



BEA WebLogic Portal[®]

Portal Development Guide

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Introduction to Portals

This chapter introduces BEA WebLogic Portal[®] concepts and describes how the content of this guide relates to the portal life cycle.

This chapter contains the following sections:

- [What is a Portal?](#)
- [What is the Portal Framework?](#)
- [Portal Development and the Portal Life Cycle](#)
- [Getting Started](#)

What is a Portal?

A portal represents a web site that provides a single point of access to applications and information.

From an end user perspective, a portal is a web site with pages that are organized by tabs or some other form of navigation. Each page contains a nesting of sub-pages, or one or more portlets—individual windows that display anything from static HTML content to complex web services. A page can contain multiple portlets, giving users access to different information and tools in a single place. Users can also customize their view of a portal by adding their own pages, adding portlets of their choosing, and changing the Look & Feel of the interface.

Technically speaking, a portal is a container of resources and functionality that can be made available to end users. These portal views, which are called desktops in WebLogic Portal, provide

the uniform resource location (URL) that users access. A portal presents diverse content and applications to users through a consistent, unified web-based interface. Portal administrators and users can customize portals, and content can be presented based on user preferences or rule-based personalization. Each portal is associated with a web application that contains all of the resources required to run portals on the web.

Portals provide the following benefits to the user:

- Aggregation – The user can go to a single place for all content and applications.
- Customization – The preferences for a user determine how the portal looks and feels.
- Personalization – The user can obtain content that is specific to their interests and needs.
- Organization – The user can arrange the content and applications to make better sense of the information.
- Integration – The user can work with multiple applications and content sources in a unified fashion.

Portals typically include the following features and benefits:

- Search – Enterprise and web-based search facilities
- Content Management – Creation, management, and delivery of content
- Content Repurposing – Including content from multiple disparate data sources
- Portals optionally include the following features and benefits:
 - Workflow – Business process management
 - Single Sign-On – Allows users to log on once for all applications within the portal

WebLogic Portal supports development of portals through BEA Workshop for WebLogic Platform, which is a client-based tool. You can also develop portals without Workshop for WebLogic through coding in any tool of choice such as JBuilder, vi or Emacs. Portals can be written in Java or JSP, and can include JavaScript for client-side operations. Although you can create portals outside of Workshop for WebLogic, to realize the full development-time productivity gains afforded to the WebLogic Portal customer, use Workshop for WebLogic as the portal and portlet development platform.

After you create the parts of a portal using Workshop for WebLogic, you assemble it into a desktop using the WebLogic Portal Administration Console. From an administrative standpoint, a portal is a *container* that defines a portal application. When you create a new portal using the Administration Console, you are really creating an empty portal to hold different versions of the

portal (desktops) that can be targeted to specific users. A portal can contain one or more desktops, or views, of a portal. It is the desktops to which you add the portal resources and navigation such as books, pages, and portlets that make a dynamic portal.

Each portal is associated with a web application that contains all of the resources required to run portals on the web.

What is the Portal Framework?

The portal framework is the portion of WebLogic Portal that is responsible for the rendering and customization of the portal.

The portal framework turns a portal that you develop in Workshop for WebLogic into the HTML page that desktop visitors see in a browser. When you are familiar with the portal framework tools provided in WebLogic Portal, you can look at a rendered portal in a browser and understand which pieces of the underlying framework you need to modify to obtain the results you want.

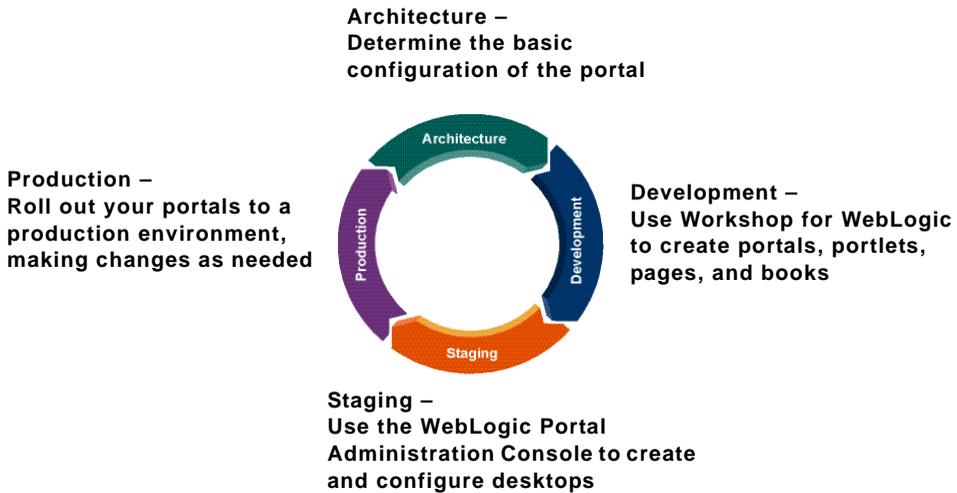
Portal Development and the Portal Life Cycle

The creation and management of a portal flows through a portal life cycle. The portal life cycle contains four phases:

- Architecture
- Development
- Staging
- Production

The tasks described in this guide are organized according to the portal life cycle, which includes best practices and sequences for creating and updating portals. For more information about the portal life cycle, refer to the [BEA WebLogic Portal Overview](#). [Figure 1-1](#) shows a sampling of tasks that occur at each phase.

Figure 1-1 Portals and the Four Phases of the Portal Life Cycle



Architecture

During the architecture phase, you design and plan the configuration of your portal. For example, you can create a detailed specification outlining the requirements for your portal, the specific portlets you require, where those portlets will be hosted, and how they will communicate and interact with one another. You might also consider the deployment strategy for your portal. Security is another consideration for the portal architect.

This chapter describes tasks within the Architecture phase:

- [Chapter 2, “Planning Your Portal”](#)

Development

Developers use Workshop for WebLogic to create portals, portlets, pages, and books. During development, you can implement data transfer and interportlet communication strategies and consider the security of the components.

In the development stage, careful attention to best practices is crucial. Wherever possible, this guide includes descriptions and instructions for adhering to these best practices.

The chapters describing tasks within the Development phase include:

- [Chapter 3, “Understanding Portal Development”](#)
- [Chapter 4, “Setting up Your Portal Development Environment”](#)
- [Chapter 5, “Upgrading WebLogic Portal Projects to Version 9.2”](#)
- [Chapter 6, “Integrating Applications into WebLogic Portal”](#)
- [Chapter 7, “User Interface Development with Look & Feel Features”](#)
- [Chapter 8, “Developing Portals Using Workshop for WebLogic”](#)
- [Chapter 9, “Visitor Tools Configuration”](#)
- [Chapter 11, “Designing Portals for Optimal Performance”](#)

Staging

BEA recommends that you deploy your portal to a staging environment where it can be assembled and tested before going live. In the staging environment, you use the WebLogic Portal Administration Console to assemble and configure desktops. You also test your portal in a staging environment before propagating it to a live production system. In the testing aspect of the staging phase, there is tight iteration between staging and development until the application is ready to be released.

The chapters describing tasks within the Staging phase include:

- [Chapter 12, “Managing Portal Desktops”](#)
- [Chapter 13, “Deploying Portals to Production”](#)

Production

A production portal is live and available to end users. A portal in production can be modified by administrators using the WebLogic Portal Administration Console and by users using Visitor Tools. For instance, an administrator might add additional portlets to a portal or reconfigure the contents of a portal.

The chapter describing tasks within the Production phase is:

- [Chapter 14, “Managing Portals in Production”](#)

Getting Started

This section describes the basic prerequisites to using this guide and lists guides containing related information and topics.

Prerequisites

In general, this guide assumes that you have performed the following prerequisite tasks before you attempt to use this guide to develop portlets:

- Review the [Related Guides](#) and become familiar with the basic operation of the tools used to create portals, portlets, and desktops,
- Review the Workshop for WebLogic tutorials and documentation to become familiar with the Eclipse-based development environment and the recommended project hierarchy.
- Complete the tutorial *Getting Started with WebLogic Portal*.

Related Guides

BEA recommends that you review the following guides:

- [BEA WebLogic Portal Overview](#)
- [BEA WebLogic Portal Portlet Development Guide](#)

Whenever possible, this guide includes cross references to material in related guides.

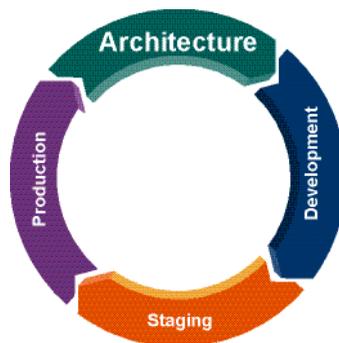
Part I Architecture

Part I includes the following chapters:

- [Chapter 2, “Planning Your Portal”](#)

During the architecture phase, you design and plan the configuration of your portal. For example, you can create a detailed specification outlining the requirements for your portal, the specific portlets you require, where those portlets will be hosted, and how they will communicate and interact with one another. You might also consider the deployment strategy for your portal. Security is another consideration for the portal architect.

For a view of how the tasks in this section relate to the overall portal life cycle, refer to the [WebLogic Portal *Overview*](#).



Planning Your Portal

Proper planning is essential to portal development. While bypassing planning and moving straight to development might reap short-term benefits in development speed, your projects may suffer from confusion and inconsistency, have poor scalability and performance, and require more time to manage.

The planning and design tasks that mark the architecture phase occur at multiple levels: the domain and enterprise application, the web application, and the individual WebLogic Portal feature areas.

Global inter-portal planning information is provided in the [BEA WebLogic Portal Overview](#), which summarizes the types of issues to consider in the architecture phase at all levels. The various WebLogic Portal feature guides describe planning issues in detail for each feature area.

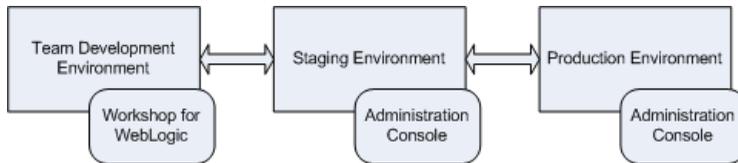
This chapter includes the following sections:

- [Production Operations \(Propagation and Deployment\)](#)
- [Portal Development in a Distributed Portal Team](#)
- [Federated Portals](#)
- [Security](#)
- [Content Management](#)
- [Interaction Management](#)
- [Performance](#)

Production Operations (Propagation and Deployment)

Production operations encompasses the tools, procedures, methodologies, and best practices that provide the backbone for managing the portal life cycle, from portal development to staging and testing to live production environments. As [Figure 2-1](#) shows, portals are typically developed in a *team development environment* by developers using Workshop for WebLogic. Portal components are then moved to a *staging environment*, where portal administrators use the WebLogic Portal Administration Console to create desktops, add entitlements, set up content repositories, and perform testing. The *production environment* is the live environment, where users access and interact with portal applications. The arrows between environments indicate that you can move portals and portal resources back and forth between each of these environments using utilities provided by BEA. WebLogic Portal Utilities such as the WebLogic Portal propagation tools allow you to easily and reliably move and merge changes between environments.

Figure 2-1 Typical WebLogic Portal Environments



Just as you consider the architecture of a network or a software system, also consider and carefully plan how you will address production operations for your portal system. It is important to consider your particular portal system configuration, how your development team is organized, how you will test and configure portals, how your server is configured, and how you plan to manage the life cycle of your portal applications.

The [Production Operations Guide](#) describes the specific methodologies, tools, and best practices to help you achieve the goal of creating solid, manageable environments for portal development, staging, and production.

Portal Development in a Distributed Portal Team

If you will be creating portals within an environment that includes a remote (distributed) development team, you must carefully plan your implementation. Considerations for team development include:

- **Use of shared resources** – You share common portlets, such as the login portlet.

- **Sharing a common domain** – Several techniques exist for sharing a common domain among team members with different BEA home directories.
- **Integrating remotely developed portlets into the portal** – Settings that are common to the portal application must match across the entire development project.

Team development of a WebLogic Portal web site revolves around well-designed source control and a correctly configured shared domain for development. For detailed instructions on setting up your development environment, refer to the Team Development chapter of the *Production Operations Guide*.

Federated Portals

A federated portal is a portal that includes remotely distributed resources, such as remote portlets. These remote resources are collected and brought together at runtime to a portal application called a consumer, which presents the federated portal to end users.

To implement a federated portal environment, you need to make decisions about how to organize your applications. For example, rather than bundling all of a portal's portlets into a single application, you can deploy portlets in separate web applications running on remote systems while the federated portal consumes them using WSRP. Because the federated portal is decoupled from its portlets, you do not need to redeploy the portal every time a portlet changes. For most WebLogic Portal projects, this decoupling represents an immediate and significant savings in time and money. You also might find it useful in some situations to federate a portal within the same server.

The *Federated Portals Guide* provides detailed instructions on how to set up a federated portal environment.

Security

You can control access to portlet resources for two categories of users:

- **Portal visitors** – You control access to portal resources using *visitor entitlements*. Visitor access is determined based on visitor entitlement roles.
- **Portal administrators** – You control portal resource management capabilities using *delegated administration*. Administrative access is determined based on delegated administration roles.

During the Architecture phase, you plan how to organize security policies and roles, and how that fits into your overall security strategy. For an overall look at managing security for your portal

environment, refer to the [Security Guide](#). Recommendations for security in WSRP-enabled environments are contained in the [Federated Portals Guide](#).

Content Management

WebLogic Portal's content management system allows you to store content, track its progress, and incorporate content in your portal applications. It provides an easy integration between creating content and delivering that content to your users. Content creators can use WebLogic Portal's repositories to create content and portal developers use the content API and JSP tools to deliver content to portal visitors.

You can use either a BEA repository or a third-party repository with your portal. BEA provides a rich set of Java classes and APIs. If the vendor of your ECM system has implemented the SPI, then adding your repository to the Virtual Content Repository will simply require a configuration within the WebLogic Portal Administration Console. If your vendor has not implemented BEA's SPI, then you can do so yourself.

When you use a third-party repository to store content, you also continue to use that repository's content tools to add and modify content, or you might be able to use BEA's content tools, depending on your desired implementation.

For detailed information on managing the content for your portal, refer to the [Content Management Guide](#).

Interaction Management

You use WebLogic Portal's Interaction Management features to control and enhance portal visitor interactions with your portal application. You can set up personalized content that is targeted to specific users or audiences. You can guide users through a process (such as signing up for employee benefits or shopping online) that takes them to different locations based on their personal preferences or characteristics. You can even record the path users take through your portal to gauge the effectiveness of the portal, its design, or your process flows.

Developing Interaction Management features involves several interdependent tasks. For example, if you want to target users with personalized content in an ad campaign, you have to add content to BEA's Virtual Content Repository, create placeholders that display the content, set up properties (such as user profile or session properties) that are used to define the conditions under which users will be targeted with campaign content, and finally, create the campaign.

For detailed instructions, refer to the [Interaction Management Guide](#).

Performance

Try to plan for good performance within your portal architecture to minimize the fine-tuning that is required in a production environment. Many performance issues can be resolved and significant performance improvement can be realized by making just a few critical design decisions.

Here are some examples of performance optimizations that you can plan into your overall portal strategy:

- Enable control tree optimization.
- Use entitlements judiciously; too many can impact performance. Avoid the temptation of granting a different role to every user. Instead, use WebLogic Portal's personalization capabilities to focus the user experience.
- If your portal is small or relies only on static resources, you might experience some performance boost by using a file-based portal rather than a streaming portal.
- If you are using page flows in your portal, ensure their session footprint is optimized to deliver the best performance.

Plan performance optimizations before you begin developing your portal so that you can implement any prerequisites that are required. For detailed instructions on developing a high-performance portal, refer to [Chapter 11, “Designing Portals for Optimal Performance.”](#) For overall WebLogic Portal performance recommendations that you can implement in a production environment, refer to the *Performance Tuning Guide*, which will be available in a future documentation release.

Planning Your Portal

Part II Development

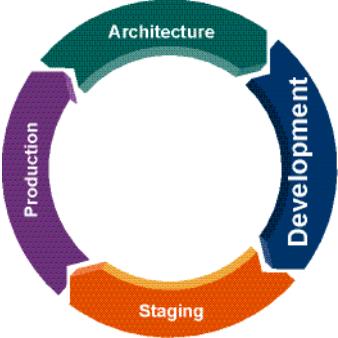
Part II includes the following chapters:

- [Chapter 3, “Understanding Portal Development”](#)
- [Chapter 4, “Setting up Your Portal Development Environment”](#)
- [Chapter 5, “Upgrading WebLogic Portal Projects to Version 9.2”](#)
- [Chapter 6, “Integrating Applications into WebLogic Portal”](#)
- [Chapter 7, “User Interface Development with Look & Feel Features”](#)
- [Chapter 8, “Developing Portals Using Workshop for WebLogic”](#)
- [Chapter 9, “Visitor Tools Configuration”](#)
- [Chapter 10, “Creating Portals for Multiple Device Types”](#)
- [Chapter 11, “Designing Portals for Optimal Performance”](#)

Developers use Workshop for WebLogic to create portals, portlets, pages, and books. During development, you can implement data transfer and interportlet communication strategies and consider the security of the components.

In the development stage, careful attention to best practices is crucial. Wherever possible, this guide includes descriptions and instructions for adhering to these best practices.

For a view of how the tasks in this section relate to the overall portal life cycle, refer to the WebLogic Portal [Overview](#).



Understanding Portal Development

This chapter provides conceptual and reference information that you might find useful as you begin to develop portals.

This chapter contains the following sections:

- [Portal Components](#)
- [Portal Component Hierarchy](#)
- [Portal Development Environment in Workshop for WebLogic](#)
- [WebLogic Portal and Shared J2EE Libraries](#)
- [File-Based Portals and Streaming Portals](#)
- [Java Controls in Portals](#)
- [JSP Tags in Portals](#)
- [Page Flows in Portals](#)
- [State/Session Management](#)

Portal Components

When you use Workshop for WebLogic to develop a portal, the portal definition exists as a single XML file. Workshop for WebLogic creates the XML file automatically as you build a portal using the editor.

The portal file contains all the components that make up that particular instance of the portal, such as books, pages, portlets, and Look & Feel components.

Many components have a hierarchical relationship to each other. For example, a book contains pages and pages contain portlets. [Figure 3-1](#) shows the relationships among the components in a portal.

- **Desktop** - A desktop provides an audience-specific view of portal components. It contains the portal header, footer, and body. The body contains the bulk of the portal content: books, pages, portlets, and Look & Feel elements. A portal can support one or more desktops. After a portal administrator sets entitlements on the desktop and makes it ready for public consumption, the desktop is the view of the portal accessed by end users. From there, users can configure their own views through customization of the desktop, if you enabled this feature.
- **Shell** - The desktop's header and footer, controlled by a portal shell (.shell file), are the areas that are typically above and below the main body. These areas usually display elements such as personalized content, banner graphics, legal notices, and related links.
- **Book** - A book is a component that provides high-level content organization and navigation. Books contains pages or other books, providing a mechanism for hierarchical nesting of pages and content.
- **Page** - Pages contain the portlets that display the actual portal content. Pages can also contain books.
- **Menu** - Menus are optional components that are loosely coupled to books and pages. A menu is responsible for displaying some type of navigation component, whether it is a set of tabs, a set of links, or a tree structure. WebLogic Portal provides two types of menus: single-level and multi-level. A single-level menu provides navigation (for example, a row of tabs) for the book's immediate pages and child books; a multi-level menu provides a hierarchical menu for all the books and pages contained within a book.
- **Layout and Placeholder** - Layouts and placeholders (not to be confused with personalization placeholders) work together to structure the way portlets and books are displayed on a page. A layout is an HTML table definition used by a page to determine the physical locations of portlets on the page. Administrators and users can choose different available layouts for pages. Placeholders are the individual cells in a layout in which portlets are placed. WebLogic Portal ships with some predefined layouts, and you can also create your own custom layouts.
- **Portlet** - Portlets are the windows that surface your applications, information, and business processes. The applications surfaced in portlets can be HTML pages, JSP files, Java (JSR

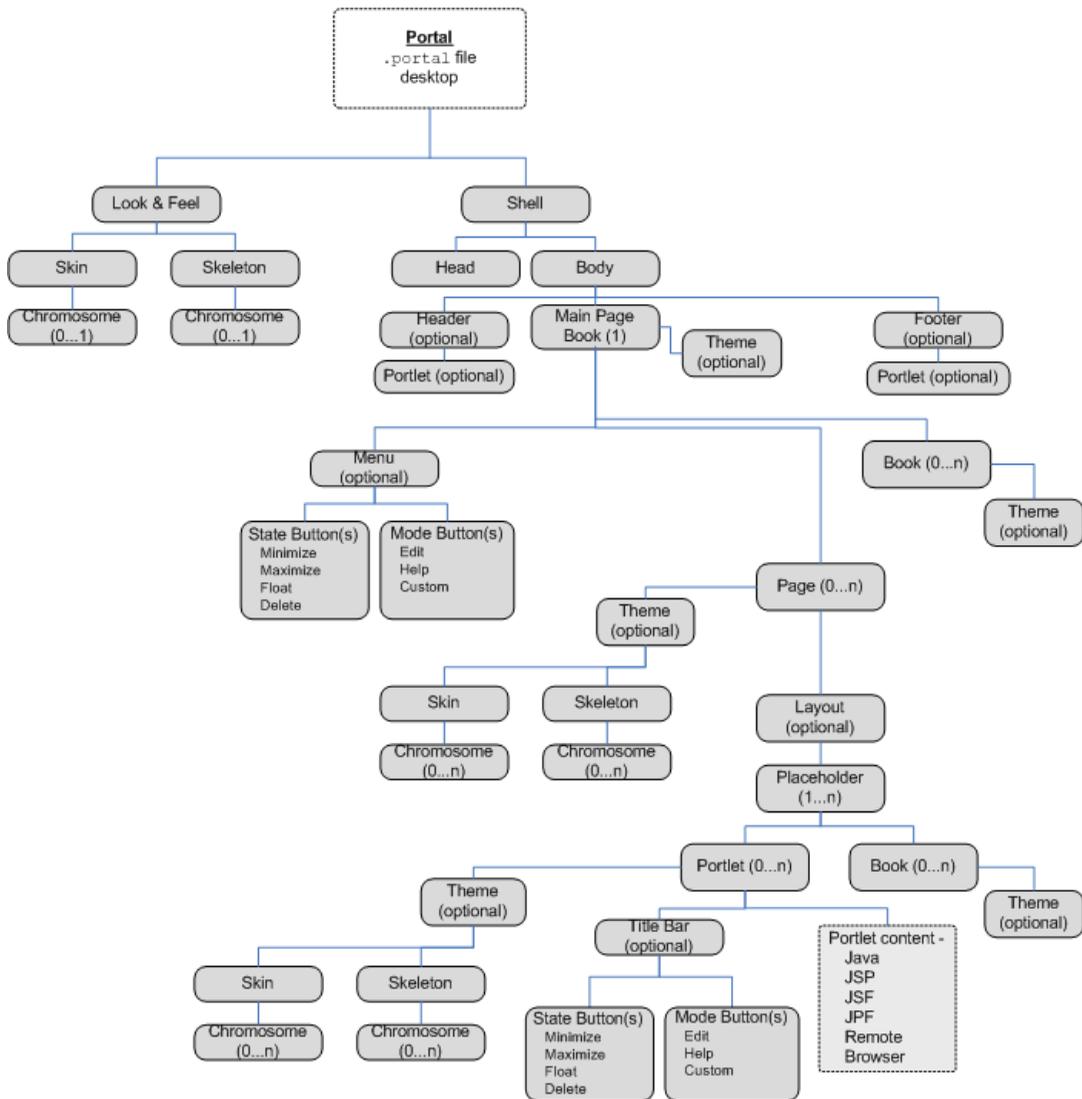
168) applications, page flows, and so on. For detailed information about developing portlets for WebLogic Portal, refer to the [Portlet Development Guide](#).

Portal Component Hierarchy

Whether you are building portal resources and templates in Workshop for WebLogic or creating and administering portals with the WebLogic Portal Administration Console, you work with individual components that are then unified by the portal framework.

[Figure 3-1](#) illustrates the flexibility and extensibility of the WebLogic Portal architecture. In the figure, the indicator (0...1) means 0 or 1, (1...n) means one or more, and (0...n) means zero or more. For example, a portal can contain one or more desktops. For resources that occur only once, like Look & Feel and Shell, you can still develop multiple versions even though only one at a time is allowed.

Figure 3-1 Portal Component Hierarchy



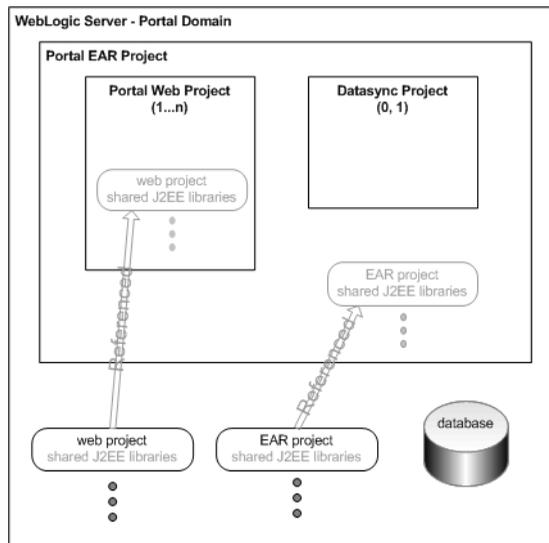
Portal Development Environment in Workshop for WebLogic

BEA Workshop for WebLogic Platform is implemented as a plugin to the Eclipse Platform, specifically including the Eclipse Workbench, Java Development Tools (JDT), a customized version of the Web Tools Platform Project (WTP), and a Workshop for WebLogic-specific plugin. Specific instructions on using the Workshop for WebLogic workbench are available in the [BEA Workshop for WebLogic Platform documentation](#). WebLogic Portal provides additional features that facilitate portal and portlet development.

Before continuing, familiarize yourself with the features of Workshop for WebLogic by reviewing the tutorial “*Getting Started with BEA Workshop for WebLogic Platform*,” which is available in the help under *BEA Workshop for WebLogic Programmer’s Guide* or on *e-docs*.

When you set up your portal development environment as described in [Chapter 4, “Setting up Your Portal Development Environment,”](#) your application generally consists of the components shown in figure [Figure 3-2](#):

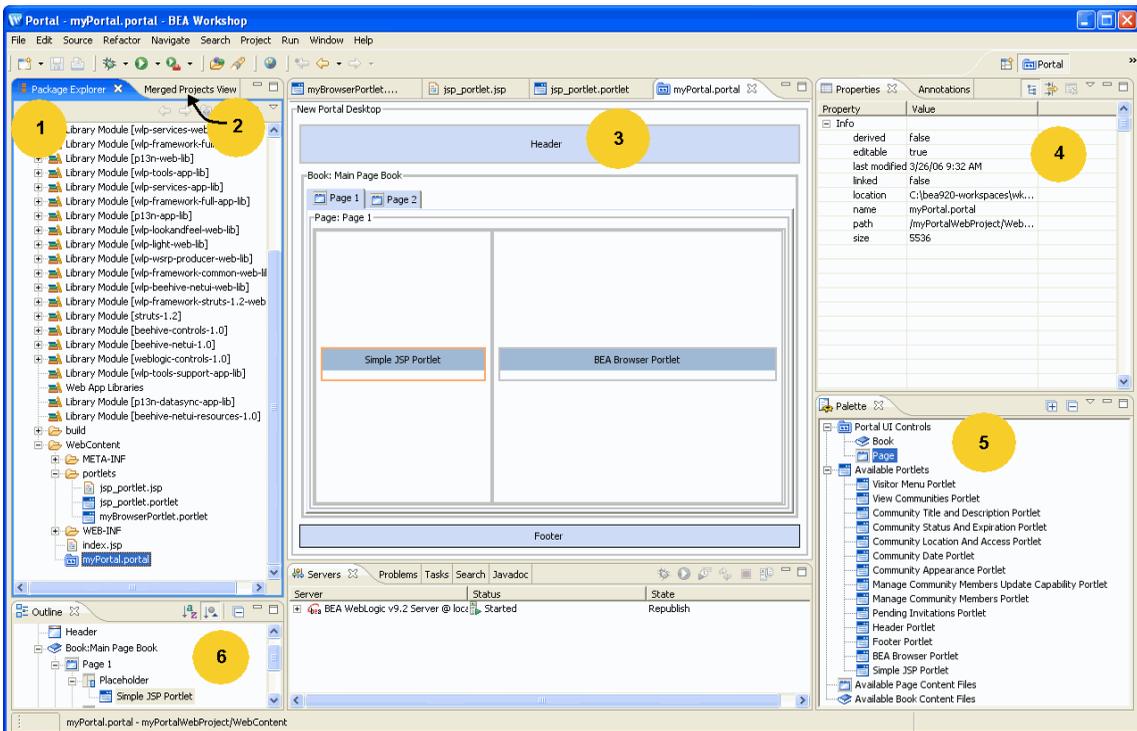
Figure 3-2 Components that Comprise a Portal Development Environment



These are the basic parts that are required to develop and test a portal application.

WebLogic Portal uses a combination of standard Eclipse and Workshop for WebLogic views, plus its own customized views, to simplify portal construction. Figure 3-3 shows an example of how your Workshop for WebLogic workbench might look during development of a portal.

Figure 3-3 WebLogic Portal Portal Displayed in Workshop for WebLogic Portal Perspective



1. **Package Explorer** view – Shows the hierarchy of directories for the open project, and the WebLogic Portal shared J2EE libraries being referenced by the project.
2. **Merged Projects** view – Shows a combined list of the actual files and referenced files in your project; shared J2EE library files are shown in italic text. This view provides important reference information for your portal development project.
3. **Editor** – Shows the primary visual working area for designing a portal.
4. **Properties** view – Shows properties for the portal component that is currently selected and allows you to set or change them.

5. **Palette** view – Shows more detailed information that you can manipulate, based on the current selection in the editor.
6. **Outline** view – Shows the components of the portlet interface in a hierarchical structure. To see an example using the Outline view with style sheet development, refer to [Chapter 7, “User Interface Development with Look & Feel Features.”](#)

You also use the Propagation perspective and Page Flow perspective during development. For more information about the Propagation perspective, refer to the *Production Operations Guide*. For more information about the Page Flow perspective, refer to the Workshop for WebLogic help.

WebLogic Portal and Shared J2EE Libraries

Shared J2EE libraries (also referred to as library modules) let you deploy and use a single set of resources rather than having to duplicate those resources in every EAR project and portal web project. BEA recommends that you use shared J2EE libraries because of their significant advantages in source control, file sharing, and patch application. WebLogic Portal supports only configurations that implement shared J2EE libraries. For detailed information about shared J2EE libraries, refer to [“Creating Shared J2EE Libraries and Optional Packages”](#) in the WebLogic Server documentation.

As illustrated in [Figure 3-2](#), your EAR projects and web projects contain references to shared J2EE libraries that are actually stored at a domain level, and you can use those modules as if they were packaged as part of the referencing application itself.

You can override a resource in a J2EE library by copying it from the library into your portal web project and then customizing it. For example, if you want the default Look & Feel to look different in a particular portal web project, you can copy the default Look & Feel from the library into the portal web project and make your modifications.

When you copy a resource, WebLogic Portal puts that resource into the “matching” location within your portal web project. When you deploy the project, WebLogic Server sees the copied resource and uses that instance instead of the resource in the library.

WARNING: If you copy J2EE library resources into your project, keep in mind that with future updates to the WebLogic Portal product, you might have to perform manual steps in order to incorporate product changes that affect those resources. *With any future patch installations, WebLogic Portal supports only configurations that do not have copied J2EE library resources in the project.*

For information on how to copy J2EE library resources into a project, refer to [“Copying J2EE Library Files into a Project” on page 8-20](#). For more information about how shared J2EE libraries affect portal deployment, refer to [Chapter 13, “Deploying Portals to Production.”](#)

File-Based Portals and Streaming Portals

The `.portal` file you create in Workshop for WebLogic is a template. In this template you create books, pages and portlets and define defaults for them. When you view the `.portal` file with your browser the portal is rendered in “single file mode,” meaning that you are viewing the portal from your file system as opposed to a database. The `.portal` file's XML is parsed and the rendered portal is returned to the browser. The creation and use of a `.portal` is intended for development purposes, but you can access a `.portal` file in production. Because there is no database involved you cannot take advantage of features such as user customization or entitlements.

Once you have created a `.portal` file you can use it to create *desktops* for a production environment, using the WebLogic Portal Administration Console.

A *desktop* is a particular view of a portal that visitors access. A portal can be made up of multiple desktops, making the portal a container for desktops. A desktop contains all the portlets, content, shells, layouts, and Look & Feel elements necessary to create individual user views of a portal.

When you create a desktop based on the `.portal` file in the WebLogic Portal Administration Console, the `.portal` and its resources are placed into the database. The settings in the `.portal` file, such as the Look & Feel, serve as defaults to the desktop. Once a new desktop is created from a `.portal` template, the desktop is decoupled from the template, and modifications to the `.portal` file do not affect the desktop, and vice versa. For example, when you change a desktop's Look & Feel in the WebLogic Portal Administration Console, the change is made only to the desktop, not to the original `.portal` file. When you view a desktop with a browser it is rendered in “streaming mode” (from the database). Now that a database is involved, desktop customizations can be saved and delegated administration and entitlements can be set on portal resources.

System performance is not significantly different between streamed portals and file-based portals. The advantages of each portal type depend more on how many portlets you plan to produce, the functionality you want to provide portal end users, and how you want to manage your portal.

[Table 3-1](#) compares streamed and file-based portals in more detail:

Table 3-1 Performance/Feature Comparison of File-Based Portals and Streaming Portals

Portal Feature	File-Based Portals	Streamed Portals
Adding Entitlements	Run-time check only	Yes—More easily set and configured
Setting Preferences	In portal definition	For individual portal instances
Number of Instances	Limited No	More than file-based portals Yes
Customization	No	Yes (through Visitor Tools and the Administration Console)
Internationalization	Difficult—requires changes to skeleton files.	Easier
Performance	Slight advantage	Slightly less than file-based portals
Propagation (from test to production environments)	Easy to accomplish by moving the .portal file	Requires proper planning but easy to implement with propagation tools
Development Process	Easiest	More complex but more robust

Note: You cannot set entitlements on a file-based portal, but once you create a desktop that is based on that portal, and you set entitlements on those artifacts in the desktop, then the .portal file will also pick them up at runtime. A .portal file does not go to the database, but an entitlement check is still made at runtime; these entitlements are stored in LDAP. If you don't want a file-based portal to run entitlement checks at runtime, you can turn this off in the WEB-INF/netuix-config.xml file.

For performance-related recommendations, refer to [“Use File-Based Portals for Simple Applications”](#) on page 11-19.

Java Controls in Portals

Java controls are visual components with events, methods, and properties that handle the implementation details for connecting to existing data, systems, applications, and business logic.

The controls provided with WebLogic Portal and Workshop for WebLogic fall into the following three categories:

- **System controls**, which are provided by Workshop for WebLogic to give easy access to application resources, like databases and EJBs.
- **Custom Java controls**, which could mean controls that the customer writes himself, or it can mean custom Java controls that WebLogic Portal or Workshop for WebLogic provides.
- **Portal framework controls**, otherwise known as the “netuix user interface controls;” examples of these include portlets, desktops, books, pages, and so on.

A large set of Java controls is included with WebLogic Portal. In addition, you can create your own custom Java controls to encapsulate your business logic.

The custom Java controls provided within WebLogic Portal are development objects with a defined runtime interface and configurable properties that are used to render portal HTML at runtime. WebLogic Portal’s custom controls empower you to manipulate portal runtime behavior dynamically based on any available information the developer wishes to exploit. Upon each request, the control tree is created, and you have an opportunity to manipulate the behavior of each control in the tree, at the desktop, menu, page, or portlet level. WebLogic Portal’s custom controls are abstracted by “contexts” in the WebLogic Portal architecture. These contexts give you a well-defined set of APIs that can be used to achieve virtually any runtime behavior that you desire.

WebLogic Portal’s custom controls for portlets are governed by a well-defined life cycle. This life cycle provides plug-in points for desired control manipulation. For example, you might wish to dynamically set the “hidden” property to “true” for a portlet during the `init()` life cycle stage, to prevent the portlet from rendering.

WebLogic Portal’s custom controls for portals interoperate with page flow controls. The control architecture interoperates with the page flow control architecture, empowering you to define sophisticated interactions between page flow applications surfaced in portlets, and more general portal windowing management. The integration between WebLogic Portal’s custom controls and page flows is surfaced in Workshop for WebLogic workbench tools such as property sheets so that you do not need to write code to “hook up” page flows and portlets.

For information about how to access controls when developing a portal, refer to [“Custom Controls in Page Flows” on page 8-25](#). For technical information about the controls and actions provided with WebLogic Portal, refer to the [Controls Javadoc](#).

JSP Tags in Portals

WebLogic Portal provides JSP tags that you can use within JSPs. Portlets can use JSPs as their content nodes, enabling reuse and facilitating personalization and other programmatic functionality. You can create JSPs with Workshop for WebLogic to provide a structure for other elements to be added to a portlet.

To view the JSP tags available as you develop a portal, select **Window > Show View > JSP Design Palette**.

For information about the classes associated with WebLogic Portal's JSP tags, see the [Javadoc](#).

Backing Files

A common means of influencing portal behavior within the portal framework control life cycle is to use a backing file. A backing file is a Java class that can contain methods corresponding to life cycle stages, such as `init()` and `preRender()`. A portal's backing context, an abstraction of the portal framework control itself, can be used to query and alter the portlet's characteristics. For example, in the `init()` life cycle method, a request parameter might be evaluated, and depending on the parameter's value, the portlet backing context can be used to specify whether the portlet is visible or hidden. For more information about backing contexts, refer to the [Portal Development Guide](#).

Backing files can be attached to portals either by using Workshop for WebLogic or coding them directly into the XML file for the particular framework control.

Backing files are simple Java classes that implement the `com.bea.netuix.servlets.controls.content.backing.JspBacking` interface or extend the `com.bea.netuix.servlets.controls.content.backing.AbstractJspBacking` interface abstract class. The methods on the interface mimic the controls life cycle methods (refer to "[How Backing Files are Executed](#)" on page 3-12) and are invoked at the same time the controls life cycle methods are invoked.

The following portal controls support backing files:

- Desktops
- Books
- Pages
- Portlets

- JspContent controls

The interportlet communication example in the *Portlet Development Guide* uses backing files.

This section contains the following topics:

- [How Backing Files are Executed](#)
- [Thread Safety and Backing Files](#)
- [Backing File Guidelines](#)
- [Adding a Backing File Using Workshop for WebLogic](#)

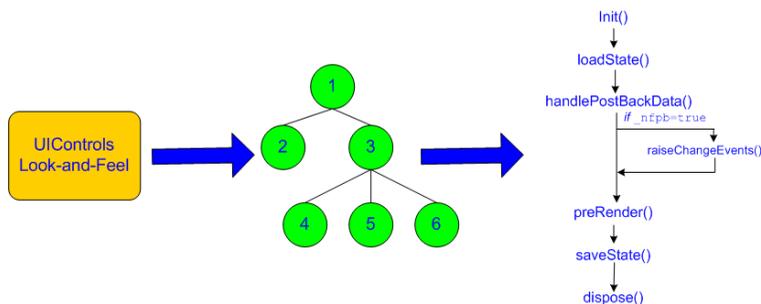
How Backing Files are Executed

All backing files are executed before and after the JSP is called. In its life cycle, each backing file calls these methods:

- `init()`
- `handlePostBackData()`
- `preRender()`
- `dispose()`

Figure 3-4 illustrates the life cycle of a backing file.

Figure 3-4 Backing File Life Cycle



On every request, the following sequence occurs:

Note: In the following steps, the methods are called unless items on inactive pages have been “optimized away” if tree optimization is enabled. For example, if tree optimization is enabled and items on an inactive page are not included on the resulting partial control tree, then the method is not called.

1. All `init()` methods are called on all backing files in depth-first order (that is, in the order they appear in the tree). This method is called whether or not the control (the portal, page, book, or desktop) is on an active page.
2. If the `_nfpb` parameter is set to true, all `handlePostBackData()` methods are called.
 - If the `_nfpb` parameter is set to true in the request parameter of any called `handlePostBackData()` methods, `raiseChangeEvents()` is called. This method causes events to fire, which is necessary if the backing file tries to make any state or mode changes.

Tip: You can use the method `AbstractJspBacking.isRequestTargeted(request)` to determine if a request is for a particular portlet.

- If the backing file's `handlePostBackData()` method returns true, the `raiseChangeEvents()` method is called.
3. All `preRender()` methods are called for all portal framework controls on an active (visible) page.
 4. The JSPs are called and rendered on the active page.
 5. The `dispose()` method is called on each backing file.

Thread Safety and Backing Files

A new instance of a backing file is created per request, so you do not have to worry about thread safety issues. New Java VMs are specially tuned for short-lived objects, so this is not the performance issue it was in the past. Also, `JspContent` controls support a special type of backing file that allows you to specify whether or not the backing file is thread safe. If this value is set to true, only one instance of the backing file is created and shared across all requests.

Scoping and Backing Files

You can cause different behaviors with backing files by varying their scope. For example, a backing file used at a framework control scope has a different behavior than one used at a JSP content scope.

If you have the backing file on the portlet itself using `<netuix: portlet backingfile=some_value>` you can actually stop the portlet from rendering. If you have the backing file as part of `<netuix: jspContent backingfile=some_value>`, the portlet portion of the control

tree has already run; you would use this scope if you want to run processes that are specifically for the JSP in the portlet.

Using the Session to Pass Data Between Life Cycle Methods

The `HttpServletRequest` object is volatile. BEA recommends that you pass data between life cycle methods using the session rather than the request object.

Backing File Guidelines

Follow these guidelines when creating a backing file:

- Ensure `netuix_servlet.jar` is included in the in the project classpath; otherwise, compilation errors occur.
- When implementing the `init()` method, avoid any heavy processing.

[Listing 3-1](#) shows an example backing file. In this example, the `AbstractJspBacking` class is extended to provide the backing functionality required by the portlet. The example uses a session attribute because of the volatility of the `HttpServletRequest` object; BEA recommends that you pass data between life cycle methods using the session rather than the request object.

Listing 3-1 Backing File Example

```
package backing;

import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
import com.bea.netuix.events.Event;
import com.bea.netuix.events.CustomEvent;
import
com.bea.netuix.servlets.controls.content.backing.AbstractJspBacking;

public class ListenCustomerName extends AbstractJspBacking
{
    public void listenCustomerName(HttpServletRequest request,
        HttpServletResponse response, Event event)
    {
```

```

CustomEvent customEvent = (CustomEvent) event;
String message = (String) customEvent.getPayload();
HttpSession mySession = request.getSession();
mySession.setAttribute("customerName", message);
}
}

```

Adding a Backing File Using Workshop for WebLogic

You can add a backing file either from within Workshop for WebLogic or by coding it directly into the file with which you are associating it. Simply specify the backing file in the **Backing File** field of the Properties view, as shown in [Figure 3-5](#). You need to specify the backing directory and, following a dot-separator, *only* the backing file name. Do not include the backing file extension; for example enter this:

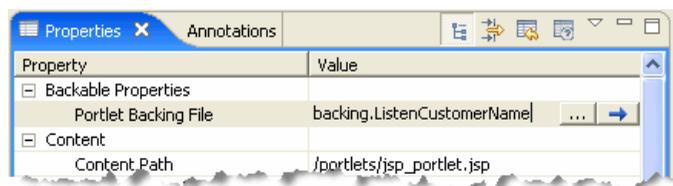
```
backing.ListenCustomerName
```

not this:

```
backing.ListenCustomerName.java
```

For the preceding example, if you include the file extension, the application interprets it as the file name—because the file path is specified by a dot-separator—and looks for a non-existent file called `java` in a non-existent directory called `ListenCustomerName`.

Figure 3-5 Adding a Backing File Using Workshop for WebLogic



Adding the Backing File by Editing the XML File

To add the backing file by coding it into an XML file for the portal framework control, you can use the `backingFile` parameter within the `<netuix:jspContent>` element, as shown in example [Listing 3-2](#).

Listing 3-2 Adding a Backing File to a .portlet File

```
<netuix:content>
  <netuix:jspContent
    backingFile="portletToPortlet.pageFlowSelectionDisplayOnly.menu.
      backing.MenuBacking"
    contentUri="/portletToPortlet/pageFlowSelectionDisplayOnly/menu/
      menu.jsp"/>
</netuix:content>
```

Page Flows in Portals

Java Page Flow is a feature set built on a Struts-based web application programming model. Java Page Flow leverages the power and extensibility of Struts while also eliminating the difficulties and challenges of building Struts-based applications. Java Page Flow features include runtime support for the web application programming model and tools that enable developers to quickly and easily build applications based upon the model.

Basically, a page flow is a directory of web application files that work together to implement a user interface feature. For example, a page flow could implement a web application's user registration wizard feature.

You can manage state, data and navigation flow between pages using Java Page Flow (JPF) files. Page flows use the same programming model as other Workshop for WebLogic applications, include one-click generation of Java Controls, and offer a standard Struts framework plug-in. JPFs also offer "WYSIWYG" development with a two-way JSP/HTML editor. JPFs can bind to data, web services using controls & data binding tags, drag and drop controls and data to create forms and data-bound web pages.

If you have a page flow, you can easily generate a page flow portlet to encapsulate it. For detailed instructions on this process, refer to the [Portlet Development Guide](#).

For information on creating page flows using Workshop for WebLogic, refer to the [BEA Workshop for WebLogic Platform Programmer's Guide](#) on e-docs.

State/Session Management

WebLogic Portal provides multiple mechanisms for managing state, including the HTTP Session, HTTP Request and Sessions. WebLogic Portal's Java Page Flow also provides flexible, powerful

state management capabilities within a Struts-based framework. Page flow state management bridges the chasm between request and session state management. For many projects the request lifetime is too short and the session lifetime too long and heavy to meet the needs of the application. With page flow, state lifetime lasts only as long as necessary.

Understanding Portal Development

Setting up Your Portal Development Environment

Use this chapter as you prepare your Workshop for WebLogic environment for portal development. This chapter describes the Portal EAR Project Wizard, Portal Web Project Wizard, Datasync Project Wizard, the Add/Remove a Project dialog, and a subset of the WebLogic Domain Configuration Wizard. This chapter also describes some features in the Workshop for WebLogic interface that you might find useful as you use it to develop portals.

For a step by step example of how to perform the tasks related to each wizard, see the [Getting Started with WebLogic Portal](#) tutorials.

Tip: You can find detailed information about how these setup tasks are related to the deployment of your project in the [Production Operations Guide](#).

This chapter contains the following sections:

- [Roadmap for Environment Setup Tasks](#)
- [WebLogic Domain Configuration Wizard](#)
- [Portal EAR Project Wizard](#)
- [Add and Remove Projects Dialog](#)
- [Portal Web Project Wizard](#)
- [Portal Datasync Project Wizard](#)
- [Using the Merged Projects View](#)

- [Running a Project on the Server](#)
- [Customizing a Perspective](#)
- [Setting WebLogic Portal Preferences in Workshop for WebLogic](#)

Roadmap for Environment Setup Tasks

The required environment setup options vary depending on whether you want to develop a “conventional portal,” a collaboration portal, or a “development-free” GroupSpace application.

[Table 4-1](#) describes the basic tasks that you should perform in each case:

Table 4-1 Task Roadmap According to Development Goals

If you want to...	Then in this task...	Select these options...
Develop a “conventional” portal application that does not involve collaboration or GroupSpace	WebLogic Configuration Wizard	In Select Domain Source, select the Weblogic Portal check box. Do not select GroupSpace Framework or GroupSpace Application.
	Portal EAR Project Wizard	Default WebLogic Portal facets.
	Portal Web Project Wizard	Default WebLogic Portal facets. Note: You should not include GroupSpace in a conventional portal application. For more information, refer to the <i>GroupSpace Guide</i> .
	Copying J2EE library files into your project (for instructions, refer to “ Copying J2EE Library Files into a Project ” on page 8-20)	As needed; no specific J2EE libraries required.

Table 4-1 Task Roadmap According to Development Goals (Continued)

If you want to...	Then in this task...	Select these options...
Develop a collaboration portal application that uses the Collaboration Portlets but does not involve GroupSpace	WebLogic Configuration Wizard	<p>In Select Domain Source, select the Weblogic Portal GroupSpace Framework check box.</p> <p>Note: If you do not want to use the Shared Content Repository that the GroupSpace Framework configures, other methods of setting up a repository exist. For details, refer to the Communities Guide.</p> <p>The wizard automatically selects the WebLogic Portal check box; keep it selected.</p>
	Portal EAR Project Wizard	<p>In addition to the default facets, select the WebLogic Portal Collaboration facet and these sub-features:</p> <ul style="list-style-type: none"> • Collaboration API • Collaboration Portlets Application Libraries
	Portal Web Project Wizard	<p>In addition to the default facets, select the WebLogic Portal Collaboration facet and this sub-feature:</p> <ul style="list-style-type: none"> • Collaboration Portlets
	Copying J2EE library files into your project (for instructions refer to “ Copying J2EE Library Files into a Project ” on page 8-20).	As needed; no specific J2EE libraries required.

Table 4-1 Task Roadmap According to Development Goals (Continued)

If you want to...	Then in this task...	Select these options...
Develop a customized Community application using Workshop for WebLogic, starting from the OOTB sample GroupSpace application	WebLogic Configuration Wizard	<p>In Select Domain Source, select the Weblogic Portal GroupSpace Application check box.</p> <p>The wizard automatically selects the WebLogic Portal and GroupSpace Framework check boxes; keep them selected.</p>
	Portal EAR Project Wizard	<p>In addition to the default facets, select the WebLogic Portal Collaboration facet and these sub-features:</p> <ul style="list-style-type: none"> • Collaboration API • Collaboration Portlets Application Libraries • GroupSpace Application Libraries
	Portal Web Project Wizard	<p>In addition to the default options, select the WebLogic Portal Collaboration facet and these sub-features:</p> <ul style="list-style-type: none"> • Collaboration Portlets • GroupSpace <p>Note: If GroupSpace is enabled in a portal web project, only GroupSpace applications can reside in that web project. If you want to create custom Communities, you must create a separate portal web project that does not include GroupSpace. For more information, refer to the <i>GroupSpace Guide</i>.</p>
	Copying J2EE library files into your project (for instructions refer to “ Copying J2EE Library Files into a Project ” on page 8-20).	Copy all GroupSpace-related J2EE libraries into your project. For a list of application libraries, refer to “ WebLogic Portal J2EE Library Descriptions ” on page A-1.

Table 4-1 Task Roadmap According to Development Goals (Continued)

If you want to...	Then in this task...	Select these options...
Set up a standard GroupSpace application for which you will not perform any development tasks within Workshop for WebLogic (you will use the WebLogic Portal Administration Console to implement your application).	WebLogic Configuration Wizard	In Select Domain Source, select the Weblogic Portal GroupSpace Application check box. The wizard automatically selects the WebLogic Portal and GroupSpace Framework check boxes; keep them selected.
	Portal EAR Project Wizard	Not applicable
	Portal Web Project Wizard	Not applicable
	Copying J2EE library files into your project	Not applicable

WebLogic Domain Configuration Wizard

This section describes the sections of the Configuration Wizard that are interesting from a WebLogic Portal perspective.

A domain is a group of WebLogic Server resources that contain the application server. You must have a server domain that is WebLogic Portal – enabled in order to test the portal that you create. This customized domain is generally called a *portal domain*.

A sample portal domain comes with WebLogic Portal and is, by default, located at `WebLogic_HOME/samples/domains/portal`. This sample domain is configured for use with a GroupSpace application.

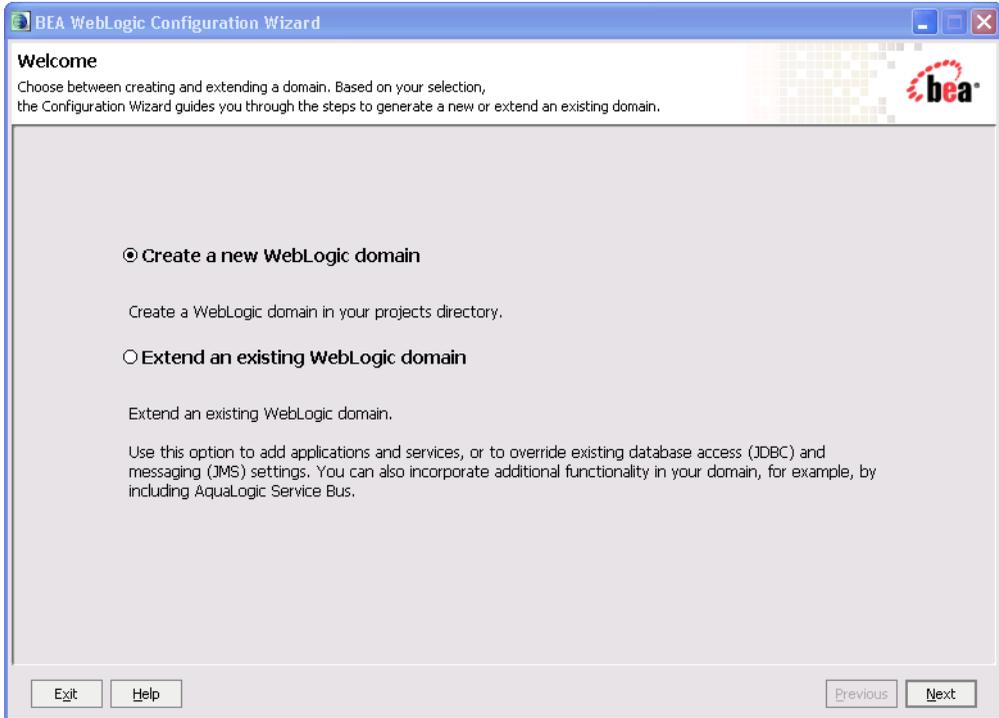
You can start the Domain Configuration Wizard in several ways. Here are summaries of two methods:

- From the Workshop for WebLogic interface (workbench)
 - a. From the Servers view, right-click and select **New > Server**.
 - b. From the **New Server - Define a New Server** dialog, click **Next** and then click the hyperlink to start the wizard.
- From the **Start** menu in Windows XP.

Select **Start > All Programs > BEA Products > Tools > Configuration Wizard**.

The first dialog in the wizard looks like the example in [Figure 4-1](#).

Figure 4-1 BEA WebLogic Server Configuration Wizard



[Table 4-2](#) shows the values that you would typically enter in the wizard, along with some useful notes that you might find useful as you set up your portal domain.

Table 4-2 Configuration Wizard Values for a Portal Domain

In this Wizard Page...	Select or Enter...
Welcome	Create a new WebLogic domain (the default)
Select Domain Source	<p>Select the appropriate check boxes depending on the type of project you want to develop.</p> <p>For example, you can select the WebLogic Portal GroupSpace Framework and WebLogic Portal GroupSpace Application check boxes to create a domain that is GroupSpace-enabled; projects based on the GroupSpace sample application must have a GroupSpace-enabled domain.</p> <p>For more information on the options available here, refer to “Roadmap for Environment Setup Tasks” on page 4-2.</p>
Configure Administrator Username and Password	<p>(Default) user name: <code>weblogic</code></p> <p>User password:</p> <p>Confirm user password:</p> <p>You might want to use this WebLogic Server administrator login when using the WebLogic Portal Administration Console, so keep track of what you enter here.</p>
Configure Server Start Mode and JDK	<ul style="list-style-type: none"> • Development Mode (the default) or Production Mode <p>For information on the implications of using either of these options, refer to the Production Operations Guide.</p> <ul style="list-style-type: none"> • JRockit SDK (recommended)
Customize Environment and Services Settings	No (the default)
Create WebLogic Domain	Domain location: Accept the default, or specify another directory on your system.

Portal EAR Project Wizard

This section describes the dialogs of the WebLogic Portal Enterprise Application Archive (EAR) Project Wizard.

An EAR project collects the component projects of the application for deployment; you create one EAR project per enterprise application. The EAR project contains JAR files, deployment

descriptors, build files, and auto-generated files. For more information about EAR projects and their relationship to the other projects in the Workshop for WebLogic workbench, refer to the “Applications and Projects” topic in the Workshop for WebLogic Programmers’s Guide.

The Portal EAR Project is an EAR project that is customized for WebLogic Portal. EAR projects appear as siblings to the other projects in a workspace but functionally, they link together projects and do not contain any of the content of your web application.

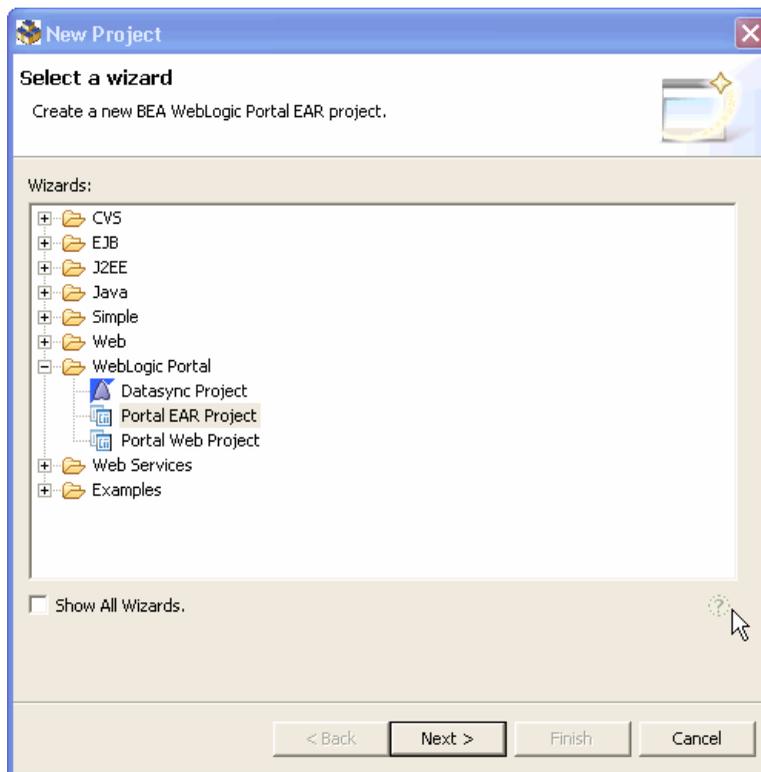
To start the Portal EAR Project Wizard, perform these steps:

1. From the File menu, select **New > Project...**

The **New Project – Select a Wizard** dialog displays.

Select **WebLogic Portal > Portal EAR Project**, as shown in [Figure 4-2](#).

Figure 4-2 New Project – Select a Wizard Dialog with Portal EAR Project Selected



2. Click **Next**.

The **New Portal EAR Project** dialog displays. When you enter a name for your project and click **Next**, the **Select Project Facets** dialog displays.

New Portal EAR Project – Select Project Facets Dialog

Figure 4-3 shows an example of the **New Portal Web Project – Select Project Facets** dialog.

Figure 4-3 New Portal EAR Project – Select Project Facets Dialog

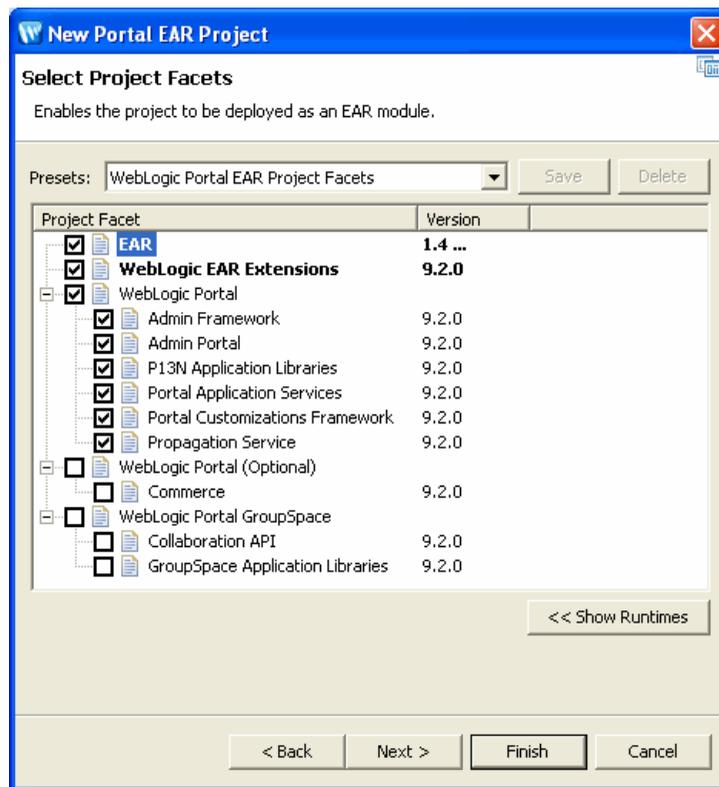


Table 4-3 describes each WebLogic Portal–related field of the **Select Project Facets** dialog. The selections that you make here cause WebLogic Portal to create files that you can use as you create your project, and associate the project with the correct set of shared J2EE libraries. For more information about shared J2EE libraries, see [“WebLogic Portal and Shared J2EE Libraries” on page 3-7](#).

