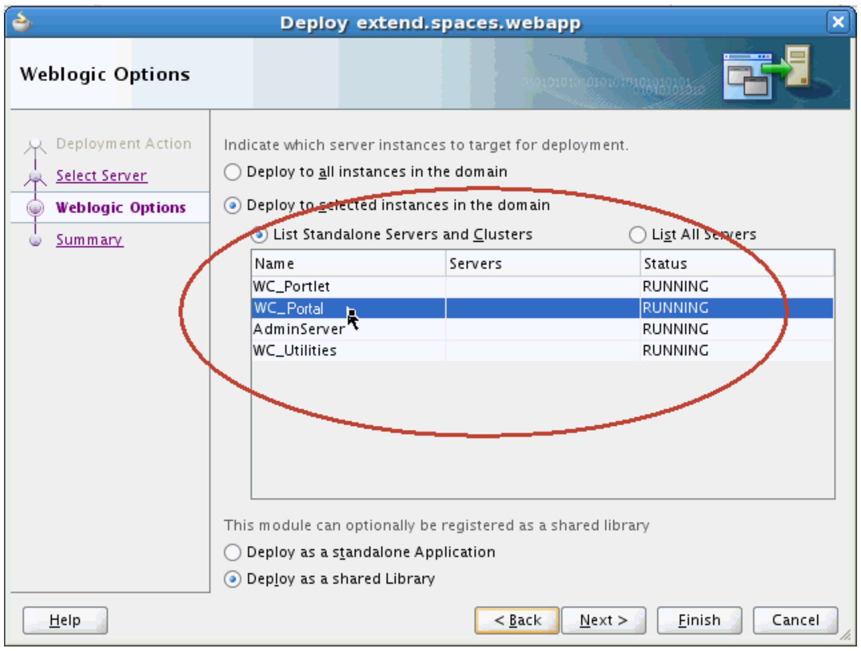
This module can optionally be registered as a shared library

Deploy as a standalone Application [✓ Deploy as a shared Library]

9. In the list of servers, select the managed server on which WebCenter Portal is deployed, as shown in Figure 15-17.

> **Note:**
>
> The name of the managed server depends on how the system administrator set up the server. By default, the name is `WC_Portal`; however, this name might be different on your system.

Figure 15-17   Selecting the Managed Server



Indicate which server instances to target for deployment.

( ) Deploy to all instances in the domain
(●) Deploy to selected instances in the domain
(●) List Standalone Servers and Clusters   ( ) List All Servers

Name	Servers	Status
WC_Portlet		RUNNING
WC_Portal		RUNNING
AdminServer		RUNNING
WC_Utilities		RUNNING

This module can optionally be registered as a shared library

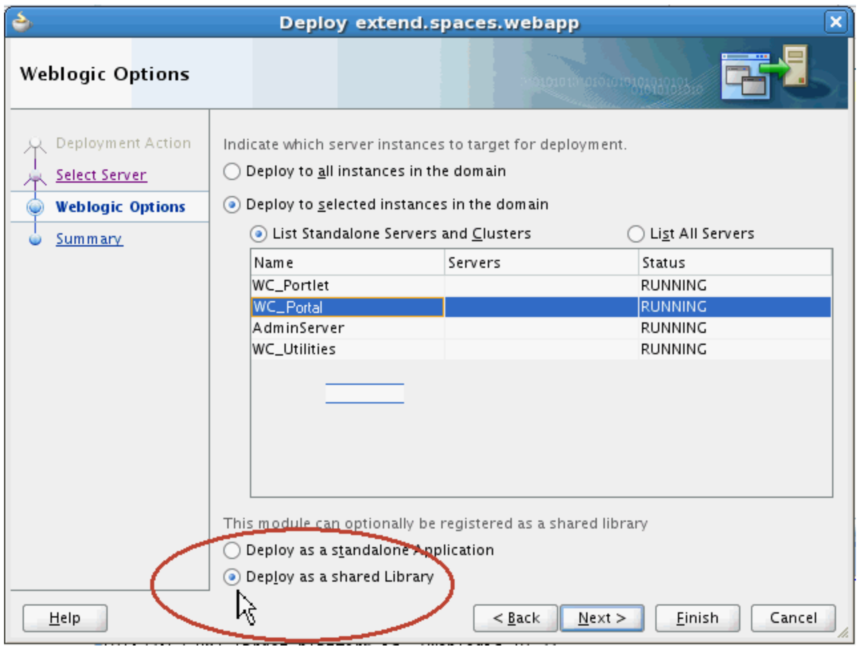
( ) Deploy as a standalone Application
(●) Deploy as a shared Library

10. Select **Deploy as a shared library**, as shown in Figure 15-18

Note:

This step is critical: you *must* select **Deploy as a shared library**, otherwise, the deployment will not be successful.

Figure 15-18   Selecting Deploy As Shared Library



Indicate which server instances to target for deployment.

( ) Deploy to all instances in the domain
(●) Deploy to selected instances in the domain
(●) List Standalone Servers and Clusters   ( ) List All Servers

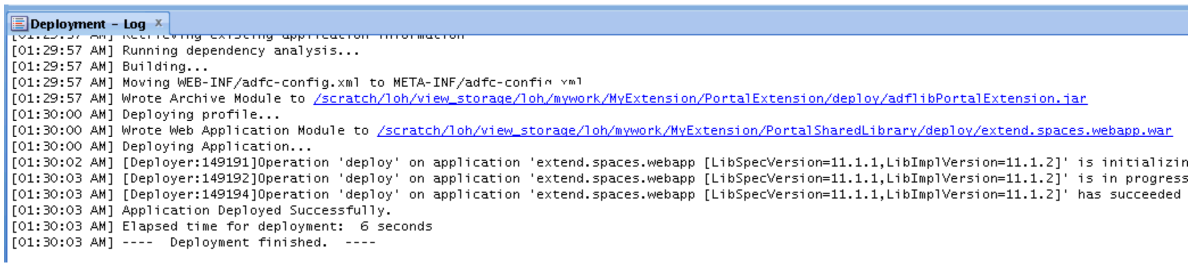
Name	Servers	Status
WC_Portlet		RUNNING
WC_Portal		RUNNING
AdminServer		RUNNING
WC_Utilities		RUNNING

This module can optionally be registered as a shared library

( ) Deploy as a standalone Application
(●) Deploy as a shared Library

11. Click **Next**.
12. On the Deployment Summary screen, verify the deployment options, and click **Finish** to deploy the portal extension to the server.
13. Open the Deployment -Log tab to examine for any deployment issues. If deployment is successful, you should see this log entry: "`Application Deployed Successfully,`" as shown in Figure 15-19.

Figure 15-19 Deployment - Log Tab



```
[01:29:57 AM] Running dependency analysis...
[01:29:57 AM] Building...
[01:29:57 AM] Moving WEB-INF/adfc-config.xml to META-INF/adfc-config.xml
[01:29:57 AM] Wrote Archive Module to /scratch/loh/view_storage/loh/mywork/MyExtension/PortalExtension/deploy/adflibPortalExtension.jar
[01:30:00 AM] Deploying profile...
[01:30:00 AM] Wrote Web Application Module to /scratch/loh/view_storage/loh/mywork/MyExtension/PortalSharedLibrary/deploy/extend.spaces.webapp.war
[01:30:00 AM] Deploying Application...
[01:30:02 AM] [Deployer:149191]Operation 'deploy' on application 'extend.spaces.webapp [LibSpecVersion=11.1.1,LibImplVersion=11.1.2]' is initializin
[01:30:03 AM] [Deployer:149192]Operation 'deploy' on application 'extend.spaces.webapp [LibSpecVersion=11.1.1,LibImplVersion=11.1.2]' is in progress
[01:30:03 AM] [Deployer:149194]Operation 'deploy' on application 'extend.spaces.webapp [LibSpecVersion=11.1.1,LibImplVersion=11.1.2]' has succeeded
[01:30:03 AM] Application Deployed Successfully.
[01:30:03 AM] Elapsed time for deployment:  6 seconds
[01:30:03 AM] ----  Deployment finished.  ----
```

14. To verify the new deployment, log in to the WebLogic Server Administration Console, navigate to the Deployments Overview page, and check the implementation version displayed.
    a. Log in to the WebLogic Server Administration Console.
    b. Click **Deployments**, and locate **extend.spaces.webapp**.
    c. Note the entries for the `extend.spaces.webapp` shared library and verify the one with the implementation version that you updated previously in the `MANIFEST.MF` file. See also Versioning extend.spaces.webapp.war.

Note:

WebLogic Server only uses the latest shared library version when an application starts up. If you go through several "change-build-deploy-test" iterations, incremental versions are retained by default. You can use the Administration Console to remove unwanted shared library versions if you want, but it is recommended that you retain the first version (`extend.spaces.webapp(12.2.1,12.2.1)`) as a backup so you can revert to the default behavior if necessary.

15. (Optional) Create any connections that your custom ADF Library components may require:
    - To add a database connection, refer to Creating and Managing JDBC Data Sources in *Administering Oracle Fusion Middleware*.
    - To add a web service connection, configure the ADFConnections MBean using the System MBean Browser in Fusion Middleware Control. Refer to System MBean Browser in *Administering Oracle WebCenter Portal* and Web Service Connection in *Administering Oracle ADF Applications*.
    - To add a connection type specific to WebCenter Portal, for example to a portlet producer or content repository connection, refer to Managing Tools and Services in *Administering Oracle WebCenter Portal*.

16. Restart the managed server on which WebCenter Portal is running.

    This step is required for the task flows, data controls, and managed beans in the shared library to show up in the WebCenter Portal Resource Registry. For more information, see Starting and Stopping Managed Servers for WebCenter Portal Application Deployments in *Administering Oracle WebCenter Portal*.

    > **Note:**
    >
    > The name of the managed server depends on how the system administrator set up the server. By default, the name is `WC_Portal`; however, this name might be different on your system.

17. Log in to WebCenter Portal and verify that all newly deployed task flows, data controls, or managed beans are available in the Resource Registry.

Once successfully deployed components are added to the Resource Registry, you can add them to resource catalogs where they are made available for drag and drop onto portal pages. See also, About the Resource Registry in *Building Portals with Oracle WebCenter Portal*.

Deploying Extensions to an Archive

If you do not have a connection to the portal server or permissions to deploy the `extend.spaces.webapp` shared library on the portal server, you can deploy extensions to the `extend.spaces.webapp` shared library to an archive (`.war` file) and give the `.war` file to an administrator for deployment to a managed server running WebCenter Portal.

To deploy extensions to the `extend.spaces.webapp` shared library to an archive:

1. In JDeveloper, open the workspace containing extensions to be deployed.

   See also Using Additional Shared Libraries with WebCenter Portal and Developing ADF Library Components for WebCenter Portal Using the PortalExtension Project.

2. In the Application Navigator, navigate to the **PortalSharedLibrary** > **Application Sources** > **META-INF** folder.

3. Open the `MANIFEST.MF` file in a text editor.

4. If required, increment the `Implementation-Version` number. The default version is **Implementation-Version: 12.2.1.0.1**.

   > **Note:**
   >
   > You do not need to increment the version number every time you generate a new archive (`.war` file). You must however, increment the shared library `Implementation-Version` number each time you deploy a new extension version *to the server* or an error is reported from WebLogic Server in the Deployment - Log tab. For more information, see The PortalSharedLibrary Project.

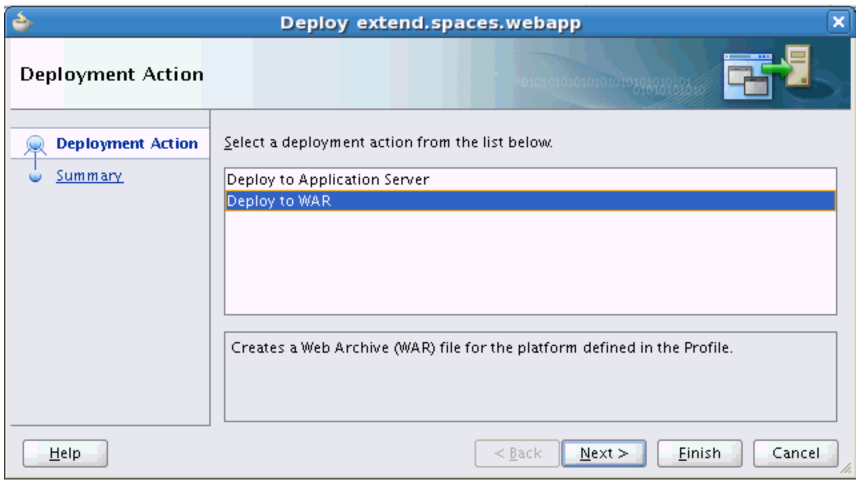
5. In the Application Navigator, right-click the **PortalSharedLibrary** project, select **Deploy** and then select the deployment profile **extend.spaces.webapp**.

Note:

Note that `extend.spaces.webapp` is the name of the deployment profile for the shared library that you are deploying to a file. The shared library created by a subsequent deployment action is called `extend.spaces.webapp.war`.

6. In the Deploy dialog, select **Deploy to WAR,** and then click **Next** (Figure 15-20).

Figure 15-20 Deployment Actions



Select a deployment action from the list below.

Deploy to Application Server
Deploy to WAR

Creates a Web Archive (WAR) file for the platform defined in the Profile.

7. Review the Summary page and click **Finish**.

   The location of the `.war` file displays in the "Deployment - Log Tab." This new shared library `.war` file version can now be deployed to any server instance on which WebCenter Portal is deployed.

For More Information

See "Deploying Applications" in JDeveloper Online Help. See also Creating Shared Java EE Libraries and Optional Packages in *Developing Applications for Oracle WebLogic Server*.

Reverting to a Previous WebCenter Portal Shared Library Version

If there is a problem with the latest WebCenter Portal shared library or you want to revert to a previous version for some reason, you can undeploy (remove) the current version and revert to the previous version, using the WebLogic Server Administration Console.

You can remove unwanted shared library versions too. If you go through several "change-build-deploy-test" iterations, each incremental version is retained by default. As WebCenter Portal only uses the latest shared library version you can clean up or delete previous versions if you want.

Before undeploying the latest version, you must shut down the managed server on which WebCenter Portal is running. Once you have removed the latest version, you can restart the managed server.

Note: Oracle recommends that you do not delete the original `extend.spaces.webapp` shared library (version 12.2.1) as this enables you to revert to the out-the-box version if necessary.

1. Stop the managed server on which WebCenter Portal is deployed.

   For details, see Starting and Stopping Managed Servers for WebCenter Portal Application Deployments in *Administering Oracle WebCenter Portal*.
2. Log in to the Weblogic Server Administration Console.
3. Click **Deployments**, then locate and select the latest **extend.spaces.webapp** version you want to remove.
4. Click **Delete** to undeploy the latest shared library version.

   To revert to the *original* `extend.spaces.webapp.war` shared library, delete all other shared library versions, except for `extend.spaces.webapp.war` version 12.2.1.
5. Start the managed server on which WebCenter Portal is deployed:

   For details, see Starting and Stopping Managed Servers for WebCenter Portal Application Deployments in *Administering Oracle WebCenter Portal*.

Developing ADF Library Components for WebCenter Portal Using the PortalExtension Project

Developing an ADF Library for WebCenter Portal is exactly the same as any other ADF Library. If you are not familiar with ADF library development, refer to the documentation links in General Documentation for ADF Library Development.

Development teams typically build and deploy ADF libraries to a set of well defined shared libraries that they can reuse across multiple applications, such as WebCenter Portal.

To help you get started, Oracle provides the *PortalExtension* project in which you can build ADF libraries containing task flows, data controls, and managed beans and deploy them to WebCenter Portal's own shared library `extend.spaces.webapp.war`.

If you want to use the PortalExtension project, follow these steps:

1. Create a WebCenter Portal Server Extension workspace.

   For details, see Creating a WebCenter Portal Server Extension Workspace.
2. Open the **PortalExtension** project and add the custom code for your ADF library.

   See also The PortalExtension Project.
3. Deploy the ADF Library to the WebCenter Portal shared library `extend.spaces.webapp.war`.

   See also Deploying Extensions to the WebCenter Portal Shared Library (extend.spaces.webapp.war).

16
Localizing Portals

Configure a portal to display text in the language defined for a user's browser.

Topics:

Guidelines for Building Multilanguage Portals

If your application will be viewed by users in multiple countries, you can configure your JSF page or application to use different locales so that it displays the correct language for the language setting of a user's browser. For example, if you know your page will be viewed in Italy, you can localize your page so that when a user's browser is set to use the Italian language, text strings in the browser page appear in Italian.

Additionally, locale selection applies special formatting considerations applicable to the selected locale. For example, whether information is typically viewed from left to right or right to left, how numbers are depicted (such as monetary information), and the like.

When you develop a multi-language portal:

- Make use of the inherent multi-language support in Oracle WebCenter Portal tools and services. For more information, see Language Support in ADF Faces Components.
- Put all resources in resource bundles, provide alternate-language resource bundles, and code your application to respond to users' language selection. For more information, see Using Resource Bundles to Support Multiple Languages.
- Make sure your database character set supports all required languages.

  For more information, see Choosing a Character Set in *Oracle Database Globalization Support Guide*.
- Use number, date, and time formatting that supports all required locales.

  For more information, see Setting Up a Globalization Support Environment in *Oracle Database Globalization Support Guide*.
- Use linguistic sort parameters to get the correct sort ordering for locale.

  For example, the same characters have different sort ordering in French and Canadian-French.

  For more information, see Linguistic Sorting and Matching in *Oracle Database Globalization Support Guide*.
- Write web pages that correctly render left to right or right to left (for example, if Arabic languages must be supported).

For more guidelines on globalization, see Internationalizing and Localizing Pages in *Developing Web User Interfaces with Oracle ADF Faces* or refer to *Oracle Database Globalization Support Guide*.

Language Support in ADF Faces Components

Some ADF Faces components include text that is part of the component, for example the `af:table` component uses the resource string `af_table.LABEL_FETCHING` for the message text that is displayed in the browser while the table is fetching data during the initial load of data or while the table is being scrolled. Oracle JDeveloper provides translations of these text resources into 28 languages. Therefore, when using the supplied components, you do not need to perform additional steps to translate the text in the components.

Using Resource Bundles to Support Multiple Languages

For any text you add to a component, for example if you define the label of an `af:commandButton` component by setting the text attribute, you must provide a resource bundle that holds the actual text, create a version of the resource bundle for each locale, and add a `<locale-config>` element to define default and support locales in the application's faces-config.xml file. You must also add a `<resource-bundle>` element to your application's faces-config.xml file to make the resource bundles available to all the pages in your application. Once you have configured and registered a resource bundle, the Expression Language (EL) editor displays the key from the bundle, making it easier to reference the bundle in application pages.

To simplify the process of creating text resources for text you add to ADF components, JDeveloper supports automatic resource bundle synchronization for any translatable string in the visual editor. When you edit components directly in the visual editor or in the Property Inspector, text resources are automatically created in the base resource bundle.

For more information about automatic resource bundles, see Using Automatic Resource Bundle Integration in JDeveloper in *Developing Web User Interfaces with Oracle ADF Faces*.

For more information about manually defining resource bundles, see Manually Defining Resource Bundles and Locales in *Developing Web User Interfaces with Oracle ADF Faces*.

Adding Support for a New Language

Oracle WebCenter Portal provides run-time translations for 28 languages and 100 different locales. If you want to support a language that is not supported out-of-the-box, you need to provide string files for the new language, and add a `<language>` tag for the new language in the `supported-languages.xml` configuration file.

For information about adding support for a new language, see the "Using WebCenter Spaces Extension Samples" white paper on the Oracle WebCenter Portal White Papers and Technical Notes page on Oracle Technology Network.

17
Extending Oracle Composer

Extend Oracle Composer (referred to as the *page editor* in WebCenter Portal) using JDeveloper.

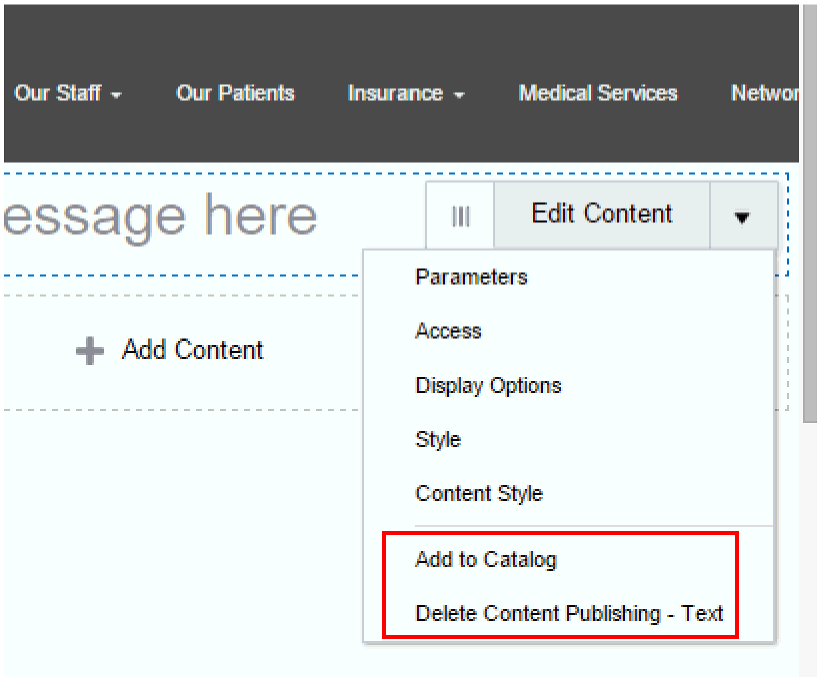
Topics:

- Adding Custom Actions to Components

Adding Custom Actions to Components

To augment the built-in actions available to users when editing components in a portal, you can add custom actions to a component.

Figure 17-1 Actions Menu on a Component



There are three types of custom actions that you can add to a component:

- **Java-based** custom actions are the most flexible choice, as they work for any component, and can implement any business logic. See:
  - Adding a Java-Based Custom Action to a Show Detail Frame Component in Design View
  - Adding a Java-Based Direct Select Custom Action to a Component in Select View

- **ID driven** custom actions. See:
  - Adding Custom Actions to a Show Detail Frame Component by Using Facets
- **Task flow action driven** custom actions are only for task flow components, and the action is navigation for the task flow. See:
  - Adding Custom Actions to a Task Flow
  - Adding Custom Actions that Display on Task Flows in the Component Navigator

Adding a Java-Based Custom Action to a Show Detail Frame Component in Design View

You can add a custom action that displays in an **Actions** menu in the chrome of a `Show Detail Frame` component in Design View in Composer. The custom action is a Java class that implements interface `CustomActionListener`. When the action is selected from the menu, the method `processAction` performs the indicated operation on the component (such as opening a dialog, for example).

To add a custom action to a `Show Detail Frame` component in Composer's Design view:

1. Implement interface `CustomActionListener`, using method `processAction()` to implement the custom action.

   Method `processAction` takes class `CustomActionEvent` as parameter. The public methods in `CustomActionEvent` are:

   - `getPagePath`. Returns the path of the page that the component is on.
   - `getComponent`. Returns the selected component from Design view.
   - `setMessageSeverity`. Sets the severity level for `FacesMessage`.
   - `setShowMessage`. Sets the flag to show message after processing the custom action.
   - `setMessageSummary`. Sets the message summary.
   - `setMessageDetail`. Sets the message detail.

   For example:

```
package custom
public class SaveTaskflowToCatalog implements CustomActionListener
{
  public void processAction(CustomActionEvent event)
  {
     // get the the page the component is on
     String pagePath = event.getPagePath();
     // get the SDF component
     UIComponent sdf = event.getComponent();
     try
     {
         // process the task flow and save to the cata log

         // set the error message in case exception occurs
         event.setErrorSummary("Failed to save the task flow to the resource
catalog");
     }
     catch(AbortProcessingException ae)
    {
      throw ae;
    }
    catch(Exception ee)
    {
      throw new AbortProcessingException("unexpected error");
     }
  }
}
```

2. Configure the custom action in `pe_ext.xml`. For example:

```
<event-handlers>
   <event-handler event="custom-action">custom.SaveTaskflowToCatalog</event-
handler>
</event-handlers>
```

3. To configure a custom action for an *individual* `Show Detail Frame` component on a page. For example:

```
<cust:showDetailFrame shortDesc="Mac Rumors " displayHeader="true"
               id="showDetailFrame1"  text="Mac Romors">
  <af:region value="#{bindings.customactionstaskflowdefinition1.regionModel}"=
                           id="r1"/>
  <cust:customAction location="menu" action="custom.SaveTaskflowToCatalog"
                 id="ca1"  text="Save to Catalog"/>
</cust:showDetailFrame>
```

4. To configure a custom action for all `Show Detail Frame` components, add the custom action definition in `adf-config.xml`. For example:

```
<cust:adf-config-child xmlns="http://xmlns.oracle.com/adf/faces/customizable/
config">
  <enableSecurity value="true" />
    <customActions>
      <cust:customAction action="custom.SaveTaskflowToCatalog"
                    displayName="Save to Catalog"
                    location="menu"
                    rendered="#{custom.util.isSaveToCatalogEnabled}"/>
    </customActions>
```

Adding a Java-Based Direct Select Custom Action to a Component in Select View

You can add a direct select custom action to a component that displays in a popup menu when the component is selected in Select view in Composer. The custom action is a Java class that implements interface `SelectActionListener`. When the action is selected from the menu, the method `processAction` performs the indicated operation on the component (such as opening a dialog, for example).

To add a direct select custom action to a component in Composer's Select view:

1. Implement interface `SelectActionListener`, using method `processAction()` to implement the custom action.

   Method `processAction` takes class `SelectActionEvent` as parameter. The public methods in `CustomActionEvent` are:

   - `getPagePath`. Returns the path of the page that the component is on.

- `getComponent`. Returns the selected component from Select view.
- `setMessageSeverity`. Sets the severity level for `FacesMessage`.
- `setShowMessage`. Sets the flag to show message after processing the custom action.
- `setMessageSummary`. Sets the message summary.
- `setMessageDetail`. Sets the message detail.

For example:

```
package custom
public class RemoveSelectedComponent implements SelectActionListener
{
  public void processAction(SelectActionEvent event)
  {
     // get the the page the component is on
     String pagePath = event.getPagePath();
     // get the selected component
     UIComponent comp = event.getComponent();
     try
     {
         // set the error message in case exception occurs
         event.setErrorSummary("Failed to delete the component");

        // popup deletion confirmation dialog or delete the component here
     }
     catch(AbortProcessingException ae)
    {
      throw ae;
    }
    catch(Exception ee)
    {
      throw new AbortProcessingException("unexpected error");
     }
  }
}
```

2. Optionally, sequence the menu items using the `seq` attribute set to `first`, `last`, or an integer representing an item's position on the menu.

   If no `seq` attribute is specified, actions are positioned in the order defined in the configuration.

   The actions with a `seq` value will be listed before those that do not have `seq` value. If a property panel is configured, the built-in actions `Edit Component` and `Edit Parent Component` will always be listed before other custom actions.

   For example:

```
<selection-config>
  <selection-taglib-filter namespace="http://xmlns.oracle.com/adf/faces/rich">
         <tag name="inputText">
      <selection view="design" enabled="true"/>
      <operation name="view.SelectActionText2"
                 label="InputText Action2"
                 seq="2"
                 filtered="false"/>
      <operation name="view.SelectActionTest3"
                 label="InputText Action3"
                 seq="3"
                 filtered="false"/>
      <operation name="view.SelectActionTest"
                 label="InputText Action1"
                 seq="first"
                 filtered="false"/>
      <operation name="separator" seq="1" filtered="false"/>
    </tag>
   </selection-taglib-filter>
</selection-config>
```

3. Optionally, add separators to the custom actions menu by setting the operation name to `separator` in the selection configuration. For example:

```
  <selection-taglib-filter namespace="http://xmlns.oracle.com/adf/faces/rich">
    <tag name="goLink">
      <selection view="design" enabled="true"/>
      <operation name="oracle.adf.pageeditor.pane.inline-style-editor"
                        label="Inline Style"
                        filtered="false"/>
      <operation name="separator" filtered="false"/>
      <operation name="custom.action1" label="Action 1" filtered="false"
icon="icon.png"/>
      <operation name="separator" filtered="false"/>
      <operation name="custom.action2" label="Action 2" filtered="false"/>
    </tag>
  </selection-taglib-filter>
```

4. Include custom actions in Select view on an individual component, or globally for all component instances, by adding the `adf-custom-actions` operation in the select configuration for the component.

   For example:

```
<selection-config>
  <global-filter>
    <selection view="design" enabled="false"/>
    <operation name="oracle.adf.pageeditor.pane.generic-property-inspector"
                 label="Change Property"
                 filtered="false"/>
    <operation name="oracle.adf.view.page.editor.event.SelectRemoveListener"
               label="Remove"
               icon="/adf/images/composer_delete_ena.png"
               filtered="#{testBean.compSelected ? 'false' : 'true'}"/>
  </global-filter>

  <selection-taglib-filter namespace="http://xmlns.oracle.com/adf/faces/rich">
    <tag name="goLink">
      <selection view="design" enabled="true"/>
      <operation name="oracle.adf.pageeditor.pane.inline-style-editor"
                 label="Inline Style"
                 filtered="false"/>
      <operation name="view.SelectActionTest"
                 label="#{testBean.goLinkActionLabel}1"
                 seq="last"
                 filtered="false"/>
      <operation name="view.SelectActionTest2"
                 label="#{testBean.goLinkActionLabel}2"
                 filtered="false"/>
      <operation name="separator" seq="first" filtered="false"/>
    </tag>
  </selection-taglib-filter>

</selection-config>
```

5. In `pe_ext.xml`, configure the custom action.

   For example:

```
<selection-taglib-filter namespace="http://xmlns.oracle.com/adf/faces/rich">
  <tag name="inputText">
       <selection view="design" enabled="true"/>
       <operation name="oracle.adf.pageeditor.pane.generic-property-inspector"
                               label="Change Property"
                               filtered="false"/>
       <operation name="custom.RemoveSelectedComponent"
                               label="Remove"
                               filtered="false"/>
  </tag>
</selection-taglib-filter>
```

6. In `pe_ext.xml`, register the event handler.

   For example:

```
<event-handlers>
  <event-handler event="select-action">
     oracle.adf.view.page.editor.event.SelectRemoveListener</event-handler>
</event-handlers>
```

Adding Custom Actions to a Show Detail Frame Component by Using Facets

You can use the `Show Detail Frame` component's facets to define and display custom actions on `Show Detail Frame` components. For example, if your `Show Detail Frame` contains a list of services provided in your application, you can add a custom action, `Show Detailed Information`, which opens up a task flow containing details about the various services.

Oracle JDeveloper displays all facets available to the `Show Detail Frame` component in the Structure window, however, only those that contain UI components appear activated.

To add a `Show Detail Frame` facet:

1. Right-click a `Show Detail Frame` component in the Structure window, and select **Facets - Show Detail Frame**, and click the arrow displayed to the right of this option.
2. From the list of supported facets, select the facet you want to add.

   Note:

   A check mark next to a facet name means the facet is already inserted in the `Show Detail Frame` component. Selecting that facet name again would result in the facet getting deleted from the page.

   The `f:facet` element for that facet is inserted in the page.
3. Add components in the facet according to your design requirements.

For an end-to-end example of creating and using `Show Detail Frame` facets, see Example: Adding a Custom Action to a Show Detail Frame Component by Using Facets.

Example: Adding a Custom Action to a Show Detail Frame Component by Using Facets

Assume a JSF page, `Page1.jspx`, with a `Panel Customizable` component. Inside the `Panel Customizable` is a `Show Detail Frame` component (`showDetailFrame1`). Inside the `Show Detail Frame` is an ADF task flow. The `Panel Customizable` has two other `Show Detail Frame` components, one above and the other below `showDetailFrame1`. The task flow displays two `Output Text` components on the page.

You can configure an `Additional Actions` facet on the `Show Detail Frame` component to display a **Customize** action on the Actions menu along with the **Move Up** and **Move Down** actions. At runtime, the **Customize** action enables users to customize the text in the `Output Text` components. This section describes the steps you take to achieve this effect. It contains the following subsections:

- How to Create an ADF Task Flow
- How to Include an Additional Actions Facet
- How to Create a Redirection Page
- How to Create Navigation Rules Between Pages
- What Happens at Runtime

How to Create an ADF Task Flow

To create an ADF task flow:

1. From the **File** menu, select **New**.
2. In the **New** dialog, select **JSF** under Web Tier node, and select **ADF Task Flow** under Items.
3. Click **OK**.
4. In the Create Task Flow dialog, click **OK** to create a task flow definition file by accepting the default values.
5. From the **ADF Task Flow** tag library in the Component Palette, drop two view elements, **view1** and **view2**, onto the task flow definition file.
6. Drop a **Control Flow Case** from `view1` to `view2`.
7. Click the first view element and then click the second view element to draw the control flow line.

   Name this control flow case `next`.
8. Similarly, drop a **Control Flow Case** from `view2` back to `view1` and name it `prev`.
9. Create a backing bean called `BackingBean.java` to contain values for two variables `view1` and `view2`.

   `view1` and `view2` are initialized with `initialValue1` and `initialValue2` respectively. Ensure that the code of the bean is as shown in the following example:

```
package view;

public class BackingBean {
    public BackingBean() {
    }

    private String view2 ="initial Value1";
    private String view1 = "initial Value2";

    public void setView2(String view2) {
        this.view2 = view2;
    }

    public String getView2() {
        return view2;
    }

    public void setView1(String view1) {
        this.view1 = view1;
    }

    public String getView1() {
        return view1;
    }
}
```

10. In the task flow definition file, double-click **view1** to create the page fragment (`view1.jsff`) for that element.
11. Add a **Panel Group Layout** and two **Output Text** components to `view1.jsff`.
12. Specify the `Value` for the first `Output Text` component to be `#{backingBean.view1}`, and specify the `Value` for the second `Output Text` component to be `#{backingBean.view2}`.
13. Save `view1.jsff`, and close it.
14. In the task flow definition file, double-click **view2** to create the page fragment (`view2.jsff`) for that element.
15. Add just one **Output Text** component to `view2.jsff`, and specify `Value` to be `#{backingBean.view2}`.
16. Save `view2.jsff`, and close it.

How to Include an Additional Actions Facet

To include an Additional Actions facet:

1. Create a JSF page, `Page1.jspx`, with a `Panel Customizable` component and a nested `Show Detail Frame` component.
2. Add two more `Show Detail Frame` components, above and below the existing `Show Detail Frame` component.

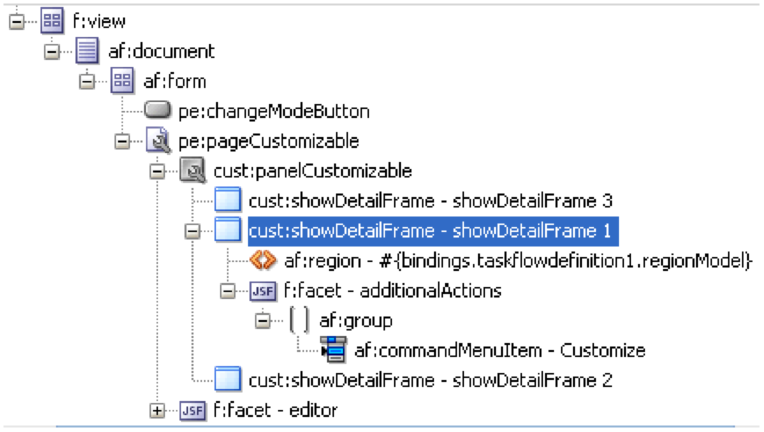
   The purpose of adding three `Show Detail Frame` components is to enable the display of `Move Up` and `Move Down` actions along with the additional action on the first `Show Detail Frame` component, `showDetailFrame1`.
3. Add the task flow definition file that you created in the previous step inside `showDetailFrame1`.

4. Right-click the first `Show Detail Frame` in the Structure window, and select **Facets - Show Detail Frame**.
5. Click the arrow to the right of this option, and from the list of supported facets, select **Additional Actions**.

   The `f:facet-additionalActions` element for that facet is inserted in the page.
6. Add a **Panel Group Layout** inside the `Additional Actions` facet, and add a **Button** component inside the `Panel Group Layout` component.
7. Set the `Text` attribute for the `Button` to `Customize`, and specify `customize` as the `Action` value.

   The page in the structure navigator should appear as shown in Figure 17-2.

Figure 17-2 Page1.jspx in Structure Navigator



```
f:view
    af:document
        af:form
            pe:changeModeButton
            pe:pageCustomizable
                cust:panelCustomizable
                    cust:showDetailFrame - showDetailFrame 3
                    cust:showDetailFrame - showDetailFrame 1
                        af:region - #{bindings.taskflowdefinition1.regionModel}
                        f:facet - additionalActions
                            af:group
                                af:commandMenuItem - Customize
                    cust:showDetailFrame - showDetailFrame 2
                f:facet - editor
```

8. Save the page.

How to Create a Redirection Page

To create the redirection page:

1. Create a JSF page called `Page2.jspx`, and add two **Input Text** components and a **Button** component.
2. Specify the `Value` for the first `Input Text` component to `#{backingBean.view2}`, and set the `Value` attribute for the second `Input Text` component to `#{backingBean.view1}`.

   The purpose of adding `Input Text` components with references to the backing bean is to enable the passing of a user's input to the bean so that it can be reflected in the `Output Text` components on `Page1.jspx`.
3. On the `Button` component, set the `Text` attribute to `OK` and specify `back` as the `Action` value.
4. Save the page.

   You can now enable switching between the two pages by defining navigation rules.

How to Create Navigation Rules Between Pages

To define navigation rules between the pages:

1. In the Application Navigator, under the project's WEB-INF folder, double-click the **faces-config.xml** file to open it.
2. Click the **Overview** tab to view the file in Overview mode.
3. Click the **Add** icon in the Managed Beans section.
4. In the Create Managed Bean dialog, specify `backingBean` as the name.
5. For the Class Name field, click the **Browse** button adjacent to it and browse to the `BackingBean` Java class that you created earlier. Click **OK**.
6. Click **OK**.
7. From the Scope list, select **session** and click **OK**.
8. Select the **Navigation Rules** tab on the page.
9. In the From Views table, select **Page1.jspx**.
10. Under Navigation Cases, select **Page2.jspx** in the To View ID column, **customize** in the From Outcome column, and **true** in the Redirect column.
11. In the From Views table, select **Page2.jspx**.
12. Under Navigation Cases, select **Page1.jspx** in the To View ID column, **back** in the From Outcome column, and **true** in the Redirect column.

    In Source view, these entries appear as follows:

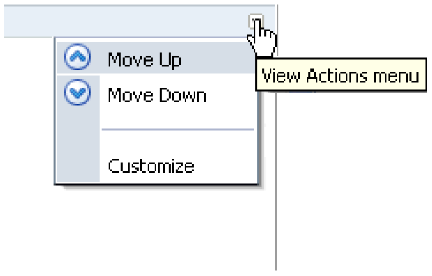
```
<managed-bean>
    <managed-bean-name>backingBean</managed-bean-name>
    <managed-bean-class>view.BackingBean</managed-bean-class>
    <managed-bean-scope>session</managed-bean-scope>
  </managed-bean>
  <navigation-rule>
  <from-view-id>/Page1.jspx</from-view-id>
  <navigation-case>
    <from-outcome>customize</from-outcome>
    <to-view-id>/Page2.jspx</to-view-id>
      <redirect/>
    </navigation-case>
  </navigation-rule>
  <navigation-rule>
    <from-view-id>/Page2.jspx</from-view-id>
  <navigation-case>
    <from-outcome>back</from-outcome>
    <to-view-id>/Page1.jspx</to-view-id>
      <redirect/>
    </navigation-case>
</navigation-rule>
```

13. Save the file.

What Happens at Runtime

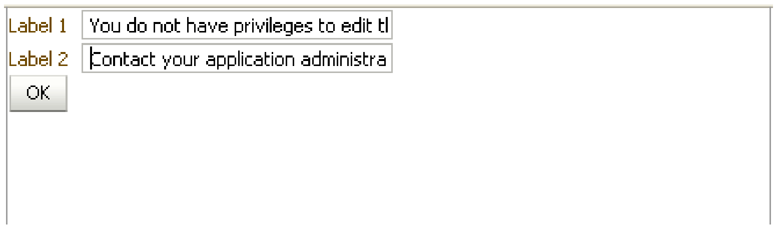
In JDeveloper, run `Page1.jspx`. The **Actions** menu on the `showDetailFrame1` component displays the **Customize** action, as shown in Figure 17-3.

Figure 17-3 Customize Action on the Actions Menu



Clicking **Customize** takes you to `Page2.jspx` (Figure 17-4), where you can update the values for `Label1` and `Label2`.

Figure 17-4 Page with Option to Edit Text


Label 1 You do not have privileges to edit tl
Label 2 Contact your application administra

Clicking **OK** takes you back to `Page1.jspx`, which reflects the recent text changes.

Adding Custom Actions to a Task Flow

You can customize a task flow by including it in a `Show Detail Frame` component. The `Show Detail Frame` component provides certain default actions to rearrange, show, and hide components. Further, you can define custom actions to trigger the desired navigational flow within the task flow at runtime. There are two ways in which you can enable custom actions on a task flow:

- Enable custom actions directly on the task flow so that they are displayed on the `Show Detail Frame` component's **Actions** menu.
- Enable custom actions on the `Show Detail Frame` component enclosing the task flow so that they are displayed on the `Show Detail Frame` component's **Actions** menu.

This section describes both approaches. It contains the following subsections:

- Adding a Custom Action Directly on a Task Flow
- Adding a Custom Action on a Show Detail Frame Enclosing a Task Flow
- What Happens at Runtime
- Example: Adding a Custom Action to a Show Detail Frame Enclosing a Task Flow

Adding a Custom Action Directly on a Task Flow

Perform the steps in this section if you want the task flow to be self-contained, without the need to inherit global custom actions defined at the application level. You can define custom actions on a task flow by configuring a `<customComps-config>` section with a nested `<customActions>` element in the `adf-settings.xml` file. The additional custom actions specified in the `adf-settings.xml` file are displayed on the `Show Detail Frame` component that surrounds this task flow.

Typically, task flows are packaged and deployed as ADF libraries. When you create an `adf-settings.xml` file containing custom actions for a task flow, this file is also packaged in the ADF library.

To enable custom actions on a task flow:

1. If it does not already exist, create the `adf-settings.xml` file in the `META-INF` directory under the project's Web context root (for example, in the *`APPLICATION_ROOT`*`/Portal/src/META-INF` directory):
    a. From the **File** menu, select **New**.
    b. In the New Gallery dialog, expand **General**, select **XML**, then **XML Document**.
    c. Click **OK**.

    Name the file `adf-settings.xml`.
2. Add a `<custComps-config>` section in the file, with a nested `<customActions>` element.
3. Add one `<customAction>` element for each internal task flow action that you want to display as a custom action on the `Show Detail Frame` Actions menu.

    You can add any number of custom actions under the `<customActions>` element.

    The following example shows the code of the `adf-settings.xml` file with a `<customAction>` entry.

```
<cust:custComps-config xmlns="http://xmlns.oracle.com/adf/faces/customizable/
config">
  <customActions>
   <customAction action="next" location="chrome"
                 rendered="true"
                 icon="/adf/webcenter/editheader_ena.png"
                 text="Next"
                  taskFlowId="/WEB-INF/task-flow-definition.xml#task-flow-
definition"
                 shortDesc="next"/>
    <customAction action="prev" location="chrome"
                 rendered="true"
                 icon="/adf/webcenter/editheader_ena.png"
                 text="Previous"
 taskFlowId="/WEB-INF/task-flow-definition.xml#task-flow-definition"
                 shortDesc="prev"/>
  </customActions>
 </cust:custComps-config>
```

    Custom action definitions are similar at the task flow-level and application-level, except for the `taskFlowId` attribute that is used in the task flow-level setting. This attribute is used to identify the task flow on which the custom action must be defined. As an ADF library may have multiple task flows, this attribute helps identify the task flow that must render the custom action.

> **Note:**
>
> - If you are defining an icon for the custom action, you must ensure that the image you specify is available in the project root folder.
> - You can define custom actions for the internal actions defined in all task flows on your page; however, at runtime, the `Show Detail Frame` displays only those custom actions that correspond to the ADFc outcomes of the current view of the task flow.

4. Save the `adf-settings.xml` file.

Adding a Custom Action on a Show Detail Frame Enclosing a Task Flow

You can define custom actions for a task flow on the enclosing `Show Detail Frame` component. When these actions are invoked at runtime, they trigger the desired navigational flow in the task flow. For example, you can define a custom action on a `Show Detail Frame` that specifies that the target task flow fragment opens in a separate browser window rather than inside the `Show Detail Frame`.

You can specify custom actions on `Show Detail Frame` components by adding `Custom Action` components as children of a `Show Detail Frame` component on the page. Custom actions defined in this way would be available only on the `Show Detail Frame` instance, which has the custom action as its child. Alternatively, you can specify custom actions in the application's `adf-config.xml file`. Custom actions defined in this way are available on all `Show Detail Frame` instances in the application.

This section provides information about defining custom actions on a `Show Detail Frame`. It contains the following subsections:

- Defining Custom Actions at the Instance Level
- Defining Custom Actions at the Global Level
- Resolving Conflicts Between Global-Level and Instance-Level Custom Actions
- Configuring Custom Actions that Display Task Flow Views in a Separate Browser Window

Defining Custom Actions at the Instance Level

Define custom actions on a particular `Show Detail Frame` component instance using the `Custom Action` component. You can find the `Custom Action` component in the Composer tag library. Custom actions are stored in the JSF page definition file of the page that contains the `Show Detail Frame`.

To define custom actions at the instance level:

1. From the Component Palette, select **Composer**.
2. Drag a `Custom Action` and drop it on the page inside the `Show Detail Frame` component, below the `af:region` element.

Add one `Custom Action` component for each internal task flow action you want to display as a custom action on the `Show Detail Frame` Actions menu.

> **Note:**
>
> Add `Custom Action` components below the `af:region` element. You may face problems if the region is not the first child component of the `Show Detail Frame`.

3. Define attributes for the `Custom Action` by referring to

   Ensure that you populate the `Action` attribute of each `Custom Action` with the correct ADFc outcomes of the associated task flow. The code should be similar to the following:

```
<cust:showDetailFrame text="showDetailFrame 1" id="sdf1">
  <af:region value="#{bindings.taskflowdefinition1.regionModel}"
             id="r1"/>
  <cust:customAction action="navigatefromview1" id="ca1"
                     location="both" icon="/Logo1.JPG"
                     text="View1 Action"
                     shortDesc="Custom View1 Action"/>
  <cust:customAction action="navigatefromview2"
                     location="both" id="ca2"
                     icon="/Logo2.JPG" text="View2 Action"
                     shortDesc="Custom View2 Action"/>
</cust:showDetailFrame>
```

> **Note:**
>
> You can add custom actions for all of the task flow's ADFc outcomes, but depending on the task flow view that is displayed, several or none of the custom actions are available at runtime.
>
> If you define a custom action without a corresponding task flow action, then the custom action is not rendered on the `Show Detail Frame` header at runtime.

> **See Also:**
>
> Creating a Task Flow in *Developing Fusion Web Applications with Oracle Application Development Framework*

4. Save and run the page.

At runtime, when you select an action from the `Show Detail Frame`'s Actions menu, the associated control flow rule is triggered and the target task flow fragment is rendered.

Defining Custom Actions at the Global Level

Defining custom actions at the global level means making those custom actions available for all `Show Detail Frame` instances in an application. Though global-level custom actions are available on all `Show Detail Frame` components in an application, at runtime the header of any `Show Detail Frame` displays only those custom actions that correspond to the ADFc outcomes of the current view of the task flow.

Define global-level custom actions in your application's `adf-config.xml` file.

To define custom actions at the global level:

1. Open the application's `adf-config.xml` file, located in the `ADF META-INF` folder under Descriptors in the Application Resources panel.
2. Define custom actions using the `<customActions>` element with nested `<customAction>` tags for each action, as follows:

   Tip:

   To render a custom action only in page Edit mode, you can set the `rendered` attribute on the `<customAction>` tag to `#{composerContext.inEditMode}`. This returns a value of `true` if the page is in Edit mode.

```
<cust:adf-config-child xmlns="http://xmlns.oracle.com/adf/faces/customizable/
config">
  <enableSecurity value="true" />
  <customActions>
    <cust:customAction action="forward" displayName="Move Forward"
                       location="menu" rendered="true"
                       icon="/move_forward.png"/>
    <cust:customAction action="backward" tooltip="Move Backward"
                       location="chrome" rendered="true"
                       icon="/move_backward.png"/>
  </customActions>
</cust:adf-config-child>
```

Note:

- If you implemented restrictions on the `Show Detail Frame` component's actions by performing the steps in ??? you already have a `cust:customizableComponentsSecurity` section in the `adf-config.xml` file. You can define custom actions in that section itself instead of the `cust:adf-config-child` section shown in the example.
- If you are defining an icon for the custom action, you must ensure that the image you specify is available in the project root folder.
- You can define custom actions for the internal actions defined in all task flows on your page; however, at runtime, the header of any `Show Detail Frame` displays only those custom actions that correspond to the ADFc outcomes of the current view of the task flow.

3. Save the `adf-config.xml` file.

For additional information about defining custom actions, see Example: Adding a Custom Action to a Show Detail Frame Enclosing a Task Flow.

Resolving Conflicts Between Global-Level and Instance-Level Custom Actions

Each custom action is uniquely identified by the value of its `action` attribute. If you have defined custom actions with the same `action` attribute value at the global and instance levels, then there may be conflicts in how these custom actions are invoked at runtime, depending on other attribute values. At such times, the `inheritGlobalActions` attribute of the `Show Detail Frame` defines the behavior of other custom action attributes (other than the `action` attribute) as follows:

Note:

Regardless of the `inheritGlobalActions` setting (`true` or `false`) on the `Show Detail Frame` component:

- The `rendered` attribute is not inherited even if it is not specified at the instance level.
- The `location` attribute at the global or instance level should be set to the same value at both the global and instance levels.

- If `inheritGlobalActions=true`, or you have not specified a value for `inheritGlobalActions` (defaults to `false`), the behavior of custom action attributes is as follows:
  – If you defined a custom action attribute at the global and instance levels, then the attribute value specified at the instance level is used.
  – If you defined a custom action attribute only at the instance level, then that attribute value is used.
  – If you defined a custom action attribute only at the global level, then that value is ignored and the default value is used.

- If `inheritGlobalActions=true`, the behavior of custom action attributes is as follows:
  - If you defined a custom action attribute at the instance level, then its value is used regardless of whether the same attribute is specified at the global level.
  - If you defined a custom action attribute only at the global level, then that value is used.
  - If you have not defined a custom action attribute at the global or instance levels, then the attribute's default value is used.

After you have designed your application pages, you must deploy the application to the production environment. For more information, see ???

Note:

Runtime customizations that you perform on the page in the development environment are not carried over when you deploy the application to a target server.

Configuring Custom Actions that Display Task Flow Views in a Separate Browser Window

Custom actions typically display the target task flow views in place, inside the `Show Detail Frame` component. However, you can define a custom action to display a task flow view in a separate browser window.

To display a task flow view in a separate browser window, the control flow rule to that view must be prefixed with `dialog:` in the task flow definition file and in the `action` attribute of the custom action corresponding to that view. The following example shows an `action` attribute definition:

```
<cust:customAction action="dialog:Next" id="ca1"
                   location="both" icon="/move_forward.png"
                   text="Next Action"
                   shortDesc="Next Action"/>
```

Setting Properties on the Popup Window

For a command component inside a task flow region, you can specify the default behavior using the `useWindow`, `windowEmbedStyle`, `windowHeight`, `windowWidth`, and `returnListener` attributes. The command component may have other such attributes that you can use. If you specify a return listener, on closing the dialog a particular action event is called to decide on the next navigation outcome. By default, without this setting, a dummy `Rich Command Link` component is created to trigger the task flow action.

When you define a listener on a command component, you must also configure the custom action to call the action event on this component. The `actionComponent` attribute on a custom action definition (global- and instance-level) enables you to specify the ID of the command component that must be queued for the action event. When the `actionComponent` attribute is specified, the `Show Detail Frame` component queues the action event on this component. Since this command component is inside your task flow, you change its attribute values at any time.

Example

Consider an example where you have included a task flow inside a `Show Detail Frame` component and defined a `Simple Edit` custom action corresponding to the task flow's navigation outcomes. A `Command Button` component inside the task flow is configured to launch a modal inline popup of size `300x200` on clicking the `Simple Edit` custom action. A return listener is configured on the command component so that it is called whenever the popup is closed.

The source code of the `Command Button` component inside the region is as follows:

```
<af:commandButton text="dialog:simpleEditPoup"
                  id="SDFCustomActionCmd_simpleEditPoup"
                  action="dialog:simpleEditPoup" useWindow="true"
                  windowEmbedStyle="inlineDocument" windowWidth="300"
                  windowHeight="200"
                  windowModalityType="applicationModal"
                  returnListener="#{pageFlowScope.recentPagesBean.refreshMainView}"
                  visible="false"/>
```

The following example shows how you can specify a global custom action corresponding to the task flow outcome by defining the custom action in the `adf-config.xml` file. The ID of the `Command Button` component is specified against the `actionComponent` attribute on the custom action.

```
<customizableComponentsSecurity xmlns="http://xmlns.oracle.com/adf/faces/
customizable/config">
  <enableSecurity value="true"/>
    <customActions>
     <customAction action="dialog:simpleEditPoup"
                   text="Simple Edit"
                   shortDesc="Simple Edit"
                   location="menu"
                   rendered="#{!changeModeBean.inEditMode}"
                   icon="/adf/pe/images/editproperties_ena.png"
                   actionComponent="SDFCustomActionCmd_simpleEditPoup"/>
    </customActions>
</customizableComponentsSecurity>
```

The following example shows how you can specify an instance-level custom action corresponding to the task flow outcome by adding a `Custom Action` component from the Composer tag library to the JSF page. The ID of the `Command Button` component is specified against the `actionComponent` attribute on the custom action.

```
<cust:showDetailFrame id="sdf_for_RecentPagesTF1"
                      text="Recent Pages" stretchContent="false"
                      showResizer="never">
  <af:region id="RecentPagesTF1"
             value="#{bindings.regionBinding1.regionModel}"/>
  <cust:customAction action="dialog:simpleEditPoup"
                     text="My Simple Edit"
                     shortDesc="Simple Edit"
                     location="menu"
                     rendered="#{!changeModeBean.inEditMode}"
                     icon="/adf/pe/images/editproperties_ena.png"
                     actionComponent="SDFCustomActionCmd_simpleEditPoup"/>
</cust:showDetailFrame>
```

Note:

A custom action that is launched in a popup dialog is sent as a new request to the server. If you are using a Composer sandbox and are in Edit mode of a page, ensure that this request is launched in View mode by adding code in your servlet filter so that a new sandbox is not created for this page.

What Happens at Runtime

Custom actions configured in the `adf-settings.xml` file are merged with the custom actions configured in the `adf-config.xml` file and all actions relevant to the current view of the selected task flow are displayed on the parent `Show Detail Frame` component's **Actions** menu.

If you enabled custom actions at a global level, then the header of any `Show Detail Frame` displays these custom actions if they correspond to the navigation outcomes of the current view of the child task flow.

If you prefixed the `action` attribute value with `dialog:`, then the target view of the task flow opens in a separate browser window.

Example: Adding a Custom Action to a Show Detail Frame Enclosing a Task Flow

In this example, assume that your application contains a task flow, `customactions`, residing inside a `Show Detail Frame`. The task flow includes three view elements, `view_gadget`, `edit_settings`, and `about_gadget`, and three associated control flow rules, `ViewGadget`, `EditSettings`, and `AboutGadget`. Your object is to define custom actions so that the control flow rules are available as actions on the **Actions** menu of the `Show Detail Frame` component.

In this example, the control flow rules are added in such a way that users can navigate back and forth between the three views. Each view element has an associated page fragment of the same name:

- The `view_gadget.jsff` fragment has a `Panel Stretch Layout` component. The center facet of this component is populated with an `Active Output Text` component whose `Value` attribute is set to `View Gadget`.
- The `edit_settings.jsff` fragment has a `Panel Stretch Layout` component. The center facet of this component is populated with an `Active Output Text` component whose `Value` attribute is set to `Edit Gadget Settings`.
- The `about_gadget.jsff` fragment has a `Panel Stretch Layout` component. The center facet of this component is populated with an `Active Output Text` component whose `Value` attribute is set to `About This Gadget`.

To enable custom actions on the task flow:

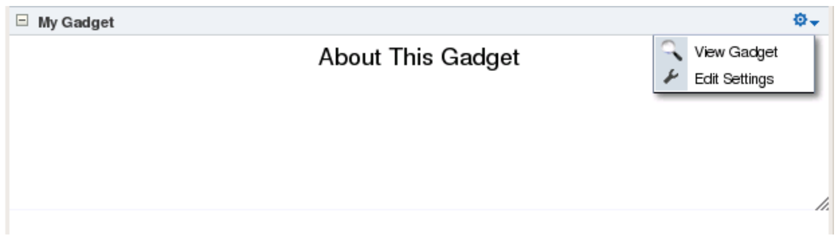
1. Place the `customactions` task flow inside a `Show Detail Frame` component on a customizable page, `MyPage.jspx`.

   For information about creating a customizable page, see ???

