# BEA WebLogic Portal®

## Federated Portals Guide

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CHAPTER 1

# Introduction

Federated portals represent an exciting new paradigm for the development, management, testing, and deployment of portal applications. This new, Service-Oriented Architecture (SOA) based paradigm offers immediate and significant savings in time and resources to organizations that develop and manage portals using BEA WebLogic Portal®.

This guide describes how to plan, develop, assemble, and maintain federated WebLogic Portals. As the following section explains, the tasks described in this guide are organized to reflect the stages of the portal life cycle: architecture, development, staging, and production.

This chapter includes the following sections:

- Federation in the Portal Life Cycle
- Getting Started

## Federation in the Portal Life Cycle

Like a standard portal, the creation and management of a federated portal flows through a portal life cycle.

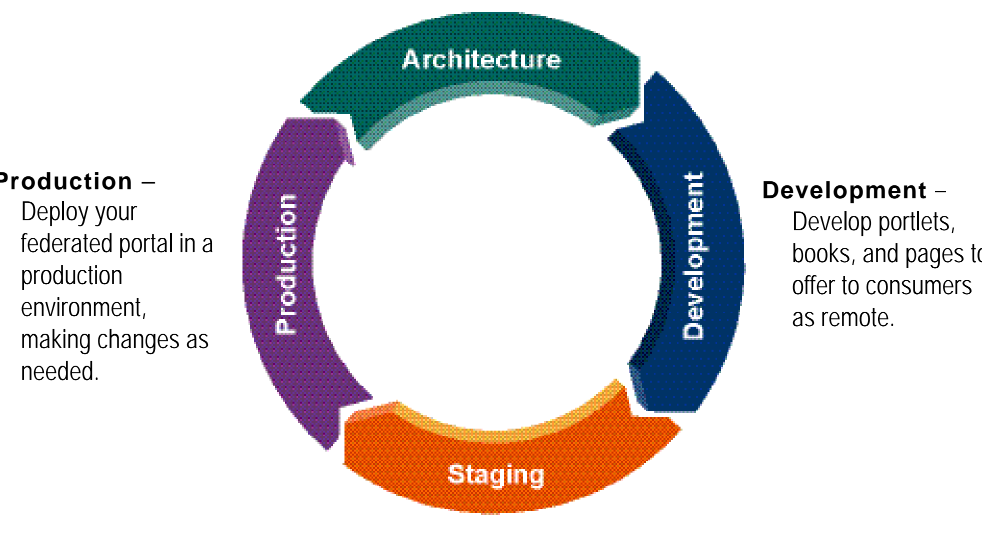
The portal life cycle contains four phases:

- Architecture
- Development
- Staging
- Production

The tasks in this guide are organized according to the portal life cycle, which implies best practices and sequences for creating and updating federated portals. For more information about the portal life cycle, see the *BEA WebLogic Portal Overview*. Figure 1-1 shows which types of federation-related tasks occur at each phase.

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

**Architecture** – Understand the basics of a federated portal architecture. This understanding helps you plan the configuration and development of your federated portal.




**Staging** – Use the Administration Portal to create and configure federated portals.

# Architecture

The architecture part of this guide discusses the basic components of a federated portal. A federated architecture promises to streamline and improve the way in which your portal

resources, such as portlets, are developed, deployed, and maintained. By understanding the technology that lies behind federated portals, you can more effectively plan for the development of your own federated portal applications.

Federated portal architecture is discussed in Part I Architecture.

## Development

The development phase of a federated portal focuses primarily on developing portlets, pages, and books that will be offered as remote portlets, pages, and books to consumers. Developers need to be aware of the techniques and best practices for developing remote portlets, pages, and books in a WebLogic Portal environment.

In the development stage, careful attention to best practices is crucial. Wherever possible, this guide makes those best practices clear.

Federated portal development is discussed in Part II Development.

## Staging

As for all portal development, 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 Portal to assemble and configure federated portals. The Administration Portal lets you search for and consume remote portlets, books, and pages. In the staging environment, you also test your federated portal before propagating it to a live production system.

Federated portal staging is discussed in Part III Staging.

## Production

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

Federated portal production is discussed in Part IV Production.

# Getting Started

This section describes the basic prerequisites to using this guide, lists guides containing related information and topics, and briefly explains how to use this guide.

This section includes the following topics:

- Prerequisites
- Related Guides
- Using this Guide

# Prerequisites

This guide does not assume that you are familiar with federation or its related standards and technologies, such as WSRP. Whenever possible, this guide provides sufficient background information or refers to appropriate documents and specifications.

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**Tip:** See "For More Technical Details" on page 3-26 for a list of specifications and white papers related to WSRP and related technology. This material provides an excellent background for developers who plan to design and create federated portals.

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In general, this guide assumes that you are familiar with the basic operation of the tools used to create WebLogic portals and desktops, particularly Workshop for WebLogic and the Administration Portal. The following section, Related Guides, lists other guides that you may want to refer to before attempting to develop federated portals.

# Related Guides

This guide covers topics that are specific to developing and assembling federated portals. In general, this guide assumes that you are familiar with the basic concepts and tools required for both portal and portlet development. If you are planning to create federated portals, we recommend that you review the following guides:

- *BEA WebLogic Portal Overview*
- *BEA WebLogic Portal Development Guide*
- *BEA WebLogic Portlet Development Guide*

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

## Using this Guide

If you are new to federation we recommend that you begin with the chapters in Part I Architecture. These chapters provide a detailed overview of federated portals, and describe the technological components that make up federation.

Part II Development includes the topics that are of primary interest to developers creating portal components with Workshop for WebLogic. This part includes chapters on creating remote portlets, establishing interportlet communication with remote portlets, working with producers, using custom events, and other topics.

Part III Staging and Part IV Production are targeted typically toward users who use the Administration Portal to assemble and manage federated portals and establish security.

# Part I Architecture

Part I, Architecture, includes the following chapters:

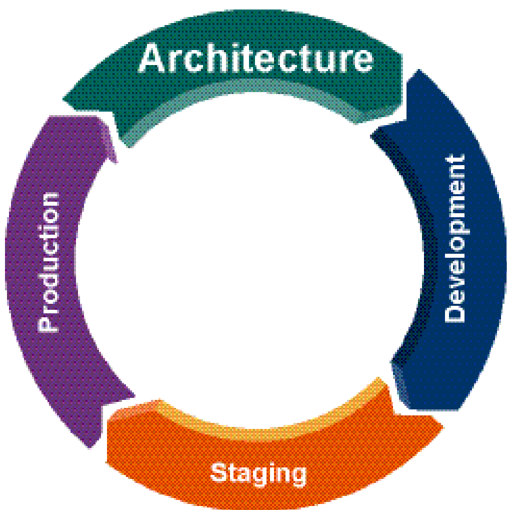
- Chapter 2, "What are Federated Portals?"

  Introduces the concept of a federated portal and discusses the advantages of using federation.

- Chapter 3, "Federated Portal Architecture"

  Presents on overview of federated portal architecture. The chapter describes the logical parts of a federated portal and the underlying technological standards, such as Web Services for Remote Portlets (WSRP), that make federated portals possible.

In the WebLogic Portal development life cycle, architecture represents the starting point for the subsequent phases of development, staging, and production.




This part of the *Federated Portal Guide* presents an architectural overview of federated portals. The chapters in this part focus on the logical components of federated portals, how these components interact, and the technologies that make federation possible. By understanding the architecture of federated portals, and specifically federated portals developed on BEA WebLogic platforms, developers can more effectively plan their specific implementations of remote features such as remote portlets.

For more information about the portal life cycle, see the *WebLogic Portal Overview*.

CHAPTER 2

# What are Federated Portals?

This chapter presents a brief introduction to federated portals and discusses the advantages of federated portals and the kinds of problems that federation solves. This chapter includes the following sections:

- Overview
- Basic Terminology
- Traditional Portals: Before Federation
- Federated Portals: A New Paradigm
- Advantages of Federation

## Overview

A federated portal is a portal that includes remotely distributed resources, including remote portlets, books, and pages. 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. Unlike a non-federated, entirely local portal, in most cases, the individual remote parts of a federated portal can be maintained, updated, and released independently without redeploying the consumer portal in which they are surfaced.

Federated portals are:

- **Distributed** – Portlets are deployed on remote systems across the enterprise.

- **Decoupled** – The portal and its portlets do not depend upon one another. In most cases, remote portlets can be maintained and deployed separately from the federated portal.
- **Collaborative** – Remote portlets can communicate and share data.
- **Plug-and-Play** – You can easily locate and use remote portlets. Programming is usually not required to consume remote portlets.
- **Standards based** – WebLogic Portal federated portals are built upon open standards, such as WSRP, SOAP, WSDL, SAML, UDDI, and WS-Security.

Figure 2-1 illustrates the basic parts of a federated portal: producers and consumers. A producer is a portal web application that offers remote portlets to other portal web applications, called consumers. Both producers and consumers implement a web services layer that enable them to communicate. This web services layer allows producers to offer portlets to consumers on remote systems. Consumers bring these remote, distributed portlets together at runtime. The remote portlets themselves can be developed and maintained by different groups of people. If one remote portlet on a producer is changed, other portlets within a consumer that consumes the updated portlet are not typically affected. Furthermore, the look and feel of a remote portlet can be made to be consistent with the federated portal in which is resides. To end users of federated portals, the remote portlets are indistinguishable from local ones.

**Figure 2-1 Federated Portals Consume Remote Portlets from a Producer**

Producer

Consumer A

Consumer B

Consumer C

**Tip:** A federated portal reflects a true Service Oriented Architecture (SOA). BEA defines SOA as follows: an SOA strategy organizes discrete functions contained in enterprise applications into interoperable, standards-based services that can be combined and reused quickly to meet business needs. As you will see, this definition of SOA describes well the essence of a federated portal.

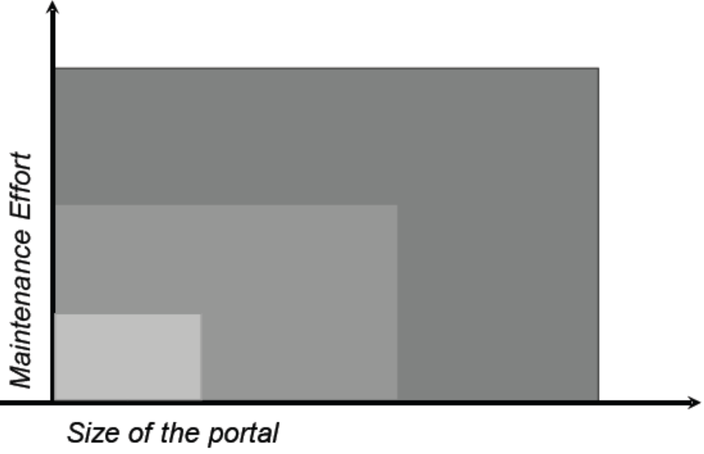
# Basic Terminology

Throughout this guide, the term remote portlet refers to a portlet that is deployed in a consumer application and that references a portlet deployed in a producer application. Another term for a remote portlet is a proxy portlet. The term proxy portlet appears in some WebLogic Portal configuration files. Please note that remote portlet and proxy portlet are synonymous. In a federated environment, a producer hosts functioning portlets, while consumer applications host proxy portlets.

# Traditional Portals: Before Federation

Before federation, all of a portal's portlets were deployed within the same web application. This model works well for a portal's initial deployment, but as the portal grows the maintenance effort grows proportionally, as illustrated in Figure 2-2.

**Figure 2-2 Non-Federated Portal Maintenance**



Typical portal maintenance includes bug fixes, enhancements, adding new portlets, testing, and propagating the portal from a development to a staging to a production environment. Larger portals simply contain more parts, more code, which must be bound within the same portal application, and which require the coordination of developers, quality assurance engineers, administrators, and others with each update. For many organizations, the cost of such maintenance is significant and can include portal downtime. Federation simplifies portal maintenance.

# Federated Portals: A New Paradigm

With a federated portal architecture, separate development teams, perhaps in separate business units, operating in different geographical locations, can focus on and develop their respective portlets. These development teams can update, test, and release their portlets independently from one another. You do not need to redeploy a federated portal every time a portlet deployed in a producer changes. When a remote portlet is updated in a producer, all of the consumers of that portlet receive the change immediately and automatically. As illustrated in Figure 2-3, the most significant benefit of a federated portal architecture is that the maintenance effort for a portal is greatly reduced compared to a non-federated portal.

**Figure 2-3 Federated Portal Maintenance**



The next section further discusses the advantages of using a federated portal architecture.

# Advantages of Federation

As explained in the previous section, federation offers significant benefits in portal deployment and maintenance. This section looks more closely at these and other benefits, and includes these topics:


- Overview
- Reducing the Cost of Portal Deployment
- Plug and Play SOA
- Increasing the Flexibility of Release Schedules
- Reducing the Cost of Testing Your Portal
- Decreasing Dependencies Among Software Components
- Promoting Reuse of Portal Components
- Interoperability


## Overview

Federation represents more than just a new WebLogic Portal feature. Federation represents a new paradigm for developers and administrators of portal web applications, particularly moderate to large-scale portal web applications. Central to this new paradigm are standards, such as Web Services for Remote Portlets (WSRP), that allow portlets to be decoupled from portals. For more information on WSRP, see "What is WSRP?" on page 3-3.

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.

## Reducing the Cost of Portal Deployment

Perhaps the most significant benefit of portal federation is this: *Federated portals do not have to be redeployed when their remote portlets are updated.*

In a standard portal, all portlets are part of a monolithic enterprise application. If you want to change a portlet, even make a trivial change, the entire enterprise application must be redeployed.

Likewise, adding new portlets requires redeployment. Usually, portal redeployment, particularly of large-scale enterprise portals, involves expensive testing and potential downtime.

In a federated portal, remote portlets are not part of a single enterprise application. Remote portlets are deployed in separate web applications, typically, on remote systems called producers. The federated portal consumes these portlets using standard Web Services for Remote Portlet (WSRP) and Web Services Description Language (WSDL). When you change a portlet, such as by adding or removing a feature or fixing a bug, the remote portlets that reference it automatically reflect the change. You do not have to redeploy your enterprise portal application.

## Plug and Play SOA

A federated portal is a true example of a plug and play Service Oriented Architecture. In most cases, a portal administrator can locate a remote portlet and incorporate it into a portal without enlisting the help of a developer.

## Increasing the Flexibility of Release Schedules

Because the portlets and other services in federated portals are distributed, multiple teams can work on and deploy new features independently of one another. Before federation, different teams had to synchronize their deployment schedules and their software configurations, such as service pack releases and software library versions. With federation, independent teams can focus on producing the best possible software solutions without such tight coupling. Through the mechanism of web services, developers of federated portals simply consume the software resources produced by these independent development teams.

## Reducing the Cost of Testing Your Portal

Portal administrators can incorporate new remote portlets into a portal by locating a producer and picking the desired portlets. From the administrator's standpoint, these remote portlets are fully tested and ready for use. No coding, testing, or complex configuration is required by the developers or administrators of the consumer portal.

## Decreasing Dependencies Among Software Components

If a portlet relies on specific software libraries, a strong dependency exists that must be managed. Changes to either the portlet or the library version can create incompatibilities with existing code. Because remote portlets are developed, tested, deployed, and run on remote systems, a federated portal that uses remote portlets is isolated from such dependencies.

## Promoting Reuse of Portal Components

A portlet that is exposed through a producer can be reused by any number of consumers with minimal work and no additional coding. As mentioned previously, with federation, this reuse can be accomplished without the overhead of integration, deployment, configuration, and testing that would be required otherwise.

## Interoperability

Because federated portals are loosely coupled and standards based, it is possible for a WebLogic Portal to consume portlets from third-party vendors. Likewise, it is possible for third-party portals to consume portlets hosted in WebLogic Portal.

CHAPTER 3

# Federated Portal Architecture

This chapter describes the key actors and logical parts of a federated portal and discusses how they interact. The information in this chapter informs many of the best practices recommended for developers of federated portals. It is helpful to review this chapter before reading Chapter 14, "Other Topics and Best Practices." In addition, this chapter discusses a key standard technology upon which federation relies: Web Services for Remote Portlets (WSRP).

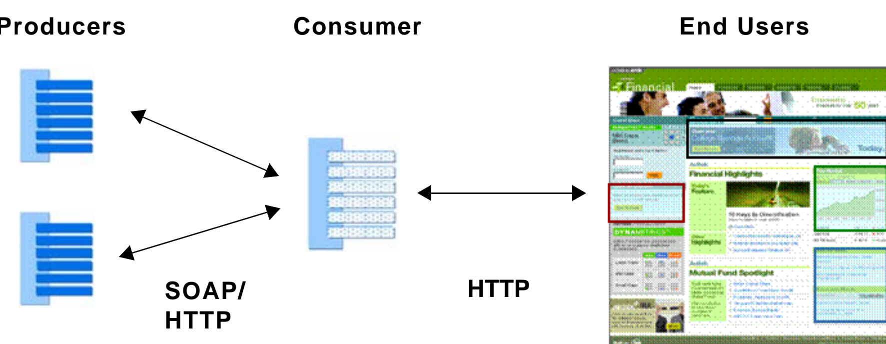
This chapter includes the following topics:


- Key Actors in a Federated Portal
- What is WSRP?
- Understanding Producers and Consumers
- Life Cycle of a Remote Portlet
- Interportlet Communication with Events
- Summary of Federated Portal Architecture
- For More Technical Details


## Key Actors in a Federated Portal

The key actors in a federated portal are producers, consumers, and end users, as illustrated in Figure 3-1.

Figure 3-1 Components of a Federated Portal




A consumer is a web application that collects remote portlets and offers them in a unified portal to end users who use a browser to view and interact with the portal. In addition to federating portlets, WebLogic Portal lets you federate books and pages. See "Federating Books and Pages" on page 3-3 for more information.

Typically, a consumer does not include the business logic, data, or user interface parts of a portlet: it simply collects user interface markup delivered from producers and presents that user interface to users.

---

**Tip:** Although most business logic processing occurs in producer applications, you can write consumer-side classes called *interceptors* that let you programmatically examine the content of a WSRP message and take specific action based on that content. Interceptors are discussed in Chapter 10, "The Interceptor Framework."

---

Consumers are administration-centric. This means that administrators, rather than developers, typically focus their time on consumers. Administrators locate and consume remote portlets, manage users, set up entitlements, and so on.

A producer is also a web application, typically running on a remote system from the consumer. The producer acts as a container for portlets that are offered to consumer portals. The producer is where the user interface, data, and business logic for remote portlets reside. While a consumer is administration centric, a producer is application centric. This means that developers write the actual portlet code and deploy those resources on producers.

**Tip:** All WebLogic Portal applications are, by default, both consumers and producers. This means that every WebLogic Portal application is capable of hosting remote portlets and consuming them.

For more information on producers and consumers, see "Understanding Producers and Consumers" on page 3-4.

# Federating Books and Pages

WebLogic Portal has extended the WSRP protocol to include the ability to federate books and pages. This feature is useful if you have large numbers of portlets that you want to federate. You can group the portlets in books and pages in the producer application, and consume them as a group, rather than one at a time. For more information, see Chapter 17, "Adding Remote Resources to the Library."

# What is WSRP?

Web Services for Remote Portlets (WSRP) is a web services protocol for aggregating content and interactive web applications from remote sources. WSRP is a key standard that underlies federated portals. Essentially, WSRP allows remote, distributed portlets to be brought together at runtime into a unified portal page.

Web Services for Remote Portlets provide both application and presentation logic. This is different from standard web services, or data-oriented web services, which contain business logic but lack presentation logic and thus require that every client implement that logic on its own.

While the data-oriented approach works well in many implementations, it is not well suited for dynamically integrating business applications. For example, to integrate an order status web service into a commerce portal, you would need to write code to display the results of the status services into the portal. Using WSRP, with the presentation logic included in the web service, you can achieve the aggregation of applications and services dynamically. You no longer need to develop the presentation logic in order to do the integration; you can simply request the order status service to show up as a portlet inside the commerce portal at a predetermined location.

**Tip:** OASIS, the Organization for the Advancement of Structured Information Standards, is responsible for creating the WSRP standard. BEA Systems has been an active member of the OASIS technical group for WSRP 1.0 and continues to work as part of this standard effort for future enhancements to the specification. To read more about WSRP,

including the full technical specification, go to:

`http://www.oasis-open.org/committees/wsrp/`

---

One way to understand WSRP is to compare it with another web protocol, HTTP. The most familiar use of HTTP is viewing and interacting with remote web applications using a browser. Using HTTP, browsers communicate with remote HTTP servers to post data (for example, by submitting forms) and to retrieve markup (typically, HTML). WSRP is a similar protocol between server and client applications. In WSRP terminology, the server is called a producer. It hosts services, typically portlets, that clients, or consumers, communicate with.

Like a browser in the HTTP analogy, the consumer retrieves markup and submits user interactions to the producer. The producer hosts actual portlets while the consumer contains proxies for those portlets. Consumers use WSRP to collect and present markup from the remote portlets to end users who interact with that markup. To an end user, a remote or proxy portlet is indistinguishable from a local portlet.

WSRP consumers are more sophisticated than browsers, however. Unlike browsers, consumers can:

- Offer features like personalization, customization, and security
- Handle markup fragments rather than entire HTML documents
- Combine markup from different producers into a single page and apply consistent consumer-specific layouts and styles to that page

In summary, the WSRP protocol defines a set of web services that WSRP producers implement. Consumers view and interact with these web services; they retrieve user interface fragments from the producer, display the fragments, and allow users to interact with them. The WSRP protocol allows consumers to act as clients for applications hosted by producers.