Table 4-3 New Portal EAR Project Dialog Data Fields - WebLogic Portal Information

Field	Description
Presets dropdown menu	The value automatically displayed in this dropdown menu corresponds to the selections made in the tree view of project facets. You can select a preset group of facets from the dropdown menu, or select and unselect specific check boxes in the tree display. If you select a customized set of facets, <custom> displays in the field.
Project Facet Display Tree	
WebLogic Portal primary	Select the WebLogic Portal facets that you want to install. If certain facets depend on others, messages appear to describe these dependencies and your selections must conform to these requirements. <ul style="list-style-type: none"> • Admin Framework • Admin Portal • Portal Application Services • Portal Customizations Framework • Propagation Service
WebLogic Portal (Optional)	This selection adds Commerce Services to the project.
WebLogic Portal Collaboration	Check this box (and one or more of its sub-features) to enable this project as a collaboration-enabled, and potentially GroupSpace-enabled EAR. For details about creating a GroupSpace application, refer to the Communities Guide and the GroupSpace Guide .

Add and Remove Projects Dialog

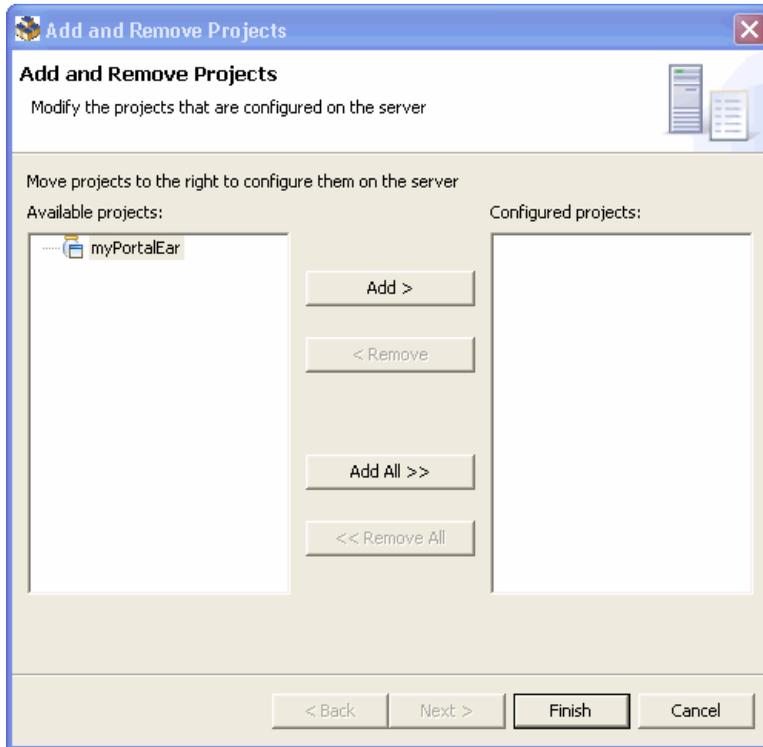
This section describes the **Add and Remove Projects** dialog, which you use to associate an EAR project with a portal domain. If your EAR Project already exists when you create you domain, you can make this association when you create the server domain. If not, you can do it later using the steps outlined in this section.

To associate the Portal EAR Project with the server, perform these steps:

1. In the Servers view, right-click **BEA WebLogic v9.2 Server @ localhost**, then select **Add and Remove Projects**.

The **Add and Remove Projects** dialog displays, as shown in [Figure 4-4](#).

Figure 4-4 Add and Remove Projects Dialog



2. Click to select the desired EAR project in the **Available projects** column and then click **Add**.
The project is added to the **Configured projects** column on the right.
3. Click **Finish**.

The Portal EAR Project is now associated with the server. To verify this, in the Servers view you can expand the server node to view the server's associated projects. The myPortalEAR project should be shown as a subordinate node.

Portal Web Project Wizard

You use the Portal Web Project Wizard to create the web project that contains portal files. When you create a Portal Web Project, WebLogic Portal creates a set of shared J2EE libraries and files that you can use as you create your portal.

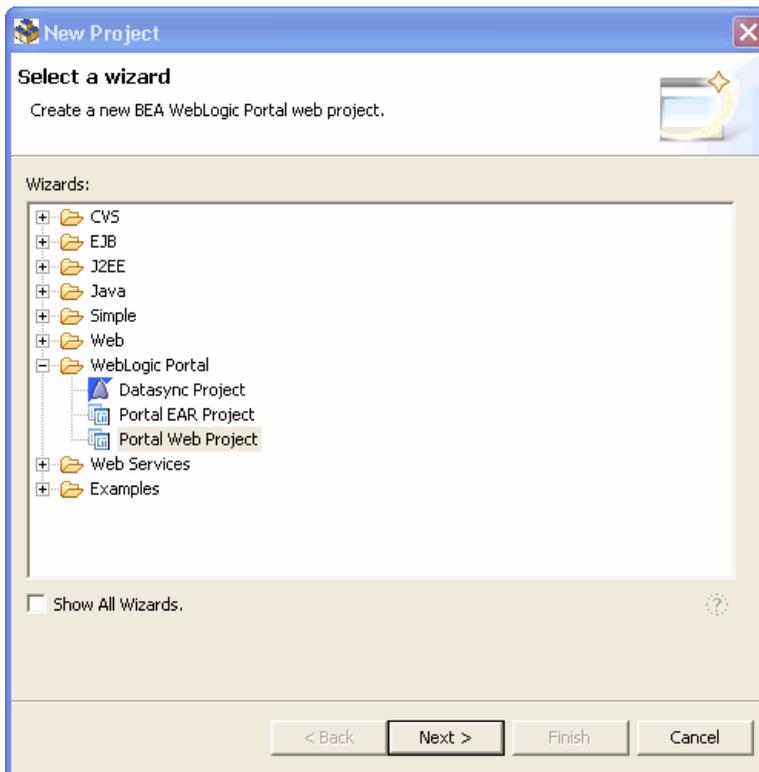
To start the wizard, perform these steps:

1. Select **File > New > Project**.

The **New Project – Select a Wizard** dialog box displays.

2. Select **WebLogic Portal > Portal Web Project**, as shown in [Figure 4-5](#).

Figure 4-5 New Project – Select a Wizard Dialog with Portal Web Project Selected



3. Click **Next**.

The **New Portal Web Project** dialog displays.

New Portal Web Project – Portal Web Project

Figure 4-6 shows an example of the **New Portal Web Project** dialog.

Figure 4-6 New Portal Web Project Dialog

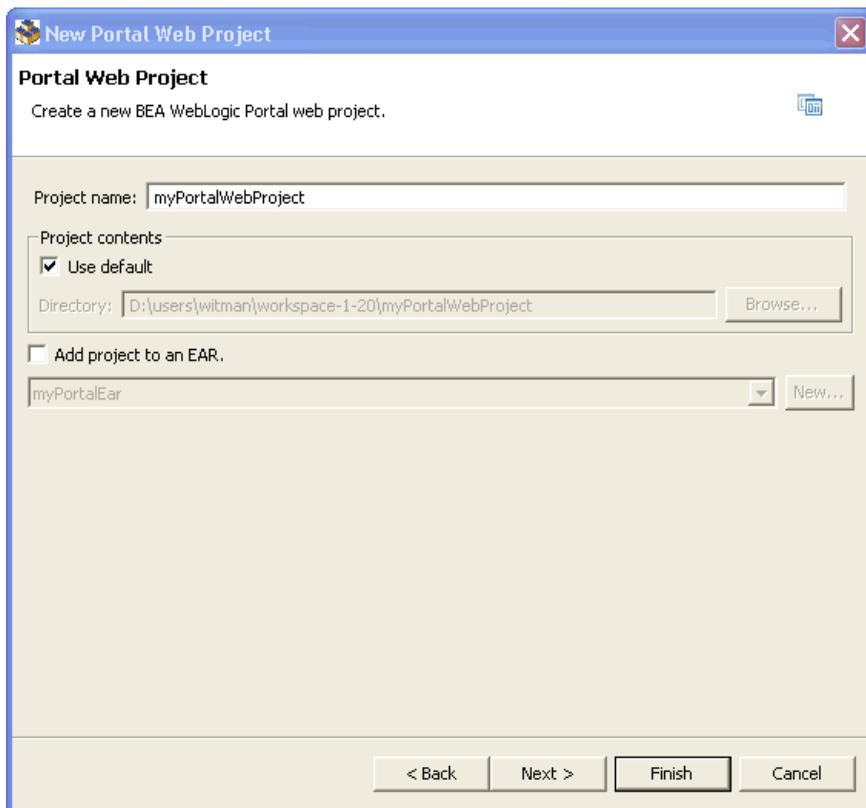


Table 4-4 describes each field of the **New Portal Web Project – Portal Web Project** dialog.

Table 4-4 New Portal Web Project Dialog Data Fields

Field	Description
Project name	The name of the portal web project.
Project contents area - Use default check box and file browser	You can use the content area that WebLogic Portal creates by default, or point to another directory where your project contents are stored.
Add project to an EAR check box and file browser	<p>If you have not yet created a Portal EAR Project, leave this check box unselected; you can associate the project with an EAR later by right-clicking the web project in the Package Explorer tree and selecting Properties; then use the J2EE Module Dependencies setting to associate the project with the EAR.</p> <p>If you have an existing EAR to associate with the project, select the check box; the dropdown menu displays an auto-filled EAR name corresponding to the EAR project(s) that you created in the Portal EAR Project Wizard. Click to select the appropriate EAR file, or click Browse to navigate to an existing EAR file.</p> <p>A portal web project must be associated with an EAR for the build to work successfully.</p>

New Portal Web Project – Select Project Facets dialog

The New Portal Web Project – Select Project Facets dialog is shown in [Figure 4-7](#).

Figure 4-7 New Portal Web Project – Select Project Facets Dialog

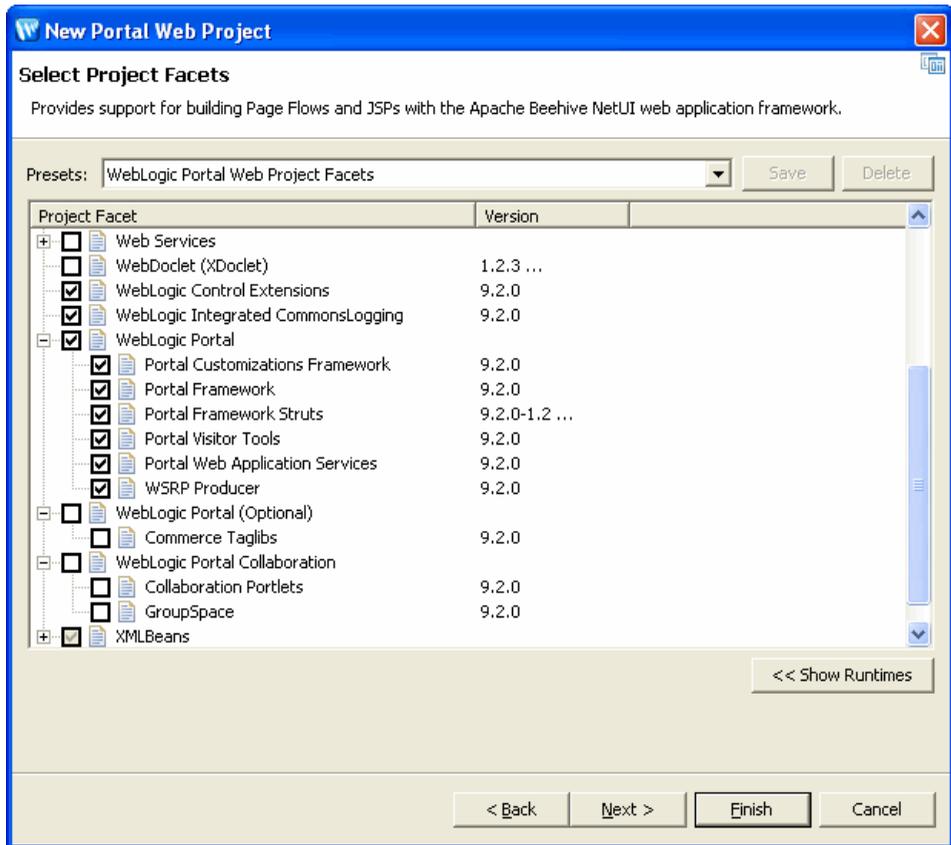


Table 4-5 describes each WebLogic Portal–specific field of the dialog.

Table 4-5 New Portal Web Project Dialog Data Fields - WebLogic Portal Information

Field	Description
Presets dropdown menu	The value automatically displayed in this dropdown menu corresponds to the selections made in the tree view of project facets. You can select a preset group of facets from the dropdown menu, or select and unselect specific check boxes in the tree display. If you select a customized set of facets, <custom> displays in the field.
Project Facet Display Tree	

Table 4-5 New Portal Web Project Dialog Data Fields - WebLogic Portal Information (Continued)

Field	Description
WebLogic Portal primary	<p>Select the WebLogic Portal facets that you want to install. If certain facets depend on others, messages appear to describe these dependencies and your selections must conform to these requirements.</p> <ul style="list-style-type: none"> • Portal Customizations Framework • Portal Framework • Portal Framework Struts • Portal Visitor Tools • Portal Web Application Services • WSRP Producer <p>For more information about each of these sub-features, refer to “WebLogic Portal J2EE Library Descriptions” on page A-1.</p>
WebLogic Portal (Optional)	<p>This selection adds Commerce Tag Libraries to the project.</p>
WebLogic Portal Collaboration	<p>Check this box (and one or both of its sub-features) to add the collaboration portlets to the project, or to enable the project as a GroupSpace project.</p> <ul style="list-style-type: none"> • Collaboration Portlets - causes the J2EE library wlp-collab-portlets-app-lib to be associated with your project. You can use these portlets outside a GroupSpace environment. • GroupSpace - causes the GroupSpace-related J2EE libraries to be associated with the project. If you select this option, you must also select the Collaboration Portlets sub-feature. <p>For detailed instructions on creating a GroupSpace-based application, refer to the Communities Guide</p> <p>Note: Do not add GroupSpace to portal web projects that already contain non-GroupSpace portals. For more information, refer to the Communities Guide.</p>

New Portal Web Project - Web Module Dialog

The **New Portal Web Project – Web Module** dialog is shown in [Figure 4-7](#).

Figure 4-8 New Portal Web Project – Web Module dialog

Table 4-6 describes each field of the dialog.

Table 4-6 New Portal Web Project – Web Module Data Fields

Field	Description
Context Root	The context root of the web application.
Content Directory	The default web content directory name <code>WebContent</code> is automatically displayed; you can change it if you wish. As a best practice, you should locate your portal file(s) and other portal resources in a <i>web content</i> directory that is subordinate to the <i>web project</i> directory.
Java Source Directory	The default Java source directory name <code>src</code> is automatically displayed; you can change it if you wish.

New Portal Web Project - WebLogic Web Module Dialog

The New Portal Web Project – WebLogic Web Module dialog is shown in [Figure 4-9](#).

Figure 4-9 New Portal Web Project – WebLogic Web Module Dialog

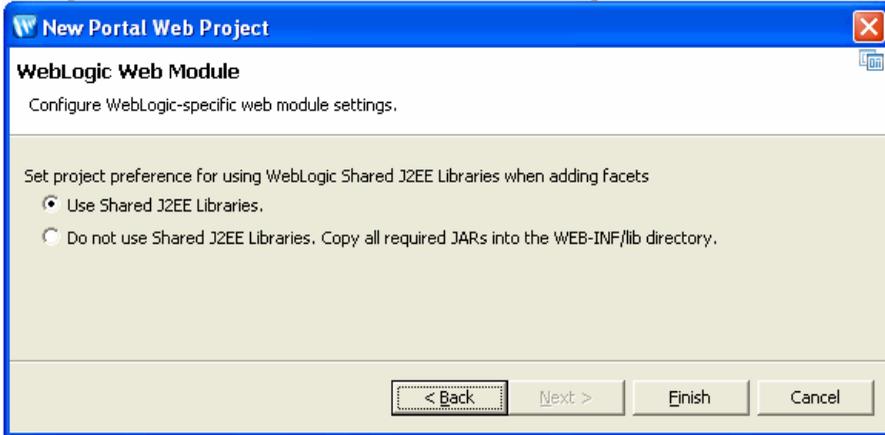


Table 4-7 describes the dialog.

Table 4-7 New Portal Web Project – WebLogic Web Module Dialog Description

Field	Description
Shared J2EE Libraries selection buttons	<p>If you select the Use Shared J2EE Libraries radio button, WebLogic Portal creates associations with shared J2EE libraries rather than copying the complete set of JAR files into your project. BEA recommends that you use shared J2EE libraries because of their significant advantages in source control, file sharing, and patch application. With any future patch installations, WebLogic Portal supports only configurations that do not have copied J2EE library resources in the project. For more information about shared J2EE libraries, refer to “WebLogic Portal and Shared J2EE Libraries” on page 3-7.</p> <p>If you select not to use shared J2EE libraries, all of the necessary JAR files will be copied directly into the project.</p>

Portal Datasync Project Wizard

A datasync project is an optional project that stores general purpose portal services data that is used in the development of personalized applications and portals. These portal services include User Profiles, Session Properties, Campaigns and others. You can share a single datasync project among several EAR projects if you wish.

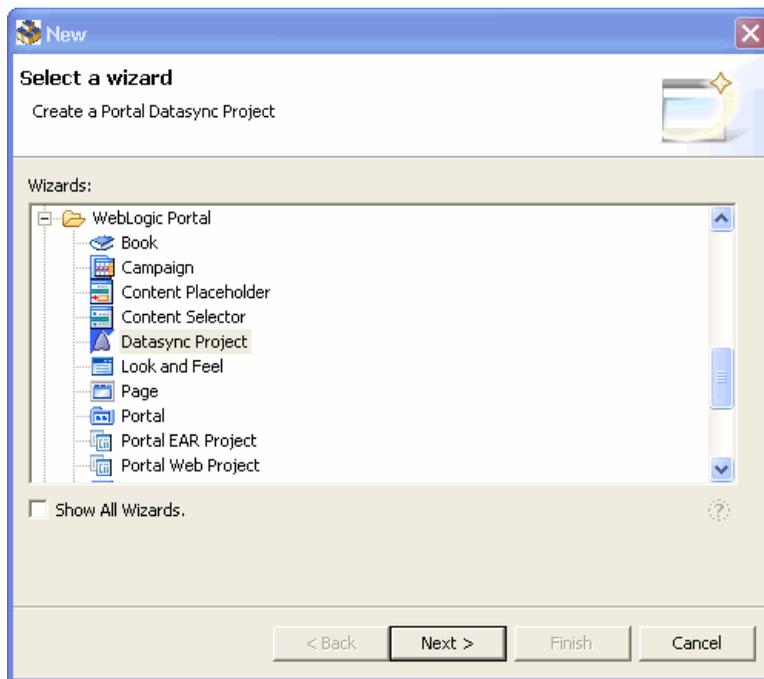
To create the datasync project, perform these steps:

1. Select **File > New > Project**.

The **Select a Wizard** dialog box displays.

2. In the dialog, select **WebLogic Portal > Datasync Project**, as shown in [Figure 4-10](#).

Figure 4-10 New—Select a Wizard Dialog with Datasync Project Selected



3. Click **Next**.

The **Create New Datasync Project** dialog displays.

Portal Datasync Project Wizard - Create New Datasync Project Dialog

The **Create New Datasync Project** dialog is shown in [Figure 4-11](#).

Figure 4-11 Create New Datasync Project Dialog

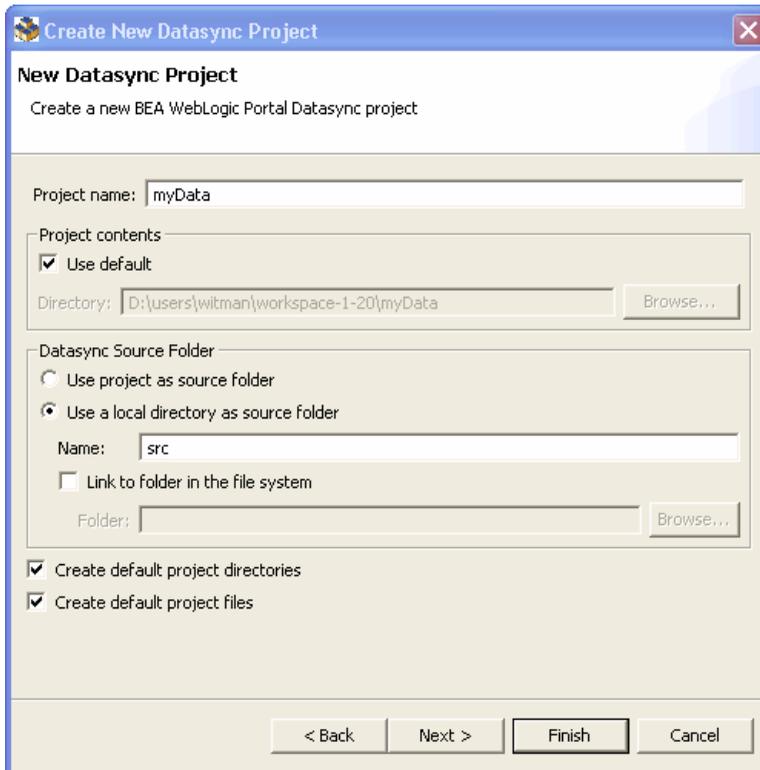


Table 4-8 describes each field of the dialog. When you click **Next**, the **EAR Projects** dialog displays.

Table 4-8 New Datasync Project Data Fields

Field	Description
Project name	The name that you want to assign to this datasync web project.
Project Contents	The default web content directory name <code>WebContent</code> is automatically displayed; you can change it if you wish. You must locate your portal file(s) and other portal resources in a <i>web content</i> directory that is subordinate to the <i>web project</i> directory.

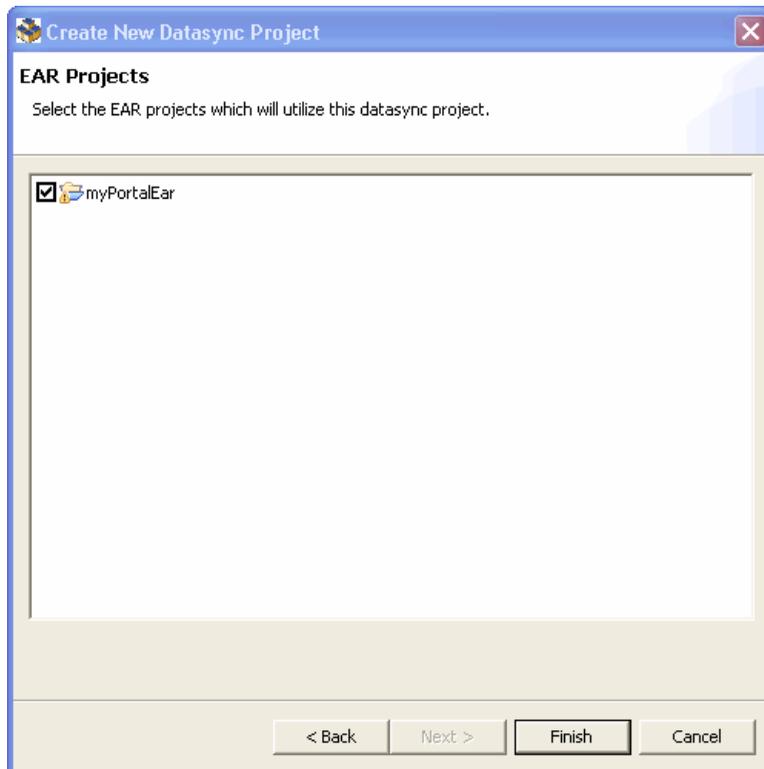
Table 4-8 New Datasync Project Data Fields (Continued)

Field	Description
Datasync source folder	The default Java source directory name <code>src</code> is automatically displayed; you can change it if you wish.
Create default project directories	This check box is selected by default.
Create default project files	This check box is selected by default.

Create New Datasync Project – EAR Projects

The **Create New Datasync Project – EAR Projects** dialog is shown in [Figure 4-12](#).

Figure 4-12 Create New Datasync Project – EAR Projects Dialog

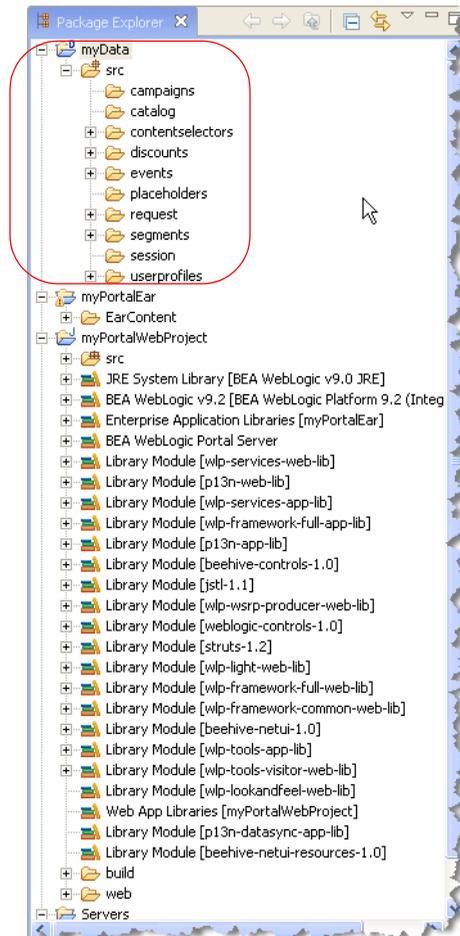


This dialog allows you to select the check box for the appropriate Portal EAR project.

Tip: If you create a datasync project without associating it with an EAR, you can do this step later by right-clicking the datasync project in the Package Explorer tree and selecting **Properties**; then expand the **Datasync** node in the tree and select **EAR Projects** to associate the project with the EAR.

If you add a Datasync Project with the default settings, it will look similar to the Package Explorer tree shown in [Figure 4-13](#).

Figure 4-13 Datsync Project Added to the Package Explorer



Using the Merged Projects View

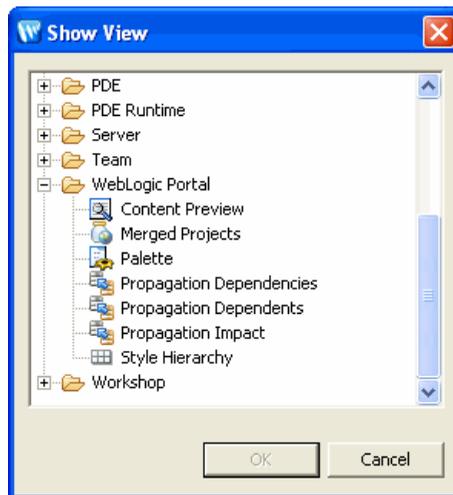
The WebLogic Portal Merged Projects View is included by default in the Portal Perspective. This view shows a combined list of the files in your project, including the associated shared J2EE libraries. This view provides important reference information for your portal development project.

If you are not using the Portal Perspective, you should open the Merged Projects view in the workbench. To do so, perform these steps:

1. Select **Window > Show View > Other**.
2. Expand the WebLogic Portal node in the tree if it is not already expanded, and click to select **Merged Projects**, as shown in [Figure 4-14](#).

Tip: Some items listed in the Merged Projects view are italicized. The italicized items represent entities that are stored in shared J2EE libraries. All entities that are stored on your filesystem, such as the portal file you created, are shown in regular type.

Figure 4-14 Show View Dialog with Merged Projects View Selected



Notice that other useful portal-specific views are available here. Experiment to find the best combination of views that you want to have available as you develop portals.

3. Click **OK**.

The additional view is added to the workbench.

Note: You can view a Properties dialog for a file in the Merged Projects view by right-clicking the file and selecting **Properties**. The dialog shows the J2EE library information for the file, including the shared J2EE library name and version.

Caution: If you use the Merged Projects view to copy a J2EE library resource into your project, keep in mind that with future updates to the WebLogic Portal product, you might have to perform manual steps in order to incorporate product changes that affect those projects.

Running a Project on the Server

You can use either of two options for running and viewing the results of your project development; the selection you make depends on the changes you have made in your project and whether or not your server is already started.

The following list describes each option available from the context menu in the Project Explorer view:

- **Run as > Run on Server** - starts the server if not already started and, only if needed, performs a full publish/republish of the application; then it opens a web browser. You must use this selection if you have changed a backing class, page flow, EJB, descriptor, Java file, control, or web service.

Tip: You can customize the browser setting so that an external browser displays the application; to do this, select **Window > Preferences > General > Web Browser** and select the appropriate external browser application.

- **Refresh** button in a currently displayed browser view- refreshes the current display based on changes made in the currently selected portal, but does not start the server; this option takes no action if you stopped the server at some point after displaying the initial browser. This selection requires that you previously performed an initial Run on Server process. You can use this option if your changes were limited to JSPs, HTML, .portal files, or .portlet files.

Customizing a Perspective

Optionally, you can create a personally customized combination of views, so that you can easily return to it any time.

To save the current workbench layout as a perspective, select **Window > Save Perspective As**, enter a name for your customized perspective in the **Name** field, and click **OK**. Your new perspective is added to the list, in the **Other** category.

You can also set this perspective as the default perspective for Workshop for WebLogic, using the **Window > Preferences** options. For more information, refer to your Eclipse documentation.

Setting WebLogic Portal Preferences in Workshop for WebLogic

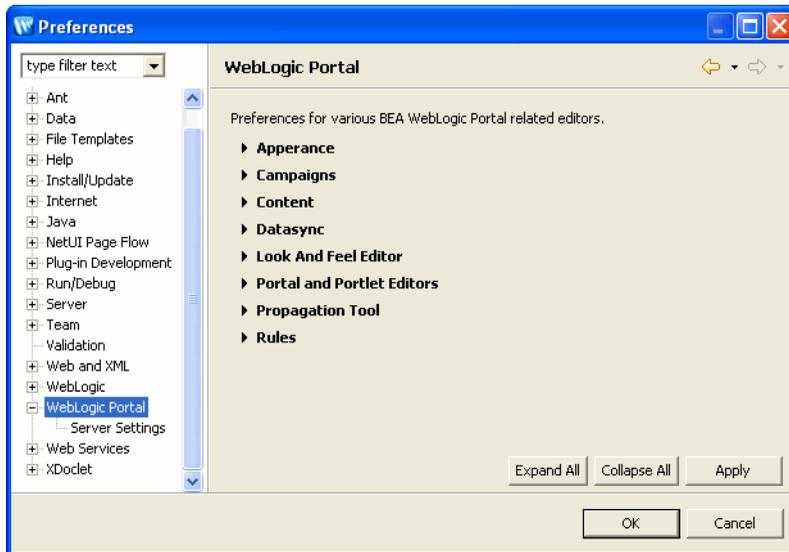
You can set preferences for the behavior of the various editors and features of WebLogic Portal. The following sections describe how to access WebLogic Portal-specific settings within Workshop for WebLogic.

Preferences in the WebLogic Portal Section

1. Select **Window > Preferences** and then select WebLogic Portal in the tree display.
2. Click the WebLogic Portal node to see settings that are specific to WebLogic Portal.

A dialog similar to the example in [Figure 4-15](#) displays:

Figure 4-15 WebLogic Portal Product Preferences



3. Expand the desired section in the dialog to set options for that editor.

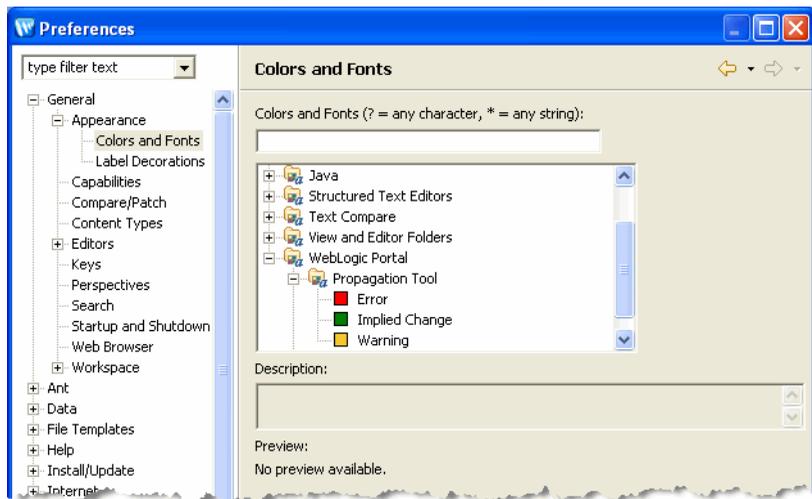
WebLogic Portal Preferences in the General Section

1. Select **Window > Preferences**.

2. Expand the **General** node in the tree display.
3. WebLogic Portal settings are available in both the **Appearance > Colors and Fonts** and the **Appearance > Label Decorations** sections.

For example, if you select **Appearance > Colors and Fonts**, and then select **WebLogic Portal > Propagation Tool**, a dialog similar to the example in [Figure 4-16](#) displays:

Figure 4-16 Workshop for WebLogic Appearance – Colors and Fonts Preferences



In the Propagation Tool node, you can change the assigned colors for status indicators.

In the Rules Editor Font node, you can change the font, style, and size for the Rules Editor that is used for campaigns, user segments, placeholders, and content selectors.

Setting up Your Portal Development Environment

Upgrading WebLogic Portal Projects to Version 9.2

The *BEA Workshop for WebLogic Platform Programmer's Guide*, available as part of the Workshop for WebLogic help, contains several useful topics that you should review as you prepare to upgrade your portal application. The Workshop for WebLogic documentation includes step-by-step instructions for using the Import Wizard, and detailed information about what happens during the upgrade process and any required manual pre- or post-upgrade tasks.

It is extremely important that you become familiar with the Workshop for WebLogic upgrade steps, and any related limitations, before you attempt to upgrade a WebLogic Portal application from Version 8.1.4 or 8.1.5 to Version 9.2. Before proceeding, refer to the [Workshop for WebLogic documentation](#) on e-docs or by choosing **Help > Help Contents > BEA Workshop for WebLogic Platform Programmer's Guide** in the main menu of the product.

The Workshop for WebLogic upgrade documentation assumes that your application was developed using WebLogic Workshop Version 8.1. If it was not, you must refactor your code so that it builds and runs in the WebLogic Workshop IDE Version 8.1 SP4 or SP5 before using the tools described here to upgrade to Workshop for WebLogic Version 9.2.

This chapter focuses on topics that are specifically related to upgrading WebLogic Portal applications, and contains the following sections:

- [Version 8.1 Features Not Supported in Version 9.2](#)
- [Upgrade Considerations and Tips](#)

Version 8.1 Features Not Supported in Version 9.2

Webflows and pipelines were deprecated in Version 8.1 and are no longer supported; use page flows in place of these deprecated features.

Upgrade Considerations and Tips

The following sections describe some considerations and tips that might be useful when you upgrade portal applications, and it describes some situations where you might need to perform some manual tasks after upgrading your portal application.

This section contains the following topics:

- [Command-Based and Ant Task Upgrade Not Supported](#)
- [Enabling Communities Features in Upgraded Visitor Tools](#)
- [Upgrading Look & Feels](#)
- [Upgrading Custom Controls that Have Custom Properties](#)
- [Upgrading Tuned Thread Pools for Forked Portlets](#)
- [Upgraded Applications Use Struts 1.1 and Related J2EE Libraries](#)
- [Changes in Behavior Between Struts 1.1 and 1.2](#)
- [Ampersand Entities in Portal URLs](#)
- [Upgrading Individual application-config.xml Files Later](#)
- [Correcting Duplicate Portlet Category Names Before Propagating an Upgraded Application](#)

Command-Based and Ant Task Upgrade Not Supported

Workshop for WebLogic provides a command-driven upgrade (upgradeStarter) and an ant task-based upgrade. WebLogic Portal does not support these upgrade alternatives; you must use the Import Wizard.

Enabling Communities Features in Upgraded Visitor Tools

Unmodified Visitor Tools code from WebLogic Portal 8.1.4 or later is upgraded as part of Import Wizard processing. However, the new Version 9.2 communities-based components are disabled by default, because projects developed using Version 8.1.x are not communities-aware.

As part of the upgrade process, the Import Wizard creates a `communities-config.xml` file in the EAR project `/META-INF` directory that defines whether or not the communities-related Visitor Tools are enabled. To enable this functionality, set the flag in the `enable-community-tools` attribute to `true`, as shown in the following example:

```
<?xml version="1.0" encoding="UTF-8"?>
<communities-config
xmlns="http://www.bea.com/ns/portal/90/communities-config">
  <enable-community-tools>true</enable-community-tools>
</communities-config>
```

Upgrading Look & Feels

Portal Look & Feels in WebLogic Portal 8.1 used two configuration files for skins and skeletons (in the `/skins/skin_name` and `/skeletons/skeleton_name` directories): `skin.properties` and `skeleton.properties`. Both were text files, and `skeleton.properties` was optional.

In WebLogic Portal 9.2, both files are now XML.

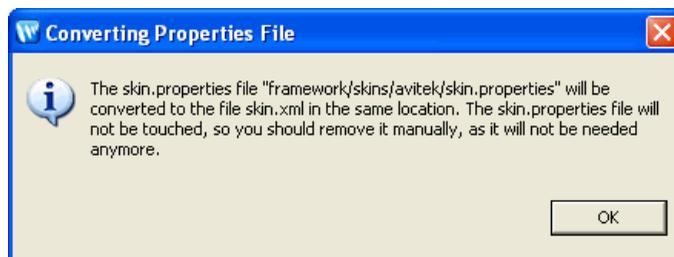
For Version 9.2, it is necessary to use `skin.xml` and `skeleton.xml` to take advantage of new Look & Feel features, although you can still use legacy configurations. Upgrading your old `.properties` files is required.

To upgrade a WebLogic Portal 8.1 Look & Feel to the WebLogic Portal 9.2 format:

1. Make sure the portal application containing the Look & Feel has been converted to WebLogic Portal 9.2, as described in this chapter and in the Workshop for WebLogic documentation.
2. Open the Look & Feel file (`.laf` file).

WebLogic Portal automatically upgrades the associated `.properties` file; informational messages describe the change that occurs during upgrade. [Figure 5-1](#) shows an example:

Figure 5-1 Conversion of Properties File when Look & Feel File is Opened



3. Click **OK** to complete the upgrade.

Upgrading Custom Controls that Have Custom Properties

Version 8.1 custom control annotation definitions are not upgraded to Version 9.2. The means for defining annotations is based on the Java 5 annotations model. To upgrade controls written for version 8.1, you must rewrite the annotations definition in keeping with the new model.

For more information on upgrading your custom annotations, take a look at the Apache Beehive source code for its system controls. These provide annotations that use the new model.

For information on how the control context APIs have changed from Version 8.1, see “Handling Context API Changes” in the Workshop for WebLogic online help.

Upgrading Tuned Thread Pools for Forked Portlets

If you optimized the thread pool used for an 8.1 application that uses forked rendering or forked pre-rendering, and you want to keep those optimizations in the upgraded application, you will need to perform some manual tasks after upgrading.

In Version 9.2, WebLogic Portal uses WebLogic Server's CommonJ WorkManager infrastructure for forked portlet pre-render and render. WorkManagers have similar but not identical configuration parameters, behavior, and deployment options. When you upgrade an 8.1.4+ application, any existing customizations to the `portalRenderQueue` thread pool will not be automatically applied to the default WorkManager used for forking. To tune this WorkManager, configure a WorkManager and associate it with the name `wm/portalRenderQueueWorkManager`. For more information about WorkManagers and thread usage in WebLogic Server 9.2, refer to [“Using Work Managers to Optimize Scheduled Work”](#) in the WebLogic Server documentation.

Upgraded Applications Use Struts 1.1 and Related J2EE Libraries

The Import Wizard includes the Struts 1.1 shared J2EE library for upgraded applications. The Struts 1.1 J2EE library is used to maintain the operability of your upgraded application; before an upgraded application can use Struts 1.2, any code in page flows or portlets with explicit dependencies on Struts 1.1 would need to be manually updated. (For more information, refer to [“Changes in Behavior Between Struts 1.1 and 1.2”](#) on page 5-5.

For new portal web projects, the Struts 1.2 shared J2EE library is included by default, but you can choose Struts 1.1 if desired. BEA strongly recommends that you keep the default setting to use

Struts 1.2 with new applications. Even with upgraded applications, it would be beneficial to use Struts 1.2 if possible, and you might want to experiment with Struts 1.2 to see if any explicit dependencies on Struts 1.1 actually exist.

Changes in Behavior Between Struts 1.1 and 1.2

WebLogic Portal support for Struts is slightly different if you upgrade to Struts 1.2.

Struts 1.1 support in WebLogic Portal will be the same as in previous releases, with the `struts-adapter` taglibs mapped to URIs using `web.xml`. In this case, you should use the `struts-1.1.war` J2EE library instead of the new `struts-1.2.war` J2EE library.

For applications upgrading to Struts 1.2, instead of mapping the `struts` and `struts-adapter` taglibs using `web.xml`, WebLogic Portal now relies on the JSP 1.2 implicit taglib mapping, wherein any `.tld` files in the `META-INF` directory in a JAR are implicitly mapped by the web container to the URI specified in the `tld`. In the case of WebLogic Portal, these are in `struts-adapter.jar`, in the path `META-INF/tlds`.

You can choose to use one of these two methods to upgrade to Struts 1.2:

- Modify all JSPs that use the `struts` taglibs to reference `http://bea.com/struts/adapter/tags-html` and `http://bea.com/struts/adapter/tags-nested` for the HTML and nested taglibs, and `http://struts.apache.org/tags-*` for the remainder of the taglibs that the portal adapter does not override.
- Extract the `.tlds` from both `struts.jar` (in `struts-1.1.war`) and from `struts-adapter.jar` and copy them to `WEB-INF/tlds`. This allows for the case where you want to continue using the explicit `tld` mapping via `web.xml`.

Ampersand Entities in Portal URLs

In past releases, WebLogic Portal used the configuration file `url-template-config.xml` for configuring the form of WebLogic Portal-generated URLs. WebLogic Portal now uses the Beehive equivalent: `beehive-url-template-config.xml`. The previous configuration file contained an element (`generate-xml-amp-entity`) that caused URLs to be generated with ampersand entities instead of characters for parameter separators, that is:

```
http://www...?arg1=foo&arg2=bar (entity)
```

instead of:

```
http://www...?arg1=foo&arg2=bar (character)
```

In the absence of this configuration element, URLs were generated with ampersand characters.

The Beehive equivalent configuration element for ampersand entities is located in the NetUI configuration file, `beehive-netui-config.xml`. The Beehive default for ampersand entities is the opposite of the previous Portal default; in the absence of the configuration element, URLs are generated with ampersand entities.

Portal Framework now uses the NetUI configuration file as the source for this configuration element, and also uses the Beehive semantics. This means that by default, URLs generated by Portal contain ampersand entities. Note that this applies only to HTML configurations – XHTML configurations force ampersand entities in URLs, regardless of configuration setting.

If cases exist where you want to ensure that URLs are generated with characters rather than ampersand entities, you must add that configuration element to the `beehive-netui-config.xml` file.

Upgrading Individual application-config.xml Files Later

Applications created using WebLogic Portal Version 8.1.x used the file `META-INF/application-config.xml` for configuration of various MBeans. In Version 9.2, MBeans have been changed to descriptor beans. Settings previously contained within `application-config.xml` are now in the appropriate descriptor bean configuration files, including:

- `content-config.xml`
- `p13n-config.xml`
- `p13n-cache-config.xml`
- `p13n-security-config.xml`
- `wps-config.xml`

When you import a Version 8.1.4 or later application into Workshop for WebLogic, the import process performs the necessary conversion. For individual instances of the Version 8.1 `application-config.xml` file that you might want to use, you can right-click the file name in the Package Explorer to access the **Upgrade** context menu, which will convert the file.

Correcting Duplicate Portlet Category Names Before Propagating an Upgraded Application

In past releases of WebLogic Portal it was possible, though not recommended, to create more than one portlet category with the same name, at the same level in the hierarchy. In Version 9.2 this operation is not permitted. (You can use the same name for more than one category, but they must not be “peers” in the hierarchy.)

When you upgrade a portal application to Version 9.2, any duplicate portlet category names that were used previously are preserved. It is extremely important that you edit these category names to be unique; otherwise the WebLogic Portal propagation tools might cause unexpected results, or errors might occur during the propagation process.

Upgrading WebLogic Portal Projects to Version 9.2

Integrating Applications into WebLogic Portal

You can use the instructions presented in this chapter to add WebLogic Portal functionality to existing applications. For example, you can:

- Integrate WebLogic Portal into an existing Workshop for WebLogic web application

You can easily transform an existing Workshop for WebLogic web application into a Portal web project by installing the necessary WebLogic Portal–specific facets into it. Then you can give the web application a portal user interface, add personalization and campaign functionality, and take advantage of WebLogic Portal's content and user management services.

- Add more facets into an existing WebLogic Portal application

You might originally have selected not to install Commerce Taglibs in your portal project; you can add that feature later if desired.

Note: Do not add GroupSpace to portal web projects that already contain non-GroupSpace portals. For more information, refer to the *Communities Guide*.

- Incorporate pieces of existing applications into a portal, using portlets.

Regardless of how the application is surfaced, it will maintain the full functionality intended in its design.

This chapter contains the following sections:

- [Integrating an Existing Web Application into Workshop for WebLogic](#)
- [Integrating Struts Applications](#)

- [Integrating Java Server Faces](#)
- [Integrating Page Flows](#)
- [Adding Facets to an Existing Project](#)
- [Other Methods of Integrating an External Web Application into a Portal](#)

Integrating an Existing Web Application into Workshop for WebLogic

Integrating a web application into a WebLogic Portal environment involves the following steps:

- Adding WebLogic Portal project facets into the EAR project.
- Adding WebLogic Portal project facets into the web application project.
- Adding a Datasync project (if you want to use the general service portal services data such as user profiles, user segments, request properties, session properties, and so on).
- Associating your EAR project with a WebLogic Portal-enabled server.

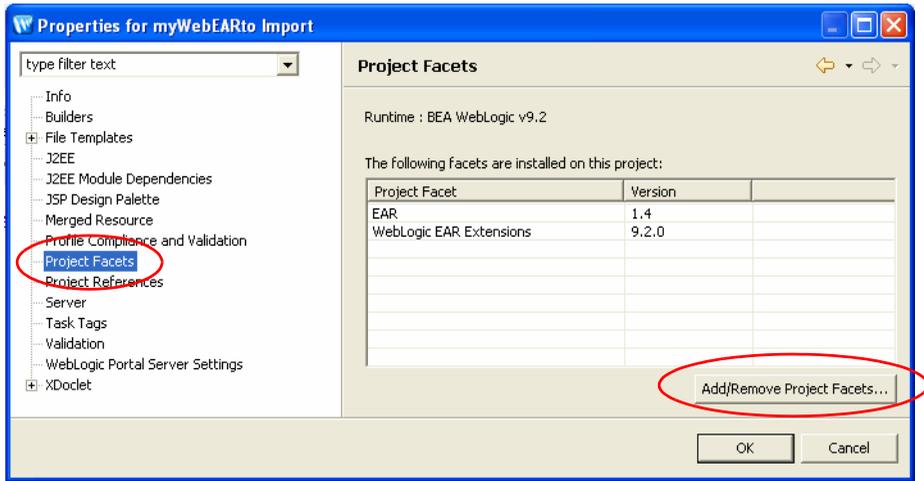
Note: These instructions assume that you have an existing web application that conforms to the requirements of the Workshop for WebLogic Version 9.2 environment, and includes an EAR Project and a Workshop for WebLogic Dynamic Web Project.

To integrate an existing web application into Workshop for WebLogic and add WebLogic Portal functionality, follow these steps:

1. In the Package Explorer view, right-click the EAR Project and choose **Properties**.
2. Select **Project Facets** in the tree that is displayed in the left pane of the dialog.

The project facets associated with this EAR project display in the table, as shown in [Figure 6-1](#).

Figure 6-1 Project Facets Associated with Non-Portal EAR Project



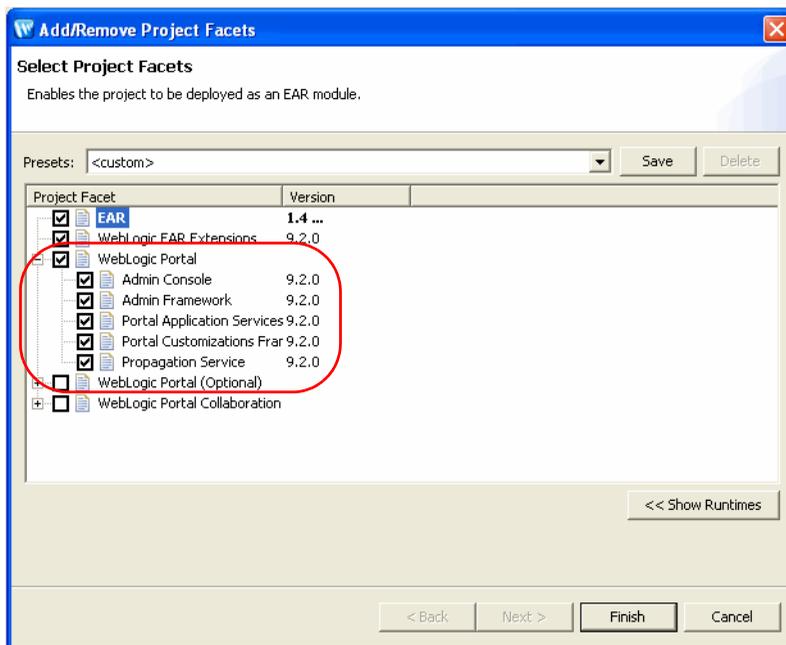
3. Click **Add/Remove Project Facets**.

The **Add/Remove Project Facets - Select Project Facets** dialog displays.

4. Select the WebLogic Portal check box.

All the features for the WebLogic Portal facet are selected by default; the example in [Figure 6-2](#) shows the expanded tree with the WebLogic Portal facet selected.

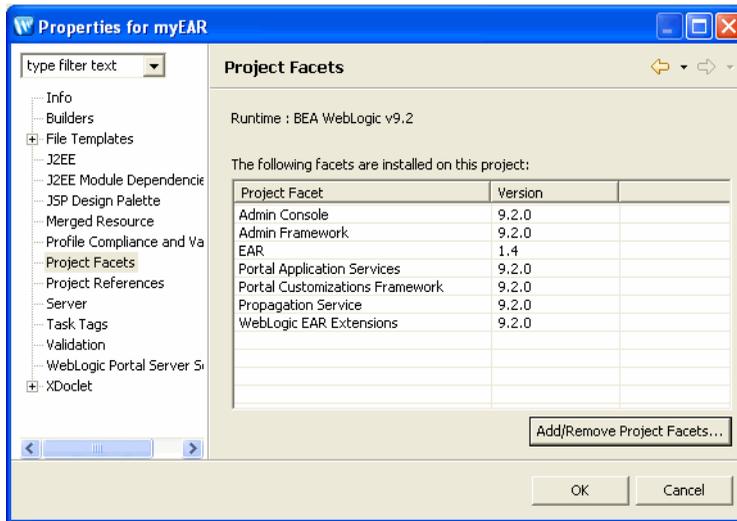
Figure 6-2 Select Project Facets Dialog with WebLogic Portal Facet Selected (and Expanded)



5. Click **Finish**.

The Project Facets table in the properties dialog displays the facets that you just added, as shown in [Figure 6-3](#).

Figure 6-3 Updated Project Facets Display including WebLogic Portal Features



6. Click **OK**.

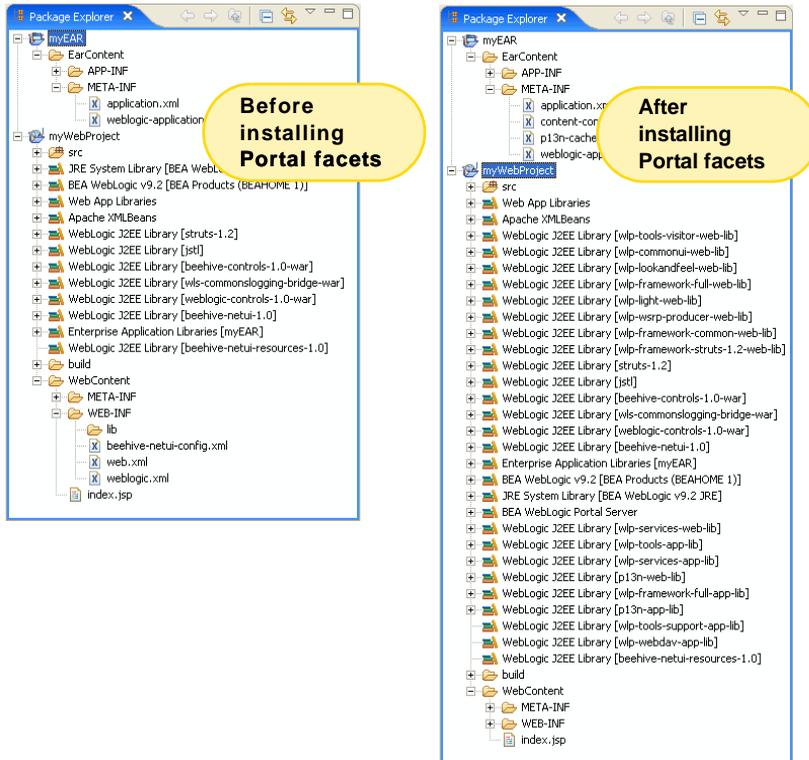
The Package Explorer view includes the new portal-related content.

7. Repeat steps 1 through 6 to add WebLogic Portal facets to the Web Project.

When you are finished, the display in the Properties view includes the WebLogic Portal facets, and the tree in the Package Explorer view shows the added portal-specific shared J2EE libraries.

Figure 6-4 shows an example of the new portal-related content that is added for the EAR project and web project.

Figure 6-4 Package Explorer View of Web Application Before and After Integrating Portal



8. Associate your portal-enabled project with a WebLogic server that is customized for use with WebLogic Portal. If you need to create a new server that is enabled for use with WebLogic Portal, refer to “[WebLogic Domain Configuration Wizard](#)” on page 4-5.

You can now use WebLogic Portal features to create, assemble, and manage a portal environment.

Note: Do not add GroupSpace to portal web projects that already contain non-GroupSpace portals. For more information, refer to the [Communities Guide](#).

Integrating Struts Applications

You can integrate, or import, a Struts application into an enterprise application in Workshop for WebLogic. Once in Workshop for WebLogic, you can give the Struts application a portal user

interface by creating portlets, add personalization and campaign functionality, and take advantage of WebLogic Portal's content and user management services.

This topic contains the following sections:

- [Preparing Your Struts Application for Integration](#)
- [Integration Steps](#)
- [Best Practices and Development Issues](#)

Preparing Your Struts Application for Integration

Follow the guidelines presented in this section as you prepare your existing Struts application for integration with WebLogic Portal:

Refactor

If you have a top-level Struts application, you must refactor it before you can integrate it. Any Struts applications that are intended for use in a portal must be developed as Struts modules, including the usage of the `html:link` tag for any URLs used in JSPs. Without this, it is impossible for WebLogic Portal to perform the necessary URL rewriting that is required to transparently modify links when the Struts application is used within a portlet.

As part of this process, modify your application to use WebLogic Portal tags using either of these methods:

- Rely on the taglib mapping in `web.xml` to map the WebLogic Portal struts adapter tags to the URI that you already have in your JSPs; this allows you to use your existing JSPs.
- To use Struts 1.2, which is the default version of Struts used for new portal web projects, BEA recommends that you change your JSPs to use WebLogic Portal taglib URIs; this prevents you from having to change your `web.xml` file, and provides the benefit that these taglibs are automatically deployed.

Add Tags if Needed

If a Struts application used within a Portal also needs to support stand-alone operation, JSPs referenced by Action forwards must be authored to use several optional tags in the HTML tag library found in `struts.jar` and `struts-adapter.jar` (a file that is created by BEA). The first of these, `<html:html>`, is found in both Struts and the Struts-adapter. The Struts-adapter version overrides the Struts version of the tag and adds support for detecting whether or not to inhibit rendering of the tag output text if it is used from within a portal, where outputting the HTML text

would result in non-well-formed HTML. Two additional tags are provided in the Struts-adapter version of the HTML tag library; use them in JSPs that also need to be used standalone: `<html:head>` and `<html:body>`. These two tags have the same portal-aware rendering behavior as the `<html:html>` tag.

Override Certain Behaviors of a RequestProcessor

Some Struts applications use a custom RequestProcessor. WebLogic Portal Struts integration requires that you override certain behaviors of a RequestProcessor. The class `com.bea.struts.adapter.action.AdapterRequestProcessor`, located in `struts-adapter.jar`, provides this standard behavior and must be used in all Struts applications used within a portal. Any custom RequestProcessors must either extend this class or use a utility class to perform the same required operation that this RequestProcessor performs. When extending this class, overrides of `doForward()` must call the superclass `doForward()` and also must not attempt to write to the response. Custom RequestProcessors that do not extend `AdapterRequestProcessor` must call `com.bea.struts.adapter.action.AdapterRequestProcessorUtil.forwardUsingRequest()` to perform any forwarding operations. (This method replaces an actual `RequestDispatcher` forward request with an operation that simply captures the forward URI for later use in including the URI into the portal output.)

Refactor any Existing Custom Action Servlet

If a Struts application depends on the use of a custom Action servlet, it must be refactored to use a custom RequestProcessor instead, as outlined above, and as recommended by the Struts implementation. Since the page flow functionality in WebLogic Portal uses a custom Action servlet, and since there can be only one Action servlet in a portal web project, portal Struts integration requires that the Action servlet not be customized. For more information on refactoring an Action servlet customization into a RequestProcessor customization, see the Struts documentation at <http://jakarta.apache.org/struts/>.

Remove the `<html:link>` Tag

The `StrutsContent` control supports module switching using Action forwards. If the Action forward returned by an invoked Action results in a content URI that resides in another module, the current module is switched to the corresponding new module, and all further requests to the Struts portlet containing the control are performed using the new module. Perform module switching using only Action forwards, not by using the `<html:link>` tag to directly link to a JSP in another module; doing so might prevent the portal and Struts frameworks from correctly setting up and selecting the module.

Integration Steps

Perform these steps to integrate your refactored Struts application:

1. Create a portal application and portal web project to which you will add the Struts application. For instructions, refer to [Chapter 4, “Setting up Your Portal Development Environment.”](#) Struts support is added automatically when you create a portal web project.
2. You may or may not need to perform this step. In order for URLs in the Struts pages to resolve correctly, page flow support must be enabled. By default, page flow support is enabled, but if the page flow setting has been disabled at some point, you must edit the portal web project's `WEB-INF/netuix-config.xml` file to enable it. [Listing 6-1](#) shows the syntax of the tag that you might need to add to the `netuix-config.xml` file. Notice that the `<enable>` element is set to true.

Listing 6-1 Enabling and Disabling Page Flow Support Using the `<pageflow>` Tag

```
<!-- Enable or disable Pageflow support -->
<pageflow>
  <enable>true</enable>
</pageflow>
```

If this block is not present in `netuix-config.xml`, do not add it. Without the block, the setting defaults to true.

3. Deploy the Struts application to the portal web project.
 - Note:** The following steps assume a deployment structure that is not based on split-source; your specific steps might differ from these example steps.
 - a. Copy any JSP, HTML, or image files into the portal web project following the standard Struts module directory structure (the module path is the directory path relative to the web application root).
 - b. Copy any supporting Java source used by the Struts application into the project's source folder, typically `Web_Project_Name/src`.
 - c. Copy any necessary custom JARs for the Struts application into `WEB-INF/lib` folder.

- d. Copy the Struts application module's `struts-config.xml` or module configuration file into `WEB-INF`, but rename it `struts-auto-config-<module-path>.xml`, where `<module-path>` is the module path to the Struts application relative to the web application root, with all instances of `'/` or `'\` changed to `'-`.

For example, if the module path is `/struts/my/module`, then rename `struts-config.xml` to `struts-auto-config-struts-my-module.xml`. Naming the module configuration file in this manner enables the `PageFlowActionServlet` used as the Action Servlet to automatically register the module without explicitly registering it with an `init-param` in `web.xml`. If you don't want to take advantage of this functionality, you can rename `struts-config.xml` arbitrarily, but you must manually register the module in `web.xml` as usual for a Struts 1.1 or 1.2 (Beehive) module.

- e. In the module configuration file, add the following line to configure the RequestProcessor that is required for portal integration:

```
<controller processorClass="com.bea.struts.adapter.action
    .AdapterRequestProcessor"/>
```

(unless the Struts application requires a custom RequestProcessor).