2. Add a `Custom Action` component from the Composer tag library as a child of the `Show Detail Frame` component, and set the `Action` and `Text` attributes to `ViewGadget` and `View Gadget` respectively.
3. Add two more `Custom Action` components to the `Show Detail Frame`:
   - Set the `Action` and `Text` attributes for the first component to `EditSettings` and `Edit Settings` respectively.
   - Set the `Action` and `Text` attributes for the second component to `AboutGadget` and `About Gadget` respectively.
4. Save and run `MyPage.jspx`.

   The `view_gadget` page fragment is rendered in the `Show Detail Frame` component (named **My Gadget**) on the page. The **Actions** menu displays the **About Gadget** and **Edit Settings** options. Click **About Gadget** to navigate to the `about_gadget` fragment. Note that the **Actions** menu now displays the navigation rules for the other two fragments (Figure 17-5).

Figure 17-5 Custom Actions on a Show Detail Frame Enclosing a Task Flow

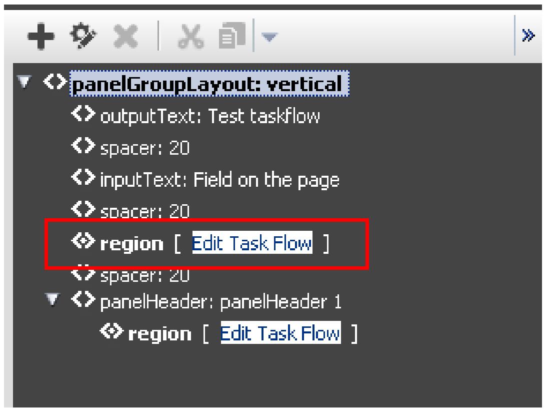


To see this in action, look at the Composer Custom Actions sample application, `ComposerCustomActions.jws`, on the Oracle WebCenter Suite 11*g* Demonstrations and Samples page on Oracle Technology Network (OTN).

Adding Custom Actions that Display on Task Flows in the Component Navigator

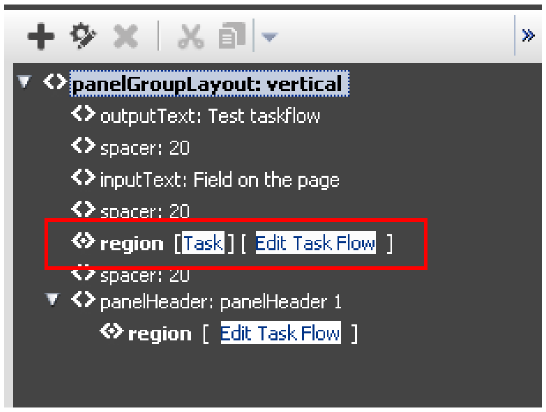
The component navigator in Composer Structure view provides an option to zoom into a task flow and display the components on its page or fragment, as shown in Figure 17-6.

Figure 17-6 Edit Action on a Task Flow Instance


panelGroupLayout: vertical
outputText: Test taskflow
spacer: 20
inputText: Field on the page
spacer: 20
region [Edit Task Flow]
spacer: 20
panelHeader: panelHeader 1
region [Edit Task Flow]

Users can zoom in, edit the page or fragment, and zoom out of the task flow to navigate back to the page containing the task flow. In addition to the Edit Task Flow and Close links displayed next to a task flow name, you can configure your application to also display custom actions next to a task flow name, as shown in Figure 17-7.

Figure 17-7 Custom Action on a Task Flow Instance


panelGroupLayout: vertical
outputText: Test taskflow
spacer: 20
inputText: Field on the page
spacer: 20
region [Task] [Edit Task Flow]
spacer: 20
panelHeader: panelHeader 1
region [Edit Task Flow]

This section describes the procedure to enable custom actions on task flows in the component navigator. It contains the following sections:

- How to Configure Custom Actions in the Component Navigator
- What Happens at Runtime

How to Configure Custom Actions in the Component Navigator

To display custom actions against a task flow in the component navigator, you must create a Java bean that defines the custom action behavior and call this bean from the application page containing the task flow. This section describes the steps to do so in detail. It contains the following subsections:

- Defining the Logic for the Custom Action

- Creating a JSF Page Containing the Custom Action
- Calling the JSF Page from the Application Page Containing the Task Flow

Defining the Logic for the Custom Action

To begin with, you must decide on the custom action you want to provide to users and create a Java bean with the logic to be implemented when a user selects the custom action. This section describes the steps to implement simple logic to display a message to users on clicking the custom action. The sample bean also contains the code to display the Close/Edit Task Flow links along with the custom link.

To create a Java bean:

1. From the **File** menu, choose **New**.
2. In the New Gallery dialog, expand **General**, select **Java**, then **Java Class**, and click **OK**.
3. In the Create Java Class dialog, enter `BackingBean` in the **Name** field and click **OK**.

   The `BackingBean.java` file displays in Source view.
4. Import the required libraries as follows:

   ```
   import javax.faces.application.FacesMessage;
   import javax.faces.context.FacesContext;
   import javax.faces.event.ActionEvent;
   import oracle.adf.view.page.editor.sourceview.ComponentInfo;
   ```
5. Add the following code:

   ```
   public class BackingBean {
     public BackingBean() {
     }

     public void action(ActionEvent actionEvent) {
         FacesContext context = FacesContext.getCurrentInstance();
         context.addMessage(null,
                            new FacesMessage(FacesMessage.SEVERITY_INFO, "Sample 
   message to test whether the custom action works.",
                                             null));
     }

     public boolean isRendered() {
         return ComponentInfo.isRegion();
     }

     public String getZoomText() {
         return ComponentInfo.isRootNode() ? "Close" : "Edit Task Flow";
     }
   }
   ```

   With this logic, the sample message you defined is displayed when a user clicks the custom action link against a task flow region.

   Use the `isRegion()` API to ensure that the custom action link is displayed only against task flow regions on the page. Use the `isRootNode()` API to ensure that the Edit Task Flow or Close link is displayed against the root component of the task flow.
6. Save the bean.

Creating a JSF Page Containing the Custom Action

This section describes the procedure to create a JSF page containing the custom action that you want to display to users in Composer.

To create the JSF page:

1. In your application project, create a JSF page called `customList.jspx`:
   a. From the **File** menu, select **New**.
   b. In the New Gallery dialog, expand **Web Tier**, select **JSF**, then **JSF Page**.
   c. Enter a name for the page and click **OK**.
2. Design the custom action UI using components like `Output Text` and `Command Link`, as shown in the following sample page:

```
<?xml version='1.0' encoding='UTF-8'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1"
          xmlns:f="http://java.sun.com/jsf/core"
          xmlns:h="http://java.sun.com/jsf/html"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich">
  <jsp:directive.page contentType="text/html;charset=UTF-8"/>
  <af:componentDef var="attrs" componentVar="component">
    <af:panelGroupLayout id="dc_pgl1" rendered="#{backingBean.rendered}">
      <af:outputText value="[" id="dc_ot1"/>
      <af:commandLink text="Test" id="dc_cl1"
                      actionListener="#{backingBean.action}"
                      binding="#{backingBean.customLink}"/>
      <af:outputText value="]" id="dc_ot2"/>
      </af:panelGroupLayout>
    </af:componentDef>
</jsp:root>
```

   This sample creates a custom action called `Test`. The `actionListener` and `binding` attributes on this action are bound to `BackingBean`, which you created earlier.
3. To ensure that the default Edit Task Flow/Close options are also displayed next to the task flow, you must define a facet called `zoom`, as shown in the following example:

```
<af:xmlContent>
  <component xmlns="http://xmlns.oracle.com/adf/faces/rich/component">
    <facet>
      <facet-name>zoom</facet-name>
    </facet>
  </component>
</af:xmlContent>
```

4. Include the `zoom` facet in the page content as shown in the following example:

```
<af:outputText value="[" id="dc_ot3"/>
<af:facetRef facetName="zoom"/>
<af:outputText value="]" id="dc_ot4"/>
```

   The source of the `customLink.jspx` page is as follows:

```
<?xml version='1.0' encoding='UTF-8'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1"
          xmlns:f="http://java.sun.com/jsf/core"
```

```
              xmlns:h="http://java.sun.com/jsf/html"
              xmlns:af="http://xmlns.oracle.com/adf/faces/rich">
      <jsp:directive.page contentType="text/html;charset=UTF-8"/>
      <af:componentDef var="attrs" componentVar="component">
        <af:panelGroupLayout id="dc_pgl1" rendered="#{backingBean.rendered}">
          <af:outputText value="[" id="dc_ot1"/>
          <af:commandLink text="Test" id="dc_cl1"
                          actionListener="#{backingBean.action}"
                          binding="#{backingBean.customLink}"/>
          <af:outputText value="]" id="dc_ot2"/>
          <af:outputText value="[" id="dc_ot3"/>
          <af:facetRef facetName="zoom"/>
          <af:outputText value="]" id="dc_ot4"/>
          </af:panelGroupLayout>
          <af:xmlContent>
            <component xmlns="http://xmlns.oracle.com/adf/faces/rich/component">
              <facet>
                <facet-name>zoom</facet-name>
              </facet>
            </component>
          </af:xmlContent>
        </af:componentDef>
    </jsp:root>
```

5. Save the JSF page.

Calling the JSF Page from the Application Page Containing the Task Flow

Let us assume that you have a simple JSF page, `MyPage.jspx`, containing a task flow. The source of the page is as shown in the following example:

```
<?xml version='1.0' encoding='UTF-8'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1"
          xmlns:f="http://java.sun.com/jsf/core"
          xmlns:h="http://java.sun.com/jsf/html"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich"
          xmlns:pe="http://xmlns.oracle.com/adf/pageeditor"
          xmlns:cust="http://xmlns.oracle.com/adf/faces/customizable">
  <jsp:directive.page contentType="text/html;charset=UTF-8"/>
  <f:view>
    <af:document id="d1">
      <af:form id="f1">
        <af:panelStretchLayout topHeight="50px" id="psl1">
          <f:facet name="top">
            <pe:changeModeLink id="cml1"/>
          </f:facet>
          <f:facet name="center">
            <!-- id="af_one_column_header_stretched"  -->
            <pe:pageCustomizable id="pageCustomizable1">
              <cust:panelCustomizable id="panelCustomizable1" layout="scroll">
                <af:region value="#{bindings.taskflowdefinition1.regionModel}"
                           id="r1"/>
              </cust:panelCustomizable>
              <f:facet name="editor">
                <pe:pageEditorPanel id="pep1"/>
              </f:facet>
            </pe:pageCustomizable>
          </f:facet>
        </af:panelStretchLayout>
      </af:form>
    </af:document>
  </f:view>
</jsp:root>
```

The task flow, `taskflowdefinition1`, contains the following `view.jsff` fragment:

```
<?xml version='1.0' encoding='UTF-8'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1"
          xmlns:af="http://xmlns.oracle.com/adf/faces/rich">
  <af:panelGroupLayout layout="scroll" id="pgl1">
    <af:commandButton text="commandButton 1" id="cb1"/>
    <af:commandButton text="commandButton 2" id="cb2"/>
  </af:panelGroupLayout>
</jsp:root>
```

To display the custom action that you created, you must ensure that the `customLink.jspx` page is called from within Composer. Use the `sourceViewNodeAction` attribute on the `Page Customizable` component to reference the JSF page containing the custom action.

The `Page Customizable` tag appears as follows in the page source:

```
<pe:pageCustomizable id="pageCustomizable1"
                     sourceViewNodeAction="/customLink.jspx">
```

The `sourceViewNodeAction` attribute can take the name of a JSF (`.jspx`) file or an EL value that evaluates to a JSF (`.jspx`) file name.

What Happens at Runtime

When you run `MyPage.jspx` to the browser and open the page in Composer Structure view, the component navigator displays a Test link and an Edit Task Flow link next to each task flow instance on the page

18

Customizing WebCenter Portal Impersonation Security

Use a set of WebCenter Portal Impersonation Expression Language expressions and a matching Impersonation API to customize impersonation sessions.

Topics:

- About Customizing WebCenter Portal Impersonation
- Using the WebCenter Portal Impersonation ELs
- Using the WebCenter Portal Impersonation APIs

About Customizing WebCenter Portal Impersonation

WebCenter Portal Impersonation lets designated users impersonate other portal users and perform operations as those users. You can customize those sessions using a set of WebCenter Portal Impersonation Expression Language expressions (ELs) and a matching Java API

For instructions on how to initiate an impersonation session (by the impersonator) and how to allow an Impersonation session (by the impersonatee), see Using WebCenter Portal Impersonation in *Using Portals in Oracle WebCenter Portal*.

Using the WebCenter Portal Impersonation ELs

WebCenter Portal Impersonation offers a set of Expression Language expressions (ELs) that can be used to customize impersonation sessions.

The following ELs are exposed:

- `#{WCSecurityContext.impersonationConfigured}` - returns whether or not impersonation has been enabled for the current domain

  This EL can be useful when determining if an error was caused by an impersonation session ending prematurely, or to provide an additional indicator that a session has ended.

- `#{WCSecurityContext.userInImpersonationSession}` - returns whether the current user is in an impersonation session or not.

  You can use this EL to protect content and render it inaccessible during an impersonation session. For example, you could map the rendered attribute of an administration taskflow on a page to this EL only rendering the taskflow if the user is not viewing the taskflow in an impersonation session.

- `#{WCSecurityContext.currentImpersonator}` - returns the current impersonator, if any.

  This EL could be used to modify the page template to display the impersonator or render content accessible only to a particular impersonator.

For more information about impersonation and other ELs, refer to ELs Related to Impersonation.

Using the WebCenter Portal Impersonation APIs

WebCenter Portal Impersonation also Java APIs that can be used to customize impersonation sessions.

The following public APIs are exposed in `oracle.webcenter.security.common.WCSecurityUtility`:

- `isImpersonationConfigured()` - returns whether or not impersonation has been enabled for the current domain.

  This API can be useful to determine if an error was caused by an impersonation session ending prematurely, or to provide an additional indicator that a session has ended.
- `isUserInImpersonationSession()` - returns whether the current user is in an impersonation session or not.

  This API is recommended for use to protect content and render it inaccessible during an impersonation session. For example, you could map the rendered attribute of an administration taskflow on a page to this API throwing an authorization exception or returning an empty list if the user is viewing the taskflow in an impersonation session.
- `getCurrentImpersonatorId()` - returns the current impersonator, if any.

  This API could be used to modify the page template to display the impersonator (as shown in the example below), or render some content accessible only to a particular impersonator.

For more information about these and other APIs, refer to *WebCenter Portal Javadoc API Java API Reference for Oracle WebCenter Portal*.

Example: getCurrentImpersonatorId API

```
import oracle.webcenter.security.common.WCSecurityUtility;
if (WCSecurityUtility.isUserInImpersonationSession())
{
 String impersonator =WCSecurityUtility.getCurrentImpersonatorId();
 String currentUser =ADFContext.getCurrent().getSecurityContext().getUserName();
 //Code to be executed when the user is in an impersonation session.
 ..log("User " +impersonator +" is impersonating as user " +currentUser);
}
```

Part V
Appendixes

This part of *Developing for Oracle WebCenter Portal* provides appendixes with supporting information for the chapters in this guide.

A

Expression Language Expressions

Learn about the Expression Language (EL) expressions that you can use in portals built with WebCenter Portal.

Topics:

See Also:

For additional information about EL APIs, see Oracle WebCenter Portal Java API Reference.

Introduction to Expression Language (EL) Expressions

When configuring page components or assets, you can express values as variables that take advantage of the current application context. For example, you can use variables to obtain the name of the current user, the user's assigned role, the state of the current page, and so on. Such flexibility is made possible by using EL expressions created in JDeveloper using the Expression Builder, or at runtime using the Expression Editor.

This section includes the following subsections:

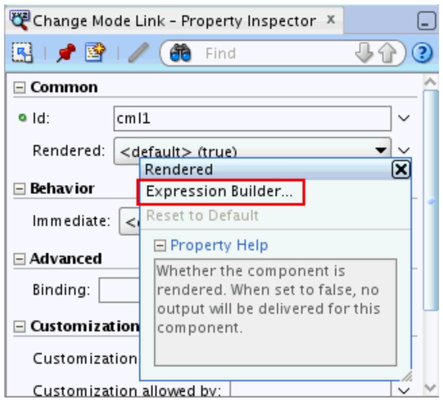
- Introducing the Expression Builder
- Introducing the Expression Editor in WebCenter Portal

Introducing the Expression Builder

You can use EL expressions in JDeveloper to bind attributes to object values determined at runtime. At runtime, the value of certain components is determined by their value attribute. While a component can have static text as its value, typically the value attribute will contain an EL expression that the runtime infrastructure evaluates to determine what data to display.

You can create EL expressions using the Expression Builder in JDeveloper. You can access the builder from the Property Inspector. In the Property Inspector, locate the attribute you wish to modify and click the Property Menu icon, and select choose **Expression Builder** from the popup (Figure A-1).

Figure A-1 Accessing the Expression Builder

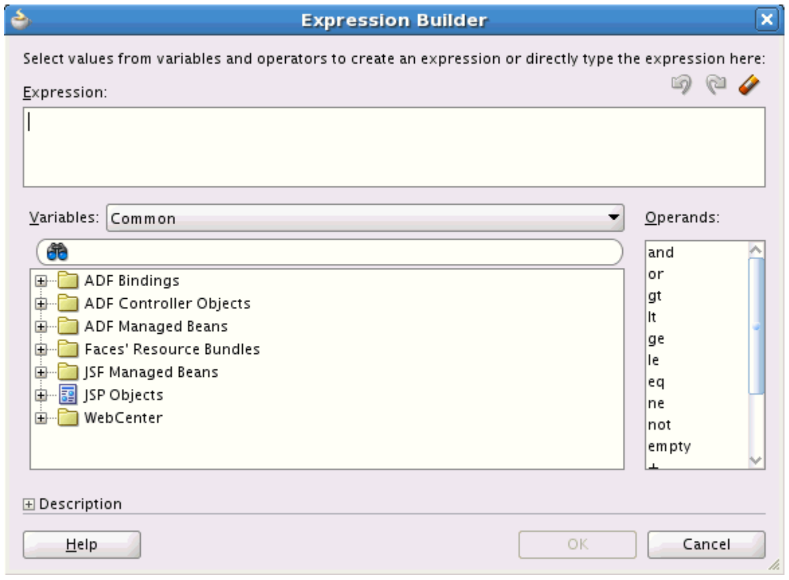


Whether the component is rendered. When set to false, no output will be delivered for this component.

In the Expression Builder dialog (Figure A-2), you can directly type your EL expression in the Expression box. You can also use the Variables drop-down list to select items that you want to include in the expression. Use the operator buttons to add logical or mathematical operators to the expression.

For more information about Expression Builder, see Getting Started with ADF Faces in *Developing Web User Interfaces with Oracle ADF Faces*.

Figure A-2 Expression Builder Dialog

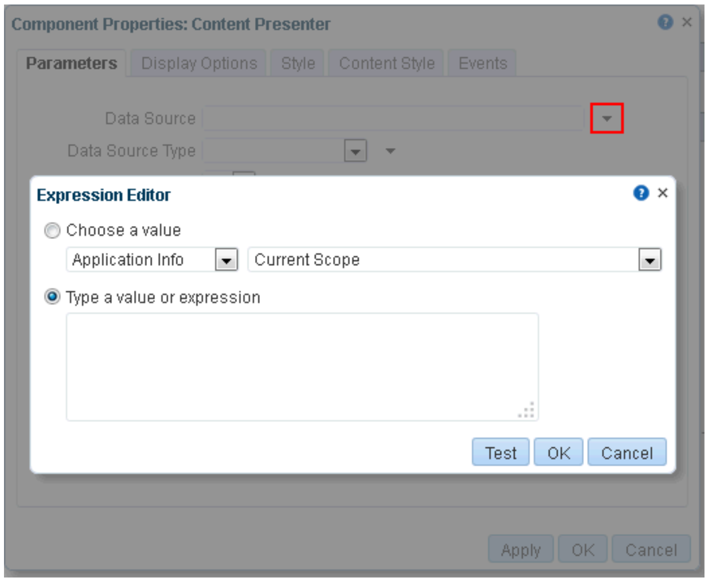


Introducing the Expression Editor in WebCenter Portal

The Expression Editor is a simple Expression Language (EL) editor. Use the Expression Editor when you want to formulate a dynamic computation for an otherwise unknown property value, such as the current user or the current page mode.

The Expression Editor is available through the administration and editing screens in WebCenter Portal. You can open the Expression Editor by clicking the **Advanced Edit Options** icon next to a field, check box or drop-down list, and then clicking **Expression Builder** .

Figure A-3 Advanced Edit Options Icon Next to a Parameter Value Field and the Resulting Editor



See Also:

For information about accessing component properties, see Modifying Components in *Building Portals with Oracle WebCenter Portal*.

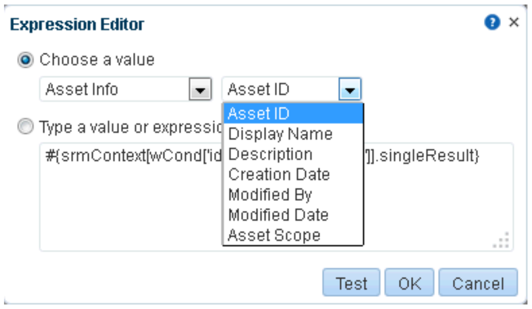
In the Expression Editor, you can select either:

- **Choose a value**, then select predefined values from the drop-down lists.

  The values are categorized according to the type of information an expression returns. Select a category from the first menu, and then select the type of value you want returned from the second menu.

  For example, rather than entering `#{pageDocBean.createdBy}`, you can click **Choose a value**, then select `Page Info` and then `Created By`.

  Figure A-4 Options Under Choose a Value in the Expression Builder

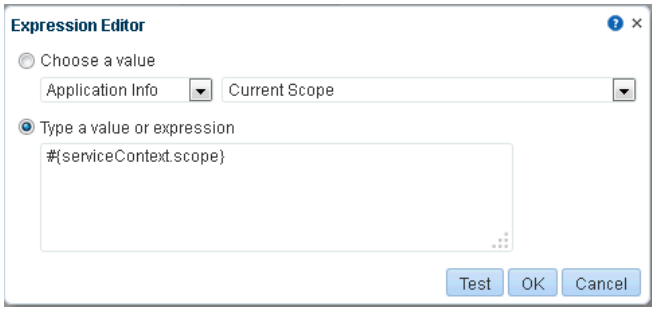
  #{srmContext[wCond['id ']].singleResult}

  See Also:

  For information about the EL expressions generated by the selections, see Built-In Expressions in the Expression Editor.

- **Type a value or expression**, then enter your own value or an EL expression for the associated property. Use the following formats to enter values:
  - a literal number: `#{123}`
  - a literal string: `#{'string'}`
  - a literal Boolean: `#{true}`
  - a Java Bean called to return a value: `#{generalSettings.preferredTimeStyle}`

Figure A-5 Text Box Under Type a value or expression in the Expression Editor



```
#{serviceContext.scope}
```

Click the **Test** button to validate your EL syntax and evaluate the expression. Any non-EL value type you enter, such as plain text, HTML tags, or junk characters, is not validated. Validation checks the EL syntax and evaluates the expression. Expression values vary according to the context in which they are executed, so the resulting value of this test will likely differ from the value returned during actual use.

Note:

Wherever you enter EL on the generic **Display Options** tab in the Component Properties dialog, the entry is automatically validated. If the EL syntax is invalid, an error appears and the value is neither applied nor saved. Generic display options are listed in the Display Options Properties table in *Building Portals with Oracle WebCenter Portal*.

EL validation is not performed on non-generic display options.

Many expressions in the tables in this appendix are building blocks for narrowing down the object or objects you want returned. That is, they are not necessarily meant to be used by themselves, but rather in an assembly of ELs to form the desired query.

For example, the following expression uses three asset-related ELs to form a single query that returns a particular portal template. It retrieves the template `storesMasterTemplate` from the parent portal `stores`:

```
#{srmContext.resourceScope['stores'].resourceType['siteTemplate'].displayName[‘stores
MasterTemplate'].singleResult}
```

ELs Related to WebCenter Portal Information

The following table lists EL expressions relevant to WebCenter Portal information and describes the type of functionality they provide.

Table A-1 EL Expressions Relevant to WebCenter Portal Information

Expression	Function
`#{WCAppContext}`	An `oracle.webcenter.webcenterapp.context.WCApplicationContext` object that provides an access point in the current web request for all WebCenter Portal-related information.
`#{WCAppContext.currentWebCenterURI}`	Returns a URL representing the current web request with bookmarkable WebCenter Portal URL parameters of the request appended to the end (parameters are not necessarily in a fixed order). Example: `http://www.example.com/webcenter/faces/oracle/webcenter/page/scopedMD/someguid/SomePage.jspx?wc.contextURL=/spaces/somename&wc.pageScope=1234`
`#{WCAppContext.application.applicationConfig}`	An `oracle.webcenter.webcenterapp.beans.WebCenterType` bean with a payload of metadata from WebCenter Portal.
`#{WCAppContext.application.applicationConfig.title}`	Returns the display name of the current WebCenter Portal application (as configured through WebCenter Portal Administration settings). Out of the box, this returns *WebCenter Portal*.
`#{WCAppContext.application.applicationConfig.logo}`	If an application logo was uploaded through WebCenter Portal Administration settings, this expression returns the URL to the application logo image. Out of the box, this returns *null*.
`#{WCAppContext.application.applicationConfig.helpPage}`	Returns the URL to the Help application used for WebCenter Portal (as configured through WebCenter Portal Administration settings). Out of the box, this returns */webcenterhelp/spaces*.
`#{WCAppContext.application.applicationConfig.copyrightMessage.customValue}`	If a copyright message was configured through WebCenter Portal Administration settings, this expression returns the application copyright message. Out of the box, this returns `null`.

Table A-1 (Cont.) EL Expressions Relevant to WebCenter Portal Information

Expression	Function
`#{WCAppContext.application.applicationConfig.privacyPolicyUrl}`	Returns the URL to the document that contains the application's privacy policy (as configured through WebCenter Portal Administration settings). Out of the box, this returns `http://www.oracle.com/html/privacy.html`
`#{WCAppContext.application.applicationConfig.skin}`	Returns the name of the default ADF Faces skin family to use for rendering pages in the application (as configured through WebCenter Portal Administration settings). This expression represents only the application-level setting that may not necessarily be used in all web requests. For example, you cannot use it successfully if a user has chosen to override the skin through application Preferences.
`#{requestContext.skinFamily}`	Returns the name of the ADF Faces skin family being used for the current web request, depending on factors such as what has been configured at the application level, the current user's preference setting, and so on. Returns the same value as `#{adfFacesContext.skinFamily}`.

ELs Related to Specific Pages

The following table lists EL expressions relevant to portal pages and describes the types of functionality they provide.

Table A-2 EL Expressions Relevant to Specific Pages

Expression	Function
`#{pageDocBean.title}`	Returns the page display name, for example: *FinanceProject*
`#{pageDocBean.createdBy}`	Returns the user name of the person who created the page, for example: *monty*
`#{pageDocBean.createDateString}`	Returns the date and time the page was created, for example: *2008-11-19T10:18:36*

Table A-2 (Cont.) EL Expressions Relevant to Specific Pages

Expression	Function
`#{pageDocBean.lastUpdatedBy}`	Returns the user name of the person who last updated the page, for example: *monty*
`#{pageDocBean.lastUpdateDateString}`	Returns the date and time the page was last updated, for example: *2008-11-19T10:18:36*
`#{pageDocBean.pagePath}`	Returns the file directory path to the page relative to the application root directory, for example: */oracle/webcenter/page/scopedMD/s8bba98ff_4cbb_40b8_beee_296c916a23ed/user/Umonty/Page4.jspx*
`#{pageDocBean.name}`	Returns the file name of the page, for example: *Page4.jspx*
`#{pageDocBean.UICSSStyle}`	Returns the name of the style scheme used on the page, for example: *WCSchemeEggShell*
`#{pageDocBean.UISchemeBGImage}`	Returns the directory path and file name of the page scheme background image.
`#{pageDocBean.UISchemeBGColorString}`	Returns the hexadecimal value of the page scheme background color, for example: *#ffa500*
`#{pageDocBean.pagePermission}`	Returns the permission the current user has on the page, for example: *oracle.webcenter.page.model.security.CustomPagePermission*
`#{pageDocBean.pageSecurityTarget}`	A string of 60 or so characters that uniquely identifies the current page to the security system, for example: *oracle_webcenter_page_scopedMD_s8bba98ff_4cbb_40b8_beee_296c916a23ed_user_Umonty_Page4PageDef*
`#{changeModeBean.inEditMode}`	Returns *true* if current page is in Composer mode. Returns *false* if current page is not in Composer mode
`#{pageDocBean.currentLayout.displayName}` .	Returns the display name of the layout currently used by the page
`#{pageDocBean.layoutViewId}`	Returns the layout view id used by the page

Table A-2 (Cont.) EL Expressions Relevant to Specific Pages

Expression	Function
`#{pageDocBean.layoutCssPath}`	Returns the CSS file used by the layout

ELs Related to Specific Portals

The following table lists EL expressions relevant to portals and describes the types of functionality each provides.

Note:

The portal *internal name* is the name specified for **Portal URL** on the **Overview** page of a portal's administration settings. The portal *display name* is the name specified for **Name**. Many of the EL expressions in the following table call for the portal internal name.

Table A-3 EL Expressions Relevant to Specific Portals

Expression	Function
`#{spaceContext}`	An `oracle.webcenter.spaces.context.SpacesContext` object that provides an access point in the current web request for all portal-related information. The value of this expression is whatever is returned on invoking the java API: `SpacesContext.getCurrentInstance()`
`#{spaceContext.currentSpace}`	An `oracle.webcenter.spaces.Space` object that represents the portal associated with the current web request. If the current web request is in the Home portal context, it returns a value of `null`. The value of this expression is whatever is returned on invoking the Java API: `SpacesContext.getCurrentInstance().getCurrentSpace()`
`#{spaceContext.currentSpaceName}`	The name of the portal associated with the current web request. If the current web request is in the Home portal context, it returns a value of `null`. The value of this expression is whatever is returned on invoking the java API: `SpacesContext.getCurrentInstance().getCurrentSpace()`

Table A-3 (Cont.) EL Expressions Relevant to Specific Portals

Expression	Function

`#{spaceContext.space['`*`portalName`*`']}`
 	
`#{spaceContext.currentSpace}`
	An `oracle.webcenter.spaces.Space` object that represents the portal that is named *`spaceName`* or the current portal (`currentSpace`). For example, `#{spaceContext.space['FinanceProject']}` returns the portal object for the portal called `FinanceProject`.
	
	The value of this expression is whatever is returned in Java on invoking `.getSpace(...)` on the current `SpacesManager` passing in the `MDSSession` of the current `ADFContext`.

`#{spaceContext.space['`*`portalName`*`'].metadataPath}`
 	
`#{spaceContext.currentSpace.metadataPath}`
	The MDS path of the portal metadata document for the portal with specified name *`portalName`* or the current portal (`currentSpace`). For example, `#{spaceContext.space['FinanceProject'].metadataPath}` evaluates to `/oracle/webcenter/space/metadata/spaces/FinanceProject/space.xml`
	
	The value of this expression is whatever is returned in java on invoking `.getMetadataPath()` on the portal object for the portal.

`#{spaceContext.space['`*`portalName`*`'].metadata}`
 	
`#{spaceContext.currentSpace.metadata}`
	An `oracle.webcenter.spaces.beans.SpaceType` bean that carries metadata about the portal that is named *`portalName`* or the current portal (`currentSpace`).
	
	The value of this expression is whatever is returned in java on invoking `.getMetadata()` on the portal object for the portal passing in the `MDSSession` of the current `ADFContext`.

`#{spaceContext.space['`*`portalName`*`'].metadata.displayName}`
 	
`#{spaceContext.currentSpace.metadata.displayName}`
	The display name of the portal that is named *`portalName`* or the current portal (`currentSpace`). For example, if a portal called `Web20Portal` has the display name `web 2.0 Portal`, then `#{spaceContext.space['Web20Portal'].metadata.displayName}` evaluates to `web 2.0 Portal`.

`#{spaceContext.space['`*`portalName`*`'].GSMetadata.groupSpaceURI}`
 	
`#{spaceContext.currentSpace.GSMetadata.groupSpaceURI}`
	The URL of the portal that is named *`portalName`* or the current portal (`currentSpace`).

Table A-3 (Cont.) EL Expressions Relevant to Specific Portals

Expression	Function

`#{WCPrepareImageURL[spaceContext.space['`*`portalName`*`'].metadata.icon][''']}`
`#{WCPrepareImageURL[spaceContext.currentSpace.metadata.icon]['']}`
	A URL to the icon associated with the portal that is named *`portalName`* or the current portal (`currentSpace`).

`#{spaceContext.space['`*`portalName`*`'].metadata.description}`
`#{spaceContext.currentSpace.metadata.description}`
	The description of the portal that is named *`portalName`* or the current portal (`currentSpace`). For example, `#{spaceContext.space['FinanceProject'].metadata.description}` evaluates to *Conglomeration of all teams involved in financial activities*.

`#{spaceContext.space['`*`portalName`*`'].metadata.creationDate}`
`#{spaceContext.currentSpace.metadata.creationDate}`
	A *java.util.Calendar* object representing the date-time on which the portal with specified name *`portalName`* or the current portal (`currentSpace`) was created.

`#{spaceContext.space['`*`portalName`*`'].metadata.createdBy}`
`#{spaceContext.currentSpace.metadata.createdBy}`
	The user-name of the person who created the portal that is named *`portalName`* or the current portal (`currentSpace`).

`#{spaceContext.space['`*`portalName`*`'].metadata.keywords}`
`#{spaceContext.currentSpace.metadata.keywords}`
	A comma-delimited list of searchable keywords associated with the portal with the name *`portalName`* or the current portal (`currentSpace`). For example, if the portal *FinanceProject* has the keywords `finance, project, money`, then `#{spaceContext.space['FinanceProject'].metadata.keywords}` evaluates to *finance, project, money*.

`#{spaceContext.space['`*`portalName`*`'].metadata.offline}`
`#{spaceContext.currentSpace.metadata.offline}`
	Boolean value that indicates whether the portal that is named *`portalName`* or the current portal (`currentSpace`) is offline.

`#{spaceContext.space['`*`portalName`*`'].metadata.closed}`
`#{spaceContext.currentSpace.metadata.closed}`
	Boolean value that indicates whether the portal that is named *`portalName`* or the current portal (`currentSpace`) is closed.

`#{spaceContext.space['`*`portalName`*`'].metadata.selfRegistration}`
`#{spaceContext.currentSpace.metadata.selfRegistration}`
	Boolean value that indicates whether users are allowed to register themselves with the portal that is named *`portalName`* or the current portal (`currentSpace`).

Table A-3 (Cont.) EL Expressions Relevant to Specific Portals

Expression	Function

`#{spaceContext.space['`*`portalName`*`'].metadata.discoverable}`
`#{spaceContext.currentSpace.metadata.discoverable}`
	Boolean value that indicates whether users can discover the existence of the portal that is named *`portalName`* or the current portal (`currentSpace`) by searching for it or seeing it listed on the My portals page.

`#{spaceContext.space['`*`portalName`*`'].metadata.publishRSS}`
`#{spaceContext.currentSpace.metadata.publishRSS}`
	Boolean value indicating whether the portal that is named *`portalName`* or the current portal (`currentSpace`) publishes RSS feeds.

`#{spaceContext.space['`*`portalName`*`'].distributionList}`
`#{spaceContext.currentSpace.distributionList}`
	The email address of the mailing list associated with the portal that is named *`portalName`* or the current portal (`currentSpace`).

`#{spaceContext.space['`*`portalName`*`'].metadata.customAttributes['`*`attributeName`*`']}`
`#{spaceContext.currentSpace.metadata.customAttributes['`*`attributeName`*`']}`
	The value of a specific custom attribute of the name *`attributeName`* for the portal that is named *`portalName`* or the current portal (`currentSpace`). For example, if the *FinanceProject* portal has a custom attribute called `stockPrice` with a value of `13.9`, then `#{spaceContext.space['FinanceProject'].metadata.customAttributes['stockPrice']}` evaluates to *13.9*.
	Note: If you use this EL to provide a value for a field in WebCenter Portal Administration, clicking the **Test** button may return a blank value. However, the value will resolve correctly in the running portal.

`#{WCPrepareImageURL[spaceContext.space['portalName'].metadata.logo]['']}`
`#{WCPrepareImageURL[spaceContext.currentSpace.metadata.logo]['']}`
	Returns the logo URL for the portal named *`portalName`* or the current portal (`currentSpace`).

Table A-3 (Cont.) EL Expressions Relevant to Specific Portals

Expression	Function

`#{spaceContext.spacesQuery.`*`property`*`['`*`value`*`']}`
 	
`#{spaceContext.spacesQuery.`*`property`*`['`*`value`*`'].listSpaces}`
	A means of querying a portal using a query parameter in the form of *`property`*`['`*`value`*`']`, where *`property`* means the name of the property, for example, `unionOf`, `shape`, and so on; and *`value`* means the criteria to use in fetching the list of all portals, discoverable portals, and so on.
	
	If `listSpaces` is appended to the expression, the query returns the list of portals of type `GSMetadata`. For more information, see `Interface GSMetadata` in Oracle WebCenter Portal Java API Reference.
	
	For example, the following EL expression returns a list of all discoverable portals.
	
	`#{spaceContext.spacesQuery.unionOf['DISCOVERABLE'].listSpaces}`
	
	If `listSpaces` is not appended to the EL, then the EL evaluates to an object of type `SpacesQueryParameter`. This object type must be evaluated using `SpacesManager.getSpaces(SpacesQueryParameters)`, which in turn returns a list of portals of type `GSMetadata`.
	
	For example, the following EL expression returns an instance of type `SpacesQueryParameters` with all the query conditions populated.
	
	`#{spaceContext.spacesQuery.unionOf['DISCOVERABLE']}`

`#{spaceContext.spacesQuery.unionOf['USER_JOINED'].`
 	
`shape['ROOT_LEVEL'].listSpaces}`
	Returns a list of all portals of which the current user is a member
	
	To see an example, refer to Example: Using EL Expressions for Various Portals.

`#{spaceContext.spacesQuery.unionOf['USER_JOINED'].`
 	
`shape['RECURSIVE_FLATTENED'].listSpaces}`
	Returns a list of all portals of which the current user is a member
	
	This EL also returns all the subportals under each of the parent portals to which the current user has access.

Table A-3 (Cont.) EL Expressions Relevant to Specific Portals

Expression	Function
`#{spaceContext.spacesQuery.unionOf['ALL_QUERIABLE'].sort[` *`'sortBy field picked from WcSpaceHeader'`*`]}`	Returns portals sorted into the order specified by the sort criteria For example, the following query returns a list of portals to which the user has access sorted by `discoverable` and `lastUpdateDate` fields. Note that in the following example, the identifier `sp` represents the JPA entity for a portal, `WcSpaceHeader`. `#{spaceContext.spacesQuery.unionOf['ALL_QUERIABLE'].sort['sp.discoverable']['asc']['sp.lastUpdateDate']['desc'].listSpaces}`
`#{spaceContext.spacesQuery.unionOf['ALL_QUERIABLE']` *`.pageNumber[page_num`*`].listSpaces}`	Allows specifying the page number (0-based) to select from the results matching the query criteria For example, the following expression returns a list of all portals to which a user has access and returns the third page of the result set: `#{spaceContext.spacesQuery.unionOf['ALL_QUERIABLE'].pageNumber[2].listSpaces]}`
`#{spaceContext.spacesQuery.unionOf['ALL_QUERIABLE'].itemsPerPage[`*`page_num`*`].listSpaces}`	Allows specifying the number of results to be included in each page when breaking down the result portal into pages For example, the following expression returns a list of all portals to which a user has access, listing 10 records per page. `#{spaceContext.spacesQuery.unionOf['ALL_QUERIABLE'].pageNumber[10].listSpaces]}`

`#{spaceContext.spacesQuery.unionOf.ALL_QUERIABLE.`
`where[wCond['sp.createdBy']['like']['monty%']`
`['and'][wCond['sp.selfSubEnabled']['is']['null']`
`['or'][wCond['sp.selfSubEnabled']['=']['N']] ['not'] ]].listSpaces}`
	Returns a list of all portals a user has access which are created by a specified user, and on which self subscription is enabled. For more information, see `SpacesQueryParameters` and `SpacesQueryFilter` in Oracle WebCenter Portal Java API Reference.

`#{spaceContext.currentSpace.metadata.portalColor}`	Returns color code used by portal in the portal browser
`#{spaceContext.currentSpace.metadata.acronym}`	Returns the acronym used by the portal in the portal browser

Example: Using EL Expressions for Various Portals

This section provides an example of using EL expressions to query various portals.

In this example, you will use the following EL to display a list of all portals of which you are a member:

```
"#{spaceContext.spacesQuery.unionOf['USER_JOINED'].shape['ROOT_LEVEL'].listSpaces}"
```

You will also use the following methods to display the logo, name, description, and number of members of a portal.

- `displayName` - to display the portal name
- `description` - to display the portal description
- `memberCount` - to display the number of portal members

To query a portal:

1. Create a new task flow, and mark it as available for use, as described in Working with Task Flows in *Building Portals with Oracle WebCenter Portal*.
2. Edit the source code of the task flow. On the **Assets** tab, select the task flow. From the **Actions** menu, select **Edit Source**.
3. In the Edit Source dialog, on the **Fragment** tab, replace the existing code with the following code:

```
<?xml version='1.0' encoding='UTF-8'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1"
xmlns:pe="http://xmlns.oracle.com/adf/pageeditor" xmlns:cust="http://
xmlns.oracle.com/adf/faces/customizable"
xmlns:f="http://java.sun.com/jsf/core" xmlns:af="http://xmlns.oracle.com/adf/
faces/rich" xmlns:c="http://java.sun.com/jsp/jstl/core" xmlns:fn="http://
java.sun.com/jsp/jstl/functions">
 <af:panelGroupLayout id="pgl1">
 <cust:panelCustomizable id="pc1">
 <table border="0" width="100%">
 <af:iterator id="it1" var="row"
value="#{spaceContext.spacesQuery.unionOf['USER_JOINED'].shape['ROOT_LEVEL'].list
Spaces}">
  <c:set var="displayName" value="#{row.displayName}"/>
 <c:set var="description" value="#{row.description}"/>
 <c:set var="numMembers" value="#{row.memberCount}"/>
 <tr class="PortletText1">
 <af:image id="img1"
 source="#{WCPrepareImageURL[spaceContext.space[row.name].metadata.icon]}/
ICON16"/>
 </td>
 <td>
 <af:outputText id="otCol1"
 value="#{displayName}"
 inlineStyle="color:#333333; font-size:12px; font-weight:bold;"/>
 </td>
 </tr>
 <tr>
 <td>
 <af:outputText id="otCol3"
 value="#{description}"
 inlineStyle="color:#666666; font-size:12px;"/>
 </td>
 </tr>
 <tr>
 <td>
 <af:outputText id="otCol4"
 value="members (#{numMembers}) -"
 inlineStyle="color:#666666; font-size:10px;"/>
 <af:spacer id="spacer1" width="5px"/>
 <af:goLink id="gl1"
 destination="/spaces/#{row.name}"
 targetFrame="_blank"
 text="view"/>
 </td>
 </tr>
 </af:iterator>
 </table>
 </cust:panelCustomizable>
 </af:panelGroupLayout>
</jsp:root>
```

4. Add the task flow to a page. In the resource catalog, the custom task flow is available under **UI Components** > **Task Flows**.

   The page should now show a list of all the portals of which you are is a member.

ELs Related to Portal Event Contexts

The following table lists EL expressions relevant to the types of portal events that can trigger the passing of payloads (rather than events relevant to the events feature).

You can access all or part of the event payloads provided in Table A-4 once they have been raised.

For example, for the whole payload, use the following EL:

```
#{wcEventContext.events.eventName}
```

For example:

```
#{wcEventContext.events.WebCenterUserSelected}
```

All of the payloads for the ELs in Table A-4 are Maps. To dereference a map entry, use the standard EL for Maps:

```
#{wcEventContext.events.WebCenterUserSelected.UserName}
```

See Also:

For more information about event wiring, see Wiring Pages, Task Flows, Portlets, and ADF Components in *Building Portals with Oracle WebCenter Portal*.

Table A-4 EL Expressions Relevant to Event Contexts

Expression	Function

Event Context
`#{wcEventContext.events.WebCenterResourceSelected}`
Document Name
`#{wcEventContext.events.WebCenterResourceSelected.name}`
Document Creator
`#{wcEventContext.events.WebCenterResourceSelected.createdBy}`
Document Last Modified By
`#{wcEventContext.events.WebCenterResourceSelected.lastModifiedBy}`
	Use in context wiring between producer and consumer task flows. Returns a map that relates some piece of metadata from the producer to some piece of metadata from the consumer, for example, from a document creator to the creator's Profile.
	Producer task flows include:
	• Document Manager
	• Recent Documents
	• Document List Viewer
	Consumer task flows include:
	• Links (show the items that are linked to the selected document)
	• Profile (view the Profile of the document's author)
	• Activity Stream (view activities related to this document)
	• Tags (tags on this document and a means of accessing the Tag Center)

Event Context
`#{wcEventContext.events.WebCenterUserSelected}`
User Name
`#{wcEventContext.events.WebCenterUserSelected.userName}`
User GUID
`#{wcEventContext.events.WebCenterUserSelected.userGUID}`
Portal Name
`#{wcEventContext.events.WebCenterUserSelected.`*`portalName`*`}`
Portal GUID
`#{wcEventContext.events.WebCenterUserSelected.`*`portalGUID`*`}`
	Use in context wiring between producer and consumer task flows. Returns a map that relates some piece of metadata from the producer to some piece of metadata from the consumer, for example, from a user to the user's connections.
	Producer task flows include:
	• Connections
	• Portal Members
	Consumer task flows include:
	• Connections (show connections of the selected user)
	• Documents task flows (show documents created by the selected user)
	• Activity Stream (view this user's activities)
	• Tags (tags created by this user)
	• Profile (show this user's Profile)

Table A-4 (Cont.) EL Expressions Relevant to Event Contexts

Expression	Function

Event Context
`#{wcEventContext.events.WebCenterConnectionSelected}`
Profile User Name
`#{wcEventContext.events.WebCenterConnectionSelected.profileUserName}`
Profile User GUID
`#{wcEventContext.events.WebCenterConnectionSelected.profileUserGUID}`
Connected User Name
`#{wcEventContext.events.WebCenterConnectionSelected.userName}`
Connected User GUID
`#{wcEventContext.events.WebCenterConnectionSelected.userGUID}`
	--

`#{wcEventContext.events.WebCenterSpaceSelected.SpaceName}`	Returns the name of the selected portal
`#{wcEventContext.events.WebCenterSpaceSelected.SpaceGUID}`	Returns the GUID of the selected portal

ELs Related to Assets

Use the expressions in this section to query for assets. Querying for an asset through an EL expression is similar to querying for it through an API call. That is, you must set query parameters in the format `['`*`property`*`']['like']['`*`value`*`']`, where *`property`* is the name of the property, for example, `id`, `resourceScope`, and so on, and *`value`* is the search value for the attribute.

A query can result in single or multiple results. The query designer must decide what is wanted. The query designer determines whether to return one or multiple results by encountering one of the following values in the expression:

- `singleResult`—Returns a single asset. When no matching asset is found, null is returned.
- `resultList`—Returns a list of assets. When no matching assets are found, an empty list is returned.

Note:

Occurrences of `singleResult` or `resultList` in the expression are used internally as the query end point, and, after this, the query is executed immediately. Anything set after the end point can result in unexpected behavior.

The following example returns the first page template asset found with a display name that contains `myPage`:

```
#{srmContext[wCond['resourceType']['like']['siteTemplate']]['and']
[wCond['displayName']['like']['myPage']].singleResult}
```

The following example returns a list of page template assets residing in the directory `resourceDir`, with a description that contains `sampleDesc`:

```
#{srmContext[wCond['resourceType']['like']['siteTemplate']]['and']
[wCond['description']['like']['sampleDesc']]['and'][wCond['contentDirectory']['like']
['resourceDir'].resultList}
```

A property of this class includes any attribute of this class. Example properties include: `Id`, `DisplayName`, `iconURI`, `contentDirectory`, and so on.

The property value can be an explicit value or an EL expression that returns that type of value. For example, the following two queries return the same result:

```
#{srmContext[wCond['id']['like']['resourceId']].singleResult}

#{srmContext[wCond['id']['like']
['spacesContext.currentSpace.uiMetadata.siteTemplateId']].singleResult}
```

You can use any property of this class in an EL-based query in the format *`property`*`['`*`value`*`']` and in any order. For example, the following two queries return the same result:

```
#{srmContext[wCond['resourceScope']['like']['scopeName']]['and'][wCond['id']['like']
['resourceId']].singleResult}

#{srmContext[wCond['id']['like']['resourceId']]['and'][wCond['resourceScope']['like']
['scopeName']].singleResult}
```

The following table lists EL expressions relevant to assets and describes the types of functionality each provides.

Table A-5 ELs Relevant to Assets

EL	Function
`#{srmContext[wCond['id']['like']['`*`resourceGUID`*`']]}`	Returns the asset with the specified ID
`#{srmContext[wCond['displayName']['like']['`*`resourceDisplayName`*`']]}`	Returns any assets with the specified display name
`#{srmContext[wCond['displayNameKey']['like']['`*`displayNameKey`*`']]}`	Returns any assets with the specified display name key

Table A-5 (Cont.) ELs Relevant to Assets

EL	Function
`#{srmContext[wCond['description']['like']['`*`resourceDescription`*`']].singleResult}`	Returns one result of an asset that contains the specified value in its description To get multiple results, use `resultList` in lieu of `singleResult`.
`#{srmContext[wCond['descriptionKey']['like']['`*`descriptionKey`*`']].singleResult}`	Returns one result of an asset with the specified description key The description key is the key in the `xsrt` file for the asset description. To get multiple results, use `resultList` in lieu of `singleResult`.
`#{srmContext[wCond['createdDate']['like']['`*`resourceCreationDate`*`']]}`	Returns any asset with the specified creation date
`#{srmContext[wCond['modifiedBy']['like']['`*`resourceLastModifiedBy`*`']]`	Returns any asset that was last modified by the user with the specified user name
`#{srmContext[wCond['modifiedDate']['like']['`*`resourceLastModifiedDate`*`']]}`	Returns any asset that was last modified by the specified date
`#{srmContext[wCond['resourceScope']['like']['`*`resourceScope`*`']]}`	Returns any asset that falls within the specified scope
`#{srmContext[wCond['category']['like']['`*`categoryName`*`']]}`	Returns any asset that falls within the specified category For example: `#{srmContext[wCond['category']['like']['siteTemplates']]}` List of possible category names includes: `siteTemplate`, `pageStyle`, `dataPresenter`, `contentPresenter`, `resourceCatalog`, `taskFlow`, `dataControl`, `taskFlowStyle`, and `skin`.
`#{srmContext[wCond['contentDirectory']['like']['`*`contentDirectory`*`']]}`	Returns any asset that is stored within the specified directory

Table A-5 (Cont.) ELs Relevant to Assets

EL	Function
`#{srmContext[wCond['metadataFile']['like']['`*`metadataFileLocation`*`']]}`	Returns asset metadata from the specified metadata file For example, the following expression returns asset metadata from the following file `/home/metadata/data.xml`: `#{srmContext[wCond['metadataFile']['like']['/home/metadat/data.xml']]}`
`#{srmContext[wCond['jspx']['like']['`*`jspxFileLocation`*`']]}`	Returns any `jspx` file in the specified location For example, the following expression returns the `page.jspx` file: `#{srmContext[wCond['jspx']['like']['/home/web/page.jspx']]}`
`#{srmContext[wCond['pageDef']['like']['`*`pageDefinition`*`']]}`	Returns any `jspx` file with the specified page definition
`#{srmContext[wCond['iconURI']['like']['`*`iconURI`*`']]}`	Returns the icon at the specified icon URI
`#{srmContext[wCond['excludeFrom']['like']['`*`excludeFromScopes`*`']]}`	In a larger expression, returns all specified resources except those available in the excluded scopes
`#{srmContext[wCond['usesCustomSecurity']['like']['`*`usesCustomSecurity`*`']]}`	In a larger expression, returns any asset the either does or does not use custom security Set *`usesCustomSecurity`* to `TRUE` or `FALSE`. For example: `#{srmContext[wCond['usesCustomSecurity']['like']['TRUE']]}`
`#{srmContext[wCond['seeded']['like']['`*`seeded`*`']]}`	In a larger expression, returns any asset that is or is not seeded, depending on the provided value Set *`seeded`* to `TRUE` or `FALSE`. For example: `#{srmContext[wCond['seeded']['like']['TRUE']]}`

Table A-5 (Cont.) ELs Relevant to Assets

EL	Function
`#{srmContext[wCond['visibleType']['like']['`*`visibleType`*`']]}`	In a larger expression, returns any asset that is of the specified type of visibility Set *`visibleType`* to `TRUE`, `FALSE`, or `NEVER` to indicate that the asset is never shown. For example, the following expression returns assets that are visible, that is, assets that are set to **Show**: `#{srmContext[wCond['visibleType']['like']['TRUE']]}`
`#{srmContext[wCond['visible']['like']['`*`visible`*`']]}`	In a larger expression, returns one or multiple assets with visibility set to either `TRUE` or `FALSE`
`#{srmContext[wCond['createdBy']['like']['`*`resourceCreator`*`']]}`	In a larger expression, returns any asset created by the specified user
`#{srmContext[wCond['resourceType']['like']['`*`resourceType`*`']]}`	In a larger expression, returns one or multiple assets of the specified type For example, the following expression searches for an asset of the type `SITE_TEMPLATE`: `#{srmContext[wCond['resourceType']['like']['SITE_TEMPLATE']]}` Note that all asset types are listed in Oracle WebCenter Portal Java API Reference, in the `GenericSiteResourceTypes` class.
`#{srmContext[wCond['version']['like']['`*`version`*`']]}`	In a larger expression, returns one or multiple assets available in the application of the specified version
`#{srmContext[wCond['resourceScope']['like']['`*`scopeName`*`']]}`	In a larger expression, returns one or multiple assets available in the specified scope For example, the following expression searches for assets in the scope (in this instance, the portal) `MyPortal`: `#{srmContext[wCond['resourceScope']['like']['MyPortal']]}` To search in the default scope, that is, the application scope, use `defaultScope`.

Table A-5 (Cont.) ELs Relevant to Assets

EL	Function
`#{srmContext[wCond['searchType']['like']['searchType']]}`	In a larger expression, returns one or multiple assets that contain or equal the values set by other included expressions Set *searchType* to `CONTAINS` or `EQUALS`.

Example: Using EL Expressions for Assets

This section provides an example of using an EL expression to display a page template based on a user's role.

In this example, you will use an EL expression to enable a specific page template to be displayed for portal managers so that only they can access the features or links available in that page template.

To display a page template based on a user role:

1. Go to the desired portal's administration settings.
2. On the **Settings** page, under **Assets** , for **Page Template** click the **Advanced Edit Options** icon next to the **Page Template** drop-down list, and then select **Expression Builder** to open the editor.
3. In the **Type a value or expression**, enter the following expression:

   ```
   #{srmContext[wCond['resourceType']['like']['siteTemplate']][wCond['displayName']
   ['like'][WCSecurityContext.userInScopedRole['Moderator'] ? 'Fusion Side
   Navigation' : 'WebCenter Portal Top Navigation']].singleResult.id}
   ```

   Where:

   - `srmContext[wCond['resourceType']['like']['siteTemplate']]`

     Gets a list of all page templates in the scope
   - `[wCond['displayName']['like'][WCSecurityContext.userInScopedRole['Moderator'] ? 'Fusion Side Navigation' : 'WebCenter Portal Top Navigation']]`

     Reduces the list down to one depending on whether the current user is a portal manager. If the user is a portal manager, the Fusion Side Navigation page template is applied. For all other user roles, the portal is rendered using the WebCenter Portal Top Navigation page template.
   - `singleResult.id`

     Returns the GUID of the required entry.
4. Click **OK**.

ELs Related to Security

The following table lists EL expressions relevant to application security and describes the types of functionality they provide.

Table A-6   EL Expressions Relevant to Security

Expression	Function
`#{security.authenticated}`	Returns `true` when the current user is authenticated in the context in which the EL is being invoked, otherwise `false`.
`#{securityContext.userName}`	Returns the user name of the currently logged in user. If the current user is not logged in, this expression returns no value.
`#{WCSecurityContext.currentUser['`*`userName`*`']}`	Returns the value `true` if the current user is the specified user, otherwise `false`.
`#{WCSecurityContext.userInGroup['`*`group`*`']}`	Returns the value *true* if the current user is assigned the specified group, for example: `#{WCSecurityContext.userInGroup['Administrators']}`
`#{security.pageContextCommunityModerator}`	Returns the value *true* if the current user is the Portal Manager of the current portal.
`#{WCSecurityContext.userInScopedRole['`*`role`*`']}`	Returns the value *true* if the current user is assigned the specified role in the current scope. Role can be `Moderator` (or Portal Manager, which is the display name), or a custom role defined in that scope. The scope is implicitly resolved to be the current scope. If you use this EL in the home portal, it resolves to the home portal's GUID and roles defined at the application level. If you use this EL in a portal scope, it resolves to roles defined for the portal.

ELs Related to General Settings

The following table lists EL expressions relevant to general application settings and describes the types of functionality they provide.