# Understanding Producers and Consumers

This section focuses on the producer and consumer implementations for WebLogic Portal. This section includes these topics:

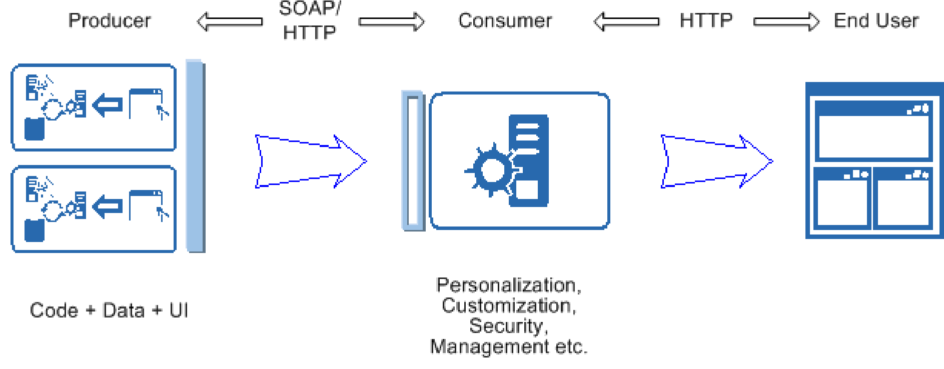

- Overview
- WebLogic Portal Producers
- Secure WSRP messages

# Overview

A producer is a container web application that hosts portlets. Through proxy portlets, consumers collect and present remote portlets (portlets hosted on producers) to users. All application code (page flows, backing files, Java classes, controls, EJBs, and so on) resides on the producer. Consumers only receive fragments of markup from producers which are collected and presented to users.

Figure 3-2 illustrates the components of a federated portal. Note that the WebLogic Portal WSRP implementation allows the addition of typical WebLogic Portal services, such as personalization, customization, and user management. This means that remote portlets are given the same look and feel and the same levels of portal security as local portlets.

**Figure 3-2 Web Services Between Producer and Consumer**

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**Tip:** Every WebLogic Portal contains both producer and consumer implementations. That is, all WebLogic Portals can function as producers and consumers. For an in-depth technical explanation of the WebLogic Portal producer and consumer implementations, refer to the technical white paper, *Inside WSRP*, on the dev2dev web site.

---

## WebLogic Portal Producers

WebLogic Portal supports two kinds of producers: simple and complex. Before describing these two kinds of producers, it is helpful to understand the parts of the WSRP protocol and which operations must be implemented in a producer (required operations) and which are optional.

Table 3-1 lists the set of required and optional operations defined by the WSRP protocol. Note that the minimum requirement for a WSRP-compliant producer is to implement the required service description and markup operations. As you will see, WebLogic Portal simple and complex producers differ in the kinds of operations they support.

**Table 3-1 Required and Optional WSRP Operations**

| WSRP Protocol | Operations | Implemented Methods |
|---|---|---|
| Required for WSRP | 1. Service description operations | getServiceDescription() |
| | 2. Markup operations | initCookie()<br>getMarkup()<br>performBlockingInteraction() |
| Optional for WSRP | 3. Registration | register()<br>modifyRegistration()<br>deregister() |
| | 4. Portlet Management | getPortletPropertyDescription()<br>setPortletProperties()<br>getPortletProperties()<br>clonePortlet()<br>destroyPortlets() |
| Extensions<br>(Add new operations to the WSRP protocol.) | 5. Event Handling | handleEvents() |
| | 6. Render Dependencies | getRenderDependencies() |

## Simple Producers

A simple producer supports only some basic features of the WSRP protocol. These basic features do not require the producer to be deployed in a full WebLogic Portal domain. You can, for example, deploy a simple producer in a basic WebLogic Server domain.

---

**Tip:** For detailed information on configuring a simple producer in a WebLogic Server domain, see Chapter 8, "Configuring a WebLogic Server Producer".

---

A simple producer:

- **Does not depend upon WebLogic Portal features** – A simple producer cannot take advantage of WebLogic Features features such as user management and personalization.
- **Does not depend on WebLogic Portal APIs** – Again, a simple producer cannot rely on any WebLogic Portal dependencies.
- **Does not require registration** – Registration allows a producer to associate portlets and any portlet customization data with the consumer that is interacting with it. The producer can also use the registration to tailor the scope of the portlets offered to specific consumers.
- **Does not support event handling** – You cannot use the event handling API with a simple producer.

Despite these limitations, you might want to use a simple producer for the following reasons:

- To WSRP-enable non-portal projects, such as WebLogic Server projects
- To offer portlets without actually installing WebLogic Portal

The section "Using WSRP in a Basic WebLogic Server Domain" on page 8-2 describes how to configure a (non-portal) WebLogic Server environment as a WSRP producer so that you can expose portlets based on Struts or Java Page Flows. The exposed portlets can then be consumed as remote portlets running in a regular WebLogic Portal Domain.

## Complex Producers

A complex producer supports the complete WSRP 1.0 protocol plus some extensions for interportlet communication, portlet look and feel, and other features. A complex producer also lets you take advantage of other WebLogic Portal features, such as personalization, customization, and user management security features. By contrast, simple producers cannot take advantage of these WebLogic Portal features.

By default, all WebLogic Portal applications are complex producers. Portlets that are exposed in a complex producer can use the APIs and features that are available in any WebLogic Portal application.

---

**Tip:** In some cases, it is inappropriate to use API calls in portlets deployed on a producer. This is because a producer does not have access to portal artifacts, such as books and pages, in that are deployed in consumer applications. See Chapter 14, "Other Topics and Best Practices" for information on best programming practices for portlet development in producers.

---

Typically, a complex producer:

- **Requires registration** – Registration allows a producer to associate portlets and any portlet customization data with the consumer that is interacting with it. By deploying consumer entitlements, the producer can also use the registration to tailor the scope of the portlets offered to specific consumers. For detailed information on consumer entitlements, see Chapter 12, "Consumer Entitlement." By default, registration is enabled; however, you can disable registration by setting the `<registration required>` element in the `/WEB-INF/wsrp-producer-config.xml` file to `false`.
- **Supports a management interface** – By default, the WebLogic Portal management interface is enabled; however, you can disable the management interface by setting the `<portlet-management required>` element to `false` in the file `/WEB-INF/wsrp-producer-config.xml`.
- **Supports interportlet communication** – Extensions that support event handling allow remote portlets to communicate with one another.
- **Supports portlet render dependencies** – WebLogic Portal allows you to specify certain dependencies associated with individual portlets, such as Cascading Style Sheets (CSS files) and script files, such as JavaScript (JS) files.

## Summary of Complex and Simple Producers

A complex producer includes the required WSRP interfaces, optional interfaces, and some extended interfaces. A simple producer implements the required interfaces. A complex producer requires WebLogic Portal, but a simple producer can be deployed in a basic WebLogic Server domain. Figure 3-3 illustrates these relationships.

Figure 3-3 Simple and Complex Producers

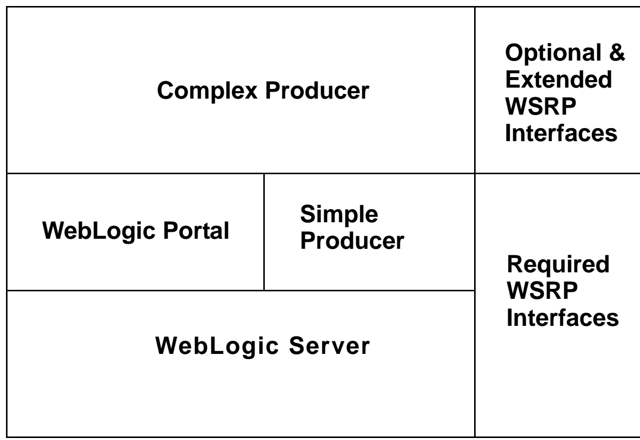



Table 3-2 compares the capabilities of standard and complex producers.

Table 3-2 Comparison of Producer Features

| Feature | Complex Producer | Simple Producer |
|---|---|---|
| Java portlets | Yes | No |
| Page flow portlets | Yes | Yes |
| Registration | Required | Not Supported |
| Support for URL rewriting (producer and consumer) | Yes | Yes |
| Support for portal administration | Yes | No |
| Support for JSP portlets | Yes | No |
| Support for backing files | Yes | No |
| Support for JSF portlets | Yes | Yes |
| Support for Struts portlets | Yes | Yes |

### Secure WSRP messages

Securing WSRP messages ensures their confidentiality between just the interested parties. When a portlet's messaging is secure, only parties authorized to handle the contents of that portlet's messages can see those messages. To secure WSRP messages:

- Use SSL on any port through which the Producer will be offered.
- Configure the Producer to offer secure portlets by specifying "true" for all secure attributes in the `<service-config>` element of the Producer project's `WEB-INF/wsrp-producer-config.xml` file, as shown in Listing 3-1.

**Listing 3-1 <service-config> Element Configured for Security**

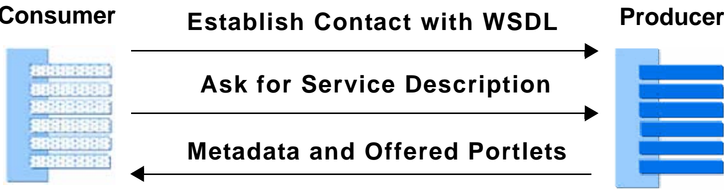
```
<service-config>
       <registration required="true" secure="true"/>
       <service-description secure="true"/>
       <markup secure="true" rewrite-urls="true" transport="string"/>
       <portlet-management required="true" secure="true"/>
</service-config>
```

**Note:** If you make any changes to `wsrp-producer-config.xml`, you will need to redeploy or bounce the server before the changes become active.

## WebLogic Portal Consumers

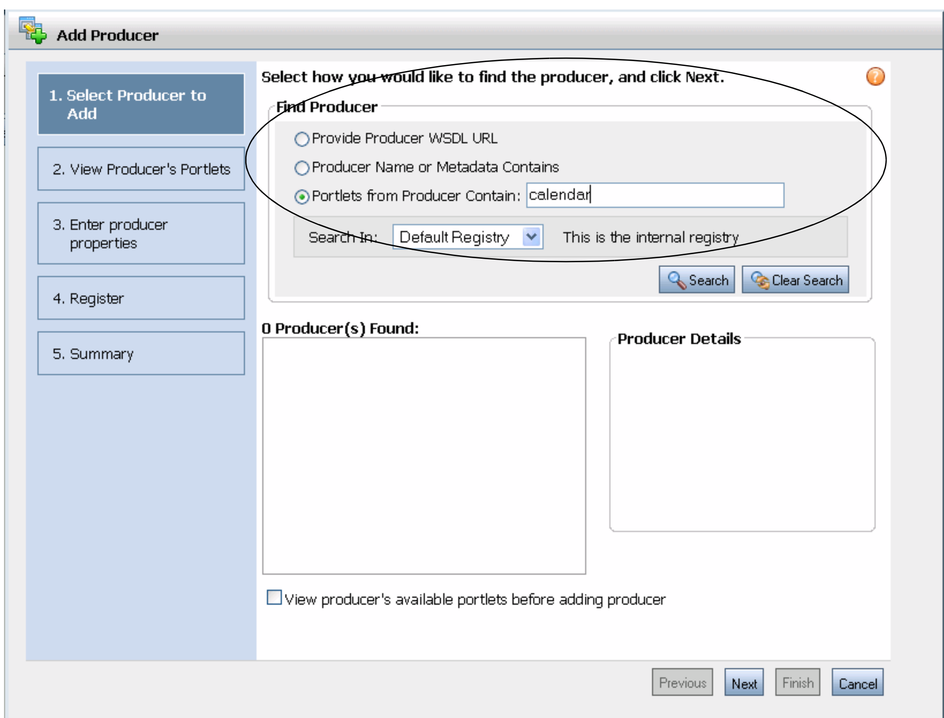
As previously noted, all WebLogic portals are, by default, able to consume remote portlets. The WebLogic Portal consumer implementation is closely integrated into the WebLogic Portal framework. To consume a remote portlet hosted on a producer, a consumer must ask a producer for information about the portlets it offers. The consumer first contacts a producer using the producer's WSDL URL. This initial contact verifies the availability of the producer and its services. Next, the consumer asks the producer for a description of the portlets it offers. The producer responds to the consumer with a SOAP message that describes the portlets and associated metadata that are offered by the producer. This communication is illustrated in Figure 3-4.

**Figure 3-4 Getting the Service Description for a Producer**




You don't necessarily have to know a WSDL URL to find portlets, books, and pages deployed on a producer. WebLogic Portal includes a search feature that lets you locate portlets in remote producers using metadata keywords. The technology that underlies these searches is called a Universal Description, Discovery and Integration (UDDI) registry. UDDI is a widely recognized standard technology. The Administration Portal provides lets you search for portlets in a producer by name, shown in Figure 3-5.

**Figure 3-5 Locating Portlets Deployed on Producers**




Using this search tool, you can search for and locate producers and the portlets they offer.

After a consumer receives a producer's metadata, the metadata is added to the consumer enabling you to create remote portlets. A remote portlet is a proxy to a portlet hosted on a producer. When a remote portlet is added to a portal or desktop, the WebLogic Portal framework uses the WSRP protocol to present the portlet to portal users. To users, remote portlets look and feel just like local portlets; users are not aware that a given portlet is hosted remotely. Furthermore, remote portlets inherit the particular styles, layouts, and themes from the portal in which they reside. To the user, this integration is seamless.

---

**Tip:** As noted previously, WebLogic Portal lets you create consumer-side classes called *interceptors*. Interceptors let you programmatically examine the content of a WSRP message and take specific action based on that content. Interceptors are discussed in Chapter 10, "The Interceptor Framework."

---

## Cookie Handling

WebLogic Portal consumers handle cookies by following the prescriptions of RFC2109:

1. A `Set-Cookie` response header whose `NAME` is the same as a previous cookie, and whose `Domain` and `Path` attribute values exactly (string) match those of the previous cookie, will replace the old cookie with the new one.
2. If the `Set-Cookie` has a value for `Max-Age` of zero, the (old and new) cookie is discarded.
3. Otherwise cookies accumulate until they expire (resources permitting), at which time they are discarded.
4. Cookies are sent based on the specified request-host (including request-URI) and should be sent until they expire.
5. In WSRP, cookies are specific to the `portletHandle` and the end user on whose behalf the consumer is invoking the producer and may only be resupplied for this specific pair (the `portletHandle` is relaxed to one from a group for cookies returned from `initCookie()` when `ServiceDescription.requiresInitCookie=perGroup`.)

# Life Cycle of a Remote Portlet

A remote portlet goes through a well defined life cycle. The steps of this life cycle that are executed depend on which of the following scenarios is requested:

- The portlet is simply being rendered (or re-rendered).
- A user is interacting with the portlet (submitting a form, for instance).
- An event is fired.
- The portlet has render dependencies

It is important to realize that these life cycle phases are decoupled from one another. As explained later in this section, this decoupling has implications for developers writing portlets hosted on producers. For example, you cannot expect a portal to receive the same HTTP response or request for the render phase as it receives for an interaction.

This section does not address the ways in which interceptors can influence the remote portlet life cycle. Interceptors are consumer-side classes that intercept WSRP messages and allow you to programatically take specific actions based on the content of those messages. Interceptors are discussed in Chapter 10, “The Interceptor Framework”.

**Tip:** The information in this section informs many of the best practices for developers discussed in Chapter 14, "Other Topics and Best Practices." It is particularly important for developers creating portlets in a producer to understand the life cycle of a remote portlet. By understanding this life cycle, you will avoid making unwarranted assumptions and avoid common mistakes.

This section includes the following topics:

- Rendering a Remote Portlet

  Rendering occurs independently of user interaction in a remote portlet. The render phase does not allow a remote portlet's state to change. It happens, for instance, when a portal page is refreshed.

- Interacting With a Remote Portlet

  The interaction phase occurs when a user interacts with a remote portlet, for example, by submitting a form or clicking a link.

- Rendering Versus Interaction

  This section summarizes the differences between rendering and interaction.

- Interportlet Communication with Events

  A third life cycle for remote portlets occurs when events are fired. Events provide the best mechanism for interportlet communication between remote portlets.

- Retrieving Render Dependencies

  A fourth life cycle for remote portlets occurs a portlet deployed on a producer includes render dependencies.

**Tip:** This section provides an overview of the remote portlet life cycle phases. For an in-depth technical review of this subject, refer to the BEA white paper, *Inside WSRP* (on the dev2dev web site).

# Rendering a Remote Portlet

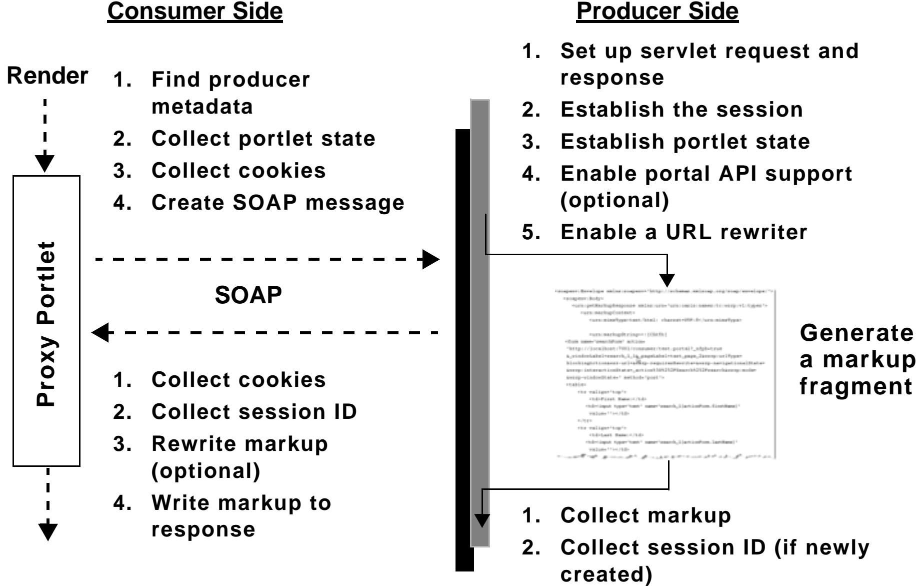
A well defined series of steps occurs whenever a remote portlet is rendered in a consumer portal. Anytime a portlet needs to be re-rendered in exactly the same state (for example, if the user simply refreshes a page), the rendering phase is executed. If a user directly interacts with a remote

portlet, then a different phase, called the interaction phase is triggered. The interaction phase is discussed in the next section.

With a typical (non-federated) web application, when you send a request to a JSP, for instance, you receive back the markup for the requested page. In a federated portal, the user is viewing a page that consists of markup fragments received from portlets hosted on producers (or, possibly a mix of local portlets and portlets deployed on producers). The consumer's job is to contact the producers, retrieve their markup, and render it in a unified portal page.

In Figure 3-6 a portlet exists on a producer, and a proxy for that portlet (a remote portlet) has been created in a consumer portal. The sequence of steps needed to render the portlet in the consumer are listed, and discussed in the following sections.

**Figure 3-6 Rendering a Remote Portlet**




## Initial Steps on the Consumer

To render a remote portlet, a consumer must first compose a SOAP message to send to the producer. These initial steps include:

1. Find producer metadata.

The consumer's first job is to find the metadata for a producer. When a developer or administrator creates a remote portlet, metadata about each producer is received and stored internally by WebLogic Portal (on the consumer).

2. Collect the portlet state. The state consists of a view state and a navigational state:
   - **View state** – This includes the mode (view mode or edit mode) and the state (minimized or maximized).
   - **Navigational state –** For example, if a user has already filled in a form and submitted it, the navigational state reflects the fact that the user has moved from page one to page two of the portlet. Knowledge of this state allows remote portlets to be re-rendered correctly any number of times.
3. Collect all cookies.

   Just as a browser acts as a client to a web server, a consumer acts as a client to a producer. For example, a browser maintains cookies that keep track of sessions on the server. In the same way, a consumer maintains cookies that keep track of the producer sessions for each user of the portal. For each user interacting with a consumer, the consumer maintains one session with each producer.
4. Create a SOAP message.

   All of the information gathered by the consumer must be formed into a SOAP message and sent to the producer.

## Initial Steps on the Producer

After the producer receives the SOAP message from the consumer, the producer must take the following steps to render the requested portlet and return the portlet's markup to the consumer.

1. Set up servlet request and response objects.
2. Establish a session.
3. Establish the portlet state.

   In steps 1, 2, and 3, the producer creates an HTTP environment for the portlet. Because the producer receives a SOAP request, and not an HTTP request, the producer must take the information in the SOAP request and recreate the appropriate HTTP environment for the portlet, including such things as the servlet request and response objects, the session, and the portlet state.
4. Enable portal API support (optional).

The producer must decide whether or not to offer complex features. WebLogic Portal has implemented WSRP extensions and optional interfaces. These extensions and options allow WebLogic Portal producers to offer features such as user management, entitlements, portlet preferences, and event handling. In some cases, you may want to deploy a producer portal without these extra capabilities; therefore, the producer must determine whether or not to enable them. For more information on simple versus complex producers, see "Understanding Producers and Consumers" on page 3-4.

5. Create a URL rewriter.

   In a traditional web application, URLs in, for instance, JSP pages, always point to the web server hosting the JSP page. In a federated portlet, URLs must always point back to the consumer, not to the producer. This is because the producer might, in fact, be inaccessible to the user clients. The producer may be located behind a firewall, for instance. To properly manage URLs, the producer contains URL rewriters that know how to create URLs that are consumer oriented.

   **Tip:** If you are developing portlets in a producer, always be sure to use WebLogic Portal APIs and tags to create URLs. These APIs and tags know how to generate URLs so that they function properly in a federated environment. For more information, see "Avoid Coupling by URL" on page 14-4.

6. Generate markup for the portlet.

   At this stage, the producer renders the portlet. The producer may have created a new session for the portlet or added new cookies. The producer collects all this information and generates a response to the consumer.

7. Collect markup and the session ID (if one was created), and send this data back to the consumer.

## Final Steps on the Consumer

The consumer receives from the producer markup fragments from the producer. The consumer must take these fragments and compose them into a portal page that can be displayed to the user. To do this, the consumer takes these final steps:

1. Collect cookies sent from the producer.
2. Collect the session ID for each portlet.
3. Rewrite markup (optional).

4. Write markup to the response.

This cycle repeats each time the portlet is rendered, as long as caching is not enabled on the consumer.

# Interacting With a Remote Portlet

Just as with the rendering life cycle described in the previous section, interaction with a remote portlet follows a well-defined series of steps. Interaction occurs, for example, when a user submits a form through a page flow portlet. Typically, a JSP on the producer performs some background action, such as executing business logic, and prepares a response.

As you will see, the steps taken for remote portlet interaction are similar to those taken for simple rendering. The differences are highlighted in Figure 3-7 and described in this section.