4. Create a portlet that contains a `StrutsContent` control that specifies the module and the default action for the Struts application. For instructions, refer to the [Portlet Development Guide](#).
5. Add the new portlet to the portal. For instructions, refer to the [Portlet Development Guide](#).

Best Practices and Development Issues

Use the following guidelines for integrating Struts applications in portals:

- It is highly recommended that you fully develop and test a Struts application before attempting to host it within a portal. This helps to separate the complexities of simply developing a working Struts application from the additional issues involved in putting the Struts application into a portlet.
- If you encounter stack traces or messages in the Struts application portlet showing that an action cannot be found, ensure that the module is correctly configured, named correctly, and registered in `web.xml`. This can be tested by running the Struts application stand-alone.
- If you encounter resource not found exceptions or class not found exceptions for dependent classes:

- Make sure that all dependent Java source exists in WEB-INF/src, and that it has successfully been built into the corresponding class files in WEB-INF/classes.
- If more than one message-resource element is specified in the Struts configuration file for the module, any module files that reference a non-default message bundle must append the module path to the bundle key. For example, if the bundle key is alternate, and the module is /my/module, any users of the bundle must fully qualify it as alternate/my/module.
- If following action links in a Struts portlet results in full-screen, stand-alone Struts pages, make sure that struts-adapter JSP tag libraries are in the project's WEB-INF/lib directory and that they are registered in web.xml.
- If the “No ActionResult returned for action” error is returned when the action attribute of an html:form element contains a query parameter, use a hidden html:text input field.

Integrating Java Server Faces

Generally the integration process for JSF is simple, requiring only that you follow the instructions accompanying the distribution of JSF that you are using. The portal-specific tasks for incorporating a JSF application into WebLogic Portal are:

- Create a `.portlet` file with a `facesContent` control.
- Insert the `namingContainer` JSP tag as an immediate child of the JSF view tag.

This step is optional but BEA highly recommends it. For more information about this tag, refer to [“JSF and the namingContainer JSP Tag” on page 6-11](#).

The following section contains more information about the `namingContainer` JSP tag.

JSF and the namingContainer JSP Tag

The purpose of the `namingContainer` JSP tag is to ensure generation of unique IDs on a page. Currently the JSF architecture does not provide an explicit hooking mechanism to override default component ID generation. JSF uses a hierarchical namespace for components on a page, and JSF automatically generates unique IDs for the components on a page; however, because JSF is not “aware” of the portal, it might generate non-unique component IDs on a page. For simple forms you would not likely experience this problem, but if you use JavaScript on a page and non-unique IDs are generated, the Javascript might target the wrong component.

For more detail on the implementation of JSF in WebLogic Portal, refer to the *Javadoc* for the package `com.bea.portlet.adapter.faces`.

Integrating Page Flows

If you have an existing non-portal application with page flows, you can integrate those page flows into a portal by installing the WebLogic Portal-related facets using the steps described in [“Integrating an Existing Web Application into Workshop for WebLogic” on page 6-2](#); then you surface those page flows using portlets. You can also build new page flows within the portal web project before creating page flow portlets.

For instructions on creating a page flow, refer to the documentation for Workshop for WebLogic. For instructions on creating page flow portlets, refer to the “Building Portlets” chapter in the [Portlet Development Guide](#).

In order for URLs in the page flows to resolve correctly, page flow support must be enabled. By default, page flow support is enabled, but if the page flow setting has been disabled at some point, you must edit the portal web project's `WEB-INF/netuix-config.xml` file to enable it.

[Listing 6-2](#) shows the syntax of the tag that you might need to add to the `netuix-config.xml` file. Notice that the `<enable>` element is set to `true`.

Listing 6-2 Syntax of the `<pageflow>` Tag to Enable Page Flow Support

```
<!-- Enable or disable Page Flow support -->
<pageflow>
  <enable>true</enable>
</pageflow>
```

If this block is not present in `netuix-config.xml`, do not add it. Without the block, the setting defaults to `true`.

Adding Facets to an Existing Project

You can add a project facet to your EAR project or portal web project later, after you have created it. For example, in your portal web project you might originally have selected not to install the facet that enables visitor tools, but you might decide later that you want to use this feature.

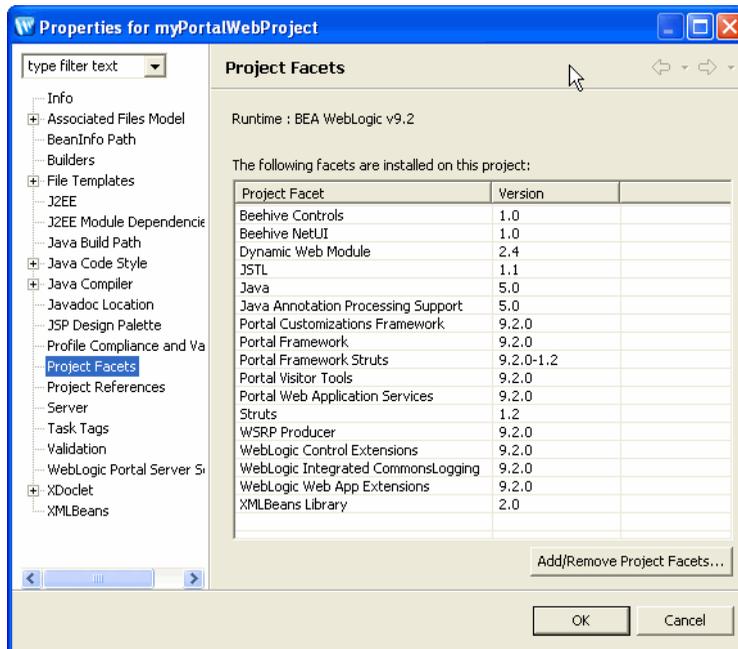
Note: Do not add GroupSpace facets to portal web projects that already contain non-GroupSpace portals. For more information, refer to the [Communities Guide](#).

To add a facet to an existing EAR project or portal web project, follow these steps:

1. Right-click the EAR project or portal web project to which you want to add a facet, and select **Properties**.

The Properties dialog displays; an example is shown in [Figure 6-5](#).

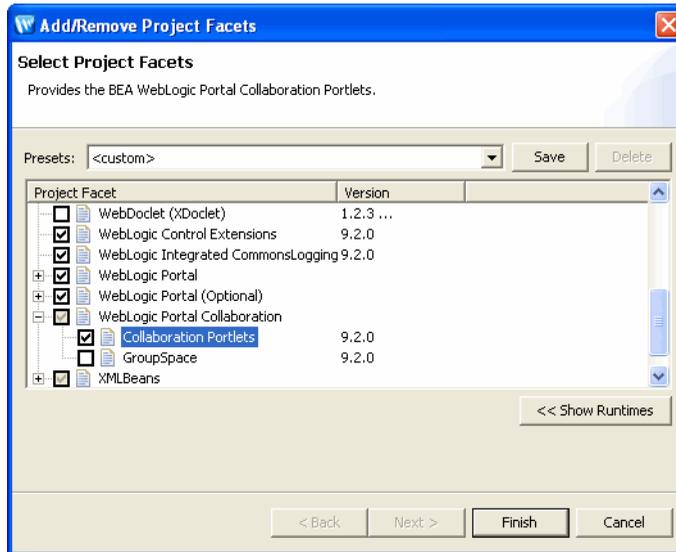
Figure 6-5 Example Properties Dialog Displaying Installed Project Facets



2. Click **Add/Remove Project Facets**.
- The **Add/Remove Project Facets** dialog displays.
3. Expand the Project Facet nodes in the tree as needed and select the check boxes for any facets that you want to add.

[Figure 6-6](#) shows an example for a typical portal web project with Collaboration Portlets selected for addition.

Figure 6-6 Example Add/Remove Project Facets Dialog with Collaboration Portlets Selected



4. Click **Finish**.

The facets are added and then displayed in the list of facets in the Properties dialog.

5. Click **OK** to close the dialog. The new facets are now available to your project.

Other Methods of Integrating an External Web Application into a Portal

A recommended method of integrating a web application’s functionality into a portal is to incorporate the application into Java page flow portlets, but this implementation could be difficult if the application is not based on the MVC architecture, Java, or Struts. In these cases you can continue to host the application externally from the portal project but surface its content within WebLogic Portal.

The alternative implementations generally rely on a JSP portlet acting as a sort of proxy, which allows the existing web application to remain intact. Some possible implementations for JSP “proxy” portlets include:

- Creating a JSP portlet that is identical to the home page of the web application, but altering each link to use JavaScript that pops up a new browser window. This allows you to leverage the existing application while providing a way to interact with the portal.

- Using an IFRAME in the portlet to contain the web application. The internal frame acts as an embedded browser window that the user interacts with independently of the parent browser.
- Using a third-party screen scraping product such as Kapow within the portlet.

Web Services for Remote Portlets (WSRP) provides another alternative implementation, but this implementation requires the legacy server to support SOAP and WSDL, and works best with existing applications designed using MVC.

WebLogic Portal supplies a utility JSP tag called `uriContent` that you can use to retrieve an HTTP response document from a given URI. The *browser portlet* uses the `uriContent` tag (Content URL) to surface an external web application in a portal, using a portlet. For more information about the browser portlet, refer to the [Portlet Development Guide](#).

Integrating Applications into WebLogic Portal

User Interface Development with Look & Feel Features

This chapter describes how to use the portal framework to develop the overall appearance and behavior of the portal you develop in Workshop for WebLogic. You will be able to look at a rendered portal in a browser and understand which pieces of the underlying framework that you need to modify to obtain the results you want. In addition, the Look & Feel editor is discussed. The Look & Feel editor lets you interactively modify the text styles used by a portal.

This chapter includes the following sections:

- [Introduction](#)
- [Developing Look & Feels](#)
- [Overriding Existing Look & Feels](#)
- [Troubleshooting Look & Feels](#)
- [The Look & Feel Editor](#)
- [Using the Look & Feel API](#)
- [Working with Shells](#)
- [Working with Layouts](#)
- [Working with Navigation Menus](#)
- [Building User Interfaces to Address Accessibility Guidelines](#)

Introduction

At the heart of WebLogic Portal's rendering framework is the Look & Feel framework. Look & Feel determines the appearance of your portal applications, from the placement and behavior of elements on a portal page to the colors used in the portlet title bars.

As part of the dynamic portal rendering framework, the Look & Feel can be modified by portal developers in their application code, portal administrators in the staging and production environments, and even by end users in the production environment with WebLogic Portal's visitor tools, providing a powerful level of user interface customization.

Following are the key elements involved in the Look & Feel framework:

- Look & Feel file
- Skins
- Skeletons
- Themes
- Chromosomes and Genes
- Shells
- Layouts
- Menus

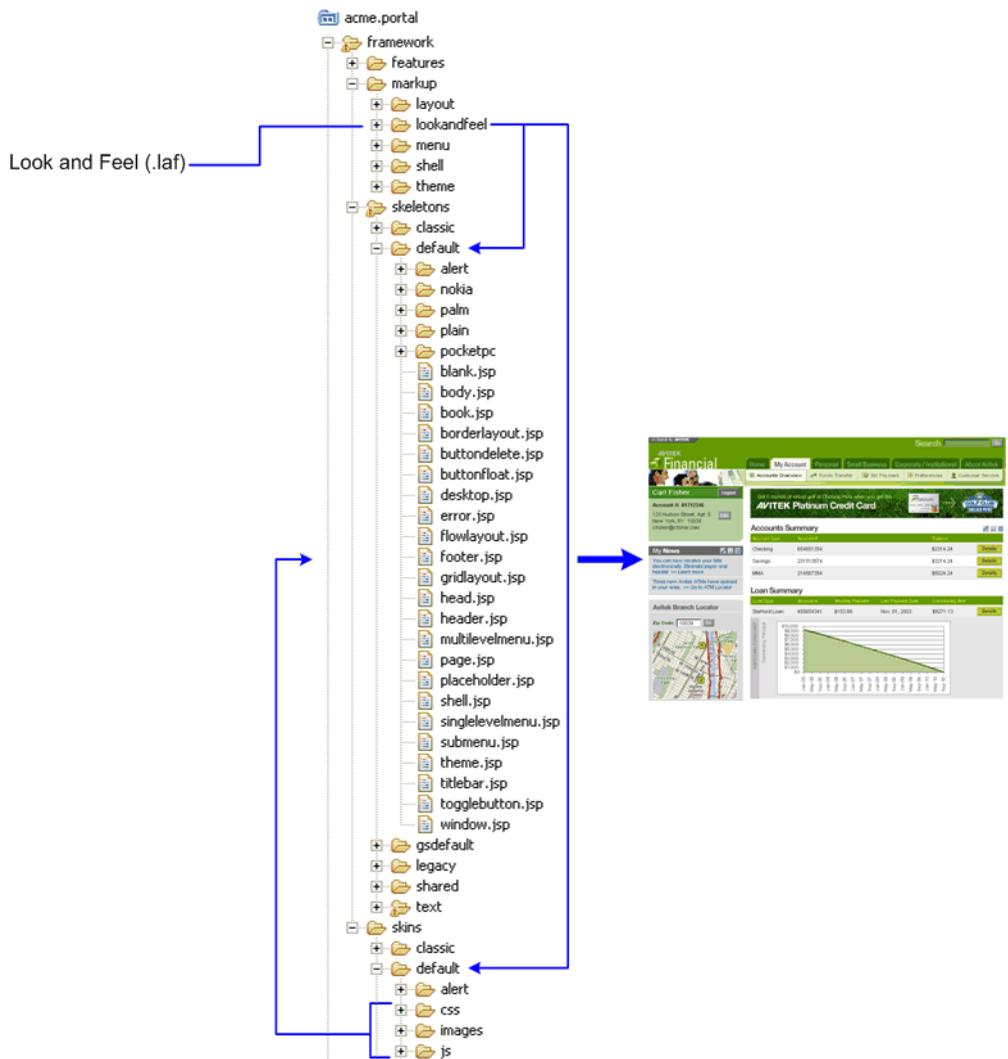
This section briefly describes each component. The sections that follow describe how to create and work with these components.

Look & Feel File

A Look & Feel file (.laf) is an XML block that is inserted into the overall .portal XML file. The Look & Feel file is relatively simple. It references a specific skin and skeleton. The skin provides a set of images, JavaScript functions, and CSS files, which are in turn referenced by the skeleton JSPs that convert the portal XML components to the final HTML output, as shown in [Figure 7-1](#).

When you select a different Look & Feel for a portal, you potentially change the skin and skeleton that is used to render the portal.

Figure 7-1 Look & Feel Framework



Look & Feel files also optionally let you reference skin and skeleton chromosomes, described later.

Skins

Skins provide the overall colors, graphics, and styles used by all components in a desktop interface. From the perspective of WebLogic Portal, skins are collections of images, cascading style sheets (CSS), and JavaScript files that allow changes to be made to the Look & Feel of a portal without modifying the portal components directly. References to images and styles are made in the skin rather than being hard coded into the portal definition.

The skeleton JSPs that convert the portal XML to HTML include references to specific image names (portlet titlebar buttons, for example), CSS styles, and JavaScript functions.

Skeletons

The portal rendering framework turns the XML that makes up a portal file into HTML that end users see in a browser. The conversion to HTML happens through JSPs. These JSPs make up a skeleton.

The skeleton provides the physical boundaries of the portal components and provides references to the images, CSS classes, and JavaScript functions from the skin needed to render the portal. A portal web project can have multiple skeletons. When you select a Look & Feel for a desktop, a specific skin and skeleton is used.

Each type of portal component, from a desktop to a portlet's title bar, has an associated JSP file, called a skeleton file that renders it. Some skeleton files are simple, others are more complex. For example, each desktop uses a skeleton file called `shell.jsp` that provides the opening and closing `<HTML>` tags to render the desktop. A portlet title bar, on the other hand, has a skeleton file called `titlebar.jsp` that is more complex. It references the button graphics to use on the title bar and contains logic to determine the relative placement of title bar elements.

Themes

Themes provide a way to override the Look & Feel on books, pages, or portlets, allowing those components to look or behave differently than the rest of the portal desktop Look & Feel. For example, you can set a theme on a portlet that displays a jagged portlet border, turns the portlet title bar red, and displays different portlet title bar buttons.

You can use themes in the skins and/or skeletons. In the previous example, the skeleton theme would control the jagged portlet border, and the skin theme would contain the modified CSS and title bar images.

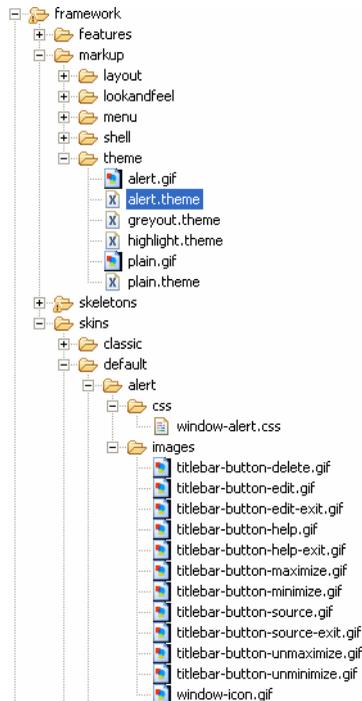
Skin and skeleton themes are made up of the same types of resources as regular skins and skeletons. The theme skins and skeletons typically provide only the files necessary to override

the overall Look & Feel, though full look and feels can also be used as themes. Themes can also be used as Look & Feels. [Figure 7-2](#) shows the types of resources included in a theme:

- The .theme file is a simple XML file that provides the name of a theme, and provides that theme name in drop-down menus for selection by developers, portal administrators, or end users.
- The theme resources. In this example, the “alert” theme is a subdirectory of the “default” skin, which in turn contains its own Look & Feel resources. If the alert theme is selected for a book, page, or portlet, the portal framework looks in the structure.xml file in the Look & Feel’s /skin or /skeleton directories for theme locations. If no structure.xml file is present, the framework looks for /alert skin and skeleton subdirectories under whichever Look & Feel is being used. If found, the files in the /alert subdirectory take precedence over or are used in addition to the files used in the parent Look & Feel.

For example, if the alert theme provides a titlebar.jsp skeleton file, the portal framework uses that skeleton file instead of the parent skeleton’s titlebar.jsp file.

Figure 7-2 Theme Resources



Genes and Chromosomes

Genes, an optional feature in a Look & Feel, give you an extra level of flexibility, control, and ease of maintenance in working with Look & Feels. A gene defines a particular characteristic of a Look & Feel, such as a CSS color property, that can be referenced as a variable in your Look & Feels.

If, for example, a Look & Feel is defined to have a gene named `wlp.portlet.border.color`, you can use that gene name in your CSS files rather than a literal color definition. If that gene is defined to be the color value `#ff0000`, any CSS that uses that gene variable gets that color value. You only have to modify the color value in the gene definition to automatically update all CSS files that use that gene.

Chromosomes are simply the files that contain one or more genes. You can create multiple chromosome files that contain the same gene names, though with different gene values. By simply referencing a different chromosome in your Look & Feel file, you can simulate a completely different Look & Feel without changing any of your core Look & Feel files.

You can also use genes in your JavaScript functions.

Using genes provides the following advantages in your Look & Feels:

- Simplified Look & Feel customization for minor modifications such as color scheme changes.
- Convenient facility to support the generation of dynamic values in associated CSS files or JavaScript files.
- Easier implementation of branding, allowing one Look & Feel to be used for multiple brands. For example, by creating a new chromosome that provides different values for genes that are used in the Look & Feel, you can reference that new chromosome in the Look & Feel file and provide different appearance and behavior for the existing Look & Feel.
- Global parameterization capabilities. For example, genes can be used to share a set of global properties to toggle the rendering of certain portal-wide features.

Shells

Shells define the header and footer regions of a portal. You can include portlets, JSPs, and HTML files in a shell to define the content displayed in the header or footer.

Layouts

Layouts, used by portal pages, provide structure that determines where you can place portlets and books within a page. Layouts can be implemented, for example, using HTML Tables or CSS-based approaches.

Menus

Menus determine the navigation style used for your portal pages. WebLogic Portal provides two types of menus: single-level for single rows of tabs and multi-level for nested, drop-down style page navigation.

Developing Look & Feels

WebLogic Portal provides a few default Look & Feels you can use in your applications. You can modify these existing Look & Feels to meet your needs, or you can create your own Look & Feels.

This section describes how to develop custom Look & Feels. However, if you simply want to make small modifications to an existing Look & Feel, you do not need to develop a custom Look & Feel. See [“Overriding Existing Look & Feels” on page 7-18](#).

For GroupSpace applications, you can find information on modifying the default Look & Feel or creating a new new Look & Feel in the [GroupSpace Guide](#).

Using Legacy Look & Feels

You can use Look & Feels created in WebLogic Portal 8.1 by simply importing them into your 9.2 portal web project (into the proper directories). You do not need to upgrade your legacy Look & Feels unless you want to use new features such as genes.

To upgrade a legacy Look & Feel, open the .laf file in Workshop for WebLogic Platform 9.2 from your portal web project. You are prompted to create the skin.xml and skeleton.xml files used in 9.2. After creating these new files, you are ready to use the new WebLogic Portal Look & Feel features.

Note: In WebLogic Portal 8.1, skin.properties files could also contain settings for themes. In WebLogic Portal 9.2, themes are stand-alone Look & Feels that use their own skin.xml files. If your WebLogic 8.1 skin.properties files contain theme details that you want to reuse in your WebLogic 9.2 Look & Feels, you must manually add those theme settings to your theme skin.xml files.

Creating a Look & Feel

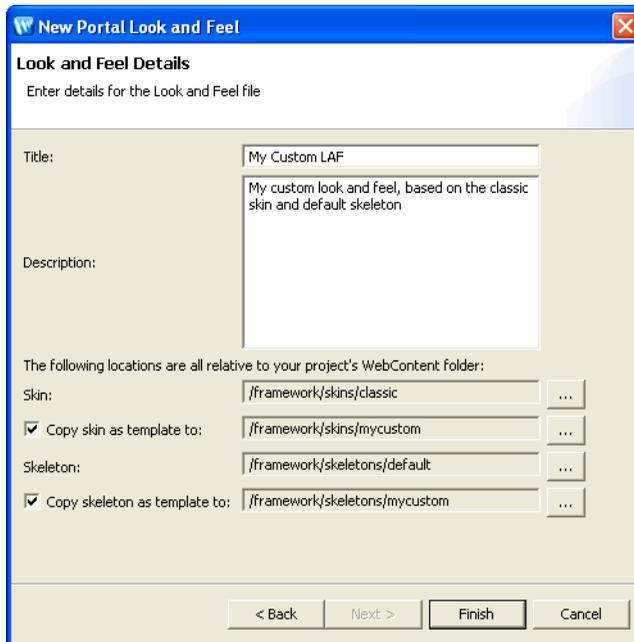
When you create a new Look & Feel, you use an existing Look & Feel as the basis for your new Look & Feel. Using an existing Look & Feel—especially one of WebLogic Portal’s predefined Look & Feels—ensures that you always have the necessary Look & Feel files necessary for properly rendering your portals.

Before you create a Look & Feel file, decide which existing skin and skeleton provides the best basis for your new Look & Feel.

To create a Look & Feel:

1. In Navigator view, right-click your portal web project and choose **New > Other > WebLogic Portal > Look & Feel**. A wizard appears to guide you through the rest of the process.
2. After you name your new Look & Feel, you see the window shown in [Figure 7-3](#).

Figure 7-3 Creating a Look & Feel



In this window, you can select an existing Look & Feel to use as the basis for your new Look & Feel. Use the following instructions for guidance:

- Click the ellipsis icon next to skin and skeleton to select which skin and skeleton you want to use as the basis of your new Look & Feel. To select a skin, you must select the `skin.properties` or `skin.xml` file. To select a skeleton, you must only select the skeleton directory.

If you want to make a large number of skin and/or skeleton overrides:

- You can optionally copy all the skin and/or skeleton resources for the selected resource. This copies all the files from the template skin or skeleton to your file system, into a directory you specify. Select the “Copy as template” option, and click the ellipsis icon to select or create your skin and/or skeleton directories. This copies all the Look & Feel files from the template skin or skeleton to your file system, where all the files override the files in the template skin or skeleton. If you delete one or more of the files in your Look & Feel, those files in the template Look & Feel are used by the portal framework.

You can use this option for just the skin, just the skeleton, or both.

If you want to make relatively few overrides to the selected skin and/or skeleton:

- If you do not select the “Copy as template” option, you must manually create your skin and skeleton directories and files in the `/skins/<your_skin>` and `/skeletons/<your_skeleton>` directories. In this case, you do not have to create a full set of skin or skeleton files. You need to create only the skin or skeleton files that will override the files in the base skin or skeleton you selected.

For example, if you use the “classic” skin as the basis of your new Look & Feel, and you create only a `<your_skin>/images/titlebar-button-edit.gif` file, that graphic overrides the graphic in the classic skin. All other classic skin resources are used for your Look & Feel.

3. After you click Finish, you may be prompted to create a `skeleton.xml` file. Click OK. If you are copying a legacy Look & Feel that uses a `skin.properties` file, you are prompted to create a `skin.xml` file. Click OK.

Each Look & Feel must have a `skin.xml` and `skeleton.xml` file.

4. The new Look & Feel is opened in the Look & Feel editor.
5. Create a 100x75 px .gif that represents the Look & Feel in the same directory as the .laf file. This image appears in the visitor tools when end users select Look & Feels for their own customized view of a portal desktop.

The following sections provide guidance on working with your new Look & Feel, including the Look & Feel editor.

Working with Skins

Skins are the graphics, cascading style sheets (CSS), and JavaScript behaviors that define button graphics, text styles, colors, mouseover actions, and other elements in the way a portal looks and behaves. Skins, combined with skeletons, make up a portal desktop's Look & Feel.

Each skin has its own `/images`, `/css`, and `/js` (JavaScript) subdirectories that contain its skin resources. Create and store your Look & Feel images, CSS files, and JavaScript files in these directories. You can also store global Look & Feel resources in a common location outside of a skin's root directory. A skin knows which resources to use based on its `skin.xml` file, stored in the skin's root directory. The `skin.xml` tells the skin which paths to look in to find image, CSS, and JavaScript files that the Look & Feel uses.

Use the following guidelines when configuring a `skin.xml` file:

- The `<target-skeleton>` section specifies the skeleton to use if no skeleton is specified in the Look & Feel file.
- The `<images>` section lets you set the paths the skin should use to find images. For example:

```
<skin>
<images>
  <search-path>
    <path-element>images</path-element>
    <path-element>../default/images</path-element>
  </search-path>
</images>
</skin>
```

This block tells the skin to look in the skin's `images` subdirectory, and for any files it cannot find in that directory to look for in the default skin's `images` directory.

Search paths are relative to the skin directory.

- The `<render-dependencies>` section lets you determine how CSS styles and JavaScript functions are inserted into the `<head>` region of the HTML.
 - The `<search-path>` child element of `<links>`, `<scripts>`, and `<styles>` serves the same purpose and behaves the same as it does for images.
 - Use the `<links>` section if you want to insert references to CSS files in the HTML `<head>` area.
- To reference JavaScript files:

```

<html>
<scripts>
  <script src="my.js" type="text/javascript" />
  <search-path>
    <path-element>js</path-element>
    <path-element>../default/js</path-element>
  </search-path>
</scripts>
</html>

```

If you want to inline JavaScript functions in the HTML output (for example, if you are using genes), use the following types of entries:

```

<html>
<scripts>
  <script content-uri="my.js" type="text/javascript" />
</scripts>
</html>

```

or

```

<html>
<scripts>
  <script type="text/javascript">
    alert("Hello World!");
  </script>
</scripts>
</html>

```

- If you want to inline CSS style definitions in the HTML output (for example, if you are using genes), use the following types of entries:

```

<html>
<styles>
  <style content-uri="my.css" type="text/css" />
  <search-path>
    <path-element>css</path-element>
    <path-element>../default/css</path-element>
  </search-path>
</styles>
</html>

```

or

```

<html>
<styles>
  <style type="text/css">
    .bea-portal-body
    {
      margin: 0px;
      padding: 0px;
    }
  </style>
</styles>
</html>

```

```
        background-color: #ffffff;
        font-family: Verdana, Arial, Helvetica, sans-serif;
        color: #000000;
    }
</style>
<search-path>
    <path-element>css</path-element>
    <path-element>../default/css</path-element>
</search-path>
</styles>
</html>
```

- Create a structure.xml file in the skin's root directory, which lets you specify:
 - The paths to any themes that correspond to the skin. You can also set paths to Look & Feel's that you want to use as themes, assuming you have created a .theme file that corresponds to that Look & Feel.
 - The paths to any resources that correspond to different device classification.
 - Any localization subdirectories.

Following is a sample structure.xml file:

```
<?xml version="1.0" encoding="UTF-8"?>
<structure
xmlns="http://www.bea.com/servers/portal/framework/laf/1.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.bea.com/servers/portal/framework/laf/1.0
.0 laf-structure-1_0_0.xsd">
    <specializations>
        <localizations>
            <localization locale="ja"/>
        </localizations>
        <classifications path="classifications">
            <classification name="nokia"/>
            <classification name="mozilla"/>
        </classifications>
    </specializations>
    <themes>
        <theme name="red_theme" path="../../redtheme"/>
        <theme name="holiday" path="holiday"/>
    </themes>
</structure>
```

Best Practices

- Create a `structure.xml` file in each skin directory. Using this file gives you flexibility in the location of the themes and classification Look & Feel files, and supports Look & Feel localization.
- For best performance, reference your CSS and JavaScript files rather than inlining them in the HTML.
- If you are using genes (see [“Working with Genes” on page 7-16](#)), you must inline the CSS styles and JavaScript functions that use genes.

Note: Skeletons hard code the names of Look & Feel resources, such as CSS style names, JavaScript functions, and image names. If you rename resources from their default names, you must also modify those names throughout your skeleton JSPs.

About Portlet Title Bar Icons

The icon graphics used in portlet title bars are stored in a skin `/images` directory. The names of these graphics are declared in the portal web project's `WEB-INF/netuix-config.xml` file to determine which of these graphics to use for the portlet's different states and modes (minimize, maximize, help, edit). If you want to change the name of the graphics used for the portlet title bar icons, change the filenames and the corresponding entries for those graphics in `netuix-config.xml`.

Working with Skeletons

A portal desktop is a collection of portal components, such as books, pages, and portlets, that have a hierarchical relationship to each another. (Books contain pages, pages contain portlets, and so on.) Since portal components are largely XML files, rendering them in a browser requires a conversion to HTML. That rendering is the function of skeletons.

Each portal component has one or more corresponding skeleton JSP files, located in the `<web_project>/framework/skeletons` directories. For example, a portlet title bar has a corresponding skeleton JSP file that renders it. When a portal desktop is rendered, the skeleton JSPs for each portal component (in conjunction with any related classes) perform their logic and insert the resulting HTML into the correct hierarchical locations of the HTML file.

Skeletons, combined with skins, make up a portal desktop's Look & Feel. When you select a Look & Feel for a portal desktop, the Look & Feel points to the skeletons and skins to use.

If you open a skeleton JSP, you will notice that it contains `<render:beginRender>` and `<render:endRender>` sections. During the rendering process, each skeleton is called twice. This

allows the HTML hierarchy to be properly built. For example, a portlet title bar's own beginRender section is output, followed by the beginRender of the title bar's children, the buttons. Since buttons do not have children, their endRender sections are then output. Finally, after all buttons have fully rendered, the title bar's own endRender section is output.

Skeletons also use the WebLogic Portal API to get specific types of information, such as presentation context and style overrides that developers may enter in the Properties view for a selected component.

In summary, skeleton JSPs combine API calls, JSP tags, and HTML snippets to ultimately render a portal desktop in HTML.

WebLogic Portal provides a set of skeletons in the Look & Feels it provides. This section provides guidance on developing your own skeletons for your own Look & Feels. One example of when you might want to create your own skeleton is if you want to provide appropriate rendering on a particular mobile device.

Each skeleton you create must have its own skeleton.xml file in the your skeleton's root directory.

Use the following guidelines when developing your own skeletons:

- If you want to use CSS styles and JavaScript functions in your skeletons to help control behavior, reference those CSS files/styles and JavaScript files/functions in the skeleton.xml file the same way you reference them in a skin.xml file.
- In skeleton.xml, you can also control content types or doctypes to help ensure proper rendering. For example:

```
<skeleton>
<render-format>
  <preset>HTML_4_01_TRANSITIONAL</preset>
</render-format>
</skeleton>
```

The <preset> elements allows values for XHTML_1_0_STRICT, XHTML_1_0_TRANSITIONAL, HTML_4_01_STRICT, HTML_4_01_TRANSITIONAL, HTML_4_01_STRICT_NO_SYSTEM_ID, HTML_4_01_TRANSITIONAL_NO_SYSTEM_ID, HTML_3_2, and NONE.

- You can define your own <custom-htmlType> or <custom-xhtmlType>, using <doctype-public-id> and <doctype-system-id> child elements. In addition, the <custom-xhtmlType> element provides <namespace-uri> and <schema-system-id> child elements.
- You can provide content type overrides for individual types of devices, such as mobile devices, using:

```
<content-type-overrides>
  <override classification="nokia"
  content-type="application/xhtml+xml" />
</content-type-overrides>
```

where classification is the name of a device type defined in WEB-INF/client-classifications.xml; and content-type can also use the value “text/html”.

- Keep in mind that JSPs are rendered literally. That is, if there are blank lines in the JSP, there will be blank lines in the HTML. At times you may need to sacrifice JSP readability for quality HTML output.
- Create a structure.xml file in the skeleton directory, as described in [“Working with Skins” on page 7-10](#). This file lets you reference skeleton themes, skeleton resources for different types of devices (classifications), and localized skeleton subdirectories.

Working with Themes

Themes let you override a portal desktop’s overall Look & Feel on individual books, pages, and portlets, allowing a “themed” component to appear or behave differently than the other components in a portal desktop. Also use themes to develop Look & Feels for specific devices, such as mobile devices, to be used in conjunction with WebLogic Portal’s multichannel framework.

Themes are made up of the following resources:

- A .theme file
- Theme skin or skeleton directories that contain the same types of resources as skins and skeletons. For example, a skeleton theme directory contains skeleton JSP files, and a skin theme contains subdirectories such as /images, /css, and /js.

You can also use a Look & Feel as a theme, as long as you create a .theme file for it, described in the following steps.

To develop a theme:

1. In Merged Projects view, navigate to your portal web project’s framework/markup/theme directory, and copy an existing theme to your file system.
2. Open the copied theme, and modify the name, title, description, and markupName. Each theme must have a unique markupName.
3. Save the file with a new filename.

4. Create a 100x75 px .gif that represents the theme in the same directory as the .theme file. This image appears in the visitor tools when end users select themes for their own customized view of a portal desktop.
5. Create the theme directory (using the same, case-sensitive name as the theme markupName) and subdirectories. You can create the theme resources anywhere in the portal web project, where it can be used in by any Look & Feel. Create any unique resources that the theme will use, or duplicate and modify any resources you want to override in the parent skin or skeleton.
6. For any skin or skeleton, be sure to create a structure.xml file that specifies the path to the current them, as described in [“Working with Skins” on page 7-10](#).

You can also create a structure.xml in the theme directory if you also plan to use the theme as a full Look & Feel.

If you do not use the structure.xml file in your Look & Feel /skin and /skeleton directories, store your themes as subdirectories of those skins and skeletons.

Note: If you create any unique resources, be sure to reference them either in the parent skin or skeleton, or in the theme skin or skeleton.

After you create a theme, you can select it in the Properties view for any selected book, page, or portlet.

Working with Genes

Genes are implemented as simple text strings that are inserted into CSS styles or JavaScript files as variables. You define genes in an XML `.chromosome` file.

Important: In order to use genes, you must configure the CSS and JavaScript entries in your skin.xml or skeleton.xml to be inlined in the HTML rather than referenced, as described in [“Working with Skins” on page 7-10](#).

Following is an example that highlights one of the primary benefits of genes.

Gene Example

In a `.chromosome` file, you could define a gene called “bodyColor” and assign it a value of “red,” like this:

```
<gene name="bodyColor">  
    <value>#FF0000</value>  
</gene>
```

In your CSS file, you could use bodyColor as a variable:

```
body {
    border:1px solid ${bodyColor}
};
```

When the page is rendered in a browser, the inlined style definition becomes:

```
body {
    border:1px solid #FF0000
};
```

When you use this gene in your CSS files, you only need to modify the gene value itself to cascade the change throughout all configured CSS files rather than changing the value manually in each CSS file.

You can also use the same gene names in multiple Look & Feels, and provide different gene values in each Look & Feel.

Creating a Chromosome and Genes

Each skin, skeleton, and theme that uses genes must have its own chromosomes, even if they are simply duplicates of each other. Chromosome files are stored in the same directory as skin.xml and skeleton.xml.

To create and use genes:

1. Copy a .chromosome from the WebLogic Portal shared J2EE libraries to use as the basis for your .chromosome file. In the Merged Projects view, navigate to your portal web project's framework/skins/legacy directory, and copy the default.chromosome to the file system.
2. Copy the file to your skin, skeleton, or theme directory. Keep the filename default.chromosome.
3. Add genes to the chromosome, using the structure shown in [“Gene Example” on page 7-16](#).
Note: Gene values can be defined by references to other genes.
4. In your skin or skeleton CSS files, replace the appropriate hard-coded style values with the related gene names, using the `${geneName}` syntax.
5. In your skin.xml or skeleton.xml files, make sure you reference your CSS or JavaScript files so that they appear inline in the final HTML output, as described in [“Working with Skins” on page 7-10](#).
6. If you want to create multiple versions of chromosomes that provide identically named genes with different values, copy the default.chromosome, give it a new filename (such as

holiday.chromosome). Delete all but the genes in that file you want to override, and provide different values for those genes. Copy the new .chromosome file to any skin or skeleton directories for which it will be used.

7. Open your Look & Feel file in the XML editor, and add specify the chromosome you want to use for the Look & Feel by adding one or both of the following attributes to the `<netuix:lookAndFeel>` element:

```
<netuix:lookAndFeel
  skinChromosome="holiday"
  skeletonChromosome="holiday"
```

By creating a master default.chromosome file, you can keep all your genes in one place and provide gene overrides in other .chromosome file. If the Look & Feel framework does not find a gene in the chromosome you specify in the .laf file, it looks for it in the default.chromosome file.

The Look & Feel framework does not check to see if a gene you reference is defined in a chromosome. If the framework cannot find a gene, it simply prints the gene variable in the HTML output.

Overriding Existing Look & Feels

Rather than creating new Look & Feels, consider the following possibilities for overriding existing Look & Feels.

Themes

Themes let you override the Look & Feel for individual books, pages, and portlets.

Genes

Genes let you define different values for variables used in CSS and JavaScript files, which can simulate different Look & Feels with relatively little development effort.

Overriding Shared J2EE Library Look & Feel Resources

Copy skin, skeleton, or theme files from the WebLogic Portal shared J2EE libraries (copy to the file system from the Merged Projects view). The file-based, modified copies of the files are used at run time instead of the library resources.

Using the Workshop Properties View

In the Properties view for a selected portal component, you can enter presentation property overrides (such as CSS values).

Troubleshooting Look & Feels

To troubleshoot or fine tune a Look & Feel, use the following guidance:

- Use the Look & Feel editor to determine which CSS properties you need to modify. See [“The Look & Feel Editor” on page 7-19](#) for details.
- When viewing a portal desktop in a browser, view the HTML source to help determine where a problem is occurring and where it needs to be fixed, in a skin or skeleton.
 - If the problem is a CSS-related issue, use the HTML source to locate the CSS style that needs to be modified.
 - If the problem is a structural issue, use the HTML source to help pinpoint which shell resource or skeleton JSP needs to be modified.

The Look & Feel Editor

The Look & Feel editor lets you interactively edit the text styles used by portal text elements. Technically, the editor modifies Cascading Style Sheet (CSS) files that are referenced by a portal’s skin.xml file. For example, using the Look & Feel editor, you can change the size of a heading, the color of a list element, or the padding around a table cell for a portal.

The Look & Feel editor also lets you change the properties of a portal’s Look & Feel file (.laf file), such as the skin and skeleton files that it references.

In addition, the editor shows you, at a glance:

- The CSS cascade for a portal
- The properties assigned to a selected CSS style
- The inherited properties of a selected CSS style
- The elements of the portal’s skin.xml file

Overview

With the Look & Feel editor, you can easily experiment with a portal's Look & Feel and see the results immediately. The Look & Feel editor lets you interactively edit the text styles used by a portal. Using the Look & Feel editor, you can select text in a portal and modify the text's characteristics, such as font size, color, padding, and so on. The changes you make are immediately reflected in the editor's view area.

Remember that a portal's skin helps to define the overall Look & Feel of a portal. The portal's skin.xml file specifies one or more CSS files used by the skin. A portal's HTML text can reference these CSS files and use their style definitions. If you modify the font size for a particular text style, the Look & Feel editor changes the style's definition inside a CSS file. The change is then immediately reflected in the HTML displayed in the editor's view area.

The following figure shows the parts of the Look & Feel editor. This section discusses each of these parts in detail.

Figure 7-4 Look & Feel Editor Components

Navigator View

The Navigator panel displays the file structure of a portal project. Use this panel to locate and select the Look & Feel file for the portal that you wish to edit.

The Look & Feel (.laf) file contains references to the skins and skeletons that define a portal's Look & Feel. To use the Look & Feel editor, you must use the Navigator view to locate the .laf file for the portal you wish to edit. Then, double-click the filename to open the Look & Feel editor. The .laf files for a portal are located in the portal web project framework/markup/lookandfeel folder. For example, the mycustom.laf file is shown selected in the Navigator view in [Figure 7-5](#).

Figure 7-5 Selected Look & Feel File

Style Hierarchy View

The Style Hierarchy view shows the CSS cascade for the selected style. The cascade is a hierarchy of CSS styles, defined by the HTML document structure. It is useful to see the cascade, because it can help you to locate and appropriately handle inherited style properties. In [Figure 7-6](#), the portlet-section-header style is selected. Note that the style portlet-section-header is below bea-portal-window-content in the hierarchy.

Figure 7-6 Selected CSS Style

This means that `portlet-section-header` can inherit properties from `portal-window-content`, and, potentially, from all other style classes higher up the hierarchy. For more information on inheritance, see [CSS Inheritance](#). When you select a style in the Style Hierarchy view, its style definitions and inherited style properties appear in the Style Description window, described in the next section.

Style Description Window

The Style Description window lets you see at a glance the selected style's properties and its inherited style properties. The Style Info section, shown in [Figure 7-7](#), comes directly from the CSS file in which the style is defined. The Inherited Styles list, also shown, is constructed directly from the document structure of the HTML text that is currently opened in the Look & Feel editor. The Inherited Styles list shows the style properties and their values that are inherited from styles higher up in the document hierarchy. For instance, you can see that `portlet-section-header` inherits the `font-family` property from the `bea-portal-body` style.

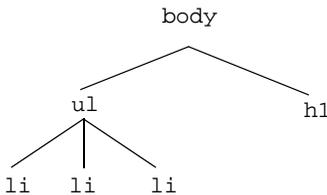
Figure 7-7 Window Shows Inherited Styles

To understand the value of the Inherited Styles list, it helps to have a basic understanding of HTML and CSS.

CSS Inheritance

Tip: This section is a very brief overview of CSS inheritance. Many books and web sites are devoted to CSS and cover this important subject in greater depth.

HTML documents are hierarchically organized. In other words, each element of an HTML document can have one or more child elements, one parent element and possibly many ancestor elements. A central feature of CSS is that styles are *inherited* down the HTML document hierarchy. For example, [Figure 7-8](#) depicts a simple HTML document hierarchy:

Figure 7-8 CSS Inheritance

If you would like all the text in this document to be blue, you could define the `body` tag to be blue. Because of CSS inheritance, all of the elements below `body` (specifically, `li` and `h1`) will also be blue. If, on the other hand, you would like everything to be blue except list elements, you could define the `ul` tag to be another color, such as red. Then, all of the `li` elements inherit the color red from their parent, `ul`. At the same time, the `h1` tags will be blue (`h1` tags still inherit their color from `body`).

The Look & Feel editor shows you all styles that a selected style inherits. Therefore, if you want to change the font size of a style, but font size is not defined in that style, you can see at a glance from which style font size is inherited. Then, you can easily edit the property, as explained in the next section.

Tip: Without this convenient feature, it would be difficult to decide which styles a given style inherited. Typically, you would have to open and examine the CSS files in the hierarchy to find where a specific style property is defined or possibly overridden.

Using the Inherited Styles List

As mentioned in the previous section, in some cases, the property you wish to modify is not defined in the specific CSS style class associated with the text you have selected. It is possible, for instance, to select a heading in the Look & Feel editor, but find that font size is not a property of that heading's style. In this case, the property you wish to change might be an inherited property.

The Look & Feel editor displays and lets you edit any inherited property for a given style. For example, suppose you wish to change the font size of some text. After selecting the style you wish to edit (for example, by clicking the text in the View Area), you then notice that `font-size` is not a property of that text's CSS style. Next you look at the Inherited Styles list, and you discover a style higher up in the cascade in which `font-size` is defined.

At this point, you must decide whether you want to edit the `font-size` property where it is currently defined (higher up in the cascade) or add the property directly to the style of the text you wish to

modify. Of course, if you modify a property up the cascade, you might inadvertently change the properties of other text that inherits the same property. It is up to you to make this decision. If you change it directly in the selected style, then the inherited property is overridden, and only that style (and any styles down the hierarchy) receive the new property value (unless it is once again overridden).

Tip: To add or modify a property in an inherited style, double-click the style name in the Inherited Styles list. Then, use the CSS Style Wizard to make your changes.

HTML documents are hierarchically organized. In other words, each element of an HTML document can have one or more child elements, one parent element and possibly many ancestor elements. A central feature of CSS is that styles are inherited down the HTML document hierarchy. For example, the following tree diagram depicts a simple HTML document hierarchy:

If you would like all the text in this document to be blue, you could define the body tag to be blue. Because of CSS inheritance, all of the elements below body (specifically, li and h1) will also be blue. If, on the other hand, you would like everything to be blue except list elements, you could define the ul tag to be another color, such as red. Then, all of the li elements will inherit the color red from their parent, ul. At the same time, the h1 tags will be blue (h1 tags still inherit their color from body).

The Look & Feel editor shows you all styles that a selected style inherits. Therefore, if you want to change the font size of a style, but font size is not defined in that style, you can see at a glance from which style font size is inherited. Then, you can easily edit the property, as explained in the next section.

View Area

The View Area displays the HTML that uses the CSS styles you wish to edit. When you start the Look & Feel editor, a default HTML page is displayed, showing a representative sample of text elements.

Note: Remember that you start the Look & Feel editor by opening a Look & Feel (.laf) file. The HTML file that is shown in the View Area must reference the same CSS files that the .laf file references in its skin. If you load the default HTML page into the editor, this connection is automatically established. However, if you load HTML from a portal into the editor, you must be sure the portal references the same .laf file as the editor.

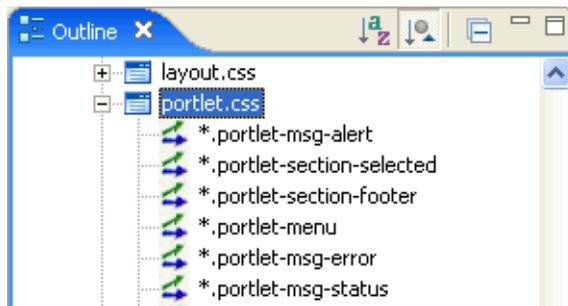
Outline View

The Outline view shows a representation of the files that are referenced by the portal's skin.xml file. In this panel you can edit properties of:

- The Look & Feel (.laf) file for the portal
- The style properties located in each of the CSS (.css) files referenced by the portal's skin

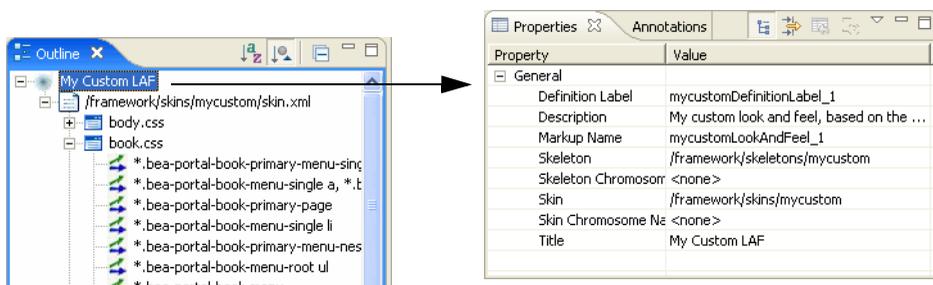
Figure 7-9 shows a portion of the Document Structure panel. In this figure, the css/portlet.css file is expanded to reveal the styles defined in it. You can double-click a style to add or modify its properties. You can also single-click a .css file, style name, or style property to display and edit values in the Properties view.

Figure 7-9 Double-click a style to modify its properties



In addition to using this panel to access CSS styles, you can also access and edit the properties of the Look & Feel file associated with a portal, as shown in Figure 7-10. You can change any of these properties, including picking new skin and skeleton files. Note that the Look & Feel file node occurs at the top of the document structure.

Figure 7-10 Look & Feel file in the Outline View



Properties View

The Properties view lets you interactively modify values of the selected CSS style or Look & Feel file. To display properties in the Properties view, you can do one of the following:

- Click on a text element in the HTML file in the View Area.
- Click a CSS style or the Look & Feel filename in the Outline view.
- Click on a CSS filename in the Outline view, then expand the CSS file in the Properties view to edit the properties.

Using the Look & Feel API

The following packages, documented in [Javadoc](#), let you perform many programmatic operations on Look & Feels:

- `com.bea.netuix.laf`
- `com.bea.netuix.laf.genes`
- `com.bea.netuix.laf.genes.mutators`

Working with Shells

A shell represents the rendered area surrounding a portal desktop's main content area (books, pages, and portlets). Most importantly, a shell controls the content that appears in a desktop's header and footer regions.

You can configure a shell to use specific JSPs, page flows, HTML files, and portlets to display content in a header or footer.

For each set of different header/footer combinations, create a new shell.

To create a shell:

1. In Merged Projects view, copy an existing shell from your portal web project's `framework/markup/shells` directory to your file system.

If GroupSpace is enabled in your portal web project, you can also copy `communityFiles/shell/communityHeaderFooter.shell`.
2. Rename the shell file and open it. Modify the title, description, and markupName attributes.

3. To include content in the header or footer, make sure you use opening and closing `<netuix:header>` and `<netuix:footer>` tags.
4. Insert references to the JSPs, page flows, HTML files, or portlets you want to use, using the following syntax. Paths are relative to the portal web project.

JSP or HTML File

```
<netuix:jspContent contentUri="/my_jsps/campaign_header.jsp" />
```

Make sure the JSP or HTML file does not contain `<html>`, `<head>`, `<title>`, or `<body>` HTML tags, because the file is inserted into a single HTML file that already has these tags. You can format the file simply with `<div>`, `<table>`, `<p>`, or any other nested HTML tags.

In the `<netuix:jspContent>` tag you can also point to an error JSP and a backing file to use for the header or footer JSP, using the following attributes:

`errorUri` - Enter the path (relative to the project) to an error JSP to be used if there are problems with the `contentUri` JSP.

`backingFile` - If you want to class for any preprocessing prior to the rendering of the header or footer JSP (for example, authentication), enter the fully qualified name of that class.

That class implements the interface

`com.bea.netuix.servlets.controls.content.backing.JspBacking` or extend

`com.bea.netuix.servlets.controls.content.backing.AbstractJspBacking`.

Page Flow

```
<netuix:pageflowContent action="showHeader" backingFile=""  
contentUri="/communityFiles/shell/CommunityShellController.jspf"  
refreshAction="showHeader" />
```

Portlet

```
<netuix:portletInstance  
  title="Visitor Tools Menu"  
  markupType="Portlet"  
  markupName="portlet"  
  instanceLabel="instLblVisitorToolsMenu"  
  contentUri="/visitorTools/visitorMenu.portlet" />
```

5. Save the shell. You can now select the shell for your portal desktops.

Note: Do not use functionality designed to work inside a portlet in the shell. For example, content controls are designed to be used inside portlets rather than directly in a shell. If you want to use portlet-based functionality in a shell, include a portlet in the shell.

Working with Layouts

Layouts are the areas of a portal page where you can place books or portlets, letting you arrange these resources in different ways. WebLogic Portal provides a set of predefined layouts you can use in your portals, available for selection in the Properties view when you select a page in the portal editor.

In addition to the predefined layout files WebLogic Portal provides, you can create custom layouts in the following ways:

- [Creating a Standard Layout](#)
- [Creating a Custom Layout](#)

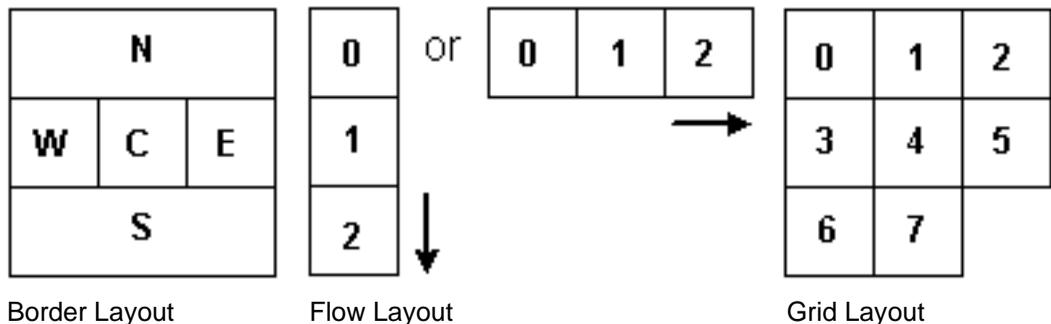
For the purposes of creating layouts, a layout includes the following files:

- An XML file with a .layout extension - This file maps to a skeleton JSP that renders the final layout in HTML.
- An HTML file with a .html.txt extension - Used to simulate the layout in the portal editor and WebLogic Portal Administration Console.

Creating a Standard Layout

WebLogic Portal provides the following three standard layout possibilities for creating your own layouts: border layout, flow layout, and grid layout, as shown in [Figure 7-11](#).

Figure 7-11 Standard Layouts: Border, Flow, and Grid



You create each type of layout by configuring the .layout file to suit your needs. For example, you could create a border layout that uses only North (N), West (W), and East (E) areas.

Each type of standard layout has a corresponding skeleton JSP to render it as HTML: `borderlayout.jsp`, `flowlayout.jsp`, and `gridlayout.jsp`.

If you want to create a layout beyond what the standard layouts provide, you must create a custom layout. See [“Creating a Custom Layout” on page 7-30](#).

To create a standard layout:

1. In Merged Projects view, copy an existing `.layout` file and its corresponding `.html.txt` file from your portal web project’s `framework/markup/layouts` in the shared J2EE libraries.
2. Open the layout, and rename it. Be sure to retain the `.layout` extension. Rename the `.html.txt` file using the same name as the new layout, but retain the `.html.txt` extension.
3. In the `.html.txt` file, create an HTML table structure that provides the layout configuration you want.
4. In the `.layout` file, inside the `<netuix:markup>` tag, insert opening and closing `<netuix:gridLayout>`, `<netuix:flowLayout>`, or `<netuix:borderLayout>` tags, depending on the type of layout you want to create. (Replace the existing opening and closing `<netuix:*Layout>` tag.)
5. Inside the opening `<netuix:*Layout>` tag, add (or modify) the following attributes:

title – Provides the name for selecting the layout in a drop-down menu.

description – Provides a description for the selected layout.

Border layout attributes

layoutStrategy – Enter `order` or `title`.

If you enter `order`, the placeholders are ordered according to the value you put in the `<netuix:placeholder>` tag (covered in the following steps). For example:

`<netuix:placeholder>North</netuix:placeholder>` makes the placeholder the north placeholder.

If you enter `title`, the placeholders are ordered according to the `<netuix:placeholder> title` attribute value. For example:

`<netuix:placeholder title=“south” ...></netuix:placeholder>` makes the placeholder the south placeholder.

Flow layout attributes	orientation – Enter <code>vertical</code> or <code>horizontal</code> to determine the direction in which the placeholders are positioned.
Grid layout attributes	<p>columns – Determines the number of columns in the layout. The number of rows are determined automatically. Do not use the <code>rows</code> attribute if you use the <code>columns</code> attribute.</p> <p>rows – Determines the number of rows in the layout. The number of columns is determined automatically. Do not use the <code>columns</code> attribute if you use the <code>rows</code> attribute.</p>

For example, if you are modifying a copy of the `fourcolumn.layout` to create a border layout, replace the `columns` attribute with the `layoutStrategy` attribute and change its value.

htmlLayoutUri – Provides the path (relative to the project) to the `.html.txt` file you created. For example, `/framework/markup/layout/yourNewLayout.html.txt`.

markupName – The `markupName` must be unique among the other layouts.

6. Inside the `<netuix:*Layout>` tag, add opening `<netuix:placeholder>` and closing `</netuix:placeholder>` tags for each placeholder you want in the layout.

If you are creating a border layout, use no more than five placeholders.

7. In the opening `<netuix:placeholder>` tag of each placeholder, add the following attributes:

title – Enter a title for the placeholder. If you are using a border layout with the `layoutStrategy` attribute set to `title`, enter `north`, `south`, `east`, `west`, or `center` for the title to determine which position of the placeholder in the border layout.

description – Enter a description for the placeholder.

flow – Optional. If you want to control whether the books and portlets are automatically positioned vertically or horizontally when they are added to a layout, enter `true`.

usingFlow – Optional. If you set the `flow` attribute to `true`, enter `vertical` or `horizontal` for this attribute value. This value determines whether books and portlets are positioned on top of each other in the placeholder (vertical) or side by side (horizontal).

width – Optional. Set a width for the placeholder.

markupType – Required. Enter `Placeholder`.

markupName – Required. Used as an ID for the placeholder. Each placeholder must have a unique `markupName` across all layouts.

8. If you are creating a border layout and the `layoutStrategy` attribute is set to `order`, enter `North`, `South`, `East`, `West`, or `Center` as the content between the opening and closing `<netuix:placeholder>` tag to determine each placeholder's position in the layout. For example, `<netuix:placeholder>North</netuix:placeholder>` makes a placeholder the north placeholder.
9. Save the layout file.
10. Create a 100x75 px .gif that represents the layout in the same directory as the .layout file. This image appears in the visitor tools when end users select layouts for their own customized view of a portal desktop.

You can now use the layout in your portals, by selecting a page in the portal editor and selecting the layout in the Properties view.

Creating a Custom Layout

If none of WebLogic Portal's standard layouts suits your needs, you can create a custom layout. When creating a custom layout you need to create three things:

- [The Layout File](#)
- [The html.txt File](#)
- [The Skeleton JSP](#)

The Layout File

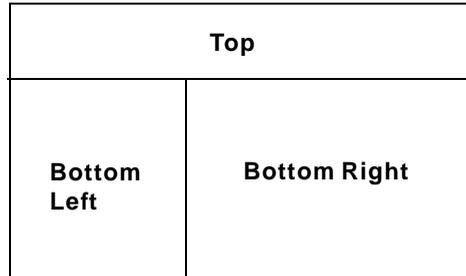
The layout file for a custom layout is the same type of file used in creating standard layouts. It is a block of XML that defines the layout parameters. A layout file must have a `.layout` extension and can live anywhere in the web application directory except `/WEB-INF`.

You must create the `.layout` files by hand (using a text or XML editor). The best way to get started is by copying an existing layout, located in the shared J2EE library in your portal web project's `/framework/markup/layout` directory.

Example of a Custom Layout

The easiest way to describe how to create a custom layout is to give an example. The following example uses a custom layout with a spanning row at the top with two columns underneath. The two columns split the real estate in a 30%-70% fashion.

Our layout looks something like this:



1. The first step is to create a layout file (again the easiest way is to copy one from another layout).

We will call our layout file `spanningtwocolumn.layout`, and it looks something like this:

Listing 7-1 Sample Code for a Layout File

```
<netuix:layout title="Spanning Two Column" description="One row and two
columns."
  type="spanning"
  skeletonUri="/customskeletons/spanningtwocolumnlayout.jsp"
  htmlLayoutUri="/framework/markup/layout/spanningtwocolumn.html.txt"
  iconUri="/framework/markup/layout/spanningtwocolumn.gif"
  markupType="Layout" markupName="spanningTwoColumnLayout">
  <netuix:placeholder title="top" description="The top spanning
placeholder."
    markupType="Placeholder"
    markupName="spanningTwoColumn_top">
  </netuix:placeholder>
  <netuix:placeholder title="left" description="The bottom left
placeholder"
    markupType="Placeholder"
    markupName="spanningTwoColumn_left">
  </netuix:placeholder>
  <netuix:placeholder title="right" description="The bottom right
placeholder"
    markupType="Placeholder"
    markupName="spanningTwoColumn_right">
  </netuix:placeholder>
</netuix:layout>
```

This example uses the generic `<netuix:layout>` tag instead of one of the three standard layout tags, such as `<netuix:gridLayout>`. The example also uses three placeholders, which represent the table cells.