Table A-7   EL Expressions Relevant to General Settings

Expression	Function
`#{generalSettings.userTimeZone}`	Returns the time zone the current user has selected in application preferences.
`#{generalSettings.preferredDateStyle}`	Returns the date format the current user has selected in application preferences.
`#{generalSettings.preferredDatePattern}`	Returns the current user's preferred date format pattern if it has been set, else, returns `null`.
`#{generalSettings.preferredTimeStyle}`	Returns the time format the current user has selected in application preferences.
`#{generalSettings.preferredTimePattern}`	Returns the current user's preferred time format pattern if it has been set, else, returns `null`.
`#{generalSettings.preferredDateTimePattern}`	Returns the current user's preferred date and time format pattern if it has been set, else, returns `null`.

Table A-7 (Cont.) EL Expressions Relevant to General Settings

Expression	Function
`#{generalSettings.preferredAccessibilityMode}`	Returns the current user's preferred accessibility mode (either `default`, `inaccessible`, or `screenReader`)
`#{generalSettings.preferredSkinName}`	The current user's preferred skin name if one is specified, otherwise the default value.
`#{generalSettings.formattedCurrentDate}`	Returns the current date in the current user's selected locale.
`#{generalSettings.formattedCurrentTime}`	Returns the current time in the current user's selected locale.
`#{generalSettings.formattedCurrentDateTime}`	Returns the current date and time in the current user's selected locale.
`#{requestContext.skinFamily}`	Returns the name of the ADF Faces skin family being used for the current web request, depending on factors such as what has been configured at the application level, the current user's preference setting, and so on.

ELs Related to Portal Resources

Use the expressions in this section to query for portal resources. Querying for a portal resource through an EL expression is similar to querying for it through an API call. That is, you must set query parameters in the format `.`*`property`*`['`*`value`*`']`, where *`property`* is the name of the property, for example, `id`, `resourceScope`, and so on, and *`value`* is the search value for the attribute.

A query can result in single or multiple results. The query designer must decide what is wanted. The query designer determines whether to return one or multiple results by encountering one of the following values in the expression:

- `singleResult`—Returns a single portal resource. When no matching resource is found, null is returned.
- `resultList`—Returns a list of portal resources. When no matching portal resources are found, an empty list is returned.

Note:

Occurrences of `singleResult` or `resultList` in the expression are used internally as the query end point, and, after this, the query is executed immediately. Anything set after the end point can result in unexpected behavior.

The following example returns the first page template portal resource found with a display name that contains `myPage`:

```
#{srmContext.resourceType['siteTemplate'].displayName['myPage'].singleResult}
```

The following example returns a list of page template portal resources residing in the directory `resourceDir`, with a description that contains `sampleDesc`:

```
#{srmContext.resourceType['siteTemplate'].description['sampleDesc'].contentDirectory[
'resourceDir'].resultList}
```

A property of this class includes any attribute of this class. Example properties include: `Id`, `DisplayName`, `iconURI`, `contentDirectory`, and so on.

The property value can be an explicit value or an EL expression that returns that type of value. For example, the following two queries return the same result:

```
#{srmContext.id['resourceId'].singleResult}
```

```
#{srmContext.id['spacesContext.currentSpace.uiMetadata.siteTemplateId'].singleResult}
```

You can use any property of this class in an EL-based query in the format *`property`*`['`*`value`*`']` and in any order. For example, the following two queries return the same result:

```
#{srmContext.resourceScope['scopeName'].id['resourceId'].singleResult}
```

```
#{srmContext.id['resourceId'].resourceScope['scopeName'].singleResult}
```

Table A-8 lists EL expressions relevant to portal resources and describes the types of functionality each provides. Many of the expressions in Table A-8 are building blocks for narrowing down the portal resource or resources you want returned. That is, they are not necessarily meant to be used by themselves, but rather in an assembly of ELs to form the desired query.

For example, the following expression uses three portal resource-related ELs to form a single query that returns a particular portal template. It retrieves the template `storesMasterTemplate` from the parent portal `stores`:

```
#{srmContext.resourceScope['stores'].resourceType['siteTemplate'].displayName['stores
MasterTemplate'].singleResult}
```

For information about EL expressions relevant only to WebCenter Portal assets, see ELs Related to Assets.

Table A-8 ELs Relevant to Portal Resources

EL	Function
`#{srmContext.id['`*`resourceGUID`*`']}`	Returns the portal resource with the specified ID
`#{srmContext.displayName['`*`resourceDisplayName`*`']}`	Returns any portal resources with the specified display name
`#{srmContext.displayNameKey['`*`displayNameKey`*`']}`	Returns any portal resources with the specified display name key
`#{srmContext.description['`*`resourceDescription`*`'].singleResult}`	Returns one result of a portal resource that contains the specified value in its description To get multiple results, use `resultList` in lieu of `singleResult`.

Table A-8 (Cont.) ELs Relevant to Portal Resources

EL	Function
`#{srmContext.descriptionKey[`*`descriptionKey`*`].singleResult}`	Returns one result of a portal resource with the specified description key The description key is the key in the `xsrt` file for the portal resource description. To get multiple results, use `resultList` in lieu of `singleResult`.
`#{srmContext.createdDate['`*`resourceCreationDate`*`']}`	Returns any portal resource with the specified creation date
`#{srmContext.modifiedBy['`*`resourceLastModifiedBy`*`']}`	Returns any portal resource that was last modified by the user with the specified user name
`#{srmContext.modifiedDate['`*`resourceLastModifiedDate`*`']}`	Returns any portal resource that was last modified by the specified date
`#{srmContext.resourceScope['`*`resourceScope`*`']}`	Returns any portal resource that falls within the specified scope
`#{srmContext.category['`*`categoryName`*`']}`	Returns any portal resource that falls within the specified category For example: `#{srmContext.category['siteTemplates']}`
`#{srmContext.contentDirectory['`*`contentDirectory`*`']}`	Returns any portal resource that is stored within the specified directory
`#{srmContext.metadataFile['`*`metadataFileLocation`*`']}`	Returns portal resource metadata from the specified metadata file For example, the following expression returns resource metadata from the following file `/home/metadata/data.xml`: `#{srmContext.metadataFile['/home/metadat/data.xml']}`
`#{srmContext.jspx['`*`jspxFileLocation`*`']}`	Returns any `jspx` file in the specified location For example, the following expression returns the `page.jspx` file: `#{srmContext.jspx['/home/web/page.jspx']}`
`#{srmContext.pageDef['`*`pageDefinition`*`']}`	Returns any `jspx` file with the specified page definition

Table A-8 (Cont.) ELs Relevant to Portal Resources

EL	Function
`#{srmContext.iconURI['`*`iconURI`*`']}`	Returns the icon at the specified icon URI
`#{srmContext.excludeFrom['`*`excludeFromScopes`*`']}`	In a larger expression, returns all specified portal resources except those available in the excluded scopes
`#{srmContext.usesCustomSecurity['`*`usesCustomSecurity`*`']}`	In a larger expression, returns any portal resource that either does or does not use custom security Set *`usesCustomSecurity`* to `TRUE` or `FALSE`. For example: `#{srmContext.usesCustomSecurity['TRUE']}`
`#{srmContext.seeded['`*`seeded`*`']}`	In a larger expression, returns any portal resource that is or is not seeded, depending on the provided value Set *`seeded`* to `TRUE` or `FALSE`. For example: `#{srmContext.seeded['TRUE']}`
`#{srmContext.visibleType['`*`visibleType`*`']}`	In a larger expression, returns any portal resource that is of the specified type of visibility Set *`visibleType`* to `TRUE`, `FALSE`, or `NEVER` to indicate that the portal resource is never shown. For example, the following expression returns portal resources that are visible, that is, portal resources that are set to **Show**: `#{srmContext.visibleType['TRUE']}`
`#{srmContext.visible['`*`visible`*`']}`	In a larger expression, returns one or multiple portal resources with visibility set to either `TRUE` or `FALSE`
`#{srmContext.createdBy['`*`resourceCreator`*`']}`	In a larger expression, returns any portal resource created by the specified user

Table A-8 (Cont.) ELs Relevant to Portal Resources

EL	Function
`#{srmContext.resourceType['`*`resourceType`*`']}`	In a larger expression, returns one or multiple portal resources of the specified type For example, the following expression searches for a portal resource of the type `SITE_TEMPLATE`: `#{srmContext.resourceType['SITE_TEMPLATE']}` Note that all resource types are listed in Oracle WebCenter Portal Java API Reference, in the `GenericSiteResourceTypes` class.
`#{srmContext.version['`*`version`*`']}`	In a larger expression, returns one or multiple portal resources available in the application of the specified version
`#{srmContext.resourceScope['`*`scopeName`*`']}`	In a larger expression, returns one or multiple portal resources available in the specified scope For example, the following expression searches for portal resources in the scope (in this instance, the portal) `MyPortal`: `#{srmContext.resourceScope['MyPortal']}` To search in the default scope, that is, the application scope, use `defaultScope`.
`#{srmContext.searchType['`*`searchType`*`']}`	In a larger expression, returns one or multiple portal resources that contain or equal the values set by other included expressions Set *`searchType`* to `CONTAINS` or `EQUALS`.

ELs Related to Navigation

The following table lists EL expressions relevant to application navigation and describes the types of functionality they provide.

Table A-9 EL Expressions Relevant to Navigation

Expression	Function
Navigation Context Expressions	
`#{navigationContext.defaultNavigationModel}`	Returns default navigation model. It gets the value from the preference bean. The preference bean gets the value based on the preference setting in `adf-config.xml`, `static value`. The following example returns the specified default tree model: `#{navigationContext.defaultNavigationModel.defaultTreeModel}` You can also use `defaultMenuModel` and `defaultListModel` (see next listing).
`#{navigationContext.currentNavigationModel}`	Returns the navigation model used to navigate to the current view (that is, the current page) The current navigation model is set only when the `processAction` is called. The following example returns the default tree model for the current navigation model: `#{navigationContext.currentNavigationModel.defaultTreeModel}` You can also use `defaultMenuModel` and `defaultListModel`. **See Also:** #{navigationContext.processAction}.
`#{navigationContext.navigationModel['`*`model_path`*`']}`	This EL has been deprecated. Use `#{navigationContext.defaultNavigationModel}` or `#{navigationContext.currentNavigationModel}` in its place.

Table A-9 (Cont.) EL Expressions Relevant to Navigation

Expression	Function

`#{navigationContext.processAction}`	Returns the default navigation method for binding to UI component's `actionListener` attribute. This assumes that the target resource to navigate to is passed in through the action UI component's `node` or `path` attribute.
	
	The `node` attribute is typically used for the iterative case; while the `path` attribute is typically used to create a static link. If both are specified, the `node` attribute is used. Note that when using the `path` attribute, you must also specify the `model` attribute to pass in the navigation model object. If the `model` attribute is not specified, the current navigation model is used.
	
	Example using the `node` attribute:
	
	`<af:forEach var="node" varStatus="vs"`
	
	`items="#{navigationContext.defaultNavigationModel.`
	`rootNode.children}">`
	`    <af:subform id="pt_sfm1">`
	`      <af:commandLink id="pt_cl1"`
	`        text="#{node.title}"`
	`        inlineStyle="font-size:small;color:White;"`
	
	`actionListener="#{navigationContext.processAction}`
	`"`
	`        action="pprnav">`
	`      <f:attribute name="node" value="#{node}"/>`
	`        <af:showPopupBehavior popupId="menuPopup"`
	`          align="afterStart"`
	`          triggerType="mouseOver"/>`
	`    </af:commandLink>`
	
	Example using the `path` attribute:
	
	`<af:commandLink id="pt_cl1" text="Prescriptions"`
	`    inlineStyle="font-size:small; color:White;"`
	
	`actionListener="#{navigationContext.processAction}`
	`"`
	`    action="pprnav">`
	`<f:attribute name="path" value="/prescriptions"/>`
	`<f:attribute name="model"`
	`value="#{navigationContext.defaultNavigationModel}`
	`"/>`
	`</af:commandLink>`

Navigation Model Expressions	

Table A-9 (Cont.) EL Expressions Relevant to Navigation

Expression	Function

`#{navigationContext.defaultNavigationModel.defaultTreeModel}`
`#{navigationContext.defaultNavigationModel.defaultMenuModel}`
`#{navigationContext.defaultNavigationModel.defaultListModel}`
`#{navigationContext.defaultNavigationModel.defaultSiteMap}`
	Returns a tree/menu/list model based on the default settings
	The default values for the settings are specified in the next row. For example, the default value for `depth` is `0`.
	For `defaultSiteMap`, it returns the XML for the site map of the navigation based on the default settings.
	This expression returns a model of type:
	• `ChildPropertyTreeModel`—used in `<af:tree>` component
	• `ChildPropertyMenuModel`—used in `<af:breadcrumbs>` or <af:menu> component
	• `List`*`NavigationResource`*—used in `<af:foreach>`

`#{navigationContext.defaultNavigationModel.treeModel['`*`parameters`*`']}`
`#{navigationContext.defaultNavigationModel.menuModel['`*`parameters`*`']}`
`#{navigationContext.defaultNavigationModel.listModel['`*`parameters`*`']}`
`#{navigationContext.defaultNavigationModel.siteMap['`*`parameters`*`']}`
	Returns tree/menu/list model based on the specified comma-separated parameters. Available parameters (with default values as examples) are:
	• `startNode=/`—specify the starting node of the model (do not need "/" prefix unless requesting the root node, for example, `home`).
	• `includeStartNode=true`—specify `true` if you want to include the starting node (for example, the root node above) or `false` to start from its children.
	• `depth=0`—defines the initial depth of fetching. "0" means fetch the entire tree, which may take a long time. In which case, use "1" to fetch on demand (when users click the **Expand** icon).
	• `prefetchOnly=false`—by default (`true`), it returns nodes up to the depth level requested initially; deeper level nodes are returned on demand. Use `false` if you want only the initial sets of nodes. In which case, it does not return deeper nodes later on when requested, even when there are deeper nodes.
	For `siteMap`, the available parameters are `startNode` and `includeStartNode`.
	Example:
	`#{navigationContext.defaultNavigationModel.treeModel['startNode=home,includeStartNode=false,depth=2']}`

Table A-9 (Cont.) EL Expressions Relevant to Navigation

Expression	Function

`#{navigationContext.defaultNavigationModel.rootNode}`	Returns a root node (of type `NavigationResource`) of the navigation model.
	Example:
	`<af:commandLink id="pt_cl1" text="Prescriptions"`
	`    inlineStyle="font-size:small; color:White;"`
	
	`actionListener="#{navigationContext.processAction}"`
	`    action="pprnav">`
	`  <f:attribute name="node"`
	`        value="#{navigationContext.`
	`        defaultNavigationModel.`
	`        rootNode.children[2]"/>`
	`</af:commandLink>`

`#{navigationContext.defaultNavigationModel.node['`*`path`*`']}`	Returns a node (of type `NavigationResource`) based on the path specified (you do not need "/" prefix unless you are requesting the root node, for example, `'/'`) Example: `#{navigationContext.defaultNavigationModel.node['home/page1']}`
`#{navigationContext.defaultNavigationModel.currentSelection}`	Returns currently selected navigation portal resource.

`#{navigationContext.defaultNavigationModel.newCurrentSelection['`*`path`*`']}`	Sets the current selection to a node specified by the given path (you do not need "/" prefix unless you are requesting the root node, for example, `'/'`). If successful, returns the newly selected node of type `NavigationResource`.
	The user must have the ability to explicitly set the current selection without having to actually navigate to a node.
	This can be used where the user enters a page directly, and no selection is set. It provides a mechanism for the user to control what is the default when there is no current selection.
	Example:
	`<c:set   value="${navigationContext.defaultNavigationModel.newCurrentSelection['home/page1']}"`
	`  var="currSel" scope="session"/>`
	`<c:if test="${currSel!=null}">`
	`  <af:forEach items="#{currSel.children}"`
	`    var="cnode" varStatus="cnodestatus">`
	`...</c:if>`

Table A-9 (Cont.) EL Expressions Relevant to Navigation

Expression	Function

`#{navigationContext.defaultNavigationModel.attributes.`*`Description`*`}`
`#{navigationContext.defaultNavigationModel.attributes['`*`Description`*`']}`
	Returns the value of the specified attribute of the navigation model.

`#{navigationContext.defaultNavigationModel.properties['propertyName']}`	Returns the value of the specified property of the navigation model, where `propertyName` is either `rootNode` or `currentSelection`.
Navigation Portal Resource Expressions	

`#{`*`node`*`.attributes.`*`Description`*`}`
`#{`*`node`*`.attributes['`*`Description`*`']}`
	Returns the value of the specified attribute of the navigation portal resource.

`#{`*`node`*`.parameters.`*`StockSymbol`*`}`
`#{`*`node`*`.parameters['`*`StockSymbol`*`']}`
	Returns the value of the specified parameter of the navigation portal resource.

`#{`*`node`*`.parametersRaw.`*`StockSymbol`*`}`
`#{`*`node`*`.parametersRaw['`*`StockSymbol`*`']}`
	Returns the raw value of the specified parameter of the navigation portal resource (before it is evaluated).

`#{`*`node`*`.title}`	Returns the title of the navigation portal resource.
`#{`*`node`*`.path}`	Returns the path to the navigation portal resource.
`#{`*`node`*`.externalURL}`	Returns the URL for the navigation portal resource of type `External Link`.
`#{`*`node`*`.prettyUrl}`	Returns the identifying path for this navigation portal resource.

`#{`*`node`*`.prettyUrlPath}`
`#{`*`node`*`.prettyUrlPath[`*`N`*`]}`
	Returns a collection of identifying paths by depth to enable its use as a starting path to drive another navigation view.
	For example, assuming the `currentSelection` is `home/company/products/applications`, the following EL returns `home/company/products`:
	`#{`*`node`*`.prettyUrlPath[3]}`

`#{`*`node`*`.goLinkPretty Url}`	Returns the identifying path for this navigation portal resource suitable for `goLink` destination
	`<af:goLink id="pt_gl2" text="#{node.title}"`
	`      destination="#{node.goLinkPrettyUrl}"`
	`      targetFrame="#{node.attributes['Target']}"`
	`      inlineStyle="font-`
	`size:small;#{node.selected ?`
	`      'font-weight:bold;' : ''}"/>`

`#{`*`node`*`.separator ? ... : ...}`	Returns whether this portal resource is a separator item.
`#{`*`node`*`.navigable ? ... : ...}`	Returns whether it is possible to navigate to this portal resource.
`#{`*`node`*`.selected ? ... : ...}`	Returns whether this portal resource is currently selected.

Table A-9 (Cont.) EL Expressions Relevant to Navigation

Expression	Function
`#{`*`node`*`.currentlySelected ? ... : ...}`	Returns whether the portal resource is the currently selected portal resource and the model is the currently selected model.

`#{`*`node`*`.onSelectedPath ? ... : ...}`	Returns whether this node lies on the selected path. This is useful for highlighting the selected tab, for example.
	For example, assuming the currently selected node is `home/company/products/applications`, the following EL highlights the `home` tab.
	`<c:set   value="$`
	`{navigationContext.defaultNavigationModel.node['ho`
	`me']}"`
	`  var="home" scope="session"/>`
	`    <af:commandImageLink id="cil1"`
	`        icon="#{(home.onSelectedPath) ?`
	`        '/images/caremark/nav/HomeSelected.png' :`
	`        '/images/caremark/nav/HomeIcon.png'}"`
	
	`actionListener="#{navigationContext.processAction}`
	`"`
	`        action="pprnav">`
	`    <f:attribute name="node" value="#{home}"/></`
	`af:commandImageLink>`

`#{`*`node`*`.leaf ? ... : ...}`	Returns whether this resource is a leaf node.
`#{`*`node`*`.parent}`	Returns the parent node (of type `NavigationResource`) of this node. For the root node, `null` is returned.
`#{`*`node`*`.ancestors}`	Returns the hierarchy list of ancestors of this node (of type NavigationResource) starting with the root node. For example, assuming the current node is `home/company/products/applications`, the following ELs return the following values: • `#{node.ancestors[1]}` returns the node for `home` • `#{node.ancestors[3]}` returns the node for home/company/products
`#{`*`node`*`.depth}`	Returns the depth of this node from the root node. Root node has a depth of zero.
`#{`*`node`*`.siblings}`	Returns the list of siblings (of type `NavigationResource`) of this node (inclusive).

Table A-9 (Cont.) EL Expressions Relevant to Navigation

Expression	Function

`#{`*node*`.nextSibling}`	Returns the next sibling in the list (of type `NavigationResource`) of this node.
	For example, the following code ensures that you do not output two separators in a row:
	`<c:if test="${(node.separator) && (! node.nextSibling.separator}">`
	`    <af:separator id="s166"/>`
	`</c:if>`

`#{`*node*`.previousSibling}`	Returns the previous sibling in the list (of type `NavigationResource`) of this node.
`#{`*node*`.index}`	Returns the zero-relative index of this node relative to its siblings.

`#{`*node*`.children}`
`#{`*node*`.children[`*N*`].title}`
`#{`*node*`.children[`*N*`].children[`*N*`].title}`
	Returns a collection of child resources.

`#{`*node*`.childCount}`	Returns the number of children of this node.
`#{`*node*`.childByIndex['index']}`	Returns the child node (of type `NavigationResource`) specified by the zero-relative index. If not found, this returns `null`.
`#{`*node*`.childByPath['admin']}`	Returns the child node (of type `NavigationResource`) specified by the path relative to this node. The path can be deeper than one level and does not need the `'/'` prefix. If not found, this returns `null`.
`#{`*node*`.properties['propertyName']}`	Returns the value of the specified property of the navigation portal resource, where `propertyName` is one of the following: `separator`, `title`, `prettyUrl`, `prettyUrlPath`, `depth`, `leaf`, `childCount`, `navigable`, `selected`, or `currentlySelected`.

ELs Related to Tools and Services

This section lists EL expressions relevant to tools and services and describes the types of functionality they provide.

Table A-10 EL Expressions Relevant to Tools and Services

Expression	Function
`#{webcenterService['`*`serviceId`*`']}`	Returns an implementation of `oracle.webcenter.framework.service.Service` object representing the WebCenter Portal tool or service represented by the service ID `serviceId`.In the example, object of class `oracle.webcenter.doclib.internal.spaces.DoclibService` is returned: `#{webcenterService['oracle.webcenter.doclib']}` For service IDs, see Table A-11.
`#{webcenterService['`*`serviceId`*`'].configured}`	Returns a Boolean value that indicates whether the WebCenter Portal tool or service represented by the service ID *`serviceId`* is configured for use in the current WebCenter Portal instance. For service IDs, see Table A-11.

The following table lists service IDs associated with WebCenter Portal tool and services.

Table A-11 Service and Tool IDs

Service/Tool	ID
Documents and Wikis	oracle.webcenter.doclib
Events	oracle.webcenter.collab.calendar.community
Instant Messaging and Presence (IMP)	oracle.webcenter.collab.rtc
Links	oracle.webcenter.relationship
Lists	oracle.webcenter.list
Mail	oracle.webcenter.collab.mail
Notifications	oracle.webcenter.notification
Page	oracle.webcenter.page
People Connections: Activity Stream	oracle.webcenter.activitystreaming
People Connections: Connections	oracle.webcenter.peopleconnections.connections
People Connections: Feedback	oracle.webcenter.peopleconnections.kudos
People Connections: Message Board	oracle.webcenter.peopleconnections.wall
People Connections: Profile	oracle.webcenter.peopleconnections.profile
RSS	oracle.webcenter.rss
Search	oracle.webcenter.search

Table A-11 (Cont.) Service and Tool IDs

Service/Tool	ID
Tags	oracle.webcenter.tagging
Blogs	oracle.webcenter.blog
Worklist	oracle.webcenter.worklist

ELs Related to Composer

The following table lists EL expressions relevant to Composer.

Expression	Function
#{composerContext.inEditMode}	Determines whether the current page is in View mode or Edit mode. For example: `<af:outputText id="ot1" value="#{composerContext.inEditMode ne   true ? 'View mode' : 'Edit mode'} />` This example shows an ADF Faces `outputText` component that returns View mode when the page is in `View mode` and Edit mode when the page is in `Edit mode`.
#{changeModeBean.inEditMode}	The `childCreation` attribute determines whether the children of popup dialogs can be viewed in Composer. By default, this attribute is set to deferred and users are unable to see the children of popup dialogs. Setting the value to immediate allows users to view the children of popup dialogs. For example: `<af:popup childCreation="#{changeModeBean.inEditMode   ? 'immediate' : 'deferred'}" />` There is a performance impact by setting the `childrenCreation` attribute to immediate. If you do not need to use the popup on the page, using the default setting of deferred will avoid the penalty of CPU and memory usage when it is not needed. Note that the popup will be shown non-modally, thus, the application must be able to handle that fact without error.

Example A-1 Example: Using EL Expressions for Composer

This section provides an example of using an EL expression to display different pages in View mode and Edit mode. Consider that you want one of your pages, `Page1`, to display another page, `Page2`, in View mode. However, while editing `Page1`, instead of `Page2`, you want to display a website, `www.example.com`. You can use the EL of the following format:

```
#{ composerContext.inEditMode ? 'http://www.example.com' : 'url_of_Page2' }
```

This EL displays the specified website when your page is in Edit mode, and shows `Page2` when in View mode.

The following steps demonstrate how to display different pages depending on the page mode.

1. Open a page named `Page1` in the page editor (Composer).
2. In Design view, in the resource catalog, click **Web Development**.
3. Click **Add** displayed next to **Web Page**.
4. Click the Edit icon for the newly added Web Page.
5. In the Component Properties dialog, on the **Display Options** tab, in the **Source** field, enter the value as per the following format:

   ```
   #{ composerContext.inEditMode ? 'website_url' : 'url_of_Page2' }
   ```

6. Click **OK**.

   In Composer, `Page1` should now display the website you specified. Save and close the page. `Page1` should now show `Page2`.

ELs Related to Documents

The following table lists EL expressions relevant to documents and describes the types of functionality they provide.

Table A-12 EL Expressions Relevant to Documents

Expression	Function
`#{documentsService.defaultConnectionName}`	Gets the default content repository connection name. Returns `null` if no connection name is defined.
`#{documentsService.configured}`	Checks whether the documents feature is configured. Returns `true` if the documents feature is configured, otherwise `false`.

ELs Related to People Connections

The following table lists EL expressions relevant to the people connections Profile feature and describes the types of functionality they provide.

Note:

The entry `securityContext.userName`, included in every Profile expression, returns the name of the current user. Note also that information is returned only if it is present in the user's profile. If the information is not included in the profile, a null value is returned. Information is also returned only if the current user is allowed to see it.

Table A-13 EL Expressions Relevant to People Connections (Profile)

Expression	Function

`#{webCenterProfile[`*`userName`*`].managerDisplayName}`
`#{webCenterProfile[securityContext.userName].managerDisplayName}`
	The display name of the user's manager. This value is associated with the LDAP attribute, `manager`.

`#{webCenterProfile[`*`userName`*`].employeeNumber}`
`#{webCenterProfile[securityContext.userName].employeeNumber}`
	The user's employee number. This value is associated with the LDAP attribute, `employeeNumber`.

`#{webCenterProfile[`*`userName`*`].businessPOBox}`
`#{webCenterProfile[securityContext.userName].businessPOBox}`
	The post office box number associated with the user. This value is associated with the LDAP attribute, `postOfficeBox`.

`#{webCenterProfile[`*`userName`*`].timeZone}`
`#{webCenterProfile[securityContext.userName].timeZone}`
	The time zone in which the user's home office is located. This value is associated with the LDAP attribute, `orclTimeZone`.

`#{webCenterProfile[`*`userName`*`].description}`
`#{webCenterProfile[securityContext.userName].description}`
	A description of the user (from Profile "About Me"). This value is associated with the LDAP attribute, `description`.

`#{webCenterProfile[`*`userName`*`].department}`
`#{webCenterProfile[securityContext.userName].department}`
	The department to which the user belongs. This value is associated with the LDAP attribute, `departmentNumber`.

`#{webCenterProfile[`*`userName`*`].businessPager}`
`#{webCenterProfile[securityContext.userName].businessPager}`
	The user's business pager number. This value is associated with the LDAP attribute, `pager`.

`#{webCenterProfile[`*`userName`*`].businessCity}`
`#{webCenterProfile[securityContext.userName].businessCity}`
	The city in which the user is located. This value is associated with the LDAP attribute, `l`.

`#{webCenterProfile[`*`userName`*`].maidenName}`
`#{webCenterProfile[securityContext.userName].maidenName}`
	The user's surname or last name before marriage. This value is associated with the LDAP attribute, `orclMaidenName`.

`#{webCenterProfile[`*`userName`*`].businessFax}`
`#{webCenterProfile[securityContext.userName].businessFax}`
	The user's business fax number. This value is associated with the LDAP attribute, `facsimileTelephoneNumber`.

Table A-13 (Cont.) EL Expressions Relevant to People Connections (Profile)

Expression	Function

`#{webCenterProfile[`*`userName`*`].dateofHire}`
`#{webCenterProfile[securityContext.userName].dateofHire}`
	The user's date of hire. This value is associated with the LDAP attribute, `orclHireDate`.

`#{webCenterProfile[`*`userName`*`].middleName}`
`#{webCenterProfile[securityContext.userName].middleName}`
	The user's middle name. This value is associated with the LDAP attribute, `middleName`.

`#{webCenterProfile[`*`userName`*`].homePhone}`
`#{webCenterProfile[securityContext.userName].homePhone}`
	The user's home phone number. This value is associated with the LDAP attribute, `homePhone`.

`#{webCenterProfile[`*`userName`*`].employeeType}`
`#{webCenterProfile[securityContext.userName].employeeType}`
	The user's employee type classification, for example, `IC4`. This value is associated with the LDAP attribute, `employeeType`.

`#{webCenterProfile[`*`userName`*`].lastName}`
`#{webCenterProfile[securityContext.userName].lastName}`
	The user's surname or last name. This value is associated with the LDAP attribute, `sn`.

`#{webCenterProfile[`*`userName`*`].dateofBirth}`
`#{webCenterProfile[securityContext.userName].dateofBirth}`
	The user's birthday. This value is associated with the LDAP attribute, `orclDateOfBirth`.

`#{webCenterProfile[`*`userName`*`].businessState}`
`#{webCenterProfile[securityContext.userName].businessState}`
	The state in which the user's home office is located. This value is associated with the LDAP attribute, `st`.

`#{webCenterProfile[`*`userName`*`].homeAddress}`
`#{webCenterProfile[securityContext.userName].homeAddress}`
	The user's home street address. This value is associated with the LDAP attribute, `homePostalAddress`.

`#{webCenterProfile[`*`userName`*`].businessStreet}`
`#{webCenterProfile[securityContext.userName].businessStreet}`
	The street on which the user's home office is located. This value is associated with the LDAP attribute, `street`.

`#{webCenterProfile[`*`userName`*`].businessPostalCode}`
`#{webCenterProfile[securityContext.userName].businessPostalCode}`
	The user's postal or ZIP code. This value is associated with the LDAP attribute, `postalCode`.

`#{webCenterProfile[`*`userName`*`].initials}`
`#{webCenterProfile[securityContext.userName].initials}`
	The user's initials. This value is associated with the LDAP attribute, `initials`.

`#{webCenterProfile[`*`userName`*`].firstName}`
`#{webCenterProfile[securityContext.userName].firstName}`
	The user's first name. This value is associated with the LDAP attribute, `givenName`.

Table A-13 (Cont.) EL Expressions Relevant to People Connections (Profile)

Expression	Function
`#{webCenterProfile[`*`userName`*`].organizationalUnit}` `#{webCenterProfile[securityContext.userName].organizationalUnit}`	The organizational unit to which the user belongs, for example, `D10`. This value is associated with the LDAP attribute, `ou`.
`#{webCenterProfile[`*`userName`*`].wirelessAcctNumber}` `#{webCenterProfile[securityContext.userName].wirelessAcctNumber}`	The user's wireless account number. This value is associated with the LDAP attribute, `orclWirelessAccountNumber`.
`#{webCenterProfile[`*`userName`*`].businessPhone}` `#{webCenterProfile[securityContext.userName].businessPhone}`	The user's business telephone number. This value is associated with the LDAP attribute, `telephoneNumber` .
`#{webCenterProfile[`*`userName`*`].businessCountry}` `#{webCenterProfile[securityContext.userName].businessCountry}`	The country in to which the user is assigned. This value is associated with the LDAP attribute, `c`.
`#{webCenterProfile[`*`userName`*`].preferredLanguage}` `#{webCenterProfile[securityContext.userName].preferredLanguage}`	The user's preferred language. This value is associated with the LDAP attribute, `preferredLanguage`.
`#{webCenterProfile[`*`userName`*`].displayName}` `#{webCenterProfile[securityContext.userName].displayName}`	The user's display name. This value is associated with the LDAP attribute, `displayName`.
`#{webCenterProfile[`*`userName`*`].userName}` `#{webCenterProfile[securityContext.userName].userName}`	The user's login id.
`#{webCenterProfile[`*`userName`*`].title}` `#{webCenterProfile[securityContext.userName].title}`	The user's job title. This value is associated with the LDAP attribute, `title`.
`#{webCenterProfile[`*`userName`*`].businessEmail}` `#{webCenterProfile[securityContext.userName].businessEmail}`	The user's business email address. This value is associated with the LDAP attribute, `mail`.
`#{webCenterProfile[`*`userName`*`].organization}` `#{webCenterProfile[securityContext.userName].organization}`	The organization to which the user belongs, for example, `Sales`. This value is associated with the LDAP attribute, `o`.
`#{webCenterProfile[`*`userName`*`].businessMobile}` `#{webCenterProfile[securityContext.userName].businessMobile}`	The user's cell or mobile phone number. This value is associated with the LDAP attribute, `mobile`.

ELs Related to Impersonation

The following table lists EL expressions relevant to WebCenter Portal Impersonation and describes the types of functionality they provide.

For more information about using these ELs, see Customizing WebCenter Portal Impersonation Security.

Table A-14 EL Expressions Relevant to Impersonation

Expression	Function
`#{WCSecurityContext.impersonationConfigured}`	Returns whether or not impersonation has been enabled for the current domain. This EL can be useful when determining if an error was caused by an impersonation session ending prematurely, or to provide an additional indicator that a session has ended.
`#{WCSecurityContext.userInImpersonationSession}`	Returns whether the current user is in an impersonation session or not. You can use this EL to protect content and render it inaccessible during an impersonation session. For example, you could map the rendered attribute of an administration taskflow on a page to this EL only rendering the taskflow if the user is not viewing the taskflow in an impersonation session.
`#{WCSecurityContext.currentImpersonator}`	This EL could be used to modify the page template to display the impersonator or render content accessible only to a particular impersonator.

EL Expressions Related to the Page Editor

The following table lists EL expressions relevant to the WebCenter Portal page editor. These EL expressions can be used both in portals built with WebCenter Portal and in asset applications built with Oracle JDeveloper.

Table A-15 EL Expressions Relevant to Page Editor

Expression	Function
`#{composerContext.inEditMode}`	Determines whether the current page is in View mode or Edit mode. For example: `<af:outputText id="ot1" value="#{composerContext.inEditMode ne true ? 'View mode' : 'Edit mode'} />` This example shows an ADF Faces `outputText` component that returns `View mode` when the page is in View mode and `Edit mode` when the page is in Edit mode.
`#{changeModeBean.inEditMode}`	The `childCreation` attribute determines whether the children of popup dialogs can be viewed in Composer. By default, this attribute is set to `deferred` and users are unable to see the children of popup dialogs. Setting the value to `immediate` allows users to view the children of popup dialogs. For example: `<af:popup childCreation="#{changeModeBean.inEditMode ? 'immediate' : 'deferred'}" />` There is a performance impact by setting the `childrenCreation` attribute to `immediate`. If you do not need to use the popup on the page, using the default setting of `deferred` will avoid the penalty of CPU and memory usage when it is not needed. Note that the popup will be shown non-modally, thus, the application must be able to handle that fact without error.

Example: Using EL Expressions for the Page Editor

This section provides an example of using an EL expression to display different pages in View mode and Edit mode. Consider that you want one of your pages, `Page1`, to display another page, `Page2`, in View mode. However, while editing `Page1`, instead of `Page2`, you want to display a website, `www.example.com`. You can use the EL of the following format :

```
#{ composerContext.inEditMode ? 'http://www.example.com' : 'url_of_Page2' }
```

This EL displays the specified website when your page is in Edit mode, and shows `Page2` when in View mode.

The following steps demonstrate how to display different pages depending on the page mode.

1. Open a page named `Page1` in the page editor.
2. In Design view, in the resource catalog, click **Web Development**.
3. Click **Add** displayed next to **Web Page**.
4. Click the Edit icon for the newly added Web Page.
5. In the Component Properties dialog, on the **Display Options** tab, in the **Source** field, enter the value as per the following format:

```
#{ composerContext.inEditMode ? 'website_url' : 'url_of_Page2' }
```

6. Click **OK**.

   In Composer, `Page1` should now display the website you specified. Save and close the page. `Page1` should now show `Page2`.

EL Expressions Related to Device Settings

This section lists ELs for obtaining information about device settings. For information about device settings, see Administering Device Settings in *Administering Oracle WebCenter Portal*.

You can use EL expressions to set assets (skins and page templates) targeted to specific devices. For information on using EL with device settings, see Administering Device Settings in *Administering Oracle WebCenter Portal*.

- Table A-16 lists EL expressions for obtaining information about device group mappings.
- Table A-17 lists ELs for obtaining information about devices.
- Table A-18 lists ELs for obtaining information about skins and page templates associated with device groups.
- Sample Task Flow Code for Discovering Device Attributespresents sample code that can be used in a task flow for discovering the attributes of the device used to access the portal.

For example, a page designer can use the device's attribute to control the width of the content area of a page by using the following EL:

```
#{DeviceAgent.device.attributes['display_resolution_width']}
```

Table A-16 EL Expressions Related to Device Agents

Expression	Related Java API	Description
`#{DeviceAgent}`	`DeviceAgent.getInstance()`	The root entry point to all device settings EL.
`#{DeviceAgent.device}`	`DeviceAgent.getInstance().getDevice()`	The device to which the current request is mapped.
`#{DeviceAgent.deviceGroups}`	`DeviceAgent.getInstance().getDeviceGroups()`	A list of device groups to which the current device maps. This operation returns all device groups, whether they are marked as `enabled` or not.
`#{DeviceAgent.currentScopeDeviceGroup}`	`DeviceAgent.getInstance().getCurrentScopeDeviceGroup()`	Gets the device group that the incoming request was mapped to for the given portal. This EL can help the administrator diagnose issues about why a page variant is not getting displayed for a particular device.

Table A-17 EL Expressions Relevant to Devices

Expression	Related Java API	Description
`#{DeviceAgent.device}`	`DeviceAgent.getInstance().getDevice()`	The device to which the current request is mapped.
`#{DeviceAgent.device.name}`	`DeviceAgent.getInstance().getDevice().getName()`	The name of the device. This is a system friendly identifier that can be used for internal linking.
`#{DeviceAgent.device.displayName}`	`DeviceAgent.getInstance().getDevice().getDisplayName()`	The display name of the device.
`#{DeviceAgent.device.attributes}`	`DeviceAgent.getInstance().getDevice().getAttributes()`	A map of attributes associated with a device - like the screen size, OS version, and so on. For example, the following EL returns the display resolution width that was set when the device was created: `#{DeviceAgent.device.attributes['display_resolution_width']}`

Table A-18 EL Expressions Relevant to Device Groups

Expression	Related Java API	Descriptions
`#{DeviceAgent.currentScopeDeviceGroup}`	`DeviceAgent.getInstance().getCurrentScopeDeviceGroup()`	The device group to which the current request has been mapped. The typical flow for identifying the appropriate device group is as follows: 1. Identify the device to which the current request belongs. 2. Get all the device groups that have been enabled for the current portal. 3. Identify the first device group (from the above list) to which the device belongs.
`#{DeviceAgent.currentScopeDeviceGroup.name}`	`DeviceAgent.getInstance().getCurrentScopeDeviceGroup().getName()`	The name of the device group. For example: `#{DeviceAgent.currentScopeDeviceGroup.name=='androidTablets'}`

Table A-18 (Cont.) EL Expressions Relevant to Device Groups

Expression	Related Java API	Descriptions
`#{DeviceAgent.currentScopeDeviceGroup.portalPageTemplate}`	`DeviceAgent.getInstance().getCurrentScopeDeviceGroup().getPortalPageTemplate()`	Returns the GUID of the portal page template associated with this device group object. If the method returns NULL, the default page template setting for the portal is in effect. **Note:** For information on the resource ELs used to work with the obtained GUID, see ELs Related to Portal Resources.
`#{DeviceAgent.currentScopeDeviceGroup.portalSkin}`	`DeviceAgent.getInstance().getCurrentScopeDeviceGroup().getPortalSkin()`	Returns the GUID of the portal skin associated with this device group. If the method returns NULL, the default skin setting for the portal is in effect. **Note:** For information on the resource ELs used to work with the obtained GUID, see ELs Related to Portal Resources.
`#{DeviceAgent.currentScopeDeviceGroup.default}`	`DeviceAgent.getInstance().getCurrentScopeDeviceGroup().isDefault()`	Returns true if the device group is the default for the current device. Returns false if the device group is not the default for the device. For example, if the default device group is "Desktop Browsers" and you access the portal on an iPad, then the device group will be iPad, but it is not the default device group. In this case, the method returns false.
`#{DeviceAgent.currentScopeDeviceGroup.enabled}`	`DeviceAgent.getInstance().getCurrentScopeDeviceGroup().isEnabled()`	Identifies whether or not this device group has been marked as enabled for the current portal. **Note:** In this invocation, the device group will always state `true`. This EL is useful when working with all the device groups as obtained from the EL `#{DeviceAgent.deviceGroups}`

Sample Task Flow Code for Discovering Device Attributes

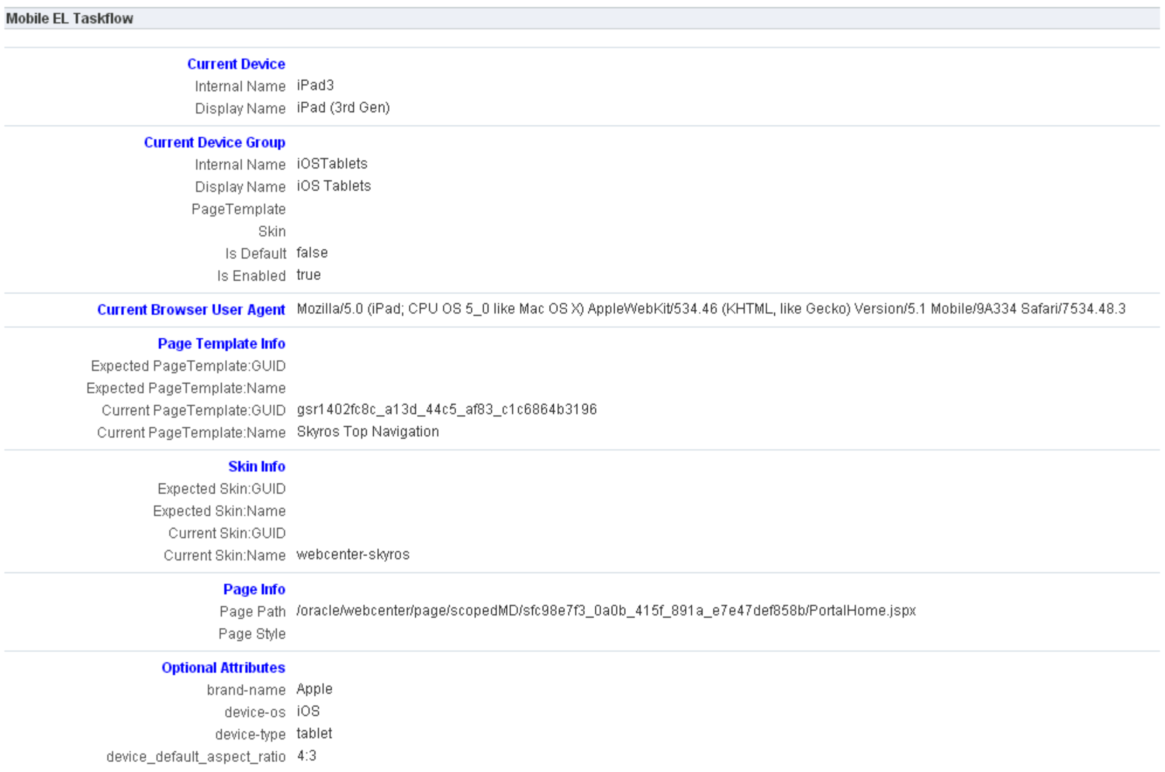
The example below lists a JSF page fragment that can be used to create a task flow for discovering device attributes. EL is used to return the attributes. The task flow may be useful for troubleshooting situations where the portal is not rendering properly on a device. By discovering the device attributes, you can take action to correct the rendering problem. Figure A-6 shows output from a task flow created with this sample code.

Example: Task Flow Code for Discovering Device Attributes

```
<?xml version='1.0' encoding='UTF-8'?>
<jsp:root xmlns:jsp="http://java.sun.com/JSP/Page" version="2.1" xmlns:pe="http://
xmlns.oracle.com/adf/pageeditor" xmlns:cust="http://xmlns.oracle.com/adf/faces/customizable"
xmlns:f="http://java.sun.com/jsf/core" xmlns:af="http://xmlns.oracle.com/adf/faces/rich">
 <af:panelGroupLayout layout="scroll" id="pgl1">
 <cust:panelCustomizable id="pc1"/>
 <f:facet name="separator">
 <af:separator id="s1"/>
 </f:facet>
 <af:panelFormLayout id="pfl1">
 <af:group id="g1">
 <af:panelLabelAndMessage id="it0" label="Current Device" labelStyle="color:#0000ff;font-
weight:bold;"/>
 <af:panelLabelAndMessage id="it1plm" label="Internal Name">
 <af:outputText id="it1" value="#{DeviceAgent.device.name}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="it2plm" label="Display Name">
 <af:outputText id="it2" value="#{DeviceAgent.device.displayName}"/>
 </af:panelLabelAndMessage>
 </af:group>
 <af:group>
 <af:panelLabelAndMessage id="it01" label="Current Device Group" labelStyle="color:#0000ff;font-
weight:bold;"/>
 <af:panelLabelAndMessage id="it3plm" label="Internal Name">
 <af:outputText id="it3" value="#{DeviceAgent.currentScopeDeviceGroup.name}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="it4plm" label="Display Name">
 <af:outputText id="it4" value="#{DeviceAgent.currentScopeDeviceGroup.displayName}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="it5plm" label="PageTemplate">
 <af:outputText id="it5"
value="#{srmContext.id[DeviceAgent.currentScopeDeviceGroup.portalPageTemplate].singleResult.displayNam
e}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="it6plm" label="Skin">
 <af:outputText id="it6"
value="#{srmContext.id[DeviceAgent.currentScopeDeviceGroup.portalSkin].singleResult.displayName}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="it7plm" label="Is Default">
 <af:outputText id="it7" value="#{DeviceAgent.currentScopeDeviceGroup.default}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="it8plm" label="Is Enabled">
 <af:outputText id="it8" value="#{DeviceAgent.currentScopeDeviceGroup.enabled}"/>
 </af:panelLabelAndMessage>
 </af:group>
 <af:group>
 <af:panelLabelAndMessage id="it9plm" label="Current Browser User Agent"
labelStyle="color:#0000ff;font-weight:bold;">
```

```
 <af:outputText id="it9" value="#{DeviceAgent.userAgent}"/>
 </af:panelLabelAndMessage>
 </af:group>
 <af:group>
 <af:panelLabelAndMessage id="pt0" label="Page Template Info" labelStyle="color:#0000ff;font-
weight:bold;"/>
 <af:panelLabelAndMessage id="it010plm" label="Expected PageTemplate:GUID">
 <af:outputText id="it010" value="#{DeviceAgent.currentScopeDeviceGroup.portalPageTemplate}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="it0010plm" label="Expected PageTemplate:Name">
 <af:outputText id="it0010"
value="#{srmContext.id[DeviceAgent.currentScopeDeviceGroup.portalPageTemplate].singleResult.displayNam
e}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="it10plm" label="Current PageTemplate:GUID">
 <af:outputText id="it10"
value="#{WCAppContext.application.siteTemplatesManager.currentSiteTemplateId}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="it10aplm" label="Current PageTemplate:Name">
 <af:outputText id="it10a"
value="#{srmContext.id[WCAppContext.application.siteTemplatesManager.currentSiteTemplateId].singleResu
lt.displayName}"/>
 </af:panelLabelAndMessage>
 </af:group>
 <af:group>
 <af:panelLabelAndMessage id="sk0" label="Skin Info" labelStyle="color:#0000ff;font-weight:bold;"/>
 <af:panelLabelAndMessage id="it0111plm" label="Expected Skin:GUID">
 <af:outputText id="it0111" value="#{DeviceAgent.currentScopeDeviceGroup.portalSkin}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="it0112plm" label="Expected Skin:Name">
 <af:outputText id="it0112"
value="#{srmContext.id[DeviceAgent.currentScopeDeviceGroup.portalSkin].singleResult.displayName}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="it111plm" label="Current Skin:GUID">
 <af:outputText id="it111" value=""/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="it112plm" label="Current Skin:Name">
 <af:outputText id="it112"
value="#{requestScope['oracle.webcenter.webcenterapp.view.shell.WebCenterShellManager.SHELLHANDLER'].a
dfFacesSkin}"/>
 </af:panelLabelAndMessage>
 </af:group>
 <af:group>
 <af:panelLabelAndMessage id="pg0" label="Page Info" labelStyle="color:#0000ff;font-weight:bold;"/>
 <af:panelLabelAndMessage id="pg10" label="Page Path">
 <af:outputText id="pg1" value="#{pageDocBean.pagePath}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="pg20" label="Page Style">
 <af:outputText id="pg2" value=""/>
 </af:panelLabelAndMessage>
 </af:group>
 <af:group>
 <af:panelLabelAndMessage id="ap90" label="Optional Attributes" labelStyle="color:#0000ff;font-
weight:bold;"/>
 <af:panelLabelAndMessage id="ap1opta" label="brand-name">
 <af:outputText id="ap1" value="#{DeviceAgent.device.attributes['brand-name']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap2opta" label="device-os">
 <af:outputText id="ap2" value="#{DeviceAgent.device.attributes['device-os']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap3opta" label="device-type">
 <af:outputText id="ap3" value="#{DeviceAgent.device.attributes['device-type']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap4opta" label="device_default_aspect_ratio">
 <af:outputText id="ap4" value="#{DeviceAgent.device.attributes['device_default_aspect_ratio']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap5opta" label="device_os-version">
 <af:outputText id="ap5" value="#{DeviceAgent.device.attributes['device_os-version']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap6opta" label="device_preview_css">
 <af:outputText id="ap6" value="#{DeviceAgent.device.attributes['device_preview_css']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap7opta" label="device_preview_horizontal_css">
 <af:outputText id="ap7" value="#{DeviceAgent.device.attributes['device_preview_horizontal_css']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap8opta" label="device_preview_viewport_css">
 <af:outputText id="ap8" value="#{DeviceAgent.device.attributes['device_preview_viewport_css']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap9opta" label="device_preview_viewport_horizontal_css">
 <af:outputText id="ap9"
value="#{DeviceAgent.device.attributes['device_preview_viewport_horizontal_css']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap10opta" label="device_streaming_flv">
 <af:outputText id="ap10" value="#{DeviceAgent.device.attributes['device_streaming_flv']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap11opta" label="device_streaming_preferred_http_protocol">
 <af:outputText id="ap11"
value="#{DeviceAgent.device.attributes['device_streaming_preferred_http_protocol']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap12opta" label="device_streaming_preferred_protocol">
 <af:outputText id="ap12"
value="#{DeviceAgent.device.attributes['device_streaming_preferred_protocol']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap13opta" label="device_video_streaming">
 <af:outputText id="ap13" value="#{DeviceAgent.device.attributes['device_video_streaming']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap14opta" label="display_orientation_support">
 <af:outputText id="ap14" value="#{DeviceAgent.device.attributes['display_orientation_support']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap15opta" label="display_resolution_height">
 <af:outputText id="ap15" value="#{DeviceAgent.device.attributes['display_resolution_height']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap16opta" label="display_resolution_width">
 <af:outputText id="ap16" value="#{DeviceAgent.device.attributes['display_resolution_width']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap17opta" label="is-wireless_device">
 <af:outputText id="ap17" value="#{DeviceAgent.device.attributes['is-wireless_device']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap18opta" label="marketing-name">
 <af:outputText id="ap18" value="#{DeviceAgent.device.attributes['marketing-name']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap19opta" label="model-name">
 <af:outputText id="ap19" value="#{DeviceAgent.device.attributes['model-name']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap20opta" label="model-version">
 <af:outputText id="ap20" value="#{DeviceAgent.device.attributes['model-version']}"/>
 </af:panelLabelAndMessage>
 <af:panelLabelAndMessage id="ap21opta" label="icon">
 <af:outputText id="ap21" value="#{DeviceAgent.device.attributes['icon']}"/>
 </af:panelLabelAndMessage>
 </af:group>
 </af:panelFormLayout>
 </af:panelGroupLayout>
</jsp:root>
```

Figure A-6   Output from Sample Task Flow



Mobile EL Taskflow

Current Device	
Internal Name	iPad3
Display Name	iPad (3rd Gen)
Current Device Group	
Internal Name	iOSTablets
Display Name	iOS Tablets
PageTemplate	
Skin	
Is Default	false
Is Enabled	true
Current Browser User Agent	Mozilla/5.0 (iPad; CPU OS 5_0 like Mac OS X) AppleWebKit/534.46 (KHTML, like Gecko) Version/5.1 Mobile/9A334 Safari/7534.48.3
Page Template Info	
Expected PageTemplate:GUID	
Expected PageTemplate:Name	
Current PageTemplate:GUID	gsr1402fc8c_a13d_44c5_af83_c1c6864b3196
Current PageTemplate:Name	Skyros Top Navigation
Skin Info	
Expected Skin:GUID	
Expected Skin:Name	
Current Skin:GUID	
Current Skin:Name	webcenter-skyros
Page Info	
Page Path	/oracle/webcenter/page/scopedMD/sfc98e7f3_0a0b_415f_891a_e7e47def858b/PortalHome.jspx
Page Style	
Optional Attributes	
brand-name	Apple
device-os	iOS
device-type	tablet
device_default_aspect_ratio	4:3

Utilitarian EL Expressions

The following table lists utilitarian EL expressions and describes the types of functionality they provide.

Table A-19   Utilitarian EL Expressions

Expression	Function
`#{userPreferences.currentDate}`	Returns the current date in the format specified in the current user's preferences.
`#{WCTruncator['`*`text`*`']['`*`numberOfChars`*`']}`	Returns a truncation of the string specified as `text` to the number of characters specified as `numberOfChars`, followed by a trailing ellipsis, for example: `#{WCTruncator['abracadabra']['5']}` evaluates to *abrac...*

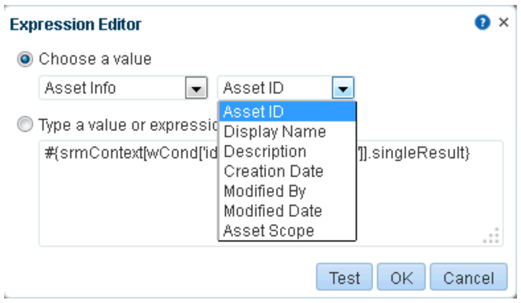
Table A-19 (Cont.) Utilitarian EL Expressions

Expression	Function
`#{facesContext.viewRoot.locale}` `#{facesContext.externalContext.requestLocale}`	Both of these expressions return the request locale (that is, the browser locale setting).
`#{adfFacesContext.skinFamily}`	Returns the current application skin family. Returns the same value as `#{requestContext.skinFamily}`.

Built-In Expressions in the Expression Editor

In the Expression Editor, when you select the option **Choose a value** you can populate the text box in the dialog with a built-in EL expression. Select an expression category, then select the type of information you want the expression to return. Your selection's associated EL appears in the text box at the bottom of the dialog.

Figure A-7 Options Under Choose a value in the Expression Editor



```
#{srmContext[wCond['id ... ']].singleResult}
```

This section is organized into subsections that list and describe the ELs associated with each category.

- Application Info Built-In ELs
- Asset Info Built-In ELs
- Page Info Built-In ELs
- Page Parameter Built-In ELs
- Portal Info Built-In ELs
- Portal Page Info Built-In Paths
- System Built-In ELs
- User Info Built-In ELs
- WebCenter Events Built-In ELs

Application Info Built-In ELs

Application Info built-in EL expressions return values related to Oracle WebCenter Portal. For example, the expression

`#{WCAppContext.application.applicationConfig.title}`, returns the application name specified on the General page in WebCenter Portal administration.

See Also:

For additional EL expressions related to the application, see ELs Related to WebCenter Portal Information.

Table A-20 lists the built-in EL expressions available under the category Application Info and provides an example of the types of values they return.