---

**Tip:** It is crucial to understand that the rendering and interaction phases of the remote portlet life cycle are decoupled. This decoupling has important consequences on how you develop portlets in a producer. You cannot expect a portal to receive the same HTTP response or request for the render phase as it receives after an interaction. For more information on this and other practical advice, see Chapter 14, "Other Topics and Best Practices."

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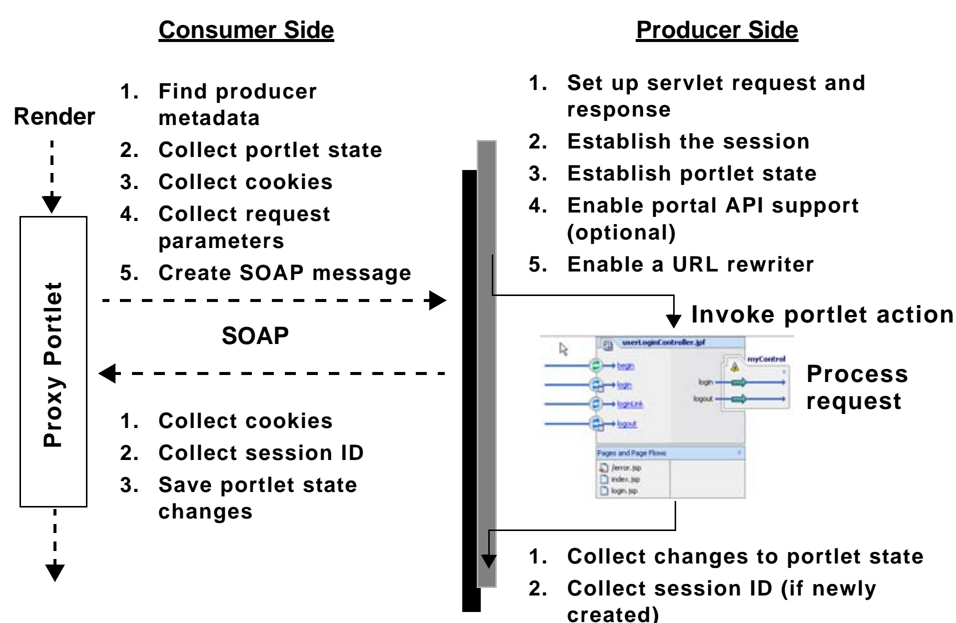
Figure 3-7 Remote Portlet Interaction Life Cycle




## Initial Steps on the Consumer

When a user interacts with a remote portlet, the consumer must first compose a SOAP message to send to the producer. These initial steps include the following. Steps highlighted in bold differ from the render phase described previously.

1. Find producer metadata.
2. Collect the portlet state.
3. Collect all cookies.
4. **Collect request parameters.**

   Because the user is interacting with the portlet, the request parameters must be collected and returned to the producer.

5. Create a SOAP message.

   All of the information gathered by the consumer must be formed into a SOAP message and sent to the producer.

## Initial Steps on the Producer

After the producer receives the SOAP message from the consumer, the producer must take the following steps to invoke the portlets action, generate markup for the requested portlet, and return the portlet's markup to the consumer. Steps highlighted in bold differ from the render phase described previously.

1. Receive the SOAP request from the consumer.
2. Create an HTTP environment for the portlet.
3. Decide whether or not to offer extended features.
4. Create a URL rewriter.
5. **Invoke the portlet's action.**

   In this step, the actions submitted by the consumer must be replayed on the producer. The producer is not directly aware of where the request for this action comes from. After the business logic is executed, a page must be prepared that displays the results of the logic. For instance, if the user submitted a login form, after a successful login, the portlet must return another page that tells the user that the login was successful.
6. **Collect changes to the portlet state.**

   After the request is processed, the producer must collect changes to the portlet's state. This state is returned to the consumer in the form of a markup fragment that can be collected and displayed for the end user.
7. Collect the session ID, if a new session was created.
8. Sends the markup back to the consumer.

   These steps are the same as for the render phase described previously.

## Final Consumer Steps

Steps highlighted in bold differ from the render phase described previously.

1. Collect cookies.
2. Collect the session ID for each portlet.
3. **Save portlet state changes.**

   Portlet state information is maintained on the consumer.

4. Rewrite markup (optional)
5. Write markup to the response.

This cycle repeats each time the portlet is rendered, as long as caching is not enabled on the consumer.

## Rendering Versus Interaction

Both the rendering and interaction phases are available to any remote portlet. The render phase is required in cases where the user does not directly interact with a portlet, but the portlet needs to be refreshed anyway. For instance, if a user interacts with one portlet on a page, she doesn't want the other portlets on the page to change or disappear.

Because the render phase is not always driven by a user's interaction, it is idempotent (the producer returns the same portlet state that the consumer submits). This makes sense, because if you simply refresh a page, you do not want to regenerate data from a database. Likewise, in the render phase, mode and state changes are not allowed.

**Tip:** Separate rendering and interaction phases are not unique to remote portlets; local portlets incorporate a rendering and interaction phase as well.

Table 3-3 summarizes the characteristics of these two phases. These two phases are decoupled so that a portlet's state can only change if you interact with it. If, for instance, you submit a form from Portlet A, and then interact with Portlet B in the same portal page, you do not want the state or view of Portlet A to change when it is refreshed. A portlet's state must only change if you interact with it directly. The interaction phase is always driven by user interaction, while the render phase can happen any number of times and is driven arbitrarily.

**Table 3-3 Render Versus Interaction for Remote Portlets**

| Render Phase | Interaction Phase |
|---|---|
| Focus on presentation (view) | Focus on business logic (controller) |
| May be replayed several times | Driven by user interaction |

**Table 3-3 Render Versus Interaction for Remote Portlets**

| Render Phase | | Interaction Phase | |
|---|---|---|---|
| Idempotent | • No state/mode changes<br>• No changes to portlet preferences<br>• Cannot redirect the user | Non-idempotent | • Can ask for mode/state changes<br>• Can change portlet preferences<br>• Can redirect users |
| Generates markup | | Optionally generates markup. | |

## Interportlet Communication with Events

To facilitate interportlet communication with events, WebLogic Portal extended the WSRP protocol to add a third phase in the remote portlet life cycle. This extension allows a portlet to fire an event during its interaction phase. You can register events with remote portlets; however, when a proxy portlet receives an event, it cannot process it locally because it is a proxy. The remote portlet must send the event to the producer for processing. The portlet on the producer then fires the event and the producer handles it as appropriate.

**Note:** The WebLogic Portal IPC framework is location independent. This means that the framework is not concerned with where an event originated. Portlets in consumers and producers can both listen for and fire events.

Figure 3-8 Event Handling Phase

This phase is similar to the interaction phase. The primary difference is that in the interaction phase, the portlet gets the user interaction data and in response it changes the navigational state of the portlet. The portlet can also fire events.

In the event processing phase, the portlet does not receive a user interaction; rather, it always gets an event fired by another component. In response to the event, the producer can change the state of the portlet and can generate more events, which are stored in an event chain. If it generates events, then the cycle repeats.

# Retrieving Render Dependencies

WebLogic Portal allows you to specify certain dependencies associated with individual portlets. Dependencies typically include Cascading Style Sheets (CSS files) and script files, such as JavaScript (JS) files. Portlet dependencies are configured in an XML file that is referenced in a

`.portlet` file. The dependencies file explicitly lists the CSS and script files upon which the portlet depends.

WebLogic Portal has extended the WSRP protocol to allow remote portlets to retrieve render dependencies from producers.

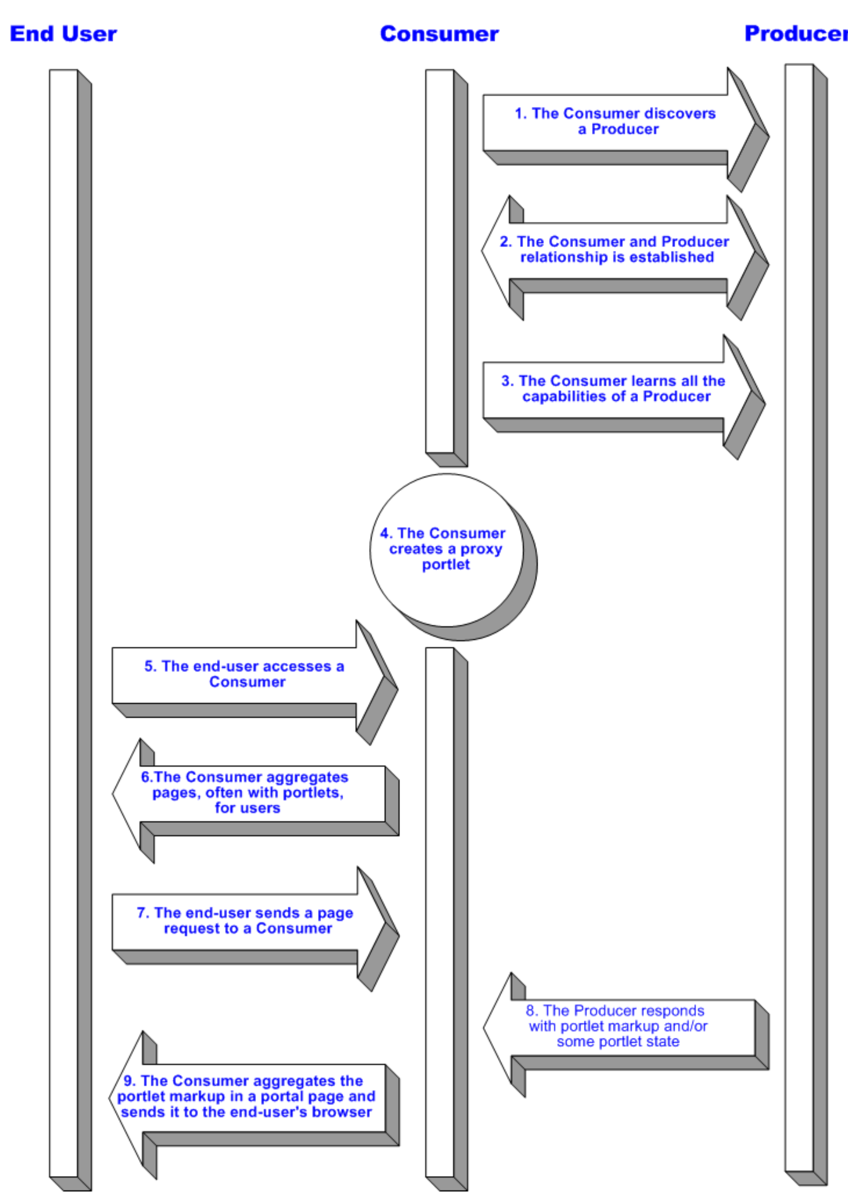
# Summary of Federated Portal Architecture

In summary, WebLogic Portal applications can act as consumers and/or producers. WebLogic Portals are configured to handle:

- Communication with multiple producers
- Federation from producers running WebLogic Server or other non-WebLogic Portal applications.
- Aggregation of remote portlets
- Addition of personalization, customization, security management, look and feel, and other typical WebLogic Portal features to remote portlets
- Displaying remote portlets to end users as rendered HTML content

Figure 3-9 shows a sequence diagram depicting the flow of actions between end users, consumers, and producers. This diagram highlights the notion that a consumer acts as an intermediary between a producer and an end user.

**Figure 3-9 WSRP Sequence Diagram**



# For More Technical Details

If you are interested in learning more about the technical details of the WebLogic Portal implementation of WSRP, you can refer to the following BEA technical white papers.

- *Inside WSRP* (on the dev2dev web site)

  This BEA white paper discusses in detail the messaging that occurs between consumers and producers and highlights best practices for developers writing portlets that will be hosted on producers.

- *WSRP v.1.0 Primer* (on the OASIS web site)

  The purpose of this document is to provide a tutorial-oriented explanation of the main concepts of the WSRP 1.0 specification. This document is maintained by OASIS, the Organization for the Advancement of Structured Information Standards. OASIS is responsible for creating the WSRP standard. BEA Systems has been an active member of the OASIS technical group for WSRP 1.0 and continues to work as part of this standard effort for future enhancements to the specification.

- *Web Services for Remote Portlets Specification Version 1.0* (on the OASIS web site)

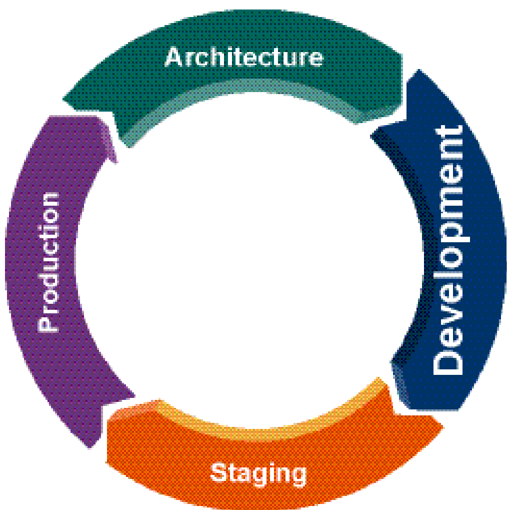
  This is the official specification for WSRP version 1.0. This document was also created by and is maintained by OASIS.

# Part II Development

Part II, Development, includes the following chapters:


- Chapter 4, "Creating Remote Portlets"
- Chapter 5, "Configuring Remote Portlets"
- Chapter 6, "Offering Books, Pages, and Portlets to Consumers"
- Chapter 7, "Interportlet Communication with Remote Portlets"
- Chapter 8, "Configuring a WebLogic Server Producer"
- Chapter 9, "Publishing to UDDI Registries"
- Chapter 10, "The Interceptor Framework"
- Chapter 11, "Federating User Profiles"
- Chapter 12, "Consumer Entitlement"
- Chapter 13, "Transferring Custom Data"
- Chapter 14, "Other Topics and Best Practices"


Most of the work required to create federated portals happens in the *development* phase of the portal life cycle.




Some of the tasks described in this chapter require you to use Workshop for WebLogic features to create remote portlets, implement interportlet communication, publish portlets to a UDDI registry, and create interceptors. Some features, such as interceptors, require Java coding expertise. Other features, such as user profile mapping, require you to edit configuration files.

For more information about the portal life cycle, see the *WebLogic Portal Overview*.

CHAPTER 4

# Creating Remote Portlets

This chapter focuses on how to use Workshop for WebLogic to create and configure remote portlets. This chapter includes the following sections:

- Introduction
- What Types of Portlets Can Be Remote?
- Creating a Remote Portlet

## Introduction

Before getting started, we recommend that you review the following chapters in the architecture part of this guide:

- Chapter 2, "What are Federated Portals?"
- Chapter 3, "Federated Portal Architecture"

.These chapters explain basic concepts such as producers, consumers, and remote portlets. This chapter assumes you familiar with these concepts.

**Note:** This chapter is primarily for developers using Workshop for WebLogic to create consumer portal applications. If you plan to use the WebLogic Portal Administration Console to create federated portals, see Part III, Staging.

## What Types of Portlets Can Be Remote?

WebLogic Portal applications can consume the following types of portlets:

- Pageflow portlets
- JSP (JavaServer Pages) portlets
- JSF (JavaServer Faces) portlets
- Struts portlets
- Java portlets (supported only for complex producers)

To be consumable, a portlet must be deployed to a web application that is running in a WSRP-compliant producer. The consumer application must also be capable of contacting the producer using the producer's WSDL URL.

# Creating a Remote Portlet

This section presents a step-by-step example showing you how to create a remote (proxy) portlet in a consumer application using Workshop for WebLogic. This section includes the following topics:

- Overview
- Setting Up the Example
- Locating and Consuming a Portlet
- Viewing the Portlet
- Summary

## Overview

For this example, you will consume a portlet deployed in a producer application. The producer application in this example is a Portal Web application deployed to a WebLogic Portal Domain.

---

**Tip:** For information on working with a producer that is running in a WebLogic Server domain (as opposed to a WebLogic Portal Domain), see Chapter 8, "Configuring a WebLogic Server Producer."

---

The basic procedure for creating remote portlets is fairly simple: Workshop for WebLogic provides a convenient wizard for this purpose. No programming is required. The basic steps always include:

1. Locating a producer.
2. Selecting a remote portlet on the producer.
3. Consuming the portlet.

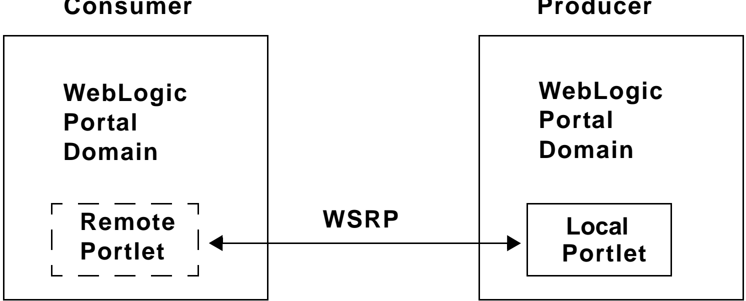
Figure 4-1 illustrates the basic parts of a federated portal, where the consumer includes a remote portlet. A remote portlet is a proxy for a portlet that is deployed in a producer application.

---

**Tip:** To an end user, the features of the remote portlet are indistinguishable from the actual portlet deployed on the producer. It is possible, however, to customize many of the properties of a proxy portlet, as explained in Chapter 5, "Configuring Remote Portlets."

---

**Figure 4-1 Remote Portlet in a Consumer**




# Setting Up the Example

If you want to try the example discussed in this section, you need to run Workshop for WebLogic and perform the prerequisite tasks outlined in this section.

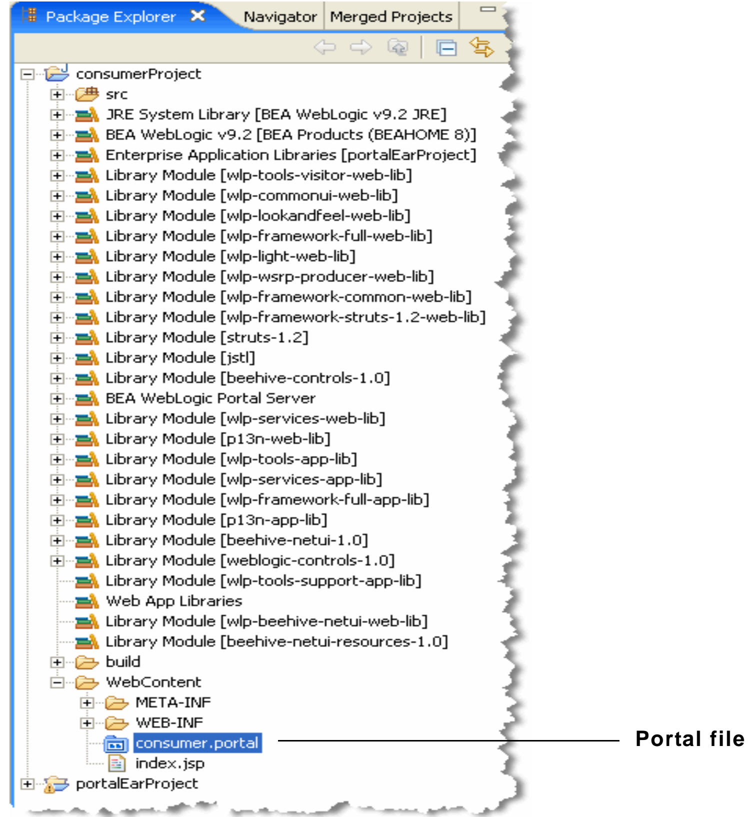
To set up the example environment, perform the prerequisite tasks outlined in Table 4-1. If you are not familiar with the specific procedures for these tasks, they are described in detail in the tutorial *Setting Up Your Portal Development Environment*.

**Table 4-1 Prerequisite Tasks**

| Task | Recommended Name |
| --- | --- |
| Create a WebLogic Portal domain. | `consumerPortalDomain` |
| Create a Portal EAR Project. | `portalEarProject` |
| Create a BEA WebLogic V9.2 Server. | N/A |
| Associate the EAR project with the server. | N/A |
| Create a Portal Web Project and add it to the EAR. | `consumerProject` |
| Create a portal. | `consumer.portal` |

Figure 4-2 shows the Package Explorer after the prerequisite tasks have been completed.

**Figure 4-2 Package Explorer After Prerequisite Tasks are Completed**




# Locating and Consuming a Portlet

1. Be sure you have set up the example environment as explained previously in "Setting Up the Example" on page 4-3.

2. Open the **consumerProject** folder in the Package Explorer, right-click on the **WebContent** folder, and select **New > Portlet**.

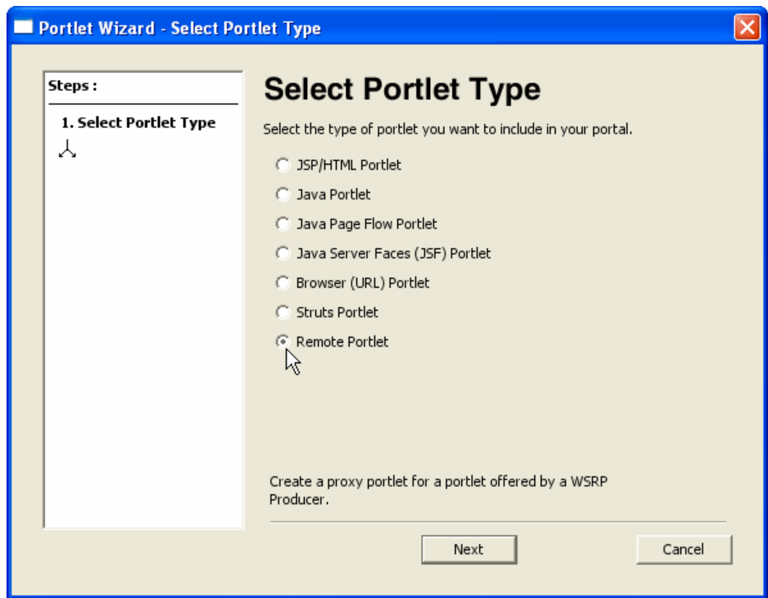
---

**Tip:** If you do not see the **Portlet** feature on the **New** menu, be sure to open the Portal perspective using **Window > Open Perspective > Portal**.