Note: The `skeletonUri` attribute is important for custom layouts, because you will often develop a custom skeleton JSP to render your custom layout. This attribute tells the portal rendering framework which JSP to use.

The `<netuix:markupDefinition>`, `<netuix:locale/>` and `<netuix:markup/>` elements were left out of the example for the sake of clarity. Do not forget to include these in your `.layout` file.

The Skeleton JSP

This example requires a custom skeleton to do the rendering (as specified by the `skeletonUri` attribute). You must create this JSP, copying it to any Look & Feels in which the layout is to be used. As with the layout file, the easiest way to create a custom layout JSP is to copy an existing one.

All skeleton files should have the following JSP tags:

- `<render:beginRender></render:beginRender>`
- `<render:endRender></render:endRender>`

The body of the `beginRender` tag is evaluated during the begin render phase only; the body of the `endRender` tag is evaluated during the end render phase.

Here is what the custom skeleton JSP (`/customskeletons/spanningtwocolumnlayout.jsp`) looks like

Listing 7-2 New Skeleton JSP

```
@@ page import="com.bea.netuix.servlets.util.RenderToolkit,
com.bea.netuix.servlets.controls.layout.LayoutPresentationContext,
java.util.List,
com.bea.netuix.servlets.controls.layout.PlaceholderPresentationContext"
%>
<%@ taglib uri="render.tld" prefix="render" %>
<%
    RenderToolkit toolkit = RenderToolkit.htmlInstance();
    LayoutPresentationContext layout =
        LayoutPresentationContext.getLayoutPresentationContext(request);
%>
```

```

<render:beginRender>
  <table
    <% toolkit.writeId(out, layout.getPresentationId()); %>
    <% toolkit.writeAttribute(out, "class", layout.getPresentationClass(),
"layout-custom"); %>
    cellspacing="0"
  >
    <tbody>
  <%
    List children = layout.getChildren("layout:placeholder");

    // Could get optional properties here to help with rendering
    // String property = layout.getProperty("myProperty");

    for (int i = 0; i < children.size(); i++)
    {
      PlaceholderPresentationContext placeholderPresentationContext =
        (PlaceholderPresentationContext)children.get(i);
      if (i == 0)
      {
  %>
        <tr>
          <td colspan="2" width="100%" valign="top"
class="layout-placeholder-container">
            <% toolkit.renderChild(placeholderPresentationContext,
request); %>
          </td>
        </tr>
  <%
      }
      else if (i == 1)
      {
  %>
        <tr>
          <td width="30%" valign="top" class="layout-placeholder-container">
            <% toolkit.renderChild(placeholderPresentationContext,
request); %>
          </td>
  <%
        }
      else if (i == 2)
      {
  %>
          <td width="70%" valign="top" class="layout-placeholder-container">
            <% toolkit.renderChild(placeholderPresentationContext,
request); %>
          </td>
        </tr>
      }
    }
  </tbody>
  </table>
</render:beginRender>

```

```
<%
    }
    }
%>
</render:beginRender>

<render:endRender>
    </tbody>
</table>
</render:endRender>
```

Note: In this example, the widths are hard coded in the JSP. Instead, these widths should be specified in the layout file as an attribute to the placeholder. Then you can reference the widths in the skeleton as follows:

```
<render:writeAttribute name="width" value="<%=
placeholderPresentationContext != null ?
placeholderPresentationContext.getWidth() : null %>"/>
```

Also, you can pass other properties like `rowspan=2` as name/value pairs on the properties attribute and `endtop` to create a more generic row/column spanning layout.

The custom layout is now functionally complete. The `html.txt` file has not yet been created, but you can test the layout. To do this, create a portal file, select a page, and in the Properties view select the custom layout in the Layout field.

Note: If you change your `.layout` file after you have used it in the `.portal` file, changes are not reflected in the `.portal` file. This happens because when you use a layout in the `.portal` it copies the markup from the layout. You must choose another layout and then choose the original one again to see the changes.

The `html.txt` File

The `.html.txt` is an HTML snippet strictly used by the tools to give a visual representation of what the layout looks like, so the developer or administrator can place the portlets in the correct placeholders.

In this example, the custom `.html.txt` file is

`/framework/markup/layout/spanningtwocolumn.html.txt` should look something like this:

Listing 7-3 Sample `html.txt` Code

```
<table class="portalLayout" id="thePortalLayout" width="100%" height="100%">
<tr>
```

```

<td class="placeholderTD" valign="top" width="100%" colspan="2">
  <placeholder number="0"></placeholder>
</td>
</tr>
<tr>
  <td class="placeholderTD" valign="top" width="30%">
    <placeholder number="1"></placeholder>
  </td>
  <td class="placeholderTD" valign="top" width="70%">
    <placeholder number="2"></placeholder>
  </td>
</tr>
</table>

```

Working with Navigation Menus

Navigation Menus provide a way to select different pages in a portal desktop. WebLogic Portal provides a default set of Navigation Menus:

- **Single Level Menu** - Provides visible layering of book and page links. Any sub-books and pages appear in rows below the main book navigation.
- **Multi Level Menu** - Provides a single row of tab-like links for the books and pages at the level you apply the Multi Level Menu. Any sub-books and pages appear in a drop-down list for selection. The Multi Level Menu implements JavaScript functionality contained in the skins.

If you want navigation menu behavior other than what is provided with the default menus, modify the `singlelevelmenu.jsp` or `multilevelmenu.jsp` skeletons in your Look & Feel /skeletons directory by copying those file from the shared J2EE library to your file system and making the desired modifications. If you are modifying the multi-level menu behavior, you may also need to modify the skin's `menu.js` file located in your skin's /js subdirectory.

Using Images for Page Tabs

To use images on page tabs (Rollover Image, Selected Image, Unselected Image in the Properties view for a selected book), enter a path to the images that is relative to the Look & Feel's image search paths specific in the `skin.xml` file.

For example, if you `skin.xml` image search path is `<path-element>images</path-element>`, and your menu images are stored in your skin's /images directory, simply enter the name of the image

file in the Properties view. If your menu images are stored in an /images subdirectory of your portal web project, enter a path to the graphic like this: ../../../../images/my_rollover.gif.

Building User Interfaces to Address Accessibility Guidelines

This section contains information on the following subjects:

- * Accessibility Standards and the Internet
- * Accessibility Checkpoints
- * Industry Guidelines
- * Government Regulations and Standards
- * Accessibility Evaluation and Testing Tools

Accessibility Standards and the Internet

The Internet provides you with the ability to communicate with a diverse audience from a single point using a portal or web site. Many organizations are required to provide web sites that meet industry or government standards for supporting people with special needs. And even if you do not have specific requirements, it is just good business to design your site to serve the needs of a diverse audience.

WebLogic Portal provides a flexible architecture that supports the design, development, and management of accessible portals and applications, for example, the ability to target specific user interfaces based on user preferences or browser and request attributes.

To learn more about building user interfaces with WebLogic Portal see *Creating Look & Feels*.

Accessibility Checkpoints

When you develop web sites, you can use the following general guidelines to facilitate accessibility. For a complete list, refer to the industry or government regulation relevant for your implementation.

Text Tags – Provide a text equivalent for every non-text element (for example, using “alt”, “longdesc”, or in element content).

Multimedia Presentations – Synchronize equivalent alternatives for any multimedia presentation.

Color – Design web pages so that all information conveyed with color is also available without color. (for example, from context or markup.)

Readability (style sheets) – Organize documents so they are readable without requiring an associated style sheet.

Server-Side Image Maps – Provide redundant text links for each active region of a server-side image map.

Client-Side Image Maps – Provide client-side image maps instead of server-side image maps except where the regions cannot be defined with an available geometric shape.

Data Table (simple row and column headers) – Identify row and column headers for data tables

Data Tables (multiple levels of row and column headers) – Use markup associate data cells and header cells for data tables that have two or more logical levels of row or column headers.

Frames – Entitle frames with text that facilitates frame identification and navigation.

Flicker Rate – Design pages to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.

Text-Only Alternative – Provide a text-only page, with equivalent information or functionality, to make a web site comply with the provisions of this section when compliance cannot be accomplished in any other way. You must remember to update the content of the text-only page whenever the primary page changes.

Scripts – When pages use scripting languages to display content, or to create interface elements, you must identify the information provided by the script with functional text that can be read by assistive technology.

Applets and Plug-ins – When a web page requires that an applet, plug-in or other application be present on the client system to interpret page content, you must provide a link in the page to a plug-in or applet that complies with Section 508 §1194.21(a) through (l).

Electronic Forms – When electronic forms are designed to be completed online, you must create the form to allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.

Navigation Links – Provide a method that permits users to skip repetitive navigation links.

Time Delays – When a timed response is required, you must alert users and give them sufficient time to indicate more time is required.

Industry Guidelines

W3C Web Content Accessibility Guidelines

* <http://www.w3.org/WAI/w3c.htm> - Checklist of Checkpoints for Web Content Accessibility Guidelines 1.0

* <http://www.w3.org/TR/WCAG10/full-checklist.html>

Government Regulations and Standards

UNITED STATES

Section 508

<http://www.section508.gov>

CLF Accessibility best practices

http://www.cio-dpi.gc.ca/clf-upe/1/1d_e.asp

CANADA

Adaptive Computer Technology Training Center (Canada)

http://www.cio-dpi.gc.ca/clf-upe/standards/1-1/references/references_e.asp

UNITED KINGDOM

Guidelines for U.K. Government Web Sites

<http://www.web-access.org.uk/>

Accessibility Evaluation and Testing Tools

These tools allow you to validate web page code. They do not repair your code, but they do provide reports on what does and doesn't need to be fixed, as relating to HTML 4.0, W3C, Section 508 and general Accessibility issues.

W3C Web Accessibility Initiative

* W3C Web Accessibility Initiative's Web Tools Page - Evaluation, Repair, and Transformation Tools for Web Content Accessibility

<http://www.w3.org/WAI/ER/existingtools.html>

* W3C HTML Validator - The W3C HTML Validation Service checks HTML documents for conformance to W3C HTML and XHTML recommendations and other HTML standards.

<http://validator.w3.org/>

* CSS Validator - If you are using Cascading Style Sheets (CSS), then use the CSS Validator.

<http://jigsaw.w3.org/css-validator/>

For more information, visit the W3C's Evaluation & Repairs Tools page.

<http://www.w3.org/TR/2000/WD-AERT-20000426>

Bobby

The Bobby tool identifies W3C accessibility issues by priority level and Section 508 issues.

<http://bobby.watchfire.com/bobby/html/en/index.jsp>

Note: The free version of Bobby allows you to test one page at a time.

Lynx Viewer

The Lynx Viewer generates an HTML page that indicates how much of the content of your page would be available to Lynx, which is a text-only browser. In addition to showing how useful a site would be for a visually-impaired person, it is also a good indicator for anyone with older technology. <http://www.delorie.com/web/lynxview.html>.

User Interface Development with Look & Feel Features

Developing Portals Using Workshop for WebLogic

Before you perform the tasks described in this chapter, make sure you have already performed the setup steps described in [Chapter 4, “Setting up Your Portal Development Environment.”](#) Also keep in mind that you must have the framework for your portal interface in place, including Look & Feel elements, any required CSS files, and so on, before you start building your portal.

This chapter includes the following sections:

- [Creating a Portal](#)
- [Portal Component Properties](#)
- [Copying J2EE Library Files into a Project](#)
- [Creating a Utility Project](#)
- [Custom Controls in Page Flows](#)
- [Deploy and View a Portal](#)
- [Working with URLs](#)
- [Working with Encoding in HTTP Responses](#)
- [Cache Management in Workshop for WebLogic](#)
- [Improving WebLogic Server Administration Console Performance on a Managed Server](#)
- [Behavior of the “Return to Default Page” Attribute](#)
- [Adding Commerce Services to an Existing Portal Web Project](#)

Creating a Portal

When you create a portal, WebLogic Portal creates a *portal file*—an XML file with a `.portal` file extension. The `.portal` file is the central defining file of a portal, with references to all the major components of the portal: the desktops, books, pages, portlets, and so on.

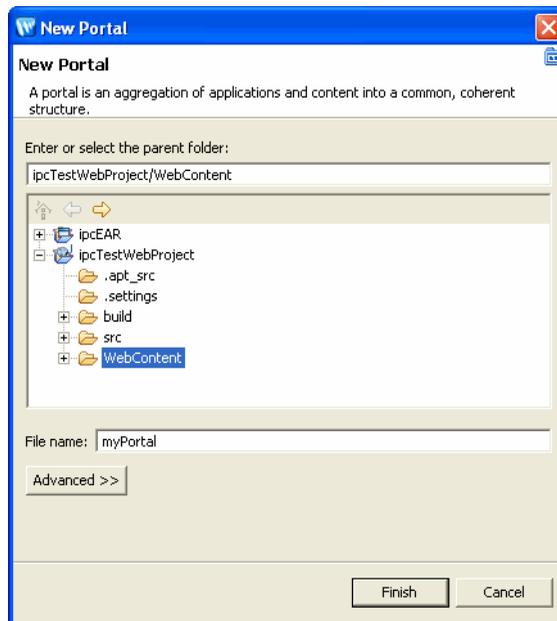
To create a portal and its accompanying `.portal` file, perform these steps:

1. If the Portal perspective is not already open, select it by choosing **Window > Open Perspective > Portal**.
2. Navigate to the web content directory of your Portal Web Project (by default it is named `WebContent`); right-click and then select **New > Portal**.

The New Portal dialog displays, as shown in [Figure 8-1](#).

Because you started this wizard by right-clicking the web content directory, the parent folder field automatically displays that directory name.

Figure 8-1 New Portal Dialog



You must locate your portal file in a *web content* directory that is subordinate to the web *project* directory. The default web content directory name is `WebContent`, and is assigned

when you use the Portal Web Project Wizard. You can change the name of your web content directory if you wish; for more information, refer to [“New Portal Web Project - Web Module Dialog”](#) on page 4-16.

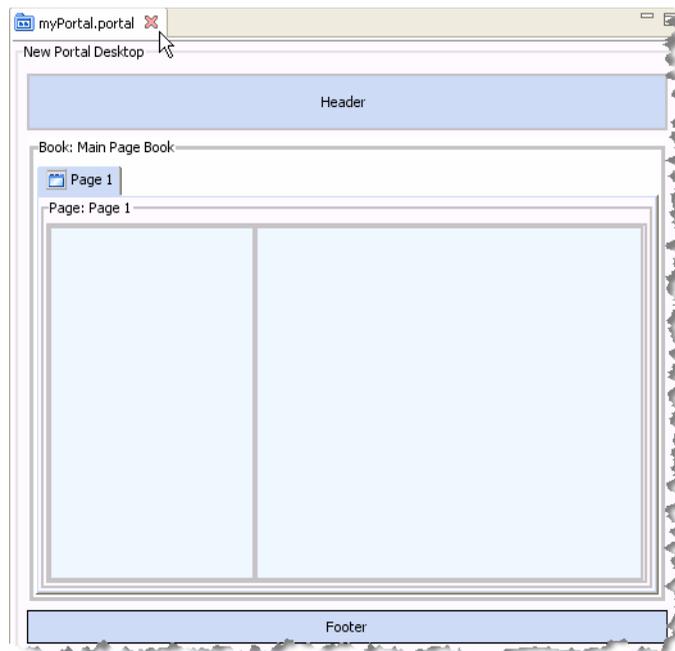
3. In the **File name** field, enter the name that you want to assign to the portal.

A file type of `.portal` is required for portals; you can type the `.portal` extension to the portal’s name if you wish, but WebLogic Portal automatically adds the extension if you don’t enter it.

4. Click **Finish**.

The wizard adds the portal to the specified folder in the Portal Web Project and a view of the portal displays in the editor, as shown in [Figure 8-2](#).

Figure 8-2 Portal Displayed in Workbench



The created portal includes a **desktop**, **header**, **footer**, **book**, and **page**. A *desktop* is a user-specific view of the portal content. A portal can support many desktops. A single portal might support an employee-specific desktop, a customer-specific desktop, and others, where each desktop exposes different kinds of content to different sets of users. Any part of a portal can be

included or excluded from a desktop, including a book, a page, a specific application, or an individual link.

Desktops can also define the Look & Feel attributes of a portal. Desktops can be associated with a particular skin that defines the color scheme, fonts, and images used. Desktops also contain a *header* and *footer*—you can place images, text, or any web content in these areas to give consistency to the Look & Feel of a desktop.

Typically, you use Workshop for WebLogic to develop a portal and its key components; then you use the WebLogic Portal Administration Console to create specific desktops using the portal as a template. For information about creating desktops in the next phase of development, refer to [“Managing Portal Desktops” on page 12-1](#).

You use *books* to organize your content and navigation in a hierarchical manner. Books can contain other books or pages. In a browser, a book is rendered as a set of tabs or links. Each portal contains a main book called, by default, “Main Page Book.” A *page* consists of a set of columns and/or windows that organize the actual content of your portal. You navigate to a page by clicking on an individual tab or a link. You can create books and pages using either Workshop for WebLogic or the WebLogic Portal Administration Console.

Add a Page or Book to Your Portal

This section describes how to add a second page to the portal’s main book. When the portal is rendered in a browser, the two pages will appear as two clickable tabs. You can add a new page using a few different methods; this description describes a drag and drop method.

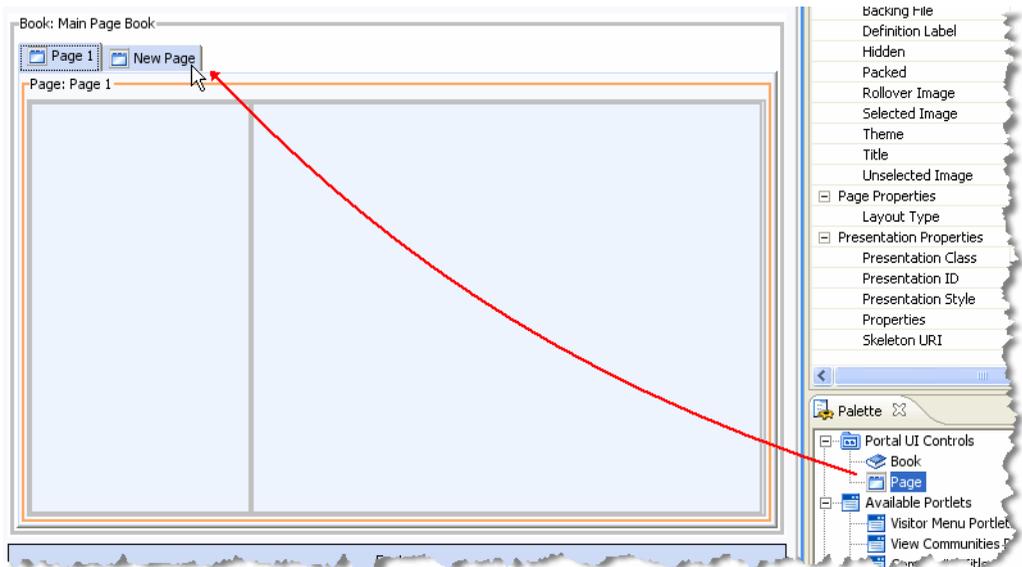
Note: The procedure for adding a book to a portal is almost identical to the procedure for adding a page. Rather than include both procedures here, we explain how to add a page and, where appropriate, highlight any differences between the two tasks.

To add a page to a portal, perform these steps:

1. From the **Palette** view, drag and drop the Page icon to the location where you want to add it. [Figure 8-3](#) shows the result when you add a new page to the right of the default portal page.

Tip: If you do not see the **Palette** view, select **Window > Show View > Palette**.

Figure 8-3 Adding a Page to a Portal in the Workbench



Creating a Standalone Book or Page

You can create a standalone book or page; when you do this, the book or page information is kept in a separate `.book` or `.page` file and is not embedded within the `.portal` file. Standalone books and pages are very useful elements in your portal development environment. For example, in a team development environment, developers can create individual books or pages that can be managed separately and then added to the portal at a later time. Also, if you want to create books and pages that are accessible to remote consumer applications, you must create the book or page as a standalone `.book` or `.page` file using Workshop for WebLogic.

Note: The procedure for creating a standalone book is almost identical to the procedure for creating a standalone page. Rather than explain both procedures here, we explain how to create a standalone page and, where appropriate, highlight any differences between the two procedures.

To create a standalone page in a portal, perform these steps:

1. In your portal web project, navigate to the web content folder (typically named `WebContent`) or to a folder within the web content folder.

You must locate books and pages in a *web content* directory or sub-directory that is subordinate to the web *project* directory. The default web content directory name is

WebContent, and is assigned when you use the Portal Web Project Wizard. You can change the name of your web content directory if you wish; for more information, refer to “New Portal Web Project - Web Module Dialog” on page 4-16.

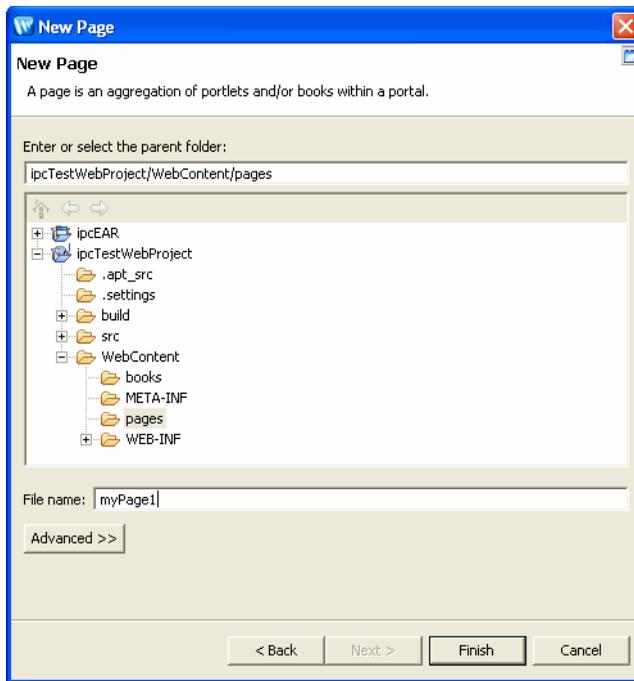
2. Select **File > New > Other**.
3. In the **New – Select a Wizard** dialog, open the **WebLogic Portal** folder, select **Page**, and click **Next**.

In the **New Page** dialog, note that the parent folder auto-fills the path from which you started the wizard.

4. Enter a name for the new page; an example is shown in [Figure 8-4](#).

A file type of `.page` is required for standalone pages (or `.book` for standalone books); you can type the `.page` extension if you wish, but WebLogic Portal automatically adds the extension if you don't enter it.

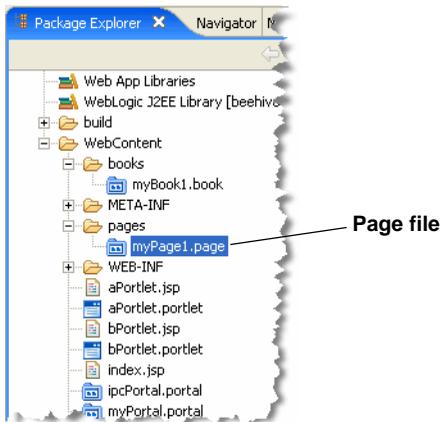
Figure 8-4 New Page Dialog



5. Click **Finish**.

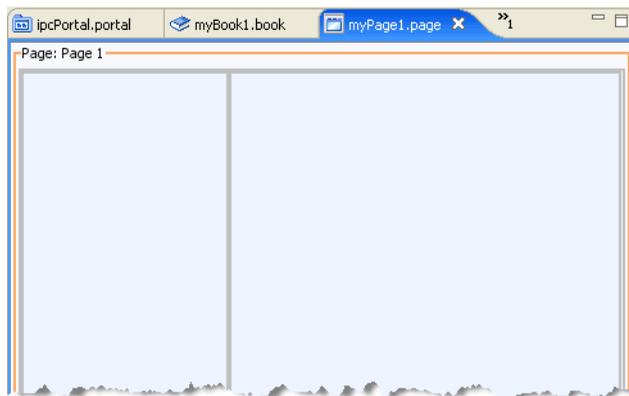
The new page is added to the portal web project in the folder you specified, as shown in [Figure 8-5](#).

Figure 8-5 A New Page File



In addition, the page opens in the editor, as shown in [Figure 8-6](#).

Figure 8-6 Page File Displayed in the Editor



Adding a Book or Page Reference (Content)

Use this selection to add a reference to an existing book or page, into a book or page in your portal.

Adding a Book or Page Reference from the Portal Editor

Perform these steps:

1. Highlight the portal element to which you want to add a book or page reference.
An orange border appears around a selected element.
2. Right-click and select **Insert > New Book Content** or **Insert > New Page Content**.

The **Choose a Book** dialog or **Choose a Page** dialog displays, as appropriate; all `.book/` `.page` files for the web project are listed.

Note: The Insert menu option appears only when this selection is valid, depending on the selected portal element.

3. Select the desired `.book` or `.page` file, then click **OK**.

The Workshop for WebLogic window updates, adding a Book (or Page) Content node in the Outline view and displaying the content properties in the Properties view.

Adding a Book or Page Reference Using the Outline View

Perform these steps:

1. Right-click the element to which you want to add book or page content and select **Insert > New Book Content** or **Insert > New Page Content**.

The **Choose a Book** dialog or **Choose a Page** dialog displays, as appropriate; all `.book/` `.page` files for the web project are listed.

Note: The Insert menu option appears only when this selection is valid, depending on the selected portal element.

2. Select the desired `.book` or `.page` file, then click **OK**.

The Workshop for WebLogic window updates, adding a Book (or Page) Content node in the Outline view and displaying the content properties in the Properties view.

Rearranging Books and Pages

You can change the order of books and pages. For example, if the main page book contains a page and a book in the following order:

Home Page | My Book

you can change the order to:

My Book | Home Page

To change the order of books and pages, right-click the book or page that you want to move in the Outline view, and choose **Move Up** or **Move Down**. The book or page moves up or down in the Outline view, and the horizontal reordering occurs in the portal editor.

Rearranging books and pages does not rearrange them in any portal desktops that you already created with the WebLogic Portal Administration Console. For instructions on rearranging those books and pages, refer to [Chapter 12, “Managing Portal Desktops.”](#)

Portal Component Properties

Portal properties are named attributes of the portal that uniquely identify it and define its characteristics. Some properties—such as title and definition label—are required; many optional properties allow you to enable specific functions for the portal such as presentation properties, rollover images, and control tree optimization. The specific properties that you use for a portal vary depending on your expected use for that portal.

During the development phase of the portal life cycle, you generally edit portal properties using Workshop for WebLogic; this section describes properties that you can edit using Workshop for WebLogic.

During staging and production phases, you typically use the WebLogic Portal Administration Console to edit portal properties; only a subset of properties are editable at that point. For instructions on editing portal properties from the WebLogic Portal Administration Console, refer to [Chapter 12, “Managing Portal Desktops.”](#)

This section contains the following topics:

- [Editing Portal Properties](#)
- [Tips for Using the Properties View](#)
- [Properties for All Portal Components](#)

Editing Portal Properties

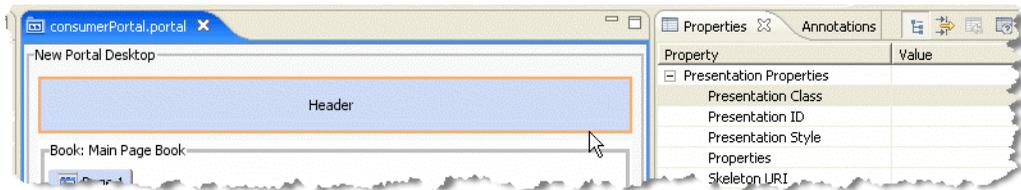
To edit portal properties, follow these steps:

1. Navigate to the location of the portal whose properties you want to edit, and double-click the `.portal` file to open it in the editor.
2. Click the border of the desired component to display its properties in the Properties view.

The displayed properties vary according to the active area that you select. If you click the outer (desktop) border, properties for the entire desktop appear; if you click inside a placeholder, properties for that placeholder appear, and so on.

3. Navigate to the Properties view to view the current values for that component's properties. [Figure 8-7](#) shows a segment of a portal header's Properties view:

Figure 8-7 Portal Properties Example - Header Properties



4. Double-click the field that you want to change.

If you hover the mouse over a property field, a description of that field displays in a popup window.

Values for some properties are not editable after you create the portal.

In some cases, from the property field you can view associated information pertaining to that property; for example, the Skeleton URI property provides an **Open**  button to view the associated file. For more information about options available in the Properties view, refer to [“Tips for Using the Properties View”](#) on page 8-10.

Tips for Using the Properties View

The behavior of the Properties view varies depending on the type of field you are editing. The following tips might help you as you manipulate the content of the data fields in the Properties view.

- If a file is associated with a property, the Properties view includes an **Open**  button in addition to a **Browse** button; you can click **Open** to display the appropriate editor/view for the file type.
- If you have edited a markup file that is associated with a property, you can cause the property to "reload" the content of that markup file so that it is available for selection in the Properties view. To reload a markup file for a property, navigate to the property for which you want to reload the markup file contents and click **Reload**. The Reload button is available only for properties that have an associated markup file; for example, layout, shell, theme, menu, and so on.

- If you want to edit the XML source for a portal file, you can right-click the `.portal` file in the Package Explorer view and choose **Edit with > XML Editor** to open the file using the basic XML editor that Eclipse provides.

Properties for All Portal Components

The properties described in this section are contained within the `.portal` file and are editable in the Properties view. The values you enter here override the corresponding value in the `.portal` file, if a value exists there.

When you click a border in the portal editor view, an orange outline appears around that section of the portal, and a related set of properties appears in the Properties view. The displayed properties vary according to the selected border in the view. [Figure 8-8](#) shows the highlighted Header area and its related properties.

Figure 8-8 Highlighted Portal Header and Related Properties in the Properties View



[Table 8-1](#) describes portal properties and their values. This table lists the properties in alphabetical order.

Table 8-1 Properties in the Portal Properties View

Property	Type	Description
Backing File (Backable Properties section; Book and Page section)	Optional	If you want to use a class for preprocessing (for example, authentication) prior to rendering the portlet, enter the fully qualified name of that class. That class must implement the interface com.bea.netuix.servlets.controls.content.backing.JspBacking or extend com.bea.netuix.servlets.controls.content.backing.AbstractJspBacking.
Backing File (Header and Footer Properties)	Read-only	The class referenced in a shell that is used for preprocessing prior to rendering a shell's header or footer JSP. This value is read from the <netuix:jspContent> "backingFile" attribute in the .shell file <header> or <footer> tag. If you select a different shell for the desktop, you might see a different value here.
Content Presentation Class	Optional	A CSS class that overrides any default CSS class used by the component's skeleton. For proper rendering, the class must exist in a cascading style sheet (CSS) file in the Look & Feel's selected skin, and the skin's skin.xml file must reference the CSS file. Sample: If you enter "my-custom-class", the rendered HTML from the default skeletons looks like this: <div class="my-custom-class"> The properties you enter are added to the component's parent <div> tag. On books, pages, and portlets, use the Content Presentation Class property to set properties on the component's content/child <div> tag, especially for setting a style class that enables content scrolling and height-setting.

Table 8-1 Properties in the Portal Properties View (Continued)

Property	Type	Description
Content Presentation Style	Optional	<p>Optional. The primary uses are to allow content scrolling and content height-setting.</p> <p>For scrolling, enter one of the following attributes:</p> <ul style="list-style-type: none"> • <code>overflow-y:auto</code> - Enables vertical (y-axis) scrolling • <code>overflow-x:auto</code> - Enables horizontal (x-axis) scrolling • <code>overflow:auto</code> - Enables vertical and horizontal scrolling <p>For setting height, enter the following attribute:</p> <ul style="list-style-type: none"> • <code>height:200px</code> <p>where <code>200px</code> is any valid HTML height setting.</p> <p>You can also set other style properties for the content as you would using the Presentation Style property. The properties are applied to the component's content/child <div> tag.</p>
Content URI	Read-only	<p>The JSP file referenced in a shell that is used to display content in the desktop header or footer. This value is read from the <code><netuix:jspContent> "contentUri"</code> attribute in the <code>.shell</code> file <code><header></code> or <code><footer></code> tag. If you select a different shell for the desktop, you might see a different value here.</p>
Default Page	Required	<p>Select the page that appears by default when the desktop is accessed. The list is populated with Definition Labels of all pages in the portal.</p>

Table 8-1 Properties in the Portal Properties View (Continued)

Property	Type	Description
Definition Label	Required	<p>Each component must have a unique identifier. A default value is entered automatically, but you can change the value. Definition labels can be used to navigate to books, pages, or portlets. Also, components must have definition labels for entitlements and delegated administration.</p> <p>As a best practice, you should edit this value in Workshop for WebLogic to create a meaningful value. This is especially true when offering books, pages, or portlets remotely, as it makes it easier to identify them from the producer list.</p> <p>When you create a portal resource instance on a desktop in the WebLogic Portal Administration Console, the generated definition label is not editable.</p> <p>About .book and .page definition labels: Avoid including multiple occurrences of the same .book or .page file (with the same definition label) within a portal. For example, if you use nested embeds of the same .book or .page file within a portal, then rendering problems will occur due to the existence of duplicated definition labels.</p>
Editable	Optional	<p>A dropdown menu displays these selections:</p> <ul style="list-style-type: none"> • Not Editable • Edit in Menu • Edit in Titlebar <p>If you have visitor tools enabled so that users can modify book properties, setting Editable to "Edit in Title Bar" or "Edit in Menu" puts a visitor tool link in that location.</p> <p>"Edit in Menu" is available only if you select a menu type for the Navigation property. When you select "Edit in Title Bar" or "Edit in Menu," a group of Mode Properties appears in the Property Editor.</p>

Table 8-1 Properties in the Portal Properties View (Continued)

Property	Type	Description
Encoding	Optional	<p>This selection is available when you select the desktop element from the portal view or outline view while editing a <code>.portal</code> file.</p> <p>Select the encoding used to display the portal. The default is UTF-8. You can select a value using the drop-down menu, which provides five common IANA encoding selections, or you can type a value into the field. The values presented in the combobox are descriptive display names that are converted to actual IANA names when saved to the <code>.portal</code> file.</p> <p>You can enter a name from the extended encoding set as an IANA name, alias, or canonical name for the encoding. If you type in a value that does not appear in the drop-down menu, a validator checks the entry when you press Enter or click outside the field. If the encoding fails validation, a warning message displays; you can either change the value or accept it anyway. The value is stored as shown in the field, in the <code>.portal</code> file.</p> <p>The character set is based on these resources, generally in the following order:</p> <ol style="list-style-type: none"> 1. Encoding of the portal (the “encoding” attribute of the desktop) 2. Default encoding set in <code>netuix-config.xml</code>. 3. Encoding set in <code><jsp-descriptor></code> element of <code>weblogic.xml</code>. 4. Internal WebLogic Server/WebLogic Portal defaults.
Error Page URI	Read-only	<p>The file referenced in a shell that is used to display an error message in the desktop header or footer if the <code>contentType</code> JSP encounters errors. This value is read from the <code><netuix:jspContent></code> <code>"errorUri"</code> attribute in the <code>.shell</code> file <code><header></code> or <code><footer></code> tag. If you select a different shell for the desktop, you might see a different value here.</p>
Flow	Read-only	<p>If the Using Flow property is set to <code>true</code>, this value can be <code>vertical</code> or <code>horizontal</code>. Flow determines whether books or portlets put in the placeholder are positioned on top of each other (vertical) or beside each other (horizontal). This value is read from the <code>.layout</code> file for the page's selected Layout Type.</p>

Table 8-1 Properties in the Portal Properties View (Continued)

Property	Type	Description
Hidden	Optional	Hides the navigation tab for the portal component to prevent direct access. For pages or books, you can provide access with a link (to the definition label) or by using a backing file.
Layout Type	Required	Select the page layout style for positioning books and portlets in placeholders on a page. A dropdown menu provides the following selections: <ul style="list-style-type: none"> • Two Column Layout • Three Column Layout • Single Column Layout • Four Column Layout
Look & Feel	Required	Select the Look & Feel to determine the default desktop appearance (combination of skins and skeletons).
Navigation	Required	Select the default type of menu to use for navigation among books and pages. The dropdown menu displays these selections: <ul style="list-style-type: none"> • Single Level Menu – Provides a single row of tabs for the book’s immediate pages and child books. • Multi Level Menu – Recursively provides a hierarchical menu for all the books and pages contained within a book. This menu does not stop at the first set of children. It continues down the tree. If the parent book uses a multi-level menu, then the child books should not use a menu as the multi-level menu will cover them. For performance considerations associated with multi-level menus, refer to Chapter 11, “Designing Portals for Optimal Performance.” • No Navigation
Offer As Remote (new in Version 9.2)	Optional	Indicates whether or not this resource is to be offered to a WSRP consumer. The default value is <code>true</code> . This attribute is visible in the Properties view when you select any page or book within the editor, when a <code>.page</code> or <code>.book</code> file is open. Pages and books of <code>.portal</code> files do not cause this attribute to display.

Table 8-1 Properties in the Portal Properties View (Continued)

Property	Type	Description
Orientation	Optional	Hint to the skeleton to position the navigation menu on the top, bottom, left, or right side of the book. You must build your own skeleton to support this property. Following are the numbers used in the .portal file for each orientation value: top=0, left=1, right=2, bottom=3.
Packed	Optional	<p>Rendering hint that can be used by the skeleton to render the book or page in either expanded or packed mode. You must build your own skeleton to support the property.</p> <p>When packed="false" (the default), the book or page takes up as much horizontal space as it can.</p> <p>When packed="true," the book or page takes up as little horizontal space as possible.</p> <p>From an HTML perspective, this property is most useful when the window is rendered using a table. When packed="false," the table's relative width would likely be set to "100%." When packed="true," the table width would likely remain unset.</p>
Placeholder Width	Read-only	Displays the width set for the placeholder. This value is read from the .layout file for the page's selected Layout Type.
Presentation Class	Optional	<p>A CSS class that overrides any default CSS class used by the component's skeleton.</p> <p>For proper rendering, the class must exist in a cascading style sheet (CSS) file in the Look & Feel's selected skin, and the skin's skin.xml file must reference the CSS file.</p> <p>Sample: If you enter "my-custom-class", the rendered HTML from the default skeletons looks like this:</p> <pre><div class="my-custom-class"></pre> <p>The properties you enter are added to the component's parent <div> tag. On books, pages, and portlets, use the Content Presentation Class property to set properties on the component's content/child <div> tag, especially for setting a style class that enables content scrolling and height-setting.</p>

Table 8-1 Properties in the Portal Properties View (Continued)

Property	Type	Description
Presentation ID	Optional	<p>A unique ID inserted in the rendered HTML tag for the component. The value you enter (which must be unique among all presentation IDs in the portal) overrides the ID that might otherwise be inserted by the component's skeleton. An example use would be inserting a unique ID that JavaScript could operate on.</p> <p>Sample: If you enter 12345, the rendered HTML from the default skeletons looks like this:</p> <pre><div id="12345"></pre>
Presentation Style	Optional	<p>HTML style attribute to insert for the portal component. This attribute is equivalent to a style sheet class attribute and overrides any attributes in the style sheet class. Separate multiple entries with a semicolon.</p> <p>Sample: If you enter {background-color: #fff} for a portlet title bar, the rendered HTML from the default skeletons looks like this:</p> <pre><div class="bea-portal-window-titlebar" style="{background-color: #fff}">*</pre> <p>and the portlet title bar will have a white background. The background-color attribute you entered overrides the background-color attribute in the bea-portal-window-titlebar class.</p> <p>The properties you enter are added to the component's parent <div> tag. On books, pages, and portlets, use the Content Presentation Style property to set properties on the component's content/child <div> tag, especially for setting content scrolling and height.</p>
Properties	Optional	<p>A semicolon-separated list of name-value pairs to associate with the object. This data can be utilized by the skeletons to affect rendering.</p>
Public Access (new in Version 9.2)	Optional	<p>Indicates whether or not this resource is to be publicly visible. The default value is true.</p> <p>This attribute is visible in the Properties view when you select any standalone page or book within the editor, when the .page or .book file is open. Pages and books of .portal files do not cause this attribute to display.</p>

Table 8-1 Properties in the Portal Properties View (Continued)

Property	Type	Description
Return to Default Page	Optional	<p>Determines the page displayed when a book is selected.</p> <p>When Return to Default Page="false" (the default), the last page that was active in a book is displayed when the book is selected.</p> <p>When Return to Default Page="true," the page selected in the Default Page property is always displayed when a book is selected.</p> <p>For more information about the behavior of this option, refer to “Behavior of the “Return to Default Page” Attribute” on page 8-38.</p>
Rollover Image	Optional	<p>Path to a rollover image for the icon that appears next to the book or page title.</p> <p>Because the specified path might not be relative to the project, the image file cannot be located by Workshop for WebLogic and is not rendered on book or page tabs in the portal editor. Image paths must be relative to the image search paths specified in the <code>skin.xml</code> file associated with the selected Look & Feel.</p>
Selected Image	Optional	<p>Select an image to override the icon that appears next to the book or page title. This image appears on the tab of selected pages.</p> <p>Because the specified path might not be relative to the project, the image file cannot be located by Workshop for WebLogic and is not rendered on book or page tabs in the portal editor. Image paths must be relative to the image search paths specified in the <code>skin.xml</code> file associated with the selected Look & Feel.</p>
Shell	Required	Select the default shell for the area outside of the books, pages, and portlets. Shells determine the content for the desktop header and footer.
Skeleton URI	Optional	<p>The path (relative to the project) to a skeleton JSP that is used to render the portal component. This JSP overrides the skeleton JSP that would otherwise be used by the selected Look & Feel for the desktop. For example, enter</p> <pre>/frameworks/myskeletons/mytitlebar.jsp.</pre>
Theme	Optional	Applicable for books and pages. Select a theme to give the book or page a different Look & Feel from the rest of the desktop.

Table 8-1 Properties in the Portal Properties View (Continued)

Property	Type	Description
Title	Required (Read-only for placeholders)	Enter a title for the portal component. Page titles appear on page tabs and portlet titles appear on portlet title bars. For a placeholder, the name of the placeholder. This value is read-only, and is obtained from the <code>.layout</code> file for the page's selected Layout Type.
Tree Optimization	Optional	Using this function improves performance, especially for portals that have large control trees (books, pages, portlets). If this flag is set to <code>true</code> , the portal framework generates a partial control tree rather than the full tree. Tree optimization causes slight changes in the behavior of the portal; do not use it without first performing a complete regression test on the portal. For more information, refer to Chapter 11, "Designing Portals for Optimal Performance."
Unselected Image	Optional	Select an image to override the icon that appears next to the book or page title. This image appears on the tab of unselected pages. Because the specified path might not be relative to the project, the image file cannot be located by Workshop for WebLogic and is not rendered on book or page tabs in the portal editor. Image paths must be relative to the image search paths specified in the <code>skin.xml</code> file associated with the selected Look & Feel.
Using Flow	Read-only	If <code>true</code> , books and portlets put in the placeholder are positioned according to the value of the Flow property. If this value is set to <code>false</code> , the default flow is used (vertical). This value is read from the <code>.layout</code> file for the page's selected Layout Type.
Visible	Optional	Makes the edit icon in the titlebar or menu invisible (<code>false</code>) or visible (<code>true</code>). Set Visible to "false" when, for example, you want to provide an edit URL in a desktop header. When you select a placeholder in the Portal Designer, the following read-only properties appear in the Property Editor window. The property values are read in from the <code>.layout</code> file that corresponds to the selected Layout Type for the page.

Copying J2EE Library Files into a Project

You can override a resource in a shared J2EE library by copying the resource into your portal web project and then customizing it.

WARNING: If you copy J2EE library resources into your project, keep in mind that with future updates to the WebLogic Portal product, you might have to perform manual steps in order to incorporate product changes that affect those resources. *With any future patch installations, WebLogic Portal supports only configurations that do not have copied J2EE library resources in the project.*

To copy a J2EE library resource into your project, follow these steps:

1. Add the Merged Projects view if it is not currently visible. To do so:

Select **Window > Show View > Merged Projects View**.

The Merged Projects View is part of the default Portal Perspective, displaying in the same area as the Package Explorer view.

2. Select the Merged Projects view if it is not already selected.

Italicized items in the Merged Projects View represent entities that are stored in shared J2EE libraries. All entities that are stored on your filesystem, such as any portal files that you create, are shown in regular type.

3. Expand the display tree to view the resource that you want to copy to the project.

You can copy a single file, set of files, or an entire folder, to your project.

4. Right-click the resource(s) that you want to copy, and select **Copy To Project**.

The resources are copied to the web content folder of your project, and reflect the hierarchy of their location in the J2EE library.

Note: You can view a Properties dialog for a file in the Merged Projects View by right-clicking the file and selecting **Properties**. The dialog shows the J2EE library information for the file, including the J2EE library name and version.

Viewing Files that Override Shared J2EE Library Files

You can view local file overrides of J2EE library files in either of these ways:

- In the Merged Projects view in Workshop for WebLogic, files that you copied to the project are shown in plain (non-italic) text.
- Optionally, you can choose to superimpose a small marker icon on file icons in the display tree to indicate that a local file in your portal web project is overriding a file of the same name and path that exists in one of your shared J2EE libraries.

The icon indicating J2EE library overrides is turned off by default, due to the processing time involved in updating the information, and the fact that using it causes the WebLogic Portal plugins to always load at startup.

To activate the library override marker icons, follow these steps:

- a. Navigate to **Window > Preferences > General > Appearance > Label Decorations**.
- b. Check the box labeled **WebLogic Library Module File Override**.
- c. Click **Apply** and then click **OK**.

A small arrow displays in the icon for files that were copied from the J2EE library to the project.

Creating a Utility Project

A utility project is generally used to develop general-purpose Java code that is not directly part of special entities, such as web services, controls, or EJBs. [Table 8-2](#) lists a few WebLogic Portal J2EE libraries that can be added as utility projects.

Table 8-2 Common WebLogic Portal Libraries To Add To Utility Projects

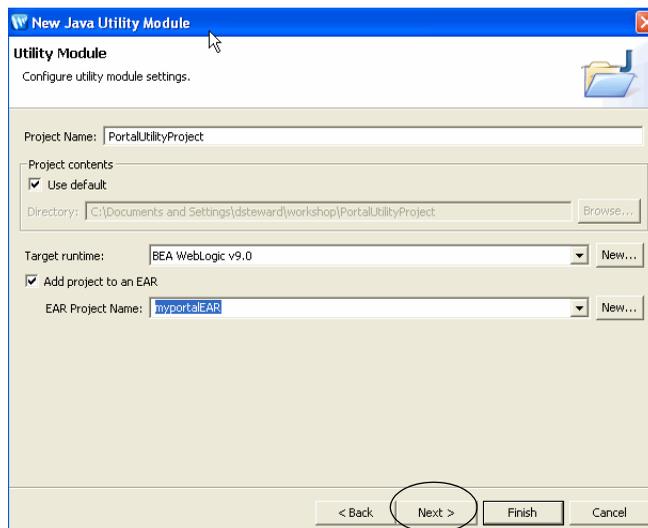
J2EE Library	Purpose	Library Dependencies
p13n-app-lib	Base library required for all other WebLogic Portal libraries.	None.
wlp-services-app-lib	Contains portal application classes that are need to create custom placeholders.	p13n-app-lib
wlp-framework-full-app-lib	Contains the Portal Framework customization classes.	p13n-app-lib
wlp-tools-app-lib	Contains the controls and classes related to the Portal Administration Console framework.	wlp-services-app-lib wlp-framework-full-app-lib

The steps in this section refer to the `src` folder in the Package Explorer View. Your `src` directory might be named differently.

Perform the following steps to create a utility project:

1. Create a utility project in Workshop for WebLogic by performing the following steps:
 - a. In the Portal Perspective, choose **File > New > Project**.
 - b. In the New Project - Select a Wizard window, expand the **J2EE** folder and select **Utility Project**. Click **Next**.
 - c. In the New Java Utility Module - Utility Module dialog, enter a name for the utility project and ensure that the **Use default** check box is selected. Select the **Add project to an EAR** check box and click **Next**, as shown in [Figure 8-9](#).

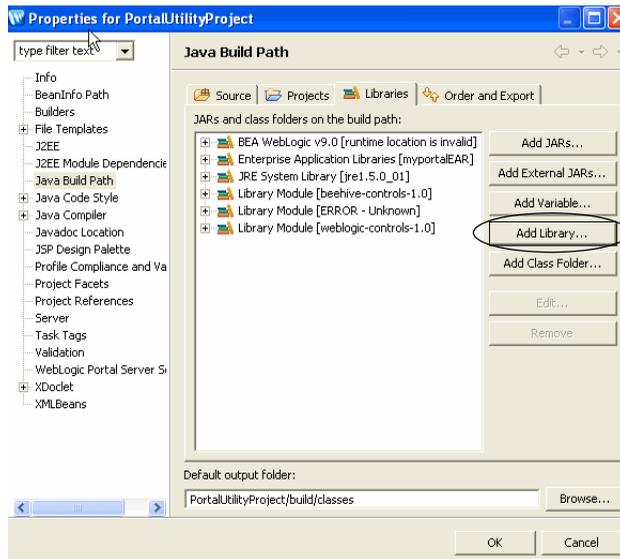
Figure 8-9 Enter a Project Name



- d. In the New Java Utility Module - Select Project Facets dialog, select the facets that you want to enable and click **Finish**. Your new utility project is automatically associated with your EAR project.
2. To ensure that the project sees utility project resources as the server will see them, add the WebLogic Portal Server and the appropriate J2EE library CLASSPATH containers to the project. Perform the following steps:

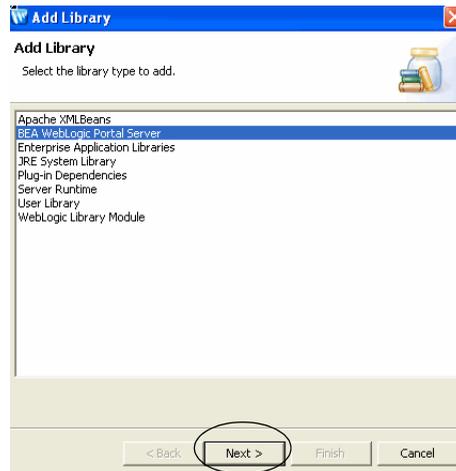
- a. In Package Explorer, right-click the portal utility project you created and choose **Properties**.
- b. In the Properties dialog, select **Java Build Path** and select the **Libraries** tab.
- c. Click **Add Library**, as shown in [Figure 8-10](#).

Figure 8-10 Add a Library



- d. In the Add Library dialog, select **BEA WebLogic Portal Server** as the library type and click **Next**, as shown in [Figure 8-11](#).

Figure 8-11 Select BEA WebLogic Portal Server



- e. In the Add Library - BEA WebLogic Portal Server dialog, configure the server CLASSPATH entries by selecting **All Configured entries** and clicking **Finish**.
- f. In the Properties dialog, click **Add Library** in the **Libraries** tab.
- g. In the Add Library dialog, select **WebLogic J2EE Library** and click **Next**.
- h. In the Add Library -WebLogic J2EE Library dialog, click **Browse** and select the library you need and click **OK**. The Specification Version, and Implementation Version fields are populated. Select the **Allow newer versions** check box and click **Finish**.
- i. In the Properties dialog, click **OK**.

Custom Controls in Page Flows

WebLogic Portal provides custom Java controls—collections of actions (Java methods) that you can drag and drop into your page flows—to make development easier and more automated. You can add actions in a graphical interface and configure the actions with the Workshop for WebLogic editor, insulating you from working directly with Java code (although you can still work directly with the code in Source View). Even if you want to work directly with code, working initially with the graphical interface automates code entry and makes it more syntax error free.

For example, the custom controls provided with WebLogic Portal provide built-in forms on some methods. If you want an action that creates a user, you can use the createUser method in the User

Provider control. If you add the `createUser` method into the control's action area, the control provides a `CreateUserForm` bean that can be added to a JSP and linked to the action automatically.

For information about creating page flows using Workshop for WebLogic, refer to the *BEA Workshop for WebLogic Platform Programmer's Guide*. For more information about the specific controls provided with WebLogic Portal, refer to the [Controls Javadoc](#).

The following sections provide more information about using controls provided by WebLogic Portal in page flows.

Adding a Portal Control to a Page Flow

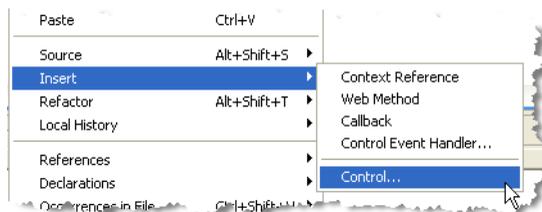
To add a control to a page flow:

1. Open an existing page flow (`.jpf` file) or create a new page flow.

For information about creating page flows using Workshop for WebLogic, refer to the *BEA Workshop for WebLogic Platform Programmer's Guide*.

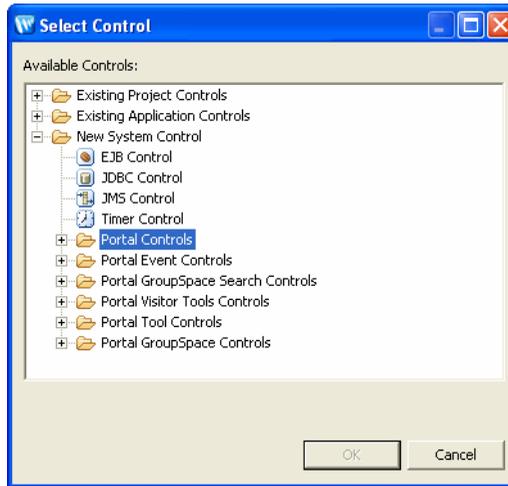
2. If you are not already using the Page Flow Perspective, Workshop for WebLogic asks if you want to switch to it. Do so.
3. Right-click in the source view for the page flow and select **Insert > Control**, as shown in [Figure 8-12](#).

Figure 8-12 Insert > Control Menu Selection



The Select Control dialog box displays, as shown in [Figure 8-13](#).

Figure 8-13 Select Control Dialog



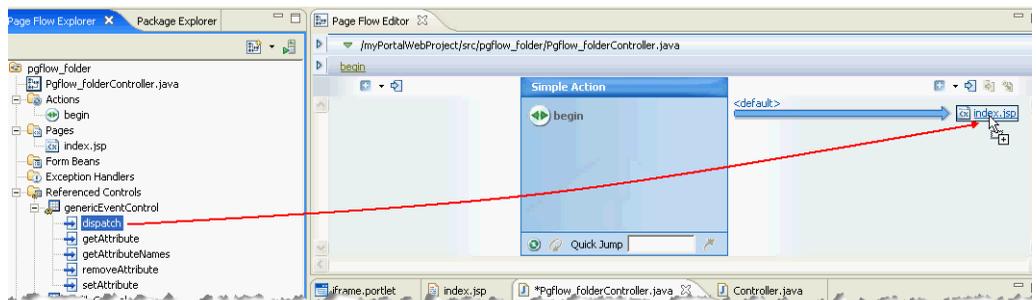
4. Expand the desired folder and select the control that you want to add.
5. Click **OK** to add the control to the page flow.

All the methods in the control are now available to your page flow.

Adding an Action to the Page Flow

You can add a method (action) to your page flow by dragging a method from the Page Flow Explorer view into the Flow View in the page flow editor, as shown in Figure 8-14.

Figure 8-14 Adding an Action to a Page Flow Using the Flow View



Portal Control Security

Many portal framework controls have secured methods, meaning that any control attempting to execute such a method would need to be in an authorized security role. You can specify security roles in a page flow on each action. A user must be a member of the designated role(s) for the action to be fired. For example, the User Provider Control has a `removeUser()` action that requires the caller to be in the role of "Framework SystemAdministrator" or "Admin."

For user and group management actions, the roles you specify in the WebLogic Portal Administration Console Authentication Security Provider Service determine whether or not the user can perform the action.

You can add security roles to a domain using the WebLogic Server Administration Console.

Deploy and View a Portal

You can deploy (publish) a portal to the server and view it in a browser window.

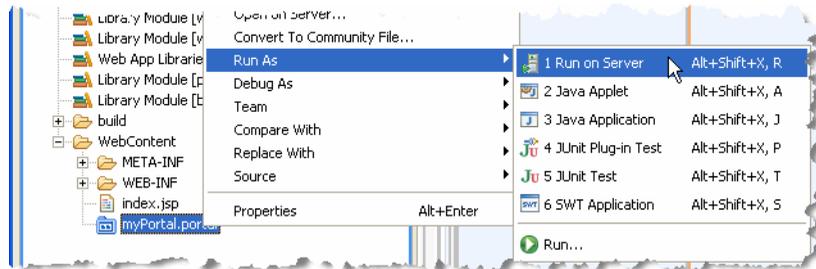
Caution: Due to a problem in Eclipse, some JSP tags are marked as containing an error when they are actually correct; although no error actually exists, Eclipse will not publish (deploy) the application. If this situation occurs, you must turn off JSP validation before publishing. Leave JSP validation on until you have fixed any problems except those caused by these tags; before deploying, select **Window > Preferences**, select **Validation** in the tree, and uncheck the **JSP Syntax Validator** check box.

To deploy (publish) and view your portal project, follow these steps:

1. Right-click the `.portal` file for the portal in the Package Explorer view and select **Run As > Run on Server**, as shown in [Figure 8-15](#).

Note: In many cases you are not required to redeploy a portal to see changes that you have made. For more information, refer to [“Running a Project on the Server”](#) on page 4-25.

Figure 8-15 Selecting to Run the Portal on the Server



The **Run On Server - Define a New Server** dialog displays. Make sure the server that you want to use is highlighted.

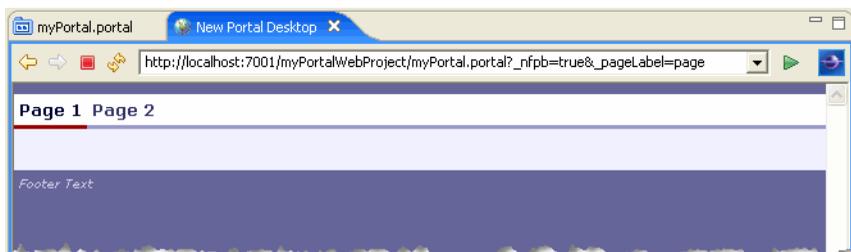
2. Click **Finish** to begin the deployment process.

Wait while Workshop for WebLogic starts the server, deploys files to the server, and runs the application. While deployment is in process, you can view status messages in the status bar at the bottom of the window.

The results appear in a new tab in the editor view, as shown in [Figure 8-16](#).

Tip: If you previously deployed a project of the same name and that project is in a different location, you need to undeploy that project from the server. To do this, double-click the server in the Servers view, and delete the appropriate portal web project (*not the shared J2EE libraries*) from the **Published Modules** list. For more information about this task, refer to the “Managing Servers” section of the *BEA Workshop for WebLogic Platform Programmer’s Guide*.

Figure 8-16 Portal Display in the Workbench Editor View



Tip: You can choose to always use an external web browser to view your portal if you wish. To do so, select **Window > Preferences** and select **General > Web Browser** in the property tree; then select the **Use external Web browser** radio button.

Working with URLs

The following sections describe how to work with URLs in WebLogic Portal:

- [Creating URLs to Portal Resources](#)
- [URL Compression](#)
- [URL Troubleshooting](#)
- [Ampersand Entities in Portal URLs](#)
- [Optional Look & Feel URL Templates](#)

Creating URLs to Portal Resources

WebLogic Portal provides a convenient, extensible mechanism for creating URLs to your portal resources in a portal web project that can transfer from domain to domain without breaking, especially when server names and port numbers change. This URL-creation mechanism also lets you switch between secure and non-secure URLs (http and https).

The two pieces involved in creating portable URLs are:

- The `<render:*Url>` JSP tags in the Portal Rendering JSP tag library.
- A portal web project's `WEB-INF/bee-hive-url-template-config.xml` file.

The `bee-hive-url-template-config.xml` file contains multiple URL “templates,” each with a unique name. Those template URLs contain variables such as `url:domain` and `url:port` that are read in from the active server. The `<render:*Url>` JSP tags have a “template” attribute in which you can specify the name of a URL template in `bee-hive-url-template-config.xml`.

[Table 8-3](#) shows how the JSP tags use the templates to create URLs.

Table 8-3 Examples of JSP Tags Using the Templates to Create URL

beehive-url-template-config.xml	<render:resourceUrl>
<p>The following is a sample URL template in beehive-url-template-config.xml.</p> <pre data-bbox="236 499 669 609"><url-template name="secure-url"> https://{url:domain}:{url:securePort}/{url:path}?{url:queryString} </url-template></pre>	<p>The following is how the <render:resourceUrl> JSP tag would create a URL using the template.</p> <pre data-bbox="704 499 1201 687"><% String reportpath = "reports/report1.html"; %> <a href="<render:resourceUrl template="secure-url" path="<%=reportpath%"/>"> View the Report </pre>

You can use any of the URL templates in `beehive-url-template-config.xml` provided by WebLogic Portal, and you can add as many templates as you want into the file.