Table A-20 Built-In EL Expressions Under Application Info

Option	Expression	Example of Returned Value
Current Scope	`#{serviceCtx.scope}`	`Scope[name=standards, guid=sa78185d3_9d65_49ab_ac1d_4809380d0b30]`
Current Page Template Scope	`#{WCAppContext.currentScope}`	`Scope[name=standards, guid=sa78185d3_9d65_49ab_ac1d_4809380d0b30]`
Previously Set Page Template	`#{WCAppContext.previouslySetPageTemplate}`	`Fusion Side Navigation`
Application	`#{WCAppContext.application}`	`oracle.webcenter.webcenterapp.internal.view.shell.WCApplication`
Application URL	`#{WCAppContext.applicationURL}`	`http://`*`host`*`:`*`port`*`/webcenter`
Current WebCenter Portal URI	`#{WCAppContext.currentWebCenterURI}`	`/oracle/webcenter/page/scopedMD/`*`GUID`*`/businessRolePages/Page3.jspx?wc.contextURL=%2Fspaces`
Application Config	`#{WCAppContext.application.applicationConfig}`	`oracle.webcenter.webcenterapp.beans.WebCenterMetadataImpl@123db9d`
Application Config Title	`#{WCAppContext.application.applicationConfig.title}`	`WebCenter`
Application Config Logo	`#{WCAppContext.application.applicationConfig.logo}`	`/oracle/webcenter/webcenterapp/metadata/images/logo.gif`
Application Config HelpPage	`#{WCAppContext.application.applicationConfig.helpPage}`	`/webcenterhelp/spaces?topic=welcome_main`
Application Config CopyrightMessage CustomValue	`#{WCAppContext.application.applicationConfig.copyrightMessage.customValue}`	`http://www.example.com/html/copyright.html`
Application Config Privacy Policy URL	`#{WCAppContext.application.applicationConfig.privacyPolicyUrl}`	`http://www.example.com/html/privacy.html`

Table A-20 (Cont.) Built-In EL Expressions Under Application Info

Option	Expression	Example of Returned Value
Application Config Skin	`#{WCAppContext.application.applicationConfig.skin}`	`webcenterfx`

For example, consider that you want a link to appear in all pages of a portal that lets you copy and share the current page's URL. You can add an HTML Markup item to a page template, and add the EL that returns page URL.

These steps demonstrate how to use ELs to retrieve page URLs:

1. Open a custom page template in Edit mode.
2. In Design view, in the resource catalog, click **Web Development**.
3. Click **Add** next to **HTML Markup**.
4. Click the Edit icon for the newly added HTML Markup.
5. In the Component Properties dialog, on the **Display Options** tab, in the **Value** field, enter the following EL:

```
<a href="javascript:{
 var returnvalue =prompt( '#{pageDocBean.title}
URL','#{WCAppContext.applicationURL}/faces#{WCAppContext.currentWebCenterURI}');
}">Share Link</a>
```

6. Click **OK**.
7. Apply the page template to your portal.

Asset Info Built-In ELs

Asset Info built-in EL expressions return values related to WebCenter Portal resources, such as templates, styles, resource catalogs, and so on. For example, the expression `#{srmContext.id['`*`ResourceID`*`'].singleResult}`, returns the asset with the specified GUID.

See Also:

For additional asset-related EL expressions, see ELs Related to Assets.

Table A-21 lists the built-in EL expressions available under the category Asset Info and provides an example of the types of values each returns.

Table A-21   Built-In EL Expressions Under Asset Info

Option	Expression	Example of Returned Value
Asset ID	`#{srmContext[wCond['id']['like']['`*`ResourceID`*`']].singleResult}`	`id:gsr3396194a_3a72_44d6_90b4_57fd6efe4ff7 resourceScope:Scope[name=default Scope, guid=s8bba98ff_4cbb_40b8_beee_296c916a23ed] resourceType:siteTemplate serviceId:oracle.webcenter.siteresources.sitetemplate category: displayName:Fusion Side Navigation displayNameKey:SITE_TEMPLATE_FUS_SIDE_STRETCH_NAV_DN description:Stretching Page Layout with Side Navigation. Use Fusion FX Skin. descriptionKey:SITE_TEMPLATE_FUS_SIDE_STRETCH_NAV_DESC contentDirectory:/oracle/webcenter/siteresources/shared metadataFile: jspx:/oracle/webcenter/webcenterapp/view/templates/WCSiteTemplateSideNavStretch.jspx pageDef:/oracle/webcenter/webcenterapp/bindings/pageDefs/oracle_webcenter_webcenterapp_view_templates_WCSiteTemplateSideNavStretchPageDef.xml iconURI: excludeFrom: usesCustomSecurity:false visible:TRUE seeded:true createdBy:system createdDate:Fri Jul 02 05:44:19 PDT 2010 modifiedBy:system resourceBundle:oracle.webcenter.sitetemplate.view.resource.SiteTemplateBundle modifiedDate:Fri Jul 02 05:44:19 PDT 2010 logoUrl:/adf/webcenter/srm_dflt_logo_qualifier.png attributes:[]`
Display Name	`#{srmContext[wCond['displayName']['like']['`*`DisplayName`*`']].singleResult}`	See Asset ID for an example of a returned value.
Description	`#{srmContext[wCond['description']['like']['`*`Description`*`']].singleResult}`	See Asset ID for an example of a returned value.

Table A-21 (Cont.) Built-In EL Expressions Under Asset Info

Option	Expression	Example of Returned Value
Creation Date	`#{srmContext[wCond['createdDate']['like']['`*`CreationDate`*`']].singleResult}`	See Asset ID for an example of a returned value.
Modified By	`#{srmContext[wCond['modifiedBy']['like']['`*`UserName`*`']].singleResult}`	See Asset ID for an example of a returned value.
Modified Date	`#{srmContext[wCond['modifiedDate']['like']['`*`ModifiedDate`*`']].singleResult}`	See Asset ID for an example of a returned value.
Asset Scope	`#{srmContext[wCond['resourceScope']['like']['`*`ResourceScope`*`']].singleResult}`	See Asset ID for an example of a returned value.

Page Info Built-In ELs

Page Info built-in EL expressions return values related to WebCenter Portal pages. For example, the expression `#{pageDocBean.createdBy}`, returns the user name of the person who created the current page.

Table A-22 lists the built-in EL expressions available under the category Page Info and provides an example of the types of values each returns.

Table A-22 Built-In EL Expressions Under Page Info

Option	Expression	Example of Returned Value
Title	`#{pageDocBean.title}`	`Welcome Page (BRP)`
Created By	`#{pageDocBean.createdBy}`	`j.doe`
Create Date String	`#{pageDocBean.createDateString}`	`2010-11-17T13:27:52`
Last Updated By	`#{pageDocBean.lastUpdatedBy}`	`j.smith`
Last Update Date String	`#{pageDocBean.lastUpdateDateString}`	`2010-11-17T13:27:52`
Page Path	`#{pageDocBean.pagePath}`	`/oracle/webcenter/page/scopedMD/`*`GUID`*`/businessRolePages/Page3.jspx`
Name	`#{pageDocBean.name}`	`Page3.jspx`
UI CSS Style	`#{pageDocBean.UICSSStyle}`	`WCSchemeCustom`
UI Scheme BG Image	`#{pageDocBean.UISchemeBGImage}`	`#{facesContext.externalContext.requestContextPath}/adf/oracle/webcenter/page/images/clouds.png`

Table A-22 (Cont.) Built-In EL Expressions Under Page Info

Option	Expression	Example of Returned Value
UI Scheme BG Color String	`#{pageDocBean.UISchemeBGColorString}`	`null`
Page Permission	`#{pageDocBean.pagePermission}`	`oracle.webcenter.page.model.security.CustomPagePermission`
Page Security Target	`#{pageDocBean.pageSecurityTarget}`	`oracle_webcenter_page_scopedMD_sa78185d3_9d65_49ab_ac1d_4809380d0b30_COIHomePageDef`

Page Parameter Built-In ELs

Page Parameter built-in EL expressions return values related to WebCenter Portal page parameters. The editor lists all parameters that are defined for the current page. If no parameters are defined, the Page Parameter category is not available.

For example, the built-in page style **Blog** provides five built-in page parameters (see Table A-23). The `width` parameters describe the percentage of total width allotted to each column. The `show` parameters specify whether a page header and footer are rendered. Any page may have its own custom page parameters.

Whether built-in or custom, available page parameters are exposed in the Expression Editor under the Page Parameter category.

See Also:

For more information about creating and using page parameters, see Adding or Modifying Page Parameters in *Building Portals with Oracle WebCenter Portal*.

Table A-23 lists the EL expressions available under the Page Parameter category for pages based on the Blog page style. It provides an example of the types of values each parameter returns.

Table A-23 Built-In EL Expressions Under Page Parameter

Option	Expression	Example of Returned Value
leftWidth	`#{bindings.leftWidth}`	`25%`
centerWidth	`#{bindings.centerWidth}`	`50%`
rightWidth	`#{bindings.rightWidth}`	`25%`
showHeader	`#{bindings.showHeader}`	`false`
showFooter	`#{bindings.showFooter}`	`false`

Portal Info Built-In ELs

Portal Info built-in EL expressions return values related to portals (other than the Home portal). For example, the expression `#{spaceContext.space}`, returns the name of the current portal.

See Also:

For additional portal-related EL expressions, see ELs Related to Specific Portals.

Table A-24 lists the built-in EL expressions available under the category Portal Info and provides an example of the types of values each returns.

Note:

Use the EL expressions listed in Table A-24only in the context of portals other than the Home portal.

Table A-24 Built-In EL Expressions Under Portal Info

Option	Expression	Example of Returned Value
NamedPortal	`#{spaceContext.space['`*`portal Name`*`']}`	`oracle.webcenter.spaces.internal.model.SpaceImpl@15fc839`
CurrentPortal	`#{spaceContext.currentSpace}`	`oracle.webcenter.spaces.internal.model.SpaceImpl@d5e197`
CurrentPortal Name	`#{spaceContext.currentSpaceName}`	`standards`
NamedPortal Metadata Path	`#{spaceContext.space['`*`portal Name`*`'].metadataPath}`	`/oracle/webcenter/space/metadata/spaces/portalName/space.xml`
CurrentPortal Metadata Path	`#{spaceContext.currentSpace.metadataPath}`	`/oracle/webcenter/space/metadata/spaces/standards/space.xml`
NamedPortal Metadata	`#{spaceContext.space['`*`portal Name`*`'].metadata}`	`oracle.webcenter.spaces.beans.SpaceMetadataImpl@1d7320a`
CurrentPortal Metadata	`#{spaceContext.currentSpace.metadata}`	`oracle.webcenter.spaces.beans.SpaceMetadataImpl@1096c64`
NamedPortal Metadata DisplayName	`#{spaceContext.space['`*`portal Name`*`'].metadata.displayName}`	`Standards`
CurrentPortal Metadata DisplayName	`#{spaceContext.currentSpace.GSMetadata.displayName}`	`Sales`

Table A-24 (Cont.) Built-In EL Expressions Under Portal Info

Option	Expression	Example of Returned Value
NamedPortal Metadata Icon	`#{WCPrepareImageURL[spaceContext.space['portalName'].metadata.icon]['']}`	`/webcenter-spaces-resources/oracle/webcenter/space/metadata/spacetemplate/PortalSite/images/portal_icon.png`
CurrentPortal Metadata Icon	`#{WCPrepareImageURL[spaceContext.currentSpace.metadata.icon]['']}`	`/webcenter-spaces-resources/oracle/webcenter/space/metadata/spaces/Test_Space/images/wc_prj_icon.png`
NamedPortal Metadata Description	#{spaceContext.space['*portalName*'].metadata.description}	`Central point for all standards, templates, and stylesheets for company collateral`
CurrentPortal Metadata Description	`#{spaceContext.currentSpace.GSMetadata.description}`	`Sales Force Team Site`
NamedPortal Metadata CreationDate	#{spaceContext.space['*portalName*'].metadata.creationDate}	`java.util.GregorianCalendar[time=1290103432242,areFieldsSet=true,areAllFieldsSet=false,lenient=false,zone=java.util.SimpleTimeZone[id=,offset=-28800000,dstSavings=3600000,useDaylight=false,startYear=0, startMode=0,startMonth=0,startDay=0,startDayOfWeek=0,startTime=0,startTimeMode=0,endMode=0,endMonth=0,endDay=0,endDayOfWeek=0,endTime=0,endTimeMode=0],firstDayOfWeek=1,minimalDaysInFirstWeek=1,ERA=1, YEAR=2010,MONTH=10,WEEK_OF_YEAR=?,WEEK_OF_MONTH=?,DAY_OF_MONTH=18,DAY_OF_YEAR=?,DAY_OF_WEEK=?,DAY_OF_WEEK_IN_MONTH=?,AM_PM=0,HOUR=10,HOUR_OF_DAY=10,MINUTE=3,SECOND=52,MILLISECOND=242,ZONE_OFFSET=?,DST_OFFSET=?]`

Table A-24 (Cont.) Built-In EL Expressions Under Portal Info

Option	Expression	Example of Returned Value
CurrentPortal Metadata CreationDate	#{spaceContext.currentSpace.metadata.creationDate}	`java.util.GregorianCalendar[time=1290103432242,areFieldsSet=true,areAllFieldsSet=false,lenient=false,zone=java.util.SimpleTimeZone[id=,offset=-28800000,dstSavings=3600000,useDaylight=false,startYear=0, startMode=0,startMonth=0,startDay=0,startDayOfWeek=0,startTime=0,startTimeMode=0,endMode=0,endMonth=0,endDay=0,endDayOfWeek=0,endTime=0,endTimeMode=0],firstDayOfWeek=1,minimalDaysInFirstWeek=1,ERA=1,YEAR=2010,MONTH=10, WEEK_OF_YEAR=?,WEEK_OF_MONTH=?,DAY_OF_MONTH=18,DAY_OF_YEAR=?,DAY_OF_WEEK=?,DAY_OF_WEEK_IN_MONTH=?,AM_PM=0,HOUR=10,HOUR_OF_DAY=10,MINUTE=3,SECOND=52,MILLISECOND=242,ZONE_OFFSET=?,DST_OFFSET=?]`
NamedPortal Metadata CreatedBy	`#{spaceContext.space['`*`portalName`*`'].metadata.createdBy}`	`j.doe`
NamedPortal Metadata Keywords	`#{spaceContext.space['`*`portalName`*`'].metadata.keywords}`	`standards templates style sheets collateral`
CurrentPortal Metadata Keywords	`#{spaceContext.currentSpace.metadata.keywords}`	`sales salesReports salesNews salesTeam`
NamedPortal Metadata Offline	`#{spaceContext.space['`*`portalName`*`'].metadata.offline}`	`false` or `true`, depending on whether the named portal is offline
CurrentPortal Metadata Offline	`#{spaceContext.currentSpace.metadata.offline}`	`false` or `true`, depending on whether the current portal is offline
NamedPortal Metadata Closed	`#{spaceContext.space['`*`portalName`*`'].metadata.offline}`	`false` or `true`, depending on whether the named portal is closed
CurrentPortal Metadata Closed	`#{spaceContext.currentSpace.metadata.closed}`	`false` or `true`, depending on whether the current portal is closed
NamedPortal Metadata SelfRegistration	`#{spaceContext.space['`*`portalName`*`'].metadata.selfRegistration}`	`false` or `true`, depending on whether self registration is enabled for the named portal
CurrentPortal Metadata SelfRegistration	`#{spaceContext.currentSpace.metadata.selfRegistration}`	`false` or `true`, depending on whether self registration is enabled for the current portal
NamedPortal Metadata Discoverable	`#{spaceContext.space['`*`portalName`*`'].metadata.discoverable}`	`false` or `true`, depending on whether the named portal is discoverable

Table A-24 (Cont.) Built-In EL Expressions Under Portal Info

Option	Expression	Example of Returned Value
CurrentPortal Metadata Discoverable	`#{spaceContext.currentSpace.metadata.discoverable}`	`false` or `true`, depending on whether the current portal is discoverable
NamedPortal Metadata PublishRSS	`#{spaceContext.space['`*`portalName`*`'].metadata.publishRSS}`	`false` or `true`, depending on whether the named portal can be published in an RSS reader
CurrentPortal Metadata PublishRSS	`#{spaceContext.currentSpace.metadata.publishRSS}`	`false` or `true`, depending on whether the current portal can be published in an RSS reader
NamedPortal Distribution List	`#{spaceContext.space['`*`portalName`*`'].distributionList}`	`standardsGroup@myCompany.com`
CurrentPortal Distribution List	`#{spaceContext.currentSpace.distributionList}`	`salesTeam@myCompany.com`
NamedPortal Metadata CustomAttributes	`#{spaceContext.space['`*`portalName`*`'].metadata.customAttributes['`*`attributeName`*`']}`	Returns the value provided for the named custom attribute **Note:** If you use this EL to provide a value for a field in WebCenter Portal Administration, clicking the **Test** button may return a blank value. However, the value will resolve correctly in the running portal.
CurrentPortal Metadata CustomAttributes	`#{spaceContext.currentSpace.metadata.customAttributes['`*`attributeName`*`']}`	Returns the value provided for the named custom attribute **Note:** If you use this EL to provide a value for a field in WebCenter Portal Administration, clicking the **Test** button may return a blank value. However, the value will resolve correctly in the running portal.
CurrentPortal Metadata Logo	`#{WCPrepareImageURL[spaceContext.currentSpace.metadata.logo]['']}`	`/webcenter-spaces-resources/oracle/webcenter/space/metadata/spacetemplate/PortalSite/images/portal_logo.png`
CurrentPortal Role - Portal Manager	`#{WCSecurityContext.userInScopedRole['Moderator']}`	`false` or `true`, depending whether any users in the current scope are assigned the role `Portal Manager`
CurrentPortal Role - Participant	#{WCSecurityContext.userInScopedRole['Participant']}	false or true, depending whether any users in the current scope are assigned the role Participant
CurrentPortal Role - Viewer	#{WCSecurityContext.userInScopedRole['Viewer']}	false or true, depending whether any users in the current scope are assigned the role Viewer
CurrentPortal Role - Custom	`#{WCSecurityContext.userInScopedRole['`*`CustomRole`*`']}`	`false` or `true`, depending on if any users in the current scope are assigned the named custom role

Table A-24 (Cont.) Built-In EL Expressions Under Portal Info

Option	Expression	Example of Returned Value
NamedPortal Children	`#{spaceContext.space['`*`portalName`*`'].children}`	`[oracle.webcenter.spaces.internal.model.SpaceImpl@5705f4, oracle.webcenter.spaces.internal.model.SpaceImpl@147d658]` **Note:** The braces ([]) denote a set.
CurrentPortal Children	`#{spaceContext.currentSpace.children}`	`[oracle.webcenter.spaces.internal.model.SpaceImpl@5705f4, oracle.webcenter.spaces.internal.model.SpaceImpl@147d658]` **Note:** The braces ([]) denote a set.
NamedPortal Parent	`#{spaceContext.space['`*`portalName`*`'].parent}`	`oracle.webcenter.spaces.internal.model.SpaceImpl@15fc839`
CurrentPortal Parent	`#{spaceContext.currentSpace.parent}`	`oracle.webcenter.spaces.internal.model.SpaceImpl@15fc839`
NamedPortal Security Parent	`#{spaceContext.space['`*`portalName`*`'].securityParent}`	`oracle.webcenter.spaces.internal.model.SpaceImpl@1392793`
CurrentPortal Security Parent	`#{spaceContext.currentSpace.securityParent}`	`oracle.webcenter.spaces.internal.model.SpaceImpl@1392793`
All visible root level spaces	`#{spaceContext.spacesQuery.unionOf['ALL_QUERIABLE,DISCOVERABLE,PUBLIC_ACCESSIBLE,ALLUSER_ACCESSIBLE,USER_JOINED,USER_MODERATED'].shape['ROOT_LEVEL']}`	`oracle.webcenter.spaces.query.SpacesQueryParameters@ae34c8`
All children and descendent portals for specified Parent Portal GUID	`#{spaceContext.spacesQuery.parentSpaceGuid['`*`portalGuid`*`'].shape['RECURSIVE_FLATTENED']}`	oracle.webcenter.spaces.query.SpacesQueryParameters@4da22f
Immediate Subportals for specified Parent Portal name	`#{spaceContext.spacesQuery.parentSpaceName['`*`portalGuid`*`'].shape['ROOT_LEVEL']}`	oracle.webcenter.spaces.query.SpacesQueryParameters@1089971
List of Portals matching given Portal Names	`#{spaceContext.spacesQuery.containingNames['`*`portal1, portal2,portal3`*`']}`	`oracle.webcenter.spaces.query.SpacesQueryParameters@68e467`
List of Portals matching given Portal GUID	`#{spaceContext.spacesQuery.containingGuids['`*`portalGuid1, portalGuid2`*`']}`	`oracle.webcenter.spaces.query.SpacesQueryParameters@1c56009`

Table A-24 (Cont.) Built-In EL Expressions Under Portal Info

Option	Expression	Example of Returned Value
List of Portals sorted based on criteria	`#{spaceContext.spacesQuery.unionOf.ALL_QUERIABLE.sort['sp.lastUpdateDate']['desc']}`	`oracle.webcenter.spaces.query.SpacesQueryParameters@6c3def`
List of Portals based on search pattern	`#{spaceContext.spacesQuery.unionOf.ALL_QUERIABLE.search['`*`searchKeyword`*`']}`	`oracle.webcenter.spaces.query.SpacesQueryParameters@19b2cf3`
List of Portals with limited page size	`#{spaceContext.spacesQuery.unionOf.USER_JOINED.itemsPerPage[`*`n`*`].pageNumber[`*`n`*`]}`	`oracle.webcenter.spaces.query.SpacesQueryParameters@4f8818`
List of portals matching the where clause	`#{spaceContext.spacesQuery.unionOf.USER_JOINED.where[wCond['sp.createdBy']['='] ['userName']]}`	`oracle.webcenter.spaces.query.SpacesQueryParameters@1ba816d`

Portal Page Info Built-In Paths

Rather than EL expressions, the selections under Portal Page Info are directory paths to different application pages. Use them, for example, to provide navigation information to a specified page.

Table A-25 lists the built-in directory paths available under the category Portal Page Info and provides an example of the types of values each returns. The number of values in the dropdown list depends on the template used and the pages created by users.

Table A-25 Built-In Paths Under Portal Page Info

Option	Path	Destination
PortalSiteHome.jspx	`/faces/oracle/webcenter/page/scopedMD/se2dff4fb_202a_4f4c_b56d_c7cf59ad1c04/PortalSiteHome.jspx`	Path to the Home page of the current portal
GroupSpaceDocLibMainView.jspx	`/faces/oracle/webcenter/page/scopedMD/s8bba98ff_4cbb_40b8_beee_296c916a23ed/businessRolePages/GroupSpaceDocLibMainView.jspx`	Path to the Documents page in the current portal
ListsMainView.jspx	`/faces/oracle/webcenter/page/scopedMD/s8bba98ff_4cbb_40b8_beee_296c916a23ed/businessRolePages/ListsMainView.jspx`	Path to Lists page in current portal

Table A-25 (Cont.) Built-In Paths Under Portal Page Info

Option	Path	Destination
EventsMainView.jspx	`/faces/oracle/webcenter/page/scopedMD/s8bba98ff_4cbb_40b8_beee_296c916a23ed/businessRolePages/EventsMainView.jspx`	Path to Events page in current portal
GroupSpaceActivityStreamMainView.jspx	`/faces/oracle/webcenter/page/scopedMD/s8bba98ff_4cbb_40b8_beee_296c916a23ed/businessRolePages/GroupSpaceActivityStreamMainView.jspx`	Path to Activity Stream page in current portal

System Built-In ELs

System built-in EL expressions return values related to system settings, such as the user name of the current user or the current user's specified locale. For example, the expression `#{securityContext.userName}`, returns the name of the currently logged in user. For example, if user j.doe is viewing a page where this expression is used, the returned value in j.doe's view is `j.doe`. If user j.smith is looking at the same page, the value returned in j.smith's view is `j.smith`.

See Also:

For additional utilitarian EL expressions, see Utilitarian EL Expressions.

Table A-26 lists the built-in EL expressions available under the category System and provides an example of the types of values each returns.

Table A-26 Built-In EL Expressions Under System

Option	Expression	Example of Returned Value
User	`#{securityContext.userName}`	The current user's user name
Locale	`#{facesContext.externalContext.requestLocale}`	The current user's specified locale This may be taken from application or portal-level settings or user Preferences, whichever is taking precedence. For example: `en_US`

User Info Built-In ELs

User Info built-in EL expressions return values related to a given user's Profile. For example, the expression `#{webCenterProfile[securityContext.userName].description}`, returns the content of the About Me attribute of the current user's Profile.

See Also:

For additional user-related expressions, see ELs Related to People Connections.

Table A-27 lists the built-in EL expressions available under the category User Info and provides an example of the types of values each returns.

Table A-27 Built-In EL Expressions Under User Info

Option	Expression	Example of Returned Value
About Me	`#{webCenterProfile[securityContext.userName].description}`	Returns the content of the About Me attribute of the current user's Profile. This value is associated with the LDAP attribute, `description`.
Username	`#{webCenterProfile[securityContext.userName].userName}`	The user name specified in the current user's Profile. The user's login id.
First Name	`#{webCenterProfile[securityContext.userName].firstName}`	The current user's first name. This value is associated with the LDAP attribute, `givenName`.
Middle Name	`#{webCenterProfile[securityContext.userName].middleName}`	The current user's middle name. This value is associated with the LDAP attribute, `middleName`.
Last Name	`#{webCenterProfile[securityContext.userName].lastName}`	The current user's last name. This value is associated with the LDAP attribute, `sn`.
Initials used	`#{webCenterProfile[securityContext.userName].initials}`	The current user's initials. This value is associated with the LDAP attribute, `initials`.
Display Name	`#{webCenterProfile[securityContext.userName].displayName}`	The current user's display name. This value is associated with the LDAP attribute, `displayName`.
Email	`#{webCenterProfile[securityContext.userName].businessEmail}`	The current user's business email address. This value is associated with the LDAP attribute, `mail`.
Department	`#{webCenterProfile[securityContext.userName].department}`	The current user's department. This value is associated with the LDAP attribute, `departmentNumber`.
Job Title/ Designation	`#{webCenterProfile[securityContext.userName].title}`	The current user's job title or designation. This value is associated with the LDAP attribute, `title`.

Table A-27 (Cont.) Built-In EL Expressions Under User Info

Option	Expression	Example of Returned Value
Manager	`#{webCenterProfile[securityContext.userName].managerDisplayName}`	The current user's manager's display name. This value is associated with the LDAP attribute, `manager`.
Time zone	`#{webCenterProfile[securityContext.userName].timeZone}`	The time zone associated with the current user. This value is associated with the LDAP attribute, `orclTimeZone`.
Employee type	`#{webCenterProfile[securityContext.userName].employeeType}`	The current user's employee type. This value is associated with the LDAP attribute, `employeeType`.
Employee Number	`#{webCenterProfile[securityContext.userName].employeeNumber}`	The current user's employee number. This value is associated with the LDAP attribute, `employeeNumber`.
Preferred Language Code	`#{webCenterProfile[securityContext.userName].preferredLanguage}`	The current user's preferred language. This value is associated with the LDAP attribute, `preferredLanguage`.
Organization	`#{webCenterProfile[securityContext.userName].organization}`	The company organization to which the current user belongs. This value is associated with the LDAP attribute, `o`.
Organizational Unit	`#{webCenterProfile[securityContext.userName].organizationalUnit}`	The unit of the company organization to which the current user belongs. This value is associated with the LDAP attribute, `ou`.
Business Fax	`#{webCenterProfile[securityContext.userName].businessFax}`	The current user's business fax number. This value is associated with the LDAP attribute, `facsimileTelephoneNumber`.
Business Mobile Number	`#{webCenterProfile[securityContext.userName].businessMobile}`	The current user's business mobile or cell phone number. This value is associated with the LDAP attribute, `mobile`.
Business Phone	`#{webCenterProfile[securityContext.userName].businessPhone}`	The current user's business phone number. This value is associated with the LDAP attribute, `telephoneNumber`.
Business Pager Number	`#{webCenterProfile[securityContext.userName].businessPager}`	The current user's business pager number. This value is associated with the LDAP attribute, `pager`.
Business Street	`#{webCenterProfile[securityContext.userName].businessStreet}`	The street address of the current user's business office. This value is associated with the LDAP attribute, `street`.
Business City	`#{webCenterProfile[securityContext.userName].businessCity}`	The city where the current user's business office is located. This value is associated with the LDAP attribute, `l`.
Business State	`#{webCenterProfile[securityContext.userName].businessState}`	The state where the current user's business office is located. This value is associated with the LDAP attribute, `st`.

Table A-27 (Cont.) Built-In EL Expressions Under User Info

Option	Expression	Example of Returned Value
Business PO Box	`#{webCenterProfile[securityContext.userName].businessPOBox}`	The current user's business Post Office Box number. This value is associated with the LDAP attribute, `postOfficeBox`.
Business Postal Code	`#{webCenterProfile[securityContext.userName].businessPostalCode}`	The postal or ZIP code of the current user's business office. This value is associated with the LDAP attribute, `postalCode`.
Business Country	`#{webCenterProfile[securityContext.userName].businessCountry}`	The country where the current user's business office is located. This value is associated with the LDAP attribute, `c`.
Home Address	`#{webCenterProfile[securityContext.userName].homeAddress}`	The current user's home address. This value is associated with the LDAP attribute, `homePostalAddress`.
Home phone	`#{webCenterProfile[securityContext.userName].homePhone}`	The current user's home phone number. This value is associated with the LDAP attribute, `homePhone`.
Date of Birth	`#{webCenterProfile[securityContext.userName].dateofBirth}`	The current user's date of birth. This value is associated with the LDAP attribute, `orclDateOfBirth`.
Maiden Name	`#{webCenterProfile[securityContext.userName].maidenName}`	The current user's maiden name. This value is associated with the LDAP attribute, `orclMaidenName`.
Date of hire	`#{webCenterProfile[securityContext.userName].dateofHire}`	The date the current user was hired by the company. This value is associated with the LDAP attribute, `orclHireDate`.
Wireless Account Number	`#{webCenterProfile[securityContext.userName].wirelessAcctNumber}`	The account number for the current user's wireless internet account. This value is associated with the LDAP attribute, `orclWirelessAccountNumber`.

WebCenter Events Built-In ELs

WebCenter Events built-in EL expressions return values related to document-related events, such as the name of the selected document, the document's creator, the date the document was last modified, and so on. For example, the expression `#{wcEventContext.events.WebCenterResourceSelected.name}`, returns the name of the currently selected document.

Table A-28 lists the built-in EL expressions available under the category WebCenter Events and provides an example of the types of values each returns.

Table A-28 Built-In EL Expressions Under WebCenter Events

Option	Expression	Example of Returned Value
Selected User Name	`#{wcEventContext.events.WebCenterUserSelected.UserName}`	The user name of the currently selected user

Table A-28 (Cont.) Built-In EL Expressions Under WebCenter Events

Option	Expression	Example of Returned Value
Selected Document Name	`#{wcEventContext.events.WebCenterResourceSelected.name}`	The name of the currently selected document
Selected Document Creator	`#{wcEventContext.events.WebCenterResourceSelected.createdBy}`	The name of the user who created the currently selected document
Selected Document Last Modified By	`#{wcEventContext.events.WebCenterResourceSelected.lastModifiedBy}`	The date the selected document was last modified

Desupport of Freeform JPQL WHERE and SORT Clauses in Portal Queries

In WebCenter Portal, if you have introduced an EL expression for querying portals based on a JPQL `WHERE` clause, you should know that the freeform JPQL `WHERE` clause is desupported. Instead, use a structured `WHERE` clause. Freeform `SORT` clauses are also desupported. Instead, specify sort criteria on a portal query in a structured way.

For example, suppose that you have used the following syntax to form a `WHERE` clause on a portal query:

```
#{spaceContext.spacesQuery.unionOf['ALL_QUERIABLE'].whereClause['sp.keywords like
\'forquery%\' and not
(sp.discoverable is null or sp.discoverable =\'N\')'].listSpaces}
```

Going forward, you must use the following syntax to form a `WHERE` clause:

```
#{spaceContext.spacesQuery.unionOf['ALL_QUERIABLE'].where[wCond['sp.keywords']
['like']['forquery']['and'][wCond['sp.discoverable']
['is']['null']['or'][wCond['sp.discoverable']['=']['N']]['not']]].listSpaces}
```

Where:

- `wCond` is an atomic condition that can be expressed as `wCond[`*p*`][`*op*`][`*v*`]`.

  Where:

  – *p* is a portal attribute (a field in `WcSpaceHeader`, see the following bullet list).

  – *op* is one among a restricted set of JPQL comparison operators ('=', '`like`', '`!=`', '<', '>', '<=', '>=', '`is`').

  – *v* is a string whose interpretation depends on the operator *op*.

    If the operator is `is`, *v* can be the string `'null'` or `'not null'`, and the condition is understood as the attribute being checked for null or not null respectively in JPQL. If the operator is anything else, *v* is interpreted as a literal, and the condition is understood to be the attribute being compared with the literal value.

  You can use any field defined in `WcSpaceHeader` in the `WHERE` clause, including:

  – `closed`

  - `createDate`
  - `createdBy`
  - `description`
  - `discoverable`
  - `displayName`
  - `keywords`
  - `icon`
  - `logo`
  - `lastUpdateDate`
  - `selfSubEnabled`
  - `rssEnabled`
  - `spaceGuid`
  - `spaceId`
  - `spaceOffline`
  - `spacePublic`
  - `spacesType`
  - `spacesUser`
  - `updatedBy`
  - `version`
  - `parentGuid`
  - `securityParentGuid`
  - `ancestorPath`
  - `seeded`
  - `groupSpaceMemCount`
- `sp` represents the JPA entity for a portal, `WcSpaceHeader`.

  For example, you can use the following condition to create a filter for all portals created by users having user names starting with `monty` on which self subscription is enabled:

  ```
  sp.createdBy like 'monty%' and not (sp.selfSubEnabled is null or
  sp.selfSubEnabled ='N')
  ```
- `and`, `or`, `not` (along with `wCond`) are types of conditions.

  Where:

  - and represents a conjunction of two conditions. You can express a conjunction condition as *`cond1`*`['and'][`*`cond2`*`]` where *`cond1`* and *`cond2`* are the expressions for the two conditions being conjoined.
  - `or` represents a disjunction condition. You can express a disjunction condition as *`cond1`*`['or'][`*`cond2`*`]` where *`cond1`* and *`cond2`* are the expressions for the two conditions being disjoined.

  – `not` represents a negation condition. You can express a negation condition as *`cond`*`['not']` where *cond* is the expression for the condition being conjoined.

For example, the following EL returns a list of all portals (to which the current user has access) that are created by users having names starting with `monty` and on which self subscription is enabled:

```
#{spaceContext.spacesQuery.unionOf.ALL_QUERIABLE.where[wCond['sp.createdBy']
['like']['monty%'] ['and'] [wCond['sp.selfSubEnabled']['is']['null'] ['or']
[wCond['sp.selfSubEnabled']['=']['N']] ['not'] ]].listSpaces}
```

Now imagine that you have used the following syntax to specify `SORT` criteria on a portal query:

```
#{spaceContext.spacesQuery.unionOf['ALL_QUERIABLE'].sortCriteria
['sp.discoverabledesc, sp.keywords'].listSpaces}
```

Going forward, you must use the following syntax to specify `SORT` criteria on a portal query:

```
#{spaceContext.spacesQuery.unionOf['ALL_QUERIABLE'].sort['sp.discoverable']
['desc'].sort['sp.keywords']['asc'].listSpaces}
```

Where:

- `sp` represents the JPA entity for a portal, `WcSpaceHeader` (see previous bullet list for fields defined in `WcSpaceHeader`).
- `desc` and `asc` define sort order, descending and ascending, respectively.

For example, the following query returns a list of portals to which the user has access and sorts the result set on the fields `discoverable` and `lastUpdateDate`.

```
#{spaceContext.spacesQuery.unionOf['ALL_QUERIABLE'].sort['sp.discoverable']
['asc'].sort['sp.lastUpdateDate']['desc'].listSpaces}
```

Oracle *strongly* recommends that you convert all existing freeform JPQL `WHERE` and `SORT` clauses to the new syntax.

If for any reason you must retain the existing syntax, your WebCenter Portal administrator must explicitly enable support for freeform JPQL in the `webcenter-config.xml.xml` file by setting the following global flag:

```
oracle.webcenter.spaces.query.DIRECT_JPQL_CLAUSE_SUPPORTED
```

Note:

The `webcenter-config.xml.xml` file is the customization document for `webcenter-config.xml`.

Set this flag to `true` for continued support of legacy freeform `WHERE` and `SORT` clauses. When this option is set to `true`, WebCenter Portal log files will contain warnings.

To set this flag in `webcenter-config.xml.xml`:

1. Export the latest `webcenter-config.xml.xml` from MDS.

   For example:

```
exportMetadata(application='webcenter', server='WC_Portal', toLocation='/tmp/
mydata',docs='/oracle/webcenter/webcenterapp/metadata/mdssys/cust/site/webcenter/
webcenter-config.xml.xml')
```

2. Open the file in a text editor and modify settings, as required.

   For example:

```
<mds:insert parent="webcenter(xmlns(webcenter=http://
      xmlns.oracle.com/webcenter/webcenterapp))/webcenter:custom-attributes"
      position="last">            <attribute name=
                  "oracle.webcenter.spaces.query.DIRECT_JPQL_CLAUSE_SUPPORTED"
                  xmlns="http://xmlns.oracle.com/webcenter/webcenterapp">
                        <description/>
                        <type>java.lang.String</type>
                        <value>true</value>
                        <visible/>
            </attribute>
</mds:insert>
```

3. Save and close `webcenter-config.xml.xml`.
4. Import the updated `webcenter-config.xml.xml` file to WebCenter Portal.

   For example:

```
importMetadata(application='webcenter', server='WC_Portal', fromLocation='/tmp/
mydata', docs='/oracle/webcenter/webcenterapp/metadata/mdssys/cust/site/
webcenter/webcenter-config.xml.xml')
```

B
WebCenter Portal Accessibility Features

Learn about the accessibility features of WebCenter Portal.
Accessibility involves making your application usable by persons with disabilities such as low vision or blindness, deafness, or other physical limitations. In the simplest of terms, this means creating applications that can be used without a mouse (keyboard only), used with a screen reader for blind or low-vision users, and used without reliance on sound, color, or animation and timing.

Oracle software implements the standards of Section 508 and WCAG 1.0 AA using an interpretation of the standards at `http://www.oracle.com/accessibility/standards.html`.

This section describes accessibility features that are specific to WebCenter Portal. For general information about creating accessible ADF Faces pages, see Developing Accessible ADF Faces Components and Pages in *Developing Web User Interfaces with Oracle ADF Faces*. For information about accessibility features in JDeveloper, select the JDeveloper Accessibility node under JDeveloper Basics in the online help table of contents.

This appendix includes the following topics:

- Generating Accessible HTML
- Accessibility Features at Runtime
- Accessibility Considerations for Portlets

Generating Accessible HTML

WebCenter Portal provides several Composer components that you can add to your application pages to make them editable at runtime. These components provide attributes that are used to generate accessible HTML. To ensure that the pages you create are accessible, you must set the attributes listed in Table B-1.

Table B-1 Accessibility Attributes for WebCenter Portal's Composer Components

Component	Accessibility Attributes
`pe:changeModeButton`	No accessibility attributes.
`pe:changeModeLink`	No accessibility attributes.
`pe:imageLink`	`shortDesc`—Mandatory. This attribute transforms into an HTML `alt` attribute. `accessKey`—Optional. This attribute sets the mnemonic character used to gain quick access to the component.
`pe:pageCustomizable`	No accessibility attributes

Table B-1 (Cont.) Accessibility Attributes for WebCenter Portal's Composer Components

Component	Accessibility Attributes
`pe:layoutCustomizable`	`shortDesc`—Mandatory. This attribute transforms into an HTML `alt` attribute. `accessKey`—Optional. This attribute sets the mnemonic character used to gain quick access to the component.
`cust:panelCustomizable`	No accessibility attributes
`cust:showDetailFrame`	`shortDesc`—Mandatory. This attribute transforms into an HTML `alt` attribute.

Accessibility Features at Runtime

When you give users the ability to customize a page at runtime, you must ensure that any customizations are accessible to all users. For all components that users can create at runtime, all accessibility-related attributes are shown in the Property Inspector where users can set them appropriately.

For a list of accessibility-related attributes for WebCenter Portal components, see Table B-1. For a list of accessibility-related attributes for other components, see Developing Accessible ADF Faces Components and Pages in *Developing Web User Interfaces with Oracle ADF Faces.*

Accessibility Considerations for Portlets

IFrames are not very well accommodated by today's screen readers and so are not permitted by some accessibility standards.

Note:

Portlets created using the Oracle JSF Portlet Bridge have the `requireIFrame` container runtime option set to `true` because, due to JavaScript issues, these portlets are too complex to render directly on Oracle ADF pages.

WebCenter Portal provides an optional attribute in the `adf:portlet` tag called `renderPortletInIFrame`. You can set this attribute to `false` to avoid ever using IFrames.

C

Using the WebCenter Portal REST APIs

This chapter contains the following topics:

Introduction to REST

REST (REpresentational State Transfer) is an architectural style for making distributed resources available through a uniform interface that includes uniform resource identifiers (URIs), well-defined operations, hypermedia links, and a constrained set of media types. Typically, these operations include reading, writing, editing, and removing, and media types include JSON and XML/ATOM.

REST commands use standard HTTP methods as requests to point to the resource being used. Every request returns a response, indicating the status of the operation. If the request results in an object being retrieved, created, or updated, the response includes a standard representation of that object.

REST supports multiple clients, both from client machines and other servers, and it can be used from just about any client or development technology, including Java, JavaScript, Ruby on Rails, PHP, .Net, and so on.

Tip:

For a good general introduction to REST, see the Wikipedia article Representational State Transfer at `http://en.wikipedia.org/wiki/Representational_State_Transfer`.

REST is typically used with Rich Internet Applications (RIA) that are client-side scripted and require the ability to interact with data from a server-side application. For example, the WebCenter iPhone App uses WebCenter Portal REST APIs to interact with a WebCenter Portal application. The native iPhone client is written in Objective-C, and the REST APIs enable the client to send and retrieve application data.

Understanding the Username-Based Security Token Encryption

To provide additional security, every URI, for both `href` and `template` attributes, includes a security token parameter that is based on the authenticated username (a utoken).

The security generation algorithm uses a randomly generated "salt" along with the username. The salt ensures that if any of the parameters used to perform encryption become compromised, existing tokens can be invalidated and new ones generated. Most importantly, because the username is used as part of the user token generation algorithm, the salt prevents having to change all user names in the event of a compromise.

The salt is stored in the Credential Store Framework (CSF) in the map `o.webcenter.jf.csf.map` against key `user.token.salt`. You can change the value of this key (and other keys used for token encryption) by accessing CSF in Oracle Enterprise Manager.

Caution:

If you change the encryption key values, all existing username based security tokens will immediately become invalid. Only change these values under extraordinary circumstances, like an algorithm parameter compromise.

Benefits of Using REST

Many excellent articles have been published about REST and the benefits of the RESTful style of software architecture. Some of these benefits include:

- Using "Hypermedia As The Engine Of Application State" (HATEOAS) links to access the REST API helps promote API robustness. Since the clients only use

URIs returned from the server, if the server changes the URI format, the client will continue to function properly. See also Understanding the Link Model.

- Using the standard HTTP protocol allows network infrastructure to cache REST requests where appropriate, reducing load on both the client and server. See also Managing Caches .
- Stateless REST requests allow each request to be served by any number of different servers, helping with scalability.
- Using the standard HTTP protocol allows a wide variety of clients to interact with the REST APIs without requiring specialized libraries.

Introduction to the WebCenter Portal REST APIs

In addition to enabling mobile access, WebCenter Portal REST APIs allow you to take advantage of Web 2.0 technologies like Ajax, JavaScript, and JSON to create rich, interactive browser-based user interfaces and to access and modify WebCenter Portal data. In general, the WebCenter REST commands provide a more natural and easy-to-use alternative to a SOAP-style Web services approach.

The following table describes the Oracle WebCenter Portal REST APIs provided for WebCenter Portal: Services features. See REST API for Oracle WebCenter Portal

Table C-1 Summary of WebCenter Tools and Services Features Supported by REST APIs

REST API	Description	Section
Activity Graph	Enables you to retrieve recommendations for connections, portals, and items using the underlying Activity Graph engine.	Using the Activity Graph REST APIs
Content Management	Uses the CMIS (Content Management Interoperability Services) RESTful server binding to provide access to the CM VCR (Content Management Virtual Content Repository).	Content Management REST API
Events	Lets you access calendar events associated with a named portal.	Using the Events REST API
Feedback	Enables a client to create, read, and delete feedback in a social networking application.	Using the Lists REST API
Lists	Enables a client to browse all the lists associated with a named portal; search list columns given a search term; create new lists; add, update, and remove list rows; and similar sorts of list-related tasks	Using the Lists REST API
People Connections	Enable a client to view profile data; manage connection lists, feedback, and messages; create new activities and view activities for users, lists, and portals.	Using the People Connections REST APIs
Search	Lets you post, read, update, and delete searches. You can specify keywords and the scope of the search; for example, the iPhone could search for "smith" in all portals, documents and wiki pages.	Using the Search REST APIs

Table C-1 (Cont.) Summary of WebCenter Tools and Services Features Supported by REST APIs

REST API	Description	Section
Tags	Enables a client to read, post, update, and delete tags and tagged items.	Using the Tags REST APIs
WebCenter Portal	Enable a client to retrieve portal metadata and view, create, update, and delete portal lists and list items. You can also retrieve portal membership information.	REST API for Oracle WebCenter Portal

Note:

XSD files for the following URNs:

```
urn:oracle:webcenter:activities:stream -> activitystream.xsd
urn:oracle:webcenter:messageBoard -> wall.xsd
urn:oracle:webcenter:people -> people.xsd
urn:oracle:webcenter:people:invitations -> people.xsd
urn:oracle:webcenter:people:person -> people.xsd
urn:oracle:webcenter:spaces -> spaces.xsd
```

can be found in your `<WCP_ORACLE_HOME>/webcenter/schemas/` directory.

Understanding the Link Model

Hypermedia is at the core of two of the most successful Web-based formats: HTML and ATOM. HTML and ATOM allow consumers to navigate to other hypermedia documents through links–for example, clicking on a link to go to a news article.

Hypermedia drives the RESTful application state (known as HATEOAS: Hypermedia As The Engine Of Application State).

Note:

HATEOAS analogy to define application state:

Suppose you are completing your taxes in your favorite browser. You finish entering your W-2 data and move on to deductions when the browser crashes. The state you lost—the fact that you were on deductions and still needed to enter data—is the application state; not the W-2 data entered (that is, change states from the current state).

HATEOAS dictates that *this* state—the application state—be captured wholly in hypermedia. Application state is where you are in the application, not what data you've entered into the application. One of the benefits of this approach is that it simplifies the client and server, because they do not need to be aware of the state they are in. The link contains all the state information necessary to process the request, so, when the browser restarts and returns to the link, the user will be at the same place in the tax process.

Given a set of top-level URI entry points to a RESTful service, all interactions beyond those entry points are driven by hypermedia links returned in response representations. This link-centered approach helps keep the client from becoming too tightly coupled to the server URLs. The client is using URLs given to it by the server, therefore the client code does not break if the server URLs change format.

Understanding this link model helps you understand how to use the data the service returns to navigate the REST APIs.

This section describes the hypermedia link model used by WebCenter's RESTful services. It includes the following topics:

- Using the Resource Index
- Anatomy of a Link

Using the Resource Index

In WebCenter, the *Resource Index* is your starting point for all authenticated access. The Resource Index provides access to the set of top-level URI entry points. It provides the way in to all the available WebCenter RESTful services. The Resource Index URI is the only URI that you need to know.

Tip:

A REST client is helpful for generating custom REST requests. For example, a Firefox RESTClient add-on is available at:

`http://restclient.net/`

Other similar REST clients can also be easily obtained.

The WebCenter Resource Index URI is:

```
http://host:port/rest/api/resourceIndex
```

Note:

Access to the Resource Index always requires authentication; however, you can (optionally) access the CMIS resource entry point anonymously using the following URI:

```
http://host:port/rest/api/cmis/repository
```

See also Security Considerations for CMIS REST APIs and Security Considerations for WebCenter Portal REST APIs

The first step in using the WebCenter Portal REST APIs is to send a `GET` request to the Resource Index. The response varies depending on the services available and the media type of the request. The example below shows how the response might look if you made an Ajax request using JavaScript (and possibly a client-side scripting library, such as Dojo) to retrieve the JSON data for the Resource Index. Note that this is an abridged sample response and does not include all of the links actually present in a real response.

Example: Response to a GET on the Resource Index

```
{
  "resourceType": "urn:oracle:webcenter:resourceindex",
  "links": [
    {
      "template": "opaque-template-uri",
      "resourceType": "urn:oracle:webcenter:messageBoard",
      "href": "opaque-uri",
      "capabilities": "urn:oracle:webcenter:read"
    },
    {
      "resourceType": "urn:oracle:webCenter:cmis",
      "href": "opaque-uri",
      "capabilities": "urn:oracle:webcenter:read"
    },
        {
      "resourceType": "urn:oracle:webcenter:resourceindex",
      "rel": "self",
      "href": "http://host:port/rest/api/resourceIndex",
      "capabilities": "urn:oracle:webcenter:read"
    },
    {
      "template": "opaque-template-uri",
      "resourceType": "urn:oracle:webcenter:activities:stream",
      "href": "opaque-uri",
      "capabilities": "urn:oracle:webcenter:read"
    },
    {
      "template": "opaque-template-uri",
      "resourceType": "urn:oracle:webcenter:people:person",
      "capabilities": "urn:oracle:webcenter:read"
    },
    {
      "template": "opaque-template-uri",
      "resourceType": "urn:oracle:webcenter:feedback",
      "href": "opaque-uri",
      "capabilities": "urn:oracle:webcenter:read"
    },
    {
      "template": "opaque-template-uri",
      "resourceType": "urn:oracle:webcenter:spaces",
      "href": "opaque-uri",
      "capabilities": "urn:oracle:webcenter:read"
    },
    {
      "template": "opaque-template-uri",
      "resourceType": "urn:oracle:webcenter:people",
      "href": "opaque-uri",
      "capabilities": "urn:oracle:webcenter:read"
    }
  ]
}
```

By interpreting the links returned in the Resource Index data, you can retrieve the URI entry point for an individual service by locating the URI for the resource type you want to use. You can then continue navigating through the hypermedia until you can perform the required operation. The following example shows a method that locates a URI given the Resource Index JSON data.

Example: Locating the URI for a Particular Service in the Resource Index

```
/* Parse the resourceIndex to find the specified URL and
 * return it.
 *
 * @Param jsonData the JSON data retrieved from calling
 *        the /rest/api/resourceIndex URL.
 * @Param strResourceType the resource type of the URL
 *        you want to retrieve from the resourceIndex data.
 *        E.g., 'urn:oracle:webcenter:activities:stream'
 */
function getResourceURL(jsonData, strResourceType)
{
  // Using the HATEOAS model, we browse the returned links
  // looking for the one with the correct resource type.
  for (var i = 0; i < data.links.length; i++) {
    if (data.links[i].resourceType == strResourceType) {
      return data.links[i].href;
    }
  }
}
```

Anatomy of a Link

The `resourceType`, `rel`, and `capabilities` attributes of the hypermedia link provide metadata that enable clients to determine which URI (`href` or `template`) to use, without having to parse the URIs directly. The URIs are opaque—the metadata determines which link is useful in a given circumstance.

The following examples show the anatomy of a hypermedia link as XML and in JSON document fragments, respectively.

Example: Link in an XML Document Fragment

```
<links>
  <link href="opaque-URI"
        template="opaque-template-URI (optional)"
        rel="rel-name"
        title="human-readable-title (optional)"
        type="media-type (optional)"
        resourceType="resource-type"
        capabilities="operation"/>
  ...repeat as needed...
</links>
```

Example: Link in a JSON Document Fragment

```
"links": [
  {
    "href":"opaque-URI",
    "template":"opaque-template-URI (optional)",
    "rel":"rel-name",
    "title":"human-readable-title (optional)",
    "type":"media-type (optional)",
    "resourceType":"resource-type",
    "capabilities":"operation"
  },
  ...repeat as needed...
]
```

Multiword field, element, and attribute names are formatted in camel case, unless the representation is attempting to conform to a specification not under the service author's direct control. Acronyms are treated as normal words with their case adjusted accordingly (for example, `fooXml` or `xmlFoo`) as shown in the following examples:

Example: XML Naming Convention

```
<myElement>text</myElement>
```

Example: JSON Naming Convention

```
{"myElement": "text"}
```

This section includes the following topics that describe the different attributes of the hypermedia link:

- Resource Type
- Relationship
- Capabilities
- Media Type
- Templates

Resource Type

The `resourceType` link attribute indicates the type of resource to which the link points. Clients should use the `resourceType` to determine the expected response bodies for `GET` and `POST` and allowable request bodies for `POST` and `PUT`.

For more information, see Navigating Hypermedia Using HTTP.

Relationship

The `rel` link attribute indicates the relationship of the linked object to the current object (that is, the object that contains the list of links). The value of this attribute is a space-separated list of the following currently supported values:

- `self` - The linked object is the current object
- `related` - The linked object is related to the current object
- `via` - The linked object is the source of the information for the current object
- `alternate` - The linked object is a substitute for the current object (typically, the same object in another format, such as an HTML page that displays the current object)
- `urn:oracle:webcenter:parent` - The linked object is the parent of the current object. That is, the linked object owns the current object

> **Note:**
>
> Some REST APIs for some WebCenter features may contain additional `rel` link attributes. See the REST API documentation for each specific feature for more information.

Capabilities

The `capabilities` link attribute indicates which methods are supported by the linked resource.

Links are returned only if a client is allowed to access that resource. User authorization can affect the capabilities a client has with the links returned in a response representation. In general, services only return the capabilities that the current authorized user has permission to execute and that the resource supports.

If there is no link, then the client cannot access the resource. If a link has no capabilities, then it is not returned to the client, meaning that the client does not have permission to do anything with that link (even read it).

Capability-based expression of hypermedia links communicates the range of operations that the client can expect to succeed, which allows the client to dynamically configure any associated UI to provide the best overall user experience.

The value of this attribute is a space-separated list of the following values:

- `urn:oracle:webcenter:create` - This maps to the HTTP verb `POST`
- `urn:oracle:webcenter:read` - This maps to the HTTP verb `GET`
- `urn:oracle:webcenter:update` - This maps to the HTTP verb `PUT`
- `urn:oracle:webcenter:delete` - This maps to the HTTP verb `DELETE`

> **Note:**
>
> The top-level `resourceIndex` links only returns the `read` capability, even if the user is authorized with additional capabilities.

Note:

Querying a resource for the allowed HTTP verbs using `OPTIONS` returns the verbs that the resource can support in general, and does not take a user's access into account. The capabilities attribute in a link describes exactly what the current user can do with the current resource. `OPTIONS` may return more HTTP verbs than the current user is allowed.

Media Type

The `type` link attribute indicates the media types supported by the linked object.

All REST services, except for CMIS, support both XML (`application/xml`) and JSON (`application/json`) media type. CMIS currently supports only ATOM. For more information about the CMIS REST API, see Content Management REST API.

Templates

The `template` link attribute indicates that the client can use a URI template, instead of the `href` URI, to provide parameterized values for the linked object. Links must include at least an `href` or a `template` URI, but can include both.

Some hypermedia links support request query parameters that allow the client to configure the link in different ways. Rather than force the client to know the URI format and manually build the URI, URI templates are used. These templates allow client code to easily insert data into a URI without having to understand exactly how the URI works. This maintains the opacity of hypermedia URIs and protects the client from changes to the URI format.

The example below shows a URI template including several request query parameters.

Example: URI Template

```
http://host:port/.../lists?
startIndex={startIndex}&itemsPerPage={itemsPerPage}&q={searchTerms}&projection={proje
ction]
```

WebCenter Portal REST APIs use a simple slot replacement syntax that follows many industry URI template schemes.

For example, using the template above, to see 10 list items (default) on the first page, the client would provide a value of `1` for the `startIndex` parameter and a value of `10` for the `itemsPerPage` parameter, as shown below.

Example: URI Template with Parameter Values

```
http://host:port.../lists?startIndex=1&itemsPerPage=10
```

Note:

All unused parameters must be removed from a template before it can be used. Clients may not submit unprocessed templates to the service that produced it; doing so results in undefined behavior, generally returning a status code of 500.

Clients must process templates into valid URI form before submitting to the server. Clients must replace slots with appropriate values, taking care to properly URI encode any value replacing the slot token. If a client does not have a suitable value for one or more of the slots in the template, then it must replace the slot token with an empty string.

You must URL-encode special or reserved character in parameter values. For example, to search lists for a person named Günter, you must URL-encode the ü as shown below.

Example: Encoding Special Characters in URI Templates

```
http://host:port.../lists?q=G%FCnter
```

Common Request Query Parameters

Many resources support a common set of request query parameters. For example, when retrieving a collection of entities, it is common to change the shape of the results set by limiting the quantity or details of the results. The REST framework uses the following request parameters to scope results and provide security:

- `startIndex` - Specifies the index of the first matching result that should be included in the result set (0-*n* ... zero based). This is used for pagination.
- `itemsPerPage` - Specifies the maximum number of results to return in the response (1-*n*). This is used for pagination.
- `q` - Specifies implementation-specific searching. Searches may be specified using the following format (square brackets [] denote optional values):

  ```
  [[field1:[operand]][:]value1[;field2:operand:value2]]
  ```

  For example:

  ```
  &q=login:equals:monty
  &q=title:contains:issues
  &q=creator:equals:monty;description:contains:Urgent
  ```

  While each resource uses the same format for the `q` parameter, the way search is implemented is different depending on the resource being searched. For more information about how each resource implements search, see the topic for the specific service.
- `projection` - Reserved for implementation-specific projection of model representations, such as variable recursion depth, field or attribute filtering. Valid values are `summary` or `details`.