---

3. In the New Portlet dialog, enter `remoteExample.portlet` in the **File name** field, and click **Finish**. The Select Portlet Type dialog appears.
4. In the Select Portlet Type dialog, select **Remote Portlet**, as shown in Figure 4-3, and click **Next**. The Portlet Wizard – Producer dialog box appears.

**Figure 4-3 Select Portlet Type Dialog**




5. In the Portlet Wizard – Producer dialog, select **Find Producer** and, in the field provided, enter the following WSDL URL, as shown in Figure 4-4:

   `http://wsrp.bea.com/portal/producer?wsdl`

   You can use another WSDL URL if you want to. Just remember that the pattern for the URL is as follows:

   `http://`*`host`*`:`*`port`*`/`*`webAppName`*`/producer?wsdl`

   where host is the *`host`* and *`port`* are the hostname and port number of the server on which the producer is deployed, and *`webAppName`* is the name of the web application in which the producer's portlets are deployed.

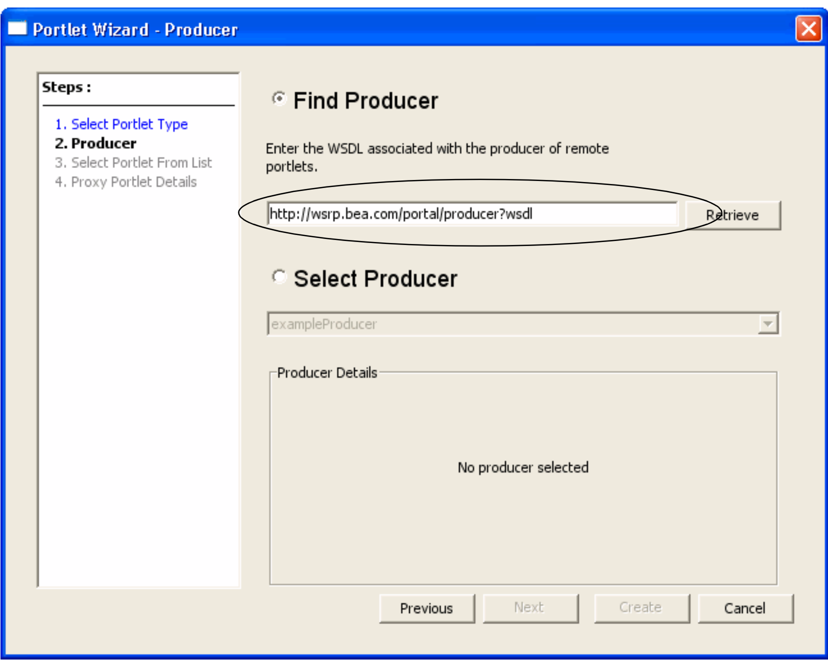
---

**Tip:** This WSDL URL points to an example producer hosted by BEA. This example producer hosts several demonstration portlets. WSDL stands for Web Services

Description Language and is used to describe the services offered by a producer. For more information, see Chapter 3, “Federated Portal Architecture.”

---

**Figure 4-4 Entering the WSDL**




6. After entering the WSDL URL, click **Retrieve**.

   **Checkpoint:** At this point, the consumer uses the WSDL to locate the producer and learn about its available portlets. The **Producer Details** section of the wizard panel now displays information about the producer, including the number of portlets that are available to the consumer, as shown in Figure 4-5.

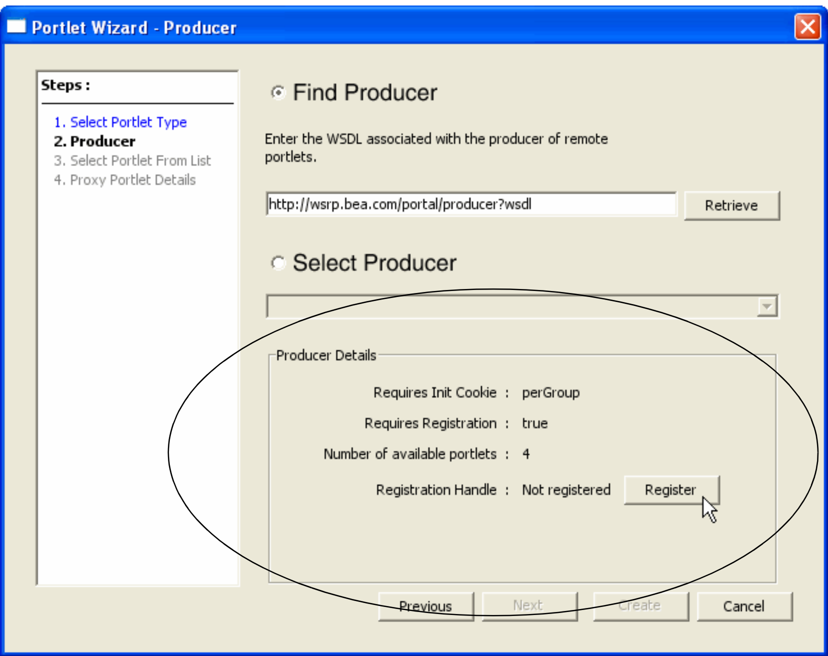
7. Click **Register** in the **Producer Details** section of the wizard panel, as shown in Figure 4-5. The Register dialog appears.

---

**Tip:** During registration, the producer stores information about the consumer and returns a handle to the consumer. Registration is an optional feature described in the WSRP specification. A WebLogic Portal complex producer implements this option and, therefore, requires consumers to register before discovering and interacting with

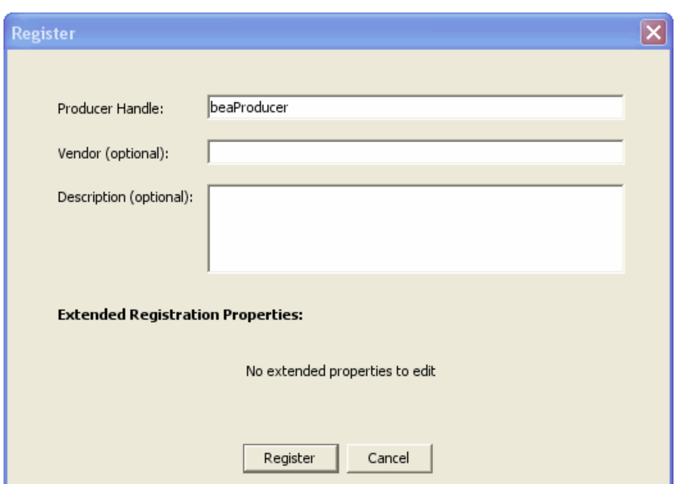
portlets offered by the producer. See "Complex Producers" on page 3-7 for more information.

**Figure 4-5 Producer Details**




8. In the Register dialog, enter `beaProducer` in the **Producer Handle** field, as shown in Figure 4-6. This handle identifies the producer on the consumer.

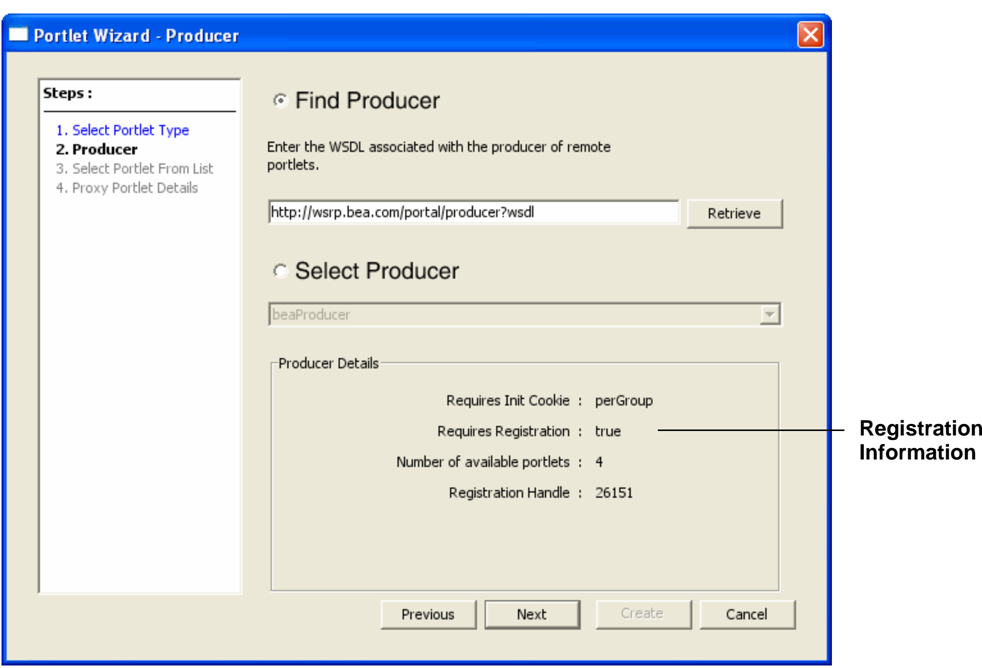
**Figure 4-6 Registering the Producer**




9. Click **Register**. You are returned to the Producer dialog.

   **Checkpoint:** At this point the WSDL data from the producer has been retrieved and is displayed in the **Producer Details** panel of the dialog, as shown in Figure 4-7. Note that four portlets on the producer are available to the consumer.

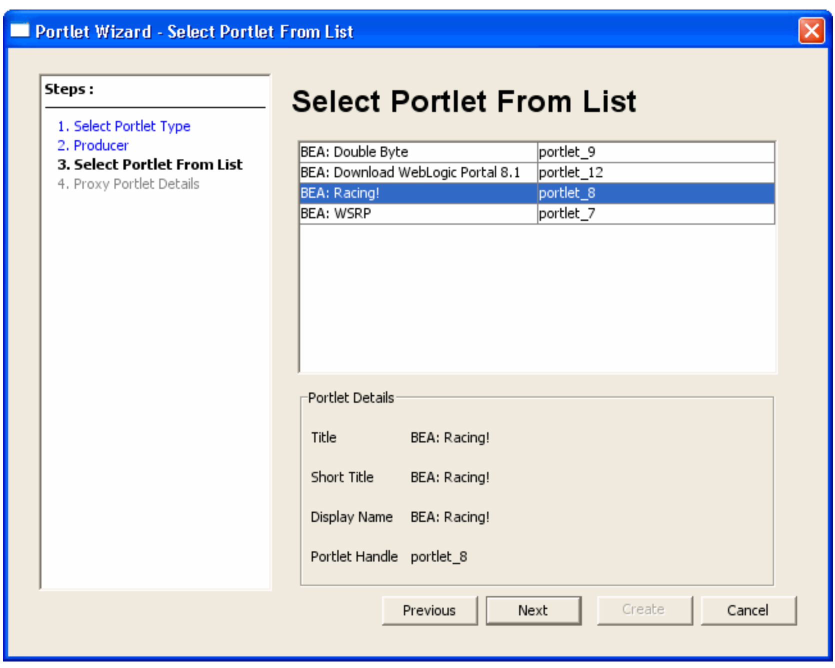
**Figure 4-7 Registration Information**




10. Click **Next** to proceed.

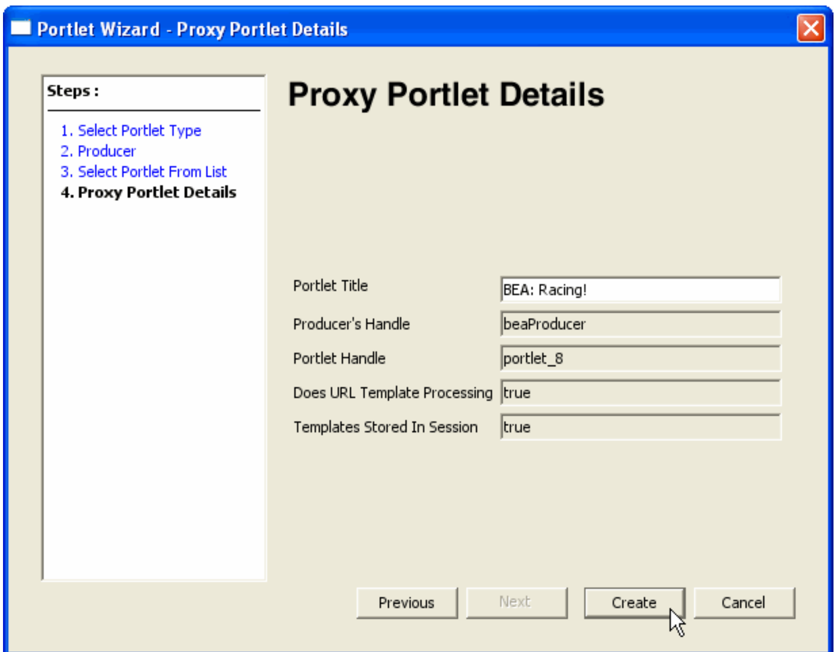
11. In the Select Portlet from List dialog, select one of the remote portlets from the list of portlets on the producer, as shown in Figure 4-8. You can pick any one of them.

**Figure 4-8 Select a Portlet on the Producer**




12. Click **Next**. The Proxy Portlet Details dialog appears. The title of the portlet you selected appears in the **Portlet Title** field, as shown in Figure 4-9. You can change this title if you want to.

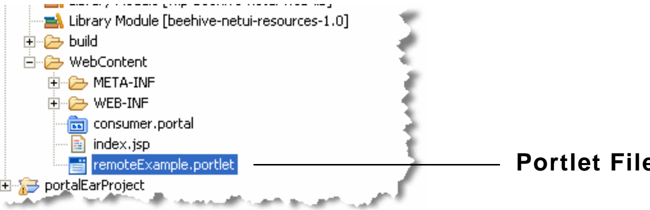
**Figure 4-9 The Proxy Portlet Details**




13. Click **Create**.

The new remote portlet shows up in the **Package Explorer** in the **WebContent** folder, as shown in Figure 4-10.

**Figure 4-10 Remote Portlet**

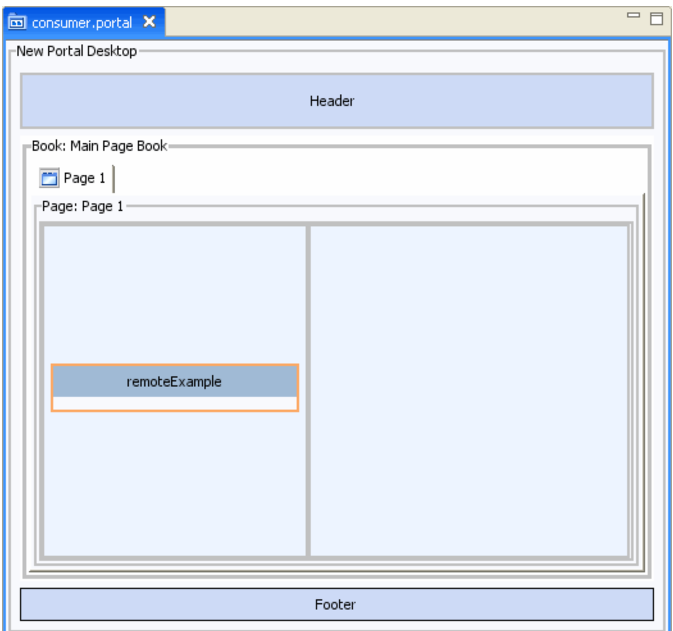



# Viewing the Portlet

To view the portlet, you need to add it to the consumer portal, as explained in this section.

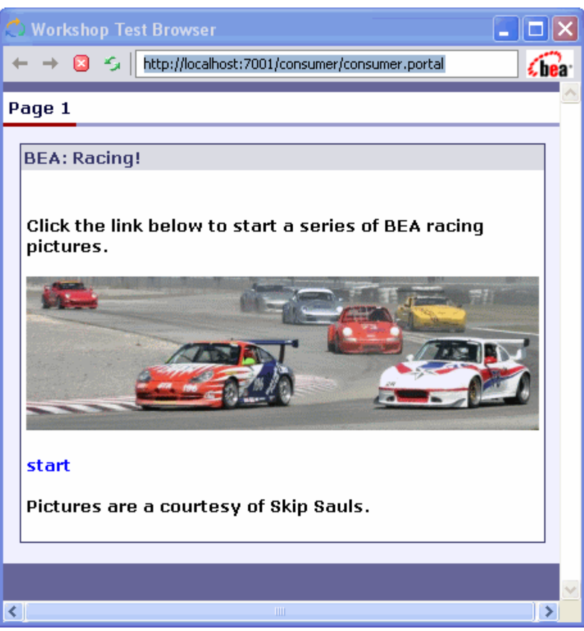
1. If it is not already open, open the **consumerProject/WebContent** folder.
2. Double-click the file **consumerPortal.portal** in **WebContent** folder. The portal editor appears in Workshop for WebLogic.
3. Drag the **remoteExample.portlet** file from the Package Explorer to the portal. The result is shown in Figure 4-11.

**Figure 4-11 Remote Portlet Placed in Portal**




4. To test the portal, right-click the portal filename, **remoteExample.portlet,** in the Package Explorer, and select **Run As** > **Run On Server**. The New Server – Define a Server dialog appears.
5. In the Run On Server – Define a New Server dialog, be sure the **BEA WebLogic v9.2 Server** is selected, and click **Finish**.
6. The portal containing the remote portlet appears in a browser, as shown in Figure 4-12.

**Figure 4-12 Federated Portal**




# Summary

In this section you added a remote portlet to a WebLogic Portal consumer application. The consumed portlet is a proxy for a portlet that is deployed in a remote producer application. In addition to the basic setup steps, this example demonstrated the following tasks:

- Discovering the producer using its WSDL URL
- Registering the producer
- Selecting a portlet from the producer
- Adding the remote portlet to a consumer portal
- Running a consumer portal

CHAPTER 5

# Configuring Remote Portlets

This chapter discusses ways you can modify and configure remote portlets within Workshop for WebLogic.

This chapter includes the following sections:


- Applying a Look and Feel to a Remote Portlet
- Modifying Modes and States in a Remote Portlet
- Handling Errors in Remote Portlets
- Setting Preferences on a Remote Portlet
- Using Backing Files with Remote Portlets
- Setting a Timeout Value on a Remote Portlet
- Modifying WSRP Markup and Messages
- Remote Portlet Properties


## Applying a Look and Feel to a Remote Portlet

The look and feel of a portlet determines the appearance of a portlet on the portal desktop. A remote portlet's look and feel is not linked to a producer, giving you the option of modifying the portlet's appearance on the consumer. This capability allows you to match the appearance of the consumer portal in which the proxy portlet resides.

Specific procedures for applying a look and feel to a portlet are documented elsewhere. Please refer to the *WebLogic Portal Development Guide* for detailed information on these topics:

- Creating Look & Feels
- Look & Feel Architecture
- The Portal User Interface Framework
- How Look & Feel Determines Rendering
- Style Sheet Class Reference
- Creating Skins and Skin Themes
- Creating Skeletons and Skeleton Themes

# Modifying Modes and States in a Remote Portlet

This section explains how to modify a remote portlet's modes and states and includes these topics:

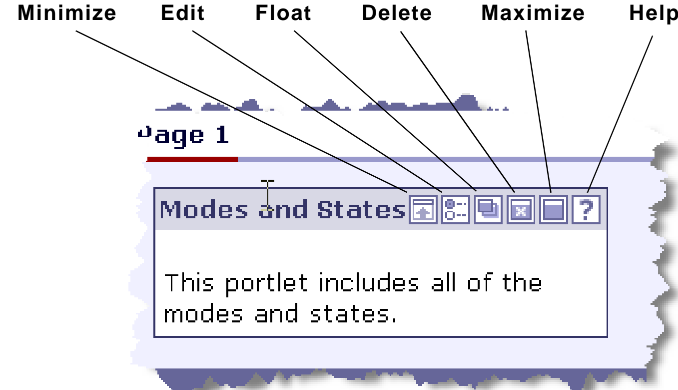
- What are Modes and States?
- Modes and States in Remote Portlets
- Changing Modes and States in Remote Portlets

## What are Modes and States?

A portlet's title bar can contain up to six buttons. These buttons provide convenient functions called modes and states.

Figure 5-1 shows an example portlet with all of the modes and states enabled.

**Figure 5-1 Portlet with Modes and States**




The modes include:

- **Edit** – Activates a custom file that lets you modify the portlet's content.
- **Help** – Activates a help file.

The states include:

- **Minimize** – Minimizes the portlet.
- **Maximize** – Maximizes the portlet.
- **Delete** – Removes the portlet from the portal.
- **Float** – Displays the portlet in a separate window.

For more detailed information on modes and states, how they work, and how to add and configure them in portlets, refer to the *Portlet User Guide*.

# Modes and States in Remote Portlets

Table 5-1 describes how states are transferred by default from a portlet deployed on a producer to its remote proxy in a consumer application. The table also indicates whether or not the state is editable in the remote portlet.

**Table 5-1 Default Behavior of States in Remote Portlets**

| State of Producer Portlet | Default State of Proxy Portlet | Is the Proxy Portlets's State Editable? |
|---|---|---|
| Delete = `true` | Delete = `false` | Yes |
| Delete = `false` | Delete = `false` | Yes |
| Maximize = `true` | Maximize = `true` | No |
| Maximize = `false` | Maximize = `false` | No |
| Minimize = `true` | Minimize = `true` | No |
| Minimize = `false` | Minimize = `false` | No |
| Float = `true` | Float = `false` | Yes |
| Float = `false` | Float = `false` | Yes |

Table 5-2 describe how modes are transferred by default from a portlet deployed on a producer to its remote proxy in a consumer application. The table also indicates whether or not the mode is editable in the remote portlet. For instance, if the Help mode is set in the portlet deployed on the producer, it is also set in the remote proxy; however, you cannot remove it from the remote proxy. On the other hand, if Help is not set in the portlet deployed on the producer, you are free to add it to the remote portlet.

**Table 5-2 Default Behavior of Modes in Remote Portlets**

| State of Producer Portlet | Default State of Proxy Portlet | Is the Proxy Portlets's State Editable? |
|---|---|---|
| Help = `true` | Help = `true` | No |
| Help = `false` | Help = `false` | Yes |
| Edit = `true` | Edit = `true` | No |
| Edit = `false` | Edit = `false` | Yes |

**Note:** Both the help and the edit mode each reference a file that provides appropriate content for those actions. For example, the help mode references a help file. For these modes to

work in a proxy portlet, the files they reference must exist on the consumer in the same relative location as they exist on the producer system.