The following variables are available for use in URL template building:

- `{url:domain}` - Reads the name of the server from the current request.
- `{url:port}` - Reads the listen port number of the server from the current request. (See Troubleshooting below.)
- `{url:securePort}` - Reads the SSL port number of the server from the current request. (See Troubleshooting below.)
- `{url:path}` - Reads the name of the web application. The URLs to all resources in a web application are relative to the web application directory.
- `{url:queryString}` - Reads a queryString variable for the URL.
- `{url:compression}` - Allows you to use the pluggable compression mechanism to create shorter, more readable, URLs. For details, refer to [“URL Compression” on page 8-31](#).

URL Compression

URL strings can take up a large percentage of the response HTML. WebLogic Portal’s URL compression mechanism provides a pluggable means of creating shorter URLs. For example:

Before implementing URL compression, a URL would look like this:

```
http://abc.com/webapp/portletEvents/activatePage/activatePage.portal?_nfpb=true&_windowLabel=pfTPC_source_1&pfTPC_source_1_actionOverride=%2FportletEvents%2FactivatePage%2FtoPage1
```

After implementing URL compression, a URL would look like this:

```
http://abc.com/wlp.c?__c=7f6
```

WebLogic Portal implements URL compression by mapping strings to the database. You set up URL compression using a web application-level setting; processing is invoked through the `GenericURL` class.

The default algorithm uses two of the p13n caches for the mapping - `wlp.urlCompression.compressed` and `wlp.urlCompression.expanded` - which are located in `p13n-cache-config.xml` in the `framework-full-app` library module.

Implementing URL Compression

To configure a webapp to use url compression, follow these steps:

1. Define the compression servlet in `web.xml`; for example

```
<servlet>
  <servlet-name>UrlCompressionServlet</servlet-name>
  <servlet-class>com.bea.portlet.compression.UrlCompressionServlet
</servlet-class>
  <init-param>
    <param-name>defaultPage</param-name>
    <param-value>/index.jsp</param-value>
  </init-param>
  <init-param>
    <param-name>errorPage</param-name>
    <param-value>/errors/error.jsp</param-value>
  </init-param>
  <load-on-startup>1</load-on-startup>
</servlet>
```

2. Map the compression pattern; for example:

```
<servlet-mapping>
  <servlet-name>UrlCompressionServlet</servlet-name>
  <url-pattern>wlp.c</url-pattern>
</servlet-mapping>
```

3. Add the token `{url:compression}` to the templates for which you want to apply compression.

URL Compression Special Considerations

The following sections describe some special considerations to keep in mind as you implement URL compression.

URL Compression and AJAX

URL compression interferes with some of the AJAX-specific mechanisms for page refreshes that are associated with asynchronous portlet rendering. Because of this, URL compression must be disabled whenever asynchronous content rendering is disabled to force page refreshes. WebLogic Portal disables URL compression automatically except when file upload forms are used; in this situation, you must explicitly disable it. For instructions, refer to the *Portlet Development Guide*.

A successful implementation of URL compression depends on portal developers following best practices and using supported URL_tags and classes to generate URLs.

URL Compression and Off-Site URLs

An off-site URL is a URL to a resource that is not hosted in the web application of the code generating the URL. In a web application that has compression enabled, you must specify a URL template with compression disabled when using GenericURL, its subtypes, or the corresponding JSP tags to generate off-site URLs.

Use the following code fragment as a guide:

```
GenericURL redirectURL = GenericURL.createGenericURL(request, response);
redirectURL.setDomain("www.yahoo.com"); redirectURL.setPort(80);
redirectURL.setPath("/compressedUrl/index.html");
redirectURL.setTemplate("no_compression_template");
```

where "no_compression_template" is the name of a URL template that excludes the {url:compression} pseudo-token.

URL Troubleshooting

If you are using a proxy server or switching back and forth between non-secure and secure ports, you might find that URLs do not resolve if you use the {url:port} or {url:securePort} variables. This is because the variables for those values are read from the request. For example, if a user in a non-secure port (port number 80) clicks a secure https link that was created with a URL template that uses the {url:securePort} variable, the port number of the request (80) is used for the {url:securePort} variable, which would create a secure request (https) on an non-secure port. The same could happen if a user on a proxy server (port 80) clicks a link to a resource outside the proxy server (port 443).

In both of those cases, you need to hard code port numbers in the URL templates to get URLs to resolve correctly.

URL Templates and Web Services for Remote Portlets (WSRP)

The `beehive-url-template-config.xml` file is automatically included (through a J2EE Shared Library) in all portal web projects. This file contains URL templates that are required to support URL rewriting in consumers. If you intend to use a web application as a WSRP producer, do not remove these URL templates and variables from the `beehive-url-template-config.xml` file.

Ampersand Entities in Portal URLs

WebLogic Portal uses the Beehive configuration file `beehive-url-template-config.xml` for configuring the form of WebLogic Portal-generated URLs. The Beehive configuration element for using ampersand entities (`&`) or ampersand characters (`&`) is located in the NetUI configuration file `beehive-netui-config.xml`. In an HTML configuration, the default is to generate URLs with ampersand entities, in the absence of a configuration element specifying the use of ampersand characters.

XHTML configurations force ampersand entities in URLs regardless of the configuration setting.

You can manually override the configuration setting using the `useAmpEntity` method and the `setForcedAmpForm` method in the `GenericURL` class. For more information about these methods, refer to the [Javadoc](#).

For a discussion of how previous releases of WebLogic Portal handled ampersands in URLs, refer to [“Ampersand Entities in Portal URLs” on page 5-5](#).

Optional Look & Feel URL Templates

The WebLogic Portal Look & Feel uses `ResourceURLs` (and thus, URL rewriters) for resource (CSS, Javascript, images, and so on) paths under two conditions:

- When optional URL templates are present
- When resource paths are generated by remote portlets

URL templates that are specific to Look & Feel resources may be specified in a reference group named "lookandfeel-url-templates." This group is expected to contain one or both of the following keys: "laf-resource" and "window-resource". The "laf-resource" key is used for resources related to a skin or skeleton; the "window-resource" key is used for resources related to window dependencies. The resolved (relative) resource path will be used to replace the

"{url:path}" parameter in the corresponding URL template. The following portion of the `beehive-url-template-config.xml` file shows the syntax of an example URL template:

```
<url-template>
  <name>laf-resource-template</name>
  <value>http://my.domain.com/resources/laf/{url:path}</value>
</url-template>

<url-template-ref-group>
  <name>lookandfeel-url-templates</name>
  <url-template-ref>
    <key>laf-resource</key>
    <template-name>laf-resource-template</template-name>
  </url-template-ref>
</url-template-ref-group>
```

In the absence of the Look & Feel URL templates, Look & Feel resource paths will remain relative, with one exception: when generated within the context of a remote portlet, such paths will use the standard "resource" URL template.

The optional LookAndFeel URL templates can be used to "offload" resources to a different server. However, such resources **MUST** be copied (not moved) and be resolvable using URLs with the same relative resource path as the Portal Web Application (for example, `.../framework/skins/default/css/book.css`). Look & Feel path resolution continues to rely on local filesystem access to resources.

The `GetSkinPath` tag in the render taglib will not be influenced by the optional Look & Feel URL templates. Paths produced by this tag will be relative in all cases.

Working with Encoding in HTTP Responses

This section describes how the encoding is set on the HTTP response.

WebLogic Portal uses the following method of setting encoding based on the information in the `.portal` file:

1. Examine the `netuix:desktop` element for an encoding attribute and use that value if present.
2. If the first check is not applicable, examine the `.portal` file for the `directive.page` element. *Note that this mechanism is deprecated.* If that element is present, pick up the encoding from an attribute there.
3. Examine `netuix-config.xml` for a `<defaultEncoding>` element, and use the encoding attribute there.

4. If the previous check is not applicable, fall back to the `<encoding>` element in the `<jsp-param>` section of the `web.xml` file. *Note that this mechanism is deprecated.*

This implementation differs from that of previous versions of WebLogic Portal. For more information, refer to the “Functional Changes” appendix of the [Upgrade Guide](#).

The following examples show how to use the encoding settings.

```
<netuix:desktop ... encoding="UTF-8" /> in your .portal file
```

or

```
<defaultEncoding encoding="UTF-8" /> in your netuix-config.xml file
```

Cache Management in Workshop for WebLogic

If configured properly, caches can vastly reduce the time needed to retrieve frequently used data. You can use Workshop for WebLogic to change settings for the current running instance of existing caches, or to flush caches. When you configure a cache, you modify its parameters to change its behavior or capacity. For example, you can set up a cache to hold only the most recent 200 entries and set the amount of time (in milliseconds) to remain in the cache. You can also flush a cache so that all new requests for information come from the database.

You cannot add a new cache using the Workshop for WebLogic user interface. However, you can add a cache by manually editing the `META-INF/p13n-content-config.xml` cache configuration file in the in the content directory (named `EarContent` by default) of the EAR project. You can also copy a cache file from the Merged Project view into your project if desired.

For details on using JSP tags or other methods of managing caches, refer to the *Performance Tuning Guide*, which will be available in a future documentation release.

The cache changes that you make using Workshop for WebLogic are not persisted and will be lost the next time you publish the application or restart the server. To make persistent changes, use the WebLogic Portal Administration Console.

Caches are read-only and cluster-aware.

Changing Cache Settings in Workshop for WebLogic

Note: Before you can perform the steps in this section, your server must be running.

To change cache settings in Workshop for WebLogic:

1. Select **Run > Portal Cache Manager**.

The Portal Cache Manager dialog displays, including a list of the current “live” caches. The caches displayed in this dialog comprise a superset of the caches that you can display in the Administration Console; the list in the Portal Cache Manager dialog includes the configured caches as well as caches that are triggered dynamically based on the processes that you are using in your portal.

2. Select a cache to change its settings.

Use the table below as a guide to the settings that you can change:

Table 8-4 Configurable Cache Settings in Workshop for WebLogic

Field/Button	Description
Is Enabled check box	Select this check box to enable or disable the cache. If you disable a cache, it still exists, but any requests to that cache would return a null value. You might want to disable a cache if, for example, you are testing placeholders or content selectors and you want to make sure that a value returned to you is the value from the database and not a cached value.
Is Configured	This read-only field indicates whether or not the cache has been configured using the Administration Console or using shared library or application descriptors.
Max Entries	The maximum number of entries (keys) that the cache should hold; after this limit is reached, the cache eliminates the least recently used keys.
Time-To-Live	The amount of time that an entry should remain in the cache, in milliseconds; for example, a value of 3600000 equals one hour, in milliseconds.
Description	This read-only field displays the description as it was entered in the Administration Console or using shared library or application descriptors.
Hit Rate	This read-only field displays statistics about cache activity, if this information is returned by the server.
Reset	Click this button to reset the dialog to the values that were previously displayed.
Set Values	If you change a value in the dialog, click Set Values to save your changes. Changing a value here changes it only for the running instance, not for the configured cache.

Table 8-4 Configurable Cache Settings in Workshop for WebLogic (Continued)

Field/Button	Description
Flush	Click this button to clear the contents of the cache. Flush allows you to clear the contents of any displayed cache. From the Administration Console, you can flush only configured caches.
Refresh	Click this button to reset the dialog to show any new caches or cache updates that might have occurred.

3. Click **Close** when finished.

For detailed descriptions of each cache, refer to the documentation for the specific feature that is related to that cache. For example, personalization-related caches are described in the [Interaction Management Guide](#).

Improving WebLogic Server Administration Console Performance on a Managed Server

If you are running your portal application on a Managed Server, you can improve the performance of the WebLogic Server Administration Console by using the `<context-param>` parameter in the `web.xml` file, as shown in this example:

```
<context-param>
  <param-name>portalFileDirectory</param-name>
  <param-value></param-value>
</context-param>
```

This parameter takes advantage of an optimized call that returns EAR content information. Without this parameter, the call recursively searches for `.portal` files. If you use this parameter, you must place all of the `.portal` files in the same directory under the portal web application. Use the `<param-value>` to specify the directory. In the example above, all `.portal` files reside in the web application's root directory (`/`).

Behavior of the “Return to Default Page” Attribute

When a Book's 'Return To Default Page' attribute is set to true, the portal should display the Book's default page when the book is the target of a navigation URL. The behavior might not be what you expect. The purpose of this section is to clarify the behavior.

This section addresses the nesting of books where the immediate children of the Main Book are books and the return to default only applies when moving between books, not within books. Here is a simple portal hierarchy where each page has a portlet that contains a URL to Book2.

Main Book - Book 2 is the default book for the main book

Book 2 - Return To Default = true with default page = Page 2

Page 2

Page 3

Book 3

Page 4

Page 5

When the above portal is rendered, Book 2 and Page 2 are displayed.

1. The user clicks on Page 3, moving off of the default page
2. The user clicks on Book 3 (which results in Page 4 being displayed and moving into a different book).
3. The user clicks on the URL for Book 2 and Page 2 is displayed

This works as expected as Page 2 is the default for Book 2 and the last active page in Book2 was Page 3.

When the above portal is rendered, Book 2 and Page 2 are displayed.

1. The user clicks on Page 3, moving off of the default page
2. The user clicks on the URL for Book2 and Page 3 is displayed

The reason for this is because Page 3 is within the same book and therefore, the return to default is not applied.

In the following hierarchy where pages are the children of the main book, the Return to Default feature does not apply.

Main Book - Page 1 is the default page for the main book

Page 1

Book 2 - Return To Default = true with default page = Page 2

Page 2

Page 3

Page 6

Book 3

Page 4

Page 5

Using the above hierarchy, the user is returned to the last active page in Book 2.

Adding Commerce Services to an Existing Portal Web Project

If you created a portal EAR project or portal web project without adding commerce-related features, you can enable them later by adding the commerce-related facets to your project.

The J2EE shared libraries directly associated with commerce functionality are:

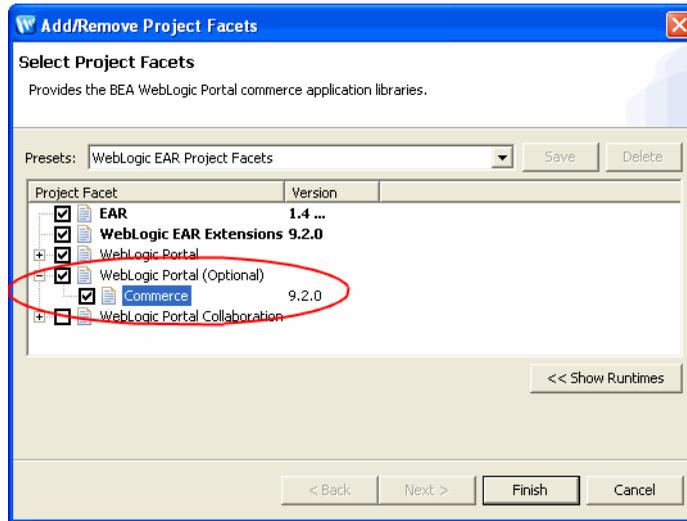
wlp-commerce-app-lib	Provides overall commerce support.
wlp-commerce-tools-support-app-lib	Provides Workshop for WebLogic (workbench) support for commerce (catalog).
wlp-commerce-web-lib	Provides JSP tag libraries.

To add commerce functionality to your portal application, follow these steps:

1. Add the Commerce facet to your portal EAR project by following the instructions in [“Adding Facets to an Existing Project”](#) on page 6-12.

The commerce facet is shown in [Figure 8-17](#):

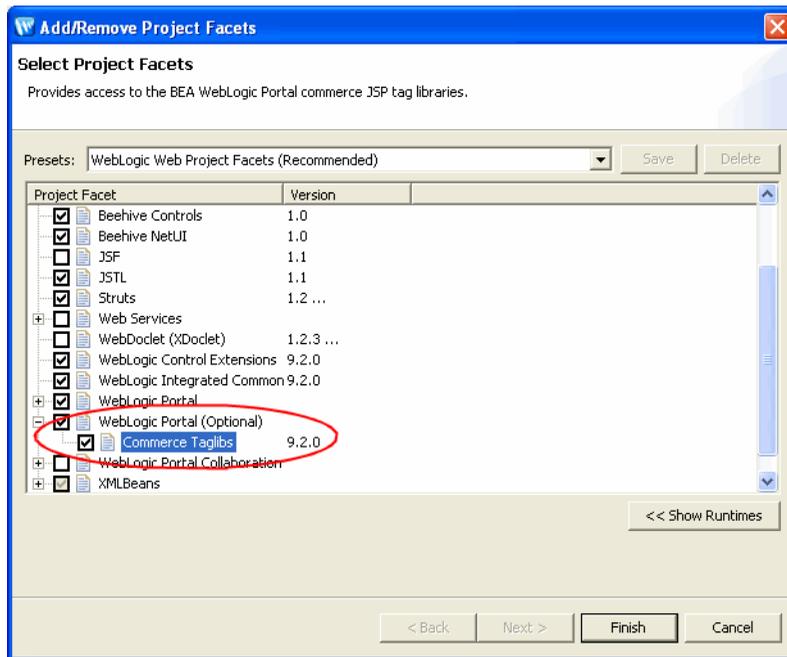
Figure 8-17 Commerce Facet in the Portal EAR Project Wizard



2. Add the Commerce facet to your portal web project by following the instructions in [“Adding Facets to an Existing Project”](#) on page 6-12.

The commerce facet is shown in [Figure 8-18](#):

Figure 8-18 Commerce Facet in the Portal Web Project Wizard



For technical details on Commerce Services, see the WebLogic Portal Javadoc for the packages `com.bea.commerce.*` and `com.beasys.commerce.*`.

Visitor Tools Configuration

Portal visitors can use browser-based tools to personalize the makeup and appearance of their portal if you enable this feature. This chapter describes how to set up your portal to allow visitor customization.

This chapter includes the following sections:

- [About Visitor Tools](#)
- [Enabling Visitor Tools in Workshop for WebLogic](#)
- [Setting up a Desktop with Visitor Tools Using the Administration Console](#)

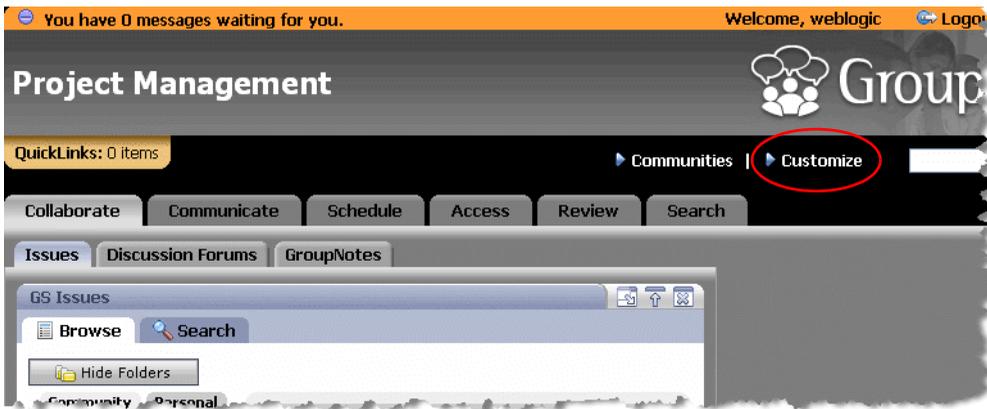
The *GroupSpace Guide* provides information about Visitor Tools from an end user's perspective; if you want to create a customized user guide for your portal visitors, you might want to use that content as a starting point.

About Visitor Tools

You can add functionality to your portal desktops that allows portal visitors to modify the content and appearance of their desktops, books, and pages. In order to use these Visitor Tools, visitors must be logged in to a desktop that is running in streaming mode. For more information about streaming portals, refer to “[File-Based Portals and Streaming Portals](#)” on page 3-8.

WebLogic Portal includes a “customize” menu that portal visitors can use to access the visitor tools; for example, the GroupSpace sample application's Customize menu contains a drop-down menu of links (the three menu items are Page Contents, Colors, and Pages). [Figure 9-1](#) shows the Customize menu (circled in red).

Figure 9-1 GroupSpace Desktop Showing the Customize Menu (Visitor Tools)



Tip: A “Communities” menu is also provided for use in the context of a community application; for more information, refer to the [Communities Guide](#).

Enabling Visitor Tools in Workshop for WebLogic

A portal web project includes a set of JavaServer Pages (JSPs) and other files that enable visitors to set properties on personalized views of the portal, if you enable this capability.

The following sample procedure shows you the steps involved in adding visitor tools to a portal web project.

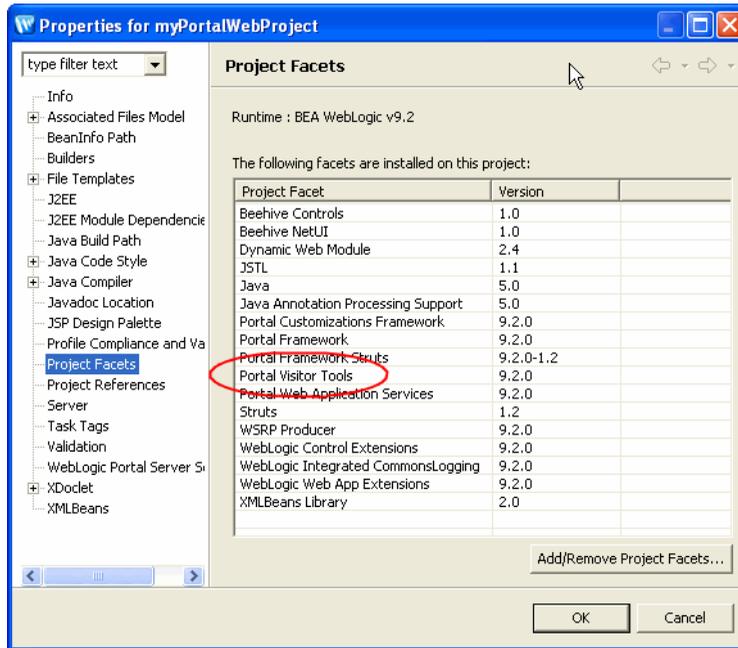
Notes: Your portal must include authentication (for example, a login portlet) to use visitor tools.

The Visitor Tools are not visible when running the `.portal` file in the Workshop for WebLogic development environment.

1. Verify that the Visitor Tools project facet is installed in your portal web project.

To do this, right-click the portal web project, and select **Properties**. Choose **Project Facets** from the tree on the left side of the dialog and look for the library **Portal Visitor Tools**. The dialog should look similar to the example shows in [Figure 9-2](#):

Figure 9-2 Project Facet List, Including Visitor Tools

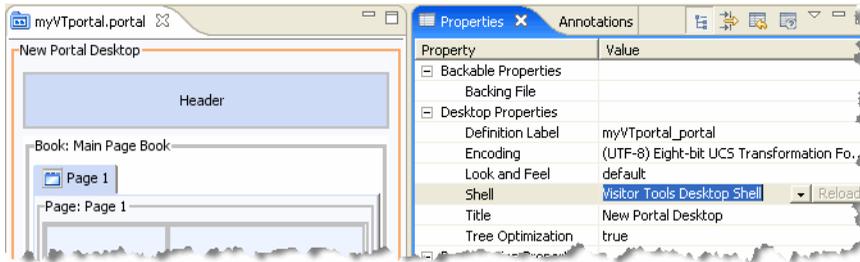


If the facet is not in the list, add it by following the instructions in [“Adding Facets to an Existing Project”](#) on page 6-12.

2. In Workshop for WebLogic, open the `.portal` for which you want to enable Visitor Tools.
3. In the editor, select the Desktop.
4. In the Properties view, locate the **Shell** property in the Desktop Properties section and set the value to Visitor Tools Desktop Shell.

Figure 9-3 shows an example.

Figure 9-3 Select Desktop and Edit Shell Property



Visitor Tools are now enabled.

Setting up a Desktop with Visitor Tools Using the Administration Console

You can use the WebLogic Portal Administration Console to create a streaming desktop using the `.portal` file as a template. After you complete this task, you can then visit the desktop and view the Visitor Tools.

Perform these steps:

1. In Workshop for WebLogic, if the server is not running, start it by clicking the Start icon  in the Servers view menu.
2. When the server is running, select the `.portal` file in the Package Explorer and choose **Run > Open Portal Administration Console** to start the WebLogic Portal Administration Console.
3. Log in to the Administration Console.
4. In the Administration Console, create a new desktop using the `.portal` created previously as the basis for the new desktop.

When you use the portal that you created in Workshop for WebLogic as the basis for the new desktop, that desktop inherits the usage of the Visitor Tools Desktop shell. This provides access to Visitor Tools from the desktop.

For instructions on creating a desktop, refer to [“Creating a Desktop” on page 12-19](#).

To confirm that visitor tools are enabled:

1. From the Administration Console Portal Resources tree, select the new desktop, go to the Details tab, and click **View Desktop**.

Setting up a Desktop with Visitor Tools Using the Administration Console

2. When the desktop displays, log in and access the Visitor Tools.

Visitor Tools Configuration

Creating Portals for Multiple Device Types

Many types of web-enabled mobile devices can access your portals. Each type has unique requirements for the content that it can display.

With the multichannel framework provided in WebLogic Portal, you can extend your portals to include support for different mobile devices. This flexible framework lets you create a single portal that serves content to multiple web-capable devices seamlessly and simultaneously. You can also serve different content to different browsers, such as Mozilla Firefox, Netscape, and Internet Explorer.

When a device accesses a portal, the portal detects the device type and automatically serves the content you created for it within the assigned Look & Feel.

This chapter contains the following sections:

- [Enabling Multichannel Features in a Portal Web Application](#)
- [Roadmap for Multichannel Processing](#)
- [Developing Portals for Use in a Multichannel Environment](#)

Enabling Multichannel Features in a Portal Web Application

When a device (whether a PC or a handheld) accesses a portal, it sends information about itself to the portal in the HTTP header, including the type of browser being used and the type of device. This combination of information defines a *client*, which is equivalent to the model of a device.

You define a client in the WebLogic Portal classifications configuration file using a *user agent* element. You can group several clients into a *classification*. For example, there are many models (client types) of Palm handheld devices, but they all fall under the classification of “Palm.”

To enable the multichannel framework in your portal web project, you create an XML configuration file that maps clients to classifications. You must name the file `client-classifications.xml` and place it in the `WEB-INF` directory. You can create the XML file from within Workshop for WebLogic by selecting **File > New > Other > XML** and following the steps in the wizard.

For each client entry that maps to a classification, you can include either an explicit user agent string that maps exactly to what a device sends, or you can enter a regular expression that encompasses multiple user agent strings.

[Listing 10-1](#) shows an example of a client classification mapping in `client-classifications.xml` using explicit mappings (with the `<useragent>` tag) and a regular expression mapping (with the `<useragent-regex>` tag).

Listing 10-1 Example of a Client Classification Mapping in the `client-classifications.xml` File

```
<classification name="pocketpc" description="For the PocketPC">
  <useragent value="Mozilla/2.0 (compatible; MSIE 3.02; Windows CE; 240x320)"/>
  <useragent value="Mozilla/2.0 (compatible; MSIE 3.02; Windows CE; PPC;
    240x320)"/>
  <useragent-regex value=".*PDA; Windows CE.*NetFront/3.*" priority="1"/>
</classification>
```

You can use an explicit `<useragent>` value for only one classification. If you use more than one `<useragent-regex>` tag to map with regular expressions, it is possible that a device accessing a portal could map to more than one classification. To determine which classification the device is mapped to, use the `priority` attribute, as shown in [Listing 10-1](#). The value `1` is the highest priority. Enter any whole number for the priority value.

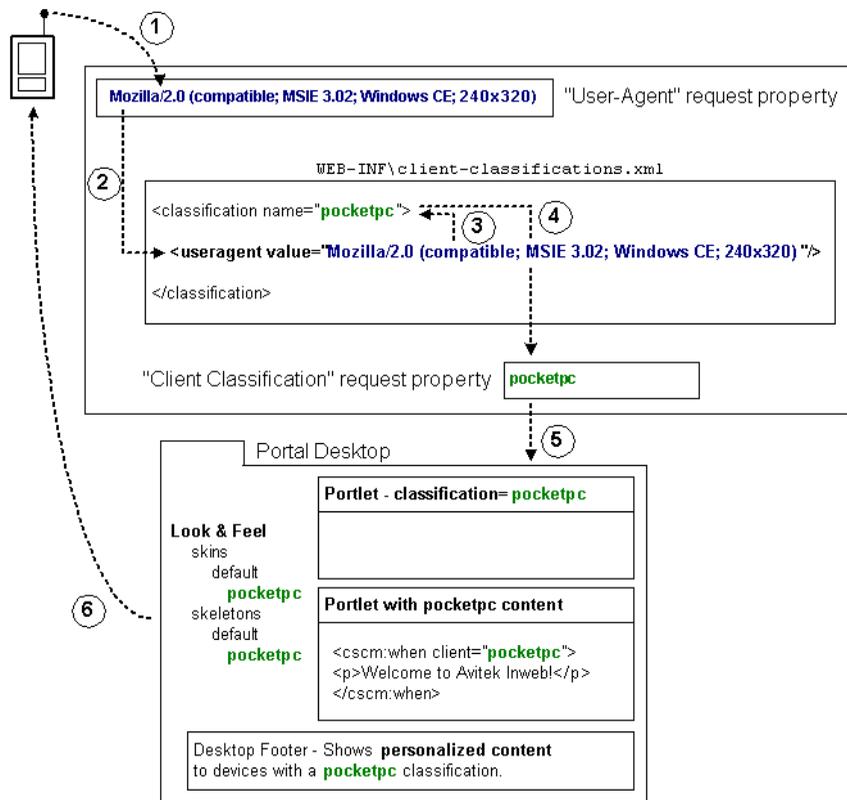
Note: For portlets that are assigned client classifications, the value you enter for the `description` element is displayed in the WebLogic Portal Administration Console to show the classifications to which the portlet is assigned. Make sure you create descriptions that are easily understood by portal administrators.

Based on the mappings you define in the `client-classifications.xml` file, the user agent value in the `<useragent>` property is mapped to the classification name you provide. The classification name in [Listing 10-1](#) is `pocketpc`.

Roadmap for Multichannel Processing

[Figure 10-1](#) shows the sequence of multichannel framework processing that occurs when a device accesses a portal.

Figure 10-1 Multichannel Framework Processing Sequence



When a device accesses a portal-enabled server with a URL, the device sends a user agent string in the HTTP header to identify the client type. Because of the mappings you defined in the `client-classification.xml` file, the user agent string stored in the `<useragent>` property is

mapped to the classification name you provided. As shown in [Figure 10-1](#), the name is `pocketpc`.

The user agent request property is automatically included with any portal application that you create in Workshop for WebLogic. You can view this property by opening the following file in your Workshop for WebLogic workspace:

```
Portal_Web_Project\Data_Dir\src\request\DefaultRequestPropertySet.req
```

The portal uses that client classification name stored in the `DefaultRequestPropertySet.req` file throughout the portal framework to identify the content and presentation tailored to the device.

Based on the mapping you set up to match user agent strings in the HTTP request to classification names, the portal sends device-specific content and presentation to the different devices that access the portal.

Developing Portals for Use in a Multichannel Environment

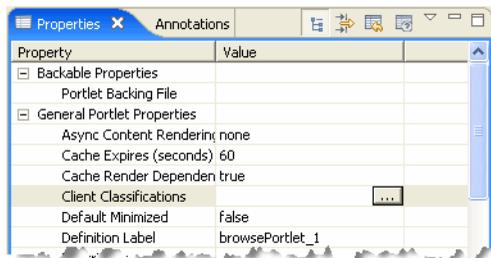
The following sections describe how to use the portal framework to create device-specific content and presentation.

Manage Portlet Client Classifications

When you create a portlet, you can assign the portlet to be used by different devices (client classifications). With the portlet open in the editor, go to the Properties view and perform the following steps:

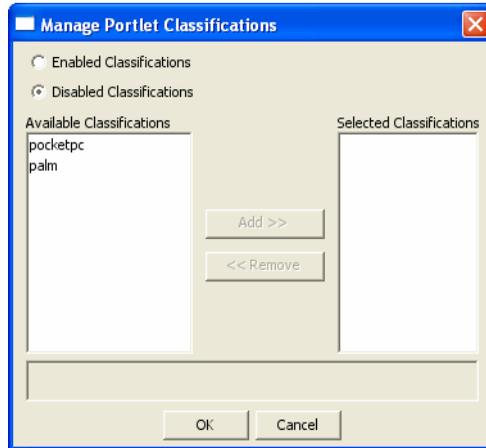
1. Click the ellipsis button in the **Client Classifications** field, as shown in [Figure 10-2](#).

Figure 10-2 Portlet Properties View Showing the Client Classifications Property



The Manage Portlet Classifications dialog displays. [Figure 10-3](#) shows an example:

Figure 10-3 Example of the Manage Portlet Classifications Dialog



Note: The `client-classifications.xml` file must already exist in the project's `WEB-INF` directory in order for this dialog to display.

2. In the Manage Portlet Classifications dialog, you select either to enable or to disable a subset of your client classifications; any classifications that you do not identify will automatically fall into the opposite category. Decide whether you want to *enable* a subset of your classifications and leave the remainder disabled, or *disable* a subset of classifications and leave the rest enabled.

The instructions for this step assume that you want to disable a subset of classifications and leave the rest enabled.

- a. Select the **Disabled Classifications** radio button to disable the portlet for any classifications.
- b. Use the **Add** button to move desired classifications into the **Selected Classifications** column.

By default, a classification is enabled unless you disable it.

3. When you are finished, click **OK** to save your settings.

Use the Client Attribute in JSP Tags

WebLogic Portal includes JSP tags for creating device-specific inline content in JSPs. Only the content that meets the device criteria defined by the JSP tag is delivered to the device.

The relevant JSP tags have a required `client` attribute for mapping the JSP content to classifications. For the `client` value in the JSP tag, you must use the exact value that you used for the name in the `client-classifications.xml` file.

[Listing 10-2](#) shows some possible uses of the `client` tag.

Listing 10-2 Example JSP File Showing Possible Uses of the Client Tag

```
<%@ taglib uri="http://www.bea.com/servers/portal/tags/client/cscm"
prefix="client" %>
<%@ taglib uri="http://www.bea.com/servers/portal/tags/netuix/render"
prefix="render" %>
```

This is a sample of manipulating content using the `client-classification` tag library.

```
<p/>
<client:default>
  
</client:default>
```

Different versions of the same image will be selected based on the `client` classification. For the `"default"` `client`, a large image will appear. For the `"palm"` and `"pocketpc"`, a smaller version of the image will be used. For the `"nokia"` classification, a greyscale image will be used (purely as an example).

```
<p/>
<client:when client="palm,pocketpc"><p/></client:when>
<client:when client="nokia"><p/></client:when>
```

Image placement is also altered slightly for the different classifications.

```
<client:when-not client="palm,nokia">
<p/>
This additional content is also included if the client is not a "nokia"
or "palm" classification.
<p/></client:when-not>
```

Develop Appropriate Look & Feels

The Look & Feels (skins and skeletons) provided with WebLogic Portal include support for a few mobile devices (Nokia, Palm, and Pocket PC).

You can develop your own skins and skeletons to support different devices. When a Look & Feel is selected for a desktop, the portal framework reads the client classification property in the `DefaultRequestPropertySet.req` file and uses the Look & Feel logic to find skin and skeleton directories matching the name of the client classification.

Any portal web project that you create includes a default set of multichannel Look & Feels located in skin and skeleton subdirectories (`\framework\skins\default` and `\framework\skeletons\default`).

For instructions on creating skins and skeletons for Look & Feels, refer to [“User Interface Development with Look & Feel Features”](#) on page 7-1.

Interaction Management Development

Using the client classification name stored in the `DefaultRequestPropertySet.req` file, you can build and trigger personalization and campaigns for devices based on that property value.

For information on developing personalization and campaigns, refer to the [Interaction Management Guide](#).

Creating Portals for Multiple Device Types

Designing Portals for Optimal Performance

The process of optimizing your portlets for the best possible performance spans all phases of development. You should continually monitor performance and make appropriate adjustments.

This chapter describes performance optimizations that you can incorporate as you develop portlets.

This chapter contains the following sections:

- [Control Tree Design](#)
- [Using Multiple Desktops](#)
- [Optimizing the Control Tree](#)

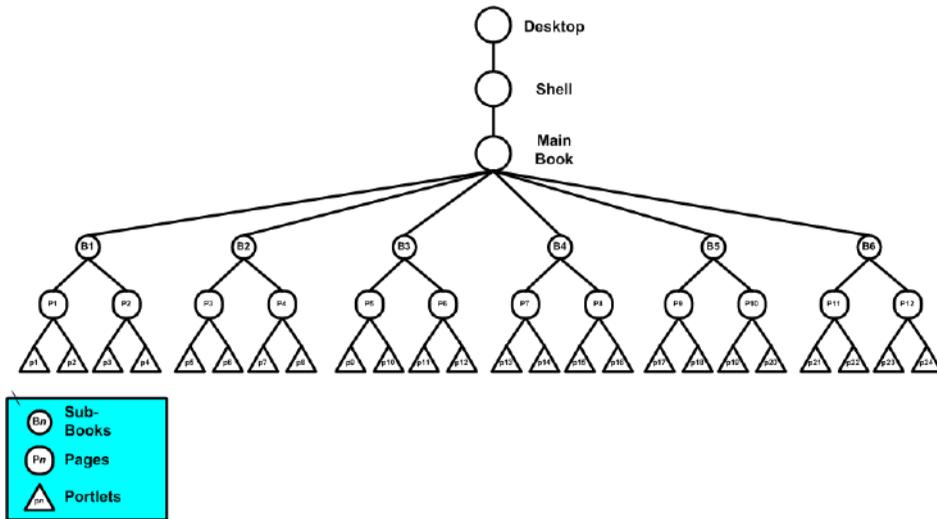
Control Tree Design

One of the most important variables that affects portal performance is portal framework controls. The more portal framework controls (pages, portlets, buttons, and so on) you have, the larger your control tree.

How the Control Tree Works

When a portal is instantiated, it generates a taxonomy, or hierarchy of portal resources, such as desktops, books, pages, and portlets. Each resource is represented as a node on the control tree, as shown in [Figure 11-1](#).

Figure 11-1 Simple Portal Schematic Example



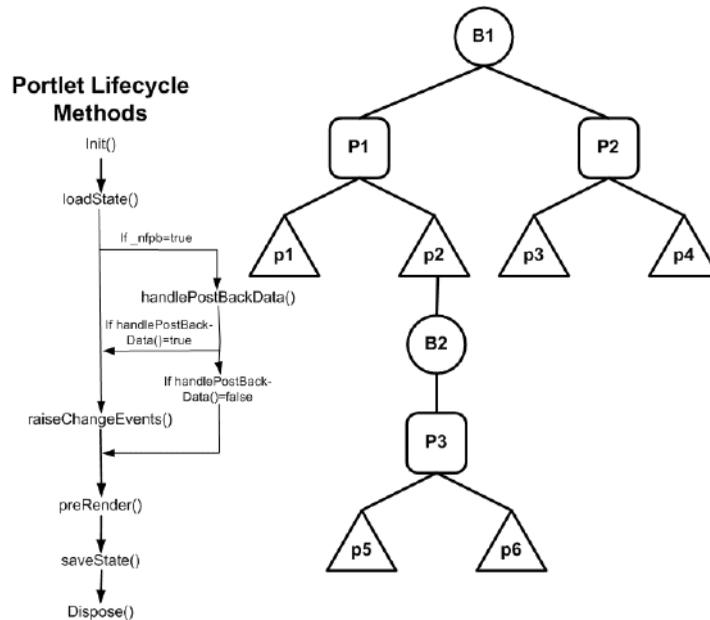
This example depicts a single portal with a main book containing six sub-books, which in turn contain two pages each, and each page contains two portlets each, for a minimum of 42 controls in the portal; the inclusion of buttons, windows, menus, and layouts increases the number of controls on the portal significantly.

Note: This example is significantly oversimplified; enterprise portals might include thousands of controls.

How the Control Tree Affects Performance

Once the control tree is built and all the instance variables are set on the controls, the tree must run through the life cycle for each control before the portal can be fully-rendered. The life cycle methods are called in depth-first order. That is, all the `init()` methods for each control are called, followed by the `loadState()` method for each control, and so on in an order determined by the position of each control in the portal’s taxonomy. For example, the control tree illustrated in [Figure 11-2](#) depicts the taxonomy a simple portal comprised of a book (B1) containing two pages (P1 and P2), which each contain two portlets (p1-p4; note that p2 also contains its own subordinate book, page, and portlet hierarchy).

Figure 11-2 Control Tree with Life Cycle Methods



When this portal is rendered, the `init()` method (and `handlePostBackData()` if `_nfpb=true`) is called first, for each control, in this order: B1, P1, p1, p2, B2, P3, p5, p6, P2, p3, and finally p4. Next, the `loadState()` method would be called in the same order, and so on for all life cycle methods through `saveState()`.

Note: Control life cycle methods `preRender()`, `render()`, and `dispose()` are called only on *visible* controls.

Running each control through its life cycle requires some overhead processing time, which, when you consider that a portal might have thousands of controls, can grow exponentially. Thus, you can see that larger the portal's control tree the greater the performance hit.

Using Multiple Desktops

The simplest way to limit the size of the control tree without limiting the flexibility of the portal is to split the portal into multiple desktops. In portal taxonomy, a desktop is nothing more than a portal embedded into another portal. It maintains the ability to leverage all of the features inherent in any portal and, within itself, can contain additional desktops.

Why This is a Good Idea

When you split a complex portal into multiple desktops, you spread the controls among those desktops. Since the control tree is scoped to the individual portal and since a desktop behaves much like a portal, each desktop has its own tree and the controls on that tree are built only when that desktop is opened. Thus, by splitting a complex portal with a large control tree into multiple desktops, you reduce the number of controls on the tree to just that number necessary for the active desktop. As you might guess, this reduces the amount of time required to render the portal as a single desktop and increase portal performance.

When a portal is rendered, about 15% of the processing time is dedicated to constructing the control tree, 70% to running the life cycle methods, and 15% in garbage collection (clearing dead objects from the heap, thus releasing that space for new objects). While construction and garbage collection are always performed, running the life cycle methods is necessary only for visible controls (that is, those on the exposed desktop). This results in considerable overhead savings and improved system performance.

For example, the sample control tree depicted in [Figure 11-1](#) shows a single portal with 42 controls. Were we to split this portal up into multiple desktops, as in [Figure 11-3](#), while we would increase the number of control trees in the entire portal, each tree would be nearly two thirds smaller, and thus be processed in roughly two-thirds the time, significantly reducing the time required to render the portal.

Figure 11-3 Simple Portal Split into Multiple Desktops

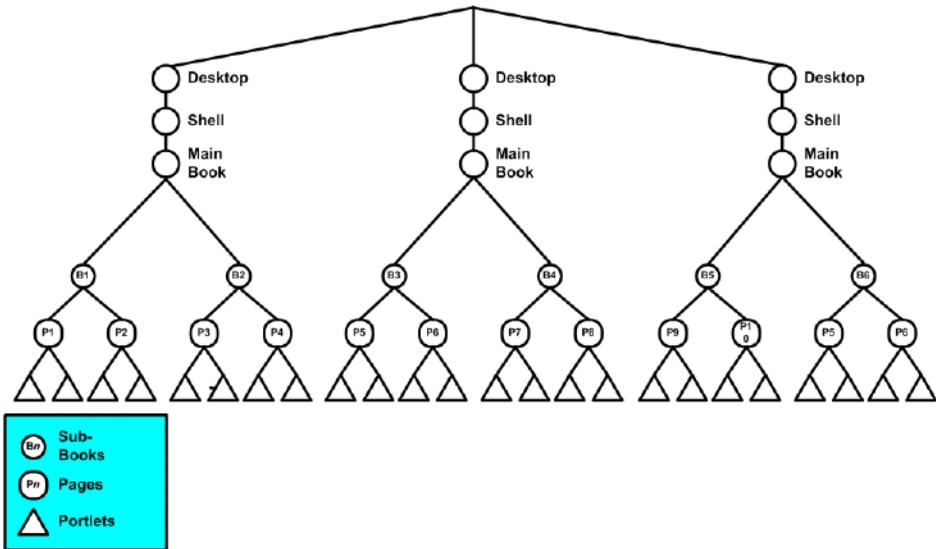
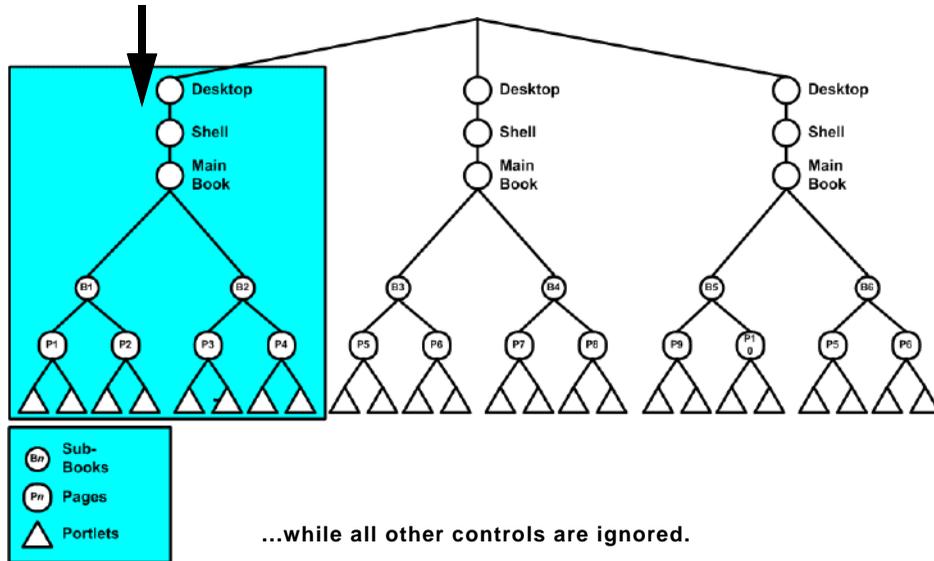


Figure 11-4 shows how the example in Figure 11-3 might be rendered once opened.

Figure 11-4 How Multiple Desktops Reduce Control Tree Size

When this desktop is opened, a control tree is constructed using only the controls on that desktop...



Design Decisions for Using Multiple Desktops

As these examples demonstrate, splitting a complex portal into multiple desktops can be very rewarding in terms of improved performance; however, not all portals benefit from the extra effort required to split them into multiple desktops. Before implementing a portal using multiple desktops, you need to consider some important design decisions. For example:

- **How many controls does your portal use?** If the portal is small (about ten pages or less) or uses a limited number of controls, the extra effort necessary to create multiple desktops might not be necessary.
- **Can your portal be logically divided into multiple desktops?** While splitting a complex portal into multiple desktops might save rendering time, arbitrarily assigning portlets to those desktops, with no thought to their interrelationships, can be dangerous. Visitors might have a negative experience with the application if related information is not easily located, particularly if it is on a desktop separate from where it might logically go.

- **What sort of administrative overhead is required once the multiple desktops are deployed into production?** For example, if you have 20 different potential desktops, a big consideration is how common they will be. If they are more alike than different, then using fewer desktops is better because there will be fewer administrative tasks to perform.
- **Are there customization concerns?** Each desktop must be customized separately, which can add significant additional effort for portal developers and administrators. However, note that portal administrators can make changes in the library that will affect all desktops in the portal.
- **Can you afford to lose some functionality in your portal?** For example, if your application relies on interportlet communication, either through page flows or backing files, you might be better off not splitting up the portal, as listeners and handlers on one desktop cannot communicate with their counterparts on other desktops. For portlets to communicate with each other, they must be on the same desktop; your portal design must take this requirement into consideration.

For more information on creating desktops, please refer to [“Desktops” on page 12-18](#).

Optimizing the Control Tree

Tree optimization, as the name implies, means that control tree rendering is done in a way that creates the least amount of system overhead while providing the user with as complete a set of portal controls as that user needs to successfully use the portal instance.

Note: Asynchronous portlet rendering can be used with control tree optimization. For more information about asynchronous portlet rendering, refer to the [Portlet Development Guide](#).

Enabling Control Tree Optimization

You enable control tree optimization by setting the `treeOptimizationEnabled` flag in the `.portal` file to true, as shown in [Listing 11-1](#).

Listing 11-1 Enabling Tree Optimization in `.portal`

```
<desktop> element:
<netuix:desktop definitionLabel="defaultDesktopLabel"
  markupName="desktop"  treeOptimizationEnabled="true"
  markupType="Desktop"  title="SimplePortal"><netuix:lookAndFeel
```

Designing Portals for Optimal Performance

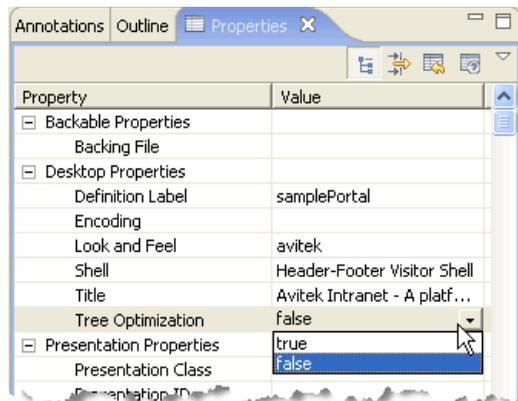
```
definitionLabel="defaultLookAndFeel">  
<netuix:desktop/>
```

Notes: If `treeOptimizationEnabled=` is not included in the `.portal` file, the portal defaults to `treeOptimizationEnabled=false`.

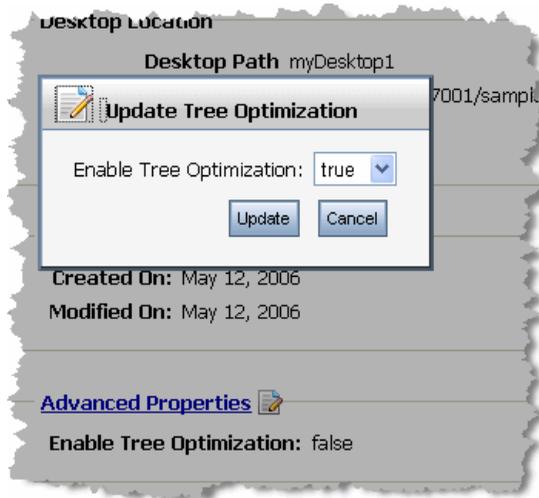
When this flag set to `true`, the portal framework generates a partial control tree instead of the full control tree, basing this tree on just the controls that are visible and active. Thus, with fewer controls needing to be rendered, processing time and expense can be significantly reduced.

For portals, you can enable this flag by setting Tree Optimization to `true` in the Workshop for WebLogic Properties view, as shown in [Figure 11-5](#).

Figure 11-5 Enabling Tree Optimization in Workshop for WebLogic



- For desktops, you can set the flag from the Administration Console, as shown in [Figure 11-6](#).

Figure 11-6 Enabling Tree Optimization from the Administration Portal

Note: For new desktops, `treeOptimizationEnabled="true"` is the default value.

Setting the Current Page

Before the flag can actually work, the file `beehive-url-template-config.xml` (in `Portal_Web_Project/webAppName/WEB-INF`) must have `{url:currentPage}` set in the `<url-template>` element, as shown in [Listing 11-2](#).

Note: When you create a new project in Workshop for WebLogic, `currentPage` is added automatically; however, if you are migrating from an earlier version of WebLogic Portal, you must manually update `beehive-url-template-config.xml`.

Listing 11-2 `beehive-url-template-config.xml` URL Templates Component

```
<!-- URL templates -->
  <url-template>
    <name>default</name>
    <value>{url:scheme}://{url:domain}:{url:port}/{url:path}?{url:queryString}
    {url:currentPage}</value>
  </url-template>
```

Designing Portals for Optimal Performance

```
<url-template>
    <name>default-complete</name>
<value>{url:scheme}://{url:domain}:{url:port}/{url:prefix}/{url:path}?{url:
:queryString}{url:currentPage}</value>
</url-template>
<url-template>
    <name>jpf-default</name>
<value>http://{url:domain}:{url:port}/{url:path}?{url:queryString}{url:cur
rentPage}</value>
</url-template>
<url-template>
    <name>jpf-action</name>
<value>http://{url:domain}:{url:port}/{url:path}?{url:queryString}{url:cur
rentPage}</value>
</url-template>
<url-template>
    <name>jpf-secure-action</name>
<value>https://{url:domain}:{url:securePort}/{url:path}?{url:queryString}{
url:currentPage}</value>
</url-template>
<url-template>
    <name>jpf-resource</name>
<value>http://{url:domain}:{url:port}/{url:path}?{url:queryString}{url:cur
rentPage}</value>
</url-template>
<url-template>
    <name>jpf-secure-resource</name>
<value>https://{url:domain}:{url:securePort}/{url:path}?{url:queryString}{
url:currentPage}</value>
```

```
</url-template>
```

```
<url-template-ref-group>
```

```
  <name>default-url-templates</name>
```

```
  <url-template-ref>
```

```
    <key>action</key>
```

```
    <template-name>jpf-action</template-name>
```

```
  </url-template-ref>
```

```
  <url-template-ref>
```

```
    <key>secure-action</key>
```

```
    <template-name>jpf-secure-action</template-name>
```

```
  </url-template-ref>
```

```
  <url-template-ref>
```

```
    <key>resource</key>
```

```
    <template-name>jpf-resource</template-name>
```

```
  </url-template-ref>
```

```
  <url-template-ref>
```

```
    <key>secure-resource</key>
```

```
    <template-name>jpf-secure-resource</template-name>
```

```
  </url-template-ref>
```

```
</url-template-ref-group>
```

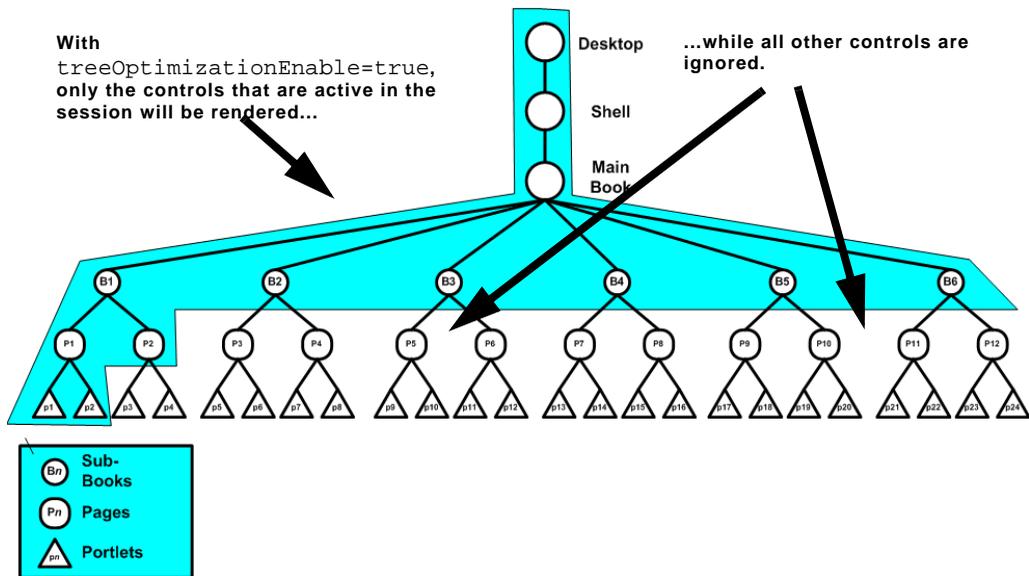
How Tree Optimization Works

When the portal servlet receives a request (that is, a mouse-click) it reads the cache to determine if a control tree factory exists. If one doesn't, it calls `controlTreeFactoryBuilder`, passing it the XML from the `.portal` file. This class returns a control tree factory to the servlet, which passes the request to the `CreateUIControlTree` class.

Assuming `_pageLabel` and `treeOptimizationEnabled="true"`, `CreateUIControlTreeFactory` calls the `PartialUIControlTreeCreator()` method, which returns a control tree comprised of just the control identified by the page label and the set of active page and book labels; this is a *partial* control tree.

For example, if tree optimizations were enabled for the portal depicted in [Figure 11-4](#), when you submit a request (that is, a mouse click), only the active controls would be rendered, as illustrated in [Figure 11-7](#).

Figure 11-7 How Tree Optimization Reduces Control Tree Size



The set of active page and book labels for that session stored during the `saveState()` life cycle method execution tell `PartialUIControlTreeCreator()` which controls to build. Only these controls will be built; all others in the portal are ignored. As you can see, a significant amount of processing overhead is eliminated when the control tree is optimized—since far fewer controls need to be built—resulting in greatly improved performance.

Multi Level Menus and Control Tree Optimization

Single Level Menus provide significantly better performance in very large portals than Multi Level Menus. Although every environment is different, an example of a very large portal might

include one that contains 40 books, with each book having 10 pages, and each page having 10 portlets, for a total of 4000 portlets; a typical user load might be 2000 concurrent users.

With Single Level Menus enabled in an example environment, the response time of the system is at least twice as fast when compared with portals having Multi Level Menus. The reason for this is that the Multi Level Menu must traverse the control tree to be able to build the menu, regardless of whether control tree optimization is turned on. There is still an advantage to using control tree optimization with a multi level menu, but system performance is not a primary reason to do so.

Limitations to Using Tree Optimization

If you are creating complex portals that require a large number of controls, tree optimization is the easiest way to ensure optimal portal performance. Controls that aren't active in the current portal instance aren't built, saving considerable time and overhead. Nonetheless, you need to be aware that tree optimization slightly changes a portal's behavior and some portal implementations will not have substantial benefit; for example:

- The backing file life cycle methods `init()` and `handlePostBackData()`, which are called when the backing file is executed—even for non-visible controls—are not called when tree optimization is enabled, unless they appear on visible controls.
- If your portal uses backing files on any of their controls, some backing context APIs are limited in their functionality.

On `DesktopBackingContext`, `BookBackingContext`, and `PageBackingContext`, the following methods return null if they are trying to access a page, book, or portlet that is not in the partial tree

```
- public BookBackingContext getBookBackingContextRecursive(String
    definitionLabel)
- public PageBackingContext getPageBackingContextRecursive(String
    definitionLabel)
- public PortletBackingContext
    getPortletBackingContextRecursive(String instanceLabel)
- public PortletBackingContext[]
    getPortletsBackingContextRecursive(String definitionLabel)
```

You might experience the same behavior—or lack thereof—on `DesktopPresentationContext`, `BookPresentationContext`, and `PagePresentationContext` with the presentation versions of these methods:

```
- public BookPresentationContext
    getBookPresentationContextRecursive(String definitionLabel)
```

```
- public PagePresentationContext
  getPagePresentationContextRecursive(String definitionLabel)
- public PortletPresentationContext
  getPortletPresentationContextRecursive(String instanceLabel)
- public PortletPresentationContext[]
  getPortletsPresentationContextRecursive(String definitionLabel)
```

- If your portal uses multi-level menus you need to decide if the benefit of multi-level menus outweigh any performance hit.

If the menu is on an active book, every control accessible from that menu must be created before the portal is completely rendered, thus more overhead and a greater performance hit. On the other hand, because a multi-level menu results in the creation of a skeletal control tree, it can reduce the number of request cycles required to navigate to your desired destination, reducing the total overhead required to accomplish a navigation.

Overall, single-level menus provide significantly better performance in very large portals than multi-level menus. Although every environment is different, an example of a very large portal might include one that contains 40 books, with each book having 10 pages, and each page having 10 portlets, for a total of 4000 portlets; with a typical user load of 2000 concurrent users. With single-level menus enabled in an example environment, the response time of the system is at least twice as fast when compared with the same portal using multi-level menus.

- If your portal uses Programmatic Page Change Events called from a backing file and the page to which the change is being directed is not within the partial control tree, it does not exist in the instance and the page change will not occur.

You can work around this problem by doing one of the following (this is the preferred order):

- a. Use a link to perform the page change.
 - b. Use the new declarative interportlet communications model.
 - c. Implement a redirect from within the backing file.
 - d. Set `_nfto="false"` in the invoking link. This causes the full control tree to be created for that single request.
 - e. Turn off tree optimization altogether on the portal.
- If your portal uses “cookie” or “url” state locations, the partial control tree *will not* work.

- If your portal uses non-visible portlets, the `onDeactivation` portlet events for non-visible portlets might not work with portal tree optimization turned on.

When the “tree optimization” flag in a `.portal` file is turned on, not all non-visible portlets for a given request are processed. (A non-visible portlet is one that lives on a page that is not displayed for the given request.) This can be a problem if you are trying to catch an `onDeactivation` event for a portlet—once the portlet has been deactivated, it is no longer visible, and so the system doesn't process it to fire its deactivation event. The recommended workaround is to set tree optimization to false for the portal in question. However, there is a trick you can play if you need the tree optimization. For each portlet that you want to catch deactivation events for, define a dummy event handler (for example, create a custom event handler with `event = "[some nonsense string]"` and set the property “Only If Displayed” to false. This forces the system to process the portlet whether visible or not.