  For example, requesting a projection of `summary` for a collection of lists, returns only the title, description, and hypermedia links. Requesting a projection of `details` results in the server sending back a collection of lists that includes all the column metadata for each list. This may require additional processing time or database queries on the server.

The following example request results in the response entity containing a deeper object graph.

`http://`*`host`*`:`*`port`*`/...lists&projection=details`

- `data` - This parameter accepts a comma separated list of data sets and items. This parameter lets clients specify what data they would like to receive. For example, a mobile device application might use this parameter to limit the amount of XML data returned. If both the `projection` and `data` query string parameters are present, the `data` parameter will be used to determine which data to return. If you specify the constant `'data'` as the data parameter, all the standard information will be returned for the resource.

For information about how these parameters are supported by specific resources, see the topic for the appropriate service.

Understanding Items Hypermedia

A collection of `items` makes up the actual content of responses. This is at the same level as the `links` section described previously. Each item (including the top-level tag in each response) has one common attribute (`resourceType`) in addition to resource-specific content and format. For details beyond the `resourceType`, see the topic for the specific service.

Navigating Hypermedia Using HTTP

You can navigate REST service hypermedia in a similar way to that used to browse and interact with HTML or an ATOM feed. Interactions are performed on the resources identified by links using HTTP methods. The REST services return response codes and response bodies to the client, and the client uses the hypermedia in the response to drive further interactions.

The following table describes the general pattern followed when constructing opaque resource URIs. The `resourceType` differentiates whether the HTTP method operates on a collection of resources or an individual resource.

Table C-2 HTTP Methods

HTTP Method	Response for a Collection of Resources	Response for an Individual Resource
`GET`	Returns resource collection container (200 HTTP response code)	Returns resource (200 HTTP response code)
`PUT`	Cannot update a collection of resources (405 HTTP response code)	Updates and returns resource (200 HTTP response code)

Table C-2 (Cont.) HTTP Methods

HTTP Method	Response for a Collection of Resources	Response for an Individual Resource
`POST`	Creates and returns a new resource within the collection. **Note:** Can return a 201 or 204 HTTP response code. The returned code depends on whether the newly created object is directly addressable or not. For instance, activities cannot be addressed individually, so they return a 204 no-content response code.	Cannot create a resource within an individual resource (405 HTTP response code)
`DELETE`	Cannot delete a collection of resources (405 HTTP response code)	Deletes resource (204 HTTP response code)

Collection resources generally support reading a collection (GET) and creating a subordinate to that collection (POST). Individual resources generally support reading a resource (GET), updating a resource (PUT), and deleting a resource (DELETE).

HTTP Response Status Codes

The following table describes the potential response status codes.

Table C-3 HTTP Response Status Codes

HTTP Response Status Code	Description
200	OK. Upon successful completion of a `GET` or `PUT`. This is accompanied by a resource representation as a response body.
201	Created. Upon successful completion of a `POST`. This has a location header to the newly-created resource.
204	No content, or any request that does not return content. For example, creating an object that cannot be linked. Upon successful completion of a `DELETE`.
400	Bad Request. The URI was malformed or could not be processed; for example, the IDs were not formatted correctly, or the ID was supplied in the URI on a `POST`.
401	Unauthorized. Client may retry by submitting credentials. This may be accompanied with a fault response body to help diagnose the issue.
403	Forbidden. Client does not have permission to perform a particular action, such as creating or deleting a resource. Re-authenticating as the same user does not help. This may be accompanied with a fault response body to help diagnose the issue.
404	Not Found. Referencing a specific resource with an ID, but that resource does not exist.
405	Method Not Allowed. This includes a list of valid methods for the requested resource.

Table C-3 (Cont.) HTTP Response Status Codes

HTTP Response Status Code	Description
406	Not Acceptable. The Accept header media type(s) sent by the client are not supported for the requested operation.This may be accompanied with a fault response body to help diagnose the issue.
409	Conflict. Possibly the resource ID is in use, or an entity has been modified by another process during an update.This may be accompanied with a fault response body to help diagnose the issue.
422	Bad entity body, the data in the body, although syntactically correct, was not valid, or could not be processed; for example, invalid data when updating a row.
500	Internal server error. The server encountered an unexpected condition that prevented it from fulfilling the request.
501	Not Implemented. The server does not support the functionality required to fulfill the request. This is the appropriate response when the server does not recognize the request method and is not capable of supporting it for any resource.

Security Considerations for WebCenter Portal REST APIs

All of the WebCenter REST URIs reference protected resources (similar to protected web pages) and require authentication for access.

Note:

The one exception to the authenticated access rule is access to the CMIS resources. CMIS resources can be accessed anonymously through the CMIS URI entry point:

```
http://host/port/rest/api/cmis/repository
```

See also Security Considerations for CMIS REST APIs.

You can pass this authentication in with the request using basic authentication, or you can configure the client and the WebCenter REST service to use single sign-on. For more information about single sign-on, see Configuring SSL in *Administering Oracle WebCenter Portal*.

Basic authentication sends the user's password in plain text. If you use this type of authentication, you should consider securing the connection using SSL. For more information, see Configuring SSL in *Administering Oracle WebCenter Portal*.

To provide additional security, every URI, for both `href` and `template` attributes, includes a security token parameter. The security token is user-scoped. This means that it is based on and scoped to an authenticated user and can be bookmarked or cached across that user's sessions. These security tokens help prevent Cross-Site Request Forgery (CSRF) attacks.

For example:

```
<link
  template="opaque-template-uri/@me?startIndex={startIndex}&itemsPerPage={itemsPerPage}
     &token=generated-token" resourceType="urn:oracle:webcenter:messageBoard"
     href="opaque-uri/@me?token=generated-token" capabilities="urn:oracle:webcenter:read"
/>
```

Note:

The security token is not used for authentication or identity propagation.

WebCenter Portal REST APIs operate under the identity of the authenticated user. For example, the portal REST APIs only return information for, and allow changes to, portals to which the user has access.

Security Considerations for CMIS REST APIs

The CMIS REST APIs do not use the same authentication scheme as the other WebCenter Portal REST APIs. Whereas other WebCenter Portal REST APIs do not allow unauthenticated access and prompt the user for authentication before allowing access, the CMIS REST APIs do allow unauthenticated access.

If a document requires authentication information and does not receive that information (because it is being accessed by an unauthenticated user), a 404 error is returned. This does not necessarily mean that the document cannot be found, rather that the (unauthenticated) user does not have the appropriate permissions to access the document. For the request to succeed, it should include basic authentication headers to identify the current user.

CMIS stands for Content Management Interoperability Services, a standard REST interface for Enterprise Content Management Systems. For more information, see Content Management REST API.

Understanding Common Types

This section describes the common types that are shared by multiple WebCenter Portal REST APIs.

- Common Types
- Portable Contact Types

Common Types

Common types provide a consistent way to reference objects used in the WebCenter Portal REST APIs.

This section includes the following topics:

- personReference

- groupSpaceReference

personReference

This is a generic data type that represents a user in the system. It is used by several APIs, for example to identify the author of a message board or feedback message, or a user's manager or direct reports. It is made up of the following elements:

- `guid` - The GUID of the user
- `id` - The login ID of the user
- `displayName` - The display name of the user

The `personReference` also includes a link to the user's profile icon. You can control the size of the icon by providing values: `small`, `medium`, or `large`.

Depending on where the `personReference` type is included, it can also return links to the associated REST APIs of the generating response. For example, if the `personReference` type is included as the author in a message board response, it includes links to message board services.

groupSpaceReference

This is a generic data type that represents a portal. It is used by several APIs, for example in the activity stream, to identify a portal in which a particular activity occurred. It is made up on the following elements:

- `guid` - The GUID of the portal
- `name` - The name of the portal
- `displayName` - The display name of the portal

The `groupSpaceReference` also includes an html link, rest link, and icon link.

Portable Contact Types

Portable Contact types provide users with a standard way to access their address books and friends lists over the Web. Portable Contact types are used by the Profile component of the People Connections service.

Note:

These types are based on the Portal Contact Types in WebCenter. They may include additional data.

This section includes the following topics:

- name Portable Contact Type
- address Portable Contact Type
- organization Portable Contact Type
- value Portable Contact Type

name Portable Contact Type

This is a portable contact type that provides information about the user's name. It is made up of the following elements:

- `formatted` - The formatted version of the full name of the user, for example, Michael David Jones Ph.D.
- `familyName` - The family name, or last name, of the user, for example Jones
- `givenName` - The given name, or first name, of the user, for example Michael
- `honorificSuffix` - The honorific suffix of the user, for example, Esq. or Ph.D.
- `initials` - The first initials of the user, for example, M. D.
- `maidenName` - The maiden name of the user

Some of the elements may not be present depending on the user repository configuration and data.

address Portable Contact Type

This is a portable contact type that provides information about the user's address. It is made up of the following elements:

- `formatted` - The formatted version of the full address
- `type` - The type of the address, for example, Home, Work
- `streetAddress` - The street address
- `poBox` - The post office box number
- `locality` - The city or locality
- `region` - The state or region
- `postalCode` - The zip code or postal code
- `country` - The country

Some of the elements may not be present depending on the user repository configuration and data.

organization Portable Contact Type

This is a portable contact type that provides information about the user's organizational affiliation. It is made up of:

- `name` - The name of the organization
- `employeeNumber` - The employee number of the user
- `employeeType` - The employee type of the user.
- `department` - The department within the organization to which the user belongs
- `defaultGroup` - The default group to which the user belongs
- `title` - The job title of the user within the organization
- `description` - A textual description of the user's role within the organization

- `expertise` - The expertise of the user within the organization
- `startDate` - The date when the user joined the organization

Some of the elements may not be present depending on the user repository configuration and data.

value Portable Contact Type

This is a generic object that contains data for a wide variety of contact information. It is made up of the following elements:

- `primary` - A boolean value that identifies whether this is the primary piece of information of this type for this person. The primary element may not be present and is only relevant if there are multiple values for the same type of data.
- `value` - The value for this type
- `type` - The type of information. Valid types are:
  - `standard`: with valid values of `work`, `home`, `other`
  - `phoneNumber`: with valid values of `work`, `home`, `fax`, `pager`, `mobile`
  - `photos`: with a valid value of `thumbnail`

Managing Caches

Client-side developers need to know how to handle HTTP cache headers in both requests and responses. Individual resources that have a "last modified" date are also return entity tags. The entity tags can be used to make retrieval of a specific entity more efficient. To learn more about the use of entity tags in caching, refer to the Hypertext Transfer Protocol specification:

`http://www.w3.org/Protocols/`

Configuring a Proxy Server

This section explains how to set up a simple, response-rewriting reverse HTTP proxy on an Apache server. A proxy server is typically employed to avoid cross-domain request problems associated with making XMLHttpRequest (XHR) calls from a browser client. These calls are typically associated with the Ajax development technique for creating rich, interactive client-side interfaces. REST APIs are typically used within this kind of client-side development scenario.

Note:

This section illustrates a simple example of setting up a proxy server on Apache. For more detailed information, refer to the Apache Server documentation available at `http://httpd.apache.org/docs`. You can also use Oracle HTTP Server (OHS) for your proxy server.

The basic steps for setting up a proxy server on Apache are:

1. Obtain access to an Apache server. Oracle recommends Apache 2.2.7 or a later version.
2. Make sure the server has the `mod_substitute` and `mod_proxy` modules installed. Note that Apache versions 2.2.7 and later include `mod_substitute` by default. It is also possible to use `mod_sed` or `mod_line_edit`, however these configurations are not supported by Oracle.
3. Open the `httpd.conf` or the virtual host configuration file, and add the following lines, substituting your server name/information where appropriate:

```
ProxyRequests          Off
LoadModule             substitute_module      modules/mod_substitute.so
SetOutputFilter        SUBSTITUTE

ProxyPass              /rest/api/             http://myhost:8888/rest/api/
ProxyPassReverse       /rest/api/             http://myhost:8888/rest/api/
Substitute             s|myhost|yourhost|n

ProxyPass              /pathname/rest/api/      http://myhost:8888/rest/api/
ProxyPassReverse       /pathname/rest/api/      http://myhost:8888/rest/api/
Substitute             s|myhost:8888/rest/api|yourhost/pathname/rest/api|n
```

Note:

Two servers are being proxied in this example scenario. Note that the following two calls are actually talking to these two different servers, but they appear to clients to be the same server host:

`http://myhost/rest/api/resourceIndex`

`http://myhost/pathname/rest/api/resourceIndex`

4. Restart the Apache server. For example, on Linux, you could do this:

```
sudo /etc/init.d/httpd restart
```

Note that on some configurations of Linux, proxying with Apache in this fashion requires you tell selinux to allow outbound connections from httpd. You can accomplish this by enabling the `httpd_can_network_connect flag` in selinux's GUI or through the command line.

Developer Tip:

Set the `UserDir` permissions in `httpd.conf` to allow users to drop these files in their own `public_html` directory. For example, you might hit `http://host/~yourname/sample.html` to access your sample application, and then have the sample application make XHR calls to `http://host/rest/api/resourceIndex`.

WebCenter Portal REST API Examples

This section includes some examples illustrating how to use the WebCenter Portal REST APIs. It includes the following topics:

- Navigating the Message Board Hypermedia
- Displaying Activity Stream Data
- Updating User Status

Navigating the Message Board Hypermedia

This section includes examples to illustrate how to navigate the REST service hypermedia. The examples show how to read messages on a message board, post messages to another user's message board, delete unwanted messages, and filter message board messages.

This section includes the following topics:

- Accessing the Resource Index
- Reading Messages
- Creating a New Message
- Updating a Message
- Deleting a Message
- Filtering Messages

Accessing the Resource Index

The first step is always to access the Resource Index as shown in the example below.

Example: Accessing the Resource Index

```
GET /resourceIndex
```

This request returns a list of the top-level URI entry points to the RESTful services, including the entry point for the message board:

Example: Response to Accessing the Resource Index

```
200 OK
Accept: application/json;charset=UTF-8

{
  "resourceType": "urn:oracle:webcenter:resourceindex",
  "links": [
    {
      "resourceType": "urn:oracle:webcenter:resourceindex",
      "capabilities": "urn:oracle:webcenter:read",
      "rel": "self",
      "href": "http://host:port/rest/api/resourceIndex"
    },
    {
      "resourceType": "urn:oracle:webcenter:messageBoard",
      "capabilities": "urn:oracle:webcenter:read",
      "href": "opaque-messageBoard-URI"
    },
  ...repeating for other services...
}
```

You can examine this list to find the URI that you require to access your message board. You should look for the link with a `resourceType` of urn:oracle:webcenter:messageBoard. The href for this link is the one that you require to access your message board.

For other resources rel, type, and template also help find the correct link.

Reading Messages

Once you have determined the correct URI for your message board, you can send a GET request to that URI to read your messages.

To read messages on a message board, you must be logged in.

Example: Retrieving Messages from Your Message Board (GET)

```
GET /opaque-messageBoard-URI
```

The response provides information about all the messages on your message board:

Example: Response to Retrieving Messages from Your Message Board

```
200 OK
Accept: application/json;charset=UTF-8

{
  "resourceType": "urn:oracle:webcenter:messageBoard",
  "links": [
    {
      "resourceType": "urn:oracle:webcenter:messageBoard",
      "capabilities": "urn:oracle:webcenter:read urn:oracle:webcenter:create",
      "rel": "self",
      "href": "opaque-messageBoard-URI"
    }
  ]
  "items": [
    {
      "resourceType": "urn:oracle:webcenter:messageBoard:message",
      "links": [
        {
          "resourceType": "urn:oracle:webcenter:messageBoard:message",
          "capabilities": "urn:oracle:webcenter:read urn:oracle:webcenter:delete",
          "rel": "self",
          "href": "opaque-message-URI"
        }
      ]
      "id": "89add57c-7a35-4d35-b24f-ea9259612eb8",
      "body": "What's up?  It's been a while.  Some of us are going to Conner
O'Neal's after work.  Want to go?",
      "created": "2009-09-10T11:18:46.696-0700",
      "author": {
        "id": "carl",
        "displayName": "carl",
        "guid": "649A27F09D5C11DEBFAA799CBD41D9B8",
        "links": [
          {
            "resourceType": "urn:oracle:webcenter:people:person",
            "capabilities": "urn:oracle:webcenter:read",
            "rel": "via",
            "href": "opaque-person-URI"
          },
          {
            "resourceType": "urn:oracle:webcenter:messageBoard",
              "capabilities": "urn:oracle:webcenter:read urn:oracle:webcenter:create",
              "href": "opaque-messageBoard-URI-for-Carl"
            },
            {
              "type": "text/html",
              "resourceType": "urn:oracle:webcenter:spaces:profile",
              "capabilities": "urn:oracle:webcenter:read",
              "rel": "alternate",
              "href": "opaque-profile-URI"
            }
          ]
        },
      }
    ],
    "startIndex": 0,
    "itemsPerPage": 1,
}
```

From the response you can see that you have `read` and `create` capabilities on your message board. So you can read its contents and post new messages.

In addition, the response also includes a collection of items (in this case the collection consists of just a single item). These items, with a `resourceType` of `urn:oracle:webcenter:messageBoard:message`, are the messages on your message board. The `capabilities` attribute for the message indicates that, for this particular message, you can read it or delete it from your message board.

For each message, the response provides the following information:

- `id` - the identifier of the message
- `body` - the text of the message
- `author` - the author of the message. The author element is also made up of several other elements:
  - `id` - the identifier, or user name, of the author of the message
  - `displayName` - the name of the author, formatted for display
  - `guid` - the globally unique identifier of the author

Within the `author` element there is also a collection of three links. The `resourceType` of these links are:

- `urn:oracle:webcenter:people:person` - enables you to view information about the author of the message
- `urn:oracle:webcenter:messageBoard` - enables you to read or create a message on the author's message board
- `urn:oracle:webcenter:spaces:profile` - enables you to read a `text/html` document of the author's profile

Creating a New Message

Now that you have read the message on your message board, you probably want to reply to Carl on his message board. To do this you should send a `POST` request to the URI for Carl's message board.

To find the correct URI, use the `href` from the `author` link with `resourceType` of `urn:oracle:webcenter:messageBoard`.

A `POST` request creates a subordinate resource of the resource to which you post it. In this case, we are posting to the `messageBoard`, so we should post its subordinate resource: `message`:

Example: Creating a Message on Another User's Message Board (POST)

```
POST opaque-messageBoard-URI-for-Carl
Accept: application/json;charset=UTF-8
Content-Type: application/json;charset=UTF-8

{
    "body": "sure; see you guys at 6."
}
```

The response shows that your message was successfully created on Carl's message board:

Example: Response to Creating a Message on Another User's Message Board

```
201 Created
Content-Type: application/json;charset=UTF-8

{
  "id": "36b8464f-afda-44b5-90ad-8ecedcb040a3",
  "body": "sure; see you guys at 6.",
  "created": "2009-09-10T12:21:09.785-0700",
  "resourceType": "urn:oracle:webcenter:messageBoard:message",
  "links": [
    {
      "resourceType": "urn:oracle:webcenter:messageBoard:message",
      "capabilities": "urn:oracle:webcenter:read urn:oracle:webcenter:update
urn:oracle:webcenter:delete",
      "rel": "self",
      "href": "opaque-message-URI"
    },
  "author": {
    "id": "mike",
    "displayName": "mike",
    "guid": "649657609D5C11DEBFAA799CBD41D9B8",
    "links": [
      {
        "resourceType": "urn:oracle:webcenter:people:person",
        "capabilities": "urn:oracle:webcenter:read",
        "rel": "self",
        "href": "opaque-person-URI"
      },
      {
        "resourceType": "urn:oracle:webcenter:messageBoard",
        "capabilities": "urn:oracle:webcenter:read urn:oracle:webcenter:create",
        "href": "opaque-messageBoard-URI"
      },
      {
        "type": "text/html",
        "resourceType": "urn:oracle:webcenter:spaces:profile",
        "capabilities": "urn:oracle:webcenter:read",
        "rel": "alternate",
        "href": "opaque:profile:URI"
      }
    ]
  }
  ]
}
```

Updating a Message

A `PUT` request is very similar to a `POST` request, except that it is performed on the resource being edited, instead of on the parent resource.

From the response to your earlier `POST` request, when you created your message on Carl's message board, you can see that you have `read`, `update`, and `delete` capabilities on the message. You can also see that the `href` provides the URI for your message. Something came up at work and you must stay a bit later. Using the URI for your message, you can now send a `PUT` request to update the message and let Carl know that you are going to be late.

Example: Updating a Message (PUT)

```
PUT opaque:message:URI
Accept: application/json;charset=UTF-8
Content-Type: application/json;charset=UTF-8

{
    "body": "working late; see you guys at 7."
}
```

The response is nearly identical to that of `POST`, except that the `body` contains your updated message:

Example: Updating a Message

```
200 OK
Content-Type: application/json;charset=UTF-8

{
  "id": "36b8464f-afda-44b5-90ad-8ecedcb040a3",
  "body": "working late; see you guys at 7.",

...deleted for brevity...

}
```

Deleting a Message

Performing a `DELETE` request on a resource deletes it, if you have the `delete` capability on the resource. The link to your message on Carl's message board supports `delete`.

You decide to delete the message that you left on Carl's message board:

Example: Deleting a Message (DELETE)

```
DELETE opaque:message:URI
```

The response is simply a status code of 204:

Example: Response to Deleting a Message

```
204 NO CONTENT
```

Note:

`DELETE` is idempotent, meaning that it can be sent multiple times with the same result. Therefore if you try to delete the same object twice, you still receive the same 204 response even though it has previously been deleted.

Filtering Messages

Messages can be filtered (using the HTTP verbs GET, POST, and PUT) based on visibility criteria. Messages posted on message boards falls into the following visibility categories:

- Public
- Private
- Hidden
- Public and hidden
- Private and hidden

Public vs Private Messages

The owner of a message board can mark any message as private. When a message is marked as private, that message is not visible to anyone other than the owner of the message. By default, all messages are public.

Messages can also be sent as private messages. If Mike, for example, is viewing Carl's message board, only public messages (including those sent or received as private) will be visible to user Mike.

Hidden vs Non-hidden Messages

The owner of a message board can mark any message as hidden. When a message is marked as hidden, that message will not be visible to the message board's owner, but will remain visible to anyone else viewing that person's message board.

The following examples show how to retrieve,

Example: Retrieving Filtered Messages (GET)

- me

```
all
  rest/api/messageBoards/person/@me
private
  rest/api/messageBoards/person/@me/private
public
  rest/api/messageBoards/person/@me/public
hidden and public
  rest/api/messageBoards/person/@me/hidden
private and hidden
  rest/api/messageBoards/person/@me/private_hidden
```

- person

```
rest/api/messageBoards/person/<GUID>
```

Note that the GUID of the logged in user for whom to retrieve messages is required.

- space-guid

  ```
  rest/api/messageBoards/space/<GUID>
  ```

  Note that visibility-based filtering is not available for `space-guid`.

Example: Using Filtering for New Messages (POST)

- me

  ```
  all
    rest/api/messageBoards/person/@me
  private
    {"body" : "<BODY_CONTENT>","visibilityType" : "private"}
  public
    {"body" : "<BODY_CONTENT>","visibilityType" : "public"}
  hidden and public
   {"body" : "<BODY_CONTENT>","visibilityType" : "hidden"}
  private and hidden
    {"body" : "<BODY_CONTENT>","visibilityType" : "private_hidden"}
  ```

- person

  ```
  rest/api/messageBoards/person/<GUID>
  ```

  For a GUID other than that of "me":

  ```
  public
    {"body" : "<BODY_CONTENT>","visibilityType" : "public"}
  private
    {"body" : "<BODY_CONTENT>","visibilityType" : "private"}
  ```

- space-guid

  ```
  rest/api/messageBoards/space/<GUID>
  ```

  Note that visibility-based filtering is not available for `space-guid`.

Example: Using Filtering for Modified Messages (PUT)

- me

  ```
  all
    rest/api/messageBoards/person/@me/messages/<msg guid>
  private
    {"body" : "<BODY_CONTENT>","visibilityType" : "private"}
  public
    {"body" : "<BODY_CONTENT>","visibilityType" : "public"}
  hidden and public
   {"body" : "<BODY_CONTENT>","visibilityType" : "hidden"}
  private and hidden
    {"body" : "<BODY_CONTENT>","visibilityType" : "private_hidden"}
  ```

- person

  ```
  rest/api/messageBoards/person/<GUID>/messages/<msg guid>
  ```

  For a GUID other than that of "me":

  ```
  public
    {"body" : "<BODY_CONTENT>","visibilityType" : "public"}
  ```

```
private
  {"body" : "<BODY_CONTENT>","visibilityType" : "private"}
```

- space-guid

  ```
  rest/api/messageBoards/space/<GUID>/messages/<msg guid>
  ```

  Note that visibility-based filtering is not available for `space-guid`.

Displaying Activity Stream Data

To properly display Activity Stream data, you must:

- Retrieve the Activity Stream URI entry point
- Retrieve the Activity Stream data
- Process the Activity Stream data for display

More On OTN

This sample is available on the Oracle WebCenter Portal Demonstrations and Samples page on the Oracle Technology Network (OTN) at:

`http://www.oracle.com/technetwork/middleware/webcenter/ps3-samples-176806.html`

In the following example:

- The `getResourceURL` method shows you how to retrieve the URI entry point for the Activity Stream service by retrieving the JSON data for the main Resource Index (`/rest/api/resourceIndex`) and locating the URI for the Activity Stream resource in that data.
- The `formatMessage` method processes the Activity Stream data into a displayable format. This involves locating an individual message and replacing any template parameters in the message with the name of the object or user that corresponds to that parameter. The parameters also include links to display the object or user. They may contain links to REST services for those objects or users, if available.

Note:

To get the Resource Index and Activity Stream JSON data, make Ajax requests using Javascript (and possibly a client-side scripting library like Dojo) and pass the resulting data into the appropriate methods.

Example: Displaying Activity Stream Data

```
/* Parse the resourceIndex to find the specified URL and
 * return it.
 *
 * @Param jsonData the JSON data retrieved from calling
 *        the /rest/api/resourceIndex URL.
 * @Param strResourceType the resource type of the URL
 *        you want to retrieve from the resourceIndex data.
 *        E.g., 'urn:oracle:webcenter:activities:stream'
 */
```

```
function getResourceURL(jsonData, strResourceType)
{
  // Using the HATEOAS model, we browse the returned links
  // looking for the one with the correct resource type.

  for (var i = 0; i < data.links.length; i++) {
    if (data.links[i].resourceType == strResourceType) {
      return data.links[i].href;
    }
  }
}

/* Parse the resourceIndex to find the activity stream URL and
 * then load it.
 *
 * @Param jsonData the JSON data retrieved from calling
 *        the /rest/api/resourceIndex URL.
 */
function getActivitiesURL(jsonData)
{
  // Parse the JSON data to get the activities URI entry point.

  var strHref = getResourceURL(jsonData,
    'urn:oracle:webcenter:activities:stream');

  // INSERT CODE HERE: Implement getting the JSON data from the
  // strHref URL with the Accept header set to "application/json",
  // and use the formatMessage(index, jsonData) function to get
  // the displayable activity message for each activity.

}

/* Replace activity message parameters.
 *
 * @Param index the index of the activity to process
 * @Param jsonData the JSON data retrieved from calling
 *        the /rest/api/resourceIndex URL.
 */
function formatMessage(index, jsonData)
{
  var activity = jsonData.items[index];
  var strMessage = activity.message;

  // Look for activity parameters and replace them in the message.

  if (activity.templateParams && activity.templateParams.items) {
    for (var i = 0; i < activity.templateParams.items.length; i++) {
      var param = activity.templateParams.items[i];

      // Each parameter also has a set of links which at least
      // includes an HTML link and possibly a REST API link.

      strMessage = strMessage.replace(param.key, param.displayName);
    }
  }
  if (activity.detail) {
    strMessage = strMessage + "<br><font size='1'>" +
      activity.detail + "</font>";
  }
  return strMessage;
}
```

Updating User Status

The following example shows how to use REST APIs to update a user's WebCenter Portal profile status.

Note:

You must host the sample on a web server (for example, Apache or Oracle HTTP Server) or an application server. To avoid cross site scripting errors, you should proxy URL access to the REST service. On Apache or OHS, the conf commands would look like (change *myspaceshost* and *port* accordingly):

```
ProxyPass /webcenter/ http://myspaceshost:port/webcenter/
ProxyPassReverse /webcenter/ http://myspaceshost:port/webcenter/
ProxyPass /rest/ http://myspaceshost:port/rest/
ProxyPassReverse /rest/ http://myspaceshost:port/rest/
ProxyPreserveHost on
```

More On OTN

This sample is available on the Oracle WebCenter Portal Demonstrations and Samples page on the Oracle Technology Network (OTN) at:

http://www.oracle.com/technetwork/middleware/webcenter/ps3-samples-176806.html

Updating user status involves making a sequence of asynchronous AJAX calls to get the URL for the status object:

```
urn:oracle:webcenter:resourceindex
   urn:oracle:webcenter:people
      urn:oracle:webcenter:people:person:status
```

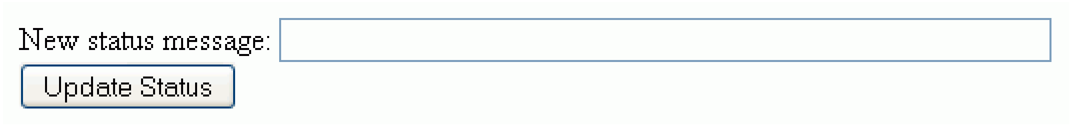
The HTML page for updating user status includes an input field where users can enter the new status message (`statusMessage`). Clicking the **Update Status** button (or pressing Enter) calls the `updateStatus` method to make the initial call to the Resource Index.

Example: HTML Body

```
<body>
<div>New status message:&nbsp;<input id="statusMessage" type="text"
   onkeyup="{if (event.keyCode==13) updateStatus();}" maxlength="250"
   size="60" /></div>
<div>
<button id="button1" onclick="updateStatus();">Update Status</button>
</div>
<div id="statusResults"></div>
</body>
```

The following example shows the HTML page.

Figure C-1 New Status Message HTML Page



The code in the following example retrieves the Resource Index (`resourceIndexURL` variable set to `/rest/api/resourceIndex`). The Resource Index is returned as an AJAX request object (`resourceIndexRequest`).

Example: Retrieving the Resource Index

```
function updateStatus() {
   // Set the UI to busy state. This is cleared in the success and error callbacks
   setUIBusy("Updating status...");
   //get the Resource Index
   resourceIndexRequest.get(
      resourceIndexURL,
      resourceIndexCallback,
      clearUIBusy);
}
```

The `getResourceURL` method shown in the following example traverses the links in the data returned by a REST call to find a specified string (URN) that identifies the required resource type.

Example: Traversing the Links

```
function getResourceURL(data, strResourceType) {
   for (var i = 0; i < data.links.length; i++) {
      if (data.links[i].resourceType == strResourceType) {
         return data.links[i].href;
      }
   }
   return null;
}
```

The following example uses `getResourceURL` to parse the Resource Index to find the user profile URL. The data is returned as an AJAX request object (`profileRequest`).

Example: Retrieving the User Profile

```
function resourceIndexCallback(data) {
   //get my user profile
   profileRequest.get(
      getResourceURL(data, 'urn:oracle:webcenter:people'),
      profileCallback,
      clearUIBusy);
}
```

The following example takes the new status message provided by the user in the HTML page (`statusMessage`) and uses `request.put` to update the status object (retrieved by again calling `getResourceURL`).

Example: Retrieving the Status Object

```
function profileCallback(data) {
   profile = data;
   // get the URL for the status object
   var url = getResourceURL(data, 'urn:oracle:webcenter:people:person:status');
   // get the new status and escape double quotes
   var newStatus = document.getElementById
      ('statusMessage').value.replace(/\"/g. "\\\"");
   //send a JSON string representing the new status object
   var statusMessage = '{"note": "' + newStatus + '"}';
   statusRequest.put(
      getResourceURL(data, 'urn:oracle:webcenter:people:person:status'),
         statusMessage, renderStatusPutResults, clearUIBusy);
}
```

The `renderStatusPutResults` method, shown in the example below, renders the new status object.

Example: Rendering the New Status Object

```
function renderStatusPutResults(data) {
   var name = profile.displayName;
   // get the URL for my profile HTML page in WebCenter Portal
   var profileURL = getResourceURL(profile,
      'urn:oracle:webcenter:spaces:profile');
   var html = 'Status for <a href="' + profileURL + '" target="_blank">'
      + name + '</a> is: ' + data.note;
   // clear the UI busy state and print the new status message
   clearUIBusy(html);
}
```

The following example shows the code for disabling and reenabling the UI.

Example: Disabling the UI

```
function setUIBusy(message) {
   document.getElementById('statusResults').innerHTML = message;
   document.getElementById('button1').disabled = true;
   document.getElementById('statusMessage').disabled = true;
}

function clearUIBusy(message) {
   document.getElementById('statusResults').innerHTML = message;
   document.getElementById('button1').disabled = false;
   document.getElementById('statusMessage').disabled = false;
}
```

The example below shows the library that assists in AJAX calls. Most of this is not WebCenter specific and works for any XHR requests to a service that returns JSON.

The library includes a reusable XHR object. This object supports HTTP GET, POST, PUT, and DELETE. All functions are asynchronous and take a URL and two callback functions, one for success, and one for failure. Success calls are made with a JavaScript object containing the return data. Failure calls are made with an error string. POST and PUT also take a data argument which must be a JSON string.

Example: AJAX Library

```
function AjaxRequest() {
   // constructor to create an object oriented AJAX request
   var xhr = null;

   // get XHR object. Should work for IE 6+, Safari, and Mozilla based browsers
   if (window.XMLHttpRequest) {
      xhr = new window.XMLHTTPRequest;
```

```
} else {
   try {
      xhr = new ActiveXObject('MSXML2.XMLHTTP.3.0');
   } catch (ex) {
      xhr = null;
   }
}
if (xhr == null) {
   alert("Your browser does not support AJAX");
}

this.get = function(url, callback, errorCallback) {
   xhr.open('GET', url, true);
   // the REST APIs return XML by default. Please return JSON
   xhr.setRequestHeader('Accept', 'application/json; charset=utf-8');
   sendRequest(null, callback, errorCallback);
};

this.post = function(url, data, callback, errorCallback) {
   xhr.open('POST', url, true);
   // set headers to send and receive JSON
   xhr.setRequestHeader('Accept', 'application/json; charset=utf-8');
   xhr.setRequestHeader('Content-Type', 'application/json; charset=utf-8');
   sendRequest(data, callback, errorCallback);
};

this.put = function(url, data, callback, errorCallback) {
   xhr.open('PUT', url, true);
   // set headesr to send and receive JSON
   xhr.setRequestHeader('Accept', 'application/json; charset=utf-8');
   xhr.setRequestHeader('Content-Type', 'application/json; charset=utf-8');
   sendRequest(data, callback, errorCallback);
};

this.deleteResource = function(url, callback, errorCallback) {
   xhr.open('DELETE', url, true);
   sendRequest(null, callback, errorCallback);
};

// set the callbacks and send the request with data, if any
function sendRequest(data, callback, errorCallback) {
   xhr.onreadystatechange = function () {
      processResponse(xhr, callback, errorCallback);
   };
   xhr.send(data);
}

function processResponse(xhr, callback, errorCallback) {
   var data = null;
   // can get called here many times. 4 means really done
   if (xhr.readyState == 4) {
      // let's call any HTTP codes in the 200s success
      if (xhr.status >= 200 && xhr.status <300) {
         // convert response text into a JSON object. This is insecure.
         // data should not be blindly evaluated from the server return.
         // consider using json2.js http://www.JSON.org/js.html
         data = eval('(' + xhr.responseText + ')');
         callback(data);
      } else {
         // we got an error. Format an error string
         data = 'Error: ' + xhr.status + ' ' + xhr.statusText + '<br />'
```

```
                    + xhr.responseText;
                errorCallback(data);
            }
        }
    }
}
```

Using the People Connections REST APIs

This section includes the following topics:

- Activity Stream REST API
- Connections and Profile REST API
- Feedback REST API
- **Message Board REST API**
- Creating an Invitation

Activity Stream REST API

Use the Activity Stream REST API to browse user application activities in an activity stream. This section provides information about the REST API methods you can use to perform this action.

This section includes the following topics:

- Activity Stream Entry Point
- Activity Stream Resource Type Taxonomy
- Activity Stream Security Considerations
- Activity Stream Resource Types

Activity Stream Entry Point

Each REST service has a link element within the Resource Index that provides the entry point for that service. For People Connections, each feature has its own link element. For example, to find the entry point for the People Connections' Activity Stream feature, find the link elements with a `resourceType` of:

```
urn:oracle:webcenter:activities:stream
```

The corresponding `href` or `template` element provides the URI entry point, which retrieves application activities for the current user from the Activity Stream. The client sends HTTP requests to this entry point to work with the People Connections' Activity Stream feature.

See Also:

For more information about the Resource Index, see Using the Resource Index.

For more information about resource types, see Resource Type.

Activity Stream Resource Type Taxonomy

When the client has identified the entry point, it can then navigate through the resource type taxonomy to perform the required operations. For more information about the individual resource types, see the appropriate section in Activity Stream Resource Types.

The resource type taxonomy for the People Connections' Activity Stream feature is:

```
urn:oracle:webcenter:activities:stream
urn:oracle:webcenter:activities:activity
```

Activity Stream Security Considerations

You must be logged into the REST service to access any of the People Connections REST APIs. After that, the underlying service handles permission checking and the like.

See Also:

For general security considerations, see Security Considerations for WebCenter Portal REST APIs.

Activity Stream Resource Types

This section provides you with all the information you need to know about each resource type. It includes the following topics:

- urn:oracle:webcenter:activities:stream
- Navigation Paths to stream

urn:oracle:webcenter:activities:stream

The `stream` response contains URIs for use in retrieving activities from the Activity Stream.

You can retrieve the activities from a user's stream or activities from a user's connections' streams. To have even greater control over which activities to retrieve, use the activity stream query filter. With the query filter, you can:

- Specify the user to query
- Include the user's connections' activities in the results
- Include activities from portals, including the Home portal, in the results
- Restrict the results to activities from specific services

The options available to you depend on the path you take to get to the `stream` resource and the `rel` of the link that you use. For example, the activity stream query filter is available only from links with a `rel` attribute of `urn:oracle:webcenter:activities:stream`. If you access the activity stream query filter from the `person` resource, the `personGuid` parameter is prefilled.

Table C-4 shows the activities returned depending on the `rel` element of the link.

Table C-4 Activities Returned by stream

rel	Returns
`urn:oracle:webcenter:activities:stream:person`	Activities from the user's stream (*`GUID`*`/@self`)[1]
`urn:oracle:webcenter:activities:stream:connections`	Activities from the user's connections' streams (*`GUID`*`/@connections`)
`urn:oracle:webcenter:activities:stream`	Activities determined by the activity stream query filter
`urn:oracle:webcenter:activities:stream:space`	Activities from the portal activity stream
`urn:oracle:webcenter:activities:stream:list`	Activities from the portal activity list

[1] *`GUID`* can be any valid user GUID or `@me`.

Navigation Paths to stream

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceIndex
   stream (rel="urn:oracle:webcenter:activities:stream:person" or
               "urn:oracle:webcenter:activities:stream")

resourceIndex
   person
      stream (rel="urn:oracle:webcenter:activities:stream:person" or
                  "urn:oracle:webcenter:activities:stream:connections" or
                  "urn:oracle:webcenter:activities:stream")

resourceIndex
   person
      list
         stream

resourceIndex
   space
      stream

stream
   activity
      param
         stream (rel="urn:oracle:webcenter:activities:stream:space")

personReference
   stream
```

Supported Methods for stream

The following method is supported by the `stream` resource:

- `GET`
  - **request—Parameters:**

* `startIndex`, `itemsPerPage`

> **See Also:**
>
> For information about REST API parameters, such as `startIndex` and `itemsPerPage`, see Common Request Query Parameters.

The following additional parameters are available for the query filter URI:

* `fromDate` – Specifies activities start date (`yyyy-mm-dd`).
* `toDate` – Specifies activities end date, (`yyyy-mm-dd`).
* `data` – Returns specified data only (for more information, see Common Request Query Parameters). For the stream resource, if you specify the constant `'data'` as the data parameter, all of the basic information about the resource is returned except "comments" and "likes" summaries. If you want to return comments or likes, specify the `data` parameter value `'commentsSummary'` or `'likesSummary'`.

  > **Note:**
  >
  > You can specify multiple data values as a comma separated list. For example, `data=data, commentsSummary`.

* `personGuid` – (Required) Retrieves activities from the stream for the specified user. **Valid values:** any valid user GUID or `@me`.
* `serviceIds` – Retrieves activities only for the specified services. **Valid values:** An asterisk (*) returns all services. If null or empty, uses the user preference settings for service filters (from the settings link in the top bar).
* `personal` – Includes the specified user's activities in the Home portal. **Valid values:** `true` or `false`. **Default value:** `false`.
* `connections` – Includes activities from the streams of the specified user's connections. **Valid values:** `true` or `false`. **Default value:** `false`.
* `groupSpaces` – Includes activities from all portals of which the specified user is a member. **Valid values:** `true` or `false`. **Default value:** `false`.
* `connectionListIds` – A comma separated list of connection list names that specifies the connection lists used to show activities.
* `groupSpaceGuids` – A comma separated list of portal GUIDs used to show activities.
* `userGroupSpaceActivities` – Specifies whether or not to show the user's activities in their portal. **Valid values:** `true` or `false`. **Default value:** `false`.
* `followedObjects` – Specifies whether or not to show all activities for followed objects that both the current user and the specified user follow. **Valid values:** `true` or `false`. **Default value:** `false`.

* `followedObjectsUserActivities` – Specifies whether or not to show the specified user's activities for followed objects that both the current user and the specified user follow. **Valid values:** `true` or `false`. **Default value:** `false`.
* `advancedQuery` – Specifies filters against streamed activities. Create filters for user names, service IDs, and object details, such as a document's display name.

> **Note:**
>
> You must plug actual values into the `advancedQuery` parameter. You cannot pass EL expressions directly into the parameter. Typically, the REST API client handles an EL transformation manually and inserts the actual object data value into the REST URL. See the example below.

For example, the following URI returns activities from the current user's activity stream, for all services that the user has configured in their personal preference settings for service filters. It returns activities from the user's Home portal and from the streams of the user's connections:

```
http://host:port/rest/api/activities?
personal=true&connections=true&personGuid=@me&token=utoken
```

The following URI returns only the user's personal profile and connections activities:

```
http://host:port/rest/api/activities?serviceIds=oracle.webcenter.peopleconn
ections.profile,oracle.webcenter.peopleconnections.connections&personal=
true&personGuid=@me&token=utoken
```

This next example illustrates how to use the `advancedQuery` parameter. As explained previously, you cannot pass an EL expression to `advancedQuery`. The REST API client must first obtain the actual data object value, and that value can then be passed to `advancedQuery`. For example, to filter activities for a particular portal, you can pass the GUID of the portal's scope to `advancedQuery`:

```
http://host:port/rest/api/activities?personGuid=@me&advancedQuery=AE.SCOPE_ID
%20%3D%20\%27s8bba98ff_4cbb_40b8_beee_296c916a23ed\%27&ttoken=token
```

where `s8bba98ff_4cbb_40b8_beee_296c916a23ed` is the GUID of the portal. Note that the query string must be encoded with the appropriate escape codes.

– **response—Body:** 0 or more activities

> **Note:**
>
> Because the `stream` resource includes activity items, the response may also return resource links for the objects referenced in the activity.

Resource Types Linked to From stream

Table C-5 lists the resource types that the client can link to from the `stream` resource.

Table C-5 Related Resource Types for stream

rel	resourceType
self urn:oracle:webcenter:activities:stream:person	urn:oracle:webcenter:activities:stream
Related	urn:oracle:webcenter:activities:activity

urn:oracle:webcenter:activities:activity

The `activity` response contains the data for activities and URIs for use in retrieving all the data you need from an activity that is included in an Activity Stream.

Navigation Paths to activity

This section shows how the client can navigate through the hypermedia to access the `activity` resource:

```
resourceIndex
   stream
      activity

resourceIndex
   person
      stream
         activity

resourceIndex
   space
      stream
         activity
```

Supported Methods for activity

No methods are supported for `activity`. Activities are currently available only from the `stream` resource type.

Resource Types Linked to from activity

Table C-6 lists the resource types that the client can link to from this resource.

Table C-6 Related Resource Types for urn:oracle:webcenter:activities:activity

rel	resourceType
self	`urn:oracle:webcenter:activities:activity`
icon	urn:oracle:webcenter:activities:activity:icon

Read-only Elements for activity

Table C-7 lists the read-only elements for the `activity` resource.

Note:

The activity will also return a link to an activity icon in the links section of the response, if an icon is available. See urn:oracle:webcenter:activities:activity:icon.

Table C-7 Read-Only Elements for activity

Element	Type	Description
`activityType`	String	Activity type Unique within the service.
`commentsCount`	String	If you specify `commentsSummary` in the data parameter, then the `commentsCount` parameter will be returned.
`createdDate`	Date (String)[1]	Date the activity was created.
`description`	String	The description of the activity.
`detail`	String	Detail information for the activity, if available. For example, this might return the contents of a message, the file name of a document, and the like. Similar to `detailURL`. Both, either, or neither can be used. The detailURL will be available when creating wiki and blog in a portal.
`detailURL`	String	detailURL is available when creating wikis and blogs in a portal.In a Web-based WebCenter Portal, the user can click this URL and open a wiki or blog page in a portal. Similar to `detail`. Both, either, or neither can be used.
`displayDescription`	String	A pre-formatted, internationalized description.
`displayMessage`	String	A pre-formatted, internationalized message (does not include template information).
`groupSpace`	groupSpaceReference	Information about the portal in which the activity was performed **Note:** This reference is not present for activities that did not happen in a portal (for example, activities that happened in the Home portal). Also, because creation of a portal happens in a Home portal, that activity does not have this element either.
`id`	String	Unique ID of the message

Table C-7 (Cont.) Read-Only Elements for activity

Element	Type	Description
`isSummary`	true or false	Indicates whether or not this activity is a summary of other activities.
`likesCount`	String	If you specify `likesSummary` in the data parameter, then the `likesCount` parameter will be returned.
`message`	String	Localized string for this activity This may contain replacement strings within curly braces ({}).
`permission`	PRIVATE SHARED PUBLIC	Permission level of this activity
`scope`	String	Scope of the activity This might return a portal, like the Home portal. For example, for a portal, it returns a string similar to the following: `s8bba98ff_4cbb_40b8_beee_296c916a23ed`
`serviceId`	String	Unique ID of the service that created the activity

`sharedLink_url`	String	Can be used to render a navigation link by the REST client as shown in the example below:
		`<param resourceType="urn:oracle:webcenter:activities:parameter">`
		`<links>`
		`<link href="http://www.google.com" />`
		`</links>`
		`<displayName>http://www.google.com</displayName>`
		`<key>_sharedLink_url</key>`
		`<type>custom</type>`
		`</param> "`
		
		Note that this parameter cannot be used in a message template (for example: `{actor[0]}` has created the portal {object[0]}).

Table C-7 (Cont.) Read-Only Elements for activity

Element	Type	Description
`templateParams`	urn:oracle:webcenter:activities:parameter	A list of `param` elements that capture data related to an activity. A key provided with each `templateParam` <param> element allows you to plug one or more data items into a parameterized activity message. See Understanding the templateParams Element.
`custom`	Param	The custom parameter includes a `displayName`, `key`, and `type`, and may or may not have a URL.

[1] Data types, such as `DATE` and `BOOLEAN`, are stored in the API as `STRING`. The `DATE` data type returns a Java standard date format, for example, `2009-08-21T14:43:11.0013-0700`, with `0700` representing the time zone.

Understanding the templateParams Element

Suppose you want to display the most recent messages for a user named Carl. You want to display information like this: "Carl created the portal Customer Feedback". The `templateParams` element helps you solve this problem.

The `templateParams` element is returned in objects of type `oracle:webcenter:activities:activity`. This element captures a lot of data related to an activity. For example, if a user creates a new portal, the `templateParams` element for that activity captures information about the user and about the portal. Keys are provided that allow you to perform string substitutions in a parameterized message string related to the activity.

For example, if the user creates a portal, the returned activity object contains a `<message>` item that is parameterized like this:

```
<message>{actor[0]} has created the portal {object[0]}</message>
```

By parsing the `templateParams` element for the activity, you can find the available keys that allow you to perform string substitutions as well as appropriate data to display, like the name of the user and the activity.

The `templateParams` element also provides links to `comments`, `likes`, `commentsSummary`, and `likesSummary` objects, if they are requested using the `data` parameter. These links let you query for all the comments or likes for an object or post a new comment or like. The summary links returns the comments or likes count and several recent comments or likes. See also Understanding Comments and Likes.

The links returned with the `templateParams` element vary depending on what kind of object is returned, like a user, document, portal, or custom object. For more information, see urn:oracle:webcenter:activities:parameter.

> **Note:**
>
> The `templateParams` element can sometimes contain elements that are not directly referenced in the message.

If a `rel` link is marked "via," this means it is a link to the underlying REST object–for instance, the document not the parameter. If a `rel` link is marked "alternate" and type "text/html," it is a link to the HTML page for that object. Portal objects include an activity stream link for portals. Users have icon and activity stream links. Other objects can have an `alt` link to the tagged item, as well as the related tagged items list, if tagging is enabled for that object. If a regular object supports comments or likes, it can include the comments/commentsSummary and likes/likesSummary, as explained previously.

Understanding Comments and Likes

Hyperlinks to `comments`, `commentsSummary`, `likes` and `likesSummary` are included by default (you can expand the `commentsSummary` and `likesSummary` by specifying `data=data,commentsSummary,likesSummary`). Comments and likes can be associated with the object referenced by the activity or the activity itself. For example, if you edit a document, then the comments will be associated with the document. If you add comments on an edit document activity on the activity stream page, then comments will be associated with the edit document activity.

The links associated with comments and likes are:

- `comments` – The `comments` link lets you query for all the comments for an object. This link also lets you POST a new comment. For a `comments` POST, the `text` field is required. For example, for body data you would use:

  JSON:

  ```
  {
    "text" : "REST Comment"
  }
  ```

  XML:

  ```
  <text>REST Comment</text>
  ```

- `commentsSummary` – The `commentsSummary` link returns the comments count and several recent comments.
- `likes` – The `likes` link lets you query for all the likes for an object. This link also lets you POST a new like. There are no required fields for a `likes` POST.
- `likesSummary` – The `likesSummary` link returns the likes count and the current user's like (if available).

> **Note:**
>
> `Like` objects themselves only support DELETE, not GET. The `likesCount` and `commentsCount` items return the number of likes or comments for the current object.

The following URLs show examples of `GET` requests for `comments`, `commentSummary`, `likes` and `likesSummary` for a document object:

```
"http://example.com:8892/rest/api/activities/services/oracle.webcenter.doclib/
objectTypes/document/objects/(<document_object_id>)/comments?
startIndex=0&amp;itemsPerPage=10&amp;utoken=FCvY3qQSBh0eAByLdxugV-lUgFO3_w**"

"http://example.com:8892/rest/api/activities/services/oracle.webcenter.doclib/
objectTypes/document/objects/(<document_object_id>)/commentsSummary?
utoken=FCvY3qQSBh0eAByLdxugV-lUgFO3_w**"

"http://example.com:8892/rest/api/activities/services/oracle.webcenter.doclib/
objectTypes/document/objects/(<document_object_id>)/likes?
startIndex=0&amp;itemsPerPage=10&amp;utoken=FCvY3qQSBh0eAByLdxugV-lUgFO3_w**"

"http://example.com:8892/rest/api/activities/services/oracle.webcenter.doclib/
objectTypes/document/objects/(<document_object_id>)/likesSummary?
utoken=FCvY3qQSBh0eAByLdxugV-lUgFO3_w**"
```

Where <document_object_id> is the document object ID.

The following URLs show examples of `GET` requests for `comments`, `commentSummary`, `likes` and `likesSummary` for a create document activity:

```
"http://example.com:8892/rest/api/activities/ffa9a9f0-d02f-4e30-8c58-8a41b7a6e8a3/
comments?startIndex=0&amp;itemsPerPage=10&amp;utoken=FCvY3qQSBh0eAByLdxugV-
lUgFO3_w**"

"http://example.com:8892/rest/api/activities/ffa9a9f0-d02f-4e30-8c58-8a41b7a6e8a3/
commentsSummary?utoken=FCvY3qQSBh0eAByLdxugV-lUgFO3_w**"

"http://example.com:8892/rest/api/activities/ffa9a9f0-d02f-4e30-8c58-8a41b7a6e8a3/
likes?startIndex=0&amp;itemsPerPage=10&amp;utoken=FCvY3qQSBh0eAByLdxugV-lUgFO3_w**"
                  "http://example.com:8892/rest/api/activities/ffa9a9f0-
d02f-4e30-8c58-8a41b7a6e8a3/likesSummary?utoken=FCvY3qQSBh0eAByLdxugV-lUgFO3_w**"
```

urn:oracle:webcenter:activities:parameter

The `templateParams` element returns a set of `param` elements. The `param` elements return data specific to the type of activity object returned. The possible types of param elements include:

- `user` – Returns the `displayName`, `guid`, `id`, `key`, `primaryId`, and `type`.
- `document` – Returns the `displayName`, `iconUrl`, `id`, `key`, `primaryId`, and `type`.
- `custom` – Returns `displayName`, `key`, and `type`, and may or may not have a URL.

A param can also be a variable reference or key of the general form `{prefix[index].variable}`.

urn:oracle:webcenter:activities:activity:icon

Use this resource type to get the icon of the activity, if available (`GET`).

Navigation Paths to activities:activity:icon

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   activities
      activity
         icon
```

Supported Methods for icon

The following methods are supported by this resource:

- `GET` – Returns the icon used for the named activity.

Resource Types Linked to from icon

Table C-8 lists the resource types that the client can link to from this resource.

Table C-8 Related Resource Types for urn:oracle:webcenter:activities:activity:icon

rel	resourceType
self	
urn:oracle:webcenter:parent	urn:oracle:webcenter:activities:activity

Connections and Profile REST API

Use the Connections and Profile REST API to browse a profile or a connections list, manage connections lists, add or remove connections, send invitations to connect, and update a profile status message. This section provides information about the REST API methods to use to perform these actions.

This section includes the following topics:

- Connections and Profile Entry Point
- Connections and Profile Resource Type Taxonomy
- Connections and Profile Security Considerations
- Connections and Profile Resource Types

Connections and Profile Entry Point

Each REST service has a link element within the Resource Index that provides the entry point for that service. For People Connections, each feature has its own link element. For example, to find the entry points for the People Connections' Connections and Profile features, find the link elements with a `resourceType` of:

`urn:oracle:webcenter:people` (returns the current user profile)

`urn:oracle:webcenter:people:person` (enables you to query for a user)

`urn:oracle:webcenter:people:invitations` (returns invitations sent or received by the current user)

Note:

The `people:person` and `people:invitations` resource types have a `template` but not an `href`.

The corresponding `href` or `template` element provides the URI entry point, which returns a list of people (`people`) or an individual user (`people:person`). The client sends HTTP requests to this entry point to work with the People Connections' Connections and Profile features.

Connections and Profile Resource Type Taxonomy

When the client has identified the entry point, it can then navigate through the resource type taxonomy to perform the required operations. For more information about the individual resource types, see the appropriate section in Connections and Profile Resource Types.

The resource type taxonomy for the People Connections' Connections and Profile features is:

```
urn:oracle:webcenter:people
   urn:oracle:webcenter:people:person
   urn:oracle:webcenter:people:icon
   urn:oracle:webcenter:people:person:list
      urn:oracle:webcenter:people:person:listNames
      urn:oracle:webcenter:people:person:listName
       urn:oracle:webcenter:people:person:list:member
      urn:oracle:webcenter:people:person:status
   urn:oracle:webcenter:people:invitations
      urn:oracle:webcenter:people:invitation
```

Connections and Profile Security Considerations

You must be logged in to the REST service to access any of the People Connections REST APIs. After that, the underlying service handles permission checking and the like.

Connections and Profile Resource Types

This section provides you with all the information you need to know about each resource type. It includes the following topics:

- urn:oracle:webcenter:people
- Navigation Paths to people
- Supported Methods for people
- Predefined Sets for the links Parameter
- Resource Types Linked to from people
- urn:oracle:webcenter:people:icon
- Supported Methods for icon
- Resource Types Linked to from icon

- urn:oracle:webcenter:people:person
- Supported Methods for person
- Read-only Elements for person

urn:oracle:webcenter:people

The `people` response contains URIs for use in retrieving the profile of one or more users.

Navigation Paths to people

This section shows how the client can navigate through the hypermedia to access the `people` resource:

```
resourceIndex
   people
```

Supported Methods for people

The following method is supported by the `people` resource:

- `GET`
  - **request—Parameters:**
    - `startIndex` – See Common Request Query Parameters.
    - `itemsPerPage` – See Common Request Query Parameters.
    - `projection` – See Common Request Query Parameters.
    - `data` – The data parameter is a comma separated list that controls which data will be returned in the response. The predefined set `basic` is equivalent to `data=guid,id,displayName`. The predefined set `data` is a standard set that returns all the data for the user, but does not include `status`, `manager`, `reportees`, or `photos`. The full list of possible values includes the predefined sets `basic` and `data`, as well as the following individual data values: `guid`, `id`, `displayName`, `birthday`, `language`, `timeZone`, `name`, `addresses`, `organizations`, `workEmail`, `phoneNumbers`, `manager`, `reportees`, `photos`, and `status`.