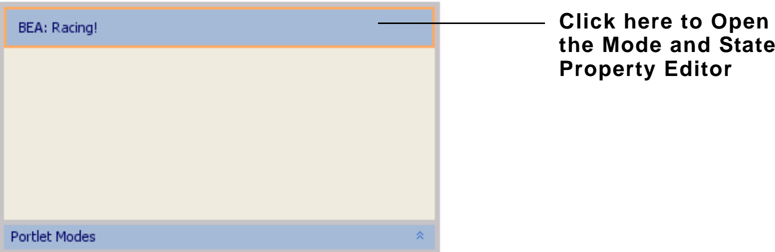
# Changing Modes and States in Remote Portlets

All of the modes and states that are available in local portlets are available in their remote proxies. Note, however, that when you create a remote portlet, it is not possible to edit (add or remove) all of the modes and states in the remote portlet. In addition, the Float state is always turned off in a remote portlet by default; however, you are free to add it to the remote portlet in the consumer application if you wish.

The procedure for changing the default mode and state settings in a remote portlet is the same as with a local portlet.

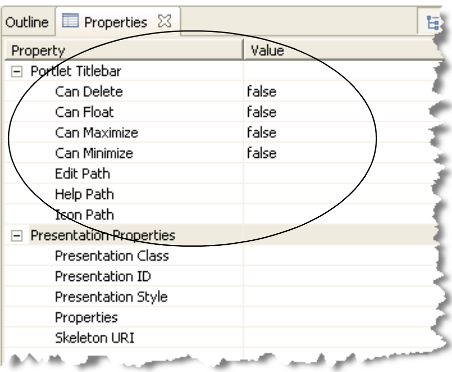
1. Double-click the portlet file in the Package Explorer view to open it in the editor.
2. Click in the header portion of the portlet in the editor, as shown in Figure 5-2. This opens the Portlet Titlebar properties in the Properties view, as shown in Figure 5-3

**Figure 5-2 Click in the Header of the Portlet**




3. Click on the Portlet Titlebar values to change them.

**Figure 5-3 Header Properties View**




# Handling Errors in Remote Portlets

Under some circumstances, a remote portlet may be unable to access its producer. In this case, the consumer throws an exception. This section explains how to handle this exception by displaying an error page.

There are two ways to configure an error page for a remote portlet to be displayed if the remote portlet is unable to connect to its producer. You can configure the page in Workshop for WebLogic or in the remote portlet's XML file.

---

**Tip:** For finer control of error handling, consider using interceptors. The interceptor framework is described in Chapter 10, "The Interceptor Framework."

---

This section includes these topics:

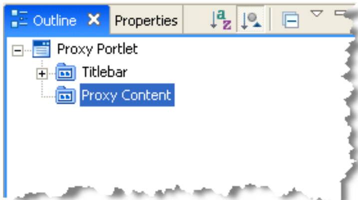
- Configuring an Error Page in Workshop for WebLogic
- Configuring an Error Page in the .portlet File

## Configuring an Error Page in Workshop for WebLogic

To configure an error page for a remote portlet using Workshop for WebLogic, do the following:

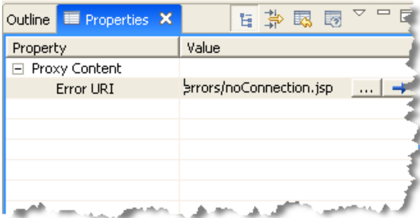
1. In Workshop for WebLogic, display the Outline view for the remote portlet. To do this, select **Window > Show View > Other**. In the Show View dialog, select **Basic > Outline**.
2. In the Outline View, click Proxy Content, as shown in Figure 5-4.

**Figure 5-4 Selecting the Proxy Content Node**




3. Click the Properties tab to display the Properties view for the Proxy Content. This view contains one property, **Error URI**, as shown in Figure 5-5.

**Figure 5-5 Entering the Error Filename**




4. In the **Error URI** field, enter (or browse to) the name of the error file you want to associate with the portlet. The portlet displays this page in the event of an error.

   The Error URI specifies a file path that is relative to the project in which the remote portlet is located.

# Configuring an Error Page in the .portlet File

You can also configure an Error URI in a remote portlet's `.portlet` file. To do this, open the `.portlet` file and add the following element, where the value of the `errorUri` attribute is the name of the error file to be displayed:

```
<netuix:proxyPortletContent errorUri="errorFileName.jsp"/>
```

The `errorURI` attribute specifies a file path that is relative to the project in which the remote portlet is located.

Listing 5-1 shows the complete XML file for a remote portlet, with an example `<netuix:proxyPortletContent>` element highlighted in bold.

**Listing 5-1 Remote Portlet XML File**

```
<?xml version="1.0" encoding="UTF-8"?>
<portal:root
    xmlns:netuix="http://www.bea.com/servers/netuix/xsd/controls/netuix/1.0.0"
    xmlns:portal="http://www.bea.com/servers/netuix/xsd/portal/support/1.0.0"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://www.bea.com/servers/netuix/xsd/portal/support/1.0.0
portal-support-1_0_0.xsd">

    <netuix:proxyPortlet
        cacheExpires="300" definitionLabel="portlet_5_1" description=""
        doesUrlTemplateProcessing="true" forkRender="false"
        forkable="false" groupId="Consumer" portletHandle="portlet_5"
        producerHandle="consumerProducer" renderCacheable="true"
        templatesStoredInSession="true" title="Remote Preferences">
        <netuix:titlebar><netuix:maximize/><netuix:minimize/></netuix:titlebar>
        <netuix:proxyPortletContent errorUri="error.jsp"/>
    </netuix:proxyPortlet>
</portal:root>
```

# Setting Preferences on a Remote Portlet

Portlet preferences function in remote portlets in much the same way as they do in local portlets. Just as with local portlets, remote portlets can take advantage of portlet preferences to allow users to customize the presentation of the portlet.

This section discusses the use of portlet preferences in remote portlets and includes these topics:

- What is a Portlet Preference?
- Portlet Preferences and Remote Portlets
- Managing Portlet Instances through Registration

**Note:** This section assumes that you are familiar with the concept of a portlet preference and how to create and configure portlet preferences. If you are unfamiliar with portlet preferences, see the *Portlet Development Guide*.

# What is a Portlet Preference?

Portlet preferences allow portlets to modify, store, and access pre-defined String values. When these preference values are retrieved by a portlet, they typically affect the way the portlet is displayed for a given user. For example, a stock portfolio portlet might allow users to specify which stocks they want to view. Through a user interface, users select or enter which stocks they want to view in the portlet. The list of stocks is then passed to the server and stored in the database for that particular user. As long as a portlet preference is modifiable, and an interface is provided for editing preferences, every user of a portlet can configure his or her own personal view of the portlet.

A clearly defined API exists for setting and retrieving preferences. Developers can create preferences in Workshop for WebLogic, and administrators can create and edit preferences using the WebLogic Portal Administration Console.

# Portlet Preferences and Remote Portlets

In a federated configuration, the producer stores and manages portlet preferences. When you view or modify the preferences in a remote portlet (on a consumer), the consumer must fetch the preferences from the producer, and modifications must be sent back to the producer where they are stored.

**Note:** Portlet preferences are included in the WebLogic Portal implementation of WSRP producers. Other WSRP producer implementations may not support portlet preferences.

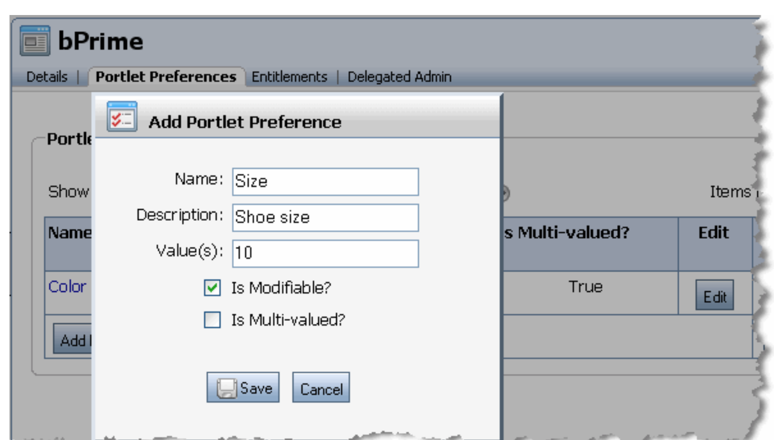
## Viewing and Modifying Preferences

You can view and modify the portlet preferences for a remote portlet using the WebLogic Portal Administration Console. The Administration Console uses the Portlet Management interface of WSRP to retrieve preferences from the producer and modify them.

**Note:** It is not possible to create or modify portlet preferences in a remote portlet using Workshop for WebLogic.

Figure 5-6 shows the interface for creating a portlet preference in the WebLogic Portal Administration Console. A similar interface exists for editing a preference. For instance, you can change the default value for a preference, or make it read-only.

**Figure 5-6 Creating a Portlet Preference in the WebLogic Portal Administration Console**




---

**Tip:** Changes you make to a portlet preference in the Administration Console are scoped either at the Library level or the instance level. If you modify a portlet preference in the Library, all subsequent instances of that portlet will include the change. If you modify an instance (in the Portals folder) only that instance is affected. In other words, if the same portlet is used in several desktops, a new instance of the portlet is generated for each use. When you modify an instance of a portlet, only that instance is modified. Note that the first time a user updates a portlet preference, a new instance of the portlet is created, and the updated preferences are associated with the new instance. The WSRP registration interface provides a way for producers to keep track of new portlet instances created for remote portlets. See "Managing Portlet Instances through Registration" on page 5-12 for more information.

---

## Working with Preferences Programatically

Portlets can also create, retrieve, and modify preferences programmatically by obtaining a `javax.portlet.PortletPreferences` object. For instance, a page flow portlet can retrieve an instance of this object from the `PortletBackingContext` object in an action method. For example, the page flow action method shown in Listing 5-2 retrieves from a `FormData` object a preference set by a user, sets the preferences in a `PortletPreferences` object, and stores the preferences in the database using the `store()` method.

**Listing 5-2 Setting Portlet Preferences in an Action Method**

```
/**
 * @jpf:action
 * @jpf:forward name="success" path="index.jsp"
 */
 protected Forward setColor(ColorForm form) {

    //-- Retrieve a preferences object from the context.
    PortletBackingContext context =
    PortletBackingContext.getPortletBackingContext(getRequest());
    PortletPreferences prefs = context.getPreferences(getRequest());

    //-- Set the user's preference.
    try {
        prefs.setValue("color", (String)form.getColor()[0]);
    } catch (ReadOnlyException e) {
         e.printStackTrace();
    }

    //-- Store the user's preference.
    try {
       prefs.store();
    } catch (ValidatorException io) {
       io.printStackTrace();
    } catch (IOException ioe) {
       ioe.printStackTrace();
    }

    return new Forward("success");
 }
```

As noted previously, for a remote portlet, preferences are hosted and managed on the producer. No preference information is ever stored on the consumer.

## Additional Usage Notes and Restrictions

This section lists additional information about using portlet preferences in remote portlets.

- You cannot add portlet preferences to remote portlets consumed from a simple producer or from producers that have portal management disabled in the `wsrp-producer-config.xml file`.

- Portlets are not allowed to make persistent state changes during rendering. The `store()` method in `javax.portlet.PortletPreferences` throws an `IllegalStateException` if a portlet calls the `store()` method during the render phase of a portlet (that is, during the execution of the `getMarkup` operation).
- Portlets, whether remote or not, cannot be customized in any way, including the modification of portlet preferences, in either of these two cases: (a) the portlet is in a file-based portal (that is, rendered from a `.portal` file or (b) the user accessing the portlet is anonymous (not authenticated). Consumer portlets communicate this to the producer by sending a value of `readOnly` for the `portletStateChange` element in the `performBlockingInteraction` request.
- If the instance of a remote portlet is shared among several users, WebLogic Portal consumer sends a value of `cloneBeforeWrite` for the `portletStateChange` element. This value indicates to the producer that it must clone the portlet before making changes to preferences. If a portlet does indeed modify preferences, the producer returns a new `portletHandle` to the consumer. This new `portletHandle` replaces the original `portletHandle`.
- On subsequent requests, the consumer sends a value of `readWrite` indicating that the producer can allow portlets to modify preferences.

# Managing Portlet Instances through Registration

As discussed previously, whenever a user customizes a portlet by modifying portlet preferences, a new instance of the portlet is created. In the case of a remote portlet, the new instance is created on the producer, and the handle for that instance is returned to the consumer. Of course, as the number of users increases, the number of unique portlet instances can grow large in the producer space. If the consumer decides not to use the producer anymore, the producer needs to have a way of learning this and subsequently removing the portlet instances that are no longer needed. Portlet registration accomplishes this goal.

WebLogic Portal producers support registration by default for complex producers. If registration is enabled, consumers must register with a producer before accessing any of the producer's portlets. Once registered, the producer returns a `registrationHandle` to the consumer. The consumer must supply this handle on all future requests until the consumer is deregistered. When a consumer deregisters a portlet, the producer removes all of the portlet instances that were created for that consumer.

# Using Backing Files with Remote Portlets

Backing files let you programatically add functionality to a portlet by implementing (or extending) a Java class, which enables preprocessing (for example, authentication) prior to rendering the portal controls. You can attach a backing file to a portlet using the Backing File property in the Properties View in Workshop for WebLogic.

Backing files let you implement business logic at certain points of a portlet's lifecycle. In a local portlet, backing file methods are called in the following order:

- `init()`
- `handlePostbackData()`
- `preRender()`
- `dispose()`

A producer, however, executes backing file methods in an order that reflects the type of consumer request, as shown in Table 5-3.

**Table 5-3 Order of Backing File Method Execution in a Producer**

| Consumer Request | Order of Backing File Methods Called on the Producer |
|---|---|
| `getMarkup()` | `init()`, `preRender()`, `dispose()` |
| `performBlockingAction()` | `init()`, `handlePostbackData()`, `dispose()` |
| `handleEvents()` | `init()`, any event handler method, `dispose()` |

For detailed information about backing files, see the *Portlet Development Guide*. For an example that uses backing files with remote portlets, see Chapter 13, "Transferring Custom Data." See also "Life Cycle of a Remote Portlet" on page 3-13.

# Setting a Timeout Value on a Remote Portlet

Occasionally, a producer is slow to respond to a request from a remote portlet. In this case, the portal application in which the remote portlet is located remains unresponsive until the remote portlet's response is received. This section explains how to set timeout values for remote portlets.

This section includes these topics:

- Overview

- Setting Default Timeout Values
- Setting Timeouts for Individual Remote Portlets


# Overview

WebLogic Portal provides two timeout settings for remote portlets:

- **Connection Establishment Timeout** – The amount of time a remote portlet will wait for a connection response from a producer.
- **Connection Timeout** – The amount of time the remote portlet will wait for a response from a producer to which it is already connected.

You can set a default timeout limit for all remote portlets and a timeout limit for an individual remote portlet. The timeout set on an individual portlet takes precedence over the default.

The remote portlet connection timeout only works when a consumer is continually connected to a producer. The timeout is effective only for cases where the producer is slow to respond to a consumer, not for cases where the producer is physically unavailable (the connection is broken), or where a new connection is made. In these cases, the operating system's TCP timeout takes effect.

# Setting Default Timeout Values

To set default timeout values for all remote portlets in a web application, edit one or both of the elements shown in Listing 5-3. These elements appear in the configuration file `wsrp-producer-registry.xml` located in the `WEB-INF` directory of each portal web application.

**Listing 5-3 Connection Timeout Elements**

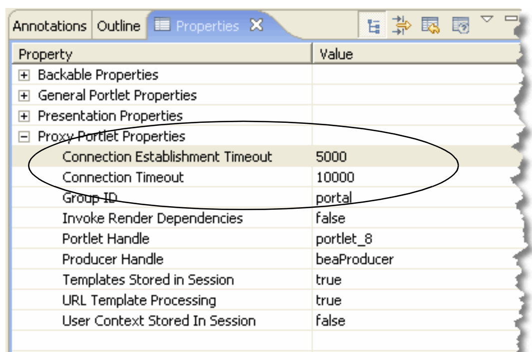
```
<connection-establishment-timeout-msecs>-1</connection-establishment-timeout-msecs>
<connection-timeout-msecs>120000</connection-timeout-msecs>
```

**Note:** Timeout values are in milliseconds.

## Setting Timeouts for Individual Remote Portlets

To set a connection establishment and/or a connection timeout for an individual remote portlet, open the Properties view for the portlet in Workshop for WebLogic and set values for the Connection Establishment Timeout and Connection Timeout properties, as shown in Figure 5-7. The timeout values are in milliseconds.

**Figure 5-7 Setting Timeout Properties**




# Modifying WSRP Markup and Messages

The Interceptor Framework is a consumer-side framework that lets you programatically intercept and modify markup and user interaction-related WSRP messages sent to and received from producers. The framework exposes a set of interfaces that you can implement. These interfaces let you examine the content of a WSRP message and take specific action based on that content. For example, if a producer sends a registration error back to the consumer, an interceptor can detect that error and display an informative message to the user or, perhaps, automatically return the information required to complete the registration.

For more information on creating interceptors, see Chapter 10, “The Interceptor Framework.”

# Remote Portlet Properties

This section lists and describes the set of Proxy Portlet Properties and other portlet properties that of interest to federated portal developers. This section includes these topics:

- Proxy Portlet Properties

- Other Portlet Properties

# Proxy Portlet Properties

Table 5-4 lists the Proxy Portlet Properties. These properties appear in the Properties list for remote (proxy) portlets.

**Table 5-4 Proxy Portlet Properties**

| Property | Value |
|---|---|
| Connection Establishment Timeout | **Optional.** The number of milliseconds after which this portlet will time out when establishing an initial connection with its producer. |
| Connection Timeout | **Optional.** The number of milliseconds after which this portlet will time out when communicating with its producer. If not specified here, the default value contained in the file `WEB-INF/wsrp-producer-registry.xml` is used. |
| Group ID | **Read-only** (assigned by the producer). If the producer associates this portlet within a group, the producer-assigned string appears here. Portlets with the same group ID from the same producer can share sessions. |
| Invoke Render Dependencies | **Read-only** (assigned by the producer). This boolean property allows the consumer to obtain render dependencies from the producer during the pre-render life cycle of a proxy portlet.<br>When a portlet on a producer has a `lafDependenciesUri` value, the producer exposes the `invokeRenderDependencies` boolean in the portlet description.<br>The value defaults to `false` if the attribute is not included in the `.portlet` file. The value is read-only, and is initialized from the producer whenever a proxy portlet is generated from the portlet wizard. |
| Portlet Handle | **Read-only** (assigned by the producer). The producer's unique identifier for the portlet that this proxy references. |
| Producer Handle | **Required.** The producer's unique identifier. |
| Templates Stored in Session | **Read-only** (assigned by the producer). Indicates whether the producer stores URL templates in the user's session on the producer side. This boolean is meaningful only when URL Template Processing boolean is set to `true`. |

**Table 5-4 Proxy Portlet Properties (Continued)**

| Property | Value |
|---|---|
| URL Template Processing | **Read-only** (assigned by the producer). Indicates whether the producer uses URL templates to create URLs. If true, the consumer supplies URL templates. If false, the producer rewrites URLs using special rewrite tokens. |
| User Context Stored In Session | **Read-only** (assigned by the producer). This boolean value defaults to `false` if the attribute is not included in the `.portlet` file.<br>This value is initialized from the producer whenever a proxy portlet is generated from the portlet wizard. |

# Other Portlet Properties

For a list of additional portlet properties, see the *Portlet Development Guide*.

CHAPTER 6

# Offering Books, Pages, and Portlets to Consumers

WebLogic Portal producer applications can offer books, pages, and portlets to consumers. This chapter explains the procedures and best practices involved in making books, pages, and portlets remoteable.

---

**Tip:** In this chapter, we use the term *remoteable* to refer to a book, page, or portlet that is deployed in a producer application. To be remoteable, the **Offer As Remote** property of the book, page, or portlet must be set to `true`, as explained in later in this chapter.

---

This chapter includes these sections:


- Introduction
- Offering Portlets on a Producer
- Offering Books and Pages on a Producer
- Rules for Creating Remoteable Books and Pages


## Introduction

A complex producer can offer remoteable books, pages, and portlets. When a page or book is offered as remote from a complex producer application, the nested contents of the page or book are, by default, also offered as remote. This means that you can group multiple portlets in a page, for example, and a WebLogic Portal consumer can then consume both the page and its portlets in one operation.

---

**Tip:** Portlets deployed in a simple application can also be remoteable; however, only complex producers can offer remoteable books and pages. See Chapter 8, "Configuring a WebLogic Server Producer" for more information on creating remoteable portlets in a WebLogic Server application. For information on simple and complex producers, see "Understanding Producers and Consumers" on page 3-4.

---

Table 6-1 summarizes which BEA tools you can use to create and consume remote books, pages, and portlets. Although you can consume remote portlets using Workshop for WebLogic, you cannot consume remote books and pages. Workshop for WebLogic does not provide a feature for locating and consuming remote books and pages. If you want to incorporate remote books and pages into a WebLogic Portal consumer application, you must use the WebLogic Portal Administration Console, see Chapter 17, "Adding Remote Resources to the Library."

**Table 6-1 List of BEA Tools for Creating and Consuming Remote Resources**

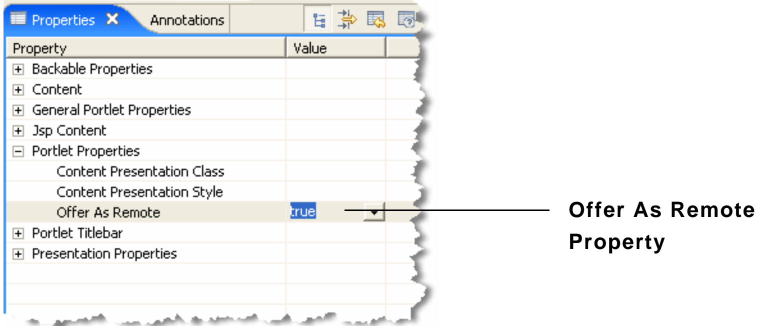
| Feature | Workshop for WebLogic | Administration Console |
| --- | --- | --- |
| Create remoteable books and pages | Yes | No |
| Create remoteable portlets | Yes | No |
| Consume remote portlets | Yes | Yes |
| Consume remote books and pages | No | Yes |

# Offering Portlets on a Producer

By default, all portlets deployed in a WebLogic Portal producer application are available to consumers as remote portlets. You can, however, specify which portlets are actually available to consumers by setting the **Offer As Remote** property in the **Properties** view for the portlet, as shown in Figure 6-6.