Mindful of these conditions, *never* set `treeOptimizationEnabled` to true without first doing a complete regression test on the portal. If any of the above-listed problems occur, you might want to rethink your portal design or disable tree optimization completely.

Disabling Tree Optimization

As discussed above, although control tree optimization can benefit almost any portal, behavioral limitations might require that you disable it. When you disable optimization, the portal creates a full control tree upon every request. Be aware that this could significantly impede the performance of very large portal. You need to decide whether the anticipated performance hit is offset by the improvement in functionality.

To disable tree optimization, do one of the following:

- Set `treeOptimizationEnabled = "false"` in the `.portal` file or on the desktop.

Include `nfto="false"` in the request parameter of just that instance for which you want to disable tree optimization. The parameter needs to be added to URL programmatically as the URLs are generated using framework classes `GenericURL` and `PostBackURL`; for more information on these classes, see the [WebLogic Portal Javadoc](#).

The following code shows one way to adding this parameter:

```
PostBackURL url = PostbackURL.createPostBackURL(request, response);
url.addParameter(GenericURL.TRE_OPTIMIZATION_PARAM, "false");
```

- Use one of the tags in the `render` tag libraries.
- Delete the `_pageLabel` parameter from the request.

Other Ways to Improve Performance

In addition to managing the taxonomy of your portal through effective use of the control tree, WebLogic Portal offers other ways to improve performance. These solutions can all be used in concert with multiple desktops and control tree optimization, ensuring superior portal performance. This section describes the most effective performance-enhancing solutions available with WebLogic Portal.

Use Entitlements Judiciously

Entitlements determine who can access the resources in a portal application and what they can do with those resources. This access is based on the role assigned to an application visitor, allowing for flexible management of the resources. For example, if you have an Employee Review portlet, you can assign the “Managers” visitor entitlement role you created to that portlet, letting only logged in users who belong in that role view the portlet.

Users visiting an application are assigned roles based on an expression that can include their name, the group that they are in, the time of day, or characteristics from their profile. For example, the “gold member” role could be assigned to a user because they are part of the frequent flyer program and have flown more than 50,000 miles in the previous year. This role is dynamically assigned to the user when they log into the site.

How Entitlements Affect Performance

To ensure optimal portal performance, use entitlements judiciously. Too many entitlements can significantly impact performance. This happens because the entitlement engine is called during the render phase of an operation and is required to check system overhead and rules. Because this checking represents additional system overhead, if it is required too often on a portal, performance degrades. In addition, the entitlements engine is also responsible for managing administrative tasks, which increases that overhead, again causing degrading performance.

By default, entitlements are stored in the database as opposed to LDAP. Nonetheless, always be aware that too many entitlements can impede performance.

Recommendations for Using Entitlements

Here are some simple recommendation for using entitlements judiciously:

- **Avoid the temptation to create a role for every node on an organizational chart.** In large organizations, granting entitlements would then become a serious burden on the system. If you want to focus the user experience to a more granular level than that

provided by the role assigned a user, consider employing the personalization capabilities available with WebLogic Portal.

- **Disable entitlements if a portal is not using any security policies.** If a portal is using security policies enable it and set the value for the `<control-resource-cache-size=nn>` attribute to equal the number of desktops + number of books + number of pages + number of portlets + number of buttons (max, min, help, edit) used in a portal. Use the default value if you are concerned about available memory.
- **Limit your entitlement request to only one resource at a time.** Bundling a larger number of resources (portlets, pages, books) with one entitlement request can cause an unwanted performance hit.
- **If your portal uses more than 5000 entitlements, customize the cache settings for WebLogic Entitlements Engine.** For details, see the *Performance Tuning Guide*, which will be available in a future documentation release.

Limit User Customizations

BEA recommends that you allow portal visitors to modify only one page or a small set of pages, and require that administrators control the remainder of pages.

When users customize a page, they obtain their own instance of that page. All other pages that have not been customized point back to the original library instance. When an administrator makes a change to a page, that change must iterate for each user who customized the page. If many users customized that page, propagating the change might take a long time because of the required database processing.

Optimize Page Flow Session Footprint

If your portal uses page flows portlets in a replicated clustering environment, you might experience a performance issue because the request attributes you add to these portlets might be persisted to the session as a component of a page flow portlet's state. As more request attributes are added, the session grows, often to sizes that can severely restrict performance.

Page flow portlets are hosted within the Portal framework by the Scoped Servlet environment. This environment effectively acts as a servlet container, but its behavior causes the request attributes to be scoped to the session within a container class used to persist page flow state. This can be particularly unwelcome in clustered environments, when large amounts of data—including these page flow portlet request attributes—might be replicated across the cluster.

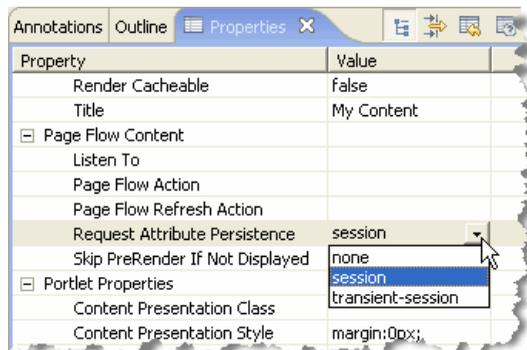
WebLogic Portal provides the Request Attribute Persistence (`requestAttrPersistence`) property for page flow portlets. This property is included in the `.portlet` file and can be set using the Properties view in Workshop for WebLogic.

The Request Attribute Persistence property has these values:

- **session**: this is the existing behavior (this is the default). All existing page flow portlets should not require changes by default.
- **transient-session**: places a non-serializable wrapper class around a persisted page flow state object into the session. These portlets work just as the existing portlets, except in failover cases, where the persisted request attributes disappear on the failed-over-to server. In these cases you must write the forward JSPs to gracefully handle this contingency by, at minimum, not expecting any particular request attribute to be populated and, ideally, by having a mechanism to either repopulate the request attributes automatically or present the user with a link to re-run the last action to repopulate the request attributes. For non-failover cases, request attributes are persisted, providing a performance advantage for non-postback portlets identical to default `session` persistence portlets. While session memory is still consumed in this case, there will be no additional cluster replication costs for the persisted request attributes.
- **none**: performs no persistence operation. Since these portlets never have request attributes available on refresh requests, you must write the forward JSPs to assume the request attributes will not be available. This option is helpful when you want to remove completely the framework-induced session memory loading for persisted request attributes.

To set the request attribute persistence attribute for a page flow portlet, open the Request Attribute Persistence drop-down under the Page Flow Content group in the Properties view and select the desired value, as shown in [Figure 11-8](#).

Figure 11-8 Selecting Request Attribute Persistence Attribute



Use File-Based Portals for Simple Applications

Portals come in two flavors: file-based and streaming. As the name implies, a file-based portal—also called a “light portal”—obtains all of its resources from the user’s file system. Streaming portals, on the other hand, derive their resources from one or more databases.

A key difference between the two implementations is in the method you use to create and manage multiple portlet instances. Using a streamed portal, managed using the WebLogic Portal Administration Console, you can manage a single instance of a portlet while reusing it in many places; you can also easily create a large number of portlet instances and configure each one differently. Using a file-based portal you need to create individual source portlets within .portal files.

Streaming portals also provide you with the management capabilities of the Administration Console. For example, if you want to disable a portlet, you can do this task easily from the Administration Console; otherwise, you must directly access the production servers to change .portal files. The Administration Console also provides management functionality for book and page contents, and the ability to user visitor entitlements and delegated administration on different instances of resources.

Why Use a File-based Portal?

For simple, static portals, deriving resources from the file system can result in improved performance and bring these benefits:

- Source code control is easily manageable.
- Propagation to other environments is easy.
- They are easy to create in Workshop for WebLogic.

Limitations to Using File-based Portals

While file-based portals might show some performance improvement over streaming portals, their functionality is limited; for example, because no database is involved, you cannot take advantage of things such as user customization or entitlements. Other features that are missing from a file-based portal include:

- Delegated Administration
- Visitor Tools
- Preferences at the portal instance level and at the definition level.

Moreover, in the majority of cases, the performance improvement gained by using a file-based portal is not so significant as to outweigh these limitations.

Create a Production Domain in Development

While this tip doesn't directly improve performance at runtime, it nonetheless allows you to see how your application will perform before you propagate it to production. By creating a production domain in development, you can simulate and then evaluate how the portal will perform in production. You can then make the necessary adjustments before actually deploying the portal. If problems occur or performance is not optimal, you can rectify these situations before the end user ever sees them.

To create a production domain, you must update the startup script settings by setting the `WLS_PRODUCTION_MODE=flag` to `true` and setting to `false` these flags:

- `iterativeDevFlag`
- `debugFlag`
- `testConsoleFlag`
- `logErrorsToConsoleFlag`
- `pontbaseFlag`
- `verboseLoggingFlag`

Additionally, you must set default values for the `threadcount` and the `JDBCConnectionPool` sizes. If you are threading portlets (that is, using `forkable=true`) ensure that you configure a `portalRenderQueue` and `portalPreRenderQueue` in your `config.xml` file so that the forked portlets use their own thread pools and not the WebLogic thread pool. The following code sample describes how to set the thread count appropriately:

```
<ExecuteQueue Name="default" ThreadCount="15"/>
<ExecuteQueue Name="portalRenderQueue" ThreadCount="5"/>
```

Optimize Portlet Performance

You can optimize the performance of the portlets in your portal in several ways, including the following:

- Editing performance-related portlet properties to optimize performance
- Caching portlets
- Using remote portlets

- Pre-rendering and rendering portlets in parallel
- Rendering portlet content asynchronously
- Using backing files

You can find more detail on each of these alternatives in the [Portlet Development Guide](#).

Designing Portals for Optimal Performance

Obtaining Debug Information

This chapter explains how to obtain debug information from public WLP classes and add debugging calls to your own code. This chapter includes the following sections:

- [Introduction](#)
- [Configuring and Enabling Debug](#)
- [Public WLP Class Debug Reference](#)

For details on how to use Oracle Enterprise Pack for Eclipse to debug your web application project, see "Deploying or Debugging the Application" in *Oracle Fusion Middleware Quick Start Guide for Oracle WebLogic Portal*.

Introduction

The class `com.bea.p13n.util.debug.Debug` is used throughout WLP classes to print information that can be useful in debugging. You can use the `Debug` class in your own code. By default, debugging is turned off. For information on turning debug output on and off, see [“Turning Debug Output On and Off” on page 12-3](#).

Configuring and Enabling Debug

The `com.bea.p13n.util.debug.Debug` class provides methods for printing and information messages from WLP code. This section explains how to use `Debug` in your own code and to turn `Debug` output on and off. This section includes these topics:

- [Using Debug in Your WLP Code](#)
- [Turning Debug Output On and Off](#)
- [Package-Level Debugging](#)
- [Directing Output to a File](#)
- [Reloading Debug Properties](#)
- [Example debug.properties File](#)

Using Debug in Your WLP Code

Use the `com.bea.p13n.util.debug.Debug` class to add debugging information calls to your WLP code. The `Debug` class lets you:

- Turn debugging on and off without recompiling code.
- Enable debugging output for a single class or entire package.
- Discover where debugging messages are coming from.

[Listing 12-1](#) illustrates the basic pattern for using `Debug` in your classes. For detailed information on `Debug` methods, refer to the Javadoc (*Oracle Fusion Middleware Java API Reference for Oracle WebLogic Portal*).

Listing 12-1 Using Debug in a Class

```
package com.bea.example;
import com.bea.p13n.util.debug.Debug;
class MyClass
{
    // Instance of debug object for debugging (if turned on)
    // Using this pattern makes it easy to know the debug "switch"
    // for any class
    private static final Debug debug = Debug.getInstance( MyClass.class );

    MyClass()
    {
        // debug class creation event
        debug.here()
    }
}
```

```

}
void myMethod()
{
    // output a debugging message along with class, method & line number
    debug.out("This is some message");

    // output a debugging message followed by object value
    // use this rather than ("message" + val) to avoid
    // expression evaluation (string concatenation) when debug is off
    debug.out("The value is:", val);

    // Avoid expression evaluations by using debug.ON or debug.isOn()
    if (debug.ON)
    {
        Object thing = doSomeCalculations();
        debug.out( "The thing " + thing + " is the calculation result." );
    }
}
}

```

The output includes class, method, line number, and variable information. When debugging is turned on, the debug output for the above example looks something like this.

```

*** com.bea.example.MyClass.(MyClass.java:<13>) ***
[com.bea.example.MyClass.myMmethod():18] This is some message
[com.bea.example.MyClass.myMmethod():23] The value is 42
[com.bea.example.MyClass.myMmethod():29] The thing kryten is the
calculation result.

```

By default, output is sent to `System.err`. For information on directing the output to a file, see [“Directing Output to a File” on page 12-5](#).

Turning Debug Output On and Off

Debug messages are turned off by default. To switch debugging on, create a file named `debug.properties` in the directory where your domain’s startup scripts reside. For an example `debug.properties` file, see [“Example debug.properties File” on page 12-6](#).

Alternately, you can set the Java system property `debug.properties` to the name of your debug properties file. For example:

```
java -Ddebug.properties=/home/me/mydebug.properties ...
com.bea.example.MyClass: on
```

Tip: Technically, you can set the debug property to any value except false, off, no or 0 (these are values that can be used to turn logging off). For clarity and consistency, Oracle suggests that you use the values on and off in the `debug.properties` file.

Package-Level Debugging

To turn on debugging for all of the classes in a package, set the debug property `usePackageNames` to on. Then, you can turn on debugging for an entire package (and its child packages). For example, to turn on debugging for all classes in the `com.bea.example.*` package, add the following to `debug.properties`:

```
# turn on debugging by package names
usePackageNames: on

# turn on debugging for everything under com.bea.example package
# Note that you do not use wildcards, just mention the package
com.bea.example: on
```

Using package names enables you to have finer control because more specific names take precedence over less specific names. For example, if you want to turn on debugging for the entire `com.bea.example.*` package except for `MyClass` and the `com.bea.example.internal` package (with the exception of one class), add the following to `debug.properties`:

```
# turn on package names for debugging
usePackageNames: on

# turn on debugging for everything under com.bea.example package
com.bea.example: on

# turn off debugging for MyClass
com.bea.example.MyClass: off
```

```
# turn off debugging in the entire internal package
com.bea.example.internal: off

# Except turn debugging back on for internal.DebugThisClass
com.bea.example.internal.DebugThisClass: on
```

For an example `debug.properties` file, see [“Example debug.properties File” on page 12-6](#)

Directing Output to a File

By default, Debug output is sent to `System.err`. To redirect debug output to a file, set the debug property `out.file` to the name of an output file. The debug output will be appended to the end of that file unless you also set `out.file.append=off`, in which case the file is deleted first. For example:

```
# append output to mydebug.log file rather than System.err
out.file = mydebug.log

# send this debugging to mydebug.log
com.bea.example.DebugMeToFile: on
```

If you want to direct output by using system properties instead of the `debug.properties` file, you can do so by adding a `debug prefix` to the property name. For example:

```
java -Ddebug.out.file=mydebug.log -Ddebug.com.bea.example.MyClass=on ...
```

Reloading Debug Properties

For performance reasons, Debug is by default not reloadable. The debug properties settings are in effect for the life of the JVM. To change the debugging configuration (for example, to change which classes or packages are turned on or off), you normally have to restart the JVM with different debug properties.

You can change the default reloading behavior with the debug property `reloadable` set to `on` in `debug.properties` or with `-Ddebug.reloadable=on` on the Java command line. If `reloadable` is set when the JVM is initially started, then debugging properties that are loaded from `debug.properties` (or system properties) can be changed at runtime without restarting

the JVM. The `reloadable` property itself can not be changed at runtime; it must be set at JVM startup to take effect.

To change debug properties at runtime, edit the `debug.properties` file and call `Debug.reload()` from a JSP page or other runtime component.

Note that `reloadable` debug can be convenient for development, but even when it is not outputting any messages it does come at some cost, and thus should not be used in production or other performance-sensitive systems, such as load or performance tests.

Example `debug.properties` File

You enable output of WLP class debug information by either creating a `debug.properties` file or by using a system variable, as described in [“Configuring and Enabling Debug” on page 12-1](#).

Following is an example of a `debug.properties` file, including enabled Level 1 and Level 2 debugging for WLP Virtual Content Repository classes.

```
# Example properties file for WebLogicPortal debug output

# Place this file in the directory where you start the server
# (the domain directory) or set -Ddebug.properties=debugFileName.
# The presence of this file turns debug on overall, and the
# properties in here control what debug is output.

# Most properties are booleans, and convention is to use "on" or "off" for
the values

# Debug can be reloadable - use debug.jsp to change things at runtime
# The default is off.
reloadable: off

# append output to mydebug.log file rather than System.err
#out.file = D:/debugOutput
#out.file.append= off

# Turn on debug for entire packages (recursively) rather than only naming
# desired classes. This is normally desired as it allows for debugging
```

```
# whole sets of things, without having to name individual classes
# The default is off.
usePackageNames: off

# Example debug configurations

# Debugging for an individual class
#com.bea.netuix.servlets.manager.PortalServlet: on

com.bea.content.federated.internal.CapabilityManagerImpl: on
com.bea.content.federated.internal.NodeManagerImpl: on
com.bea.content.federated.internal.SearchManagerImpl: on
com.bea.content.federated.internal.TypeManagerImpl: on
com.bea.content.federated.internal.VersionManagerImpl: on
com.bea.content.federated.internal.VirtualRepositoryManagerImpl: on
com.bea.content.federated.internal.WorkflowManagerImpl: on
com.bea.content.federated.internal.delegate.NodeLogic: on
com.bea.content.federated.internal.delegate.ObjectClassLogic: on
com.bea.content.federated.internal.delegate.RepositoryLogic: on
com.bea.content.federated.internal.delegate.SearchLogic: on
com.bea.content.federated.internal.delegate.VersionLogic: on
com.bea.content.federated.internal.delegate.WorkflowLogic: on

spi.com.bea.content.federated.internal.filter.logging.NOPSLoggingFilter:
on
spi.com.bea.content.federated.internal.filter.logging.OCOPSLoggingFilter:
on
spi.com.bea.content.federated.internal.filter.logging.RCOPSLoggingFilter:
on
spi.com.bea.content.federated.internal.filter.logging.SOPSLoggingFilter:
on
spi.com.bea.content.federated.internal.filter.logging.WOPSLoggingFilter:
on

# Debug an entire package
```

Obtaining Debug Information

```
#com.bea.qa.apps.controls: on

# This setup turns on debug for the entire com.bea.netuix.servlets package,
# but excludes com.bea.netuix.servlets.l10n (and its subpackages).
#com.bea.netuix.servlets: on
#com.bea.netuix.servlets.l10n: off
```

Public WLP Class Debug Reference

Many of the public WLP classes use Debug methods to produce information that might be helpful when debugging an application. You enable WLP class debug information by editing a `debug.properties` file (or by using a System variable), as described in [“Configuring and Enabling Debug”](#) on page 12-1.

This section lists the public WLP classes that use Debug methods to output informational messages. The classes are grouped by feature/functional area.

This section contains the following sections:

- [WLP Framework Classes with Debug Support](#)
- [WLP Core Services Classes with Debug Support](#)
- [WLP Virtual Content Repository Classes with Debug Support](#)
- [WLP Administration Console Classes with Debug Support](#)

WLP Framework Classes with Debug Support

The following table lists the WLP Framework classes that support debugging and their associated features.

Note: The WLP classes listed in the table below include only debug Level 1 output.

Table 12-1 WLP Framework Classes That Support Debug

Feature	Class
WSRP - Transport	com.bea.wsrp.bind.markup
WSRP - URL Rewriting	<ul style="list-style-type: none"> com.bea.wsrp.producer.adapter com.bea.wsrp.producer.adapter.context
Portlet Containers - Beehive	<ul style="list-style-type: none"> com.bea.portlet.adapter.scopedcontent com.bea.netuix.servlets.controls.content.PageFlowContent
Portlet Containers - Struts	<ul style="list-style-type: none"> com.bea.struts.adapter com.bea.netuix.servlets.controls.content.StrutsContent
Portlet Containers - JSF	<ul style="list-style-type: none"> com.bea.portlet.adapter.faces com.bea.netuix.servlets.controls.content.FacesContent
Portlet Containers - JSP	com.bea.netuix.servlets.controls.content.JspContent
Portlet Containers - Clipper	<ul style="list-style-type: none"> com.bea.netuix.servlets.controls.content.JspContent com.bea.netuix.clipper.ClipperBacking com.bea.netuix.clipper.Clipper
Portlet Containers - Browser	<p>Note: There is no debug for the Portlet Containers - Browser feature. However, the control is rendered using a <code>DirectFeature</code> with the name <code>ASYNC_CONTENT_FEATURE = "portleturicontent"</code>. You can add debug statements to <code>framework/features/portleturicontent.jspx</code> to troubleshoot this feature.</p>
Portlet Containers - Java (168/286)	com.bea.portlet.container
Framework - Caching	<ul style="list-style-type: none"> com.bea.netuix.nf.ControlTreeWalker com.bea.netuix.nf.container.jsp.BufferedJspContext
Framework - Threading	<ul style="list-style-type: none"> com.bea.netuix.nf.ControlTreeWalker com.bea.netuix.nf.container.jsp.BufferedJspContext com.bea.netuix.nf.concurrency

Table 12-1 (Continued)WLP Framework Classes That Support Debug

Feature	Class
Framework - LAF	<ul style="list-style-type: none"> • <code>com.bea.netuix.servlets.controls.application.laf</code> • <code>com.bea.netuix.servlets.controls.application.laf.ConfigurationTools</code> • <code>com.bea.netuix.servlets.controls.application.laf.StructureTools</code> • <code>com.bea.netuix.servlets.controls.application.laf.DependenciesConfiguration</code> • <code>com.bea.netuix.servlets.controls.application.laf.SkeletonConfiguration</code>
Framework - Customization	<p><code>com.bea.netuix.application</code></p> <p>Note: Supporting database query properties files are under <code>netuix/copysrc/com.bea.netuix.application.manager.persistence.jdbc.sql</code>.</p>
Framework - Async	<ul style="list-style-type: none"> • <code>ajax</code> – Enable the ajax debug using the following code: <code>ajax: on</code>. The ajax debug is used by: <ul style="list-style-type: none"> – <code>om.bea.netuix.nf.UIContext</code> – <code>com.bea.netuix.nf.container.jsp.BufferedJspContext</code> – <code>com.bea.netuix.nf.container.jsp.ServletOutputStreamImpl</code> – <code>com.bea.netuix.servlets.controls.window.Window</code> • <code>com.bea.netuix.servlets.controls.ajax.AjaxHelper</code> • <code>ajaxRequest</code> – Enable the ajaxRequest debug using the following code: <code>ajaxRequest: on</code>. The ajaxRequest debug is used by <code>com.bea.netuix.servlets.manager.UIServlet</code> <p>Note: Because debug output is highly verbose, you should use the <code>ajax</code> and <code>ajaxRequest</code> debug switches judiciously, enabling these switches only when told to do so by the users who will be interpreting the debug output. To gain a better understanding of the debug output, we recommend that you view the debug output along with the source code for the debug statements.</p>

Table 12-1 (Continued)WLP Framework Classes That Support Debug

Feature	Class
Framework - Control Tree, Lifecycle	<ul style="list-style-type: none"> • <code>com.bea.netuix.servlets.manager.UIServlet.dumpControlTree</code> • <code>com.bea.netuix.servlets.manager.UIServletInternal</code> <p>Note: The <code>com.bea.netuix.servlets.manager.UIServlet.dumpControlTree</code> switch is used in <code>com.bea.netuix.servlets.manager.UIServletInternal</code>, which does not have its own debug. Because debug output is highly verbose, you should use this switch judiciously, enabling this switch only when told to do so by the users who will be interpreting the debug output. To gain a better understanding of the debug output, we recommend that you view the debug output along with the source code of the debug statements.</p> <ul style="list-style-type: none"> • <code>com.bea.netuix.servlets.manager.PortalServlet</code> • <code>com.bea.netuix.servlets.manager.SingleFileServlet</code> • <code>com.bea.netuix.servlets.manager.UIServlet</code> • <code>com.bea.netuix.nf.Lifecycle</code> • <code>com.bea.netuix.nf.ControlTreeWalker</code> • <code>com.bea.netuix.nf.ControlLifecycle</code> • <code>com.bea.netuix.state</code> (and the classes in this package) • <code>com.bea.netuix.nf.state.StateManagementFactory</code> • <code>com.bea.netuix.nf.ControlLifecycle</code> <p>The class <code>com.bea.netuix.nf.ControlLifecycle</code> uses the following debug switches to dump the control tree during a given render phase:</p> <ul style="list-style-type: none"> – <code>ControlLifecycle.init</code> – <code>ControlLifecycle.loadState</code> – <code>ControlLifecycle.saveState</code> – <code>ControlLifecycle.preRender</code> – <code>ControlLifecycle.render</code> – <code>CControlLifecycle.resource</code> – <code>ControlLifecycle.dispose</code>
Framework - File Poller	<ul style="list-style-type: none"> • <code>com.bea.netuix.servlets.util.IFilesystemChangeDetector</code> • <code>com.bea.netuix.servlets.services.P13nFilesystemChangeDetector</code> • <code>com.bea.netuix.servlets.services.SimpleFilesystemChangeDetector</code>
Framework - Timing	<code>netuix.timing</code>

Table 12-1 (Continued)WLP Framework Classes That Support Debug

Feature	Class
Framework - Events	<ul style="list-style-type: none"> com.bea.netuix.events.internal com.bea.netuix.events.manager.EventManager com.bea.netuix.events.manager.PortletBasedSubscription
Framework - Preferences	<ul style="list-style-type: none"> com.bea.portlet.prefs com.bea.portlet.prefs.spi

The following table lists WLP Framework features and the command line environmental JVM switches that you can use to debug them. Note that the WSRP security debugging feature uses a Oracle WebLogic Server pattern of accessing debug information with system properties.

Table 12-2 WLP Framework Command Line Environmental Switches That Support Debug

Feature	Command Line Switch
WSRP - Security	<ul style="list-style-type: none"> -Dweblogic.debug.DebugSecuritySAML CredMap=true -Dweblogic.debug.DebugSecuritySAML Atn=true -Dweblogic.debug.DebugSecuritySAML Lib=true -Dweblogic.log.StdoutSeverity=Debug -Dweblogic.xml.crypto.dsig.verbose=true -Dweblogic.wsee.verbose=* -Dweblogic.debug.DebugSecurity CredMap=true -Dweblogic.xml.crypto.wss.verbose=true

WLP Core Services Classes with Debug Support

The following table lists the WLP Core Services classes that support debugging, along with their associated features and debug levels.

Note: For WLP Core Services classes, Level 2 output includes additional information that is not included in Level 1 output. To view all debugging information, you must enable both Level 1 and Level 2 debugging.

Table 12-3 WLP Core Services Classes That Support Debug

Feature	Level 1	Level 2
Cache	<ul style="list-style-type: none"> com.bea.p13n.cache.CacheFactory com.bea.p13n.cache.CacheManager 	<ul style="list-style-type: none"> com.bea.p13n.cache.CacheImpl com.bea.p13n.cache.CacheImpl.AsynchronousReloadRequest
Entitlements	<ul style="list-style-type: none"> com.bea.p13n.entitlements.management.RolePolicyManager <p>For the com.bea.p13n.entitlements.management.RolePolicyManager class, you can use the PolicyPredLocation to enable more detailed debug output. For example: PolicyPredLocation.com.bea.p13n.entitlements.management.RolePolicyManager.</p> <ul style="list-style-type: none"> com.bea.p13n.entitlements.management.RolePolicyManager com.bea.p13n.delegation.management.DelegationPolicyManager com.bea.p13n.entitlements.management.SecurityPolicyManager com.bea.p13n.delegation.management.DelegationRoleManager 	<ul style="list-style-type: none"> com.bea.p13n.entitlements.Authorization <p>For the com.bea.p13n.entitlements.Authorization class, you can use the following prefixes to choose the type of debug output:</p> <ul style="list-style-type: none"> – Unprotected – Protected – PolicyTaxonomy – AnonDebug <p>For example: Unprotected.com.bea.p13n.entitlements.Authorization</p> <ul style="list-style-type: none"> com.bea.p13n.delegation.DelegationService com.bea.p13n.entitlements.management.internal.RDBMSRolePolicyManager <p>You can use the following prefixes to choose the type of debug output:</p> <ul style="list-style-type: none"> – PolicyPredLocation – PolicyCreateLocation <ul style="list-style-type: none"> com.bea.p13n.entitlements.management.internal.RDBMSSecurityPolicyManager <p>You can use the following prefixes to choose the type of debug output:</p> <ul style="list-style-type: none"> – PolicyPredLocation – PolicyCreateLocation
Rules Expression	N/A	<ul style="list-style-type: none"> com.bea.p13n.expression.internal.EvaluatorImpl com.bea.p13n.expression.internal.ExecutorImpl

Table 12-3 (Continued)WLP Core Services Classes That Support Debug

Feature	Level 1	Level 2
Job Manager	<ul style="list-style-type: none"> com.bea.p13n.jobmanager.internal.JobManagerImpl com.bea.p13n.jobmanager.internal.JobContextImpl 	N/A
Quiescence	com.bea.p13n.management.quiescence.QuiescenceManagementServiceImpl	<ul style="list-style-type: none"> com.bea.p13n.management.quiescence.QuiescenceRuntimeServiceImpl com.bea.p13n.management.quiescence.QuiescenceStateImpl
Rules	N/A	<ul style="list-style-type: none"> com.bea.p13n.rules.internal.ActionImpl com.bea.p13n.rules.internal.RuleImpl
Credential Vault	N/A	N/A
SSO	com.bea.p13n.security.sso.services.AuthServletFilter	com.bea.p13n.security.sso.services.UsernameTokenService
Util JDBC	com.bea.p13n.util.jdbc.SequencerFactory	com.bea.p13n.util.jdbc.internal.JdbcSequencer
Tracked Anonymous	com.bea.p13n.usermgmt.profile.internal.TrackedAnonymousLocator	<ul style="list-style-type: none"> com.bea.p13n.usermgmt.profile.internal.AnonymousProfileWrapperImpl com.bea.p13n.usermgmt.profile.internal.TrackedAnonymousBean
PropertySetManager	<ul style="list-style-type: none"> com.bea.p13n.property.internal.PropertySetManagerImpl com.bea.p13n.property.internal.PropertySetPersistenceManager 	<ul style="list-style-type: none"> com.bea.p13n.property.internal.PropertySetRepositoryRegistry com.bea.p13n.property.internal.PropertySetRepositoryImpl
Entity Property Manager	com.bea.p13n.property.internal.EntityPropertyManagerImpl	com.bea.p13n.property.internal.EntityPropertyCacheImpl
Property Set Web Service	com.bea.p13n.property.webservice.internal.PropertySetWebServiceImpl	N/A
Rules Manager	com.bea.p13n.rules.manager.internal.RulesManagerImpl	com.bea.p13n.rules.manager.internal.RuleSetPersistenceManager

Table 12-3 (Continued)WLP Core Services Classes That Support Debug

Feature	Level 1	Level 2
Realm Configuration	com.bea.p13n.usermgmt.config.internal.RealmConfigurationImpl	N/A
User Profile Manager	com.bea.p13n.usermgmt.profile.internal.ProfileManagerImpl	N/A
Group Profile Manager	com.bea.p13n.usermgmt.profile.internal.GroupProfileManagerImpl	N/A
Mixed Profile Manager	com.bea.p13n.usermgmt.profile.internal.MixedProfileManagerImpl	N/A
Custom Profile Manager	com.bea.p13n.usermgmt.profile.internal.CustomProfileManagerImpl	N/A
Event Service	<ul style="list-style-type: none"> com.bea.p13n.events.internal.EventServiceBean com.bea.p13n.events.internal.EventHandler 	<ul style="list-style-type: none"> com.bea.p13n.events.Event com.bea.p13n.events.internal.EventServiceListenerConfig
Internal Data Refresh Proxy	<ul style="list-style-type: none"> com.bea.p13n.management.data.repository.internal.ejbproxy.RefreshProxyImpl com.bea.p13n.management.data.repository.internal.ejbproxy.EjbProxyDataRepository 	<ul style="list-style-type: none"> com.bea.p13n.management.data.repository.internal.RefreshFromClientSynchronizer com.bea.p13n.management.data.repository.internal.RefreshFromServerSynchronizer
Analytics	<ul style="list-style-type: none"> com.bea.analytics.AnalyticsFilter com.bea.analytics.AnalyticsListener 	com.bea.analytics.AnalyticsP13nEventListener

WLP Virtual Content Repository Classes with Debug Support

The following table lists the WLP Virtual Content Repository classes that support debugging and their associated features.

Note: For WLP Virtual Content Repository classes, Level 2 output includes all of the information included in Level 1, but at a more verbose level. Additionally, Level 2 includes information that is not included in Level 1 output.

Table 12-4 WLP Virtual Content Repository Classes That Support Debug

Feature or Component	Level 1	Level 2
Repository Capabilities	com.bea.content.federated.internal.CapabilityManagerImpl	N/A
Node Activities	com.bea.content.federated.internal.NodeManagerImpl	N/A
Search Activities	com.bea.content.federated.internal.SearchManagerImpl	N/A
Type Management Activities	com.bea.content.federated.internal.TypeManagerImpl	N/A
Versioning Activities	com.bea.content.federated.internal.VersionManagerImpl	N/A
Repository Management Activities	com.bea.content.federated.internal.VirtualRepositoryManagerImpl	N/A
Workflow Activities	com.bea.content.federated.internal.WorkflowManagerImpl	N/A
Node activities	com.bea.content.federated.internal.delegate.NodeLogic	N/A
Type Management Activities	com.bea.content.federated.internal.delegate.ObjectClassLogic	N/A
Repository Management Activities	com.bea.content.federated.internal.delegate.RepositoryLogic	N/A
Search activities	com.bea.content.federated.internal.delegate.SearchLogic	N/A
Versioning Activities	com.bea.content.federated.internal.delegate.VersionLogic	N/A

Table 12-4 (Continued)WLP Virtual Content Repository Classes That Support Debug

Feature or Component	Level 1	Level 2
Workflow Activities	com.bea.content.federated.internal.delegate.WorkflowLogic	N/A
SPI Node Operations	N/A	spi.com.bea.content.federated.internal.filter.logging.NOPSLoggingFilter
SPI Type Operations	N/A	spi.com.bea.content.federated.internal.filter.logging.OCOPSLoggingFilter
SPI Repository Management Operations	N/A	spi.com.bea.content.federated.internal.filter.logging.RCOPSLoggingFilter
SPI Search Operations	N/A	spi.com.bea.content.federated.internal.filter.logging.SOPSLoggingFilter
SPI Workflow Operations	N/A	spi.com.bea.content.federated.internal.filter.logging.WOPSLoggingFilter

WLP Administration Console Classes with Debug Support

The following table lists the WLP Administration Console classes that support debugging, along with their associated features and debug levels.

Table 12-5 WLP Administration Console Classes That Support Debug

Feature	Level 1	Level 2
General Navigation, Menus, and Componentization	<ul style="list-style-type: none"> • <code>com.bea.jsptools.common.EditorBookBac king</code> • <code>com.bea.jsptools.common.ToolsFramewor kUtilities</code> • <code>com.bea.jsptools.common.ToolsMenuTag</code> • <code>com.bea.jsptools.patterns.list.PagedResult ServiceTag</code> • <code>com.bea.jsptools.patterns.tree.TreeBuilder</code> • <code>com.bea.jsptools.patterns.xmlhttp.PagedR esultSearchHandler</code> • <code>com.bea.jsptools.patterns.xmlhttp.Session AttributeHandler</code> • <code>com.bea.jsptools.util.GenerateResourceLi nkTag</code> • <code>com.bea.jsptools.util.ToolsResourceLink</code> 	<ul style="list-style-type: none"> • <code>com.bea.jsptools.common.PatDesktopBa cking</code> • <code>com.bea.jsptools.content.helpers.Shared Actions</code> • <code>com.bea.jsptools.laf.SkinImageService</code> • <code>com.bea.jsptools.patterns.item.ItemServi ce</code> • <code>com.bea.jsptools.patterns.xmlhttp.TextB oxValidationHandler</code> • <code>com.bea.jsptools.util.PagedResultUtility</code> • <code>com.bea.portal.tools.patterns.ajax.servlet .XMLHttpRequestServlet</code> • <code>com.bea.portal.tools.resource.ResourceI DBuilderCache</code> • <code>global.internal.PageFlowHelper</code> • <code>util.tree.TreeController</code>
Help	N/A	<ul style="list-style-type: none"> • <code>com.bea.jsptools.patterns.help.HelpLink Tag</code> • <code>com.bea.jsptools.patterns.help.HelpServi ce</code> • <code>com.bea.jsptools.patterns.help.HelpTag</code>

Table 12-5 (Continued)WLP Administration Console Classes That Support Debug

Feature	Level 1	Level 2
Portal Management	com.bea.jsptools.portal.helpers.PortletHelper	<ul style="list-style-type: none"> com.bea.jsptools.common.PagePositionHelper com.bea.jsptools.portal.helpers.DotPortal com.bea.visitortools.MenuContext portalTools.definitions.portletProducers.wizard.AddProducerWizardController portalTools.instances.communities.wizzy.AddCommunityWizardController portalTools.instances.desktops.wizzy.AddDesktopWizardController portalTools.instances.portlets.preferences.PreferencesController portalTools.instances.templates.desktops.browse.BrowseTemplatesDesktopController
Content Management	N/A	com.bea.jsptools.content.ContentTreeBuilder
Role Editor	N/A	roleTools.expressions.RoleExpressionsController
Delegated Administration	<ul style="list-style-type: none"> com.bea.jsptools.deladmin.IsAccessAllowedTag com.bea.jsptools.deladmin.SharedDaActions 	<ul style="list-style-type: none"> com.bea.portal.tools.portal.util.SecurityPolicyCleanupHelper daTools.common.DAController daTools.details.DaRoleDetailsController daTools.popupsAndButtons.DaPopupButtonController
Entitlements	<ul style="list-style-type: none"> com.bea.jsptools.vent.EntitlementService com.bea.jsptools.vent.helpers.VentSharedActions com.bea.portal.tools.entitlements.controls.DelegatedRolePolicyManagerControlFacadeImpl 	ventTools.policies.VentBrowsePoliciesController

Table 12-5 (Continued)WLP Administration Console Classes That Support Debug

Feature	Level 1	Level 2
User/Group Management	<ul style="list-style-type: none"> • com.bea.jsptools.usermgmt.AtnProviderListTag • com.bea.jsptools.usermgmt.GroupDescriptionTag • com.bea.jsptools.usermgmt.UserDescriptionTag • com.bea.jsptools.usermgmt.helpers.GroupHelper • com.bea.jsptools.usermgmt.helpers.ShareActions 	<ul style="list-style-type: none"> • com.bea.jsptools.usermgmt.UGMTreeBacking • com.bea.jsptools.usermgmt.validation.NRNWGroupNameValidator • com.bea.jsptools.usermgmt.validation.NRNWUserNameValidator • ugmTools.nrnwTree.NrnwTreeController

Table 12-5 (Continued)WLP Administration Console Classes That Support Debug

Feature	Level 1	Level 2
Service Administration	com.bea.jsptools.serviceadmin.wsrp.importTool.ImportProcessor	<ul style="list-style-type: none"> • serverTools.serviceAdmin.ads.AdServiceBaseFlowController • serverTools.serviceAdmin.maintenanceMode.MaintenanceModeDetailsFlow.MaintenanceModeDetailsFlowController
Visitor Tools	<ul style="list-style-type: none"> • com.bea.visitortools.helpers.CreateCommunityHelper • com.bea.visitortools.invitation.AbstractInviterInvoker 	<ul style="list-style-type: none"> • com.bea.visitortools.VisitorStateBean • com.bea.visitortools.backing.VisitorDesktopBacking • com.bea.visitortools.forms.CreateVisitorCommunityForm • com.bea.visitortools.helpers.BaseHelper • com.bea.visitortools.helpers.ColorsHelper • com.bea.visitortools.helpers.ManageCommunityHelper • com.bea.visitortools.tags.GeneratePlaceableViewDataTag • com.bea.visitortools.tags.IsAccessAllowedTag • visitorTools.communities.manage.ManageController • visitorTools.communities.manage.members.MembersController • visitorTools.communities.manage.properties.PropertiesController • visitorTools.contents.ContentsController • visitorTools.pages.PagesController

Obtaining Debug Information

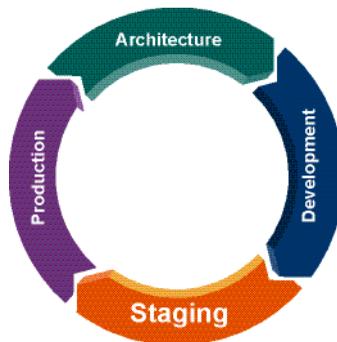
Part III Staging

Part III includes the following chapters:

- [Chapter 12, “Managing Portal Desktops”](#)
- [Chapter 13, “Deploying Portals to Production”](#)

BEA recommends that you deploy your portal to a staging environment where it can be assembled and tested before going live. In the staging environment, you use the WebLogic Portal Administration Console to assemble and configure desktops. You also test your portal in a staging environment before propagating it to a live production system. In the testing aspect of the staging phase, there is tight iteration between staging and development until the application is ready to be released.

For a view of how the tasks in this section relate to the overall portal life cycle, refer to the WebLogic Portal [Overview](#).



Managing Portal Desktops

You perform the tasks described in this chapter to prepare your portal application for public consumption.

From an administrative standpoint, a portal is a container that defines a portal application. When you create a new portal in the administration portal, you are really creating an empty portal to hold different versions of the portal (desktops) that can be targeted to specific users. A portal can contain one or more desktops, or views, of a portal. It is the desktops to which you add the portal resources and navigation such as books, pages, and portlets that make a dynamic portal.

After you assemble the desktops, you can test the application as a whole, and then deploy it to the production environment when it is ready for public access. For detailed instructions on how to progress through the stages of portal development and deployment, refer to the *Production Operations Guide*.

The primary tool used in this chapter is the WebLogic Portal Administration Console.

This chapter contains the following sections:

- [Administration Console Overview](#)
- [Administration Console Library of Resources](#)
- [Starting and Logging In to the Administration Console](#)
- [Overview of Library Administration](#)
- [Overview of Portal Administration](#)
- [Portal Management](#)

- [Overview of the Library](#)
- [Desktops](#)
- [Desktop Templates](#)
- [Communities](#)
- [Portal Resources](#)
- [Books](#)
- [Pages](#)
- [Portlets](#)
- [Portlet Preferences](#)
- [Portlet Categories](#)
- [Look & Feels](#)
- [Shells](#)
- [Themes](#)
- [Menus \(Navigation\)](#)
- [Layouts](#)

Administration Console Overview

The WebLogic Portal Administration Console is the tool that portal administrators use to not only control the behavior, content, and appearance of portals, but to perform many traditional system administration activities such as user management and security management.

The WebLogic Portal Administration Console is organized according to the following categories of tasks:

- **Portal Management** – Portals, desktops, books, pages, portlets, and other portal resources.
This guide and the *Portlet Development Guide* provide details about Portal Management tasks.
- **User, Groups, & Roles** – User and group management, security provider configuration, Delegated Administration, and Visitor Entitlements.

The *User Management Guide* and *Security Guide* provides detailed information about the tasks in this category.

- **Configuration Settings** – Server settings for Cache Management, Server Maintenance Mode, Personalization, Security, Unified User Profiles, and WSRP.

This guide, *Security Guide*, *Federated Portals Guide*, *Interaction Management Guide*, and *User Management Guide* provide detailed information about the tasks in this category.

- **Interaction Management** – Campaigns, placeholders, user segments, and content selectors.

The *Interaction Management Guide* provides detailed information about the tasks in this category.

- **Content Management** – Content and repositories.

The *Content Management Guide* provides detailed information about the tasks in this category.

Administration Console Library of Resources

When you create a new desktop using the Administration Console, you can use an existing portal template. Using a template means that you take the portal resources for your desktop directly from a `.portal` file that was created in Workshop for WebLogic. (The `.portal` file is also called the primary instance.) When you create a desktop, the portal assets are removed from the `.portal` file, placed in a database, and surfaced in both the Library and desktop trees of the Administration Console. Taking the assets from a new desktop instance and placing them in the Library is called disassembling.

At this point, the assets (books, pages, and so on) in the Library (Library instances) are hierarchically related to their corresponding desktop instances. A change to a Library resource, such as a name change, is automatically inherited by the corresponding desktop asset. On the other hand, a change to the desktop asset is not reflected back up the hierarchy.

Note: Changes made to assets are never “reverse inherited” up the hierarchy. A change to a desktop asset is never inherited by its corresponding Library instance. Likewise, a change to a Visitor instance is never inherited by a desktop or Library instance.

New books and pages that you create in a desktop are not disassembled—they are considered to be private to that desktop.

Plan your implementation to make the best use of this WebLogic Portal functionality. Refer to the *Production Operations Guide* for more details about disassembling and decoupling of resources in the Administration Console.

Starting and Logging In to the Administration Console

Opening the Administration Console

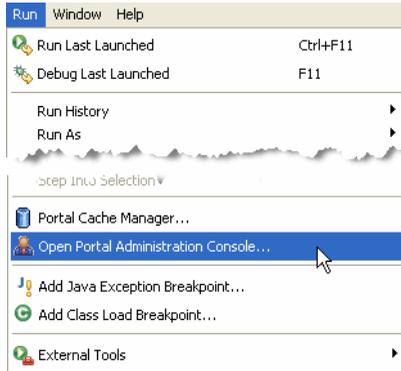
Before you can begin using the WebLogic Portal Administration Console, the server must be running. Depending on the state of your Workshop for WebLogic workbench, you might need to start the server before opening the Administration Console.

Follow these steps:

1. Start Workshop for WebLogic and open a workspace:
2. In the Servers view, click the server to select it.
3. Click Start  in the Servers view toolbar.

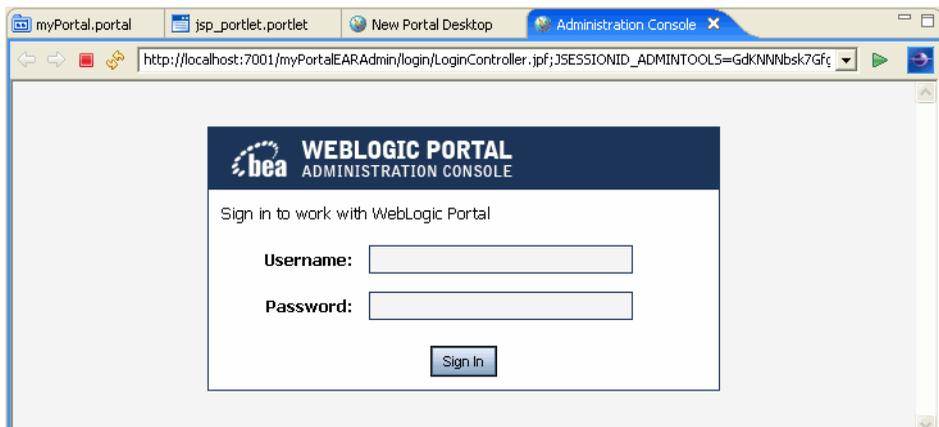
Wait while Workshop for WebLogic starts the server. This process might take some time, depending on the speed of your system. When the process completes, the Status column in the Servers view displays **Started** and the square **Stop the Server** button  becomes active.

4. In the Package Explorer view, select the `.portal` file for the portal you want to manage with the Administration Console.
5. From the main menu, select **Run > Open Portal Administration Console**, as shown in the example in [Figure 12-1](#).

Figure 12-1 Menu Selection for Run > Open Portal Administration Console

The Administration Console window opens in a new tab in the workbench editor view, with the login dialog displayed, as [Figure 12-2](#) shows.

Note: If you set up your Workshop for WebLogic preferences to open external browsers instead of the internal browser, a separate window opens to display the Administration Console login dialog.

Figure 12-2 WebLogic Portal Administration Console Login Dialog

Logging In to the Administration Console

The Administration Console login dialog requires a WebLogic Server system administrator or a WebLogic Portal administrator user name and password. WebLogic Server system administrators have full security privileges for the entire domain and can log in to and use the

WebLogic Server Administration Console tools. WebLogic Portal administrators have full security privileges for a Portal Web Project, which can include multiple portals.

Table 12-1 shows the default system administrator user names and passwords:

Table 12-1 Default User Names and Passwords for the WebLogic Portal Administration Console

User Name	Password	Description
portaladmin	portaladmin	Administrator for the portal domain
weblogic	weblogic	WebLogic Server system administrator with full privileges in the domain

To log in to the WebLogic Portal Administration Console, follow these steps:

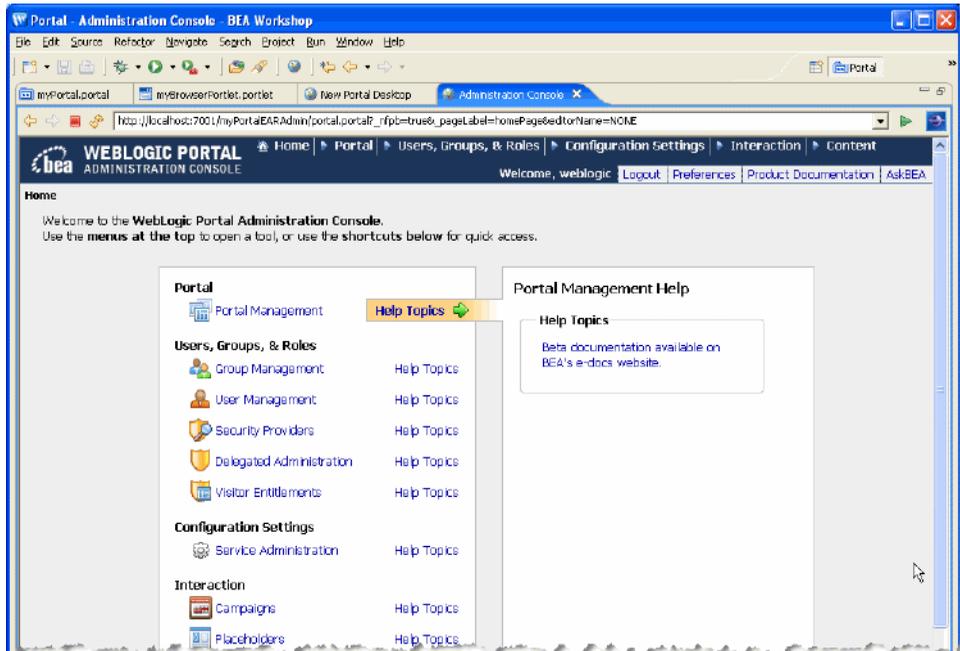
1. Type the appropriate user name and password into the dialog and click **Sign In**.

The main menu of the Administration Console displays.

2. To get a better view of the console and its functions, click Maximize  in the editor view toolbar. Your display should look like the example in [Figure 12-3](#).

Note: If you set up your Workshop for WebLogic preferences to open external browsers instead of the internal browser, you do not need to perform this step.

Figure 12-3 Administration Console Main Page, Maximized



Overview of Library Administration

In some cases, changes to a definition in the library can be propagated to deployed portal resources. The portal library is the repository for portal components, including the following:

- Shells
- Themes
- Menus
- Books
- Pages
- Layouts
- Look & Feels
- Portlets

- Portlet Categories
- Portlet Producers

As the Library Administrator, you can modify the definitions in the Resource library. These modifications are global in scope and carry with them a higher degree of administration responsibility. When you create new portal instances of portal resources and put them in the Portal Library, they have the following characteristics:

- Your resource show up in the Portal Library so that portal administrators can create instances of them to use as templates.
- Your resource can be localized.
- Your resource can be entitled at the enterprise application level. This means that when these resources are entitled, they are entitled for every instance.
- Visitors can add these resources to their personal views of a portal using the Visitor Tools because they can choose them from the Library.
- If an administrator or visitor deletes this resource from a portal, the resource can easily be retrieved from the Library.

Overview of Portal Administration

Portal administrators work with portal resources to assemble portals and entitle parts of the portal to end users and other administrators. A portal represents a Web site that can be one of many within an Enterprise Application. Each portal can support multiple desktops using shared components. The administration of the portals, desktops, and components can be delegated to the distinct administrators who have the correct Delegated Administration privileges.

You can assemble your portal using portal resources that exist in the Portal Library, or in some cases you can create your own resources. If you create portal resources outside of the Portal library, you are creating “one-off” versions that have the following restrictions:

- Your resource do not show up in the Portal Library
- Your resource cannot have entitlements that are scoped to the enterprise applications. You can entitle your resource to your Desktop level.
- Visitors are not able to add these resources to their personal views of a portal using the Visitor Tools because they are not available in the Library.

- If you delete this resource, it is permanently deleted since no version of it exists in the Library.

Portal Management

Portal administrators work with portal resources to assemble portals and entitle parts of the portal to end users and other administrators. A portal represents a web site that can be one of many within an enterprise application. Each portal can support multiple desktops using shared components. You can delegate the administration of the portals, desktops, and components to administrators who have the appropriate Delegated Administration privileges.

For more information, refer to BEA Weblogic Portal e-docs.

Overview of the Library

The portal library is the repository for portal components. The definitions in the library are used as templates for portal administrators to create and assemble portals and desktops for end users. In order to have access to the library, you must have delegated administration rights to its resources.

For more information on library administration, refer to the Portal Development Guide on e-docs.

Desktop Templates

A desktop template is a pre-defined set of portal resources that you can use to quickly build a desktop.

Creating a Desktop Template

You can create a desktop template in either of these ways: select available resources in the Library and provide additional desktop properties, or select an existing .portal file on which to base the template.

Perform these steps:

1. In the Portal Resources tree, select Portals and navigate to the portal for which you want to create the desktop.
2. Navigate to Templates > Desktop Templates.
3. In the Browse Desktops tab, click Create Desktop Template. The Create Desktop Template wizard displays.

4. Complete the first page of the wizard by selecting how you want to create a desktop template:
 - Select resources in the Library: You can choose the primary book, shell, and Look & Feel for your desktop from available resources and provide additional desktop properties.
 - Select a .portal file: You can select from a list of .portal files in the current web application, and provide additional desktop properties.
5. Click Next. The information you need to enter on the remaining pages of the wizard vary according to the selection you made in the first page. Use the following table as a guide.

Select resources in the Library	<ol style="list-style-type: none">1. You can either search for an existing book or create a new one. To use an existing book, you can search for a primary book by entering a search string and clicking Search, or display all books by clicking Show All. If you choose to create a new book, enter a Book Name (required), and a Description and Menu option if desired.2. Enter additional template properties, including Title, Description, and Desktop Template Resources. If you want to add this template to the Library, select the check box.3. Click Next.4. Review the summary of properties and click Next. The desktop template is created.5. Click Finish.
Select a .portal file	<ol style="list-style-type: none">1. Either search for a .portal file by entering a search string and clicking Search, or display all .portal files by clicking Show All.2. Select a .portal file in the list.3. Click Next.4. Enter the desired desktop properties, including Title, Description, and Desktop Template Resources. If you want to add this template to the Library, select the check box.5. Click Next.6. Review the summary of properties and click Next. The desktop template is created.7. Click Finish.

Modifying Desktop Template Properties

You can modify some desktop template properties from the Details tab. You can also edit the title, description, and locale information from the Title & Description tab, as described below.

To modify desktop template properties, perform these steps:

1. In the Portal Resources tree, expand the Library node or the Portals node and select a desktop template.
2. If you are starting this task from the Library node, click Edit this Template.
3. From the Details tab, select the type of property that you want to change. Use the table below as a guide.

Title and Description	
Change title and description of the template in the current locale	<ol style="list-style-type: none"> 1. Click Title & Description. 2. Click the locale (for example, en) in the Locale cell; the Add a Localized Title & Description dialog displays. 3. Enter a new Title and/or Description. 4. Click Update.
Add a localized title for the portlet	<ol style="list-style-type: none"> 1. Click Title & Description. 2. Click Add Localized Title; the Add a Localized Title & Description dialog appears. 3. Enter a Language and Country identifier, Variant if applicable, Title, and a Description for the localized title. 4. Click Create.
Edit Appearance	<ol style="list-style-type: none"> 1. Click Edit Appearance; the Update Desktop dialog displays. 2. In the Default Shell drop-down menu, select a shell. 3. In the Look and Feel drop-down menu, select a Look & Feel. 4. In the Primary Book drop-down menu, select a book as the primary book for the template. 5. Click Update.

Edit Primary Book Contents	<ol style="list-style-type: none">1. Click Edit Primary Book Contents; the Browse Contents tab displays.2. Click Add Contents.3. Follow the instructions in Managing Book Content.
Control Tree Optimization	<ol style="list-style-type: none">1. Click Advanced Properties.2. In the Enable Tree Optimization drop-down menu, select True or False.3. Click Update.

Communities

Communities are WebLogic Portal desktops that let users with common goals and interests work together in—and manage—their own web-based portal environment. Whether for specific events, work groups, partners, or for any other groups that need to share information, communities provide a dedicated, secure, self-managed place to collaborate.

For more information, refer to the [Communities Guide](#).

Portal Resources

A portal is a web application that provides a unified user interface to aggregated content and integrated applications. When you "create a portal" using the tools in the WebLogic Portal Administration Console, you are essentially creating a "container" for desktops, which represent customized views of the portal. To the desktops you add other portal resources such as books, pages, and portlets. You can then entitle these desktops and resources for specific users.

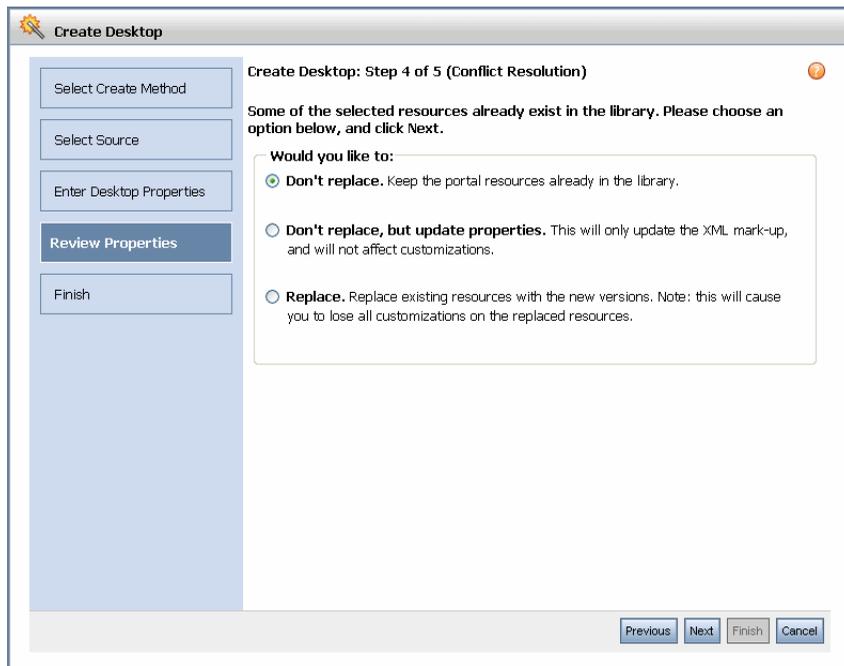
For more information on portal resources, refer to the Portal Development Guide on e-docs.

Updating Portal Resources

When you create a desktop using a template (.portal file) in WebLogic Portal Administration Console, each resource of that desktop (such as books, pages, and portlets) has a Definition Label that serves as a unique ID for that component in the database.

If you create a new desktop using a template that contains portal resources with Definition Labels that are identical to resources already stored in the database, a dialog similar to the following displays:

Figure 12-4 Update Portal Resources Dialog



Use the following information for guidance in updating portal resources when you receive this warning:

Table 12-2 Updating Portal Resources- Conflict Resolution Options

Option	Description
Don't replace	Ignores the resources in the template and leaves the database version of the resources intact, including any user customizations that have been made.
Don't replace, but update properties	Uses the template to replace the database version of all conflicting resources and adds new, non-conflicting resources to the database.
Replace	Keeps user customizations but allows replacement of resource XML markup; for example, a change in a portlet's modes or a change in a portlet's Content URI.

If you want to replace specific portal resources, use Workshop for WebLogic to create a “dummy” `.portal` file containing the portal resources that you want to update (portal components with the Definition Labels you want to update in the database), use the Administration Console to create a new desktop using that template, and select the appropriate “Replace” option in the dialog that appears.

Viewing Resources for a Portal Web Application (Update WebApp)

To change the “active” portal web application so that you can work with a different web application's resources, perform these steps:

1. Above the Portal Resources tree, click **Update WebApp**. The **Update Current WebApp** dialog displays.
2. Use a search string to find web applications, or click **Show All** to display all web applications.
3. Select a web application and click **Save**.