      If you specify the constant `'data'` as the `data` parameter, all the basic information will be returned for the resource. If both the `projection` and `data` query string parameters are present, the `data` parameter will be used to determine which data to return.

      The `data` parameter can also take any of the following values comma-separated values to return the corresponding data: `guid`, `id`, `displayName`, `birthday`, `language`, `timeZone`, `name`, `addresses`, `organizations`, `workEmail`, `phoneNumbers`, `manager`, `reportees`, `photos`, and/or `status`.

> **Note:**
>
> The data parameter can accept a predefined set, a collection of values, or a mix of sets and values. For example, to get the basic data plus the user's birthday, you can specify `data=basic,birthday`.

* `links` – The links parameter is a comma-separated list that controls which links will be returned in the response. This parameter can accept predefined sets, individual data values, or a combination of predefined sets and individual data values. The predefined sets are `basic`, `data`, `activitiesSet`, `connectionsSet`, and `feedbackSet`. These predefined sets are described in Predefined Sets for the links Parameter.

  The individual values for the `links` parameter are: `person`, `profile`, `icon`, `status`, `messageBoard`, `activities`, `personActivities`, `connectionActivities`, `connections`, `listNames`, `invitation`, `givenFeedback`, `receivedFeedback`, `userGivenFeedback`, `manager`, `reportees`, `member`.

  If both the `projection` and `links` query string parameters are present, the `links` parameter will be used to determine which links to return.

– **response—Body:** One or more person objects.

Predefined Sets for the links Parameter

The following items are predefined sets that can be returned in the `links` parameter. For example, if you specify `links=basic`, it is the equivalent of specifying `data=person,profile,icon`. You can also specify additional parameters as needed. For example, you could specify `data=basic,birthday`.

> **Note:**
>
> Links that are not currently available will not be returned even if they are specified in the `links` parameter.

- `basic` – A standard set that returns the basic information for the profile and includes `person`, `profile`, and `icon`.
- `data` – A standard set that returns all the basic links for the response plus the connections list, status, and activity stream template.
- `activitiesSet` – Includes `activities`, `personActivities`, and `connectionActivities`.
- `connectionsSet` – Includes `connections`, `listNames`, and `invitation`.
- `feedbackSet` – Includes `givenFeedback`, `receivedFeedback`, and `userGivenFeedback`.

Resource Types Linked to from people

Table C-9 lists the resource types that the client can link to from the `people` resource.

Table C-9 Related Resource Types for people

rel	resourceType
urn:oracle:webcenter:people:icon	urn:oracle:webcenter:people:person
urn:oracle:webcenter:people:person:list:connections	urn:oracle:webcenter:people:person:list
urn:oracle:webcenter:activities:stream:person	urn:oracle:webcenter:activities:stream
urn:oracle:webcenter:activities:stream:connections	urn:oracle:webcenter:activities:stream
urn:oracle:webcenter:activities:stream	urn:oracle:webcenter:activities:stream
urn:oracle:webcenter:feedback:all-received	urn:oracle:webcenter:feedback
urn:oracle:webcenter:feedback:all-given	urn:oracle:webcenter:feedback
self	urn:oracle:webcenter:people:person:status
urn:oracle:webcenter:people:person:list:list	urn:oracle:webcenter:people:person:list
self	urn:oracle:webcenter:people:person:listName
urn:oracle:webcenter:activities:stream:list	urn:oracle:webcenter:activities:stream

urn:oracle:webcenter:people:icon

Use this resource type to get the icon used for the named profile (`GET`).

Navigation Paths to people:icon

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   people
      icon
```

Supported Methods for icon

The following methods are supported by this resource:

- `GET` – Returns the icon used for the named profile.

Note:

This resource includes a template that lets you choose the size of the profile icon to use. The `size` template parameter can be set to `small`, `medium`, or `large`.

Resource Types Linked to from icon

Table C-10 lists the resource types that the client can link to from this resource.

Table C-10 Related Resource Types for urn:oracle:webcenter:people:icon

rel	resourceType
self	urn:oracle:webcenter:people:icon
urn:oracle:webcenter:parent	urn:oracle:webcenter:people

urn:oracle:webcenter:people:person

The `person` response contains profile data and the URIs for use in retrieving a user profile.

Navigation Paths to person

This section shows how the client can navigate through the hypermedia to access the `person` resource:

```
resourceIndex
   people

resourceIndex
   people
      person

resourceIndex
   person

author
   person

resourceIndex
   activities:stream
      person
```

Supported Methods for person

The following method is supported by the `person` resource:

- `GET`
  - **request—Parameters:** `q`

    To retrieve a specified person, the format of `q` is:

    ```
    q=[loginid:equals:username]
    Or
    q=[guid:equals:guid]
    Or
    q=[email:equals:email]
    ```

> **Note:**
>
> The parameter `q` is only on the `resourceIndex` template for `person`.

– **response—Body:** `message`

> **See Also:**
>
> For information about the response `message`, see Read-only Elements for person.

Read-only Elements for person

Table C-11 lists the read-only elements for the `person` resource.

> **Note:**
>
> The elements present in a `person` response depend on how the user repository is configured and the elements it supports. Additionally, several of the pieces of data represented in Table C-11, such as `address`, `emails`, `photos`, `phoneNumbers`, and `organization`, can have multiple instances.

> **See Also:**
>
> Some of the elements listed in Table C-11 can be returned in predefined sets described in Predefined Sets for the links Parameter.

Table C-11 Read-Only Elements for person

Element	Type	Description
`guid`	String	Unique GUID of the person
`id`	String	Unique login ID of the person (that is, the user name, for example, pat_coi)
`displayName`	String	Display name of the person (the user's name, for example, Pat Coi). This may have the same value as `id`, depending on the repository configuration.
`birthday`	Date (String)[1]	Birth date of the person
`connected`	Boolean (String)1	Whether or not this person is connected to the current user
`language`	String	Preferred language of the person
`timeZone`	String	Time zone of the person

Table C-11 (Cont.) Read-Only Elements for person

Element	Type	Description
`name`	`name`	Name information for the person `name` is a portable contact type. For more information, see name Portable Contact Type.
`address`	`address`	Address information for the person address is a portable contact type. For more information, see address Portable Contact Type.
`emails`	`value`	Emails for the person `emails` is derived from the `value` portable contact type. For more information, see value Portable Contact Type.
`photos`	`value`	Profile photos for the person `photos` is derived from the `value` portable contact type. For more information, see value Portable Contact Type.
`phoneNumbers`	`value`	Phone numbers for the person `phoneNumber` is derived from the `value` portable contact type. For more information, see value Portable Contact Type.
`organizations`	`organization`	Organization information for the person organization is a portable contact type. For more information, see organization Portable Contact Type
`manager`	personReference	Manager of this person
`reportees`	personReference	Direct reports of this person
`status`	urn:oracle:webcenter:people:person:status	Person's profile status message

1 Data types, such as `DATE` and `BOOLEAN`, are stored in the API as `STRING`.

Resource Types Linked to from person

Table C-12 lists the resource types that the client can link to from the `person` resource.

Table C-12 Related Resource Types for person

rel	resourceType
self	urn:oracle:webcenter:people:person
alternate	urn:oracle:webcenter:spaces:profile (HTML)
urn:oracle:webcenter:people:person:list:connections	urn:oracle:webcenter:people:person:list
Related	urn:oracle:webcenter:people:person:listNames

Table C-12 (Cont.) Related Resource Types for person

rel	resourceType
Related	urn:oracle:webcenter:people:person:status
urn:oracle:webcenter:activities:stream:person	urn:oracle:webcenter:activities:stream
urn:oracle:webcenter:activities:stream:connections	urn:oracle:webcenter:activities:stream
urn:oracle:webcenter:activities:stream	urn:oracle:webcenter:activities:stream
Related	urn:oracle:webcenter:messageBoard
urn:oracle:webcenter:feedback:all-given	urn:oracle:webcenter:feedback
urn:oracle:webcenter:feedback:all-received	urn:oracle:webcenter:feedback

urn:oracle:webcenter:people:person:list

The `list` response contains URIs for use in retrieving all the profiles on a connections list (`GET`), inviting a user to be a connection or adding a connection to a connections list (`POST`), and removing a connections list (`DELETE`).

Navigation Paths to list

This section shows how the client can navigate through the hypermedia to access the `list` resource:

```
resourceIndex
   person
      listNames
         list

resourceIndex
   person
      list (rel="urn:oracle:webcenter:people:person:list:connections")
```

Supported Methods for list

The following methods are supported by the `list` resource:

- `GET`
  - **request—Parameters:** `startIndex`, `itemsPerPage`, `projection`

    See Also:

    For information about REST API parameters, such as `startIndex` and `itemsPerPage`, see Common Request Query Parameters.

  - **response—Body:** 0 or more `person` items
- `POST`
  - **request—Body:** `member`
  - **response—Body:** `member`

> **See Also:**
>
> For information about `member` in the request and response elements, see urn:oracle:webcenter:people:person:list:member.

- `DELETE`
  - **request**

Resource Types Linked to from list

Table C-13 lists the resource types that the client can link to from the `list` resource.

Table C-13 Related Resource Types for list

rel	resourceType
self urn:oracle:webcenter:people:person:list[1]	urn:oracle:webcenter:people:person:list
urn:oracle:webcenter:activities:stream	urn:oracle:webcenter:activities:stream

[1] `self rel` currently includes "`urn:oracle:webcenter:people:person:list:list`" instead of the correct "`urn:oracle:webcenter:people:person:list`". For the `@connections` default list, it currently includes "`urn:oracle:webcenter:people:person:list:connections`".

urn:oracle:webcenter:people:person:listNames

The `listNames` response contains the names of existing connections lists as well as the URIs for use in retrieving the lists (GET) and creating connections lists (`POST`).

Navigation Paths to listNames

This section shows how the client can navigate through the hypermedia to access the `listNames` resource:

```
resourceIndex
   person
      listNames
```

Supported Methods for listNames

The following methods are supported by the `listNames` resource:

- `GET`
  - **request**
  - **response**: **Body:** 0 or more `listName` items
- `POST`
  - **request—Body:** `listName`
  - **response—Body:** `listName`

See Also:

For information about `listName`, see urn:oracle:webcenter:people:person:listName.

Resource Types Linked to from listNames

Table C-14 lists the resource types that the client can link to from the `listNames` resource.

Table C-14 Related Resource Types for listNames

rel	resourceType
self	urn:oracle:webcenter:people:person:listNames

urn:oracle:webcenter:people:person:listName

The `listName` response contains the names of connections lists and URIs for use in accessing the connections lists. See also urn:oracle:webcenter:people:person:listName.

Navigation Paths to listName

This section shows how the client can navigate through the hypermedia to access the `listName` resource:

```
resourceIndex
   person
      listNames
         listName
```

Supported Methods for listName

The following method is supported by the `listName` resource:

- `DELETE`
  - **request**

Writable Elements for listName

Table C-15 lists the writable elements for the `listName` resource.

Table C-15 Writable Elements for listName

Element	Type	Required	Constraints	Description
`name`	String	Yes	1 or more characters	A single list name

Resource Types Linked to from listName

Table C-16 lists the resource types that the client can link to from the `listName` resource.

Table C-16 Related Resource Types for listName

rel	resourceType
self urn:oracle:webcenter:people:person:list	urn:oracle:webcenter:people:person:list
urn:oracle:webcenter:activities:stream:list	urn:oracle:webcenter:activities:stream

urn:oracle:webcenter:people:person:list:member

The `member` response contains URIs for use in deleting a connection from a connections list.

Navigation Paths to member

This section shows how the client can navigate through the hypermedia to access the `member` resource:

```
resourceIndex
   person
      list
         member
```

Supported Methods for member

The following method is supported by the `member` resource:

- `DELETE`
  - **request**

Writable Elements for member

Table C-17 lists the writable elements for the `member` resource. Writable elements for `member` are used when you add a connection to a list or invite a user to be a connection. The `member` resource itself is for deleting connections, and does not use writable elements.

Table C-17 Writable Elements for member

Element	Type	Required	Constraints	Description
`guid`	String	Yes	1 or more characters	GUID of the user

Table C-17 (Cont.) Writable Elements for member

Element	Type	Required	Constraints	Description
`message`	String	No	0 or more characters	Invitation message Use this only when inviting users to be connections (that is POSTing to the `@connections` list, not to user-created connections lists).

urn:oracle:webcenter:people:person:status

The `status` response contains URIs for use in retrieving (`GET`) and updating (`PUT`) the profile status message of a specified user.

Navigation Paths to status

This section shows how the client can navigate through the hypermedia to access the `status` resource:

```
resourceIndex
   people
      person
         status
```

Supported Methods for status

The following methods are supported by the `status` resource:

- `GET`
  - **request**
  - **response—Body:** `status`
- `PUT`
  - **request—Body:** `status`
  - **response—Body:** `status`

Writable Elements for status

Table C-18 lists the writable elements for the `status` resource.

Table C-18 Writable Elements for status

Element	Type	Required	Constraints	Description
`note`	String	Yes	1 or more characters	Content of status message

Resource Types Linked to from status

Table C-19 lists the resource types that the client can link to from the `status` resource.

Table C-19 Related Resource Types for status

rel	resourceType
self	urn:oracle:webcenter:people:person:status

urn:oracle:webcenter:people:invitations

The `invitations` response contains URIs for use in retrieving invitations (`GET`). You can also send an invitation (`POST`) to another user.

Navigation Paths to invitations

This section shows how the client can navigate through the hypermedia to access the `invitations` resource:

```
resourceIndex
   invitations
```

If you are not already connected to a user, you can also navigate to the invitations resource from that user's profile in order to invite them to connect. This path is only used for POSTing.

```
resourceIndex
   person
      invitations
```

Supported Methods for invitations

The following methods are supported by the `invitations` resource:

- `GET`
  - **Request—Parameters:** `q`

    To retrieve invitations sent to the current user, the format of `q` is:

    ```
    q=[invitee:equals:@me]
    ```

    To retrieve invitations sent from the current user, the format of `q` is:

    ```
    q=[invitor:equals:@me]
    ```
  - **Response—Body:** 1 or more invitations
- `POST`
  - **Request—Body:** `invitation`
  - **Response—Body:** `invitation`

Writable Elements for invitations

Table C-20 lists the writable elements for the `invitations` resource.

Table C-20 Writable Elements for invitations

Element	Type	Required	Constraints	Description
`message`	String	No	1 or more characters	Message attached to the invitation

Resource Types Linked to from invitations

Table C-21 lists the resource types that the client can link to from the `invitations` resource:

Table C-21 Related Resource Types for invitations

rel	resourceType
self	urn:oracle:webcenter:people:invitation

urn:oracle:webcenter:people:invitation

The `invitation` response contains URIs for use in deleting (`DELETE`) invitations you have sent, or deleting (`DELETE`) or updating (`PUT`) invitations you have received.

Navigation Paths to invitation

This section shows how the client can navigate through the hypermedia to access the `invitation` resource:

```
resourceIndex
   invitations
      invitation
```

Supported Methods for invitation

The following methods are supported by the `invitation` resource:

- `PUT`
  - **Request—Body:** `invitation`
  - **Response—Body:** `invitation`
- `DELETE`
  - **Request**

Writable Elements for invitation

Table C-22 lists the writable elements for the `invitation` resource.

Table C-22 Writable Elements for invitation

Element	Type	Required	Constraints	Description
`status`	String	Yes (PUT)	ACCEPTED IGNORED	The status of the invitation. **Note:** When you accept or ignore an invitation, it is removed from your list of invitations.

Read-only Elements for invitation

Table C-23 lists the read-only elements for the `invitation` resource.

Table C-23 Read-only Elements for invitation

Element	Type	Description
`id`	String	Unique ID of the invitation
`invitee`	personReference	User to whom the invitation is sent
`invitor`	personReference	User from whom the invitation is sent
`sentDate`	Date (String)[1]	Date the invitation was sent

[1] Data types, such as `DATE` and `BOOLEAN`, are stored in the API as `STRING`.

Resource Types Linked to from invitation

Table C-24 lists the resource types that the client can link to from the `invitation` response.

Table C-24 Related Resource Types for invitations

rel	resourceType
self	urn:oracle:webcenter:people:invitation

Feedback REST API

Use the Feedback REST API to read and delete feedback. This section provides information about the REST API methods to use to perform these actions.

This section includes the following topics:

- Feedback Entry Point
- Feedback Resource Type Taxonomy
- Feedback Security Considerations
- Feedback Resource Types

Feedback Entry Point

Each REST service has a link element within the Resource Index that provides the entry point for that service. For People Connections, each feature has its own `link` element. To find the entry points for the People Connections' Feedback feature, find the `link` elements with a `resourceType` of:

```
urn:oracle:webcenter:feedback
```

The corresponding `href` or `template` element provides the URI entry point, which returns all received feedback for the current user. The client sends HTTP requests to this entry point to work with the People Connections' Feedback feature.

> **See Also:**
>
> For more information about the Resource Index, see Using the Resource Index.
>
> For more information about resource types, see Resource Type.

Feedback Resource Type Taxonomy

When the client has identified the entry point, it can then navigate through the resource type taxonomy to perform the required operations. For more information about the individual resource types, see the appropriate section in Feedback Resource Types.

The resource type taxonomy for the People Connections' Feedback feature is:

```
urn:oracle:webcenter:feedback
   urn:oracle:webcenter:feedback:message
```

Feedback Security Considerations

You must be logged into the REST service to access any of the People Connections REST APIs. After that, the underlying service handles permission checking and the like.

> **See Also:**
>
> For general security considerations, see Security Considerations for WebCenter Portal REST APIs.

Feedback Resource Types

This section provides you with all the information you need to know about each resource type. It includes the following topics:

- urn:oracle:webcenter:feedback

urn:oracle:webcenter:feedback

The `feedback` response contains URIs for use in reading Feedback messages.

Navigation Paths to feedback

This section shows how the client can navigate through the hypermedia to access the `feedback` resource:

```
resourceIndex
   feedback

resourceIndex
   person
      feedback
```

Supported Methods for feedback

The following methods are supported by the `feedback` resource:

- `GET`
  - **request—Parameters:** `startIndex`, `itemsPerPage`

    See Also:

    For information about REST API parameters, such as `startIndex` and `itemsPerPage`, see Common Request Query Parameters.

  - **response—Body:** `message`

    See Also:

    For information about `message`, see urn:oracle:webcenter:feedback:message.

- `POST` – If permitted, lets you add feedback for a target user. This method is only available if the current user is connected to and has permission to add feedback for the target user.
  - **request - body**: feedback

```
<message resourceType="urn:oracle:webcenter:feedback:message">
    <body>test from REST API</body>
    <receivedUser>
    <guid>4F16DD80393611DFBF895F177662C511</guid>
    </receivedUser>
</message>
```

Resource Types Linked to from feedback

Table C-25 lists the resource types that the client can link to from the `feedback` resource.

Table C-25 Related Resource Types for feedback

rel	resourceType
self urn:oracle:webcenter:feedback:all-received	urn:oracle:webcenter:feedback
self urn:oracle:webcenter:feedback:all-given	urn:oracle:webcenter:feedback
NA	urn:oracle:webcenter:feedback:message

urn:oracle:webcenter:feedback:message

The `message` response contains the feedback message data and URIs for use in deleting a Feedback message.

Navigation Paths to message

This section shows how the client can navigate through the hypermedia to access the `message` resource:

```
resourceIndex
   feedback
      message

resourceIndex
   person
      feedback
         message
```

Supported Methods from message

The following method is supported by the `message` resource:

- `DELETE`
  - **request**

Read-only Elements for message

Table C-26 lists the read-only elements for the `message` resource.

Table C-26 Read-only Elements for message

Element	Type	Description
`body`	String	Message content
`id`	String	Unique ID of the message
`author`	personReference	User who created the message
`created`	Date (String)[1]	Date the message was created
receivedUser	personReference	A person reference to the user who received the feedback

[1] Data types, such as `DATE` and `BOOLEAN`, are stored in the API as `STRING`.

Resource Types Linked to from feedback

Table C-27 lists the resource types that the client can link to from the `feedback` resource.

Table C-27 Related Resource Types for message

rel	resourceType
self	urn:oracle:webcenter:feedback:message

Message Board REST API

Use the Message Board REST API to post, read, and delete messages to a user's or a portal message board. This section provides information about the REST API methods to use to perform these actions.

This section includes the following topics:

- Message Board Entry Point
- Message Board Resource Type Taxonomy
- Message Board Security Considerations
- Message Board Resource Types
- Filtering Messages Based on Visibility

Message Board Entry Point

Each REST service has a `link` element within the Resource Index that provides the entry point for that service. For People Connections, each feature has its own `link` element. To find the entry points for the People Connections' Message Board feature, find the `link` elements with a `resourceType` of:

```
urn:oracle:webcenter:messageBoard
```

Note:

As well as an entry point from the Resource Index, to navigate to an individual user's message board, the Message Board feature also has an entry point from a portal response for the portal message board.

The corresponding `href` or `template` element provides the URI entry point, which returns the Message Board for the current user. The client sends HTTP requests to this entry point to work with People Connections' Message Board feature.

See Also:

For more information about the Resource Index, see Using the Resource Index.

For more information about resource types, see Resource Type.

Message Board Resource Type Taxonomy

When the client has identified the entry point, it can then navigate through the resource type taxonomy to perform the required operations. For more information about the individual resource types, see the appropriate section in Message Board Resource Types.

The resource type taxonomy for the Message Board feature for People Connections is:

```
urn:oracle:webcenter:messageBoard
   urn:oracle:webcenter:messageBoard:message
```

Message Board Security Considerations

You must be logged into the REST service to access any of the People Connections REST APIs. After that, the underlying service handles permission checking and the like.

See Also:

For general security considerations, see Security Considerations for WebCenter Portal REST APIs

Message Board Resource Types

This section provides you with all the information you need to know about each resource type. It includes the following topics:

- urn:oracle:webcenter:messageBoard

urn:oracle:webcenter:messageBoard

The `messageBoard` response contains URIs for use in reading (`GET`) and posting (`POST`) portal and individual user Message Board messages.

Navigation Paths to messageBoard

This section shows how the client can navigate through the hypermedia to access the `messageBoard` resource:

```
resourceIndex
   messageBoard

resourceIndex
   person
      messageBoard

resourceIndex
   spaces
      space
         messageBoard
```

Supported Methods for messageBoard

The following methods are supported by the `messageBoard` resource:

- `GET`
  - **request—Parameters:** `startIndex`, `itemsPerPage`

    See Also:

    For information about REST API parameters, such as `startIndex` and `itemsPerPage`, see Common Request Query Parameters.

  - **response—Body:** message

> **Note:**
>
> The REST `GET` command for reading (retrieving) messages retrieves all shown messages by default. You can also retrieve messages that are private or hidden through the application user interface as described in Filtering Messages Based on Visibility. For information about hiding and showing messages, see "Adding Messages and Feedback to a Portal" in *Building Portals with Oracle WebCenter Portal*.

- `POST`
  - **request—Body:** `message`

    The POST for messages supports including a link URL in the message.

    > **See Also:**
    >
    > For information about message, see urn:oracle:webcenter:messageBoard:message.

Read-only Elements for messageBoard

Table C-28 lists the read-only elements for the `messageBoard` resource.

Table C-28 Read-only Elements for message

Element	Type	Description
`messageType`	String	Returns `link` if the message has a link. Otherwise, returns `null`.
`link`	String	Contains link data for messages with links: `name`, `url`, `icon`, `description`, `mimeType`, `objectId`, `objectType`, `serviceId`.

Resource Types Linked to from messageBoard

Table C-29 lists the resource types that the client can link to from the `messageBoard` resource.

Table C-29 Related Resource Types for messageBoard

rel	resourceType
self	urn:oracle:webcenter:messageBoard
NA	urn:oracle:webcenter:messageBoard:message

urn:oracle:webcenter:messageBoard:message

The `message` response contains the Message Board message data and URIs for use in reading (`GET`), revising (`PUT`), and deleting (`DELETE`) a portal or individual user Message Board message.

Navigation Paths to message

This section shows how the client can navigate through the hypermedia to access the `message` resource:

```
resourceIndex
   messageBoard
      message

resourceIndex
   person
      messageBoard
         message

resourceIndex
   spaces
      space
         messageBoard
            message
```

Supported Methods for message

The following methods are supported by the `message` resource:

- `GET`
  - **request**
  - **response—Body:** `message`
- `PUT`
  - **request—Body:** `message`
  - **response—Body:** `message`
- `DELETE`
  - **request**

Writable Elements for message

Table C-30 lists the writable elements for the `message` resource.

Table C-30 Writable Elements for message

Element	Type	Required	Constraints	Description
`body`	String	Yes	1 or more characters	message content

Read-only Elements for message

Table C-31 lists the read-only elements for the `message` resource.

Table C-31 Read-only Elements for message

Element	Type	Description
`id`	String	Unique ID of the message
`author`	personReference	User who created the message
`created`	Date (String)[1]	Date the message was created

[1] Data types, such as `DATE` and `BOOLEAN`, are stored in the API as `STRING`.

Resource Types Linked to from message

Table C-32 lists the resource types that the client can link to from the `message` resource.

Table C-32 Related Resource Types for message

rel	resourceType
self	urn:oracle:webcenter:messageBoard:message

Filtering Messages Based on Visibility

Although the REST `GET` command for retrieving messages retrieves all shown messages by default, you can also retrieve messages that are private or hidden through the application user interface using a set of visibility filters.

Messages posted on message boards can have the following visibility criteria:

- Public
- Private
- Hidden
- Public and hidden
- Private and hidden

By default, messages are public.

Private Messages:

A person owning a message board can mark any message as private. When a message is marked as private, that message will not be visible to anyone other than the owner of the message unless the owner chooses to send a private message to someone else. Otherwise, other people viewing a message board with private messages will see only public messages.

Hidden Messages:

A person owning a message board can mark any message as hidden. When a message is marked as hidden, that message will not be visible to the owner of the message board, but will remain visible to other people viewing the message board.

REST URLs for Message Boards:

The context for message board URL filters is:

`rest/api/messageBoards/<BOARD-TYPE>/<GUID>/<FILTER-TYPE>`

Where:

- `<BOARD-TYPE>` is either `person` or `space`
- `<GUID >` is either `@me`, the `person <GUID>` (if `<BOARD-TYPE>` is person) or the `space <GUID>` (if `<BOARD-TYPE>` is `portal`)
- `<FILTER-TYPE>` is applicable only for the `person` `<BOARD-TYPE>` and can be one of:
  - `null` - (default) shows all messages
  - `private` - shows private messages
  - `public` - shows public messages
  - `hidden` - shows hidden and public messages
  - `private_hidden` - shows private and hidden messages

Available filters in the context of the applicable HTML methods are shown below.

GET

- `@me`
  - all `rest/api/messageBoards/person/@me`
  - private `rest/api/messageBoards/person/@me/private`
  - public `rest/api/messageBoards/person/@me/public`
  - hidden and public `rest/api/messageBoards/person/@me/hidden`
  - private and hidden `rest/api/messageBoards/person/@me/private_hidden`
- `person`

  `rest/api/messageBoards/person/<GUID>`

  If the GUID matches that of the logged in user then the same filtering as for @me applies. If the GUID is different, then no filtering is available.
- `space`

  `rest/api/messageBoards/space/<GUID>`

  No filtering based on visibility is available.

POST

- `@me`
  - all rest/api/messageBoards/person/@me

  - private

    ```
    {"body" : "<BODY_CONTENT>",
     "visibilityType" : "private"}
    ```

  - public

    ```
    {"body" : "<BODY_CONTENT>",
     "visibilityType" : "public"}
    ```

  - hidden and public

    ```
    {"body" : "<BODY_CONTENT>",
     "visibilityType" : "hidden"}
    ```

  - private and hidden

    ```
    {"body" : "<BODY_CONTENT>",
     "visibilityType" : "private_hidden"}
    ```

- `person` `rest/api/messageBoards/person/<GUID>` If the GUID is the same as the logged in user, then the filters for GET apply. If the users are different, then the following filters apply:
  - public

    ```
    {"body" : "<BODY_CONTENT>",
     "visibilityType" : "public"}
    ```

  - private

    ```
    {"body" : "<BODY_CONTENT>",
     "visibilityType" : "private"}
    ```

- `space`

  `rest/api/messageBoards/space/<GUID>`

  No filtering based on visibility is available.

`PUT`

- `@me`
  - all est/api/messageBoards/person/@me/messages/<msg guid>
  - private

    ```
    {"body" : "<BODY_CONTENT>",
     "visibilityType" : "private"}
    ```

  - public

    ```
    {"body" : "<BODY_CONTENT>",
     "visibilityType" : "public"}
    ```

  - hidden and public

    ```
    {"body" : "<BODY_CONTENT>",
     "visibilityType" : "hidden"}
    ```

  - private and hidden

    ```
    {"body" : "<BODY_CONTENT>",
     "visibilityType" : "private_hidden"}
    ```

- `person` `rest/api/messageBoards/person/<GUID>/messages/<msg guid>` If the GUID is the same as the logged in user, then the filters for GET apply. If the users are different, then the following filters apply:

- public

  ```
  {"body" : "<BODY_CONTENT>",
   "visibilityType" : "public"}
  ```

- private

  ```
  {"body" : "<BODY_CONTENT>",
   "visibilityType" : "private"}
  ```

- `space`

  `rest/api/messageBoards/space/<GUID>/messages/<msg guid>`

  No filtering based on visibility is available.

Creating an Invitation

This section illustrates how to invite another user to join your connections list using the People Connections Service REST API. After the invitation is made, the invitee is given the option to accept or not. This example also illustrates how to delete an invitation.

This section includes the following topics:

- Creating an Invitation
- Accepting an Invitation
- Deleting an Invitation

Creating an Invitation

1. The first step, as always with REST API methods, is to retrieve the resource index:

   ```
   GET http://<host:port>/rest/api/resourceIndex
   ```

2. Next, find the person to whom you want to connect. To do this:

   a. In the resource index listing, scan for the link with the following resource type:

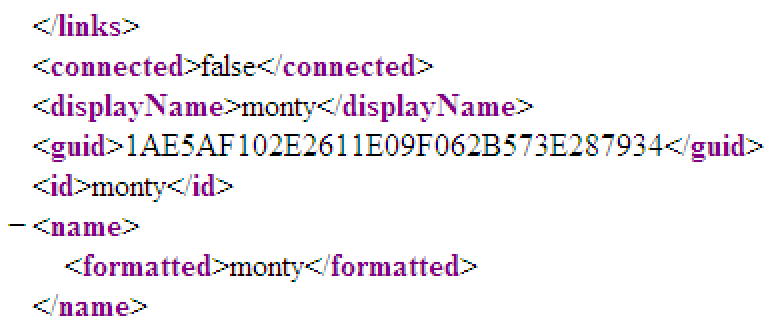
   ```
   urn:oracle:webcenter:people:person
   ```

   b. Execute a search for the user who you wish to invite. In this example, the user is named Monty.

   ```
   GET http://<host:port>/rest/api/people?q=loginid:equals:monty&utoken=ASDF
   ```

   c. Locate Monty's GUID in the response, as shown in Figure C-2.

Figure C-2 Response With User's GUID



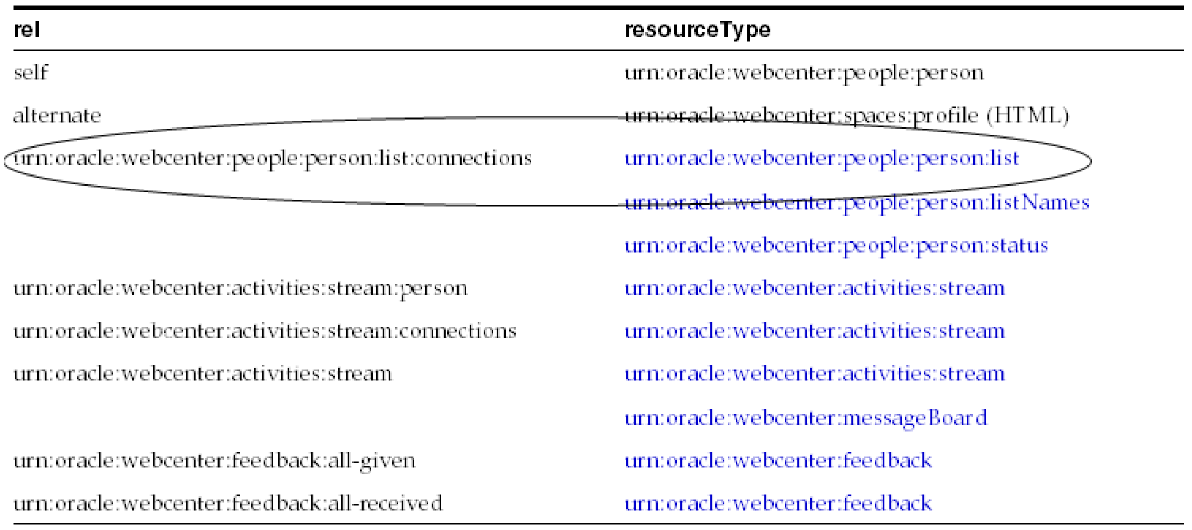
```
</links>
<connected>false</connected>
<displayName>monty</displayName>
<guid>1AE5AF102E2611E09F062B573E287934</guid>
<id>monty</id>
- <name>
    <formatted>monty</formatted>
  </name>
```

   d. Save the GUID so that you can use it to connect to the user.

3. Now that you have the invitee's GUID, you must find the resource to which you would like to add him. In this case, you want to add him to your own `connections` list.

   To find your `connections` list, first, scan these People Connections topics for "`connections`." You will discover in Table C-12 that `connections` are linked to from the `person` resource. For convenience, this table is shown in Figure C-3.

Figure C-3 Finding the connections Link



rel	resourceType
self	urn:oracle:webcenter:people:person
alternate	urn:oracle:webcenter:spaces:profile (HTML)
urn:oracle:webcenter:people:person:list:connections	urn:oracle:webcenter:people:person:list
	urn:oracle:webcenter:people:person:listNames
	urn:oracle:webcenter:people:person:status
urn:oracle:webcenter:activities:stream:person	urn:oracle:webcenter:activities:stream
urn:oracle:webcenter:activities:stream:connections	urn:oracle:webcenter:activities:stream
urn:oracle:webcenter:activities:stream	urn:oracle:webcenter:activities:stream
	urn:oracle:webcenter:messageBoard
urn:oracle:webcenter:feedback:all-given	urn:oracle:webcenter:feedback
urn:oracle:webcenter:feedback:all-received	urn:oracle:webcenter:feedback

   Now that you know that `connections` are linked to from the `person` resource, you need to find the `person` resource. As the URN indicates, you get to the `person` resource from the `people` resource, as described in the following steps.

4. Return to the resource index (or use a cached version of the `resourceIndex` from your previous visit):

   ```
   GET http://<host:port>/rest/api/resourceIndex
   ```

5. Scan for the `people` resource, and you will find:

   ```
   urn:oracle:webcenter:people
   ```

6. Use the link in the `people` resource to access *your* lists:

   ```
   GET http://<host:port>/rest/api/people/@me/lists/@self?utoken=ASDF
   ```

7. Scan the returned links for the `resourceType` and `rel` listed in Table C-12:

   ```
   resourceType="urn:oracle:webcenter:people:person:list
   rel="urn:oracle:webcenter:people:person:list:connections
   ```

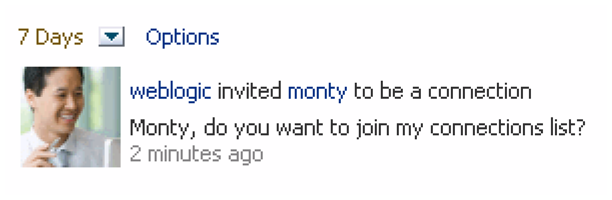
8. Make the invitation by using the URI to your `connections` list to execute a `POST`:

   ```
   POST http://<host:port>/rest/api/people/@me/lists/@connections?utoken=ASDF

   Headers --  Accept:application/json, Content-Type:application/json
   Body -- {"message":"Monty, do you want to join my connections
   list?","guid":"1AE5AF102E2611E09F062B573E287934"}
   ```

9. Now, if you log in to Monty's account and you can see the invitation has been added, as shown in Figure C-4.

Figure C-4   Activity Stream Showing Invitation



weblogic invited monty to be a connection
Monty, do you want to join my connections list?
2 minutes ago

Accepting an Invitation

After an invitation has been sent, the next step is for the invitee (Monty) to accept the invitation.

1. Using a second REST client, retrieve the resource index:

```
GET http://<host:port>/rest/api/resourceIndex
```

2. Login as Monty.
3. List all the invitations sent to Monty by making the following request:

```
GET http://<host:port>/rest/api/people/invitations?
q=invitee:equals:@me&utoken=ASDF
```

   Each invitation element listed in the response contains a link that supports the UPDATE operation and that looks something like this:

```
<links>
<link capabilities="urn:oracle:webcenter:delete urn:oracle:webcenter:update"
href="http://<host:port>/rest/api/people/invitations/<invitationid>?utoken=ASDF"
rel="self" resourceType="urn:oracle:webcenter:people:invitation"/>
</links>
<id><invitationid></id>
```

4. To accept the invitation, make the following request:

```
PUT http://<host:port>/rest/api/people/invitations/<invitationid>?utoken=ASDF

Headers
  Accept -> application/xml
  Content-Type -> application/xml

Body
  <invitation>
      <id><invitationid></id>
      <status>accepted</status>
  </invitation>
```

Deleting an Invitation

After you initiate an invitation, you can view the invitation from your account by specifying `invitor:equals:@me`. For example:

```
GET http://<host:port>/rest/api/people/invitations?
q=invitor:equals:@me&utoken=ASDF
```

Each invitation element listed in the response contains a link that supports the DELETE operation and that looks something like this:

```
<links>
<link resourceType="urn:oracle:webcenter:people:invitation"
rel="self"
href="http://host_name:port_name/rest/api/people/invitations/
      e9073cdb-56ab-423d-8b1f-1220c802bdd4?
      utoken="FN0SEFwX42OCntwtx9a1dSbhqocO_w**"
      capabilities="urn:oracle:webcenter:delete"/>
</links>
```

The invitee can also delete an invitation from his or her own account. The invitee can get a list of his or her invitations by specifying:

```
GET http://<host:port>/rest/api/people/invitations?
q=invitee:equals:@me&utoken=ASDF
```

Note that the response from a DELETE is simply a status code of 204.

Content Management REST API

This section supplements the OASIS CMIS specification, and provides details on the specific implementation of the .

The OASIS CMIS (Content Management Interoperability Services) Technical Committee works to standardize a Web services interface specification that will enable greater interoperability of Enterprise Content Management (ECM) systems. For more information, see the OASIS CMIS site:

`http://www.oasis-open.org/committees/cmis/`

Before continuing, all users should review the OASIS CMIS specification. This section references the Content Management Interoperability Services (CMIS) Version 1.0, which can be viewed at the following URL:

`http://docs.oasis-open.org/cmis/CMIS/v1.0/cmis-spec-v1.0.html`.

The provides a server that uses the CMIS RESTful AtomPub server binding to provide access to Oracle Content Server repositories configured in your application.

The specification includes the domain model and two server bindings. As mentioned above, only the RESTful AtomPub binding is currently implemented by the . Users should be familiar with Atom and AtomPub, which are the default formats for responses.

Note:

CMIS provides a lowest common denominator for a wide range of different content systems; it is not aligned directly with Oracle WebCenter Content functionality. Refer to the service document to identify available functionality.

This section includes the following topics:

- CMIS Domain Model

- CMIS Part II: RESTful AtomPub Binding
- Best Practices and Examples

CMIS Domain Model

Section 2: Domain Model in the CMIS specification defines a domain model that can be used by applications to work with one or more Content Management repositories.

- Data Model
- Services

Data Model

The service document consists of AtomPub workspaces. Each workspace maps to a content connection (only Oracle WebCenter Content repositories are supported by the). For details on the service document, see the next section, CMIS Part II: RESTful AtomPub Binding.

Repository

For this release, some of the optional capabilities listed in section 2.1.1 have not been implemented. Versioning, ACL, Policies, Relationships, Change Log, Folder Descendants/Tree, and Renditions will be considered for future releases.

Specifically, the implementation has the following optional capabilities:

```
capabilityGetDescendants = true
capabilityGetFolderTree = false
capabilityContentStreamUpdatability = anytime
capabilityChanges = none
capabilityRenditions = none
capabilityMultifiling = false
capabilityUnfiling = false
capabilityVersionSpecificFiling = false
capabilityPWCUpdateable = false
capabilityPWCSearchable = false
capabilityAllVersionsSearchable = false
capabilityJoin = none
capabilityACL = none
capabilityQuery = none, metadataonly, or both combined
```

Object

The supports document and folder objects. In CMIS the `cmis:baseTypeId` for a Node will be `cmis:folder` or `cmis:document`. Also, the `cmis:baseId` for a Type will be `cmis:folder or cmis:document`.

Object-Type

A CMIS Object-Type contains fields mapped from the Oracle WebCenter Content: Content Server metadata field definitions and Oracle WebCenter Content's Site Studio region definitions.

The mapping from Oracle WebCenter Content metadata fields to CMIS property definitions is as follows:

Table C-33 Content Server Metadata Mappings

Oracle WebCenter Content Metadata	CMIS Property Definition
TEXT metadata field with option list configured with select list validated and YesNoView or TrueFalseView view	cmis:propertyBoolean
All other TEXT metadata fields	cmis:propertyString
LONG TEXT metadata field	cmis:propertyString
MEMO metadata field	cmis:propertyString
INTEGER metadata field	cmis:propertyInteger
DATE metadata field	cmis:propertyDateTime
DECIMAL metadata field	cmis:propertyDecimal

The mapping from Site Studio region definition fields to CMIS property definitions is as follows:

Table C-34 Site Studio Region Definition Mappings

Site Studio Region Definition	CMIS Property Definition
Image Element Definition fields	cmis:propertyString
WYSIWYG Element Definition fields	cmis:propertyString
Plain Text Element Definition fields	cmis:propertyString
Static List Element Definition fields	cmis:propertyString

Document Object

Document Objects are the elementary information entities managed by the repository. As defined by the CMIS specification, Document Objects may be version-able, file-able, query-able, control-able and ACLControl-able. As stated earlier, the does not support versioning, multi-filing, Policies or ACL for this release.

If a Node is determined to be a Document (not a Folder) then any children it has will not be exposed through CMIS. In CMIS, each Document Object is associated with a single content stream, and for WebCenter CMIS REST, this stream is the Oracle WebCenter Content: Content Server binary associated with the document.

Folder Object

The CMIS specification states that Folder Objects do not have a content-stream and are not version-able. If a Node is determined to be a Folder, then the exposes it in this manner. (In Oracle WebCenter Content, folders do not have a content stream and are not versionable).

Relationship Object

Section 2.1.6: Relationship Object in the CMIS specification is not applicable; the does not support Relationships for this release.

Policy Object

Section 2.1.7: Policy Object in the CMIS specification is not applicable; the does not support Policies for this release.

Access Control

Most of *Section 2.1.8: Access Control* in the CMIS specification is not applicable; the does not support ACL for this release. See the next section for details on allowable actions.

AllowableActions Mapping

This section lists allowable actions defined for Objects. Because of how this release is implemented, some of these are hard-coded for all objects. Other allowable actions will be set based on the repository configuration.

- canGetObjectRelationships = false
- canCreateRelationship = false
- canGetDescendants = false
- canGetFolderTree = false
- canCheckOut = false (versioning)
- canCancelCheckOut = false (versioning)
- canCheckIn = false (versioning)
- canAddObjectToFolder = false (multi-filing)
- canRemoveObjectFromFolder = false (unfiling/multi-filing)
- canApplyPolicy = false
- canGetAppliedPolicies = false
- canRemovePolicy = false
- canCreatePolicy = false
- canApplyACL = false
- canGetACL = false
- canGetRenditions = false
- canDeleteTree = true
- canGetAllVersions = false (versioning)

Versioning

Section 2.1.9: Versioning in the CMIS specification is not applicable; the does not support versioning for this release.

Query

CMIS queries return a Result Set where each Entry object will contain only the properties that were specified in the query. The does not support JOINs in queries, so each result entry will represent properties from a single node. Common searches use a query like "SELECT * FROM …".

- The FROM clause specifies a content-type to be searched.
  - FROM cmis:document ==> any Oracle WebCenter Content document (for example, IDC:GlobalProfile)
  - FROM cmis:folder ==> any Oracle WebCenter Content folder (for example, IDC:Folder)
  - FROM typeQueryName ==> type's cmis queryName, as long as the type is queryable (for example, ora:t:IDC!;GlobalProfile)
- The cmis:document and cmis:folder types are always queryable. Other types will be queryable if they are searchable in the repository.
- The IN_FOLDER predicate is implemented as the folder ID specified, being the parent of the results.
- The IN_TREE predicate is implemented as the folder ID specified, being a parent in the folder structure of the results.
- The CONTAINS() predicate is a full-text query expression operator.
- Properties of cmis:document and cmis:folder will be queryable and orderable if their corresponding Oracle WebCenter Content system property is searchable and sortable. The system property mappings are:
  - cmis:createdBy ==> dDocAuthor
  - cmis:lastModifiedBy ==> dDocCreator
  - cmis:creationDate ==> dCreateDate
  - cmis:lastModificationDate ==> dLastModifiedDate (for 10g, folders map to dLastModifiedDate and documents map to dCreateDate)
  - cmis:name ==> dOriginalName (for a document) or dCollectionName (for a folder)
  - cmis:contentStreamFileName ==> dOriginalName
  - cmis:contentStreamLength ==> VaultFileSize
  - cmis:contentStreamMimeType ==> dFormat
  - cmis:objectId ==> dDocName
  - cmis:objectTypeId ==> Oracle WebCenter Content profile name or SiteStudio Region Definition name

    Note:

    cmis:objectTypeId is never orderable.

  - cmis:path ==> use IN_FOLDER or IN_TREE predicate

Note:

Some repositories may have capabilities that are not representable in a CMIS query, and some repositories may have restrictions which will limit the CMIS-query predicates (or combinations of predicates) that can be used in a query. Use the mappings above to translate repository capabilities and restrictions into corresponding considerations for CMIS queries.

- Nested properties are not queryable or orderable.
- The implementation reports as orderable any properties which Oracle WebCenter Content specifies as sortable. This list can include properties which Oracle WebCenter Content cannot actually sort on. To allow ordering on a field for which Oracle WebCenter Content reports a sort error, follow the steps below to make the specified Oracle WebCenter Content field sortable:
  1. Go to **Administration** and open **Admin Applets**.
  2. Open the Configuration Manager applet and click **Advanced Search Design.**
  3. Edit the field you wish to make orderable and select **Is sortable**.
  4. Save your changes and exit Administration.

Table C-35 lists specific search considerations and recommendations. For example queries, see Best Practices and Examples.

Table C-35 Search Considerations and Recommendations

Consideration	Recommendation
Oracle WebCenter Content provides limited support for querying on null or non-null values.	Be aware of the differences in search behavior and do not write search expressions that depend on unsupported criteria.
Recursive search for folders is not supported by Oracle WebCenter Content, but is supported for documents if configured on the Oracle WebCenter Content server as described to the right.	Scope the search to only include documents (add a select clause like `select * from cmis:document`). Set the search path on the Search object (add a where clause like "`where IN_TREE('/StellentRepository/IDC:Folder/2`'). Configure the `folders_g CollectiveSearchRecursiveContent` and related settings like `CollectionMaxBranch` in the Oracle WebCenter Content config.cfg file.

Table C-35 (Cont.) Search Considerations and Recommendations

Consideration	Recommendation
Multivalued property operators perform substring matches. This is true for `ANY <multiValuedQueryName> IN (<literal>, ...)` or `<literal> = ANY < multiValuedQueryName>`. In Oracle WebCenter Content, a field with an option list stores values in a comma-delimited manner. For example, if you have values "A", "B", and "C", these will be represented as "A, B, C". Using an ANY or ANY IN search for 'A, B' will find this item.	Be aware of the differences in search behavior and consider changing the Oracle WebCenter Content option list delimiter character in the Configuration Manager applet to reduce the potential for finding extra matches.
When searching folders (`FROM cmis:folder`), at most one value can be specified per criteria. Each criteria is logically ANDed with the others to make a more selective query. There is no support for `OR` or `NOT` operators when searching folders.	Do not use `OR` and `NOT` in Oracle WebCenter Content folder search.
Not all properties are searchable, and if the search encounters a property that is not searchable, it will return a ParseException (400 error).	Understand which properties are searchable for a given content type by examining the Oracle WebCenter Content Configuration Manager information fields section, or by reviewing the ContentType definition. Examine the URL for the `isSearchable` field setting Example URLS: `http://myContentServer/idc/idcplg?IdcService=VCR_GET_CONTENT_TYPE&vcrContentType=IDC:Folder&IsSoap=1` Or, examine the specific type through CMIS.
Not all ContentTypes are searchable. An attempt to search for a non-searchable ContentTypes will throw an exception. For example, the `IDC:FileReference` ContentType is not searchable.	Be aware that not all ContentTypes are searchable.
Only String multi-valued properties can be searched.	Do not specify search for multi-valued property types other than String.
The `NOT` operator cannot be used for `LONG` properties.	Try to restructure the query using supported syntax.
Only one sort criteria is supported.	Do not write search expressions that use more than a single sort criteria.
Sorting on non-indexed fields results in an exception. Searching on a non-indexed field throws an exception, with the embedded exception code of, for example, "DRG-10837: section dStatus does not exist".	Understand which fields have been indexed before using them as sort criteria. Examine the URL for the `isSortable` field definition. Example URL: `http://myContentServer/idc/idcplg?IdcService=GET_ADVANCED_SEARCH_OPTIONS&IsSoap=1`, Or examine the type through CMIS to see if the property definition is queryable.

Table C-35 (Cont.) Search Considerations and Recommendations

Consideration	Recommendation
Empty values are not allowed in a search query.	Do not use a criteria such as `cmis:name != ''..`
The `Notequals` operator is not supported for non-String properties	Be aware of the differences in search behavior and do not write search expressions that depend on unsupported criteria.
Multiple search paths on the same Oracle WebCenter Content repository are not supported.	Be aware of the differences in search behavior and do not write search expressions that depend on unsupported criteria.
When searching for documents, recursive search (folder tree search) is supported if Oracle WebCenter Content is configured properly. If the search path is not set, then all documents in the repository will be searched (both filed and unfiled).	Configure the content server `folders_g CollectionSearchRecursiveContent` and related settings like `CollectionMaxBranch` in the Oracle WebCenter Content config.cfg file. These settings are described in the Oracle WebCenter Content documentation. To perform a document search scoped to a folder tree, use the IN_TREE predicate.
When searching for documents and using the `LIKE` operator, wildcards (%) are only supported in the last path element.	Be aware of the differences in search behavior and do not write search expressions that depend upon unsupported criteria.
When searching documents (select * from cmis:document), it is not possible to limit the search to more than just a single content type; for example, this is not supported: `select * from IDC:MyProfile, IDC:AnotherProfile` because it has multiple explicit content types and `JOINS` are not supported.	If you need to limit the search to more than just a single content type, issue multiple queries to achieve the same behavior. If you want to search across all types, use cmis:document in the select statement.
Oracle WebCenter Content search does not support `OR` when `cmis:objectTypeId` is specified in a query; other parameters can be ANDed with this criteria, but `OR` is not supported.	If this functionality is necessary, issue multiple queries to achieve the same behavior.
The `cmis:objectTypeId` criteria only supports `==`, `!=`, and `like`. Use of `!=` is restricted to the case of excluding folders (which behaves the same as adding `select * from cmis:document`).	Be aware of the valid operators when using `cmis:objectTypeId` criteria.
Queries may be case-sensitive depending on the selected Oracle WebCenter Content search engine.	Be aware that the Oracle WebCenter Content search engine selection can affect case-sensitivity. Metadata searches using OracleTextSearch as the search engine are generally case-insensitive. Metadata searches using `DATABASE.FULLTEXT` as the search engine are generally case-sensitive. The exact behavior sometimes varies by metadata field.

Services

The methods described in *Section 2.2 Services* of the CMIS specification are implemented by the ; specific implementation details are covered in CMIS Part II: RESTful AtomPub Binding.

CMIS Part II: RESTful AtomPub Binding

Section 3: RESTful AtomPub Binding in the CMIS specification defines a specification based on AtomPub that can be used by applications to work with one or more Content Management Repositories. REST services are available through a portal instance.

Service Document

All navigation of a repository begins with the AtomPub Service Document. From this document, all accessible content in a repository can be discovered through the collections, links, and templates. The URI to the service document, relative to the CMIS web application's context-root, is /rest/cmis/repository.

Therefore, if an application is deployed with a library-context-root-override as in the example above, the service document would be accessed through the following URL: `http://hostname:port/rest/cmis/repository`

By default, this document will contain a workspace for each configured Oracle WebCenter Content repository (only Oracle WebCenter Content repositories are supported by CMIS REST in Oracle WebCenter Portal). A service document for a single repository can be obtained by using the `repositoryId` query parameter, as described in section 3.6.2.1 of the CMIS AtomPub binding specification.

As noted in the previous section, the service document consists of AtomPub workspaces. Each workspace maps to a Oracle WebCenter Portal Content Server connection.

Specific URIs beyond the service document are not published; it is assumed that users will start at the service document and navigate the collections and links down expected paths. The relationships of the links and the titles and types of the collections are all defined in the CMIS specification, and thus can be commonly navigated by a client implementation. There are also templates defined for each repository, for easier access of objects by path, object by ID, type by ID, and queries. The format of the variables for the path and ID templates can be discovered by viewing the Entries of Folders and Documents.

Response Formats

Section 3.1.3: Response Formats in the CMIS specification indicates that Atom/AtomPub style formats will be returned by default unless overridden by a supported media type expressed in the Accept header.

A generic AtomPub feed reader can walk through any of the feeds returned by the CMIS REST server. It will not see all the CMIS specifics, but will be able to navigate through links. In general, to set up a feed reader, you need to know the URI of a particular feed, which can be discovered by navigating through the service document, for example, the workspace link for "typesdescendants".

For details on query syntax, see the CMIS specification. For best practices and examples, see Best Practices and Examples.

Additional Functionality

The provides the following additional functionality beyond the CMIS specification.

- Folder Children Collection
- Document Entry
- Content Stream

Folder Children Collection

The specification defines the following CMIS services:

- GET: getChildren
- POST: createDocument or createFolder or createPolicy or moveObject or addObjectToFolder

The provides the following additional services:

- POST: create This service has five query parameters: uid, fileName, contentId, comments, simpleResponse, and one header parameter: Slug. This service is meant to be used as a simple binary request upload. A new document is created with this service. Slug and fileName are used to name the binary that is attached to the request (using both parameters is optional; only one needs to be defined and fileName is checked first). The comments parameter is optional and contentId is optional if Oracle WebCenter Content is set up to auto-generate the dDocName.
- POST: create Content-Type: multipart/form-data This service has a single query parameter: uid, which is the uid of the folder in which the document is to be created. The boolean query parameter simpleResponse will return a response of media type: application/atom+xml;type=entry, if set to false. If set to true, a response of media type: text/html will be returned with a URI pointing to the newly created document. The comments and simpleResponse parameters are both optional, contentId is optional if Oracle WebCenter Content is set up to auto-generate the dDocName, and the name "fileUpload" is required.

```
<html>
<head>
    <title>simple post</title>
</head>
<body>
<form action="http://<host>:<port>/rest/api/cmis/children/StellentRepository?
uid=IDC:Folder/2"
      method="POST"
      enctype="multipart/form-data">
    Select a document to upload: <input type="file" name="fileUpload"/><br>
     <input type="hidden" name="comments" value="this is just a comment"/>
     <input type="hidden" name="contentId" value="uniqueID1"/>
     <input type="hidden" name="simpleResponse" value="true"/>
    <input type="submit" value="Submit"/>
</form>
</body>
</html>
```

Document Entry

The specification defines the following CMIS services:

- GET: getObject, getObjectOfLatestVersion (getObject)
- PUT: updateProperties
- DELETE: deleteObject

The provides the following additional services:

- POST: postToDelete This service has two query parameters: uid and _method, and allows a document to be deleted through POST.

  ```
  http://<host>:<port>/rest/api/cmis/document/repoName?uid=ABC&_method="delete"
  ```

Content Stream

The specification defines the following CMIS services:

- GET: getContentStream
- PUT: setContentStream
- DELETE: deleteContentStream

The provides the following additional services:

- POST: postTunnelContentStream This service has five query parameters: uid, overwriteFlag, fileName, comments, _method, and one header parameter: Slug. This service is meant to be used as a simple binary request upload or delete through POST. A document must already exist for this service. Slug and fileName are used to name the binary that is attached to the request (using both parameters is optional; only one needs to be defined and fileName is checked first). The overwriteFlag parameter defaults to true, the comments parameter is optional and valid values for _method are "delete" or "put" (not case sensitive).

  ```
  http://<host>:<port>/rest/api/cmis/stream/repoName?uid=ABC&_method="delete"
  ```

- POST: postTunnelContentStream Content-Type: multipart/form-data This service has a single query parameter: uid and is meant to be used as a simple html multipart/form-data upload or delete through POST. A document must already exist for this service. The attribute name="fileUpload" is required, "comments" is optional, and valid values for "_method" are "delete" or "put" (not case sensitive).