If you want a portlet to be available to consumers, set **Offer As Remote** to `true` (the default). If you want to hide a portlet from consumers, set **Offer As Remote** to `false`.

**Figure 6-1 Portlet Properties View**




For detailed information on creating portlets and setting properties, see the *Portlet Development Guide*.

# Offering Books and Pages on a Producer

If you want to create books and pages that are accessible to remote consumer applications, you must use Workshop for WebLogic.

To make a remoteable book or page in Workshop for WebLogic, as the following procedures explain, you must create the book or page as a standalone `.book` or `.page` file. In Workshop for WebLogic, you can do this by selecting **New** > **File** > **Other** > **WebLogic Portal** > **Book** (or **Page**).

---

**Tip:** For more information on creating and working with pages and books, see the *Portal Development Guide*.

---

This section includes these topics:

- Setting Up the Example
- Creating a Remoteable Page (or Book)
- Summary

# Setting Up the Example

If you want to try the example discussed in this section, you need to run Workshop for WebLogic and perform the prerequisite tasks outlined in this section.

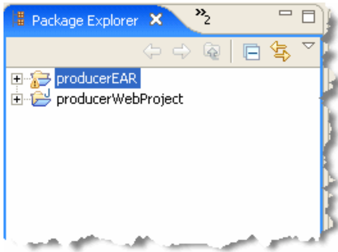
To set up the example environment, perform the prerequisite tasks outlined in Table 6-2. If you are not familiar with the specific procedures for these tasks, they are described in detail in the WebLogic Portal tutorial "Setting Up Your Portal Development Environment."

**Table 6-2 Prerequisite Tasks**

| Task | Recommended Name |
| --- | --- |
| Create a WebLogic Portal domain. | `producerPortalDomain` |
| Create a Portal EAR Project. | `producerEAR` |
| Create a BEA WebLogic V9.2 Server. | N/A |
| Associate the EAR project with the server. | N/A |
| Create a Portal Web Project and add it to the EAR. | `producerWebProject` |

Figure 6-2 shows the Package Explorer after the prerequisite tasks have been completed.

**Figure 6-2 Package Explorer After Prerequisite Tasks are Completed**




# Creating a Remoteable Page (or Book)

**Tip:** The procedure for creating a remoteable book is almost identical to the procedure for creating a page. Rather than reproduce both procedures here, we explain how to create a

remoteable page and, where appropriate, highlight any differences between the two procedures.

---

To create a page in a producer application that is accessible to consumer applications, start Workshop for WebLogic and do the following:

1. Create a Portal Web Project, as explained in the previous section.
2. Select **File** > **New** > **Other**.
3. In the New – Select a wizard dialog, open the **WebLogic Portal** folder, select **Page**, and click **Next**.

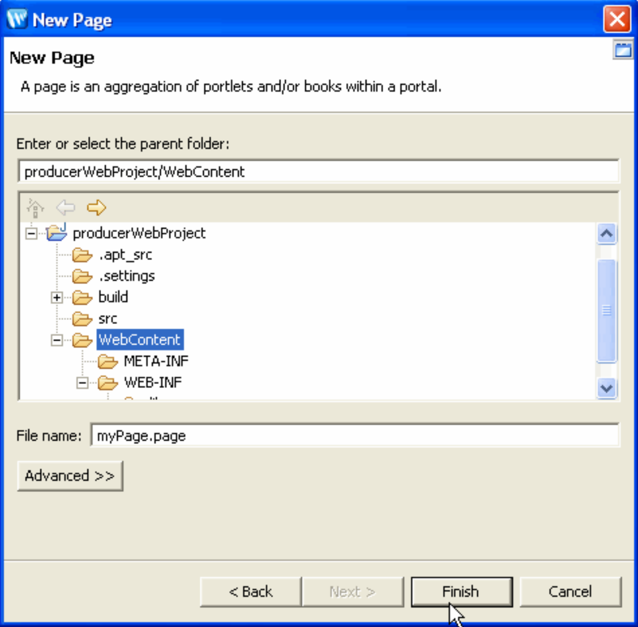
---

**Tip:** To create a remoteable book, select **Book** instead of **Page**.

---

4. In the New Page dialog, select a parent folder for the new page and enter a name for the page, as shown in Figure 6-3. In this example, the parent folder is `WebContent`, and the filename is `myPage.page`.

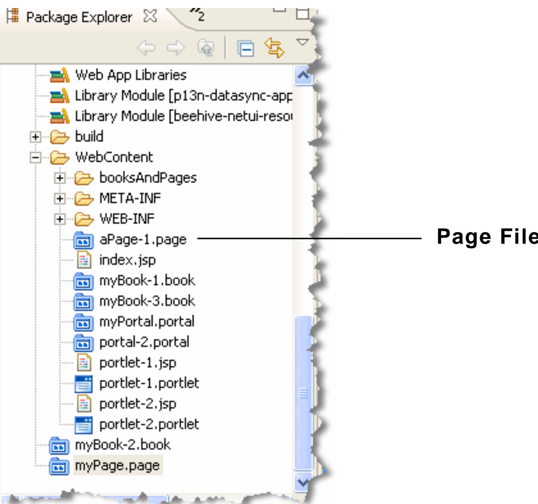
**Figure 6-3 New Page Dialog**



5. Click **Finish**.

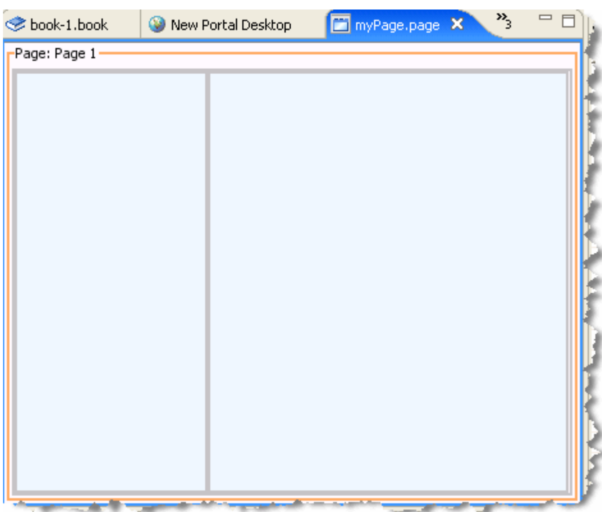
   **Checkpoint:** The file `myPage.page` is added to the Portal Web Project in the folder you specified, as shown in Figure 6-4.

**Figure 6-4 A New Page File**




In addition, the page opens in the editor, as shown in Figure 6-5.

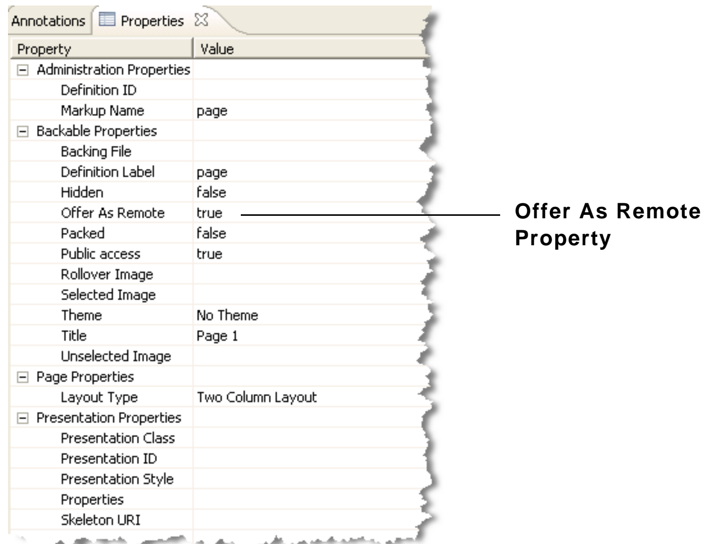
**Figure 6-5 Page File Displayed in the Editor**




6. Click on the border of the page to display the page's Properties view. If the Properties view is not currently available, select **Window > Show View > Properties**.

7. Note that, by default, the **Offer As Remote** property is set to `true` for this `.page` file, as shown in Figure 6-6. This property setting means that this page, and any books, pages, and portlets you add to it (according to the rules discussed in "Rules for Creating Remoteable Books and Pages" on page 6-8) will be visible to consumers if their respective **Offer As Remote** properties are also set to `true`.

**Figure 6-6 Offer As Remote Property**




## Summary

You can treat the page shown in Figure 6-5 like any other page. You can add books and portlets to it and you can drag and drop the page into a portal. If you create a remote book, you can add pages to it, and those pages can in turn contain portlets and other books.

# Rules for Creating Remoteable Books and Pages

The key points to remember with respect to making a page (or book) accessible to remote consumers are:

- If you have a book or page that is offered as remote, but none of the book's or page's contents (other books, pages, and portlets) are offered as remote, the book or page will not be visible to consumers. To be visible, a book or page must be offered as remote and must contain at least one other entity that is offered as remote.

  For example, Figure 6-7 shows a sample configuration. In this configuration, consumers can locate `Book_1`. To a consumer, `Book_1` contains one page, `Page_2`. Because `Page_1` is not offered as remote, it will not be visible to consumers, nor will any of its contents.

**Figure 6-7 Sample Configuration**

`Book_1` **(offered as remote = true)**

`Page_1` **(offered as remote = false)**

`Portlet_1` **(offered as remote = true)**

`Page_2` **(offered as remote = true)**

`Portlet_2` **(offered as remote = true)**

Figure 6-8 shows another sample configuration. In this case, `Book_1` is offered as remote; however, it is not visible to consumers. This is because none of its contents are offered as remote. `Page_1` is not offered as remote explicitly and `Page_2` is not offered as remote because it is empty (even though its property is set to `true`).

**Figure 6-8 Sample Configuration**

`Book_1` **(offered as remote = true)**

`Page_1` **(offered as remote = false)**

`Portlet_1` **(offered as remote = true)**

`Page_2` **(offered as remote = true)**

- Remoteable books and pages must be created as standalone `.book` and `.page` files as explained previously in "Creating a Remoteable Page (or Book)" on page 6-4.
- Changes to remoteable pages and books made on the producer cannot be propagated to consumers of those pages and books. This means that if you change a remoteable page or book in a producer application, and that page or book has already been consumed by consumer applications, the changes will not show up in the consumers.
- Portal Look & Feel elements that are used in `.page` and `.book` files must be replicated on the consumer. This means that Look & Feel files, such as `.layout`, `.theme`, and supporting JSP files that are used in a remoteable book or page must exist on both the producer and the consumer.
- A backing file placed on a remoteable `.book` or `.page` file in a producer application has no effect when the book or page is consumed.

CHAPTER 7

# Interportlet Communication with Remote Portlets

WebLogic Portal supports interportlet communication (IPC) between producers and consumers. For example, a remote portlet deployed in a producer application can handle a minimize event fired by a local portlet in a consumer. This chapter presents a detailed example explaining how to use interportlet communication with remote portlets.

This chapter includes these sections:


- Introduction
- Firing and Handling a Minimize Event
- Inside the Remote Portlet File
- Data Transfer with Custom Events


## Introduction

WebLogic Portal provides an extension to the WSRP protocol that allows remote portlets to fire events during the interaction phase of their lifecycle. For detailed information on the WebLogic Portal IPC architecture for federated portlets, see "Interportlet Communication with Events" on page 3-22.

Communication between portlets deployed in consumer and producer applications is bi-directional. Events fired by local portlets can be handled by portlets deployed in a producer, and vice versa.

The example in this chapter demonstrates one way to implement event handling in a federated portal. In this example, the event handler is added to the portlet on the producer. When a local

portlet on the consumer fires an event, the remote portlet on the producer receives the event and handles it (changes the text displayed in the portlet).

**Note:** Whenever you implement event handling in a federated environment, remember that you must add event handlers to portlets in the producer application before you create proxy portlets in consumers. If you change a producer portlet's metadata, such as by adding an event handler, consumers are not notified of that change. The correct procedure is to add the event handler to the portlet on the producer before you create the remote portlet on the consumer.

For additional information on IPC in WebLogic Portal, see the *Portlet Development Guide*.

# Firing and Handling a Minimize Event

This section presents a detailed example demonstrating how to use event handling in a remote portlet. In this example, a remote portlet on the consumer fires an onMinimize event. The onMinimize event is fired when a portlet is minimized. When the event is fired from a local portlet in a consumer, the event is handled on the producer. The onMinimize event is one of several standard events supported by the WebLogic Portal framework. For a complete list of standard events, see the *Portlet Development Guide*.

In this example, when the user minimizes the remote portlet on the consumer, the producer handles the event and changes some text in the portlet.

---

**Tip:** Remote portlets can also handle custom events. For detailed information on using custom events with remote portlets, see "Data Transfer with Custom Events" on page 7-23.

---

This example includes these steps:

1. Setting Up Your Environment
2. Creating the Portlets on the Producer
3. Creating the Consumer Portlets
4. Testing the Application

## Setting Up Your Environment

If you want to try the example discussed in this section, you need to run Workshop for WebLogic and perform the prerequisite tasks and set up the example environment.

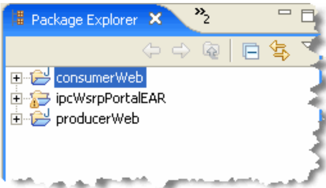
To set up the example environment, perform the prerequisite tasks outlined in Table 7-1. If you are not familiar with the specific procedures for these tasks, they are described in detail in the WebLogic Portal tutorial *"Setting Up Your Portal Development Environment."*

**Table 7-1 Prerequisite Tasks**

| Task | Recommended Name |
| --- | --- |
| 1. Create a WebLogic Portal domain. | `ipcWsrpDomain` |
| 2. Create a Portal EAR Project. | `ipcWsrpPortalEAR` |
| 3. Create a BEA WebLogic v9.2 Server. | N/A |
| 3. Associate the EAR project with the server. | N/A |
| 4. Create a Portal Web Project | `consumerWeb` |
| 5. Create a second Portal Web Project | `producerWeb` |

Figure 7-1 shows the Package Explorer after the prerequisite tasks have been completed.

**Figure 7-1 Package Explorer After Prerequisite Tasks are Completed**




# Creating the Portlets on the Producer

In this task, you create two JSP files on the producer-side, along with the JSP portlets that surface these files. You also create a backing file that contains the instructions necessary to complete the communication between two portlets and add an event handler to one of the portlets. Once you have created the portlets and attached the backing file, you will test the application in your browser.

## Create the JSP Files and Portlets

To create the JSP files that the portlets deployed on the producer will surface, do the following:

1. Be sure you have set up the example environment as explained previously in "Setting Up Your Environment" on page 7-2.
2. In the Package Explorer, double-click the file **producerWeb/WebContent/index.jsp**. The JSP file opens in the editor.
3. Replace the body text with the phrase `Minimize Me!`, as shown in Figure 7-2.

**Figure 7-2 aPortlet.jsp in the Editor**

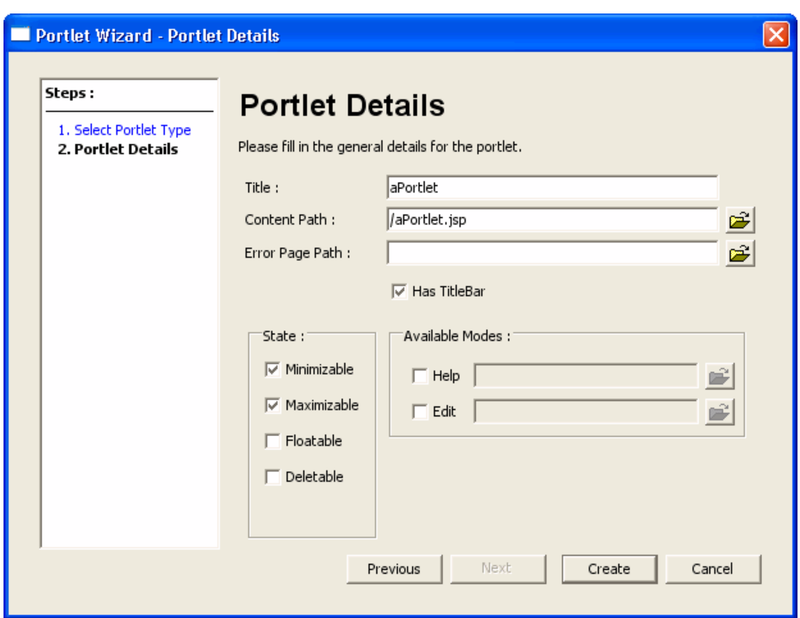
```
<%@ page language="java" contentType="text/html;charset=UTF-8"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-html-1.0" prefix="n
<%@taglib uri="http://beehive.apache.org/netui/tags-databinding-1.0" pr
<%@taglib uri="http://beehive.apache.org/netui/tags-template-1.0" prefi


<netui:html>
    <head>
        <netui:base/>
    </head>
    <netui:body>
        <p>Minimize Me!</p>
    </netui:body>
</netui:html>
```

4. Save the file as `aPortlet.jsp`.
5. Right-click `aPortlet.jsp` in the Package Explorer and select **Generate Portlet...**.

   The Portal Details dialog box appears (Figure 7-3). Note that `/aPortlet.jsp` appears in the **Content URI** field.

**Figure 7-3 Portal Details Dialog Box for aPortlet**




6. Select **Minimizable** and **Maximizable**, and click **Create**.

   The file `aPortlet.portlet` appears in the **producerWeb/WebContent** folder in the Package Explorer.

7. In the same directory, make a copy of `aPortlet.jsp`, and call the copy `bPortlet.jsp`.

8. Open `bPortlet.jsp` in the editor and copy the code from Listing 7-1 into the JSP, replacing everything from `<netui:html>` through `</netui:html>`. This code simply displays text placed in the request by a backing file, which you will create and attach to the portlet in a subsequent step.

**Listing 7-1 New JSP Code for bPortlet.jsp**

```
<netui:html>
   <% String event = (String)request.getAttribute("minimizeEvent");%>
      <head>
         <title>
            Web Application Page
```

```
            </title>
        </head>
        <body>
            <p>
                Listening for portlet A minimize event:<%=event%>
            </p>
        </body>
</netui:html>
```

Figure 7-4 shows the completed JSP source file in the editor.

**Figure 7-4 Updated JSP Source**

```
<%@ page language="java" contentType="text/html;charset=UTF-8"%>
<%@taglib uri="http://beehive.apache.org/netui/tags-html-1.0" prefix="netu
<%@taglib uri="http://beehive.apache.org/netui/tags-databinding-1.0" prefi
<%@taglib uri="http://beehive.apache.org/netui/tags-template-1.0" prefix='

<netui:html>
    <% String event = (String)request.getAttribute("minimizeEvent");%>
        <head>
            <title>
                Web Application Page
            </title>
        </head>
        <body>
            <p>
                Listening for portlet A minimize event:<%=event%>
            </p>
        </body>
</netui:html>
```

9. Save the file.

10. Following the same steps you used previously, generate a portlet from the `bPortlet.jsp` file.

**Checkpoint:** At this point the you have created the following files in the **producerWeb/WebContent** folder:

- `aPortlet.jsp`
- `aPortlet.portlet`

- `bPortlet.jsp`
- `bPortlet.portlet`.

## Create the Backing File

In this example, we use a backing file attached to the portlet in the producer to handle the onMinimize event fired on the consumer.

**Tip:** For detailed information on backing files, refer to the *Portlet Development Guide*.

To create the backing file, do the following:

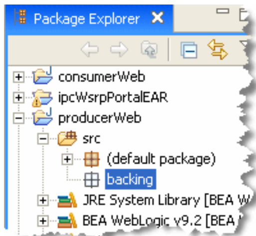
1. In **producerWeb**, right-click the **src** folder and select **New** > **Folder** from the menu. The Create New Folder dialog box appears.

   **Tip:** Alternatively, instead of a folder, you can create a Java package.

2. Create a folder called `backing`.

   The folder **backing** will appear under **producerWeb/src**, as shown in Figure 7-5.

**Figure 7-5 New Backing File Folder**




3. Right-click the **backing** folder and select **New > Class**. The New Java Class dialog appears.
4. In the **Name** field, enter `Listening` and click **Finish**. The new Java class appears in the editor.
5. Delete the default contents of `Listening.java`, and copy the code from Listing 7-2 into `Listening.java`.

**Listing 7-2 Backing File Code for listening.java**

```
package backing;

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

public class Listening extends AbstractJspBacking

{
     static final long serialVersionUID=1L;
     private static boolean minimizeEventHandled = false;

     public void handlePortalEvent(HttpServletRequest request,
        HttpServletResponse response, Event event)

    {
        minimizeEventHandled = true;
    }

    public boolean preRender(HttpServletRequest request, HttpServletResponse
         response)
    {
        if (minimizeEventHandled){

                request.setAttribute("minimizeEvent","minimize event handled");
        }else{
                request.setAttribute("minimizeEvent",null);
        }

        // reset
        minimizeEventHandled = false;

         return true;
    }
}
```

The source should now look like that shown in Figure 7-6.