Deleting a Portal Resource

As a portal resource librarian, you can delete certain portal resources from the library, or remove them from a desktop (which does not delete them from the library).

Resources that can be deleted include: pages, books, portlets (only those created using the Administration Console), and portlet categories.

To delete a portal resource:

1. In the Portal Resources tree, select the type of resource that you want to delete. A list of elements in that category is displayed.
2. To delete an element from the library, select the check box for any elements that you want to delete, and click **Delete**. The items are deleted and removed from the list.

If you try to delete an element from the library that is being used within a desktop, a warning dialog displays. You can choose either to delete the element and any referencing instances, or cancel the deletion task.

3. To delete an element from a desktop, select the check box for any elements that you want to delete, and click **Remove**. The items are removed from the list.

Localizing a Portal Resource

You use the WebLogic Portal Administration Console to localize individual portal resources so that they render in different languages. When you assign a language to a portal resource, you assign the preferred language to the name of that resource. Resources localized in the portal library will be propagated through the portals in which they are used.

If the end user's browser supports the selected language, the portal resource is rendered in that language. If the end user's browser does not support that language, the system works through a list of available languages until it finds one that is supported in both your portal and the end user's browser.

Perform these steps:

1. In the Portal Resources tree, expand the Library node to find the resource that you want to localize; for example:
 - Theme
 - Book
 - Page
 - Layout
 - Look & Feel
 - Portlet
2. Select the **Title & Description** tab for the resource.
3. Click **Add Localized Title**.
4. Complete the data entry fields for the Language, Title, and other fields as applicable.
5. Click **Create**.

Note: For information about localization standards, see <http://java.sun.com/j2se/1.3/110n-notes.html>.

Portals

From an end user perspective, a portal is a web site with pages that are organized by tabs or some other form of navigation. Each page contains a nesting of sub-pages, and one or more portlets—individual windows that display anything from static HTML content to complex web services. A page can contain multiple portlets, giving users access to different information and tools in a

single place. Users can also customize their view of a portal by adding their own pages, adding portlets of their choosing, and changing the Look & Feel of the interface.

Technically, a portal is a container of resources and functionality that can be made available to end users. These portal views, which are called desktops in WebLogic Portal, provide the uniform resource location (URL) that users access. A portal presents diverse content and applications to users through a consistent, unified web-based interface. Portal administrators and users can customize portals, and content can be presented based on user preferences or rule-based personalization. Each portal is associated with a web application that contains all of the resources required to run portals on the web.

Creating a Portal

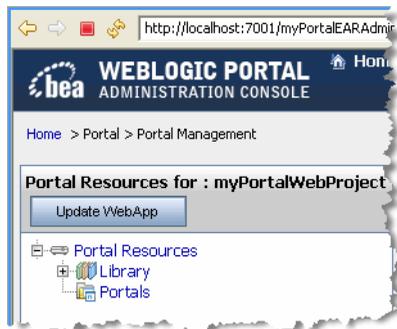
When you create a new portal, you are creating an empty portal “container” into which you can add as many desktops (versions of the portal) as you need. You can then entitle specific users with access to the desktops. Each portal is associated with a web application that contains all of the resources required to run the portal on the web.

To create a portal, follow these steps:

1. Click the **Portal Management** menu shortcut on the Administration Console home page.

The Portal Management page displays; the Portal Resources tree displays in the left pane of the page, as shown in [Figure 12-5](#).

Figure 12-5 Portal Resources Tree in the Administration Console



Notice that the display is based on the portal that you selected before you opened the Administration Console. If you expand the **Library > Portlets** portion of the tree, you can see any portlets that exist for that portal.

2. Click **Portals** in the tree.

The Portals page displays, with the Browse Portals tab active. If no portals exist yet, the table containing portals is empty.

3. Click **Create New Portal**.

The **Create a New Portal** dialog displays, [Figure 12-6](#) shows an example.

Figure 12-6 Create a New Portal Dialog in Administration Console

4. Enter values for the portal properties.
5. Click **Create New Portal**.
6. You can click the portal name in the Browse Portals table to view the details for this portal.

When the Portals page displays again, the Browse Portals table includes the portal you created, and the Portal Resources tree includes the new portal.

The Portals page displays, with the Browse Desktops tab active. Because no desktops exist yet, the table containing desktops is empty.

You can now add desktops to your portal.

Modifying Portal Properties

You can modify some portal properties from the Details tab. You can also edit the title, description, and locale information from the Title & Description tab, as described below.

To modify portal properties:

1. In the Portal Resources tree, expand the Portals node and select a portal.

- From the Details tab, select the type of property that you want to change. Use the table below as a guide.

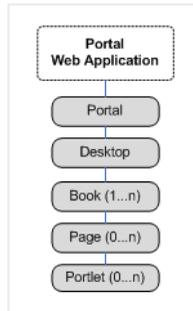
Title and Description	
Change title and description of the portal in the current locale	<ol style="list-style-type: none">Click Title & Description.Click the locale (for example, en) in the Locale cell; the Add a Localized Title & Description dialog displays.Enter a new Title and/or Description.Click Update.
Add a localized title for the portal	<ol style="list-style-type: none">Click Title & Description.Click Add Localized Title; the Add a Localized Title & Description dialog appears.Enter a Language and Country identifier, Variant if applicable, Title, and a Description for the localized title.Click Create.
Portal Location	<ol style="list-style-type: none">Click Portal Location; the Update URI dialog displays.Enter the URI for the portal.Click Update. <p>You can view the portal if desired by clicking View Portal.</p>

Desktops

A desktop is a view of the portal that a visitor accesses. A portal is effectively a container for its desktops. A desktop contains all the portlets, content, and Look & Feel elements necessary to create individual user views of a portal.

A hierarchy summary is shown in the following figure:

Figure 12-7 Desktop Hierarchy Summary



You can create one or more desktops for a portal, and tailor each desktop for a target audience.

Note: Book and page resources are often created by developers in Workshop for WebLogic. In order to make these resources visible in the library, you must create a desktop in the WebLogic Portal Administration Console using the portal created in Workshop for WebLogic as the template. For example, if a developer creates book and page resources in a portal called TestPortal in Workshop for WebLogic, you must create a new desktop and select TestPortal as your template for the desktop.

Creating a Desktop

You can create desktops in one of these ways: use a desktop template, select existing resources from the Library, or base the desktop on an existing .portal file.

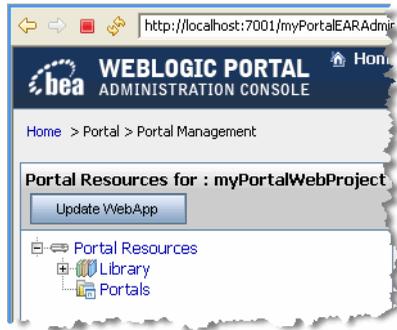
Before you create a desktop, you must already have created a portal to contain it.

To create a desktop, follow these steps:

1. Click the **Portal Management** menu shortcut on the Administration Console home page.

The Portal Management page displays; the Portal Resources tree displays in the left pane of the page, as shown in [Figure 12-8](#).

Figure 12-8 Portal Resources Tree in the Administration Console



Notice that the display is based on the portal that you selected before you opened the Administration Console. If you expand the **Library > Portlets** portion of the tree, you can see any portlets that exist for that portal.

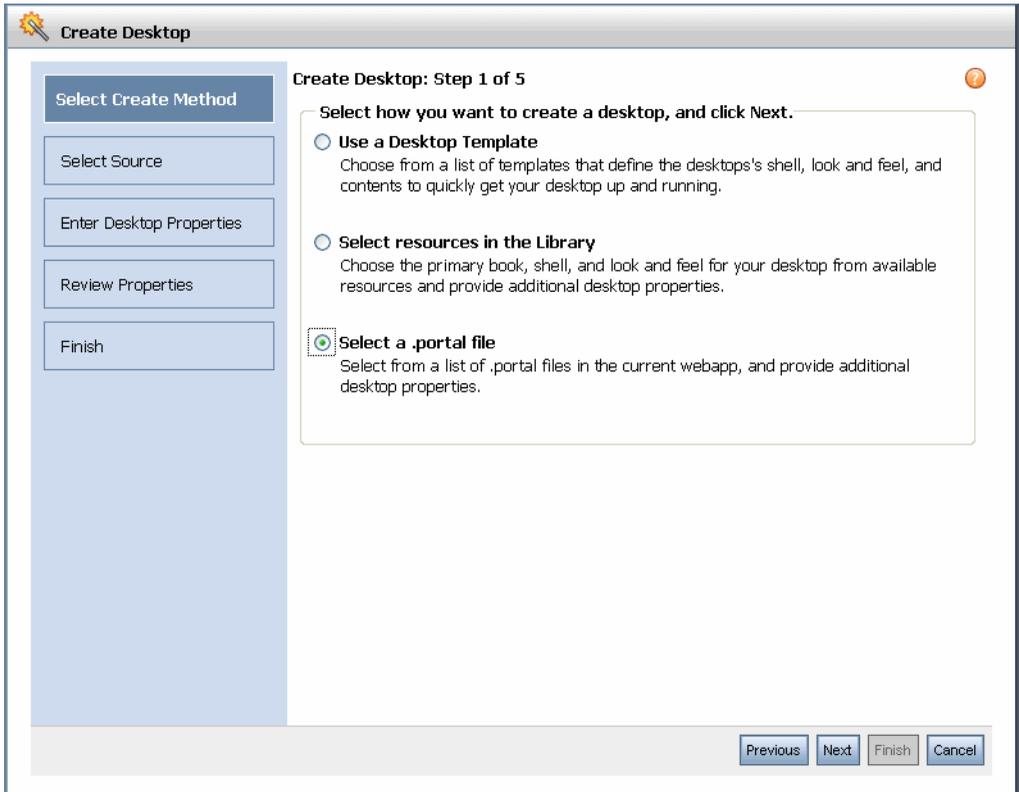
2. Navigate to the portal for which you want to create a desktop.

The Portals page displays, with the Browse Portals tab active. If no portals exist yet, the table containing portals is empty.

3. In the Browse Desktops tab, click **Create New Desktop**.

The **Create Desktop** wizard displays, as shown in [Figure 12-9](#).

Figure 12-9 Create Desktop Wizard in Administration Console



4. Complete the first page of the wizard by choosing the method of creating the desktop:
 - **Use a Desktop Template:** You can choose from a list of templates that define the desktops's shell, Look & Feel, and contents to quickly get your desktop up and running.
 - **Select resources in the Library:** You can choose the primary book, shell, and Look & Feel for your desktop from available resources and provide
 - **Select a .portal file:** You can select from a list of .portal files in the current web application, and provide additional desktop properties.
5. Enter values for the desktop in the appropriate wizard pages, using [Table 12-3](#) as your guide:

Table 12-3 Create Desktop Wizard Field Descriptions

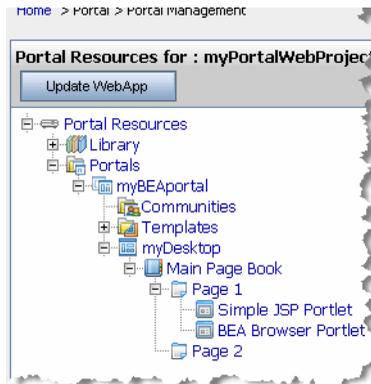
Field or Selection	Value/Description
Use a Desktop Template	<ol style="list-style-type: none"><li data-bbox="462 432 1147 487">1. Either search for a template by entering a search string and clicking Search, or display all templates by clicking Show All.<li data-bbox="462 499 763 526">2. Select a template in the list.<li data-bbox="462 538 610 564">3. Click Next.<li data-bbox="462 576 1120 631">4. Enter additional desktop properties, including Title, Description, Partial URL, and Desktop Resources.<li data-bbox="462 644 610 670">5. Click Next.<li data-bbox="462 682 1130 737">6. Review the summary of properties and click Next. The desktop is created.<li data-bbox="462 749 626 775">7. Click Finish.

Table 12-3 Create Desktop Wizard Field Descriptions (Continued)

Field or Selection	Value/Description
Select Resources in the Library	<ol style="list-style-type: none"> 1. You can either search for an existing book or create a new one. To use an existing book, you can search for a primary book by entering a search string and clicking Search, or display all books by clicking Show All. If you choose to create a new book, enter a Book Name (required), and a Description and Menu option if desired. 2. Enter additional template properties, including Title, Description, Partial URL, and Desktop Resources. 3. Click Next. 4. Review the summary of properties and click Next. The desktop is created. 5. Click Finish.
Select a portal file	<ol style="list-style-type: none"> 1. Either search for a .portal file by entering a search string and clicking Search, or display all .portal files by clicking Show All. 2. Select a file in the list. 3. Click Next. 4. Enter the desired desktop properties, including Title, Description, Partial URL, and Desktop Resources. 5. Click Next. 6. Review the summary of properties and click Next. 7. If some of the selected resources already exist in the library, a Conflict Resolution page displays. Select an option to indicate the file replacement method that you want to use; for more information, refer to Updating Portal Resources. 8. Click Next. The desktop is created. 9. Click Finish.

The Browse Desktops table includes the desktop you created, and the Portal Resources tree includes the new desktop, similar to the example shown in [Figure 12-10](#).

Figure 12-10 New Desktop in Portal Resources Tree



Disassembling to the Library

When you create a new desktop using the WebLogic Portal Administration Console, you can use an existing portal template. Using a template means that you will be taking the portal resources for your desktop directly from a .portal file that was created in Workshop for WebLogic. (The .portal file is also called the primary instance.) When you create a desktop, the portal assets are removed from the .portal file, placed in a database, and surfaced in both the Library and desktop trees of the Administration Console. Taking the assets from a new desktop instance and placing them in the Library is called disassembling.

At this point, the assets (books, pages, and so on) in the Library (Library instances) are hierarchically related to their corresponding desktop instances. A change to a Library resource, such as a name change, is automatically inherited by the corresponding desktop asset. On the other hand, a change to the desktop asset is not reflected back up the hierarchy.

Note: Changes made to assets are never "reverse inherited" up the hierarchy. A change to a desktop asset is never inherited by its corresponding Library instance. Likewise, a change to a Visitor instance is never inherited by a desktop or Library instance.

New books and pages that you create in a desktop are not disassembled—they are considered to be private to that desktop.

Decoupling of Property Settings

If an administrator or a visitor (using Visitor Tools) changes the book properties of a book or the page properties of a page in a desktop, those property settings become decoupled from the settings in the parent book or page in the Library. Page properties include layout and theme, while book properties include menus and layout. These properties can be modified in the

Administration Console. When a portal is propagated, any assets that are decoupled in the source application will remain decoupled in the destination.

Modifying Desktop Properties

To modify the properties of a desktop, perform these steps:

1. In the Portal Resources tree, select **Portals** and navigate to a desktop.
2. In the Details tab, you can choose to edit properties in each section. Use the following table as a guide.

Title and Description	
Change title and description of the portlet in the current locale	<ol style="list-style-type: none"> 1. Click Title & Description. 2. Click the locale (for example, en) in the Locale cell; the Add a Localized Title & Description dialog displays. 3. Enter a new Title and/or Description. 4. Click Update.
Add a localized title for the portlet	<ol style="list-style-type: none"> 1. Click Title & Description. 2. Click Add Localized Title; the Add a Localized Title & Description dialog appears. 3. Enter a Language and Country identifier, Variant if applicable, Title, and a Description for the localized title. 4. Click Create.

Shell, Look & Feel, Primary Book	<ol style="list-style-type: none">1. Click Appearance And Contents; the Update Desktop dialog displays.2. From the Default Shell drop-down menu, select a shell.3. From the Look And Feel drop-down menu, select a Look & Feel.4. From the Default Primary Book drop-down menu, select a book. The primary book is the main visual and navigational infrastructure for a particular desktop view of a portal.5. Click Update.
Control Tree Optimization	<ol style="list-style-type: none">1. Click Advanced Properties.2. In the Enable Tree Optimization drop-down menu, select True or False. Changing this value might change the behavior of the portal and should not be performed without first doing a complete test. For more information about the tree optimization feature, refer to the Portal Development Guide on e-docs.3. Click Update.

3. To verify your changes in a browser, click **View Desktop**.

Books

A book is a portal component that provides high-level content organization and navigation. Books contain pages or other books, providing a mechanism for hierarchical nesting of pages and content.

Creating a Book

If you have Library Administration privileges, you can create a new book in the portal Library that can be used as a component in multiple portals. If you have Portal Administrator privileges, you can create books to use in customized portals, but these books are not reusable (and are not listed in the portal Library).

To create a book in the portal Library, perform these steps:

1. In the Portal Resources tree, expand the Library folder and select Books. The Browse Books tab displays.

2. Click **Create New Book**. The Create New Book dialog displays.
3. Enter a title, description, menu, and theme for the book.

Note: The Multi Level Menu is a pull-down menu, and the Single Level Menu is a tabbed menu.

4. Click **Create Book**.

To create a book on an individual desktop, perform these steps:

1. In the Portal Resources tree, expand the Portals node and select the book or page where you want to create a book.
2. Click the appropriate tab depending on whether you are working on a page or a book, as follows:
 - For pages, click the **Edit Contents** tab
 - For books, click the **Browse Contents** tab.
3. Click **Add New Book**. The Create New Book dialog displays.
4. Enter a title, description, menu, and theme for the book.
5. Click **Create**.

The book is added for the desktop but will not be added to the Library.

Managing Book Content

The contents of a book include pages and books. You can view the books and pages that are already on your book, and add and remove pages and books to construct your book.

Adding Portal Elements to a Book

Library: To add a content to a book, perform these steps:

1. In the Portal Resource tree, expand the Library node and navigate to a book. The Details tab displays.
2. Click **Add Book Contents**. The Add Books and Pages dialog displays.
3. Display the books or pages that you want to choose from, using the Search area if needed.
4. Choose the elements that you want to add by selecting the desired check boxes, and click **Add**.

5. When finished, click **Save**.

Desktop: To add a content to a book, perform these steps:

1. In the Portal Resource tree, expand the Portals node and navigate to a book. The Details tab displays.
2. Click **Browse Contents**. In the Browse Book Contents section, you can choose to add existing elements using the Add Contents button, or create a new page/book using the Add New Page button or Add New Book button.
3. If you want to create a new book and add it to this book, click **Add New Book**; the Create New Book dialog displays. Fill in the fields of this dialog as described in [“Creating a Book” on page 12-26](#).
4. If you want to create a new page and add it to this book, click **Add New Page**; the Create New Page dialog displays. Fill in the fields of this dialog as described in [“Creating a New Page” on page 12-30](#).
5. If you want to add an existing book or page to the book, click **Add Contents**; search for existing books or pages if needed, then select the elements that you want, and click **Add**. When finished, click **Save**.

Positioning or Removing Portal Elements on a Book

Perform these steps:

1. In the Portal Resource tree, expand either the Library node or the Portals node as desired, and select a book. The Details tab displays.
2. Click **Add Book Contents**. The Add Books and Pages to Book dialog displays.
3. If you want to remove a page or book, select the check box for that element in the Contents of Book column and click **Remove Selected**.
4. To change the order of an element on the page, select the check box for that element in the Contents of Book column; then click the up arrow or down arrow as needed.
5. When finished, click **Save**.

Modifying Library Book Properties and Contents

To modify the properties of a book that resides in the library, perform these steps:

1. In the Portal Resources tree, expand the Library node and select the desired book.

- From the Details tab, select the type of property that you want to change. Use the table below as a guide.

Title and Description	
Change title and description of the book in the current locale	<ol style="list-style-type: none"> Click Title & Description. Click the locale (for example, en) in the Locale cell; the Add a Localized Title & Description dialog displays. Enter a new Title and/or Description. Click Update.
Add a localized title for the book	<ol style="list-style-type: none"> Click Title & Description. Click Add Localized Title; the Add a Localized Title & Description dialog appears. Enter a Language and Country identifier, Variant if applicable, Title, and a Description for the localized title. Click Create.
Book Contents	<ol style="list-style-type: none"> Click Book Contents; the Browse Contents tab displays. Select books and pages to add, following the instructions in “Managing Book Content” on page 12-27.
Menu and Theme	<ol style="list-style-type: none"> Click Appearance; the Edit Appearance dialog displays. From the Menu drop-down menu, select a Menu. From the Theme drop-down menu, select a Theme. Click Update.

Modifying Desktop Book Properties

To modify the properties of a book that resides on a desktop, perform these steps:

- In the Portal Resources tree, expand the Portals node and select the desired book.
- From the Details tab, select the type of property that you want to change. Use the table below as a guide.

Title and Description	You must edit these values within the Library resource tree. Expand the Library node, select the book that you want to edit, and follow the instructions in “Modifying Library Book Properties and Contents” on page 12-28.
Book Contents	<ol style="list-style-type: none">1. Click Book Contents; the Browse Contents tab displays.2. Click Add Contents.3. Select books and pages to add, following the instructions in “Managing Book Content” on page 12-27.
Menu and Theme	<ol style="list-style-type: none">1. Click Appearance; the Edit Appearance dialog displays.2. From the Menu drop-down menu, select a Menu.3. From the Theme drop-down menu, select a Theme.4. Click Update.

Pages

Pages contain the portlets that display the actual portal content. Pages can also contain books and other pages.

Creating a New Page

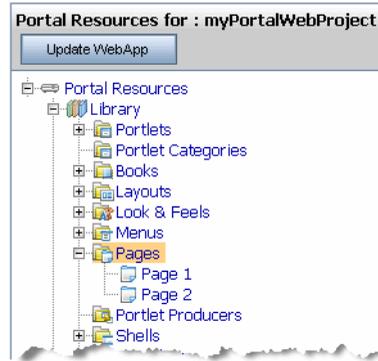
A page is a portal resource that acts as container for portlets. If you have appropriate Delegated Administration privileges, you can create a new page in the portal library that can be used as a component in multiple portals. If you have Portal Administrator privileges, you can create pages to use in customized portals, but these pages are not reusable (and are not listed in the portal Library).

In this task, you will create a new page in the library of resources for your project.

Follow these steps:

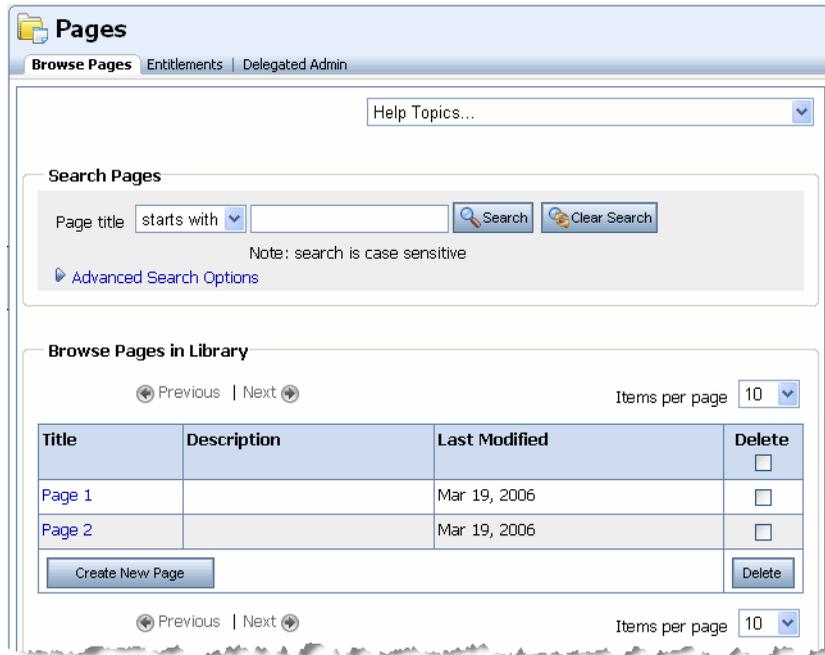
1. Expand the **Library** folder for your portal web project and select the **Pages** folder; [Figure 12-11](#) shows an example of the tree.

Figure 12-11 Expanded Portal Resources Tree Showing Library Pages



The **Browse Pages** tab displays in the right pane, as shown in Figure 12-12.

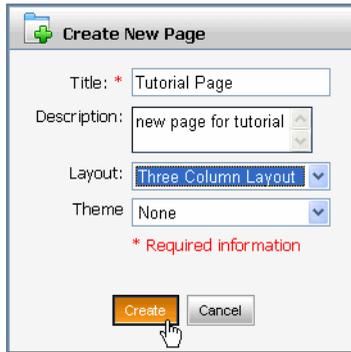
Figure 12-12 Browse Pages Tab



2. Click **Create New Page**.

The **Create New Page** dialog displays, as shown in Figure 12-13.

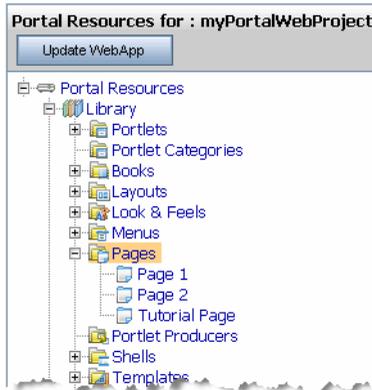
Figure 12-13 Create New Page Dialog in Administration Console



3. Enter a title, description, layout, and theme for the page.
4. Click **Create**.

The new page is added, and is included in the **Details** page for the library; the Portal Resources tree updates to include the new page, as shown in [Figure 12-14](#).

Figure 12-14 New Page Added to the Portal Resources Tree



To create a page on an individual desktop, perform these steps:

1. In the Portal Resources tree, expand the Portals node and select the book or page where you want to create a page.
2. With the Browse Contents tab active, click **Add New Page**. The Create New Page dialog displays.

3. Enter a title, description, layout, and theme for the page.
4. Click **Create**.

The page is added for the desktop but will not be added to the Library.

Managing Page Content

The contents of a page include portlets and books. You can view the books and portlets that are already on your page, and add and remove portlets and books to construct your page.

Adding Elements on a Page

Library: To add a content to a page, perform these steps:

1. In the Portal Resource tree, expand the Library node and navigate to a page. The Details tab displays.
2. Click **Page Contents**. The Edit Contents tab displays.
3. Click **Add Contents**. The Add Books and Portlets to Placeholder dialog displays.
4. Display the books or pages that you want to choose from, using the Search area if needed.
5. Choose the elements that you want to add by selecting the desired check boxes, and click **Add**.
6. When finished, click **Save**.

Desktop: To add content to a page, perform these steps:

1. In the Portal Resource tree, expand the Portals node and navigate to a page. The Details tab displays.
2. Click **Page Contents**. The Edit Contents tab displays. In the Edit Contents tab, you can choose to add existing elements using the Add Contents button, or create a new book using the Add New Book button.
3. If you want to create a new book and add it to this page, click **Add New Book**; the Create New Book dialog displays. Fill in the fields of this dialog as described in [“Creating a Book” on page 12-26](#).
4. If you want to add an existing book or portlet to the book, click **Add Contents**; search for existing books or portlets if needed, then select the elements that you want, and click **Add**.
5. When finished, click **Save**.

Positioning Elements on a Page

The page layout is the grid structure of a page that holds placeholders for portlets on the page. You can select a layout for your portlets/books, and drag and drop portlets or books between the placeholders to customize the layout of each page.

Perform these steps:

1. In the Portal Resource tree, expand either the Library node or the Portals node as applicable, and select a page. The Details tab displays.
2. Click **Page Contents**. The Edit Contents tab displays.
3. If you want to change to a different layout, select a layout in the Layout drop-down menu.
4. Select the method that you want to use to position the elements on the page by selecting an option in the Position Elements area. The default is Drag & Drop.
5. Move portlets or books between placeholder columns.
6. If you want to prevent users from moving or deleting elements from a placeholder, select the **Lock Placeholder** check box.
7. When finished, click **Save Changes**.

Modifying Library Page Properties

To modify the properties of a page that resides in the library, perform these steps:

1. Expand the Library node in the Portal Resources tree and navigate to a page.
2. From the Details tab, select the type of property that you want to change. Use the table below as a guide.

Title and Description	
Change title and description of the page in the current locale	<ol style="list-style-type: none">1. Click Title & Description.2. Click the locale (for example, en) in the Locale cell; the Add a Localized Title & Description dialog displays.3. Enter a new Title and/or Description.4. Click Update.

Add a localized title for the page	<ol style="list-style-type: none"> 1. Click Title & Description. 2. Click Add Localized Title; the Add a Localized Title & Description dialog appears. 3. Enter a Language and Country identifier, Variant if applicable, Title, and a Description for the localized title. 4. Click Create.
Page Contents	<ol style="list-style-type: none"> 1. Click Page Contents; the Edit Contents tab displays. 2. To add books or portlets, click Add Contents. To move content, select a positioning option by clicking one of the Position Elements radio buttons, then move elements as desired. Follow the instructions in “Managing Page Content” on page 12-33.
Layout and Theme	<ol style="list-style-type: none"> 1. Click Appearance; the Edit Appearance dialog displays. 2. From the Layout drop-down menu, select a Layout. 3. From the Theme drop-down menu, select a Theme. 4. Click Update.

Modifying Desktop Page Properties

To modify the properties of a page that resides on a desktop, perform these steps:

1. Expand the Portals node in the Portal Resources tree and navigate to a page.
2. From the Details tab, select the type of property that you want to change. Use the table below as a guide.

Title and Description	You must edit these values within the Library resource tree. Expand the Library node, select the page that you want to edit, and follow the instructions in “Modifying Library Page Properties” on page 12-34.
------------------------------	--

Page Contents

1. Click **Page Contents**; the Edit Contents tab displays.
2. To add books or portlets, click **Add Contents**. To move content, select a positioning option by clicking one of the Position Elements radio buttons, then move elements as desired. Follow the instructions in [“Managing Page Content” on page 12-33](#).

Layout and Theme

1. Click **Appearance**; the Edit Appearance dialog displays.
 2. From the Layout drop-down menu, select a Layout.
 3. From the Theme drop-down menu, select a Theme.
 4. Click **Update**.
-

Moving a Page or Book to Another Location on the Desktop

Within a desktop, you can move a book or page to a different location within the desktop; for example, you can move page1 from book1 to book2 within a single desktop. You must have "can manage" privileges on both the source and destination location for the resource. You can perform this task for any book or page, except the main book.

Note: You cannot change the inheritance structure of a resource when you move it; for example, if a book's parent is another book, you may move it only underneath another book - not to a page. If the parent is a page, you can only move the resource under another page.

Perform these steps:

1. In the Portal Resource tree, expand the Portals node as desired, and select the book or page that you want to move.
2. Click **Move**. The Move dialog displays, instructing you to select the node in the Portal resources tree where you want to place the element.
3. Click **OK**.
4. In the Portal Resources tree, click the book or page under which you want to paste the element that you selected in step 2.
5. Click **Paste**. The Paste confirmation dialog displays.
6. Click **OK**.

Portlets

Portlets are the visible components that act as the interface to applications and content. They are the actual components with which a user interacts in a portal. Portlets can be arranged in pages to provide users access to multiple applications within a single page.

Portlets also support application-to-application communication and can be used to provide users access to composite applications - a single portlet interface that combines data and tasks from multiple sources.

Copying a Portlet in the Library

You can use this feature of the WebLogic Portal Administration Console to duplicate an existing portlet and use it as a template for a "new" portlet.

Perform these steps:

1. Expand the Library node in the Portal Resources tree and navigate to the portlet that you want to copy.
2. Click **Copy Portlet**. The Copy Portlet dialog displays.
3. Enter a title and description for the copied portlet.
4. Click **OK**. The portlet is added at the bottom of the portlet list.

You can now customize the copied portlet by modifying its properties and preferences.

Deleting a Portlet

You can delete portlets from the Administration Console only if they were created there; for example, if you used the Copy Portlet feature to duplicate the portlet. Portlets created in Workshop for WebLogic cannot be deleted using the Administration Console.

Perform these steps:

1. Expand the Library node in the Portal Resources tree and navigate to the portlet that you want to delete.
2. Click **Delete Portlet**.

Modifying Library Portlet Properties

Portlet properties include all of the features and elements that make up the portlet. As a portal administrator, you can modify some of these properties from the Details tab. You can also edit the title, description, and locale information from the Title & Description tab, as described below.

To modify the properties of a portlet that resides in the library, perform these steps:

1. Expand the Library node in the Portal Resources tree and navigate to the portlet that you want to modify.
2. From the Details tab, select the type of property that you want to change. Use the table below for guidance.

Title and Description	
Change title and description of the portlet in the current locale	<ol style="list-style-type: none">1. Click Title & Description.2. Click the locale (for example, en) in the Locale cell; the Add a Localized Title & Description dialog displays.3. Enter a new Title and/or Description.4. Click Update.
Add a localized title for the portlet	<ol style="list-style-type: none">1. Click Title & Description.2. Click Add Localized Title; the Add a Localized Title & Description dialog appears.3. Enter a Language and Country identifier, Variant if applicable, Title, and a Description for the localized title.4. Click Create.
Portlet Preferences	Refer to “Creating a Portlet Preference” on page 12-40 and “Editing a Portlet Preference” on page 12-41 .

Portlet Theme	<ol style="list-style-type: none"> 1. Click Appearance; the Edit Appearance dialog displays. 2. From the drop-down menu, select a Theme. 3. Click Update.
Render caching and timeout	<ol style="list-style-type: none"> 1. Click Advanced Properties. 2. In the Render Caching Enabled drop-down menu, select True or False. 3. If you selected True, enter a cache expiration value in the Cache Expiration field. 4. Click Update.

Modifying Desktop Portlet Properties

Portlet properties include all of the features and elements that make up the portlet. As a portal administrator, you can modify some of these properties from the Details tab. You can also edit the title, description, and locale information from the Title & Description tab, as described below.

To modify the properties of a portlet that resides on a desktop, perform these steps:

1. Expand the Portals node in the Portal Resources tree and navigate to the portlet that you want to modify.
2. From the Details tab, select the type of property that you want to change. Use the table below as a guide.

Title and Description	You must edit these values within the Library resource tree. Expand the Library node, select the portlet that you want to edit, and follow the instructions in “Modifying Library Portlet Properties” on page 12-38 .
Portlet Preferences	Refer to “Creating a Portlet Preference” on page 12-40 and “Editing a Portlet Preference” on page 12-41 .
Portlet Theme	<ol style="list-style-type: none"> 1. Click Appearance; the Edit Appearance dialog displays. 2. From the drop-down menu, select a Theme. 3. Click Update.

Portlet Preferences

A portlet preference is a property in a portlet that can be customized by either an administrator or a user. Your portlet might already have preferences, but if you have the appropriate Delegated Administration privileges you can create additional portlet preferences.

Creating a Portlet Preference

To create a portlet preference, perform these steps:

1. Expand the Portals node or the Library node in the Portal Resources tree, as appropriate, and navigate to the portlet for which you want to create a preference. The Details tab displays.
2. Click Add Portlet Preference.
3. Fill in the information in the fields. Use the table below as a guide.

Table 12-4 Creating a Portlet Preference - Data Entry Fields

For this field...	Enter this information...
Name	The name you want to give this preference.
Description	A description of this preference.
Value(s)	A value for a preference. For example: True or False.
Is Modifiable? (checkbox)	Select this check box if you want to allow end users to modify this preference.
Is Multi-Valued? (checkbox)	Select this check box if you want to enter multiple values for the preference. If you select this box, an additional data entry field displays for you to enter additional values. Click Add Another Value after entering each value, until you are finished.

4. Click **Save**.
5. For library instances of portlets, when you add a preference it automatically proliferates to library page instances and desktop page instances if the instances have not been decoupled.
6. If you want to force proliferation of this preference to every instance of this portlet, click **Propagate to Instances**; WebLogic Portal overwrites all desktop instance's preferences with

the library preferences are. When complete, a message appears at the top of the Administration Console.

Here are some tips related to portlet preferences that you might find useful:

- When desktop instances of a portlet have no preferences, they automatically inherit the preferences from the library instance of the portlet.
- When desktop instances of a portlet have their own preferences set, they will not automatically inherit preferences from the library instance.
- If a desktop instance of a portlet has its own preferences set and these preferences are removed, it will automatically inherit all preferences from the library instance.
- If a desktop instance of a portlet has inherited preferences from the library instance and the desktop instance of this preference has been modified, it will no longer automatically inherit new preferences from the library or updates made to the library portlet's instance of this preference.
- If a desktop instance of a portlet has inherited the preferences from the library instance and no desktop instance specific preferences have been set, and the inherited preferences have not been modified in the desktop instance, the desktop instance will inherit all updates to the library preferences.

Editing a Portlet Preference

If you have the appropriate Delegated Administration rights, you can edit a portlet's preferences to change the way a portlet behaves.

To edit a portlet preference:

1. Expand the Portals node or the Library node in the Portal Resources tree, as appropriate, and navigate to the portlet for which you want to edit a preference. The Details tab displays.
2. Click **Portlet Preferences**.
3. Select the portlet preference by clicking its name in the Name column.
4. Edit the information in the fields. Use the table below as a guide.

Table 12-5 Editing a Portlet Preference - Data Entry Fields

For this field...	Enter this information...
Name	The name you want to give this preference.
Description	A description of this preference.
Value(s)	A value for a preference.
Is Modifiable? (checkbox)	Select this check box if you want to allow end users to modify this preference.
Is Multi-Valued? (checkbox)	Select this check box if you want to enter multiple values for the preference. If you select this box, an additional data entry field displays for you to enter additional values. Click Add Another Value after entering each value, until you are finished.

5. Click **Save**.
6. For library instances of portlets, when you edit a preference it automatically proliferates to library page instances and desktop page instances if the instances have not been decoupled. If you want to force proliferation of this change to every instance of this portlet, click **Propagate to Instances**. When complete, a message appears at the top of the Administration Console.

Portlet Categories

Portlet categories provide for the classification of portlets, which is useful when organizing a large collection of portlets into meaningful groupings. The portlet categories are similar to other hierarchical structures in that parent “folders” can contain child folders and/or portlets. You must first create a portlet category, and then you can manage portlets by adding them to a category or moving them between categories.

Creating a Portlet Category

Portlet categories provide for the classification of portlets, which is useful when organizing a large collection of portlets into meaningful groupings. The portlet categories are similar to other hierarchical structures in that parent “folders” can contain child folders and/or portlets. You must first create a portlet category, and then you can manage portlets by adding them to a category or moving them between categories.

To create a portlet category:

1. In the Portal Resources tree, expand the Library folder and select **Portlet Categories**. The Browse Category tab displays.
2. Click **Create New Category**.
3. Type a title and description for the new category in the pop-up window.
4. Click **Create**.

Adding Portlets to a Portlet Category

To add portlets into a category:

1. Expand the Library node in the Portal Resources tree and navigate to a portlet category. The Summary tab displays.
2. Click **Portlets In Category**.
3. Click **Add Portlets**.
4. In the Available Portlets area, select the portlets that you want to add, and click **Add** to list them in the Selected Portlets area.
5. Click **Save**.

Modifying Portlet Category Properties

Portlet category properties include all of the features and elements that make up the category. As a portal administrator, you can modify some of these properties from the Summary tab. You can also edit the title, description, and locale information from the Titles & Descriptions tab, as described below.

Perform these steps:

1. In the Portal Resources tree, expand the Library node and navigate to a portlet category.
2. From the Summary tab, select the type of property that you want to change. Use the table below as a guide.

Title and Description	
Change title and description of the category in the current locale	<ol style="list-style-type: none">1. Click Title & Description.2. Click the locale (for example, en) in the Locale cell; the Add a Localized Title & Description dialog displays.3. Enter a new Title and/or Description.4. Click Update.
Add a localized title for the category	<ol style="list-style-type: none">1. Click Title & Description.2. Click Add Localized Title; the Add a Localized Title & Description dialog appears.3. Enter a Language and Country identifier, Variant if applicable, Title, and a Description for the localized title.4. Click Create.
Portlets in Category	Refer to “Adding Portlets to a Portlet Category” on page 12-43.
Categories in Category	<ol style="list-style-type: none">1. Click Categories In Category; the Browse Category tab displays.2. Click Create New Category; the Create New Category dialog displays.3. Enter a Title and Description for the new category.4. Click Create. The category is created and added to the currently selected category

Look & Feels

The physical appearance of a portal is determined by the Look & Feel selected for the portal desktop. Look & Feels are a combination of skins, themes, and skeletons that control the structure, portlet title bar graphics, JavaScript behavior, and HTML styles in your portal desktops.

Developers use Workshop for WebLogic to assemble skeletons, skins, and other elements to create Look & Feels. A Look & Feel is a portal resource that you "apply" to a portal desktop using the WebLogic Portal Administration Console.

You can change a the Look & Feel of an entire desktop or of individual components in the desktop by editing that element's properties:

Modifying Look & Feel Properties

Look & Feels are created using Workshop for WebLogic. You can modify some Look & Feel properties using the WebLogic Portal Administration Console.

Perform these steps:

1. In the Portal Resources tree, select Library and navigate to a Look & Feel. The Details tab displays, showing the current information for the Look & Feel.
2. Click **Title & Description**.
3. You can either update the title and description for the current locale, or add a new localized title for the Look & Feel. Use the table below as a guide:

Change title and description of the Look & Feel in the current locale	<ol style="list-style-type: none"> 1. Click the locale (for example, en) in the Locale cell; the Add a Localized Title & Description dialog displays. 2. Enter a new Title and/or Description. 3. Click Update.
Add a localized title for the Look & Feel	<ol style="list-style-type: none"> 1. Click Add Localized Title; the Add a Localized Title & Description dialog appears. 2. Enter a Language and Country identifier, Variant if applicable, Title, and a Description for the localized title. 3. Click Create.

Shells

A desktop's header and footer, controlled by a portal shell, are the areas that are typically above and below the main body. These areas usually display such things as personalized content, banner graphics, legal notices, and related links. When a portal is accessed by a user, each of the components in the shell are rendered to form the frame that contains the books, pages, and portlets.

Shells are created using Workshop for WebLogic. You can modify some shell properties using the WebLogic Portal Administration Console.

Modifying Shell Properties

You can modify the title, description, and locale information for shells.

To modify shell properties:

1. In the Portal Resources tree, expand the Library node and navigate to the desired shell.
2. Click **Title & Description**.
3. You can either update the title and description for the current locale, or add a new localized title for the shell. Use the table below as a guide:

Change title and description of the shell in the current locale	<ol style="list-style-type: none">1. Click the locale (for example, en) in the Locale cell; the Add a Localized Title & Description dialog displays.2. Enter a new Title and/or Description.3. Click Update.
Add a localized title for the shell	<ol style="list-style-type: none">1. Click Add Localized Title; the Add a Localized Title & Description dialog appears.2. Enter a Language and Country identifier, Variant if applicable, Title, and a Description for the localized title.3. Click Create.

Themes

Themes allow you to customize specific portal resources such as books, pages, or portlets. Developers create themes using Workshop for WebLogic; for example, a skin theme is a subset of graphics, CSS styles, and/or JavaScript behaviors that you can use on books, pages, and portlets to give them a different look from the rest of the portal desktop.

For more information, refer to [Chapter 7, “User Interface Development with Look & Feel Features.”](#)

You can select from predefined themes as you design portal desktops.

Modifying Theme Properties

Themes are created using Workshop for WebLogic. You can modify a subset of theme properties using the WebLogic Portal Administration Console.

Perform these steps:

1. In the Portal Resources tree, expand the Library node and navigate to the desired theme.

2. Click **Title & Description**.
3. You can either update the title and description for the current locale, or add a new localized title for the theme. Use the table below as a guide:

Change title and description of the theme in the current locale	<ol style="list-style-type: none"> 1. Click the locale (for example, en) in the Locale cell; the Add a Localized Title & Description dialog displays. 2. Enter a new Title and/or Description. 3. Click Update.
Add a localized title for the theme	<ol style="list-style-type: none"> 1. Click Add Localized Title; the Add a Localized Title & Description dialog appears. 2. Enter a Language and Country identifier, Variant if applicable, Title, and a Description for the localized title. 3. Click Create.

Menus (Navigation)

Menus are optional components that are loosely coupled to books and pages. A menu provides a navigation component, whether it is a set of tabs, a set of links, or a tree structure. WebLogic Portal provides the following types of menus:

- **Single Level Menu** - Provides a single row of tabs for navigation among books and pages.
- **Multi Level Menu** - Provides multiple levels of nested tabs for navigating among books and pages. Sub-books and pages are accessed through a cascading drop-down menu. Drop-down functionality occurs when books are added directly to books rather than to placeholders on pages.
- **No Navigation** - Suppresses the sub-book and pages tabs in the book. This option is useful, for example, if you use the Targeted Menu Portlet or the Left Navigation Shell for book navigation.

If you created your own navigation menus by copying and modifying the default menus, they are also available for selection when you are editing @@@.

Modifying Menu Properties

A menu's properties are all of the features and elements that make up the menu. As a portal administrator, you can modify some of these properties.

Perform these steps:

1. In the Portal Resources tree, select **Library** and navigate to a menu. The Details tab displays, showing the current information for the menu.
2. Click **Title & Description**.
3. You can either update the title and description for the current locale, or add a new localized title for the menu. Use the table below as a guide:

Change title and description of the menu in the current locale	<ol style="list-style-type: none">1. Click the locale (for example, en) in the Locale cell; the Add a Localized Title & Description dialog displays.2. Enter a new Title and/or Description.3. Click Update.
Add a localized title for the menu	<ol style="list-style-type: none">1. Click Add Localized Title; the Add a Localized Title & Description dialog appears.2. Enter a Language and Country identifier, Variant if applicable, Title, and a Description for the localized title.3. Click Create.

Layouts

Layouts are used to control the positions of the components in your portal, providing placeholders (in a table structure) for a page in which books, pages, and portlets can be placed. Different layouts display books and portlets on a page in different areas. For example, a layout that uses three table cells provides three placeholders in which portlets can be placed.

You cannot add a layout using the WebLogic Portal Administration Console. Layouts are created using Workshop for WebLogic. However, you can modify some layout properties and add localized titles and descriptions for your layouts using the Administration Console.

Modifying Layout Properties

Layouts are created using Workshop for WebLogic. You can modify some layout properties using the WebLogic Portal Administration Console.

Perform these steps:

1. In the Portal Resources tree, select **Library** and navigate to a layout. The Details tab displays, showing the current information for the layout.

2. Click **Title & Description**.
3. You can either update the title and description for the current locale, or add a new localized title for the layout. Use the table below as a guide:

Change title and description of the layout in the current locale	<ol style="list-style-type: none"> 1. Click the locale (for example, en) in the Locale cell; the Add a Localized Title & Description dialog displays. 2. Enter a new Title and/or Description. 3. Click Update.
Add a localized title for the layout	<ol style="list-style-type: none"> 1. Click Add Localized Title; the Add a Localized Title & Description dialog appears. 2. Enter a Language and Country identifier, Variant if applicable, Title, and a Description for the localized title. 3. Click Create.

Managing Portal Desktops

Deploying Portals to Production

Propagation refers to the process of moving the database and LDAP contents of one portal domain environment to another. BEA provides tools to help with portal propagation. These tools not only move database assets and LDAP information, but they also report differences and potential conflicts between the source and the target environments. You can define policies to automatically resolve conflicts, or an administrator can view a list of differences and decide the appropriate actions to take on a case-by-case basis.

Propagation tools are described in detail in the *Production Operations Guide*. The Production Operations Guide also helps you through the process of planning a strategy for propagation and provides detailed information on best practices.

This chapter contains information you might find useful as you are propagating (deploying) your portal from the staging environment to the production environment, when it is ready for public access.

The primary tools used in this chapter are the WebLogic Portal propagation tools (to move database and LDAP data between staging, development, and production), WebLogic Server application deployment tools, and any external content or security providers you are using.

Shared J2EE Libraries

The following sections provide more information about J2EE libraries and their behavior during portal deployment. For detailed instructions on how to work with J2EE libraries during deployment, refer to the *Production Operations Guide*.

To view a detailed diagram depicting the dependencies among WebLogic Portal shared libraries, refer to the [Shared J2EE Library Dependency Diagrams](#).

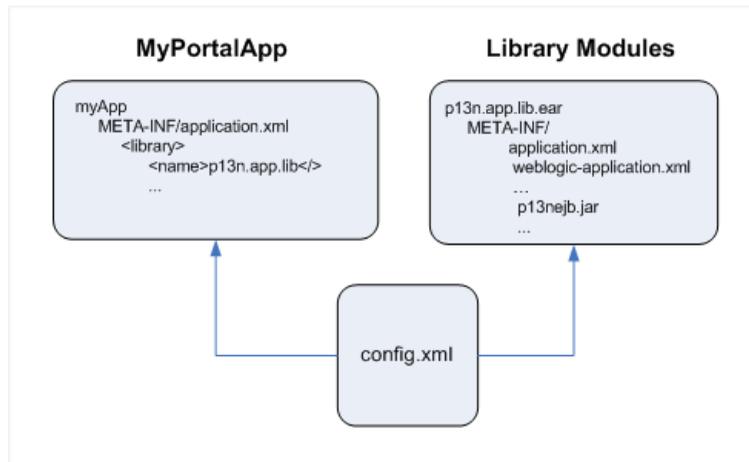
Shared J2EE Library References in config.xml

Figure 13-1 highlights the separation between your application code and shared J2EE libraries. The `config.xml` file resides in the domain, and it specifies the relationships between the web application and the J2EE libraries. Listing 13-1 shows an example `<library>` element from the `config.xml` file in a WebLogic Portal domain. As you can see, the library file is an EAR file located in the WebLogic installation area. This library is available to applications deployed on the target server.

Listing 13-1 J2EE Library Referenced in config.xml File

```
<library>
  <name>p13n-app-lib#9.2.0@9.2.0</name>
  <target>AdminServer</target>
  <source-path>D:/bea/weblogic92/common/deployable-libraries/
  p13n-app-lib.ear
</source-path>
  <deployment-order>1</deployment-order>
  <security-dd-model>DDOnly</security-dd-model>
</library>
```

When the application is deployed, these relationships provide a plan by which the application and J2EE library code are merged into a single enterprise application.

Figure 13-1 Application Referencing a Shared J2EE Library

Tip: You can create a deployment plan to configure what gets mapped at runtime when the files merge. Deployment plans are described in the [Production Operations Guide](#).

J2EE libraries can be:

- **Included by reference**

Perhaps the most important thing to know about shared J2EE libraries is that they are included in your application by reference. Within your WebLogic Portal application is a configuration file that references all of the J2EE libraries that your application requires. When you deploy your application, the library files are automatically located and included with your application.

- **Independently versioned**

Another important thing to know about J2EE libraries is that they are independently versioned. This means that each J2EE library includes within it a descriptor file that lists the module's version number. At deploy time, these descriptors are located, read, and merged automatically, ensuring that your application retrieves the correct version of each J2EE library that it requires.

- **Shared across multiple applications**

A set of shared J2EE libraries is installed when you create a WebLogic Portal domain. This set of J2EE libraries is used by all applications running in that domain.

- **Separately deployed**

Because J2EE libraries are separately deployed, applications can be upgraded easily by replacing a single J2EE library.

An application can include multiple J2EE libraries, assigning each a deployment order, which determines which version of a given file takes precedence if the same file is contained in multiple libraries. (Files contained in the referencing application always take precedence over library files.) Conceptually, J2EE libraries can be viewed as effectively overlaying (or more precisely, under-layering) the application in which they are included.

J2EE libraries can be employed at either the enterprise or web application level. They use the same file and directory structure as the applications in which they are included—the files contained in a J2EE library are effectively merged into the referencing application at deploy-time.

After deployment, the merged application functions as a standard J2EE application. As a consequence, the deployment information for assets in a library must be merged into the descriptors for the referencing application either prior to (or as part of) the deployment process.

Anatomy of a Shared J2EE Library

A J2EE library is a collection of libraries, resources, and configuration files packaged in an EAR or WAR file. EAR-based J2EE libraries are enterprise application scoped, while WAR-based modules are web application scoped.

[Figure 13-2](#) shows an exploded J2EE library. The J2EE library's name is `p13n-app-lib`.

Figure 13-2 Example of an Exploded Shared J2EE Library

```

p13n-app-lib
  p13n-ejb.jar
  datasync.war
  META-INF/
    Manifest.mf
    application.xml
    p13n-cache-config.xml
    p13n-config.xml
    p13n-profile-config.xml
    p13n-security-config.xml
    weblogic-application.xml
  APP-INF/lib/
    p13n_app.jar

```

In the `META-INF` directory is a `Manifest.mf` file; an example is shown in [Listing 13-2](#). This file includes three elements that define the archive as a J2EE library:

- `Extension-name` – Specifies the name of the J2EE library.
- `Specification-Version` – Specifies the initial version of the J2EE library.
- `Implementation-Version` – (optional) Specifies the current version of the J2EE library. You increment this version number each time the J2EE library is updated. When an application is deployed, deployment descriptors specify which J2EE libraries to deploy. This version number can be referenced in deployment descriptors so that the intended version of the module is included.

Listing 13-2 Manifest.mf File for a J2EE Library

```

Manifest-Version: 1.0
Ant-Version: Apache Ant 1.6.2
Created-By: 1.5.0_04-b05 (Sun Microsystems Inc.)
Extension-Name: p13n-app-lib
Specification-Version: 9.2.0
Implementation-Version: 9.2.0

```

Overriding Shared J2EE Library Settings in the web.xml File

At runtime, the `web.xml` files in all the shared J2EE libraries are merged, along with the `web.xml` file in your portal web project. The content of your `WEB-INF/web.xml` file overrides anything in the shared J2EE libraries, so if you want to change particular settings, you can do it there.

There are many other files for which file contents are merged; these can be overridden in the same way. These files include not only `WEB-INF/web.xml` but also `WEB-INF/weblogic.xml` and any files mentioned in `weblogic-extension.xml` from either the users' application or the shared libraries.

Servlet filters and servlets deployed in the shared libraries' `web.xml` files can be disabled if desired by deploying the null servlet filter (`com.bea.p13n.servlets.NullFilter`) or 404 servlet (`com.bea.p13n.servlets.SendErrorServlet`) in their place. For more information, refer to the [Javadoc](#).

Servlet Mapping Overrides

The `web.xml` servlet mappings provided by WebLogic Portal reside in J2EE libraries. For example, the `showBinaryServlet` is defined in

```
WebLogic_Home/portal/lib/modules/wlp-services-web-lib.war
```

If you want to add to or modify these servlet mappings, you can add your mappings or provide mapping overrides in your portal web project's file-based `web.xml` file located in the following path:

```
PortalWebProject/WebContent/WEB-INF/web.xml
```

For example, if you want to call the `ShowPropertyServlet` when `/ShowBinaryServlet/*` is used in a URL, add the following entry to your file system `web.xml` file:

```
<servlet-mapping>
  <servlet-name>ShowPropertyServlet</servlet-name>
  <url-pattern>/ShowBinaryServlet/*</url-pattern>
</servlet-mapping>
```

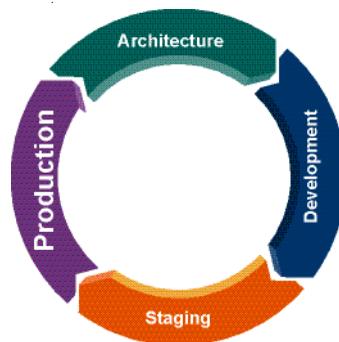
Part IV Production

Part IV includes the following chapter:

- [Chapter 14, “Managing Portals in Production”](#)

In the production phase of the portal life cycle, your portal is live. In this phase, you can use the WebLogic Portal Administration Console to perform some management functions, such as adding portlets.

For a view of how the tasks in this section relate to the overall portal life cycle, refer to the WebLogic Portal [Overview](#).



Managing Portals in Production

A production portal is live and available to end users. A portal in production can be modified by administrators using the WebLogic Portal Administration Console and by users using Visitor Tools. For instance, an administrator might add additional portlets to a portal or reconfigure the contents of a portal.

During the life cycle of a WebLogic Portal application, it moves back and forth between development, staging, and production environments. This chapter contains information about managing portals that are on a production system.

This chapter contains the following sections:

- [Pushing Changes from the Library into Production](#)
- [Transferring Changes from Production Back to Development](#)

Pushing Changes from the Library into Production

Proliferation refers to the process by which changes made to the Library instance of a portal asset on the WebLogic Portal Administration Console are pushed into user-customized instances of that asset. For example, if a portal administrator deletes a portlet from a desktop, that change must be reflected into user-customized instances of that desktop. Before you propagate a portal, consider the way in which proliferation is configured for your portal.

If your desktops include a large number of user customizations, we recommend that you change the Portal Resources Proliferation of Updates Configuration setting to either **Asynchronous** or **Off**. This change reduces the amount of time required to complete the propagation.

You can do this in the WebLogic Portal Administration Console under **Configuration Settings > Service Administration > Portal Resources > Portal Resources Proliferation of Updates Configuration**. The proliferation settings include **Asynchronous**, **Synchronous**, or **Off**.

For more information on proliferation and propagation, refer to the [Production Operations Guide](#). For database setup requirements related to using the Asynchronous proliferation setting, refer to the [Database Administration Guide](#).

Transferring Changes from Production Back to Development

WebLogic Portal utilities such as the propagation tools and the Export/Import Utility allow you to reliably move and merge changes between environments. The Export/Import Utility allows a full round-trip development life cycle, where you can easily move portals from a production environment back to your WebLogic Workshop development environment.

For instructions on using the propagation tools and Export/Import Utility, refer to the [Production Operations Guide](#).

Facet-to-Library Reference Tables

This appendix contains reference tables that show the relationships between WebLogic Portal facets and Shared J2EE libraries.

To view a detailed diagram depicting the dependencies among WebLogic Portal shared libraries, refer to the [Shared J2EE Library Dependency Diagrams](#).