  ```
  <form action="http://<host>:<port>/rest/api/cmis/stream/repoName?uid=WDOC019113"
        method="POST"
        enctype="multipart/form-data">
      Select a document to upload: <input type="file" name="fileUpload"/><br>
       <input type="hidden" name="comments" value="this is just a comment"/>
       <input type="hidden" name="_method" value="PUT"/>
      <input type="submit" value="Submit"/>
  </form>
  ```

Best Practices and Examples

This section provides best practices and examples using the . For details on query syntax, see the CMIS specification.

This section includes the following topics:

- Best Practices
- Examples

Best Practices

The following list provides suggested best practices for repositories that use the .

- To determine the types that can be used in the "FROM" portion of a query, see the types collection from the AtomPub service document. The type must be queryable and the query name of that type must be used.

  For example, IDC:GlobalProfile might have type information similar to the following:

  ```
  <cmis:localName>IDC:GlobalProfile</cmis:localName>
  <cmis:displayName>IDC:GlobalProfile</cmis:displayName>
  <cmis:queryName>ora:t:IDC!;GlobalProfile</cmis:queryName>
  <cmis:queryable>true</cmis:queryable>
  ```

  An example query for the type information above could be: "SELECT * FROM ora:t:IDC!;GlobalProfile".

- To determine the properties that can be used in the "SELECT" and "WHERE" portions of a query, see the entry for the associated type. Each property definition of that type will be listed and will have a setting for queryable and orderable. The cmis:queryname will be the value to be used in the query.

  For example, IDC:GlobalProfile might have property definition information similar to the following:

  ```
  <cmis:propertyStringDefinition>
                <cmis:id>/stanl18-ucm11g/IDC:GlobalProfile.ora:p:dDocName</cmis:id>
                <cmis:localName>dDocName</cmis:localName>
                <cmis:displayName>dDocName</cmis:displayName>
                <cmis:queryName>ora:p:dDocName</cmis:queryName>
                <cmis:description>Content ID</cmis:description>
                <cmis:propertyType>string</cmis:propertyType>
                <cmis:cardinality>single</cmis:cardinality>
                <cmis:updatability>readwrite</cmis:updatability>
                <cmis:inherited>false</cmis:inherited>
                <cmis:required>false</cmis:required>
                <cmis:queryable>true</cmis:queryable>
                <cmis:orderable>true</cmis:orderable>
              </cmis:propertyStringDefinition>
  ```

  An example query for the property definition information above could be: "SELECT ora:p:dDocName FROM ora:t:IDC!;GlobalProfile"

- To keep queries more readable, avoid non-alphanumeric characters in ContentType and PropertyDefinition names.

Examples

This section provides some example queries. For details on query syntax, see the CMIS specification. (To get the full URI for a query, see the query URI template in the service document.)

- SELECT * from cmis:folder

- SELECT cmis:name, cmis:contentStreamFileName, cmis:contentStreamMimeType, cmis:contentStreamLength FROM cmis:document WHERE cmis:contentStreamFileName = 'BinaryName' AND cmis:contentStreamMimeType = 'text/html' AND cmis:contentStreamLength > 1
- SELECT cmis:name, cmis:creationDate, cmis:lastModificationDate FROM cmis:folder WHERE cmis:name = 'Trash' AND cmis:lastModificationDate > TIMESTAMP '2008-05-18T10:32:44.703-06:00'
- SELECT * FROM cmis:document WHERE cmis:name LIKE 'baker%'
- SELECT * FROM cmis:document WHERE cmis:name NOT IN ('nodeBoolean', 'nodeLong')
- SELECT cmis:name from cmis:document where IN_TREE('/StellentRepository')
- SELECT * FROM ora:t:IDC:GlobalProfile WHERE ora:p:xBooleanTestField = FALSE ORDER BY ora:p:dDocTitle ASC
- SELECT ora:p:xMultiValuedDelimiterTest FROM ora:t:IDC:GlobalProfile WHERE ANY ora:p:xMultiValuedDelimiterTest NOT IN ('four')
- SELECT cmis:name FROM ora:t:IDC:GlobalProfile WHERE CONTAINS('test') ORDER BY ora:p:dInDate DESC
- SELECT * FROM cmis:document where IN_TREE('/StellentRepository/IDC:Folder/2')

Using the Events REST API

WebCenter Portal provides a REST API to support events. Use the REST API to create your own interface for providing access to portal events.

Note:

The Events REST API is available for portal events only. You cannot use the REST API to work with personal events.

This section describes the REST API methods associated with events. It includes the following topics:

- Events Entry Point
- Events Resource Type Taxonomy
- Security Considerations
- Events Resource Types

Events Entry Point

The entry point for events can be reached only through a portal. First you need to navigate to the appropriate portal and then find the link element with a `resourceType` of:

```
urn:oracle:webcenter:events:gsEvents
```

The corresponding `href` or `template` element provides the URI entry point. The client sends HTTP requests to this entry point to work with events.

For more information about the Resource Index, see Using the Resource Index.

For more information about resource types, see Resource Type.

Events Resource Type Taxonomy

When the client has identified the entry point, it can then navigate through the resource type taxonomy to perform the required operations. For more information about the individual resources types, see the appropriate section in Events Resource Types.

The taxonomy for events is:

```
urn:oracle:webcenter:events:gsEvents
  urn:oracle:webcenter:events:gsEvent
urn:oracle:webcenter:events:gsCategories
```

Security Considerations

There are no specific security considerations for events. For general security considerations, see Security Considerations for WebCenter Portal REST APIs.

Events Resource Types

This section provides you with all the information you need to know about each resource type. It includes the following topics:

- urn:oracle:webcenter:events:gsEvents
- urn:oracle:webcenter:events:gsEvent
- urn:oracle:webcenter:events:gsCategories

urn:oracle:webcenter:events:gsEvents

Use this resource to identify the URI to use to retrieve (`GET`) and create (`POST`) portal events. The response from a `GET` operation includes each portal event in this collection of events, and each event includes links used to operate on that event. The response from a `POST` operation includes the event that was created in this collection of events and a link to operate on that event.

Navigation Paths to gsEvents

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceIndex
   spaces
      gsEvents
```

Supported Methods for gsEvents

The following methods are supported by this resource:

- `GET`
  - **request - body:** <gsCategory>, **Parameters:** `startIndex`, `itemsPerPage`, `utoken`

    For information about these common parameters, see Common Request Query Parameters.

    The following additional parameters are available:

    * `startDate`—the date from which to start listing portal events
    * `endDate`—the date at which to stop listing portal events

    For the start and end dates, use the format `YYYY-MM-DD`, for example `2011-09-01`. You can also specify a time (for example, `2011-09-01T09:00:00`) and a timezone sign (for example, for UTC, `2011-09-01T09:00:00Z`).
  - **response - body:** 0 or more events
- `POST`
  - **request - body:** event
  - **response - body:** event

Resource Types Linked to From gsEvents

Table C-36 lists the resource types that the client can link to from this resource.

Table C-36 Related Resource Types for gsEvents

rel	resourceType
self	urn:oracle:webcenter:events:gsEvents

urn:oracle:webcenter:events:gsEvent

Use this resource type to identify the URI to use to read (`GET`), update (`PUT`), or delete (`DELETE`) a specific portal event. The response from a `GET` operation includes the specific event identified by the URI. The response from a `PUT` operation includes the modified version of the event identified by the URI. The response from a `DELETE` operation is a 204.

Navigation Paths to gsEvent

```
resourceIndex
   spaces
      gsEvents
         gsEvent
```

Supported Methods for gsEvent

The following methods are supported by this resource:

- `GET`
  - **request - body:** none
  - **response - body:** event

- PUT
  - **request - body:** event
  - **response - body:** event
- DELETE
  - **request - body:** none
  - **response - body:** none

Writable Elements for gsEvent

Table C-37 lists the writable elements for this resource.

Table C-37 Writable Elements for gsEvent

Element	Type	Required	Constraints	Description
`category`	String	No	The name of an event category defined for the portal	The category to which the event belongs. **Note:** If the category does not exist, the default is used if the event is being created. However, an error will occur if the event is being modified.
`details`	String	No	1 or more characters	Additional details about the event
`endTime`	Date	Yes	YYYY-MM-DDTHH:MM:SS `endTime` must be greater than or equal to `startTime`	The date and time at which the event ends
`location`	String	No	1 or more characters	The location at which the event takes place
`priority`	String?	No	1 - Highest 2 - High 3 - Normal 4 - Low 5 - Lowest	The priority of the event, which determines where it appears when events clash
`startTime`	Date	Yes	YYYY-MM-DDTHH:MM:SS	The date and time at which the event starts
`summary`	String	Yes	1 or more characters	A brief description of the event to serve as the title of the event

Read-only Elements for gsEvent

Table C-38 lists the read-only elements for this resource.

Table C-38 Read-only Elements for gsEvent

Element	Type	Description
`author`	personReference	User who created the event
`created`	Date	Date on which the event was created
`duration`	String	The length (in minutes) of the event
`groupSpace`	groupSpaceReference	The portal to which the event belongs
`id`	String	Unique ID of the event
`isAllDayEvent`	Boolean	Indicates whether the event takes place over an entire day
`modified`	Date	Date on which the event was last updated
`modifiedByUser`	personReference	User who last updated the event

Resource Types Linked to from gsEvent

Table C-39 lists the resource types that the client can link to from this resource.

Table C-39 Related Resource Types for gsEvent

rel	resourceType
self	urn:oracle:webcenter:events:gsEvent

urn:oracle:webcenter:events:gsCategories

Use this resource to identify the URI to use to retrieve (`GET`) and create (`POST`) portal event categories. The response from a `GET` operation includes each category in this collection of categories, and each category includes links used to operate on that category. The response from a `POST` operation includes the category that was created in this collection of categories and a link to operate on that category.

Navigation Paths to gsCategories

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceIndex
   spaces
      gsCategories
```

Supported Methods for gsCategories

The following methods are supported by this resource:

- `GET`
  - **request - body:** category
  - **response - body:** 0 or more categories
- `POST`

- **request - body:** category
- **response - body:** category

Resource Types Linked to From gsCategories

Table C-40 lists the resource types that the client can link to from this resource.

Table C-40 Related Resource Types for gsCategories

rel	resourceType
self	urn:oracle:webcenter:events:gsCategories

Using the Tags REST APIs

WebCenter Portal provides REST APIs to support tags. Use the tags REST APIs to do the following:

- Find all tags or find a subset of tags by criteria
- Get a specific tag
- Delete tags
- Update or rename tags
- Get tagged items
- Untag an item
- Add a new tagged item
- Change tags for a tagged item
- Find all tagged items or find tagged items by a filter, such as a date or a tag word
- Get related users by tag

This section describes the REST APIs associated with tags. It includes the following topics:

- Tags Entry Point
- Tags Resource Type Taxonomy
- Security Considerations
- Tags Resource Types

For an introduction to the REST APIs, see Introduction to the WebCenter Portal REST APIs.

Tags Entry Point

Each REST service has a link element within the Resource Index that provides the entry point for that service. To find the entry point for tags, find the link element with a `resourceType` of one of the following:

- `urn:oracle:webcenter:tagging:tags`
- `urn:oracle:webcenter:tagging:taggeditems`

- `urn:oracle:webcenter:tagging:users`

The corresponding `href` or `template` element provides the URI entry point. The client sends HTTP requests to this entry point to work with tags.

For more information about the Resource Index, see Using the Resource Index.

For more information about resource types, see Resource Type.

Tags Resource Type Taxonomy

When the client has identified the entry point, it then can navigate through the resource type taxonomy to perform the required operations. For more information about the individual resource types, see the appropriate section in Resource Type.

The taxonomy for tags is:

```
urn:oracle:webcenter:tagging:tags
   urn:oracle:webcenter:tagging:tag
urn:oracle:webcenter:tagging:taggedItems
   urn:oracle:webcenter:tagging:taggedItem
urn:oracle:webcenter:tagging:users
```

Under users, you can add the resource type for that object, such as `peopleprofile`.

Beyond the service entry points, URL templates allow clients to pass query parameters to customize their requests and control the form of returned data.

Collection resources in the tags resources support pagination (`itemsPerPage` and `startIndex` for tags and users and `itemsPerPage` for taggedItems). Other query parameters (`search` and `projection`) are not supported.

Security Considerations

Authentication is required before using REST API methods.

For general security considerations, see Security Considerations for WebCenter Portal REST APIs.

Tags Resource Types

This section provides information about each resource type. It includes the following topics:

- urn:oracle:webcenter:tagging:tags
- urn:oracle:webcenter:tagging:tag
- urn:oracle:webcenter:tagging:taggedItems
- urn:oracle:webcenter:tagging:taggedItem
- urn:oracle:webcenter:tagging:users

urn:oracle:webcenter:tagging:tags

Use this resource type to identify the URI to use to read (`GET`) tags. The response from a `GET` operation includes all tags, a specific tag, a subset of tags, or a tag related to a specific list of tags or users.

Navigation Paths to tags

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   tags

resourceindex
   spaces
      spaces:resourceindex
         spaces:tags
```

Supported Methods for tags

The following methods are supported by this resource:

- `GET`
  - **request - body:** none, **Parameters**: `startIndex`, `itemsPerPage`, `keyword`, `serviceId`, `relatedTag`, `userId`, `scopeGuid`, `shared`, `tags`, `users`
  - **response - body:** tag

  where:
  - `startIndex`—Specifies the index of the first matching result that should be included in the result set (0-*n* ... zero based). This is used for pagination.
  - `itemsPerPage`—Specifies the maximum number of results to return in the response (1-*n*). This is used for pagination.
  - `keyword`—Specifies a keyword for substring matches.
  - `serviceId`—Specifies the service ID for which you want to find tags (null for all).
  - `relatedTag`—Specifies a tag that is related to the list of tags. For example, if you have tagged item1 as "webcenter help" and item2 as "webcenter document" and you set `relatedTag=webcenter`, then you would get both tags (for help and document) returned.
  - `userId`—Specifies a single user ID to find tags for (null for all). Uses logged-in user if null and not looking for shared tags.
  - `scopeGuid`—Specifies the GUID of the portal. When set to the Home portal, it shows all (unfiltered) tags.
  - `shared`—Specify `true` to return personal resources only (that is, resources tagged privately only by that same user); `false` to return system resources (that is, resources with at least one public tag).
  - `tags`—Specifies to filter by this list of tags separated by URL-encoded spaces ('+'); for example, an item tagged with "webcenter" and "help" could be searched with `tags=webcenter+help`.
  - `users`—Specifies to filter by this list of users separated by URL-encoded spaces ('+'); for example, `users=monty+vicki+pat`.

Note:

Parameters can be used in certain combinations only.

Table C-41 shows the available parameter combinations for each operation. For example, the `tags` parameter cannot be specified with the `serviceId` parameter.

Table C-41 Parameter Combinations Available for Getting Tags

API Method	keyword	serviceId	relatedTag	userId	scopeGuid	shared	tags	users
findRelatedSystemTags	-	-	X	-	X	-	X	X
findPopularTagsCommon	X	X	-	X	-	X	-	-
findPopularTags (with GUID)	X	-	-	X	X	X	-	-
findPopularTags	X	-	-	X	-	X	-	-

Resource Types Linked to From tags

The resourceType link attribute indicates the type of resource to which the link points. Clients should use the resourceType to determine the expected response bodies for `GET` and `POST` and allowable request bodies for `POST` and `PUT`.

Table C-42 lists the resource types that the client can link to from this resource. Tags have a reference link to themselves and to the next page or previous page of results.

Table C-42 Related Resource Types for tags

rel	resourceType
self	urn:oracle:webcenter:tagging:tags
Previous/Next	urn:oracle:webcenter:tagging:tags

urn:oracle:webcenter:tagging:tag

Use this resource type to identify the URI to use to read (`GET`), rename (`PUT`), and delete (`DELETE`) a tag. The response from a `GET` operation includes all tags, a specific tag, a subset of tags, or a tag related to a specific list of tags or users.

Navigation Paths to tag

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   tags
      tag
```

```
resourceindex
   spaces
      spaces:resourceindex
         spaces:tags
            spaces:tag
```

Supported Methods for tag

The following methods are supported by this resource:

- `GET`
  - **request - body:** none, **Parameters**: none
  - **response - body:** tag
- `PUT`
  - **request - body:** tag
  - **response - body:** tag
- `DELETE`
  - **request - body:** none
  - **response - body:** none

Example: Body of the PUT command for Renaming a Tag

```
<tag>
<name>newId</name>
</tag>
```

Resource Types Linked to From tag

The resourceType link attribute indicates the type of resource to which the link points. Clients should use the resourceType to determine the expected response bodies for `GET` and `POST` and allowable request bodies for `POST` and `PUT`.

Table C-43 lists the resource types that the client can link to from this resource. A tag has a reference link to itself, to related taggedItems, to related users, and to related tags.

Table C-43 Related Resource Types for tag

rel	resourceType
self	urn:oracle:webcenter:tagging:tag urn:oracle:webcenter:tagging:taggedItems urn:oracle:webcenter:tagging:users urn:oracle:webcenter:tagging:tags

urn:oracle:webcenter:tagging:taggedItems

Use this resource type to identify the URI to use to read tagged items and their related resources (`GET`) or to add tagged items (`POST`).

The response from a `GET` operation includes a tagged item or all tagged items, which can be filtered by date, tag words, and so on. Each tag includes links used to operate on that tag. The response from a `POST` operation includes the tagged items that were created in this collection of tags and a link to operate on them.

Navigation Paths to taggedItems

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   taggedItems

resourceindex
   spaces
      spaces:resourceindex
         spaces:taggedItems
```

Supported Methods for taggedtems

The following methods are supported by this resource:

- `POST`
  - **request - body:** taggedItem
  - **response - body:** taggedItem

  ```
  <taggeditem>
     <serviceId>oracle.webcenter.page</serviceId>

  <resourceId>/oracle/webcenter/page/somepath/someotherpath/a.jspx</resourceId>
     <tagWords>foo bar boo far</tagWords>
     <resourceTitle>This is renamed by me to be foofoo</resourceTitle>
     <scopeGuid>(optional) scope for the item</scopeGuid>
     <shared>(optional) make the item private </shared>
   </taggeditem>
  ```

- `GET`
  - **request - body:** none, **Parameters**: `serviceId`, `keyword`, `relatedRID`, `tags`, `users`, `dt`, `scopeGuid`, `shared`, `itemsPerPage`
  - **response - body:** tagged items

  where:

  - `serviceId`—Specifies the service ID of the item.
  - `keyword`—Specifies a keyword in the resource title.
  - `relatedRID`—Specifies a related tag. For example, if you tagged item1 as "webcenter help" and item2 as "fusionapps documents" and item3 as "webcenter documents" and set `relatedRID=item3`, then you would get back item1 and item2, because they share tags in common with item3.
  - `tags`—Specifies to filter by this list of tags separated by URL-encoded spaces ('+'); for example, an item tagged with "webcenter" and "help" could be searched with `tags=webcenter+help`.
  - `users`—Specifies to filter by these users, separated by URL-encoded spaces ('+'); for example, {USER}+{USER}+...+{USER}.
  - `dt`—Specifies to filter bookmarks by this date, which defaults to the most recent date on which bookmarks were saved {DD-MM-CCYY}.

- `scopeGuid`—Specifies the GUID of the portal. When set to the Home portal, it shows all (unfiltered) tags.
- `shared`—Specify `true` to return personal resources only (that is, resources tagged privately only by that same user); `false` to return system resources (that is, resources with at least one public tag).
- `itemsPerPage`—Specifies the maximum number of results to return in the response (1-*n*). This is used for pagination.

Note:

Parameters can be used in certain combinations only.

Table C-44 shows the available parameter combinations for each operation. For example, the `tags` parameter cannot be specified with the `serviceId` parameter.

Table C-44 Parameter Combinations Available for Getting Tagged Items

API Method	serviceId	keyword	relatedRID	tags	users	dt	scopeGuid	shared
findRelatedSystemResources	X	-	X	-	-	-	-	-
findUpdatedResources	-	-	-	-	-	X	X	-
findSystemResources		-	-	X	X	-	X	X
findFilterPersonalResources	X	X	-	-	-	-	X	-
findPersonalResources	-	-	-	X	X	-	X	X
findFilteredPersonalResources (no keyword)	X	-	-	-	-	-	X	-

Resource Types Linked to From taggedItems

The resourceType link attribute indicates the type of resource to which the link points. Clients should use the resourceType to determine the expected response bodies for `GET` and `POST` and allowable request bodies for `POST` and `PUT`.

Table C-45 lists the resource types that the client can link to from this resource. Tagged items have a reference link to themselves and to the next page or previous page of results.

Table C-45 Related Resource Types for taggedItems

rel	resourceType
self	urn:oracle:webcenter:tagging:taggedItems
Previous/Next	urn:oracle:webcenter:tagging:taggedItems

urn:oracle:webcenter:tagging:taggedItem

Use this resource type to identify the URI to use to read tagged items and their related resources (`GET`), add tagged items (`POST`), update tags for a tagged item (`PUT`), and remove all tags from an item (`DELETE`).

The response from a `GET` operation includes a tagged item or all tagged items, which can be filtered by date, tag words, and so on. Each tag includes links used to operate on that tag. The response from a `POST` operation includes the tagged item that was created in this collection of tags and a link to operate on that tagged item.

Navigation Paths to taggedItem

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   taggedItems
      taggedItem

resourceindex
   spaces
      spaces:resourceindex
         spaces:taggedItems
            spaces:taggedItem
```

Supported Methods for taggedItem

The following methods are supported by this resource:

- `GET`
  - **request - body:** none, **Parameters**: `serviceId`, `keyword`, `tags`, `users`, `dt`, `shared`, `itemsPerPage`
  - **response - body:** tagged item

  where:
  - `serviceId`—Specifies the service ID of the item.
  - `keyword`—Specifies a keyword in the resource title.
  - `tags`—Specifies to filter by this list of tags separated by URL-encoded spaces ('+'); for example, an item tagged with "webcenter" and "help" could be searched with `tags=webcenter+help`.
  - `users`—Specifies to filter by this list of users separated by URL-encoded spaces ('+'); for example, `users=monty+vicki+pat`.
  - `dt`—Specifies to filter bookmarks by this date, which defaults to the most recent date on which bookmarks were saved {DD-MM-CCYY}.
  - `shared`—Specify `true` to return personal resources only (that is, resources tagged privately only by that same user); `false` to return system resources (that is, resources with at least one public tag).
  - `itemsPerPage`—Specifies the maximum number of results to return in the response (1-*n*). This is used for pagination.
- `PUT`

  - **request - body:** taggedItem
  - **response - body:** taggedItem

```
<taggeditem>
<tagWords>foo bar boo far</tagWords>
</taggeditem>
```

- `DELETE`
  - **request - body:** none
  - **response - body:** none

Resource Types Linked to From taggedItem

The resourceType link attribute indicates the type of resource to which the link points. Clients should use the resourceType to determine the expected response bodies for `GET` and `POST` and allowable request bodies for `POST` and `PUT`.

Table C-46 lists the resource types that the client can link to from this resource. A tagged item has a reference link to itself, related tagged items, and an external link.

Table C-46 Related Resource Types for taggedItem

rel	resourceType
self	urn:oracle:webcenter:tagging:taggedItem urn:oracle:webcenter:tagging:taggedItems
alternate	The resource type depends on the type of resource tagged; for example, a page would be urn:oracle:webcenter:page:page

urn:oracle:webcenter:tagging:users

Use this resource type to get a list of people related to a given list of tags.

Navigation Paths to users

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   taggingusers

resourceindex
   spaces
      spaces:resourceindex
         spaces:taggingusers
```

Supported Methods for users

The following methods are supported by this resource:

- `GET`
  - **request - body:** none, **Parameters**: `startIndex`, `itemsPerPage`, `tags`, `users`
  - **response - body:** people profile

  where:

- `startIndex`—Specifies the index of the first matching result that should be included in the result set (0-*n* ... zero based). This is used for pagination.
- `itemsPerPage`—Specifies the maximum number of results to return in the response (1-*n*). This is used for pagination.
- `tags`—Specifies to filter by this list of tags separated by URL-encoded spaces ('+'); for example, an item tagged with "webcenter" and "help" could be searched with `tags=webcenter+help`.
- `users`—Specifies to filter by this list of users separated by URL-encoded spaces ('+'); for example, `users=monty+vicki+pat`.

Resource Types Linked to From users

The resourceType link attribute indicates the type of resource to which the link points. Clients should use the resourceType to determine the expected response bodies for `GET` and `POST` and allowable request bodies for `POST` and `PUT`.

Table C-47 lists the resource types that individual users can link to from this resource. Users have a reference link to themselves and to the next page or previous page of results.

Table C-47 Related Resource Types for users

rel	resourceType
self	urn:oracle:webcenter:tagging:users
Previous/Next	urn:oracle:webcenter:tagging:users

Using the Discussions REST API

WebCenter Portal provides a REST API to support discussions. Use the discussions REST API to post, read, update, and delete discussion forums, topics, and messages.

Note:

Beginning with 12*c* (12.2.1.3.0), Oracle WebCenter Portal has deprecated support for Jive features (announcements and discussions). If you are upgrading from a prior release, these features remain available in your existing installations that are being upgraded.

This section describes the REST API methods associated with discussions. It includes the following topics:

- Discussions Entry Point
- Discussions Resource Type Taxonomy
- Security Considerations
- Discussions Resource Types

Discussions Entry Point

Each REST service has a link element within the Resource Index that provides the entry point for that service. To find the entry point for discussions, find the link element with a `resourceType` of:

```
urn:oracle:webcenter:discussions:forums
```

The corresponding `href` or `template` element provides the URI entry point. The client sends HTTP requests to this entry point to work with discussions.

For more information about the Resource Index, see Using the Resource Index.

For more information about resource types, see Resource Type.

Discussions Resource Type Taxonomy

When the client has identified the entry point, it can then navigate through the resource type taxonomy to perform the required operations. For more information about the individual resource types, see the appropriate section in Resource Type.

The taxonomy for discussions is:

```
urn:oracle:webcenter:discussions:forums
   urn:oracle:webcenter:discussions:forum
   urn:oracle:webcenter:discussions:forum:topics
      urn:oracle:webcenter:discussions:forum:topic
      urn:oracle:webcenter:discussions:forum:topic:messages
         urn:oracle:webcenter:discussions:forum:topic:message
```

Beyond the service entry points, URL templates allow clients to pass query parameters to customize their requests and control the form of returned data.

Collection resources in the discussions resources support pagination (`startIndex` and `itemsPerPage`). Other query parameters are not supported (that is, `search` and `projection`).

Security Considerations

There are no specific security considerations for discussions. For general security considerations, see Introduction to the WebCenter Portal REST APIs.

Discussions Resource Types

This section provides the information about each resource type. It includes the following topics:

- urn:oracle:webcenter:discussions:forums
- urn:oracle:webcenter:discussions:forum
- urn:oracle:webcenter:discussions:forum:topics
- urn:oracle:webcenter:discussions:forum:topic
- urn:oracle:webcenter:discussions:forum:topic:messages
- urn:oracle:webcenter:discussions:forum:topic:message

urn:oracle:webcenter:discussions:forums

Use this resource type to identify the URI to use to read (`GET`) and write (`POST`) discussion forums. The response from a `GET` operation includes each forum in this collection of forums, and each forum includes links used to operate on that forum. The response from a `POST` operation includes the forum that was created in this collection of forums and a link to operate on that forum.

Navigation Paths to forums

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   forums

resourceindex
   spaces
      spaces:resourceindex
         spaces:forums
```

Supported Methods for forums

The following methods are supported by this resource:

- `GET`
  - **request - body:** none, **Parameters**: `startIndex`, `itemsPerPage` (pagination)
  - **response - body:** forums
- `POST`
  - **request - body:** forum
  - **response - body:** forum

Note that the number of forums displayed per page defaults to 10. For more information, see Templates.

Resource Types Linked to From forums

Table C-48 lists the resource types that the client can link to from this resource.

Table C-48 Related Resource Types for forums

rel	resourceType
self	urn:oracle:webcenter:discussions:forums urn:oracle:webcenter:discussions:forum

urn:oracle:webcenter:discussions:forum

Use this resource type to identify the URI to use to read (`GET`), update (`PUT`), and delete (`DELETE`) a specific discussion forum. The response from a `GET` operation includes the specific forum identified by the URI. The response from a `PUT` operation includes the modified version of the forum identified by the URI. The response from a `DELETE` operation is a 204.

Navigation Paths to forum

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   forums
      forum

resourceindex
   spaces
      spaces:resourceindex
         spaces:forums
            forum

resourceindex
   activities
      forum
```

Supported Methods for forum

The following methods are supported by this resource:

- `GET`
  - **request - body:** none
  - **response - body:** forum
- `PUT`
  - **request - body:** forum
  - **response - body:** forum
- `DELETE`
  - **request - body:** none
  - **response - body:** none

Writable Elements for forum

Table C-49 lists the writable elements for this resource.

Table C-49 Writable Elements for forum

Element	Type	Required	Constraints	Description
`name`	String	Yes	1 or more characters	Name of the forum
`displayName`	String	No	1 or more characters	Name used in presentation
`description`	String	No	1 or more characters	Description of the forum

Read-only Elements for forum

Table C-50 lists the read-only elements for this resource.

Table C-50 Read-only Elements for forum

Element	Type	Description
`id`	Integer	ID of the forum
`parentId`	Integer	ID of the parent category
`createdBy`	String	ID of the user that created the forum
`author`	personReference	User information about the user that created the forum, including GUID, ID, display name, and a link to the profile icon (same user as `createdBy`)
`createdOn`	Date	Date on which the forum was created
`updatedBy`	String	ID of the user that performed the last modification
`modifiedBy`	personReference	User information about the user that performed the last modification, including GUID, ID, display name, and a link to the profile icon (same user as `updatedBy`)
`updatedOn`	Date	Date on which the forum was last modified
`webUrl`	String	URL for direct access to the discussions server
`topicCount`	Integer	Number of topics
`messageCount`	Integer	Number of messages
`locked`	Boolean	True if this forum is locked
`favorite`	Boolean	True if this forum is marked as a favorite

Resource Types Linked to From forum

Table C-51 lists the resource types that the client can link to from this resource.

Table C-51 Related Resource Types for forum

rel	resourceType
self	urn:oracle:webcenter:discussions:forum urn:oracle:webcenter:discussions:forum:topics

urn:oracle:webcenter:discussions:forum:topics

Use this resource type to identify the URI to use to read (`GET`) and write (`POST`) discussion topics. The response from a `GET` operation includes each topic in this collection of topics, and each topic includes links used to operate on that topic. The response from a `POST` operation includes the topic that was created in this collection of topics and a link to operate on that topic.

Navigation Paths to topics

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   forums
      topics

resourceindex
   spaces
      spaces:resourceindex
         spaces:forums
            topics
```

Supported Methods for topics

The following methods are supported by this resource:

- `GET`
  - **request - body:** none, **Parameters:** `startIndex`, `itemsPerPage` (pagination)
  - **response - body:** topics
- `POST`
  - **request - body:** topic
  - **response - body:** topic

For more information, see Templates.

Resource Types Linked to From topics

Table C-52 lists the resource types that the client can link to from this resource.

Table C-52 Related Resource Types for topics

rel	resourceType
self	urn:oracle:webcenter:discussions:forum:topics urn:oracle:webcenter:discussions:forum:topic

urn:oracle:webcenter:discussions:forum:topic

Use this resource type to identify the URI to use to read (`GET`), update (`PUT`), and delete (`DELETE`) a specific discussion topic. The response from a `GET` operation includes the specific topic identified by the URI. The response from a `PUT` operation includes the modified version of the topic identified by the URI. The response from a `DELETE` operation is a 204.

Navigation Paths to topic

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   forums
      topics
         topic

resourceindex
   spaces
      spaces:resourceindex
         spaces:forums
            topics
               topic

resourceindex
   activities
      topicT
```

Supported Methods for topic

The following methods are supported by this resource type:

- `GET`
  - **Request—Body:** none
  - **Response—Body:** topic
- `PUT`
  - **Request—Body:** topic
  - **Response—Body:** topic
- `DELETE`
  - **Request—Body:** none
  - **Response—Body:** none

Writable Elements for topic

Table C-53 lists the writable elements for this resource type.

Table C-53 Writable Elements for topic

Element	Type	Required	Constraints	Description
`subject`	String	Yes	1 or more characters	Subject of the topic
`body`	String	No	0 or more characters	Contents of the topic

Read-only Elements for topic

Table C-54 lists the read-only elements for this resource type.

Table C-54 Read-only Elements for topic

Element	Type	Description
`id`	Integer	Identifier for the topic
`parentId`	Integer	Identifier for the parent message
`forumId`	Integer	Identifier for the forum under which this topic is posted
`topicId`	Integer	Identifier for the topic under which this topic is posted
`createdBy`	String	ID of the user who created the topic
`author`	personReference	User information about the user who created the topic, including GUID, ID, display name, and a link to the profile icon (same user as `createdBy`)
`createdOn`	Date	Date on which the topic was created
`updatedBy`	String	User who lasted updated the topic
`updatedOn`	Date	Date on which the topic was last updated
`webUrl`	String	URL for direct access to the discussions server
`depth`	Integer	Depth in the hierarchy of messages
`messageCount`	Integer	Number of child messages under this topic
`numberOfReplies`	Integer	Number of replies to this topic
`favorite`	Boolean	Whether the topic is marked as a favorite for the user
`locked`	Boolean	Whether the topic is locked
`hidden`	Boolean	Whether the topic is hidden
`hasAttachment`	Boolean	Whether the topic has attachments

Resource Types Linked to From topic

Table C-55 lists the resource types that the client can link to from this resource.

Table C-55 Related Resource Types for topic

rel	resourceType
self	urn:oracle:webcenter:discussions:forum:topic urn:oracle:webcenter:discussions:forum:topic:messages

urn:oracle:webcenter:discussions:forum:topic:messages

Use this resource type to identify the URI to use to read (`GET`) and write (`POST`) discussion topic messages. The response from a `GET` operation includes each message in this collection of messages, and each message includes links used to operate on that message. The response from a `POST` operation includes the message that was created in this collection of messages and a link to operate on that message.

Navigation Paths to messages

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   forums
      topics
         messages

resourceindex
   spaces
      spaces:resourceindex
         spaces:forums
            topics
               messages
```

Supported Methods for messages

The following methods are supported by this resource:

- `GET`
  - **request - body:** none, **Parameters:** `startIndex`, `itemsPerPage` (pagination)
  - **response - body:** messages
- `POST`
  - **request - body:** message
  - **response - body:** message

For more information, see Templates.

Resource Types Linked to From messages

Table C-56 lists the resource types that the client can link to from this resource.

Table C-56 Related Resource Types for messages

rel	resourceType
self	urn:oracle:webcenter:discussions:forum:topic:messages urn:oracle:webcenter:discussions:forum:topic:message

urn:oracle:webcenter:discussions:forum:topic:message

Use this resource type to identify the URI to use to read (`GET`), update (`PUT`), and delete (`DELETE`) a specific discussion topic message. The response from a `GET` operation includes the specific message identified by the URI. The response from a `PUT` operation includes the modified version of the message identified by the URI. The response from a `DELETE` operation is a 204.

Navigation Paths to message

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   forums
      topics
         messages
            message


resourceindex
   spaces
      spaces:resourceindex
         spaces:forums
            topics
               messages
                  message
```

Supported Methods for message

The following methods are supported by this resource:

- GET
  - **request - body:** none
  - **response - body:** message
- PUT
  - **request - body:** message
  - **response - body:** message
- DELETE
  - **request - body:** none
  - **response - body:** none

Writable Elements for message

Table C-57 lists the writable elements for this resource.

Table C-57 Writable Elements for message

Element	Type	Required	Constraints	Description
`subject`	String	Yes	1 or more characters	Subject of this message
`body`	String	No	0 or more characters	Content of this message

Read-only Elements for message

Table C-58 lists the read-only elements for this resource.

Table C-58 Read-only Elements for message

Element	Type	Description
`id`	Integer	ID of the message
`parentId`	Integer	ID of the parent message
`forumId`	Integer	ID of the forum under which the message is posted
`topicId`	Integer	ID of the topic under which the message is posted
`createdBy`	String	ID of user that created the message
`author`	personReference	User information about the user that created the message, including GUID, ID, display name and a link to the profile icon (same user as `createdBy`)
`createdOn`	Date	Date on which the message was created
`updatedBy`	String	User that performed the last modification
`updatedOn`	Date	Date on which the message was last modified
`webUrl`	String	URL for direct access to the discussions server
`depth`	Integer	Depth in the hierarchy of messages
`messageCount`	Integer	Number of messages
`numberOfReplies`	Integer	Number of replies to this message
`hidden`	Boolean	True if this message is hidden
`hasAttachment`	Boolean	True if this message has attachments

Resource Types Linked to From message

Table C-59 lists the resource types that the client can link to from this resource.

Table C-59 Related Resource Types for message

rel	resourceType
self	urn:oracle:webcenter:discussions:forum:topic:message urn:oracle:webcenter:discussions:forum:topic:messages

Using the Lists REST API

Oracle WebCenter Portal provides a REST API to allow access to Lists functionality through interfaces other than the provided task flows. You can use the Lists REST API to perform the following actions:

- Work with lists in a portal, such as retrieving a list of lists or adding a new list
- Work with one list, such as retrieving or updating list metadata, or deleting the list

- Work with rows in a list
- Work with a list row, such as retrieving, updating, or deleting the row
- Work with list columns, such as adding a column
- Work with a list column, such as retrieving, updating, or deleting the column

This section describes the REST API methods associated with lists. It includes the following topics:

- Entry Point for Lists
- Lists Resource Type Taxonomy
- Lists Security Considerations
- Lists Resource Types

See Also:

For an introduction to the REST APIs, see Introduction to the WebCenter Portal REST APIs.

Entry Point for Lists

To get to the REST entry point for lists in a portal in WebCenter Portal, you search for the specific portal and retrieve the resource index. The corresponding `href` or `template` element provides the URI entry point, which retrieves the lists in the portal.

1. Navigate to the portal for which to retrieve the lists.
2. Retrieve the resource index:

   ```
   urn:oracle:webcenter:resourceindex
   ```
3. Navigate to the returned `href`.
4. Search for the resource type. For example, for all the lists in a portal, search for:

   ```
   urn:oracle:webcenter:space:lists
   ```

See Also:

For more information about the Resource Index, see Using the Resource Index

For more information about resource types, see Resource Type

Lists Resource Type Taxonomy

When the client has identified the entry point, it can then navigate through the resource type taxonomy to perform the required operations. The resource type taxonomy for lists is:

```
urn:oracle:webcenter:space:lists
urn:oracle:webcenter:space:list
      urn:oracle:webcenter:space:list:rows
      urn:oracle:webcenter:space:list:row
      urn:oracle:webcenter:space:list:columns
      urn:oracle:webcenter:space:list:column
```

Lists Security Considerations

You must be logged in to the REST service to access any of the Lists REST API methods. After that, the underlying service handles permission checking.

See Also:

For general security considerations, see Security Considerations for WebCenter Portal REST APIs.

Lists Resource Types

This section provides you with all the information you need to know about each resource type. It includes the following topics:

- urn:oracle:webcenter:space:lists
- urn:oracle:webcenter:space:list
- urn:oracle:webcenter:space:list:rows
- urn:oracle:webcenter:space:list:row
- urn:oracle:webcenter:space:list:columns
- urn:oracle:webcenter:space:list:column

urn:oracle:webcenter:space:lists

The `lists` response provides a means of retrieving the lists in a given portal (`GET`) and adding lists to a portal (`POST`). This section includes the following topics:

- Navigation Paths to lists
- Supported Methods for lists
- Method (lists): `GET`
- Method (lists): `POST`
- Resource Types Linked to from lists

Navigation Paths to lists

This section shows how the client can navigate through the hypermedia to access the `lists` resource:

```
urn:oracle:webcenter:resourceindex
      urn:oracle:webcenter:spaces
            urn:oracle:webcenter:space:resourceindex
                  urn:oracle:webcenter:space:lists
```

Supported Methods for lists

The `lists` resource type supports the following methods:

- Method (lists): `GET`
- Method (lists): `POST`

Method (lists): `GET`

This method retrieves the lists in a portal.

- Resource URI, for example:

  ```
  http://host:port/rest/api/spaces/vs1/lists?
  q=name:equals:ProjectIssues&utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
  ```

- Request body: none
- Request headers: [Accept = `application/xml` | `application/json`]
- Request parameters - `startIndex`, `itemsPerPage`, `q`, `projection`
  - `q` parameter for query, format `'q=attribute:operator:value'`, for example:

    `'q=name:equals:ProjectIssues'`

    - Supported operators for Strings: `equals`, `not.equals`, `contains`, `starts.with`
    - Supported operators for Dates: `equals`, `not.equals`, `greater.than`, `greater.than.or.equals`, `less.than`, `less.than.or.equals`
    - May specify several conditions separated by semicolon (;)
- Searchable attributes (Table C-60)

Table C-60 Searchable Attributes for lists GET Method

Element	Type	Description
name	string	Name of list
description	string	Description of list
creator	string	User who created list
created	date	Date the list was created
modifier	string	User who modified list
modified	date	Date the list was last modified

- Response status: `200` [OK]
- Response body: `<lists>`
- Example:

  ```
  <lists resourceType="urn:oracle:webcenter:space:lists">
        <links>
              <link resourceType="urn:oracle:webcenter:list:lists"
                    rel="self" href="opaque"/>
              <link template="opaque?startIndex={startIndex}&
                    itemsPerPage={itemsPerPage}&q={searchTerms}&
  ```

```
                  projection={projection}
                  &stoken=FDgsOu7a2NTTM1cLJvnpkDXfihtHx5Q*"
resourceType="urn:oracle:webcenter:list:lists"/>
      </links>
      <items>
            <list resourceType="urn:oracle:webcenter:space:list">
                  <links>
                        <link resourceType="urn:oracle:webcenter:list"
rel="self"
                              href="opaque"
                              capabilities="urn:oracle:webcenter:update
                              urn:oracle:webcenter:delete"/>
                        <link resourceType="urn:oracle:webcenter:list:rows"
                              href="opaque"
                              capabilities="urn:oracle:webcenter:create"/>
                        <link template="opaque?
                              startIndex={startIndex}&
                              itemsPerPage={itemsPerPage}&q={searchTerms}&
                              stoken=FDgsOu7a2NTTM1cLJvnpkDXfihtHx5Q*"
                              resourceType="urn:oracle:webcenter:list:rows"/>
                        <link resourceType="urn:oracle:webcenter:list:columns"
                              href="opaque"
                              capabilities="urn:oracle:webcenter:create"/>
                  </links>
                  <id>/oracle/webcenter/list/scopedMD/
                        se0dea180_e2c1_45ac_b08b_
                        ba2c0b26aa72/lists/ProjectIssues.xml</id>
                  <name>Project Issues</name>
                  <description/>
            </list>
      </items>
</lists>
```

Method (lists): POST

This method creates a list in a portal.

- Resource URI, for example:

```
http://host:port/rest/api/spaces/vs1/lists?
utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
```

- Request body: `<list>`
- Writable elements (Table C-61)

Table C-61 Create List Writable Elements

Element	Type	Constraints	Description
name[1]	string	—	Name of list
description	string	—	Description of list
columns[2]	urn:oracle:webcenter:space:list:columns	1 to 30	List columns

1 Denotes required element
2 Denotes required element

- Example:

```
<list>
      <name>RestExample</name>
      <description>Created using rest api</description>
      <columns>
            <items>
                  <metaColumn>
                        <name>No.</name>
                        <dataType>number</dataType>
                  </metaColumn>
                  <metaColumn>
                        <name>Description</name>
                        <dataType>string</dataType>
                  </metaColumn>
            </items>
      </columns>
</list>
```

- Request headers: `Content-Type = application/xml` | `application/json`, [Accept = `application/xml` | `application/json`]
- Response status: `201` [Created]
- Response body: `<list>`
- Retrieved elements (Table C-62)

Table C-62 Retrieved Elements from lists

Element	Type	Description
id	string	List ID
name	string	List name
description	string	List description
scope.guid	string	GUID of portal to which the list belongs
scope.name	string	Name of the portal to which the list belongs
creator	string	Name of the user who created the list
created	date	Date the list was created
modifier	string	Name of the user who last modified the list
modified	date	Date the list was last modified
columns	urn:oracle:webcenter:space:list:columns	List columns

- Example:

```
<list resourceType="urn:oracle:webcenter:space:list">
      <links>
            <link resourceType="urn:oracle:webcenter:space:list" rel="self"
                  href="http://host:port/rest/api/spaces/vs1/
                  lists/(/oracle/webcenter/list/scopedMD/s355923f0_2f04_4fd0_
                  83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                  fb03874979c0.xml)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                  capabilities="urn:oracle:webcenter:read
                  urn:oracle:webcenter:update urn:oracle:webcenter:delete"/>
            <link template="http://host:port
                  /rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
                    s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_
                    417b_a35f_fb03874979c0.xml)/rows?
                    utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_
                    w**&startIndex={startIndex}&itemsPerPage={itemsPerPage}
                    &q={searchTerms}&utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                    resourceType="urn:oracle:webcenter:space:list:rows"
                    href="http://host:port/rest/api/spaces/
                    vs1/lists/(/oracle/webcenter/list/scopedMD/s355923f0_2f04_4fd0_
                    83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                    fb03874979c0.xml)/rows?
utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                    capabilities="urn:oracle:webcenter:read
                    urn:oracle:webcenter:create"/>
              <link resourceType="urn:oracle:webcenter:space:list:columns"
                    href="http://host:port/rest/api/spaces/
                    vs1/lists/(/oracle/webcenter/list/scopedMD/s355923f0_2f04_4fd0_
                    83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                    fb03874979c0.xml)/columns?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_
                    w**" capabilities="urn:oracle:webcenter:read
                    urn:oracle:webcenter:create"/>
      </links>
      <id>/oracle/webcenter/list/scopedMD/s355923f0_2f04_4fd0_83ad_
            f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_fb03874979c0.xml</id>
      <name>RestExample</name>
      <description>Created using rest api</description>
      <scope>
            <guid>s355923f0_2f04_4fd0_83ad_f7dac2a7ceed</guid>
            <name>vs1</name>
      </scope>
      <creator>weblogic</creator>
      <author>
            <links>
                  <link resourceType="urn:oracle:webcenter:people:person"
                        rel="via" href="http://host:port/
                        rest/api/people/E9A35E80F0BC11DFBFBE0FE339E55B21/lists/
                        @self?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                        capabilities="urn:oracle:webcenter:read"/>
                  <link type="image/png"
                        template="http://host:port/
                        webcenter/profilephoto/45394133354538304630424
                        33131444642464245304645333339453535423231/{size}?
                        _xResourceMethod=wsrp"
                        resourceType="urn:oracle:webcenter:people:person"
                        rel="urn:oracle:webcenter:people:icon"
                        href="http://host:port/webcenter/
                        profilephoto/
4539413335453830463042433131444642464245304645
                        333339453535423231/SMALL?_xResourceMethod=wsrp"
                        capabilities="urn:oracle:webcenter:read"/>
                  <link type="text/html"
                        resourceType="urn:oracle:webcenter:spaces:profile"
                        rel="alternate" href="http://host:port/
                        webcenter/faces/oracle/webcenter/webcenterapp/view/pages/
                        peopleconn/UserProfileGallery.jspx?wc.username=weblogic"
                        capabilities="urn:oracle:webcenter:read"/>
            </links>
            <displayName>weblogic</displayName>
            <guid>E9A35E80F0BC11DFBFBE0FE339E55B21</guid>
            <id>weblogic</id>
      </author>
      <created>2010-11-18T06:10:32.250-08:00</created>
```

```
            <modifier>weblogic</modifier>
            <modifiedByUser>
                  <displayName>weblogic</displayName>
                  <guid>E9A35E80F0BC11DFBFBE0FE339E55B21</guid>
                  <id>weblogic</id>
            </modifiedByUser>
            <modified>2010-11-18T06:10:32.250-08:00</modified>
            <columns resourceType="urn:oracle:webcenter:space:list:columns">
                  <links>
                        <link resourceType="urn:oracle:webcenter:space:list:columns"
                              rel="self"
                              href="http://host:port/rest/api/spaces
                              /vs1/lists/(/oracle/webcenter/list/scopedMD/
                              s355923f0_2f04_4fd0_83ad_
                              f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                              fb03874979c0.xml)/columns?utoken=
                              FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                              capabilities="urn:oracle:webcenter:read
                              urn:oracle:webcenter:create"/>
                        <link resourceType="urn:oracle:webcenter:space:list"
                              rel="urn:oracle:webcenter:parent"
                              href="http://host:port/
                              rest/api/spaces/vs1/lists/(/oracle/webcenter/list/
scopedMD/
                              s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/
                              ls_c9cecbc7_756b_417b_a35f_fb03874979c0.xml)?
                              utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"/>
                        </links>
                        <items>
                              <metaColumn resourceType=
                                    "urn:oracle:webcenter:space:list:column">
                                    <links>
                                          <link
resourceType="urn:oracle:webcenter:space:
                                                list:column" rel="self
                                                "href="http://host:port/
                                                rest/api/spaces/vs1/lists/
                                                (/oracle/webcenter/list/scopedMD/
                                                s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/
                                                lists/ls_c9cecbc7_756b_417b_a35f_
                                                fb03874979c0.xml)/columns/

(lco_9bdd1418_6004_40ba_a052_04e8335b7ee8)?

utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"

capabilities="urn:oracle:webcenter:read
                                                urn:oracle:webcenter:update
                                                urn:oracle:webcenter:delete"/>
                                    </links>
                                    <id>lco_9bdd1418_6004_40ba_a052_04e8335b7ee8</id>
                                    <name>No.</name>
                                    <dataType>number</dataType>
                                    <required>false</required>
                                    <displayLength>10</displayLength>
                                    <format>number</format>
                                    <allowLinks>false</allowLinks>
                              </metaColumn>
                              <metaColumn resourceType=
                                    "urn:oracle:webcenter:space:list:column">
                                    <links>
```

```
                                            <link resourceType=

"urn:oracle:webcenter:space:list:column"
                                                    rel="self"
                                                    href="http://host:port/
                                                    rest/api/spaces/vs1/lists/(/oracle/
                                                    webcenter/list/scopedMD/
                                                    s355923f0_2f04_4fd0_83ad_
                                                    f7dac2a7ceed/lists/ls_c9cecbc7_756b_
                                                    417b_a35f_fb03874979c0.xml)/columns/

(lco_3a31fd20_24f1_4422_99fd_c00d7bed4b24)?

utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"

capabilities="urn:oracle:webcenter:read
                                                    urn:oracle:webcenter:update
                                                    urn:oracle:webcenter:delete"/>
                        </links>
                        <id>lco_3a31fd20_24f1_4422_99fd_c00d7bed4b24</id>
                        <name>Description</name>
                        <dataType>string</dataType>
                        <required>false</required>
                        <maxLength>500</maxLength>
                        <displayLength>20</displayLength>
                        <allowLinks>false</allowLinks>
                        <editLines>1</editLines>
                  </metaColumn>
            </items>
      </columns>
</list>
```

Resource Types Linked to from lists

Table C-63 lists the resource types that the client can link to from the `lists` resource.

Table C-63 Resource Types Linked to from lists

rel	resourceType
self	`urn:oracle:webcenter:space:lists`
Related	urn:oracle:webcenter:space:list

urn:oracle:webcenter:space:list

The `list` response provides a means of retrieving, updating, and deleting an individual list. This section includes the following topics:

- Navigation Paths to list
- Supported Methods for list
- Method (list): `GET`
- Method (list): `PUT`
- Method (list): `DELETE`
- Resource Types Linked to from list

Navigation Paths to list

This section shows how the client can navigate through the hypermedia to access the `list` resource:

```
urn:oracle:webcenter:resourceindex
      urn:oracle:webcenter:spaces
            urn:oracle:webcenter:space:resourceindex
                  urn:oracle:webcenter:space:lists
                        urn:oracle:webcenter:space:list
```

Supported Methods for list

The list resource type supports the following methods:

- Method (list): `GET`
- Method (list): `PUT`
- Method (list): `DELETE`

Method (list): `GET`

Use this method to retrieve a list.

- Resource URI, for example:

```
http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_bb806754_0652_4d49_9354_
5fb62dc3514d.xml)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
```

- Request body: none
- Request headers: [Accept = `application/xml` | `application/json`]
- Response status: `200` [OK]
- Response body: `<list>`
- Retrieved elements (Table C-64)

Table C-64 Retrieved Elements for list

Element	Type	Description
id	string	ID of the list
name	string	Name of the list
description	string	Description of the list
scope.guid	string	GUID of the portal to which the list belongs
scope.name	string	Name of the portal to which the list belongs
creator	string	User who created the list
created	Date	Date on which the list was created
modifier	string	User who last modified the list
modified	Date	Date on which the list was last modified
columns	urn:oracle:webcenter:space:list:columns	The columns that make up the list

- For example:

```
<list resourceType="urn:oracle:webcenter:space:list">
      <links>
            <link resourceType="urn:oracle:webcenter:space:list" rel="self"
                  href="http://host:port/rest/api/spaces/vs1/
                  lists/(/oracle/webcenter/list/scopedMD/
s355923f0_2f04_4fd0_83ad_
                  f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                  fb03874979c0.xml)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                  capabilities="urn:oracle:webcenter:read
                  urn:oracle:webcenter:update
                  urn:oracle:webcenter:delete"/>
            <link template="http://host:port
                  /rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
                  s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_
                  417b_a35f_fb03874979c0.xml)/rows?
                  utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**&
                  startIndex={startIndex}&itemsPerPage={itemsPerPage}&q=
                  {searchTerms}&utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                  resourceType="urn:oracle:webcenter:space:list:rows"
                  href="http://host:port/rest/api/
                  spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/s355923f0_
                  2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                  fb03874979c0.xml)/rows?
utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                  capabilities="urn:oracle:webcenter:read
                  urn:oracle:webcenter:create"/>
            <link resourceType="urn:oracle:webcenter:space:list:columns"
                  href="http://host:port/rest/api/spaces/
                  vs1/lists/(/oracle/webcenter/list/scopedMD/s355923f0_2f04_4fd0_
                  83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                  fb03874979c0.xml)/columns?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_
                  w**" capabilities="urn:oracle:webcenter:read
                  urn:oracle:webcenter:create"/>
      </links>
      <id>/oracle/webcenter/list/scopedMD/s355923f0_2f04_4fd0_83ad_
            f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_fb03874979c0.xml</id>
      <name>RestExample</name>
      <description>Created using rest api</description>
      <scope>
            <guid>s355923f0_2f04_4fd0_83ad_f7dac2a7ceed</guid>
            <name>vs1</name>
      </scope>
      <creator>weblogic</creator>
      <author>
            <links>
                  <link resourceType="urn:oracle:webcenter:people:person"
                        rel="via" href="http://host:port/
                        rest/api/people/E9A35E80F0BC11DFBFBE0FE339E55B21/lists/
                        @self?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                        capabilities="urn:oracle:webcenter:read"/>
                  <link type="image/png"
                        template="http://host:port/
                        webcenter/profilephoto/45394133354538304630424331314444
                        64246424530464533333945353542323l/{size}?
                        _xResourceMethod=wsrp"
                        resourceType="urn:oracle:webcenter:people:person"
                        rel="urn:oracle:webcenter:people:icon"
                        href="http://host:port/
                        webcenter/profilephoto/45394133354538304630424331314444
                        642464245304645333339453535423231/SMALL?
                        _xResourceMethod=wsrp"
                        capabilities="urn:oracle:webcenter:read"/>
                  <link type="text/html"
                        resourceType="urn:oracle:webcenter:spaces:profile"
                        rel="alternate" href="http://host:port/
                        webcenter/faces/oracle/webcenter/webcenterapp/view/pages/
                        peopleconn/UserProfileGallery.jspx?wc.username=weblogic"
                        capabilities="urn:oracle:webcenter:read"/>
            </links>
            <displayName>weblogic</displayName>
            <guid>E9A35E80F0BC11DFBFBE0FE339E55B21</guid>
            <id>weblogic</id>
      </author>
      <created>2010-11-18T06:10:32.250-08:00</created>
      <modifier>weblogic</modifier>
      <modifiedByUser>
            <displayName>weblogic</displayName>
            <guid>E9A35E80F0BC11DFBFBE0FE339E55B21</guid>
            <id>weblogic</id>
      </modifiedByUser>
      <modified>2010-11-18T06:10:32.250-08:00</modified>
      <columns resourceType="urn:oracle:webcenter:space:list:columns">
            <links>
                  <link resourceType="urn:oracle:webcenter:space:list:columns"
                        rel="self" href="http://host:port/
                        rest/api/spaces/vs1/lists/(/oracle/webcenter/list/
scopedMD/
                        s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_
                        756b_417b_a35f_fb03874979c0.xml)/
                        columns?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                        capabilities="urn:oracle:webcenter:read
                        urn:oracle:webcenter:create"/>
                  <link resourceType="urn:oracle:webcenter:space:list"
                        rel="urn:oracle:webcenter:parent"
                        href="http://host:port/rest/api/spaces/
                        vs1/lists/(/oracle/webcenter/list/scopedMD/
s355923f0_2f04_
                        4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                        fb03874979c0.xml)?utoken=
                        FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"/>
            </links>
            <items>
                  <metaColumn resourceType=
                        "urn:oracle:webcenter:space:list:column">
                        <links>
                              <link resourceType=
                                    "urn:oracle:webcenter:space:list:column"
                                    rel="self"
                                     href="http://host:port/
                                    rest/api/spaces/vs1/lists/(/oracle/webcenter/
                                    list/scopedMD/s355923f0_2f04_4fd0_83ad_
                                    f7dac2a7ceed/lists/ls_c9cecbc7_
                                    756b_417b_a35f_fb03874979c0.xml)/columns/
(lco_
                                    9bdd1418_6004_40ba_a052_04e8335b7ee8)?
                                    utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                                    capabilities="urn:oracle:webcenter:read
                                    urn:oracle:webcenter:update
                                    urn:oracle:webcenter:delete"/>
                        </links>
                        <id>lco_9bdd1418_6004_40ba_a052_04e8335b7ee8</id>
                        <name>No.</name>
                        <dataType>number</dataType>
                        <required>false</required>
                        <displayLength>10</displayLength>
                        <format>number</format>
                        <allowLinks>false</allowLinks>
                  </metaColumn>
                  <metaColumn resourceType=
                        "urn:oracle:webcenter:space:list:column">
                        <links>
                              <link resourceType=
                                    "urn:oracle:webcenter:space:list:column"
                                    rel="self"
                                    href="http://host:port
                                    /rest/api/spaces/vs1/lists/(/oracle/
webcenter/
                                    list/scopedMD/s355923f0_2f04_4fd0_83ad_
                                    f7dac2a7ceed/lists/
ls_c9cecbc7_756b_417b_a35f_
                                    fb03874979c0.xml)/columns/(lco_3a31fd20_24f1_
                                    4422_99fd_c00d7bed4b24)?
                                    utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                                    capabilities="urn:oracle:webcenter:read
                                    urn:oracle:webcenter:update
                   urn:oracle:webcenter:delete"/>
                        </links>
                        <id>lco_3a31fd20_24f1_4422_99fd_c00d7bed4b24</id>
                        <name>Description</name>
                        <dataType>string</dataType>
                        <required>false</required>
                        <maxLength>500</maxLength>
                        <displayLength>20</displayLength>
                        <allowLinks>false</allowLinks>
                        <editLines>1</editLines>
                  </metaColumn>
            </items>
      </columns>
</list>
```

Method (list): PUT

Use this method to update a list name or description.