**Figure 7-6 Listening.java with Updated Backing File Code**

```java
package backing;

import com.bea.netuix.servlets.controls.content.backing.AbstractJspBacking;
import com.bea.netuix.events.Event;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
public class Listening extends AbstractJspBacking
{
    static final long serialVersionUID=1L;
    private static boolean minimizeEventHandled = false;
     public void handlePortalEvent(HttpServletRequest request,
        HttpServletResponse response, Event event)
    {
        minimizeEventHandled = true;
    }
    public boolean preRender(HttpServletRequest request, HttpServletResponse
         response)
    {
        if (minimizeEventHandled){
                request.setAttribute("minimizeEvent","minimize event handled");
        }else{
                request.setAttribute("minimizeEvent",null);
        }
```

6. Save `Listening.java`.

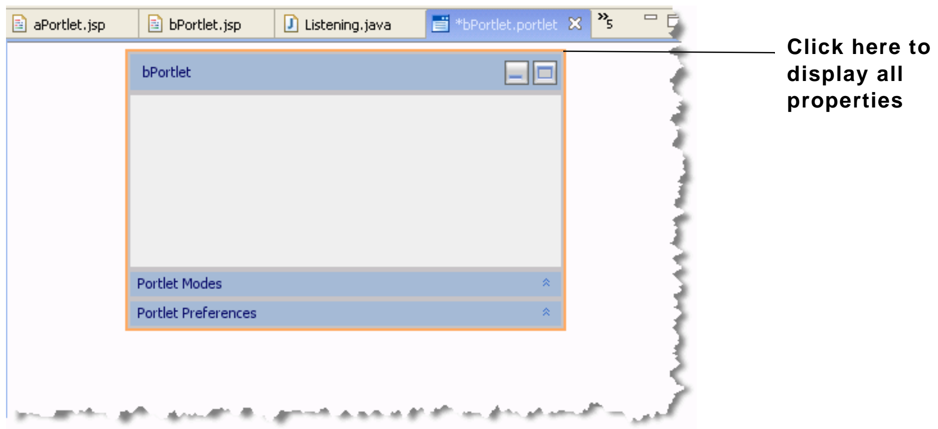
## Attach the Backing File

Now you will attach the backing file created in the previous section to `bPortlet.portlet`. Do the following:

1. In the Package Explorer, double-click `bPortlet.portlet` to open it.

2. Click on the portlet in the editor to display the portlet's properties. To be sure you see all the properties, click on the border of the portlet, as shown in Figure 7-7.

**Figure 7-7 Click to Display All Portlet Properties**




---

**Tip:** If the Properties view is not visible in your perspective, select **Window > Show View > Properties**. If you want to learn more about editing portlet properties, see the *Portlet Development Guide.*

---

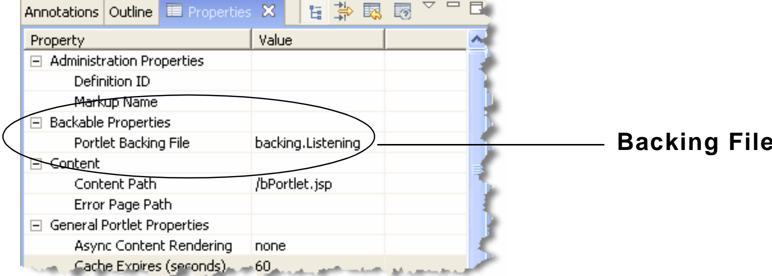
3. In the Properties view, type `backing.Listening` into the **Backable Properties > Portlet Backing File** field, as shown in Figure 7-8 and press Return.

---

**Tip:** You might need to expand the value column to enter text in the **Portlet Backing File** field.

---

**Figure 7-8 Attaching the Backing File in the Properties View**



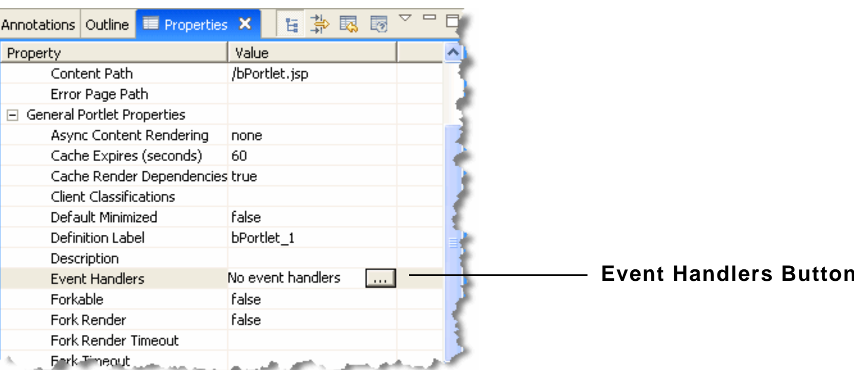
4. Save the file.

## Add the Event Handler to bPortlet

You now add the event handler to `bPortlet.portlet`. The handler will be configured to listen for an event fired by another portlet and execute an action in response to that event. To add the event handler, do the following:

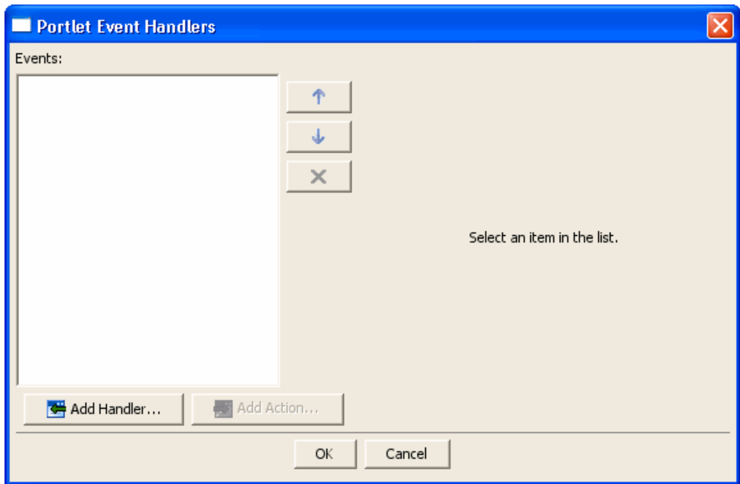
1. Be sure **bPortlet.portlet** is open. If it is not, double-click it in the Package Explorer.
2. Click on the portlet in the editor to display the portlet's properties, as shown previously in Figure 7-7.
3. In the Properties view, click in the **Event Handlers** > **Value** field. A button labelled with an ellipses (**...**) appears, as shown in Figure 7-9.

**Figure 7-9 Event Handlers Button**




4. Click the Event Handlers button (**...**) to bring up the Portlet Event Handlers dialog, as shown in Figure 7-10.

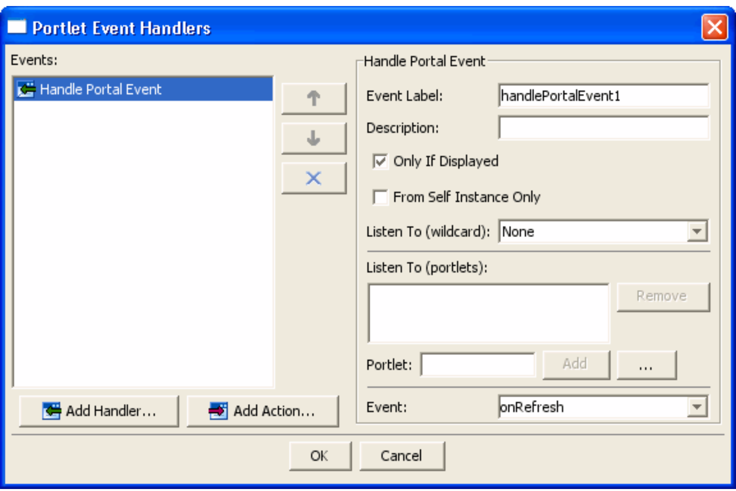
**Figure 7-10 Portlet Event Handlers Dialog Box**




5. Click **Add Handler** and select **Handle Portal Event** from the drop-down menu.

   The Portlet Event Handlers dialog box expands to allow entry of more details, as shown in Figure 7-11.

**Figure 7-11 Event Handler Dialog Box Expanded**




6. Accept the defaults for all fields except **Portlet**.

7. In the **Portlet** field, click the ellipses button (**...**). The Please Choose a File dialog box appears.
8. Select **aPortlet.portlet** and click **OK**.

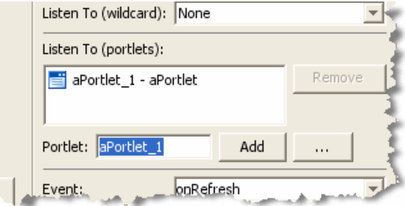
   The dialog box closes and **aPortlet_1** appears in the **Listen to** list and the **Portlet** field, as shown in Figure 7-12. The label **aPortlet_1** is the definition label of the portlet to which the event handler will listen.

---

**Tip:** The definition label is a nique identifier for the portlet. A default value is entered automatically, but you can change the value. Each portlet must have a unique value. See the *Portlet Development Guide* for more information.

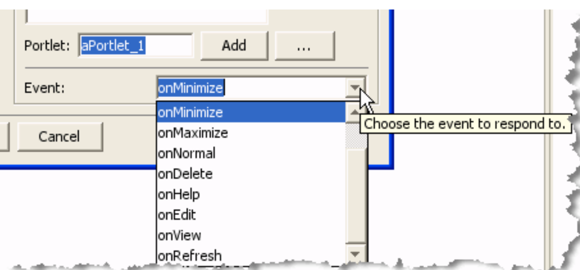
---

**Figure 7-12 Adding portlet_1**




9. Click the **Event** drop-down menu to open the list of portal events that the handler can listen for and select **onMinimize**, as shown in Figure 7-13.

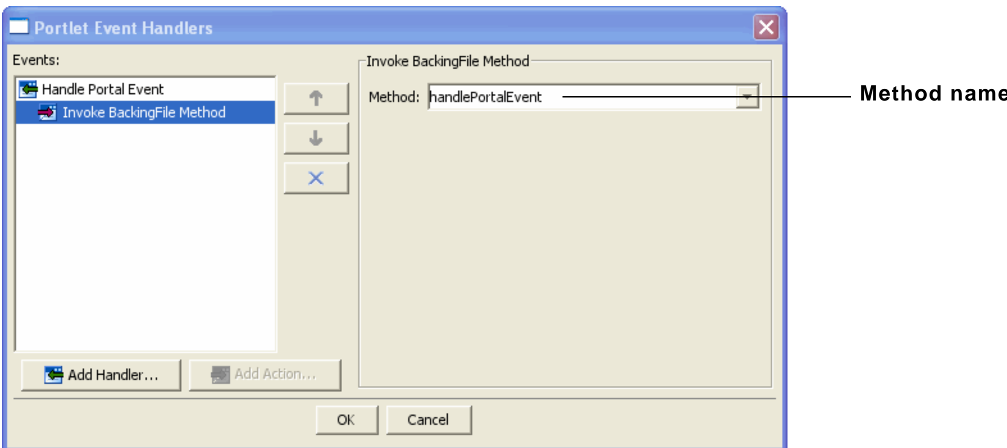
**Figure 7-13 Event Drop-down List**




10. Click **Add Action...** to open the action drop-down menu and select **Invoke BackingFile Method**.

11. Open the **Method** drop-down menu and enter `handlePortalEvent`, as shown in Figure 7-14. This method is defined in the backing file that is attached to **bPortlet**. The source code for the backing file was shown previously in Listing 7-2.

**Figure 7-14 Adding the Backing File Method**




12. Click **OK**.

    The event handler is added. Note that the **Value** field of the **Event Handlers** property now indicates **1 Event Handler**.

**Checkpoint:** You added a backing file and an event handler to **bPortlet**. The event handler is configured to invoke the handlePortalEvent() method in the backing file when the portlet receives an onMinimize event fired by **aPortlet**. In the next task, you test the application to make sure that the portlets function properly in a local environment. Then, you will create a remote portlet in a consumer application to test the interportlet communication in a federated portal environment.

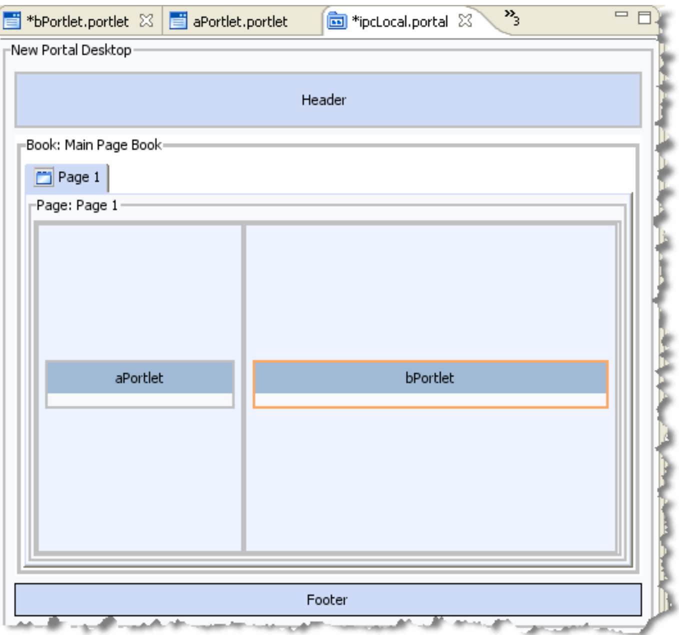
## Test the Application

Create a portal in the producer application called `ipcLocal.portal` by doing the following:

1. In the Package Explorer, right-click **producerWeb/WebContent** and select **New > Portal**. The New Portal dialog appears.
2. In the **File name** field, enter `ipcLocal.portal` and click **Finish**. The portal is created and appears in the editor.

3. Drag both `aPortlet.portlet` and `bPortlet.portlet` from the Package Explorer onto the portal layout, as shown in Figure 7-15.

**Figure 7-15 Portal Layout with Portlets Added**



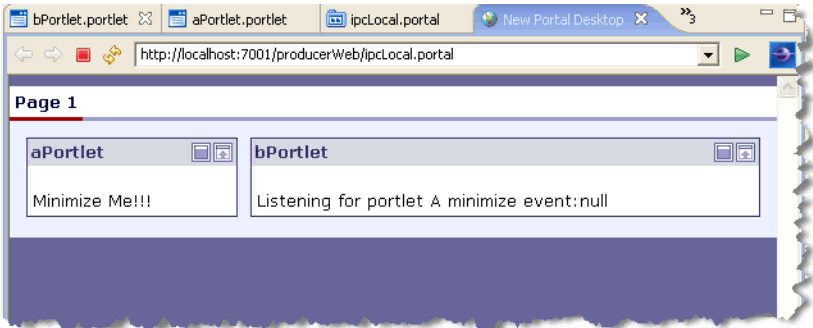

4. Save the portal.

5. Run the portal. To do this, right-click **ipcLocal.portal** in the Package Explorer and select **Run As** > **Run on Server**.

6. In the Run On Server – Define a New Server dialog, click **Finish**.

   The portal renders in the default browser, as shown in Figure 7-16.

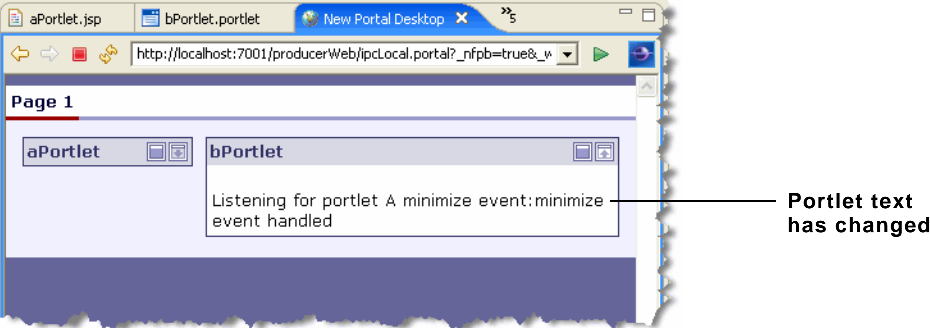
**Figure 7-16 ipcLocal Portal in Browser**




7. Minimize **aPortlet**.

   Note the content change in **bPortlet**.

**Figure 7-17 ipcLocal Portal with aPortlet Minimized**




## Summary

You created a portal containing two local portlets. You configured the portlet called **bPortlet** to respond to an onMinimize event fired from the portlet called **aPortlet**. The onMinimize event is a standard event that all WebLogic Portal portlets can fire. When **bPortlet** receives an onMinimize event, a backing file method is called that modifies the text displayed by the portlet.

In the following steps, you will create a federated portal that uses interportlet communication.

# Creating the Consumer Portlets

In this section, you create two portlets in the consumer application, one a JSP portlet and the other a remote portlet. The remote portlet consumes the portlet you created previously on the producer, `bPortlet.portlet`.

## Setting Up the Exercise

Before you continue with this exercise, do the following:

1. In the Package Explorer, copy **aPortlet.jsp** from the **producerWeb/WebContent** folder and paste it into the **consumerWeb/WebContent** folder. For convenience, we reuse this portlet from the producer application. Its function in the consumer portal is simply to provide a portlet that you can minimize.
2. Right-click **producerWeb/WebContent/aPortlet.jsp** and select **Generate Portlet**.
3. In the Portlet Details dialog, select **Minimizable**, **Maximizable**, and click **Create**. The new portlet layout appears in the editor.

## Creating the Remote Portlet

To create the remote portlet, do the following:

1. Open the **consumerWeb** folder in the Package Explorer, right-click on the **WebContent** folder, and select **New > Portlet**.
2. In the New Portlet dialog, enter `bPrime.portlet` in the **File name** field, and click **Finish**.
3. In the Select Portlet Type dialog of the Portlet Wizard, pick **Remote Portlet**, and click **Next**.
4. In the Producer dialog, select **Find Producer**.
5. Enter the producer's WSDL URL in the text field, as shown in Figure 7-18. The WSDL URL for this example is:

   http://*host*:*port*/producerWeb/producer?wsdl

   for example:

   `http://localhost:7001/producerWeb/producer?wsdl`

---

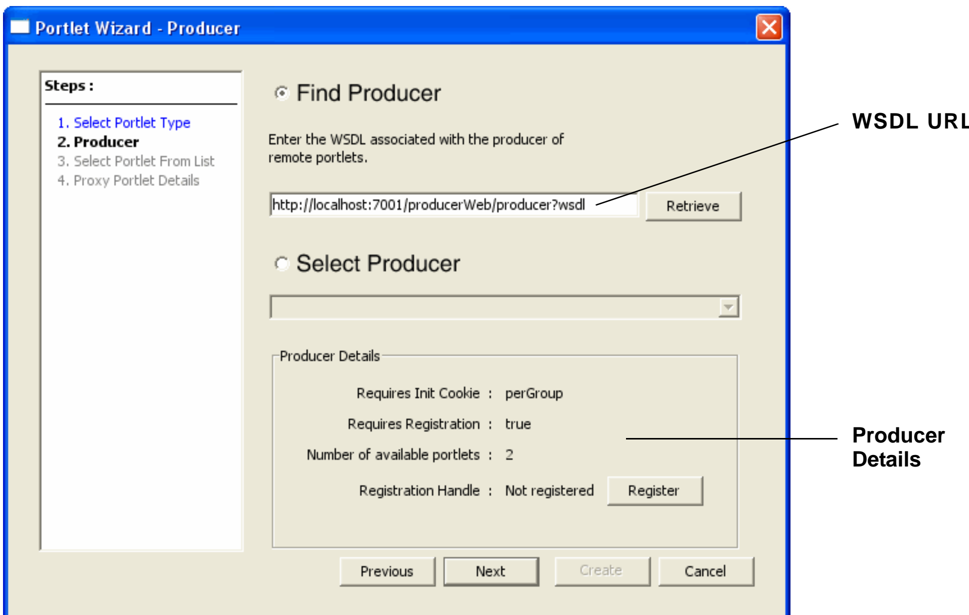
**Tip:** WSDL stands for Web Services Description Language and is used to describe the services offered by a producer. For more information, see Chapter 3, "Federated Portal Architecture."

---

6. Click **Retrieve**.

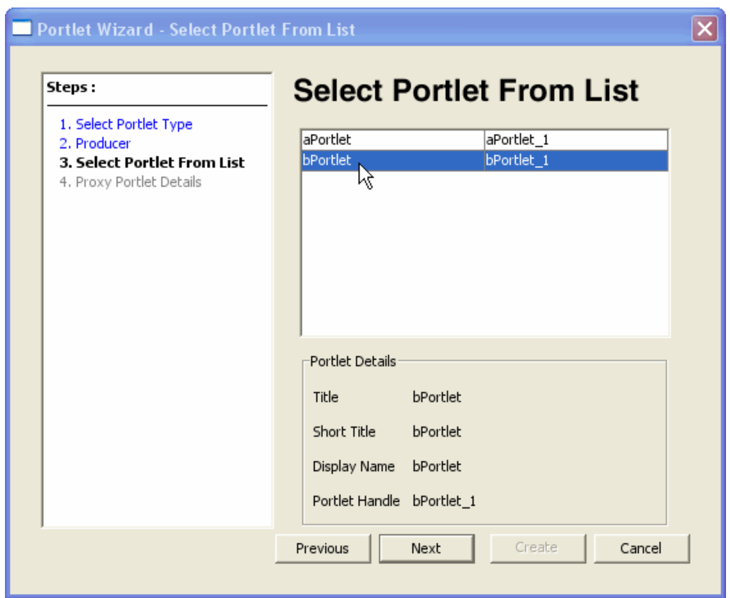
   After a few seconds, the dialog box refreshes, showing the **Producer Details**, as shown in Figure 7-18.

**Figure 7-18 Find Producer Dialog**




7. Click **Register**.
8. In the Register dialog, enter a name for the producer in the **Producer Handle** field, and click **Register**. You are returned to the Producer dialog.
9. In the Producer dialog, click **Next**. The Select Portlet from List dialog appears.
10. In the Select Portlet from List dialog, select **bPortlet**, as shown in Figure 7-19.

**Figure 7-19 Select Portlet From List Dialog Box**




11. Click **Next**. The Proxy Portlet Details dialog box appears.

12. Click **Create**.

    The remote portlet appears as `bPrime.portlet` in the **consumerWeb/WebContent** folder in the Package Explorer.

13. Change the portlet's title to `bPrime`. To do this, edit the **Title** field in the portlet's Properties view, as shown in Figure 7-20.

**Figure 7-20 Changing the Portlet Title**

14. Save the portlet.

---

**Tip:** In the Properties view for **bPortlet** (in the **producerWeb/WebContent** folder) be sure the **Render Cacheable** property is set to `false`.

---

## Summary

With the completion of the two consumer portlets, you have now created all of the necessary components to demonstrate interportlet communications between a remote and a local portlet. In the next step, you will add the consumer portlets to a consumer portal and raise an event on one portlet that will cause a reaction on the other.

# Testing the Application

In this step, you test the consumer application to verify that minimizing aPortlet will change the content of bPrime (the remote portlet). You create a portal and add the two portlets created in "Creating the Consumer Portlets" on page 7-17. You then build the application and view the portal in a browser.