WebLogic Portal Facet-to-Library Reference Tables

Refer to the following tables to view the relationships between WebLogic Portal facets and their associated Shared J2EE Libraries:

- [Figure A-1, “WebLogic Portal Application Facets and Associated J2EE Libraries,”](#) on page A-2
- [Figure A-2, “WebLogic Portal Web Application Facets and Associated J2EE Libraries,”](#) on page A-3

Figure A-1 WebLogic Portal Application Facets and Associated J2EE Libraries

Application Facets	Facet	Requires (Facets)	Libraries	Features	
WebLogic Portal	Admin Console	Admin Framework	wlp-tools-admin-app-lib	Deploys portal administration console	
	Admin Framework	Portal Customizations Framework	wlp-tools-app-lib	Application support for administration console	
				Application support for visitor tools	
	Portal Application Services	-	-	p13n-app-lib	Property Sets
					Events
					Behavior Tracking
					Rules
				wlp-services-app-lib	Users and Groups
					User and Group profiles
					UUP support
User tracking					
User Segments					
Content Selectors					
wlp-webdav-app-lib	-	-	wlp-webdav-app-lib	Campaigns	
				Placeholders	
wlp-tools-support-app-lib	-	-	wlp-tools-support-app-lib	Content Management	
				CM Search and Autonomy APIs	
				Deploys CM Webdav webapp	
				Deploys IDE support for Portal Application Services: Cache management Placeholder Preview Content Preview Campaign cleanup	
Portal Customizations Framework	-	-	p13n-app-lib	(see p13n-app-lib, above)	
			wlp-framework-full-app-lib	Application support for full portal Stream portals/portlets User preferences	
Propagation Services	Portal Customizations Framework Portal Application Services	-	wlp-propagation-app-lib	Deploys propagation service webapp	
				Commerce	Portal Application Services
WebLogic Portal (Optional)	Commerce	Portal Application Services	wlp-commerce-tools-support-app-lib	Deploys IDE support for Commerce (Catalog)	
WebLogic Portal GroupSpace	Collaboration API	Portal Customizations Framework	wlp-collab-api-app-lib	Collaboration API	
	Collaboration Portlets API	Collaboration API	wlp-collab-portlets-app-lib	Application support for collab portlets	
	GroupSpace Application	Collaboration Portlets API Admin Framework	wlp-groupspace-app-lib	Application support for GroupSpace	

Facet-to-Library Reference Tables

API Upgrade Cross-Reference

This appendix contains the following cross-reference tables, which show the relationships between Version 8.1.5 JAR files, API packages, and Version 9.2 shared J2EE libraries:

- [Packages to J2EE Libraries - Cross Reference Table](#)
- [JAR Files to J2EE Libraries - Cross Reference Table](#)
- [J2EE Libraries to Packages - Cross Reference Table](#)

Packages to J2EE Libraries - Cross Reference Table

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/campaign	wlp-services-app-lib	wps.jar
com/bea/campaign	wlp-services-web-lib	WEB-INF/lib/wps_servlet.jar
com/bea/campaign/action	wlp-services-app-lib	wps.jar
com/bea/campaign/mbeans	N/A	N/A
com/bea/campaign/rules	wlp-services-app-lib	wps.jar
com/bea/campaign/servlets	wlp-services-web-lib	WEB-INF/lib/wps_servlet.jar
com/bea/campaign/tracking/events	wlp-services-app-lib	wps.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/campaign/webservice	wlp-services-app-lib	wps.jar
com/bea/commerce/common	N/A	N/A
com/bea/commerce/ebusiness/campaign	wlp-commerce-app-lib	commerce.jar
com/bea/commerce/ebusiness/customer	wlp-commerce-app-lib	commerce.jar
com/bea/commerce/ebusiness/discount	wlp-commerce-app-lib	commerce.jar
com/bea/commerce/ebusiness/discount/association	wlp-commerce-app-lib	commerce.jar
com/bea/commerce/ebusiness/discount/mgmt	wlp-commerce-app-lib	commerce.jar
com/bea/commerce/ebusiness/discount/util	wlp-commerce-app-lib	commerce.jar
com/bea/commerce/ebusiness/price/engine	wlp-commerce-app-lib	commerce.jar
com/bea/commerce/ebusiness/price/engine/pool	wlp-commerce-app-lib	commerce.jar
com/bea/commerce/ebusiness/price/quote	wlp-commerce-app-lib	commerce.jar
com/bea/commerce/ebusiness/price/service	wlp-commerce-app-lib	commerce.jar
com/bea/commerce/ebusiness/tax	wlp-commerce-app-lib	commerce.jar
com/bea/commerce/ebusiness/tracking/events	wlp-commerce-app-lib	commerce.jar
com/bea/commerce/ebusiness/tracking/tags	wlp-commerce-web-lib	WEB-INF/lib/productTracking_taglib.jar
com/bea/commerce/mbeans	N/A	N/A
com/bea/content	wlp-groupspace-common-app-lib	APP-INF/lib/extensible_controls.jar
com/bea/content	wlp-services-app-lib	content.jar
com/bea/content	wlp-services-app-lib	content_repo.jar
com/bea/content	wlp-services-app-lib	content_system.jar
com/bea/content	wlp-propagation-web-lib	WEB-INF/lib/content_prop.jar
com/bea/content	wlp-propagation-web-lib	WEB-INF/lib/content_prop_online.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/content	wlp-services-web-lib	WEB-INF/lib/content_servlet.jar
com/bea/content/expression	wlp-services-app-lib	content.jar
com/bea/content/loader	wlp-services-app-lib	content.jar
com/bea/content/loader/bulk	wlp-services-app-lib	content.jar
com/bea/content/manager	wlp-services-app-lib	content.jar
com/bea/content/manager	wlp-services-app-lib	content_system.jar
com/bea/content/manager	wlp-services-web-lib	WEB-INF/lib/content_servlet.jar
com/bea/content/manager/propertysets	wlp-services-app-lib	content.jar
com/bea/content/manager/servlets	wlp-services-web-lib	WEB-INF/lib/content_servlet.jar
com/bea/content/manager/servlets/jsp/taglib	wlp-services-web-lib	WEB-INF/lib/content_servlet.jar
com/bea/content/manager/sort	wlp-services-app-lib	content.jar
com/bea/content/mbeans	N/A	N/A
com/bea/content/spi	wlp-services-app-lib	content.jar
com/bea/content/spi	wlp-services-app-lib	content_repo.jar
com/bea/content/virtual	wlp-services-app-lib	content.jar
com/bea/content/virtual	wlp-services-app-lib	content_system.jar
com/bea/content/virtual/version	wlp-services-app-lib	content.jar
com/bea/content/virtual/lifecycle	wlp-services-app-lib	content.jar
com/bea/jsptools/portal	wlp-tools-app-lib	APP-INF/lib/tools-framework.jar
com/bea/jsptools/portal	wlp-tools-app-lib	APP-INF/lib/wlptools_en.jar
com/bea/jsptools/portal	wlp-tools-admin-web-lib	WEB-INF/lib/wlp-admin.jar
com/bea/netuix/application/definition	wlp-framework-full-app-lib	netuix.jar
com/bea/netuix/application/exception	N/A	WebLogic_HOME/platform/lib/wlp/netuix_system.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/netuix/application/identifier	N/A	<i>WebLogic_HOME</i> /platform/lib/wlp/netuix_system.jar
com/bea/netuix/application/instance	wlp-framework-full-app-lib	netuix.jar
com/bea/netuix/application/localization/definition	wlp-framework-full-app-lib	netuix.jar
com/bea/netuix/application/localization/identifier	wlp-framework-full-app-lib	netuix.jar
com/bea/netuix/application/localization/manager	wlp-framework-full-app-lib	netuix.jar
com/bea/netuix/application/localization/view	wlp-framework-full-app-lib	netuix.jar
com/bea/netuix/application/localization/manager/persistence	wlp-framework-full-app-lib	netuix.jar
com/bea/netuix/application/manager	wlp-framework-full-app-lib	netuix.jar
com/bea/netuix/application/manager/persistence	wlp-framework-full-app-lib	netuix.jar
com/bea/netuix/application/transform/dissassembler	wlp-framework-full-app-lib	netuix.jar
com/bea/netuix/application/view	wlp-framework-full-app-lib	netuix.jar
com/bea/netuix/client/classifier	N/A	<i>WebLogic_HOME</i> /platform/lib/wlp/netuix_system.jar
com/bea/netuix/client/jsp/clienttaglib	wlp-light-web-lib	WEB-INF/lib/client_taglib.jar
com/bea/netuix/events	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/events	wlp-framework-full-web-lib	WEB-INF/lib/netuix_servlet-full.jar
com/bea/netuix/servlets/controls	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/controls	wlp-framework-full-web-lib	WEB-INF/lib/netuix_servlet-full.jar
com/bea/netuix/servlets/110n	wlp-light-web-lib	WEB-INF/lib/110n_taglib.jar
com/bea/netuix/servlets/110n	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/netuix/servlets/controls/application	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/controls/application/backing	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/controls/content	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/controls/content	wlp-framework-full-web-lib	WEB-INF/lib/netuix_servlet-full.jar
com/bea/netuix/servlets/controls/layout	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/controls/page	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/controls/portlet	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/controls/portlet	wlp-framework-full-web-lib	WEB-INF/lib/netuix_servlet-full.jar
com/bea/netuix/servlets/controls/portlet/backing	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/controls/portlet/events	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/controls/portlet/events	wlp-framework-full-web-lib	WEB-INF/lib/netuix_servlet-full.jar
com/bea/netuix/servlets/controls/window	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/controls/window	wlp-framework-full-web-lib	WEB-INF/lib/netuix_servlet-full.jar
com/bea/netuix/servlets/controls/content/backing	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/controls/window/backing	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/manager	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar
com/bea/netuix/servlets/manager	wlp-framework-full-web-lib	WEB-INF/lib/netuix_servlet-full.jar
com/bea/p13n/ad	wlp-services-app-lib	wps.jar
com/bea/p13n/ad	wlp-services-web-lib	WEB-INF/lib/ad_taglib.jar
com/bea/p13n/ad	wlp-services-web-lib	WEB-INF/lib/wps_servlet.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/p13n/ad/render	wlp-services-app-lib	wps.jar
com/bea/p13n/ad/servlets	wlp-services-web-lib	WEB-INF/lib/ad_taglib.jar
com/bea/p13n/ad/servlets	wlp-services-web-lib	WEB-INF/lib/wps_servlet.jar
com/bea/p13n/ad/servlets/jsp/taglib	wlp-services-web-lib	WEB-INF/lib/ad_taglib.jar
com/bea/p13n/advisor	wlp-services-app-lib	wps.jar
com/bea/p13n/cache	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/cache	wlp-services-web-lib	WEB-INF/lib/wps_servlet.jar
com/bea/p13n/cache/servlets	wlp-services-web-lib	WEB-INF/lib/wps_servlet.jar
com/bea/p13n/common	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/content	wlp-services-app-lib	wps.jar
com/bea/p13n/content/adapter	N/A	N/A
com/bea/p13n/content/admin	N/A	N/A
com/bea/p13n/content/advislets	wlp-services-app-lib	wps.jar
com/bea/p13n/content/document	N/A	N/A
com/bea/p13n/content/document/jdbc	N/A	N/A
com/bea/p13n/content/document/ref	N/A	N/A
com/bea/p13n/content/document/ref/loader	N/A	N/A
com/bea/p13n/content/document/spi	N/A	N/A
com/bea/p13n/content/expression	wlp-services-app-lib	wps.jar
com/bea/p13n/content/query	wlp-services-app-lib	wps.jar
com/bea/p13n/content/servlets	N/A	N/A
com/bea/p13n/content/servlets/jsp/taglib	N/A	N/A
com/bea/p13n/controls/createUser	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/controls/exceptions	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/p13n/controls/login	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/controls/profile	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/controls/userInfoQuery	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/controls/events/generic	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/controls/events/standard	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/controls/ejb/events	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/controls/ejb/property	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/controls/ejb/usermgmt	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/controls/ejb/usermgmt/profile	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/controls/rules	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/controls/securityProvider	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/entitlements	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/entitlements	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/entitlements	wlp-services-app-lib	wps.jar
com/bea/p13n/entitlements	p13n-web-lib	WEB-INF/lib/auth_taglib.jar
com/bea/p13n/entitlements/common	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/entitlements/common	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/entitlements/common	wlp-services-app-lib	wps.jar
com/bea/p13n/entitlements/management	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/entitlements/management	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/entitlements/policy	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/entitlements/resource	wlp-services-app-lib	wps.jar
com/bea/p13n/entitlements/service	N/A	N/A
com/bea/p13n/events	p13n-app-lib	p13n_ejb.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/p13n/events/listeners	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/exceptions	N/A	N/A
com/bea/p13n/expression	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/expression/operator	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/expression/operator/collection	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/expression/operator/comparative	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/expression/operator/logical	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/expression/operator/math	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/expression/operator/string	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/http	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/license	N/A	N/A
com/bea/p13n/mail	wlp-services-app-lib	wps.jar
com/bea/p13n/mail	wlp-services-web-lib	WEB-INF/lib/wps_servlet.jar
com/bea/p13n/mail/servlets	wlp-services-web-lib	WEB-INF/lib/wps_servlet.jar
com/bea/p13n/management	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/management	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/management	p13n-datasync-web-lib	WEB-INF/lib/classes.jar
com/bea/p13n/management	wlp-propagation-web-lib	WEB-INF/lib/netuix_prop.jar
com/bea/p13n/management	wlp-propagation-web-lib	WEB-INF/lib/netuix_prop_online.jar
com/bea/p13n/management	wlp-propagation-web-lib	WEB-INF/lib/p13n_prop.jar
com/bea/p13n/management	wlp-propagation-web-lib	WEB-INF/lib/p13n_prop_online.jar
com/bea/p13n/mbeans	N/A	N/A
com/bea/p13n/placeholder	wlp-services-app-lib	wps.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/p13n/placeholder	wlp-services-web-lib	WEB-INF/lib/ph_taglib.jar
com/bea/p13n/placeholder	wlp-services-web-lib	WEB-INF/lib/wps_servlet.jar
com/bea/p13n/placeholder/servlets	wlp-services-web-lib	WEB-INF/lib/ph_taglib.jar
com/bea/p13n/placeholder/servlets	wlp-services-web-lib	WEB-INF/lib/wps_servlet.jar
com/bea/p13n/placeholder/servlets/jsp/taglib	wlp-services-web-lib	WEB-INF/lib/ph_taglib.jar
com/bea/p13n/property	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/property	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/property	wlp-commerce-app-lib	commerce.jar
com/bea/p13n/property	p13n-web-lib	WEB-INF/lib/ps_taglib.jar
com/bea/p13n/rules/advislets	wlp-services-app-lib	wps.jar
com/bea/p13n/rules/manager	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/security	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/security	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/security	wlp-services-app-lib	APP-INF/lib/p13n_controls.jar
com/bea/p13n/security/management	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/security/management	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/security/management/authentication	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/security/management/rolemapper	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/security/management/rolemapper	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/servlets	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/servlets	wlp-services-app-lib	wps.jar
com/bea/p13n/servlets	wlp-services-web-lib	WEB-INF/lib/pz_taglib.jar
com/bea/p13n/servlets/jsp	wlp-services-app-lib	wps.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/p13n/servlets/jsp	wlp-services-web-lib	WEB-INF/lib/pz_taglib.jar
com/bea/p13n/servlets/jsp/taglib	wlp-services-web-lib	WEB-INF/lib/pz_taglib.jar
com/bea/p13n/tracking	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/tracking	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/tracking	p13n-web-lib	WEB-INF/lib/tracking_taglib.jar
com/bea/p13n/tracking/clickthrough	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/tracking/events	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/tracking/events	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/tracking/listeners	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/user	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/usermgmt	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/usermgmt	wlp-services-app-lib	wps.jar
com/bea/p13n/usermgmt	p13n-web-lib	WEB-INF/lib/profile_taglib.jar
com/bea/p13n/usermgmt	p13n-web-lib	WEB-INF/lib/ugm_taglib.jar
com/bea/p13n/usermgmt	wlp-services-web-lib	WEB-INF/lib/um_taglib.jar
com/bea/p13n/usermgmt	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/usermgmt/config	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/usermgmt/profile	p13n-app-lib	p13n_ejb.jar
com/bea/p13n/usermgmt/profile	wlp-services-app-lib	wps.jar
com/bea/p13n/usermgmt/profile	p13n-web-lib	WEB-INF/lib/profile_taglib.jar
com/bea/p13n/usermgmt/profile/ldap	N/A	N/A
com/bea/p13n/usermgmt/profile/taglib	p13n-web-lib	WEB-INF/lib/profile_taglib.jar
com/bea/p13n/usermgmt/taglib	p13n-web-lib	WEB-INF/lib/ugm_taglib.jar
com/bea/p13n/util	p13n-app-lib	APP-INF/lib/p13n_app.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/p13n/util/debug	N/A	N/A
com/bea/p13n/util/jdbc	p13n-app-lib	APP-INF/lib/p13n_app.jar
com/bea/p13n/xml/schema	N/A	N/A
com/bea/p13n/xml/util	N/A	N/A
com/bea/portal	wlp-tools-app-lib	APP-INF/lib/common-editors.jar
com/bea/portal	wlp-tools-app-lib	APP-INF/lib/tools-framework.jar
com/bea/portal	wlp-tools-app-lib	APP-INF/lib/wlptools_en.jar
com/bea/portal/admin	N/A	N/A
com/bea/portal/admin/ejb	N/A	N/A
com/bea/portal/appflow	N/A	N/A
com/bea/portal/appflow/processor	N/A	N/A
com/bea/portal/appflow/processor/security	N/A	N/A
com/bea/portal/jsp	N/A	N/A
com/bea/portal/manager	N/A	N/A
com/bea/portal/manager/ejb	N/A	N/A
com/bea/portal/model	N/A	N/A
com/bea/portal/render/servlets/jsp	N/A	N/A
com/bea/portlet	wlp-framework-full-app-lib	netuix.jar
com/bea/portlet	wlp-framework-full-app-lib	prefs.jar
com/bea/portlet	wlp-framework-common-web-lib	WEB-INF/lib/faces-adapter.jar
com/bea/portlet	wlp-framework-common-web-lib	WEB-INF/lib/netui-adapter.jar
com/bea/portlet	wlp-framework-common-web-lib	WEB-INF/lib/netuix_common_web.jar
com/bea/portlet	wlp-light-web-lib	WEB-INF/lib/netuix_servlet.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/portlet	wlp-light-web-lib	WEB-INF/lib/portlet-container.jar
com/bea/portlet	wlp-light-web-lib	WEB-INF/lib/prefs-spi.jar
com/bea/portlet	wlp-light-web-lib	WEB-INF/lib/prefs_taglib.jar
com/bea/portlet	wlp-framework-full-web-lib	WEB-INF/lib/netuix_servlet-full.jar
com/bea/portlet/ext	wlp-light-web-lib	WEB-INF/lib/portlet-container.jar
com/bea/portlet/jsp	wlp-light-web-lib	WEB-INF/lib/portlet-container.jar
com/bea/portlet/prefs	wlp-framework-full-app-lib	netuix.jar
com/bea/portlet/prefs	wlp-framework-full-app-lib	prefs.jar
com/bea/portlet/prefs	wlp-light-web-lib	WEB-INF/lib/prefs-spi.jar
com/bea/portlet/prefs	wlp-light-web-lib	WEB-INF/lib/prefs_taglib.jar
com/bea/portlet/prefs	wlp-framework-full-web-lib	WEB-INF/lib/netuix_servlet-full.jar
com/bea/query	autonomy-compat-web-lib	WEB-INF/lib/autonomySupport.jar
com/bea/struts/adapter/action	wlp-framework-struts-1.1-web-lib	WEB-INF/lib/struts-adapter.jar
com/bea/struts/adapter/action	wlp-framework-struts-1.2-web-lib	WEB-INF/lib/struts-adapter.jar
com/bea/struts/adapter/taglib/html	wlp-framework-struts-1.1-web-lib	WEB-INF/lib/struts-adapter.jar
com/bea/struts/adapter/taglib/html	wlp-framework-struts-1.2-web-lib	WEB-INF/lib/struts-adapter.jar
com/bea/struts/adapter/taglib/naming	wlp-framework-struts-1.1-web-lib	WEB-INF/lib/struts-adapter.jar
com/bea/struts/adapter/taglib/naming	wlp-framework-struts-1.2-web-lib	WEB-INF/lib/struts-adapter.jar
com/bea/struts/adapter/taglib/nested/html	wlp-framework-struts-1.1-web-lib	WEB-INF/lib/struts-adapter.jar
com/bea/struts/adapter/taglib/nested/html	wlp-framework-struts-1.2-web-lib	WEB-INF/lib/struts-adapter.jar
com/bea/struts/adapter/taglib/tiles/ext	wlp-framework-struts-1.1-web-lib	WEB-INF/lib/struts-adapter.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/bea/struts/adapter/util	wlp-framework-struts-1.1-web-lib	WEB-INF/lib/struts-adapter.jar
com/bea/struts/adapter/util	wlp-framework-struts-1.2-web-lib	WEB-INF/lib/struts-adapter.jar
com/bea/struts/adapter/util/rewriter	wlp-framework-struts-1.1-web-lib	WEB-INF/lib/struts-adapter.jar
com/bea/struts/adapter/util/rewriter	wlp-framework-struts-1.2-web-lib	WEB-INF/lib/struts-adapter.jar
com/bea/wsrp/config	N/A	<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar
com/bea/wsrp/consumer/management/portlet	wlp-framework-full-web-lib	WEB-INF/lib/netuix_servlet-full.jar
com/bea/wsrp/consumer/management/producer	wlp-framework-full-web-lib	WEB-INF/lib/netuix_servlet-full.jar
com/bea/wsrp/ext/holders	N/A	<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar
com/bea/wsrp/logging	N/A	<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar
com/bea/wsrp/security	N/A	<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar
com/bea/wsrp/util	N/A	<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar
com/beasys/commerce/axiom/units	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/axiom/util	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/axiom/util/helper	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/axiom/util/weblogic/helper	N/A	N/A
com/beasys/commerce/bridge/bmp	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/bridge/bmp/jdbc	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/catalog	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/catalog	wlp-commerce-web-lib	WEB-INF/lib/cat_taglib.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/beasys/commerce/ebusiness/catalog/advislets	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/catalog/rules	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/catalog/service	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/catalog/service/category	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/catalog/service/data	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/catalog/service/item	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/catalog/service/query	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/catalog/sql	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/catalog/tags	wlp-commerce-web-lib	WEB-INF/lib/cat_taglib.jar
com/beasys/commerce/ebusiness/catalog/util	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/catalog/websevice	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/customer	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/customer/jaas	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/order	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/order/exception	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/payment	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/security	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/shipping	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/shoppingcart	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/tags	wlp-commerce-web-lib	WEB-INF/lib/eb_taglib.jar

Table B-1 Mapping of Version 8.1.5 Packages/JARs to Version 9.2 Shared J2EE Libraries, Sorted by Package

8.1.5 Package	9.2 J2EE Library	9.2 JAR File
com/beasys/commerce/ebusiness/tax	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/ebusiness/util	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/foundation	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/foundation	wlp-services-app-lib	wps.jar
com/beasys/commerce/foundation/exception	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/foundation/expression	wlp-services-app-lib	wps.jar
com/beasys/commerce/util	wlp-commerce-app-lib	commerce.jar
com/beasys/commerce/util	wlp-services-app-lib	wps.jar
com/beasys/commerce/util/dom	wlp-commerce-app-lib	commerce.jar

JAR Files to J2EE Libraries - Cross Reference Table

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name

9.2 JAR File	9.2 J2EE library	8.1.5 Package
N/A	N/A	com/bea/campaign/mbeans
N/A	N/A	com/bea/commerce/common
N/A	N/A	com/bea/commerce/mbeans
N/A	N/A	com/bea/content/mbeans
<i>WebLogic_HOME</i> /platform/lib/ /wlp/netuix_system.jar	N/A	com/bea/netuix/application/exception
<i>WebLogic_HOME</i> /platform/lib/ /wlp/netuix_system.jar	N/A	com/bea/netuix/application/identifier
<i>WebLogic_HOME</i> /platform/lib/ /wlp/netuix_system.jar	N/A	com/bea/netuix/client/classifier

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
N/A	N/A	com/bea/p13n/content/adapter
N/A	N/A	com/bea/p13n/content/admin
N/A	N/A	com/bea/p13n/content/document
N/A	N/A	com/bea/p13n/content/document/jdbc
N/A	N/A	com/bea/p13n/content/document/ref
N/A	N/A	com/bea/p13n/content/document/ref/loader
N/A	N/A	com/bea/p13n/content/document/spi
N/A	N/A	com/bea/p13n/content/servlets
N/A	N/A	com/bea/p13n/content/servlets/jsp/taglib
N/A	N/A	com/bea/p13n/entitlements/service
N/A	N/A	com/bea/p13n/exceptions
N/A	N/A	com/bea/p13n/license
N/A	N/A	com/bea/p13n/mbeans
N/A	N/A	com/bea/p13n/usermgmt/profile/ldap
N/A	N/A	com/bea/p13n/util/debug
N/A	N/A	com/bea/p13n/xml/schema
N/A	N/A	com/bea/p13n/xml/util
N/A	N/A	com/bea/portal/admin
N/A	N/A	com/bea/portal/admin/ejb
N/A	N/A	com/bea/portal/appflow
N/A	N/A	com/bea/portal/appflow/processor
N/A	N/A	com/bea/portal/appflow/processor/security
N/A	N/A	com/bea/portal/jsp
N/A	N/A	com/bea/portal/manager

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
N/A	N/A	com/bea/portal/manager/ejb
N/A	N/A	com/bea/portal/model
N/A	N/A	com/bea/portal/render/servlets/jsp
<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar	N/A	com/bea/wsrp/config
<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar	N/A	com/bea/wsrp/ext/holders
<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar	N/A	com/bea/wsrp/logging
<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar	N/A	com/bea/wsrp/security
<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar	N/A	com/bea/wsrp/util
N/A	N/A	com/beasys/commerce/axiom/util/weblogic/helper
APP-INF/lib/common-editors.jar	wlp-tools-app-lib	com/bea/portal
APP-INF/lib/extensible_controls.jar	wlp-groupspace-common-app-lib	com/bea/content
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/cache
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/common
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/entitlements
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/entitlements/common
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/entitlements/management
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/entitlements/management
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/entitlements/policy
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/expression
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/expression/operator
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/expression/operator/collection

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/expression/operator/comparative
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/expression/operator/logical
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/expression/operator/math
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/expression/operator/string
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/management
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/property
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/security
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/security/management
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/security/management/rolemapper
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/tracking
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/tracking/events
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/user
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/util
APP-INF/lib/p13n_app.jar	p13n-app-lib	com/bea/p13n/util/jdbc
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/createUser
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/exceptions
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/login
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/profile
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/userInfoQuery
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/events/generic
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/events/standard
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/ejb/events
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/ejb/property

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/ejb/usermgmt
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/ejb/usermgmt/profile
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/rules
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/controls/securityProvider
APP-INF/lib/p13n_controls.jar	wlp-services-app-lib	com/bea/p13n/security
APP-INF/lib/tools-framework.jar	wlp-tools-app-lib	com/bea/jsptools/portal
APP-INF/lib/tools-framework.jar	wlp-tools-app-lib	com/bea/portal
APP-INF/lib/wlptools_en.jar	wlp-tools-app-lib	com/bea/jsptools/portal
APP-INF/lib/wlptools_en.jar	wlp-tools-app-lib	com/bea/portal
commerce.jar	wlp-commerce-app-lib	com/bea/commerce/ebusiness/campaign
commerce.jar	wlp-commerce-app-lib	com/bea/commerce/ebusiness/customer
commerce.jar	wlp-commerce-app-lib	com/bea/commerce/ebusiness/discount
commerce.jar	wlp-commerce-app-lib	com/bea/commerce/ebusiness/discount/association
commerce.jar	wlp-commerce-app-lib	com/bea/commerce/ebusiness/discount/mgmt
commerce.jar	wlp-commerce-app-lib	com/bea/commerce/ebusiness/discount/util
commerce.jar	wlp-commerce-app-lib	com/bea/commerce/ebusiness/price/engine
commerce.jar	wlp-commerce-app-lib	com/bea/commerce/ebusiness/price/engine/pool
commerce.jar	wlp-commerce-app-lib	com/bea/commerce/ebusiness/price/quote
commerce.jar	wlp-commerce-app-lib	com/bea/commerce/ebusiness/price/service
commerce.jar	wlp-commerce-app-lib	com/bea/commerce/ebusiness/tax
commerce.jar	wlp-commerce-app-lib	com/bea/commerce/ebusiness/tracking/events
commerce.jar	wlp-commerce-app-lib	com/bea/p13n/property

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/axiom/units
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/axiom/util
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/axiom/util/helper
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/bridge/bmp
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/bridge/bmp/jdbc
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/adv islets
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/rule s
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/ser vice
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/ser vice/category
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/ser vice/data
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/ser vice/item
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/ser vice/query
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/sql
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/util
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/we bservice
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/customer
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/customer/ja as
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/order

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/order/exception
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/payment
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/security
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/shipping
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/shoppingcart
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/tax
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/ebusiness/util
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/foundation
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/foundation/exception
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/util
commerce.jar	wlp-commerce-app-lib	com/beasys/commerce/util/dom
content.jar	wlp-services-app-lib	com/bea/content
content.jar	wlp-services-app-lib	com/bea/content/expression
content.jar	wlp-services-app-lib	com/bea/content/loader
content.jar	wlp-services-app-lib	com/bea/content/loader/bulk
content.jar	wlp-services-app-lib	com/bea/content/manager
content.jar	wlp-services-app-lib	com/bea/content/manager/propertysets
content.jar	wlp-services-app-lib	com/bea/content/manager/sort
content.jar	wlp-services-app-lib	com/bea/content/spi
content.jar	wlp-services-app-lib	com/bea/content/virtual
content.jar	wlp-services-app-lib	com/bea/content/virtual/version
content.jar	wlp-services-app-lib	com/bea/content/virtual/lifecycle
content_repo.jar	wlp-services-app-lib	com/bea/content

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
content_repo.jar	wlp-services-app-lib	com/bea/content/spi
content_system.jar	wlp-services-app-lib	com/bea/content
content_system.jar	wlp-services-app-lib	com/bea/content/manager
content_system.jar	wlp-services-app-lib	com/bea/content/virtual
netuix.jar	wlp-framework-full-app-lib	com/bea/netuix/application/definition
netuix.jar	wlp-framework-full-app-lib	com/bea/netuix/application/instance
netuix.jar	wlp-framework-full-app-lib	com/bea/netuix/application/localization/definition
netuix.jar	wlp-framework-full-app-lib	com/bea/netuix/application/localization/identifier
netuix.jar	wlp-framework-full-app-lib	com/bea/netuix/application/localization/manager
netuix.jar	wlp-framework-full-app-lib	com/bea/netuix/application/localization/view
netuix.jar	wlp-framework-full-app-lib	com/bea/netuix/application/localization/manager/persistence
netuix.jar	wlp-framework-full-app-lib	com/bea/netuix/application/manager
netuix.jar	wlp-framework-full-app-lib	com/bea/netuix/application/manager/persistence
netuix.jar	wlp-framework-full-app-lib	com/bea/netuix/application/transform/dissassembler
netuix.jar	wlp-framework-full-app-lib	com/bea/netuix/application/view
netuix.jar	wlp-framework-full-app-lib	com/bea/portlet
netuix.jar	wlp-framework-full-app-lib	com/bea/portlet/prefs
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/entitlements
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/entitlements/common
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/events
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/events/listeners

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/http
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/management
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/property
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/rules/manager
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/security
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/security/management
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/security/management/authentic ation
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/security/management/rolemap per
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/servlets
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/tracking
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/tracking/clickthrough
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/tracking/events
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/tracking/listeners
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/usermgmt
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/usermgmt
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/usermgmt/config
p13n_ejb.jar	p13n-app-lib	com/bea/p13n/usermgmt/profile
prefs.jar	wlp-framework-full-app-lib	com/bea/portlet
prefs.jar	wlp-framework-full-app-lib	com/bea/portlet/prefs
WEB-INF/lib/ad_taglib.jar	wlp-services-web-lib	com/bea/p13n/ad
WEB-INF/lib/ad_taglib.jar	wlp-services-web-lib	com/bea/p13n/ad/servlets
WEB-INF/lib/ad_taglib.jar	wlp-services-web-lib	com/bea/p13n/ad/servlets/jsp/taglib
WEB-INF/lib/auth_taglib.jar	p13n-web-lib	com/bea/p13n/entitlements

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
WEB-INF/lib/autonomySupport.jar	autonomy-compat-web-lib	com/bea/query
WEB-INF/lib/cat_taglib.jar	wlp-commerce-web-lib	com/beasys/commerce/ebusiness/catalog
WEB-INF/lib/cat_taglib.jar	wlp-commerce-web-lib	com/beasys/commerce/ebusiness/catalog/tags
WEB-INF/lib/classes.jar	p13n-datasync-web-lib	com/bea/p13n/management
WEB-INF/lib/client_taglib.jar	wlp-light-web-lib	com/bea/netuix/client/jsp/clienttaglib
WEB-INF/lib/content_prop.jar	wlp-propagation-web-lib	com/bea/content
WEB-INF/lib/content_prop_online.jar	wlp-propagation-web-lib	com/bea/content
WEB-INF/lib/content_servlet.jar	wlp-services-web-lib	com/bea/content
WEB-INF/lib/content_servlet.jar	wlp-services-web-lib	com/bea/content/manager
WEB-INF/lib/content_servlet.jar	wlp-services-web-lib	com/bea/content/manager/servlets
WEB-INF/lib/content_servlet.jar	wlp-services-web-lib	com/bea/content/manager/servlets/jsp/taglib
WEB-INF/lib/eb_taglib.jar	wlp-commerce-web-lib	com/beasys/commerce/ebusiness/tags
WEB-INF/lib/faces-adapter.jar	wlp-framework-common-web-lib	com/bea/portlet
WEB-INF/lib/110n_taglib.jar	wlp-light-web-lib	com/bea/netuix/servlets/110n
WEB-INF/lib/netui-adapter.jar	wlp-framework-common-web-lib	com/bea/portlet
WEB-INF/lib/netuix_common_web.jar	wlp-framework-common-web-lib	com/bea/portlet
WEB-INF/lib/netuix_prop.jar	wlp-propagation-web-lib	com/bea/p13n/management
WEB-INF/lib/netuix_prop_online.jar	wlp-propagation-web-lib	com/bea/p13n/management
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/bea/netuix/events
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/bea/netuix/servlets/controls
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/bea/netuix/servlets/110n
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/bea/netuix/servlets/controls/application

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/beanetui/servlets/controls/application/backing
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/beanetui/servlets/controls/content
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/beanetui/servlets/controls/layout
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/beanetui/servlets/controls/page
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/beanetui/servlets/controls/portlet
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/beanetui/servlets/controls/portlet/backing
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/beanetui/servlets/controls/portlet/events
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/beanetui/servlets/controls/window
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/beanetui/servlets/controls/content/backing
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/beanetui/servlets/controls/window/backing
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/beanetui/servlets/manager
WEB-INF/lib/netuix_servlet.jar	wlp-light-web-lib	com/beanetui/portlet
WEB-INF/lib/netuix_servlet-full.jar	wlp-framework-full-web-lib	com/beanetui/events
WEB-INF/lib/netuix_servlet-full.jar	wlp-framework-full-web-lib	com/beanetui/servlets/controls
WEB-INF/lib/netuix_servlet-full.jar	wlp-framework-full-web-lib	com/beanetui/servlets/controls/content
WEB-INF/lib/netuix_servlet-full.jar	wlp-framework-full-web-lib	com/beanetui/servlets/controls/portlet
WEB-INF/lib/netuix_servlet-full.jar	wlp-framework-full-web-lib	com/beanetui/servlets/controls/portlet/events
WEB-INF/lib/netuix_servlet-full.jar	wlp-framework-full-web-lib	com/beanetui/servlets/controls/window
WEB-INF/lib/netuix_servlet-full.jar	wlp-framework-full-web-lib	com/beanetui/servlets/manager
WEB-INF/lib/netuix_servlet-full.jar	wlp-framework-full-web-lib	com/beanetui/portlet
WEB-INF/lib/netuix_servlet-full.jar	wlp-framework-full-web-lib	com/beanetui/portlet/prefs

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
WEB-INF/lib/netuix_servlet-full.jar	wlp-framework-full-web-lib	com/bea/wsrp/consumer/management/portlet
WEB-INF/lib/netuix_servlet-full.jar	wlp-framework-full-web-lib	com/bea/wsrp/consumer/management/producer
WEB-INF/lib/p13n_prop.jar	wlp-propagation-web-lib	com/bea/p13n/management
WEB-INF/lib/p13n_prop_online.jar	wlp-propagation-web-lib	com/bea/p13n/management
WEB-INF/lib/ph_taglib.jar	wlp-services-web-lib	com/bea/p13n/placeholder
WEB-INF/lib/ph_taglib.jar	wlp-services-web-lib	com/bea/p13n/placeholder/servlets
WEB-INF/lib/ph_taglib.jar	wlp-services-web-lib	com/bea/p13n/placeholder/servlets/jsp/taglib
WEB-INF/lib/portlet-container.jar	wlp-light-web-lib	com/bea/portlet
WEB-INF/lib/portlet-container.jar	wlp-light-web-lib	com/bea/portlet/ext
WEB-INF/lib/portlet-container.jar	wlp-light-web-lib	com/bea/portlet/jsp
WEB-INF/lib/prefs_taglib.jar	wlp-light-web-lib	com/bea/portlet
WEB-INF/lib/prefs_taglib.jar	wlp-light-web-lib	com/bea/portlet/prefs
WEB-INF/lib/prefs-spi.jar	wlp-light-web-lib	com/bea/portlet
WEB-INF/lib/prefs-spi.jar	wlp-light-web-lib	com/bea/portlet/prefs
WEB-INF/lib/productTracking_taglib.jar	wlp-commerce-web-lib	com/bea/commerce/ebusiness/tracking/tags
WEB-INF/lib/profile_taglib.jar	p13n-web-lib	com/bea/p13n/usermgmt
WEB-INF/lib/profile_taglib.jar	p13n-web-lib	com/bea/p13n/usermgmt/profile
WEB-INF/lib/profile_taglib.jar	p13n-web-lib	com/bea/p13n/usermgmt/profile/taglib
WEB-INF/lib/ps_taglib.jar	p13n-web-lib	com/bea/p13n/property
WEB-INF/lib/pz_taglib.jar	wlp-services-web-lib	com/bea/p13n/servlets
WEB-INF/lib/pz_taglib.jar	wlp-services-web-lib	com/bea/p13n/servlets/jsp
WEB-INF/lib/pz_taglib.jar	wlp-services-web-lib	com/bea/p13n/servlets/jsp/taglib
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.1-web-lib	com/bea/struts/adapter/action

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.2-web-lib	com/bea/struts/adapter/action
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.1-web-lib	com/bea/struts/adapter/taglib/html
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.2-web-lib	com/bea/struts/adapter/taglib/html
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.1-web-lib	com/bea/struts/adapter/taglib/naming
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.2-web-lib	com/bea/struts/adapter/taglib/naming
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.1-web-lib	com/bea/struts/adapter/taglib/nested/html
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.2-web-lib	com/bea/struts/adapter/taglib/nested/html
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.1-web-lib	com/bea/struts/adapter/taglib/tiles/ext
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.1-web-lib	com/bea/struts/adapter/util
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.2-web-lib	com/bea/struts/adapter/util
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.1-web-lib	com/bea/struts/adapter/util/rewriter
WEB-INF/lib/struts-adapter.jar	wlp-framework-struts-1.2-web-lib	com/bea/struts/adapter/util/rewriter
WEB-INF/lib/tracking_taglib.jar	p13n-web-lib	com/bea/p13n/tracking
WEB-INF/lib/ugm_taglib.jar	p13n-web-lib	com/bea/p13n/usermgmt
WEB-INF/lib/ugm_taglib.jar	p13n-web-lib	com/bea/p13n/usermgmt/taglib
WEB-INF/lib/um_taglib.jar	wlp-services-web-lib	com/bea/p13n/usermgmt
WEB-INF/lib/wlp-admin.jar	wlp-tools-admin-web-lib	com/bea/jsptools/portal
WEB-INF/lib/wps_servlet.jar	wlp-services-web-lib	com/bea/campaign
WEB-INF/lib/wps_servlet.jar	wlp-services-web-lib	com/bea/campaign/servlets
WEB-INF/lib/wps_servlet.jar	wlp-services-web-lib	com/bea/p13n/ad
WEB-INF/lib/wps_servlet.jar	wlp-services-web-lib	com/bea/p13n/ad/servlets
WEB-INF/lib/wps_servlet.jar	wlp-services-web-lib	com/bea/p13n/cache
WEB-INF/lib/wps_servlet.jar	wlp-services-web-lib	com/bea/p13n/cache/servlets
WEB-INF/lib/wps_servlet.jar	wlp-services-web-lib	com/bea/p13n/mail

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
WEB-INF/lib/wps_servlet.jar	wlp-services-web-lib	com/bea/p13n/mail/servlets
WEB-INF/lib/wps_servlet.jar	wlp-services-web-lib	com/bea/p13n/placeholder
WEB-INF/lib/wps_servlet.jar	wlp-services-web-lib	com/bea/p13n/placeholder/servlets
wps.jar	wlp-services-app-lib	com/bea/campaign
wps.jar	wlp-services-app-lib	com/bea/campaign/action
wps.jar	wlp-services-app-lib	com/bea/campaign/rules
wps.jar	wlp-services-app-lib	com/bea/campaign/tracking/events
wps.jar	wlp-services-app-lib	com/bea/campaign/webservice
wps.jar	wlp-services-app-lib	com/bea/p13n/ad
wps.jar	wlp-services-app-lib	com/bea/p13n/ad/render
wps.jar	wlp-services-app-lib	com/bea/p13n/advisor
wps.jar	wlp-services-app-lib	com/bea/p13n/content
wps.jar	wlp-services-app-lib	com/bea/p13n/content/advislets
wps.jar	wlp-services-app-lib	com/bea/p13n/content/expression
wps.jar	wlp-services-app-lib	com/bea/p13n/content/query
wps.jar	wlp-services-app-lib	com/bea/p13n/entitlements
wps.jar	wlp-services-app-lib	com/bea/p13n/entitlements/common
wps.jar	wlp-services-app-lib	com/bea/p13n/entitlements/resource
wps.jar	wlp-services-app-lib	com/bea/p13n/mail
wps.jar	wlp-services-app-lib	com/bea/p13n/placeholder
wps.jar	wlp-services-app-lib	com/bea/p13n/rules/advislets
wps.jar	wlp-services-app-lib	com/bea/p13n/servlets
wps.jar	wlp-services-app-lib	com/bea/p13n/servlets/jsp
wps.jar	wlp-services-app-lib	com/bea/p13n/usermgmt

Table B-2 Mapping of Version 8.1.5 JARs to Version 9.2 J2EE Libraries, Sorted by JAR File Name (Continued)

9.2 JAR File	9.2 J2EE library	8.1.5 Package
wps.jar	wlp-services-app-lib	com/bea/p13n/usermgmt/profile
wps.jar	wlp-services-app-lib	com/beasys/commerce/foundation
wps.jar	wlp-services-app-lib	com/beasys/commerce/foundation/expressio n
wps.jar	wlp-services-app-lib	com/beasys/commerce/util

J2EE Libraries to Packages - Cross Reference Table

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
N/A	com/bea/campaign/mbeans	N/A
N/A	com/bea/commerce/common	N/A
N/A	com/bea/commerce/mbeans	N/A
N/A	com/bea/content/mbeans	N/A
N/A	com/bea/netuix/application/exception	<i>WebLogic_HOME</i> /platform/lib /wlp/netuix_system.jar
N/A	com/bea/netuix/application/identifier	<i>WebLogic_HOME</i> /platform/lib /wlp/netuix_system.jar
N/A	com/bea/netuix/client/classifier	<i>WebLogic_HOME</i> /platform/lib /wlp/netuix_system.jar
N/A	com/bea/p13n/content/adapters	N/A
N/A	com/bea/p13n/content/admin	N/A
N/A	com/bea/p13n/content/document	N/A
N/A	com/bea/p13n/content/document/jdbc	N/A
N/A	com/bea/p13n/content/document/ref	N/A

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
N/A	com/bea/p13n/content/document/ref/loader	N/A
N/A	com/bea/p13n/content/document/spi	N/A
N/A	com/bea/p13n/content/servlets	N/A
N/A	com/bea/p13n/content/servlets/jsp/taglib	N/A
N/A	com/bea/p13n/entitlements/service	N/A
N/A	com/bea/p13n/exceptions	N/A
N/A	com/bea/p13n/license	N/A
N/A	com/bea/p13n/mbeans	N/A
N/A	com/bea/p13n/usermgmt/profile/ldap	N/A
N/A	com/bea/p13n/util/debug	N/A
N/A	com/bea/p13n/xml/schema	N/A
N/A	com/bea/p13n/xml/util	N/A
N/A	com/bea/portal/admin	N/A
N/A	com/bea/portal/admin/ejb	N/A
N/A	com/bea/portal/appflow	N/A
N/A	com/bea/portal/appflow/processor	N/A
N/A	com/bea/portal/appflow/processor/security	N/A
N/A	com/bea/portal/jsp	N/A
N/A	com/bea/portal/manager	N/A
N/A	com/bea/portal/manager/ejb	N/A
N/A	com/bea/portal/model	N/A
N/A	com/bea/portal/render/servlets/jsp	N/A
N/A	com/bea/wsrp/config	<i>WebLogic_HOME</i> /platform/lib /wlp/wsrp-common.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
N/A	com/bea/wsrp/ext/holders	<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar
N/A	com/bea/wsrp/logging	<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar
N/A	com/bea/wsrp/security	<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar
N/A	com/bea/wsrp/util	<i>WebLogic_HOME</i> /platform/lib/wlp/wsrp-common.jar
N/A	com/beasys/commerce/axiom/util/weblogic/helper	N/A
autonomy-compat-web-lib	com/bea/query	WEB-INF/lib/autonomySupport.jar
p13n-app-lib	com/bea/p13n/cache	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/common	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/entitlements	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/entitlements	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/entitlements/common	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/entitlements/common	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/entitlements/management	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/entitlements/management	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/entitlements/policy	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/events	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/events/listeners	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/expression	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/expression/operator	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/expression/operator/collection	APP-INF/lib/p13n_app.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
p13n-app-lib	com/bea/p13n/expression/operator/comparative	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/expression/operator/logical	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/expression/operator/math	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/expression/operator/string	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/http	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/management	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/management	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/property	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/property	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/rules/manager	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/security	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/security	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/security/management	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/security/management	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/security/management/authentication	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/security/management/rolemap	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/security/management/rolemap	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/servlets	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/tracking	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/tracking	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/tracking/clickthrough	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/tracking/events	APP-INF/lib/p13n_app.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
p13n-app-lib	com/bea/p13n/tracking/events	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/tracking/listeners	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/user	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/usermgmt	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/usermgmt	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/usermgmt/config	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/usermgmt/profile	p13n_ejb.jar
p13n-app-lib	com/bea/p13n/util	APP-INF/lib/p13n_app.jar
p13n-app-lib	com/bea/p13n/util/jdbc	APP-INF/lib/p13n_app.jar
p13n-datasync-web-lib	com/bea/p13n/management	WEB-INF/lib/classes.jar
p13n-web-lib	com/bea/p13n/entitlements	WEB-INF/lib/auth_taglib.jar
p13n-web-lib	com/bea/p13n/property	WEB-INF/lib/ps_taglib.jar
p13n-web-lib	com/bea/p13n/tracking	WEB-INF/lib/tracking_taglib.jar
p13n-web-lib	com/bea/p13n/usermgmt	WEB-INF/lib/profile_taglib.jar
p13n-web-lib	com/bea/p13n/usermgmt	WEB-INF/lib/ugm_taglib.jar
p13n-web-lib	com/bea/p13n/usermgmt/profile	WEB-INF/lib/profile_taglib.jar
p13n-web-lib	com/bea/p13n/usermgmt/profile/taglib	WEB-INF/lib/profile_taglib.jar
p13n-web-lib	com/bea/p13n/usermgmt/taglib	WEB-INF/lib/ugm_taglib.jar
wlp-commerce-app-lib	com/bea/commerce/ebusiness/campaign	commerce.jar
wlp-commerce-app-lib	com/bea/commerce/ebusiness/customer	commerce.jar
wlp-commerce-app-lib	com/bea/commerce/ebusiness/discount	commerce.jar
wlp-commerce-app-lib	com/bea/commerce/ebusiness/discount/association	commerce.jar
wlp-commerce-app-lib	com/bea/commerce/ebusiness/discount/mgmt	commerce.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
wlp-commerce-app-lib	com/bea/commerce/ebusiness/discount/util	commerce.jar
wlp-commerce-app-lib	com/bea/commerce/ebusiness/price/engine	commerce.jar
wlp-commerce-app-lib	com/bea/commerce/ebusiness/price/engine/pool	commerce.jar
wlp-commerce-app-lib	com/bea/commerce/ebusiness/price/quote	commerce.jar
wlp-commerce-app-lib	com/bea/commerce/ebusiness/price/service	commerce.jar
wlp-commerce-app-lib	com/bea/commerce/ebusiness/tax	commerce.jar
wlp-commerce-app-lib	com/bea/commerce/ebusiness/tracking/events	commerce.jar
wlp-commerce-app-lib	com/bea/p13n/property	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/axiom/units	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/axiom/util	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/axiom/util/helper	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/bridge/bmp	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/bridge/bmp/jdbc	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/advislets	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/rules	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/service	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/service/category	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/service/data	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/service/item	commerce.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/service/query	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/sql	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/util	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/catalog/webservice	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/customer	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/customer/jaas	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/order	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/order/exception	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/payment	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/security	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/shipping	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/shoppingcart	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/tax	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/ebusiness/util	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/foundation	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/foundation/exception	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/util	commerce.jar
wlp-commerce-app-lib	com/beasys/commerce/util/dom	commerce.jar
wlp-commerce-web-lib	com/bea/commerce/ebusiness/tracking/tags	WEB-INF/lib/productTracking_taglib.jar
wlp-commerce-web-lib	com/beasys/commerce/ebusiness/catalog	WEB-INF/lib/cat_taglib.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
wlp-commerce-web-lib	com/beasys/commerce/ebusiness/catalog/tags	WEB-INF/lib/cat_taglib.jar
wlp-commerce-web-lib	com/beasys/commerce/ebusiness/tags	WEB-INF/lib/eb_taglib.jar
wlp-framework-common-web-lib	com/bea/portlet	WEB-INF/lib/faces-adapter.jar
wlp-framework-common-web-lib	com/bea/portlet	WEB-INF/lib/netui-adapter.jar
wlp-framework-common-web-lib	com/bea/portlet	WEB-INF/lib/netuix_common_w eb.jar
wlp-framework-full-app-lib	com/bea/netuix/application/definition	netuix.jar
wlp-framework-full-app-lib	com/bea/netuix/application/instance	netuix.jar
wlp-framework-full-app-lib	com/bea/netuix/application/localization/definition	netuix.jar
wlp-framework-full-app-lib	com/bea/netuix/application/localization/identifier	netuix.jar
wlp-framework-full-app-lib	com/bea/netuix/application/localization/manager	netuix.jar
wlp-framework-full-app-lib	com/bea/netuix/application/localization/view	netuix.jar
wlp-framework-full-app-lib	com/bea/netuix/application/localization/manager/persistence	netuix.jar
wlp-framework-full-app-lib	com/bea/netuix/application/manager	netuix.jar
wlp-framework-full-app-lib	com/bea/netuix/application/manager/persistence	netuix.jar
wlp-framework-full-app-lib	com/bea/netuix/application/transform/dissassembler	netuix.jar
wlp-framework-full-app-lib	com/bea/netuix/application/view	netuix.jar
wlp-framework-full-app-lib	com/bea/portlet	netuix.jar
wlp-framework-full-app-lib	com/bea/portlet	prefs.jar
wlp-framework-full-app-lib	com/bea/portlet/prefs	netuix.jar
wlp-framework-full-app-lib	com/bea/portlet/prefs	prefs.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
wlp-framework-full-web-lib	com/bea/netuix/events	WEB-INF/lib/netuix_servlet-full.jar
wlp-framework-full-web-lib	com/bea/netuix/servlets/controls/content	WEB-INF/lib/netuix_servlet-full.jar
wlp-framework-full-web-lib	com/bea/netuix/servlets/controls/portlet	WEB-INF/lib/netuix_servlet-full.jar
wlp-framework-full-web-lib	com/bea/portlet	WEB-INF/lib/netuix_servlet-full.jar
wlp-framework-full-web-lib	com/bea/portlet/prefs	WEB-INF/lib/netuix_servlet-full.jar
wlp-framework-full-web-lib	com/bea/wsrp/consumer/management/portlet	WEB-INF/lib/netuix_servlet-full.jar
wlp-framework-full-web-lib	com/bea/wsrp/consumer/management/producer	WEB-INF/lib/netuix_servlet-full.jar
wlp-framework-full-web-lib	com/bea/netuix/servlets/controls	WEB-INF/lib/netuix_servlet-full.jar
wlp-framework-full-web-lib	com/bea/netuix/servlets/controls/portlet/events	WEB-INF/lib/netuix_servlet-full.jar
wlp-framework-full-web-lib	com/bea/netuix/servlets/controls/window	WEB-INF/lib/netuix_servlet-full.jar
wlp-framework-full-web-lib	com/bea/netuix/servlets/manager	WEB-INF/lib/netuix_servlet-full.jar
wlp-framework-struts-1.1-web-lib	com/bea/struts/adapters/action	WEB-INF/lib/struts-adapter.jar
wlp-framework-struts-1.1-web-lib	com/bea/struts/adapters/taglib/html	WEB-INF/lib/struts-adapter.jar
wlp-framework-struts-1.1-web-lib	com/bea/struts/adapters/taglib/naming	WEB-INF/lib/struts-adapter.jar
wlp-framework-struts-1.1-web-lib	com/bea/struts/adapters/taglib/nested/html	WEB-INF/lib/struts-adapter.jar
wlp-framework-struts-1.1-web-lib	com/bea/struts/adapters/taglib/tiles/ext	WEB-INF/lib/struts-adapter.jar
wlp-framework-struts-1.1-web-lib	com/bea/struts/adapters/util	WEB-INF/lib/struts-adapter.jar
wlp-framework-struts-1.1-web-lib	com/bea/struts/adapters/util/rewriter	WEB-INF/lib/struts-adapter.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
wlp-framework-struts-1.2-web-lib	com/bea/struts/adapters/action	WEB-INF/lib/struts-adapter.jar
wlp-framework-struts-1.2-web-lib	com/bea/struts/adapters/taglib/html	WEB-INF/lib/struts-adapter.jar
wlp-framework-struts-1.2-web-lib	com/bea/struts/adapters/taglib/naming	WEB-INF/lib/struts-adapter.jar
wlp-framework-struts-1.2-web-lib	com/bea/struts/adapters/taglib/nested/html	WEB-INF/lib/struts-adapter.jar
wlp-framework-struts-1.2-web-lib	com/bea/struts/adapters/util	WEB-INF/lib/struts-adapter.jar
wlp-framework-struts-1.2-web-lib	com/bea/struts/adapters/util/rewriter	WEB-INF/lib/struts-adapter.jar
wlp-groupspace-common-app-lib	com/bea/content	APP-INF/lib/extensible_controls.jar
wlp-light-web-lib	com/bea/netuix/client/jsp/clienttaglib	WEB-INF/lib/client_taglib.jar
wlp-light-web-lib	com/bea/netuix/events	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/controls	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/110n	WEB-INF/lib/110n_taglib.jar
wlp-light-web-lib	com/bea/netuix/servlets/110n	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/controls/application	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/controls/application/backing	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/controls/content	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/controls/layout	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/controls/page	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/controls/portlet	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/controls/portlet/backing	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/controls/portlet/events	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/controls/window	WEB-INF/lib/netuix_servlet.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
wlp-light-web-lib	com/bea/netuix/servlets/controls/content/bac king	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/controls/window/bac king	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/netuix/servlets/manager	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/portlet	WEB-INF/lib/netuix_servlet.jar
wlp-light-web-lib	com/bea/portlet	WEB-INF/lib/portlet-container.jar
wlp-light-web-lib	com/bea/portlet	WEB-INF/lib/prefs-spi.jar
wlp-light-web-lib	com/bea/portlet	WEB-INF/lib/prefs_taglib.jar
wlp-light-web-lib	com/bea/portlet/ext	WEB-INF/lib/portlet-container.jar
wlp-light-web-lib	com/bea/portlet/jsp	WEB-INF/lib/portlet-container.jar
wlp-light-web-lib	com/bea/portlet/prefs	WEB-INF/lib/prefs-spi.jar
wlp-light-web-lib	com/bea/portlet/prefs	WEB-INF/lib/prefs_taglib.jar
wlp-propagation-web-lib	com/bea/content	WEB-INF/lib/content_prop.jar
wlp-propagation-web-lib	com/bea/content	WEB-INF/lib/content_prop_online.jar
wlp-propagation-web-lib	com/bea/p13n/management	WEB-INF/lib/netuix_prop.jar
wlp-propagation-web-lib	com/bea/p13n/management	WEB-INF/lib/netuix_prop_online.jar
wlp-propagation-web-lib	com/bea/p13n/management	WEB-INF/lib/p13n_prop.jar
wlp-propagation-web-lib	com/bea/p13n/management	WEB-INF/lib/p13n_prop_online.jar
wlp-services-app-lib	com/bea/campaign	wps.jar
wlp-services-app-lib	com/bea/campaign/action	wps.jar
wlp-services-app-lib	com/bea/campaign/rules	wps.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
wlp-services-app-lib	com/bea/campaign/tracking/events	wps.jar
wlp-services-app-lib	com/bea/campaign/webservice	wps.jar
wlp-services-app-lib	com/bea/content	content.jar
wlp-services-app-lib	com/bea/content	content_repo.jar
wlp-services-app-lib	com/bea/content	content_system.jar
wlp-services-app-lib	com/bea/content/expression	content.jar
wlp-services-app-lib	com/bea/content/loader	content.jar
wlp-services-app-lib	com/bea/content/loader/bulk	content.jar
wlp-services-app-lib	com/bea/content/manager	content.jar
wlp-services-app-lib	com/bea/content/manager	content_system.jar
wlp-services-app-lib	com/bea/content/manager/propertysets	content.jar
wlp-services-app-lib	com/bea/content/manager/sort	content.jar
wlp-services-app-lib	com/bea/content/spi	content.jar
wlp-services-app-lib	com/bea/content/spi	content_repo.jar
wlp-services-app-lib	com/bea/content/virtual	content.jar
wlp-services-app-lib	com/bea/content/virtual	content_system.jar
wlp-services-app-lib	com/bea/content/virtual/version	content.jar
wlp-services-app-lib	com/bea/content/virtual/lifecycle	content.jar
wlp-services-app-lib	com/bea/p13n/ad	wps.jar
wlp-services-app-lib	com/bea/p13n/ad/render	wps.jar
wlp-services-app-lib	com/bea/p13n/advisor	wps.jar
wlp-services-app-lib	com/bea/p13n/content	wps.jar
wlp-services-app-lib	com/bea/p13n/content/advislets	wps.jar
wlp-services-app-lib	com/bea/p13n/content/expression	wps.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
wlp-services-app-lib	com/bea/p13n/content/query	wps.jar
wlp-services-app-lib	com/bea/p13n/controls/createUser	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/controls/exceptions	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/controls/login	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/controls/profile	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/controls/userInfoQuery	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/controls/events/generic	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/controls/events/standard	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/controls/ejb/events	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/controls/ejb/property	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/controls/ejb/usermgmt	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/controls/ejb/usermgmt/profile	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/controls/rules	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/controls/securityProvider	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/entitlements	wps.jar
wlp-services-app-lib	com/bea/p13n/entitlements/common	wps.jar
wlp-services-app-lib	com/bea/p13n/entitlements/resource	wps.jar
wlp-services-app-lib	com/bea/p13n/mail	wps.jar
wlp-services-app-lib	com/bea/p13n/placeholder	wps.jar
wlp-services-app-lib	com/bea/p13n/rules/advislets	wps.jar
wlp-services-app-lib	com/bea/p13n/security	APP-INF/lib/p13n_controls.jar
wlp-services-app-lib	com/bea/p13n/servlets	wps.jar
wlp-services-app-lib	com/bea/p13n/servlets/jsp	wps.jar
wlp-services-app-lib	com/bea/p13n/usermgmt	wps.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
wlp-services-app-lib	com/bea/p13n/usermgmt/profile	wps.jar
wlp-services-app-lib	com/beasys/commerce/foundation	wps.jar
wlp-services-app-lib	com/beasys/commerce/foundation/expressio n	wps.jar
wlp-services-app-lib	com/beasys/commerce/util	wps.jar
wlp-services-web-lib	com/bea/campaign	WEB-INF/lib/wps_servlet.jar
wlp-services-web-lib	com/bea/campaign/servlets	WEB-INF/lib/wps_servlet.jar
wlp-services-web-lib	com/bea/content	WEB-INF/lib/content_servlet.jar
wlp-services-web-lib	com/bea/content/manager	WEB-INF/lib/content_servlet.jar
wlp-services-web-lib	com/bea/content/manager/servlets	WEB-INF/lib/content_servlet.jar
wlp-services-web-lib	com/bea/content/manager/servlets/jsp/taglib	WEB-INF/lib/content_servlet.jar
wlp-services-web-lib	com/bea/p13n/ad	WEB-INF/lib/ad_taglib.jar
wlp-services-web-lib	com/bea/p13n/ad	WEB-INF/lib/wps_servlet.jar
wlp-services-web-lib	com/bea/p13n/ad/servlets	WEB-INF/lib/ad_taglib.jar
wlp-services-web-lib	com/bea/p13n/ad/servlets/jsp/taglib	WEB-INF/lib/ad_taglib.jar
wlp-services-web-lib	com/bea/p13n/cache/servlets	WEB-INF/lib/wps_servlet.jar
wlp-services-web-lib	com/bea/p13n/mail	WEB-INF/lib/wps_servlet.jar
wlp-services-web-lib	com/bea/p13n/mail/servlets	WEB-INF/lib/wps_servlet.jar
wlp-services-web-lib	com/bea/p13n/placeholder	WEB-INF/lib/ph_taglib.jar
wlp-services-web-lib	com/bea/p13n/placeholder	WEB-INF/lib/wps_servlet.jar
wlp-services-web-lib	com/bea/p13n/placeholder/servlets	WEB-INF/lib/ph_taglib.jar
wlp-services-web-lib	com/bea/p13n/placeholder/servlets	WEB-INF/lib/wps_servlet.jar
wlp-services-web-lib	com/bea/p13n/placeholder/servlets/jsp/taglib	WEB-INF/lib/ph_taglib.jar
wlp-services-web-lib	com/bea/p13n/servlets	WEB-INF/lib/pz_taglib.jar

Table B-3 Mapping of Version 9.2 J2EE Libraries to Packages, Sorted by J2EE Library (Continued)

9.2 J2EE Library	8.1.5 Package	9.2 JAR File
wlp-services-web-lib	com/bea/p13n/servlets/jsp	WEB-INF/lib/pz_taglib.jar
wlp-services-web-lib	com/bea/p13n/servlets/jsp/taglib	WEB-INF/lib/pz_taglib.jar
wlp-services-web-lib	com/bea/p13n/usermgmt	WEB-INF/lib/um_taglib.jar
wlp-services-web-lib	com/bea/p13n/ad/servlets	WEB-INF/lib/wps_servlet.jar
wlp-services-web-lib	com/bea/p13n/cache	WEB-INF/lib/wps_servlet.jar
wlp-tools-admin-web-lib	com/bea/jsptools/portal	WEB-INF/lib/wlp-admin.jar
wlp-tools-app-lib	com/bea/jsptools/portal	APP-INF/lib/tools-framework.jar
wlp-tools-app-lib	com/bea/jsptools/portal	APP-INF/lib/wlptools_en.jar
wlp-tools-app-lib	com/bea/portal	APP-INF/lib/common-editors.jar
wlp-tools-app-lib	com/bea/portal	APP-INF/lib/tools-framework.jar
wlp-tools-app-lib	com/bea/portal	APP-INF/lib/wlptools_en.jar

API Upgrade Cross-Reference