- Resource URI, for example:

  ```
  http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
  s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_bb806754_0652_4d49_9354_
  5fb62dc3514d.xml)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
  ```

- Request body: `<list>`
- Writable elements for list (Table C-65)

Table C-65 Writable Elements for list

Element	Type	Required	Constraints	Description
name[1]	string	Yes	1 or more characters	Name of this list
description	string	No	none	Description of this list

1 Denotes required element

- For example:

```
<list>
      <name>RestExampleUpdate</name>
      <description>Updated using rest api</description>
</list>
```

- Request headers: `Content-Type = application/xml` | `application/json`, [Accept = `application/xml` | `application/json`]
- Response status: `200` [OK]
- Response body: `<list>`

Method (list): `DELETE`

Use this method to delete a list.

- Resource URI, for example:

```
http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_bb806754_0652_4d49_9354_
5fb62dc3514d.xml)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
```

- Request body: none
- Response status: `204` [No Content]
- Response body: none

Resource Types Linked to from list

Table C-66 lists the resource types that the client can link to from the `list` resource.

Table C-66 Resource Types Linked to from list

rel	resourceType
self	`urn:oracle:webcenter:space:list`
Related	urn:oracle:webcenter:space:list:rows
Related	urn:oracle:webcenter:space:list:columns

urn:oracle:webcenter:space:list:rows

The `rows` response provides a means of retrieving and adding rows to a list. This section includes the following topics:

- Navigation Paths to rows
- Supported Methods for rows
- Resource Types Linked to from rows

Navigation Paths to rows

This section shows how the client can navigate through the hypermedia to access the `rows` resource:

```
urn:oracle:webcenter:resourceindex
      urn:oracle:webcenter:spaces
            urn:oracle:webcenter:space:resourceindex
                  urn:oracle:webcenter:space:lists
                        urn:oracle:webcenter:space:list
                              urn:oracle:webcenter:space:list:rows
```

Supported Methods for rows

The rows resource type supports the following methods:

- Method (rows): GET
- Method (rows): POST

Method (rows): `GET`

Use this method to retrieve list rows.

- Resource URI, for example:

  ```
  http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
  s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_bb806754_0652_4d49_9354_
  5fb62dc3514d.xml)/rows?q=lco_9bdd1418_6004_40ba_a052_
  04e8335b7ee8:equals:2&utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
  ```
- Request body: none
- Request headers: [Accept = `application/xml` | `application/json`]
- Request parameters - `startIndex`, `itemsPerPage`, `q`, `projection`
  - `q` parameter for query, format `'q=columnId:operator:value'`, for example:

    `'q=lco_9bdd1418_6004_40ba_a052_04e8335b7ee8:equals:2'`

    * Supported operators for `Strings`: `equals`, `not.equals`, `contains`, `starts.with`
    * Supported operators for `Numbers`, `Dates`: `equals`, `not.equals`, `greater.than`, `greater.than.or.equals`, `less.than`, `less.than.or.equals`
    * May specify several conditions separated by semi-colon (;)
- Searchable attributes for rows: Rows are searchable by column values.
- Response status: `200` [OK]
- Response body: `<rows>`
- For example:

  ```
  <rows resourceType="urn:oracle:webcenter:space:list:rows">
        <links>
              <link template="http://host:port/
                    rest/api/spaces/vs1/lists/(/oracle/webcenter/list/
                    scopedMD/s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_
                    c9cecbc7_756b_417b_a35f_fb03874979c0.xml)/rows?
                    utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**&
                    startIndex={startIndex}&itemsPerPage={itemsPerPage}&
                    q={searchTerms}&utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                    resourceType="urn:oracle:webcenter:space:list:rows" rel="self"
                    href="http://host:port/rest/api/spaces/
                    vs1/lists/(/oracle/webcenter/list/scopedMD/s355923f0_2f04_4fd0_
  ```

```
                  83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                  fb03874979c0.xml)/rows?
utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                  capabilities="urn:oracle:webcenter:read
                  urn:oracle:webcenter:create"/>
            <link resourceType="urn:oracle:webcenter:space:list"
                  rel="urn:oracle:webcenter:parent"
                  href="http://host:port/rest/api/spaces/
                  vs1/lists/(/oracle/webcenter/list/scopedMD/s355923f0_2f04_4fd0_
                  83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                  fb03874979c0.xml)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"/>
      </links>
      <itemsPerPage>1</itemsPerPage>
      <startIndex>0</startIndex>
      <items>
            <row resourceType="urn:oracle:webcenter:space:list:row">
                  <links>
                        <link resourceType="urn:oracle:webcenter:space:list:row"
                              rel="self" href="http://host:port/
                              rest/api/spaces/vs1/lists/(/oracle/webcenter/list/
                              scopedMD/s355923f0_2f04_4fd0_83ad_
                              f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                              fb03874979c0.xml)/rows/(lr_a14d427f_8515_4c82_956f_
                              a60e6e08668c)?
utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                              capabilities="urn:oracle:webcenter:read
                              urn:oracle:webcenter:update
                              urn:oracle:webcenter:delete"/>
                  </links>
                  <id>lr_a14d427f_8515_4c82_956f_a60e6e08668c</id>
                  <listId>/oracle/webcenter/list/scopedMD/s355923f0_2f04_4fd0_
                        83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                        fb03874979c0.xml</listId>
                  <scope>s355923f0_2f04_4fd0_83ad_f7dac2a7ceed</scope>
                  <creator>weblogic</creator>
                  <author>
                        <links>
                              <link resourceType=
                                    "urn:oracle:webcenter:people:person"
                                    rel="via"
                                    href="http://host:port/
                                    rest/api/people/
E9A35E80F0BC11DFBFBE0FE339E55B21/
                                    lists/@self?
utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_
                                    w**"
capabilities="urn:oracle:webcenter:read"/>
                              <link type="image/png"
                                    template="http://host:port/
                                    webcenter/profilephoto/
45394133354538304630424
                                    33313444642464245304645333339453535423231/
                                    {size}?_xResourceMethod=wsrp"

resourceType="urn:oracle:webcenter:people:person"
                                    rel="urn:oracle:webcenter:people:icon"
                                    href="http://host:port/
                                    webcenter/profilephoto/
45394133354538304630424
                                    33313444642464245304645333339453535423231/
SMALL?
```

```
                                    _xResourceMethod=wsrp"
                                    capabilities="urn:oracle:webcenter:read"/>
                              <link type="text/html"
                                    resourceType="urn:oracle:webcenter:spaces:
                                    profile" rel="alternate"
                                    href="http://host:port/
                                    webcenter/faces/oracle/webcenter/
webcenterapp/
                                    view/pages/peopleconn/
UserProfileGallery.jspx?
                                    wc.username=weblogic"
                                    capabilities="urn:oracle:webcenter:read"/>
                        </links>
                        <displayName>weblogic</displayName>
                        <guid>E9A35E80F0BC11DFBFBE0FE339E55B21</guid>
                        <id>weblogic</id>
                  </author>
                  <created>2010-11-18T07:12:06.599-08:00</created>
                  <modifier>weblogic</modifier>
                  <modifiedByUser>
                        <links>
                              <link resourceType=
                                    "urn:oracle:webcenter:people:person"
rel="via"
                                    href="http://host:port/rest/
                                    api/people/E9A35E80F0BC11DFBFBE0FE339E55B21/
lists
                                    /@self?
utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                                    capabilities="urn:oracle:webcenter:read"/>
                              <link type="image/png"
                                    template="http://host:port/
                                    webcenter/profilephoto/
453941333545383046304244
                                    33131444642464245304645333339453535423231/
                                    {size}?_xResourceMethod=wsrp"

resourceType="urn:oracle:webcenter:people:person"
                                    rel="urn:oracle:webcenter:people:icon"
                                    href="http://host:port/
                                    webcenter/profilephoto/
453941333545383046304244
                                    33131444642464245304645333339453535423231/
SMALL?
                                    _xResourceMethod=wsrp"
                                    capabilities="urn:oracle:webcenter:read"/>
                              <link type="text/html"
                                    resourceType="urn:oracle:webcenter:spaces:
                                    profile" rel="alternate"
                                    href="http://host:port/
                                    webcenter/faces/oracle/webcenter/
webcenterapp/
                                    view/pages/peopleconn/
UserProfileGallery.jspx?
                                    wc.username=weblogic"
                                    capabilities="urn:oracle:webcenter:read"/>
                        </links>
                        <displayName>weblogic</displayName>
                        <guid>E9A35E80F0BC11DFBFBE0FE339E55B21</guid>
                        <id>weblogic</id>
                  </modifiedByUser>
```

```
                        <modified>2010-11-18T07:12:06.599-08:00</modified>
                        <columns>
                              <column>
                                    <id>lco_9bdd1418_6004_40ba_a052_04e8335b7ee8</id>
                                    <name>No.</name>
                                    <value>1.0</value>
                              </column>
                              <column>
                                    <id>lco_3a31fd20_24f1_4422_99fd_c00d7bed4b24</id>
                                    <name>Description</name>
                                    <value>test</value>
                              </column>
                        </columns>
                  </row>
            </items>
      </rows>
```

Method (rows): `POST`

Use this method to create a row in a list.

- Resource URI, for example:

  ```
  http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
  s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_bb806754_0652_4d49_9354_
  5fb62dc3514d.xml)/rows?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
  ```

- Request body: `<row>`
- Writable elements (Table C-67)

Table C-67 Writable Elements for rows

Element	Type	Constraints	Description
columns.column.id[1]	string	—	Column ID
columns.column.value[2]	string	Valid value for column data type	Column value

[1] Denotes required element
[2] Denotes required element

- For example:

  ```
  <row>
        <columns>
              <column>
                    <id>lco_9bdd1418_6004_40ba_a052_04e8335b7ee8</id>
                    <value>1</value>
              </column>
              <column>
                    <id>lco_3a31fd20_24f1_4422_99fd_c00d7bed4b24</id>
                    <value>test</value>
              </column>
        </columns>
  </row>
  ```

- Request headers: `Content-Type = application/xml` | `application/json`, [Accept = `application/xml` | `application/json`]
- Response status: `201` [Created]

- Response body: `<row>`
- Retrieved elements (Table C-68)

Table C-68 Retrieved Elements for rows

Element	Type	Description
id	string	Row ID
list id	string	List ID
scope	string	GUID of portal to which list belongs
creator	string	Person who created the list
created	date	Date the list was created
modifier	string	Last user to modify the list
modified	date	Date the list was last modified
columns	—	Column values

- For example:

```
<row resourceType="urn:oracle:webcenter:space:list:row">
      <links>
            <link resourceType="urn:oracle:webcenter:space:list:row" rel="self"
                  href="http://host:port/rest/api/spaces/vs1/
                  lists/(/oracle/webcenter/list/scopedMD/
s355923f0_2f04_4fd0_83ad_
                  f7dac2a7ceed/lists/ls_bb806754_0652_4d49_9354_
                  5fb62dc3514d.xml)/rows/(lr_4cc07327_49cb_4cd5_a270_
                  182ddcc8db4a)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                  capabilities="urn:oracle:webcenter:read
                  urn:oracle:webcenter:update urn:oracle:webcenter:delete"/>
      </links>
      <id>lr_4cc07327_49cb_4cd5_a270_182ddcc8db4a</id>
      <listId>/oracle/webcenter/list/scopedMD/s355923f0_2f04_4fd0_83ad_
            f7dac2a7ceed/lists/ls_bb806754_0652_4d49_9354_
            5fb62dc3514d.xml</listId>
      <scope>s355923f0_2f04_4fd0_83ad_f7dac2a7ceed</scope>
      <creator>weblogic</creator>
      <author>
            <links>
                  <link resourceType="urn:oracle:webcenter:people:person"
                        rel="via" href="http://host:port
                        /rest/api/people/E9A35E80F0BC11DFBFBE0FE339E55B21/lists/
                        @self?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                        capabilities="urn:oracle:webcenter:read"/>
                  <link type="image/png"
                        template="http://host:port/
                        webcenter/profilephoto/45394133354538304630424331 31
                        44464246424530464533333945353542323 1/{size}?
                        _xResourceMethod=wsrp"
                        resourceType="urn:oracle:webcenter:people:person"
                        rel="urn:oracle:webcenter:people:icon"
                        href="http://host:port/webcenter/
                        profilephoto/4539413335453830463042433131444642464245 30
                        464533333945353542323 1/SMALL?_xResourceMethod=wsrp"
                        capabilities="urn:oracle:webcenter:read"/>
                  <link type="text/html"
                        resourceType="urn:oracle:webcenter:spaces:profile"
```

```
                                rel="alternate" href="http://host:port/
                                webcenter/faces/oracle/webcenter/webcenterapp/view/pages/
                                peopleconn/UserProfileGallery.jspx?wc.username=weblogic"
                                capabilities="urn:oracle:webcenter:read"/>
                  </links>
                  <displayName>weblogic</displayName>
                  <guid>E9A35E80F0BC11DFBFBE0FE339E55B21</guid>
                  <id>weblogic</id>
            </author>
            <created>2010-11-17T06:34:25.042-08:00</created>
            <modifier>weblogic</modifier>
            <modifiedByUser>
                  <links>
                        <link resourceType="urn:oracle:webcenter:people:person"
                              rel="via" href="http://host:port/
                              rest/api/people/E9A35E80F0BC11DFBFBE0FE339E55B21/lists/
                              @self?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                              capabilities="urn:oracle:webcenter:read"/>
                        <link type="image/png"
                              template="http://host:port/
                              webcenter/profilephoto/4539413335453830463042433131
                              44464246424530464533333394535354232 31/{size}?
                              _xResourceMethod=wsrp"
                              resourceType="urn:oracle:webcenter:people:person"
                              rel="urn:oracle:webcenter:people:icon"
                              href="http://host:port/webcenter/
                              profilephoto/45394133354538304630424331314446424642453 0
                              46453333394535354232 31/SMALL?_xResourceMethod=wsrp"
                              capabilities="urn:oracle:webcenter:read"/>
                        <link type="text/html"
                              resourceType="urn:oracle:webcenter:spaces:profile"
                              rel="alternate" href="http://host:port/
                              webcenter/faces/oracle/webcenter/webcenterapp/view/pages/
                              peopleconn/UserProfileGallery.jspx?wc.username=weblogic"
                              capabilities="urn:oracle:webcenter:read"/>
                  </links>
                  <displayName>weblogic</displayName>
                  <guid>E9A35E80F0BC11DFBFBE0FE339E55B21</guid>
                  <id>weblogic</id>
            </modifiedByUser>
                  <modified>2010-11-17T06:34:25.042-08:00</modified>
            <columns>
                  <column>
                        <id>lco_9bdd1418_6004_40ba_a052_04e8335b7ee8</id>
                        <name>No.</name>
                        <value>1.0</value>
                  </column>
                  <column>
                        <id>lco_3a31fd20_24f1_4422_99fd_c00d7bed4b24</id>
                        <name>Description</name>
                        <value>test</value>
                  </column>
            </columns>
      </row>
```

Resource Types Linked to from rows

Table C-69 lists the resource types that the client can link to from the `rows` resource.

Table C-69 Resource Types Linked to from rows

rel	resourceType
self	`urn:oracle:webcenter:space:list.rows`
parent	urn:oracle:webcenter:space:list
Related	urn:oracle:webcenter:space:list:row

urn:oracle:webcenter:space:list:row

The `row` response provides a means of retrieving and adding, and deleting an individual list row. This section includes the following topics:

- Navigation Paths to row
- Supported Methods for row
- Method (row): `GET`
- Method (row): `PUT`
- Method (row): `DELETE`
- Resource Types Linked to from row

Navigation Paths to row

This section shows how the client can navigate through the hypermedia to access the `row` resource:

```
urn:oracle:webcenter:resourceindex
      urn:oracle:webcenter:spaces
            urn:oracle:webcenter:space:resourceindex
                  urn:oracle:webcenter:space:lists
                        urn:oracle:webcenter:space:list
                              urn:oracle:webcenter:space:list:rows
                                    urn:oracle:webcenter:space:list:row
```

Supported Methods for row

The row resource type supports the following methods:

- Method (row): `GET`
- Method (row): `PUT`
- Method (row): `DELETE`

Method (row): `GET`

Use this method to retrieve data from a list row.

- Resource URI, for example:

```
http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
fb03874979c0.xml)/rows/(lr_a14d427f_8515_4c82_956f_
a60e6e08668c)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
```

- Request body: none
- Request headers: [Accept = `application/xml` | `application/json`]
- Response status: `200` [OK]
- Response body: `<row>`
- Retrieved elements (Table C-70)

Table C-70 Retrieved Elements for row

Element	Type	Description
id	string	ID of the row
listId	string	ID of the parent list
scope	string	GUID of the portal to which the list belongs
creator	string	User who created the row
created	Date	Date on which the row was created
modifier	string	User who last modified the row
modified	Date	Date on which the row was last modified
columns	urn:oracle:webcenter:space:list:columns	Column values

- For example:

```
<row resourceType="urn:oracle:webcenter:space:list:row">
      <links>
            <link resourceType="urn:oracle:webcenter:space:list:row"
                  rel="self" href="http://host:port/
                  rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD
                  /s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_bb806754_0652_
                  4d49_9354_5fb62dc3514d.xml)/rows/(lr_4cc07327_49cb_4cd5_a270_
                  182ddcc8db4a)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                  capabilities="urn:oracle:webcenter:read
                  urn:oracle:webcenter:update urn:oracle:webcenter:delete"/>
      </links>
      <id>lr_4cc07327_49cb_4cd5_a270_182ddcc8db4a</id>
      <listId>/oracle/webcenter/list/scopedMD/s355923f0_2f04_4fd0_83ad_
            f7dac2a7ceed/lists/ls_bb806754_0652_4d49_9354_
            5fb62dc3514d.xml</listId>
      <scope>s355923f0_2f04_4fd0_83ad_f7dac2a7ceed</scope>
      <creator>weblogic</creator>
      <author>
            <links>
                  <link resourceType="urn:oracle:webcenter:people:person"
                        rel="via" href="http://host:port/
                        rest/api/people/E9A35E80F0BC11DFBFBE0FE339E55B21/lists/
                        @self?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                        capabilities="urn:oracle:webcenter:read"/>
                  <link type="image/png"
                        template="http://host:port/webcenter/
                        profilephoto/4539413335453830463042433131444642464245304
                        6453333394535354232 31/{size}?_xResourceMethod=wsrp"
                        resourceType="urn:oracle:webcenter:people:person"
                        rel="urn:oracle:webcenter:people:icon"
                        href="http://host:port/webcenter/
                        profilephoto/45394133354538304630424331314446424642453 0
                        4645333339453535423231/SMALL?_xResourceMethod=wsrp"
                        capabilities="urn:oracle:webcenter:read"/>
                  <link type="text/html"
                        resourceType="urn:oracle:webcenter:spaces:profile"
                        rel="alternate" href="http://host:port/
                        webcenter/faces/oracle/webcenter/webcenterapp/view/pages/
                        peopleconn/UserProfileGallery.jspx?wc.username=weblogic"
                        capabilities="urn:oracle:webcenter:read"/>
            </links>
            <displayName>weblogic</displayName>
            <guid>E9A35E80F0BC11DFBFBE0FE339E55B21</guid>
            <id>weblogic</id>
      </author>
      <created>2010-11-17T06:34:25.042-08:00</created>
      <modifier>weblogic</modifier>
      <modifiedByUser>
            <links>
                  <link resourceType="urn:oracle:webcenter:people:person"
                        rel="via" href="http://host:port/
                        rest/api/people/E9A35E80F0BC11DFBFBE0FE339E55B21/lists/
                        @self?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                        capabilities="urn:oracle:webcenter:read"/>
                  <link type="image/png"
                        template="http://host:port/webcenter/
                        profilephoto/4539413335453830463042433131444642464245304
                        6453333394535354232 31/{size}?_xResourceMethod=wsrp"
                        resourceType="urn:oracle:webcenter:people:person"
                        rel="urn:oracle:webcenter:people:icon"
                        href="http://host:port/webcenter/
                        profilephoto/45394133354538304630424331314446424642453 0
                        46453333394535354232 31/SMALL?_xResourceMethod=wsrp"
                        capabilities="urn:oracle:webcenter:read"/>
                  <link type="text/html"
                        resourceType="urn:oracle:webcenter:spaces:profile"
                        rel="alternate" href="http://host:port/
                        webcenter/faces/oracle/webcenter/webcenterapp/view/pages/
                        peopleconn/UserProfileGallery.jspx?wc.username=weblogic"
                        capabilities="urn:oracle:webcenter:read"/>
            </links>
            <displayName>weblogic</displayName>
            <guid>E9A35E80F0BC11DFBFBE0FE339E55B21</guid>
            <id>weblogic</id>
      </modifiedByUser>
      <modified>2010-11-17T06:34:25.042-08:00</modified>
      <columns>
            <column>
                  <id>lco_9bdd1418_6004_40ba_a052_04e8335b7ee8</id>
                  <name>No.</name>
                  <value>1.0</value>
            </column>
            <column>
                  <id>lco_3a31fd20_24f1_4422_99fd_c00d7bed4b24</id>
                  <name>Description</name>
                  <value>test</value>
            </column>
      </columns>
</row>
```

Method (row): PUT

Use this method to update row data.

- Resource URI, for example:

```
http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
fb03874979c0.xml)/rows/(lr_a14d427f_8515_4c82_956f_
a60e6e08668c)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
```

- Request body: `<row>`
- Writable elements (Table C-71)

Table C-71 Writable Elements for row

Element	Type	Constraints	Description
columns.column.id[1]	string	—	Column ID
columns.column.value[2]	string	valid value for column data type	Column value

[1] Denotes required element
[2] Denotes required element

- For example:

```
<row>
      <columns>
            <column>
                  <id>lco_9bdd1418_6004_40ba_a052_04e8335b7ee8</id>
                  <value>1</value>
            </column>
            <column>
                  <id>lco_3a31fd20_24f1_4422_99fd_c00d7bed4b24</id>
                  <value>test</value>
            </column>
      </columns>
</row>
```

- Request headers: `Content-Type = application/xml` | `application/json`, [Accept = `application/xml` | `application/json`]
- Response status: `200` [OK]
- Response body: `<row>`

Method (row): DELETE

Use this method to delete a list row.

- Resource URI, for example:

```
http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
fb03874979c0.xml)/rows/(lr_a14d427f_8515_4c82_956f_
a60e6e08668c)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
```

- Request body: none
- Response status: `204` [No Content]
- Response body: none

Resource Types Linked to from row

Table C-72 lists the resource types that the client can link to from the `row` resource.

Table C-72 Resource Types Linked to from row

rel	resourceType
self	`urn:oracle:webcenter:space:list:row`

urn:oracle:webcenter:space:list:columns

The `columns` response provides a means of retrieving and adding list columns. This section includes the following topics:

- Navigation Paths to columns
- Supported Methods for columns
- Method (columns): `GET`
- Method (columns): `POST`
- Resource Types Linked to from columns

Navigation Paths to columns

This section shows how the client can navigate through the hypermedia to access the `columns` resource:

```
urn:oracle:webcenter:resourceindex
      urn:oracle:webcenter:spaces
            urn:oracle:webcenter:space:resourceindex
                  urn:oracle:webcenter:space:lists
                        urn:oracle:webcenter:space:list
                              urn:oracle:webcenter:space:list:columns
```

Supported Methods for columns

The `columns` resource type supports the following methods:

- Method (columns): `GET`
- Method (columns): `POST`

Method (columns): `GET`

Use this method to retrieve columns in a list.

- Resource URI, for example:

  ```
  http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
  s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
  fb03874979c0.xml)/columns?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
  ```

- Request body: none
- Request headers: [Accept = `application/xml` | `application/json`]
- Request parameters: none

- Response status: `200` [OK]
- Response body: `<metaColumns>`
- For example:

```
<metaColumns resourceType="urn:oracle:webcenter:space:list:columns">
      <links>
            <link resourceType="urn:oracle:webcenter:space:list:columns"
                  rel="self" href="http://host:port/
                  rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
                  s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_
                  417b_a35f_fb03874979c0.xml)/columns?
                  utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                  capabilities="urn:oracle:webcenter:read
                  urn:oracle:webcenter:create"/>
            <link resourceType="urn:oracle:webcenter:space:list"
                  rel="urn:oracle:webcenter:parent"
                  href="http://host:port/rest/api/spaces/vs1/
                  lists/(/oracle/webcenter/list/scopedMD/
s355923f0_2f04_4fd0_83ad_
                  f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                  fb03874979c0.xml)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"/>
      </links>
      <items>
            <metaColumn resourceType="urn:oracle:webcenter:space:list:column">
                  <links>
                        <link
resourceType="urn:oracle:webcenter:space:list:column"
                              rel="self" href="http://host:port/
                              rest/api/spaces/vs1/lists/(/oracle/webcenter/list/
                              scopedMD/s355923f0_2f04_4fd0_83ad_
                              f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                              fb03874979c0.xml)/columns/(lco_9bdd1418_6004_40ba_
                              a052_04e8335b7ee8)?
                              utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                              capabilities="urn:oracle:webcenter:read
                              urn:oracle:webcenter:update
                              urn:oracle:webcenter:delete"/>
                  </links>
                  <id>lco_9bdd1418_6004_40ba_a052_04e8335b7ee8</id>
                  <name>No.</name>
                  <dataType>number</dataType>
                  <required>false</required>
                  <displayLength>10</displayLength>
                  <format>number</format>
                  <allowLinks>false</allowLinks>
            </metaColumn>
            <metaColumn resourceType="urn:oracle:webcenter:space:list:column">
                  <links>
                        <link
resourceType="urn:oracle:webcenter:space:list:column"
                              rel="self" href="http://host:port/
                              rest/api/spaces/vs1/lists/(/oracle/webcenter/list/
                              scopedMD/s355923f0_2f04_4fd0_83ad_
                              f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
                              fb03874979c0.xml)/columns/(lco_3a31fd20_24f1_4422_
                              99fd_c00d7bed4b24)?
                              utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                              capabilities="urn:oracle:webcenter:read
                              urn:oracle:webcenter:update
                              urn:oracle:webcenter:delete"/>
                        </links>
                        <id>lco_3a31fd20_24f1_4422_99fd_c00d7bed4b24</id>
                        <name>Description</name>
                        <dataType>string</dataType>
                        <required>false</required>
                        <maxLength>500</maxLength>
                        <displayLength>20</displayLength>
                        <allowLinks>false</allowLinks>
                        <editLines>1</editLines>
                  </metaColumn>
            </items>
      </metaColumns>
```

Method (columns): POST

Use this method to create a column in a list.

- Resource URI, for example:

  `http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_fb03874979c0.xml)/columns?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**`

- Request body: `<metaColumn>`
- Writable elements (Table C-73)

Table C-73 Writable Elements for columns

Element	Type	Constraints	Description
name[1]	string	—	The name of the column
dataType[2]	string	– `string` – `number` – `datetime` – `boolean` – `person` – `image` – `richtext`	The data type of the column
required	boolean	– `true` – `false`	Whether a value is required for the column
defaultValue	data type of column	Object must match data type	The default value of the column
maxLength	int	Valid only for `string` data type	The maximum length for a string value
rangeLow	int	Valid only for `number` data type	The low range value for a `number` data type
rangeHigh	int	Valid only for `number` data type	The high range value for a `number` data type
format	string	For `number` data type: – number – currency – percent For `datetime` data type: – date – time – both	The format of the column

Table C-73 (Cont.) Writable Elements for columns

Element	Type	Constraints	Description
allowLinks	boolean	– `true` – `false` Valid only for `string` data type	Whether a hyperlink can be specified for a column value
linkTarget	string	– `_blank` – `_self` Valid only if `allowLinks=true`	`_blank` opens link in a new window, `_self` opens link in the same window
editLines	int	Valid only for `string` data type	The number of lines when editing a column value (default=1)
peopleScope	string	– GLOBAL – SUB_SCOPE Valid only for `person` data type	Whether valid users are all users in directory or members of the portal that contains the list
displayWidth	int	—	Display width of column in pixels
hint	string	—	Hint displayed to help user when entering column value

1 Denotes required element
2 Denotes required element

- For example:

```
<metaColumn>
      <name>Notes</name>
      <dataType>richtext</dataType>
</metaColumn
```

- Request headers: `Content-Type = application/xml` | `application/json`, [Accept = `application/xml` | `application/json`]
- Response status: `201` [Created]
- Response body: `<metaColumn>`
- Retrieved elements (Table C-74)

Table C-74 Retrieved Elements from columns

Element	Type	Description
id	string	Column ID
name	string	The name of the column
dataType	string	The data type of the column
required	boolean	Whether a value is required for the column
defaultValue	data type of column	The default value of the column
maxLength	int	The maximum length for a string value
rangeLow	int	The low range value for a `number` data type
rangeHigh	int	The high range value for a `number` data type
format	string	The format of the column
allowLinks	boolean	Whether a hyperlink can be specified for a column value

Table C-74 (Cont.) Retrieved Elements from columns

Element	Type	Description
linkTarget	string	`_blank` opens link in a new window, `_self` opens link in the same window
editLines	int	The number of lines when editing a column value (default=1)
peopleScope	string	Whether valid users are all users in directory or members of the portal that contains the list
displayWidth	int	Display width of column in pixels
hint	string	Hint displayed to help user when entering column value

- For example:

```
<metaColumn resourceType="urn:oracle:webcenter:space:list:column">
      <links>
            <link resourceType="urn:oracle:webcenter:space:list:column"
                  rel="self" href="http://host:port/
                  rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
                  s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/
                  ls_c9cecbc7_756b_417b_a35f_fb03874979c0.xml)/columns/
                  (lco_fe2b9856_32f3_449a_a277_18dc7f6a779e)?
                  utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                  capabilities="urn:oracle:webcenter:read
                  urn:oracle:webcenter:update urn:oracle:webcenter:delete"/>
      </links>
      <id>lco_fe2b9856_32f3_449a_a277_18dc7f6a779e</id>
      <name>Notes</name>
      <dataType>richtext</dataType>
      <required>false</required>
      <displayLength>20</displayLength>
      <allowLinks>false</allowLinks>
</metaColumn>
```

Resource Types Linked to from columns

Table C-75 lists the resource types that the client can link to from the `columns` resource.

Table C-75 Resource Types Linked to from columns

rel	resourceType
self	`urn:oracle:webcenter:space:list.columns`
parent	urn:oracle:webcenter:space:list
Related	urn:oracle:webcenter:space:list:column

urn:oracle:webcenter:space:list:column

The `column` response provides a means of retrieving, adding, and deleting an individual list column. This section includes the following topics:

- Navigation Paths to column
- Supported Methods for column

- Resource Types Linked to from column

Navigation Paths to column

This section shows how the client can navigate through the hypermedia to access the `column` resource:

```
urn:oracle:webcenter:resourceindex
      urn:oracle:webcenter:spaces
            urn:oracle:webcenter:space:resourceindex
                  urn:oracle:webcenter:space:lists
                        urn:oracle:webcenter:space:list
                              urn:oracle:webcenter:space:list:columns
                                    urn:oracle:webcenter:space:list:column
```

Supported Methods for column

The column resource type supports the following methods:

- Method (column): GET
- Method (column): PUT
- Method (column): DELETE

Method (column): `GET`

Use this method to retrieve a list column.

- Resource URI. for example:

  ```
  http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
  s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
  fb03874979c0.xml)/columns/(lco_fe2b9856_32f3_449a_a277_
  18dc7f6a779e)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
  ```
- Request body: none
- Request headers: [Accept = `application/xml` | `application/json`]
- Response status: `200` [OK]
- Response body: `<metaColumn>`
- Retrieved elements (Table C-76)

Table C-76 column Retrieved Elements

Element	Type	Description
id	string	Column ID
name	string	The name of the column
dataType	string	The data type of the column
required	boolean	Whether a value is required for the column
defaultValue	data type of column	The default value of the column
maxLength	int	The maximum length for a string value
rangeLow	int	The low range value for a `number` data type
rangeHigh	int	The high range value for a `number` data type

Table C-76 (Cont.) column Retrieved Elements

Element	Type	Description
format	string	The format of the column
allowLinks	boolean	Whether a hyperlink can be specified for a column value
linkTarget	string	`_blank` opens link in a new window, `_self` opens link in the same window
editLines	int	The number of lines when editing a column value (default=1)
peopleScope	string	Whether valid users are all users in directory or members of the portal that contains the list
displayWidth	int	Display width of column in pixels
hint	string	Hint displayed to help user when entering column value

- For example:

```
<metaColumn resourceType="urn:oracle:webcenter:space:list:column">
      <links>
            <link resourceType="urn:oracle:webcenter:space:list:column"
                  rel="self" href="http://host:port/
                  rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
                  s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/
                  ls_c9cecbc7_756b_417b_a35f_fb03874979c0.xml)/
                  columns/(lco_fe2b9856_32f3_449a_a277_18dc7f6a779e)?
                  utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**"
                  capabilities="urn:oracle:webcenter:read
                  urn:oracle:webcenter:update urn:oracle:webcenter:delete"/>
      </links>
      <id>lco_fe2b9856_32f3_449a_a277_18dc7f6a779e</id>
      <name>Notes</name>
      <dataType>richtext</dataType>
      <required>false</required>
      <displayLength>20</displayLength>
      <allowLinks>false</allowLinks>
</metaColumn>
```

Method (column): `PUT`

Use this method to update column data.

- Resource URI, for example:

```
http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
fb03874979c0.xml)/columns/(lco_fe2b9856_32f3_449a_a277_
18dc7f6a779e)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
```

- Request body: `<metacolumn>`
- Writable elements (Table C-77)

Table C-77 column Writable Elements

Element	Type	Constraints	Description
name[1]	string	—	The name of the column

Table C-77 (Cont.) column Writable Elements

Element	Type	Constraints	Description
dataType[2]	string	– `string` – `number` – `datetime` – `boolean` – `person` – `image` – `richtext`	The data type of the column
required	boolean	– `true` – `false`	Whether a value is required for the column
defaultValue	data type of column	Object must match data type	The default value of the column
maxLength	int	Valid only for `string` data type	The maximum length for a string value
rangeLow	int	Valid only for `number` data type	The low range value for a `number` data type
rangeHigh	int	Valid only for `number` data type	The high range value for a `number` data type
format	string	For `number` data type: – number – currency – percent For `datetime` data type: – date – time – both	The format of the column
allowLinks	boolean	– `true` – `false` Valid only for `string` data type	Whether a hyperlink can be specified for a column value
linkTarget	string	– `_blank` – `_self` Valid only if `allowLinks=true`	`_blank` opens link in a new window, `_self` opens link in the same window
editLines	int	Valid only for `string` data type	The number of lines when editing a column value (default=1)
peopleScope	string	– `GLOBAL` – `SUB_SCOPE` Valid only for `person` data type	Whether valid users are all users in directory or members of the portal that contains the list
displayWidth	int	—	Display width of column in pixels
hint	string	—	Hint displayed to help user when entering column value

[1] Denotes required element
[2] Denotes required element

- For example:

```
<metaColumn>
      <name>Comments</name>
```

```
    <dataType>richtext</dataType>
</metaColumn>
```

- Request headers: `Content-Type = application/xml` | `application/json`, [Accept = `application/xml` | `application/json`]
- Response status: `200` [OK]
- Response body: `<metaColumn>`

Method (column): `DELETE`

Use this method to delete a list column.

- Resource URI, for example:

  ```
  http://host:port/rest/api/spaces/vs1/lists/(/oracle/webcenter/list/scopedMD/
  s355923f0_2f04_4fd0_83ad_f7dac2a7ceed/lists/ls_c9cecbc7_756b_417b_a35f_
  fb03874979c0.xml)/columns/(lco_fe2b9856_32f3_449a_a277_
  18dc7f6a779e)?utoken=FKld8lalI3QRdi8TgQkOCGEzxL5x_w**
  ```

- Request body: none
- Response status: `204` [No Content]
- Response body: none

Resource Types Linked to from column

Table C-78 lists the resource types that the client can link to from the `column` resource.

Table C-78 Resource Types Linked to from column

rel	resourceType
self	`urn:oracle:webcenter:space:list:column`

Using the Activity Graph REST APIs

WebCenter Portal provides REST APIs to support the activity graph. Use the activity graph REST APIs to create your own interface for providing recommendations for connections, portals, and items.

This section describes the REST APIs associated with the activity graph. It includes the following topics:

- Activity Graph Entry Point
- Activity Graph Resource Type Taxonomy
- Security Considerations
- Activity Graph Resource Types

For an introduction to the REST APIs, see Introduction to the WebCenter Portal REST APIs.

Activity Graph Entry Point

Each REST service has a link element within the Resource Index that provides the entry point for that service. For the activity graph, there are two entry points: one for recommendations and one for items. To find the entry points for the activity graph, find the link element with one of the following `resourceTypes`:

```
urn:oracle:webcenter:activitygraph:recommendations
urn:oracle:webcenter:activitygraph:items
```

The corresponding `href` or `template` element provides the URI entry point. The client sends HTTP requests to this entry point to work with the activity graph.

For more information about the Resource Index, see Using the Resource Index.

For more information about resource types, see Resource Type.

Activity Graph Resource Type Taxonomy

When the client has identified the entry point to use, it can then navigate through the resource type taxonomy to perform the required operations.

The taxonomy for the activity graph is:

```
urn:oracle:webcenter:activitygraph:recommendations
   urn:oracle:webcenter:activitygraph:recommendations:recommendation
urn:oracle:webcenter:activitygraph:items
   urn:oracle:webcenter:activitygraph:items:item
```

Security Considerations

For general security considerations, see Security Considerations for WebCenter Portal REST APIs.

Activity Graph Resource Types

This section provides you with all the information you need to know about each resource type. It includes the following topics:

- urn:oracle:webcenter:activitygraph:recommendations
- urn:oracle:webcenter:activitygraph:recommendations:recommendation
- urn:oracle:webcenter:activitygraph:items
- urn:oracle:webcenter:activitygraph:items:item

urn:oracle:webcenter:activitygraph:recommendations

Use this resource to identify the URI to use to retrieve (`GET`) recommended connections, portals, or items based on their similarity to the specified object. The response from a `GET` operation includes each object in the requested list, and each object includes links used to operate on that object.

Nodes in the activity graph are identified by a combination of node class URN and object URN.

For example, to identify the user, monty, you can specify:

- `classURN=WC.user`
- `objectURN=monty`

The nodes provided out of the box are all WebCenter Portal resources (users, documents, portals, and so on) and so have WebCenter Portal service and resource IDs. The activity graph REST APIs provide another way for you to identify these out of the box nodes using the `serviceId` and `objectURN` (which contains the resource ID).

For example, to identify the user, monty, you can specify:

- `serviceId=oracle.webcenter.people`
- `objectURN=monty`

If a service's objects are further classified by resource type, for example, the Documents tool, you must also specify the resource type.

For example, to identify a particular document, you can specify:

- `serviceId=oracle.webcenter.doclib`
- `resourceType=document`
- `objectURN=document1`

Any new node classes that are created (that is, non-native WebCenter Portal objects) should be identified using node class and object URNs.

Navigation Paths to recommendations

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceIndex
   recommendations
```

Supported Methods for recommendations

The following methods are supported by this resource:

- `GET`
  - **request - Parameters:** `startIndex`, `itemsPerPage`, `utoken`

    For information about these common parameters, see Common Request Query Parameters.

    The following additional parameters are available:

    * `classURN`—The node class URN that identifies the type of the object for which you are requesting recommendations. For example `WC.user`, `WC.group-document`.
    * `objectURN`—The object URN that provides a unique identifier for the object for which you are requesting recommendations. For example `monty`, `1000`.
    * `recipe`—A semicolon-separated list of similarity URNs and optional associated weights (indicated by a colon) that is used to determine which objects to recommend. For example, `gs-edit:10;gs-all:1`
    * `classURNRestrictions`—A comma-separated list of types of objects, identified by node class URN, to exclude from the recommendations
    * `excludeObjectActions`—A comma-separated list of actions, identified by action URN, used to exclude objects from the recommendations if the current user has performed that action on the object. For example, if the

client is retrieving recommended portals, then the `gs-edit` action could be specified to exclude portals that the current user has edited (since the user already knows about those portals).

  * `serviceId`—The WebCenter Portal service ID that identifies the type of object for which you are requesting recommendations (you can use this instead of `classURN` for out of the box objects).
  * `resourceType`—The WebCenter Portal resource type of the object for which you are requesting recommendations, used in combination with `serviceId` if necessary.
  * `userCredentialClassURN`—The node class URN of the user exercising the REST API. The default value is `WC.user`. If you are integrating the activity graph engine with another application, this may need to be a different node class.

– **response - body:** 0 or more recommendations

For more information, see Templates.

Resource Types Linked to from recommendations

Table C-79 lists the resource types that the client can link to from this resource.

Table C-79 Related Resource Types for recommendations

rel	resourceType
self	urn:oracle:webcenter:activitygraph:recommendations

urn:oracle:webcenter:activitygraph:recommendations:recommendation

The recommendation response contains the recommended objects and the URIs for use in accessing those objects.

Navigation Paths to recommendation

This section shows how the client can navigate through the hypermedia to access the recommendation resource:

```
resourceIndex
   recommendations
      recommendation
```

Read-only Elements for recommendation

Table C-80 lists the read-only elements for the recommendations resource.

Table C-80 Read-only Elements for recommendation

Element	Type	Description
`score`	Float	The overall score of this recommendation relative to the other recommendations in the list. This is the weighted sum of the component scores associated with each of the similarity URNs that comprise the recipe and is a floating point number between 0 and 1.
`item`	urn:oracle:webcenter:activitygraph:items:item	The recommended user, item, or portal.
`componentScores`	A list of `componentScore` elements	A list of the component scores associated with the different similarity URNs in the recipe for the recommendation. A component score may have a reason and a link that can be used to retrieve the common items with which the user and the recommended object have interacted.

urn:oracle:webcenter:activitygraph:items

Use this resource to identify the URI to use to retrieve (`GET`) objects that the source object and recommended object have in common. You can use this to determine the reasons why a particular object was recommended. The response from a `GET` operation includes each item in this collection of items, and each item includes links used to operate on that item.

Navigation Paths to items

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceIndex
   items
```

Supported Methods for items

The following methods are supported by this resource:

- `GET`
  - **request - Parameters:** `startIndex`, `itemsPerPage`, `utoken`

    For information about these common parameters, see Common Request Query Parameters.

    The following additional parameters are available:

    - `similarityURN`—The URN of the similarity calculation to be used determine which objects are similar to the recommended object. For example `item-tag`, `gs-edit`, `user-connect`
    - `srcClassURN`—The node class URN that identifies the type of the object that was used to request the recommendations. For example `WC.user`, `WC.group-document`.

      * `srcObjectURN`—The URN of the object that was used to request the recommendations. For example `monty`, `1000`.
      * `trgClassURN`—The node class URN that identifies the type of the recommended object
      * `trgObjectURN`—The object URN that provides a unique identifier for the recommended object
      * `userCredentialClassURN`—The node class URN of the user exercising the REST API. The default value is `WC.user`. If you are integrating the activity graph engine with another application, this may need to be a different node class.
  – **response - body:** 1 or more items

For more information, see Templates.

Resource Types Linked to from items

Table C-81 lists the resource types that the client can link to from this resource.

Table C-81 Related Resource Types for items

rel	resourceType
self	urn:oracle:webcenter:activitygraph:items

urn:oracle:webcenter:activitygraph:items:item

Use this resource type to identify the URI to use to update (`PUT`) a recommendation to indicate user interest in the recommended object.

Navigation Paths to item

This section shows how the client can navigate through the hypermedia to access the item resource:

```
resourceIndex
   recommendations
      recommendation
         item
resourceIndex
   items
      item
```

Supported Methods for item

The following method is supported by this resource type:

- `PUT`
  – **Request—Body:** item
  – **Response—Body:** item

Writable Elements for item

Table C-82 lists the writable elements for this resource type.

Table C-82 Writable Elements for item

Element	Type	Required	Constraints	Description
status	String	Yes	interested not interested	Whether the user is interested in the object

Read-only Elements for item

Table C-83 lists the read-only elements for this resource type. Not all of these elements are available for all objects.

Table C-83 Read-only Elements for item

Element	Type	Description
classURN	String	Node class of the object
objectURN	String	Identifier for the object
name	String	Name of the object
description	String	Description of the object
modified	Date	Date on which the object was last updated
modifiedByUser	PersonReference	User information about the user who last updated the object, including GUID, ID, display name, and a link to the profile icon
author	PersonReference	User information about the user who created the object, including GUID, ID, display name, and a link to the profile icon

Resource Types Linked to from item

Table C-84 lists the resource types that the client can link to from this resource.

Table C-84 Related Resource Types for item

rel	resourceType
self	urn:oracle:webcenter:activitygraph:items:item
via	`resourceType` of the underlying object

Using the Search REST APIs

WebCenter Portal provides REST APIs that let you build a customized search user interface. You can use the search REST APIs to read (`GET`) searches and facets. Facets are returned with search results and can be used to filter the results. You can specify keywords and the scope of the search; for example, suppose a search for the term *'webcenter'* produces thousands of results. A user could use facets (such as author or last modified date) in the URL to get the results for particular facet values, like `author=Karen` and *last-modified-date=this week*.

Topics:

- Search Entry Point
- Search Resource Type Taxonomy
- Security Considerations
- Search Resource Types

Search Entry Point

Each REST service has a link element within the resource index that provides the entry point for that service. To find the entry point for search, find the link element with a `resourceType` of:

```
urn:oracle:webcenter:searchcollection
```

The corresponding `href` or `template` element provides the URI entry point. The client sends HTTP requests to this entry point to work with search.

Note:

Beginning with Release 12*c* (12.2.1.4.0), Oracle WebCenter Portal has deprecated the support for Oracle SES. If you have upgraded from a prior release, your upgraded instance might be configured to use Oracle SES. In this case, you must configure WebCenter Portal to use Elasticsearch to index and search objects.

For more information about the resource index, see Using the Resource Index.

For more information about resource types, see Resource Type.

Search Resource Type Taxonomy

When the client has identified the entry point, it then can navigate through the resource type taxonomy to perform the required operations. For more information about the individual resource types, see the appropriate section in Resource Type.

The taxonomy for the search is:

```
urn:oracle:webcenter:searchcollection
   urn:oracle:webcenter:searchcollection:results
```

Beyond the service entry points, URL templates allow clients to pass query parameters to customize their requests and control the form of returned data.

Collection resources in the search resources support pagination (`startIndex` and `itemsPerPage`). The entry point returns all the results in `searchcollection` element. Query various components by specifying appropriate values in `dataType` argument.

Support for `searchTerms`, `data`, and `dataType` where `dataType` has one or more of the following values:

- `resultCount` - number of results satisfying the query
- `results` - actual results
- `facetCount` - number of facets for the query result
- `facets` - facets for the current results

Specify more than one `dataType` with comma separated values. For example:

```
http://host:port//rest/api/searchcollection?&dataType=results,facets
&facetParams=author:weblogic&utoken=FDX7xKPzzrnsbWRHNP-b-iUoWiJ4_w\*\\\\\\\\*
```

Navigation Paths to results

This section shows how the client can navigate through the hypermedia to access this resource:

```
resourceindex
   searchcollection

resourceindex
   spaces
      spaces:resourceindex
         spaces:searchcollection
```

Supported Methods for results

The following methods are supported by this resource:

- `GET`
  - **request - body:** none, **Parameters**: `q`, `dataType`, `startIndex` (pagination), `itemsPerPage` (pagination), `data`, `facetParams`
  - **response - body:** search results, and optionally facets

where:

- `q={queryString}`

  Searches may be specified using the following format:

  ```
  [[field1:[operand]][:]value1[;field2:operand:value2]]
  ```

  Where multiple clauses are joined by an implicit `AND` and are syntactically separated by the ";" semicolon. Square brackets `[]` denote optional values. Each clause can be a keyword simple string with no ":" colon separator.

  The query string does not support anything other than a query keyword.
- `dataType` is the type of results

  For example, if you want only results, then `dataType=results` (or left empty). To include facets in the results, then `dataType=results,facets`.
- `data` is the parameter for custom attributes

  For example: `data=author`

where `author` is the custom attribute added by your administrator. You can view the custom attributes in the`search-service-attributes.xml` file. For more information on Custom Attributes, see Configuring Search Custom Attributes for Elasticsearch.

- `facetParams` is the parameter for facet refinement

  Default set is Service ID, scope GUID, Tags, Author, Last Modified Date, Mimetype.

  For example, to refine by people, set the facet Service ID only to `oracle.webcenter.doclib`:

  ```
  facetParams=Service%20ID:oracle.webcenter.doclib
  ```

  > **Note:**
  >
  > If you want to use the `facetParams` parameter, then the `dataType` parameter must include `facets`.

Example: Search REST Commands

```
http://examplehost:8888/rest/api/searchcollection?q=documentname&utoken={utoken}

http://examplehost:8888/rest/api/searchcollection?q={keyword}
&data=dDocName,dOriginalName&dataType=results,facets
&facetParams=Service%20ID:oracle.webcenter.people
```

The following is the sample response body for `q=documentname`.

```
<search-result>
<name>DesignTime </name>
<object>
<links>
<link capabilities="urn:oracle:webcenter:read" href="host:port/webcenter/
faces/owResource.jspx?z=oracle.webcenter.doclib
%21s8bba98ff_4cbb_40b8_beee_296c916a23ed%21dev-ucm%2523dDocName
%253ASLC09CPL9400028261%21%21DesignTime%2B"
rel="urn:oracle:webcenter:wclink"
resourceType="urn:oracle:webcenter:cmis:document" type="text/html"/
>urn:oracle:webcenter:read rel="via"
resourceType="urn:oracle:webcenter:cmis:document"/></links><url>/
wccproxy/d?dDocName=test</url>
```

The following is the sample response body for `data=author`.

```
<author>
<links>
     <link capabilities="urn:oracle:webcenter:read" href="host:port/
rest/api/people/AB7807654CC2356F1/lists/@self?utoken=id" rel="via"
resourceType="urn:oracle:webcenter:people:person" template="http://
example.com:port/rest/api/people/ AB7807654CC2356F1/lists/@self?
projection={projection}&data={data}&links={links}&utoken=id ><link
```

```
capabilities="urn:oracle:webcenter:read" href="http://example.com:port/
webcenter/profilephoto/AB7807654CC2356FGYRE76F1/SMALL?
_xResourceMethod=wsrp" rel="urn:oracle:webcenter:people:icon"
resourceType="urn:oracle:webcenter:people:person" template="http://
example.com:port/webcenter/profilephoto/ AB7807654CC2356FGYRE76F1/{size}?
_xResourceMethod=wsrp" type="image/png"/>
<link capabilities="urn:oracle:webcenter:read" href="http://
example.com:port/webcenter/faces/owResource.jspx?z=oracle.webcenter.people
%s8bbreerra98ff_4abb_40h8_bbbb_2456788%21weblogic%21%21weblogic"
rel="alternate" resourceType="urn:oracle:webcenter:spaces:profile"
type="text/html"/>
</links>
<resourceId>weblogic</resourceId>
<displayName>weblogic</displayName><guid> AB7807654CC2356FGYRE76F1</
guid><id>weblogic</id></author>
```

For more information, see Templates.

Table C-85   Writable Elements for results

Element	Type	Description
`author`	String	Any user who has written to the result
`resourceId`	String	Unique identifier
`serviceId`	String	Service ID of the result; for example, oracle.webcenter.doclib
`title`	String	Title of result
`description`	String	Description of result
`modified`	Date	Last modified date
`size`	Number	Size of result
`docid`	String	Document identifier
`created`	Date	Original author of result
`icon`	String	Icon for result type
`url`	String	URL of result
`mimetype`	String	Mimetype of result
`guid`	String	GUID value of result
`scope`	String	GUID value of the portal
`scopename`	String	Portal name
`resourceType`	String	Type of result
`language`	String	Language of result
`snippet`	String	Snippet of result
`modifier`	String	Modifier of result
`customattributes`	any	List of any custom attributes specified in data

Resource Types Linked to From results

The following table lists the resource types that the client can link to from this resource.

Table C-86 Related Resource Types for search

rel	resourceType
self	

Security Considerations

Authentication is required before using search REST API methods.

For general security considerations, see Security Considerations for WebCenter Portal REST APIs.

Search Resource Types

This section provides information about each resource type. It includes the following topics:

- urn:oracle:webcenter:searchcollection:links
- urn:oracle:webcenter:searchcollection:results
- urn:oracle:webcenter:searchcollection:facets

urn:oracle:webcenter:searchcollection:links

Use this resource type to identify the URI to use to read (GET) a query containing links. The request is represented by the URL and the response is template links or pagination links.

For example, `http://example.com:port/rest/api/searchcollection?q=DT&dataType=results,links&utoken=id`

urn:oracle:webcenter:searchcollection:results

Use this resource type to identify the URI to use to read (`GET`) a query containing keywords and facets.

The request is represented by the URL and the response is a list of search results, each with metadata to help the end user choose an item to drill down, as well as cross links to the owning REST services, if available. If the owning REST service is unavailable, then an HREF link is provided.

The response XML can be paginated with standard URL parameters, and appropriate previous and next links provided along with a general template (with the query prepopulated) for the consuming application to do its own custom pagination.

urn:oracle:webcenter:searchcollection:facets

Use this resource type to identify the URI to use to read (`GET`) a query containing facets. Facets are returned with the query results and can be used to filter the results. Users can use these facets in the URL to get the results for particular facet values, like author=weblogic and last-modified-date=this week.

The request is represented by the URL and the response is a list of facets, each with metadata to help the end user choose an item to drill down, as well as cross links to the owning REST services, if available. If the owning REST service is unavailable, then an HREF link is provided.

The response XML can be paginated with standard URL parameters, and appropriate previous and next links provided along with a general template (with the query prepopulated) for the consuming application to do its own custom pagination.

D Troubleshooting

Troubleshoot errors and issues that you encounter while developing WebCenter Portal assets.

Topics:

Troubleshooting WebCenter Portal Shared Library Deployment

- **Changes are not available after deployment even though deployment successful**.

  WebCenter Portal always uses the latest shared library version. Check that the implementation version in `MANIFEST.MF` matches the implementation version displayed in the WebLogic Server Administration Console.

  For example, check the value in `PortalSharedLibrary/Application Sources/META-INF/MANIFEST.MF` is the same as that displayed in the Administration Console under **Deployments> extend.spaces.webapp>Overview**
- **"DeployerException: Task 9 failed" displays:**

  ```
  weblogic.Deployer$DeployerException:
  weblogic.deploy.api.tools.deployer.DeployerException: Task 9 failed:
  [Deployer:149117]deploy library com.mycompanyname.shared.lib
  [LibSpecVersion=11.1.1.2,LibImplVersion=11.1.1.2.5] on AdminServer,WC_Portal.
  ```

  This error occurs if the implementation version of the new deployment and the existing deployment are the same. Use the Administration Console to verify the current implementation version and if necessary change the version and redeploy the shared library.
- **"java.lang.IllegalArgumentException" displays**:

  Restart the managed server on which WebCenter Portal is deployed.

Troubleshooting Portlet Creation

Cannot Access the Create Portlet Wizard

Problem

In the New Gallery, I cannot find the Standards-based Java Portlet (JSR 286) option.

Cause

The application in which you are trying to create the portlet was created using WebCenter Portal's Portal Framework template and therefore is not scoped for portlet creation.

Solution

Perform the following steps:

1. Try creating the portlet in a Portlet Producer Application or any application scoped for portlet creation.
2. In the New Gallery, click the All Technologies tab to list all available options regardless of the technology scope of the application.

Cannot Add the Portlet Functionality that I Want to the Portlet

Problem

I cannot find the option to add certain features, for example portlet events or public render parameters, to the portlet in the Create JSR 286 Java Portlet wizard.

Cause

The wizard does not provide the option to add certain features to portlets.

Solution

After you create a portlet using the Create JSR 286 Java Portlet wizard, edit the `portlet.xml` file using the Overview Editor to add advanced functionality. For more information, see Developing JSR 286 Java Portlets.