## Build the Portal

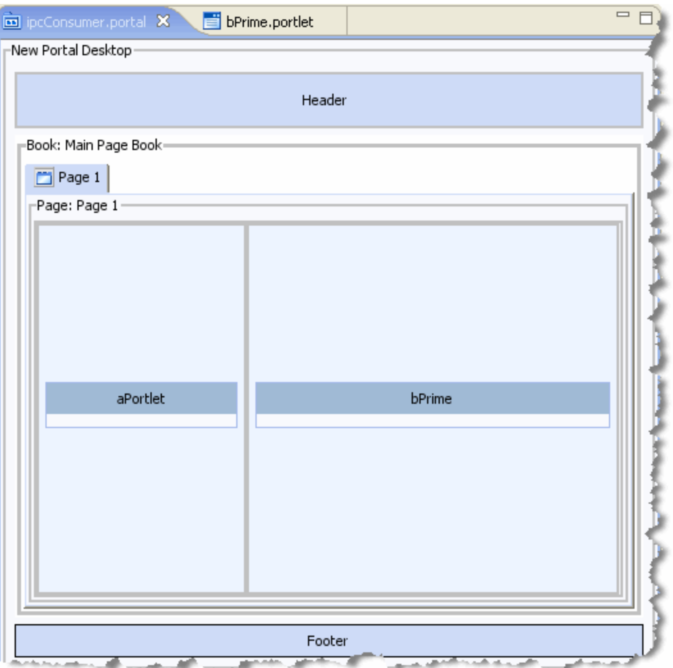
Create a portal in the consumer application called `ipcConsumer.portal` by doing the following:

1. In the Package Explorer, right-click **consumerWeb/WebContent** and select **New > Portal**. The New Portal dialog appears.

2. In the **File name** field, enter `ipcConsumer.portal` and click **Finish**. The portal is created and appears in the editor.

3. Drag both **aPortlet.portlet** and **bPrime.portlet** from the **consumerWeb/WebContent** folder onto the portal layout. The result is shown in Figure 7-21.

**Figure 7-21 Consumer Portal Layout**




4. Save the portal.

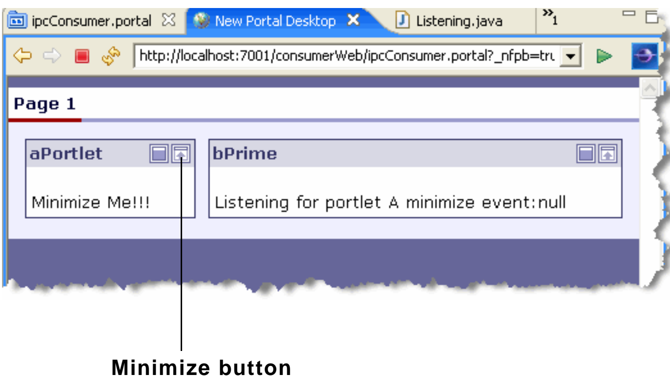
## Test the Portal

From a user's perspective, the consumer portal works exactly as if all portlets were local. The user is not aware that **bPrime** is a remote portlet hosted in a producer application. To test the consumer portlet, minimize **aPortlet**. The remote portlet, **bPrime**, responds changing the text it displays.

1. Run the portal. To do this, right-click `ipcConsumer.portal` in the Package Explorer and select **Run As > Run on Server**.

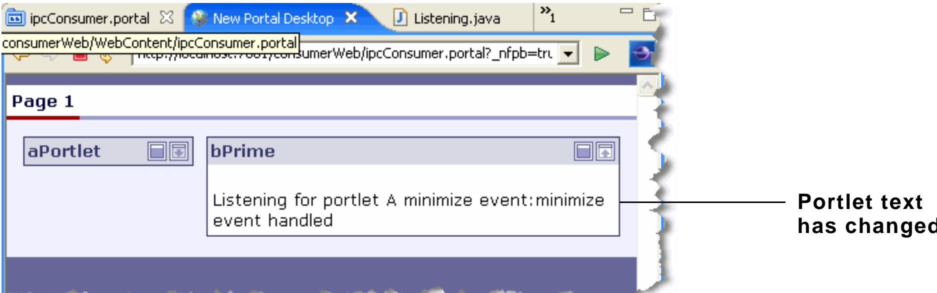
2. In the Run On Server – Define a New Server dialog, click **Finish**. A browser opens displaying the **ipcConsumer** portal, as shown in Figure 7-22.

**Figure 7-22 Consumer Portal in a Browser**




3. In **aPortlet**, click the **Minimize** button. The portlet **aPortlet** minimizes and the contents of **bPortlet** change, as shown in Figure 7-23.

**Figure 7-23 Consumer Portal in Browser After Minimize Event**




# Inside the Remote Portlet File

Listing 7-3 shows an excerpt from the XML content of a `.portlet` file for the remote portlet described previously in this chapter, `bPrime.portlet`. Note that the element `dispatchToRemotePortlet` is added as part of the `handleEvent` definition. This element indicates that the consumer must dispatch the event to the producer.

**Listing 7-3 Excerpt from the bPrime.portlet File**

```
...
<netuix:handleEvent event="onMinimize" eventLabel="handlePortalEvent1"
    fromSelfInstanceOnly="false" onlyIfDisplayed="true"
    sourceDefinitionLabels="aPortlet_1"> <netuix:dispatchToRemotePortlet/>
</netuix:handleEvent>
...
```

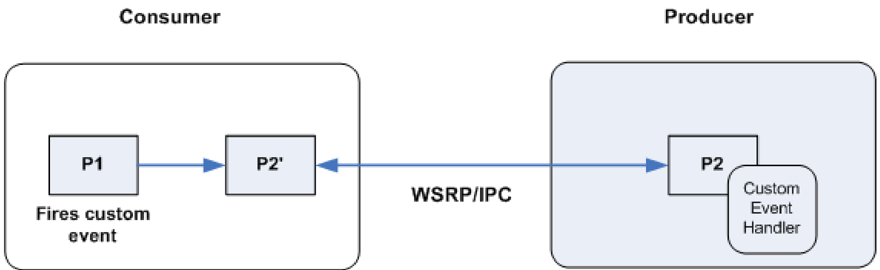
# Data Transfer with Custom Events

Custom events are the recommended method for passing data between portlets deployed in consumer applications and portlets in remote producer applications. This section outlines a possible technique for passing data from a consumer to a producer using custom events.

**Tip:** You can use custom events to pass any serializable Java object or an object that extends com.bea.wsrp.ext.holders.XmlPayload between federated portlets. XmlPayload is a WebLogic Portal class that lets you pass XML data between consumers and producers. See “Transferring XML Data” on page 13-26 for more information. Also, for more information on the XmlPayload interface, refer to its Javadoc description.

Figure 7-24 illustrates the configuration of the example discussed in this section.

**Figure 7-24 Example configuration**




- **P1** – A portlet on the consumer. This portlet gathers in a form. When the user submits this form, a custom event is fired. The form data is bundled into a payload object which is attached to the event object.

- **P2 –** A portlet on the producer. This portlet is configured to listen for the custom event fired by P1. When the event is received, the portlet unpacks the payload and displays it.
- **P2'** – A remote portlet on the consumer (a proxy for P2).

# Retrieving the Event on the Producer

This section illustrates how a portlet on the producer can be configured to handle a custom event containing a payload. In this case, the portlet is a Java portlet associated with the class shown in Listing 7-4.

**Listing 7-4 Sample Java Portlet Class**

```
import java.io.IOException;
import javax.portlet.PortletException;
import javax.portlet.GenericPortlet;
import javax.portlet.RenderResponse;
import javax.portlet.RenderRequest;
import javax.portlet.ActionResponse;
import javax.portlet.ActionRequest;
import com.bea.netuix.events.Event;
import com.bea.netuix.events.CustomEvent;

public class JavaPortlet extends GenericPortlet {

     public void getMessage(ActionRequest request, ActionResponse response,
                            Event event) {
           CustomEvent customEvent = (CustomEvent) event;
           String message = (String) customEvent.getPayload();
           response.setRenderParameter("message0", message);
     }

     public void doView(RenderRequest request, RenderResponse response)
           throws PortletException, IOException {

           String message = request.getParameter("message0");
           if (message == null) message = "";
           response.setContentType("text/html");
```

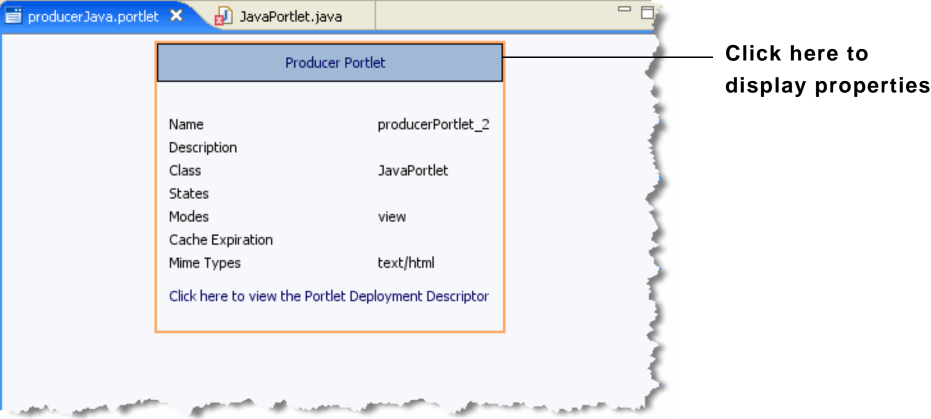
```
            response.getWriter().write("<p><b>Message From Consumer: </b>" +
             message + "</p>");
      }
}
```

The `getMessage()` method retrieves a custom event object. This object contains the payload that is sent from the consumer to the producer. In the following steps, you will create an event handler that listens for a custom event and calls the `getMessage()` method when this event is received. Note that in this case, the custom event is fired by a portlet deployed to the consumer application.

To configure the event handler in the producer portlet, follow this procedure:

1. In Workshop for WebLogic, create a Java portlet using the class shown in Listing 7-4.
2. In the Package Explorer, double-click the Java portlet file to open the portlet in the editor, as shown in Figure 7-25.

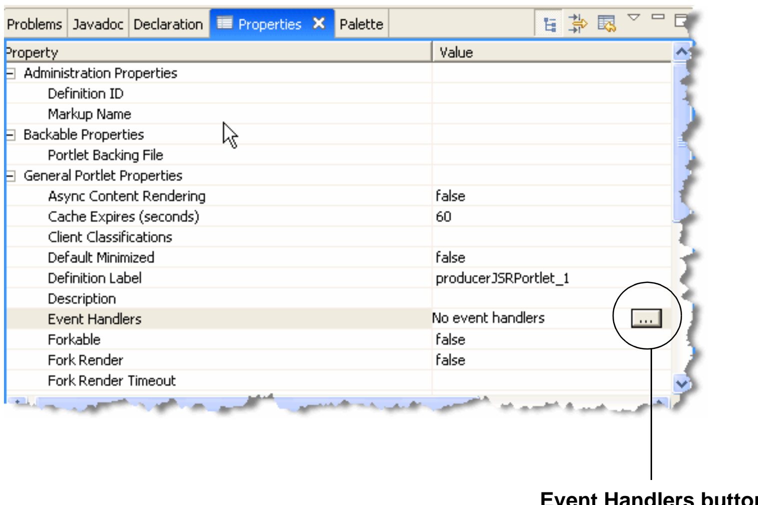
**Figure 7-25 Java Portlet in the Editor**




3. Click the outer border of the portlet to display the portlet's properties in the Properties view.
4. In the Properties view, click the **Event Handlers** button, shown in Figure 7-26, to open the Event Handler dialog box. The Portlet Event Handlers dialog box appears.

**Tip:** The Portlet Event Handlers dialog box lets you create and configure event handlers for a portlet. An event handler listens for an event and takes a specified action when the event is receieved.

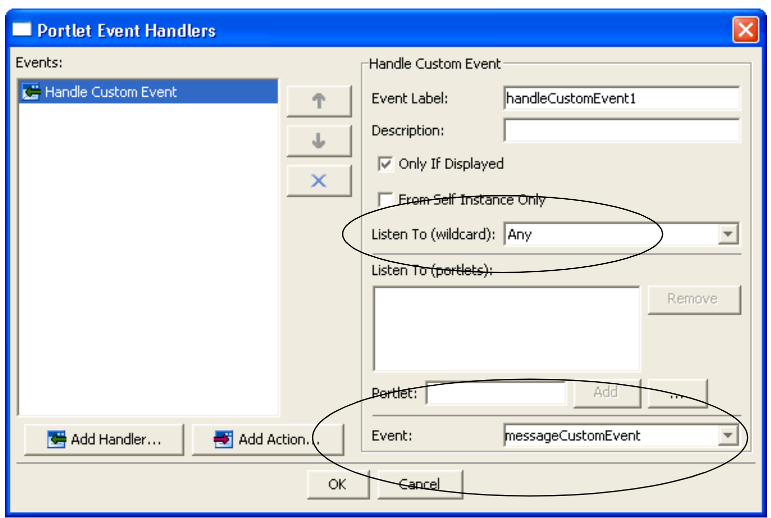
**Figure 7-26 Event Handlers Button**




5. In the Portlet Event Handlers dialog, click **Add Handler...** and from the pop-up menu, select **Handle Custom Event**.
6. Select **Any** from the **Listen To (wildcard)** dropdown list.
7. In the **Event** field (lower-right corner of the dialog) enter a name, such as `messageCustomEvent`.

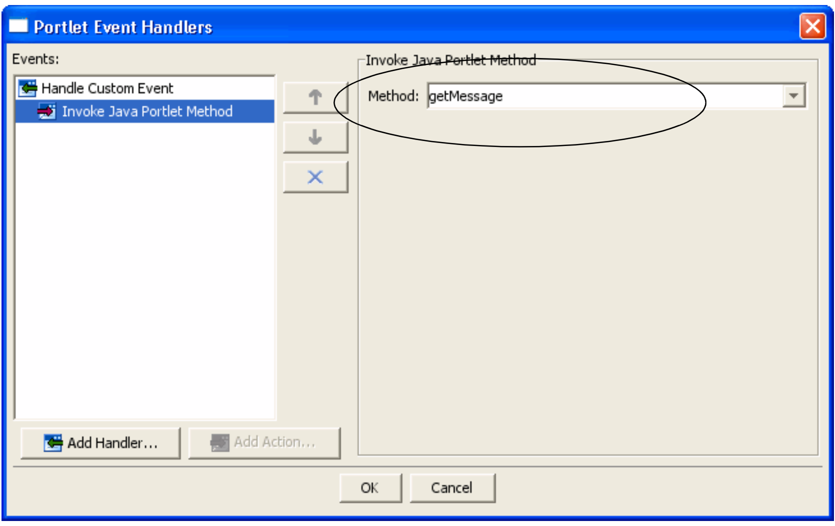
   Figure 7-27 shows the completed dialog.

**Figure 7-27 Portlet Event Handlers Dialog: Add Handler**




8. Select **Add Action...** in the Portlet Event Handlers dialog and from the pop-up menu, select **Invoke Java Portlet Method**.
9. In the **Method** field, enter `getMessage`, as shown in Figure 7-28, and click **OK**.

**Figure 7-28 Portlet Event Handlers Dialog: Add Action**



The Java portlet is now configured to handle a custom event called `messageCustomEvent`. When this event is received, the handler calls the `getMessage()` method in the JavaPortlet class. This event handler provides the mechanism for interportlet communication between this portlet on the producer and other portlets, including portlets on a remote consumer.

# Firing the Event in the Consumer

A consumer portlet can be configured to fire a custom event, which is then handled on the producer. Listing 7-5 illustrates code that could be used in a local portlet on the consumer to fire a custom event and attach a payload to that event.

**Listing 7-5 Sample Event-Firing Code**

```
PortletBackingContext context =
PortletBackingContext.getPortletBackingContext(getRequest());
context.fireCustomEvent("messageCustomEvent", form.getMessage());
return new Forward("success");
```

Refer to the Javadoc for more information on the `fireCustomEvent()` method. For more information on portlet development and event handling, see the *Portlet Development Guide*.

CHAPTER 8

# Configuring a WebLogic Server Producer

By default, WebLogic Portal projects deployed to a WebLogic Portal domain are configured to function as WSRP producers. If you want to use a Basic WebLogic Server or WebLogic Express domain as a producer, some configuration is required. This chapter explains how to configure a Basic WebLogic Server or WebLogic Express domain as a WSRP producer. Portlets deployed to the server can then be used by consumer applications.

This chapter includes the following topics:

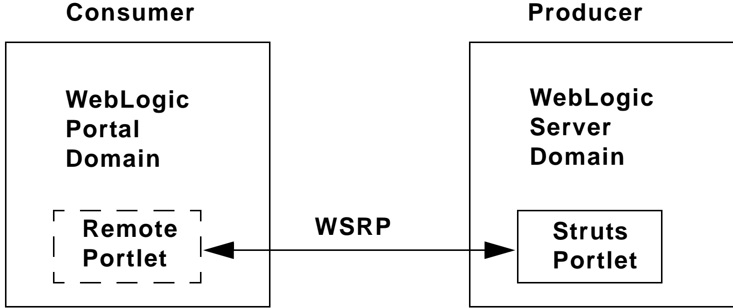

- Introduction
- Using WSRP in a Basic WebLogic Server Domain
- Configuring a Web Project
- Testing the Producer Configuration


## Introduction

This chapter explains how to configure a basic WebLogic Server domain as a WSRP producer. The example in this section assumes that you have a functioning Struts module deployed in a WebLogic Server domain. The goal of this procedure is to create a portlet in a producer that can be consumed remotely.

By following this procedure, you can expose a Struts application as a remote portlet that a WebLogic Portal application can consume, as illustrated in Figure 8-1.

**Figure 8-1 WebLogic Server Producer**




To configure a WebLogic Server domain to be a WSRP producer involves two steps:

- Create a basic WebLogic Server domain.
- Extend the domain to include the producer components.
- Create or reconfigure a web project to include appropriate WebLogic Portal facets that are required for the project to host remoteable components, such as Struts applications.

# Using WSRP in a Basic WebLogic Server Domain

This section explains how to configure a WebLogic Server domain as a producer. You might do this if you want to make portlets available to consumers, but do not want to install the full WebLogic Portal product on your server.

---

**Tip:** A producer created in this way is a simple producer. A simple producer is a producer that offers core WSRP services without requiring a full WebLogic Portal installation. In this configuration, some advanced features, such as registration and interportlet communication, are not supported. For more information on simple and complex producers, see "Understanding Producers and Consumers" on page 3-4.

---

The basic steps you need to perform to enable a WebLogic Server domain to be a WSRP producer are:

- Create a WebLogic Server Domain

  In this step, you use the BEA WebLogic Configuration Wizard to create a WebLogic Server domain with the appropriate elements.

- Extend the WebLogic Server Domain

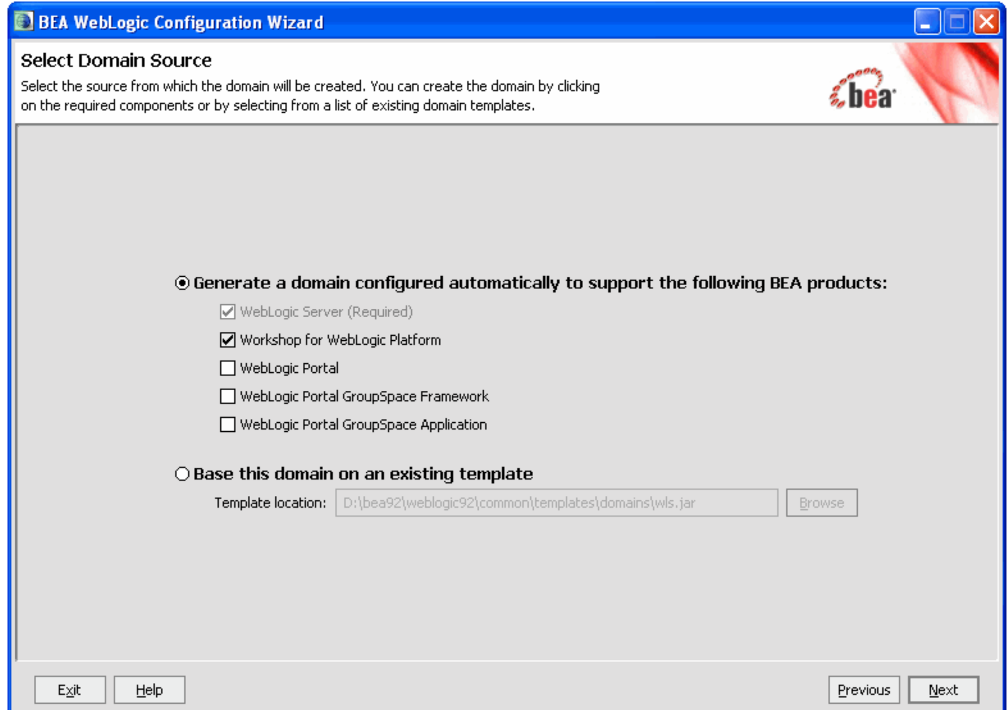
  In this step, you use the BEA WebLogic Configuration wizard to extend the WebLogic Server domain using an extension template. The extension template adds WSRP producer components to the domain.

## Create a WebLogic Server Domain

This section explains how to create a new WebLogic Server domain using the BEA WebLogic Configuration Wizard. You can then extend the domain to include WSRP producer components.

1. Start the BEA WebLogic Configuration Wizard. To do this, execute the `config.cmd` (or `config.sh`) command in `WEBLOGIC_HOME/common/bin`.
2. In the Welcome dialog, select **Create a new WebLogic domain**, and click **Next**.
3. In the Select Domain Source dialog, select **WebLogic Server** (the default) and **Workshop for WebLogic Platform**, and leave the other checkboxes unselected, as shown in Figure 8-2.

**Figure 8-2 Select Domain Source**




4. Complete the rest of the configuration wizard steps to create the WebLogic Server domain. For detailed information on the configuration wizard, refer to "Creating WebLogic Domains Using the Configuration Wizard" in the WebLogic Server documentation.

# Extend the WebLogic Server Domain

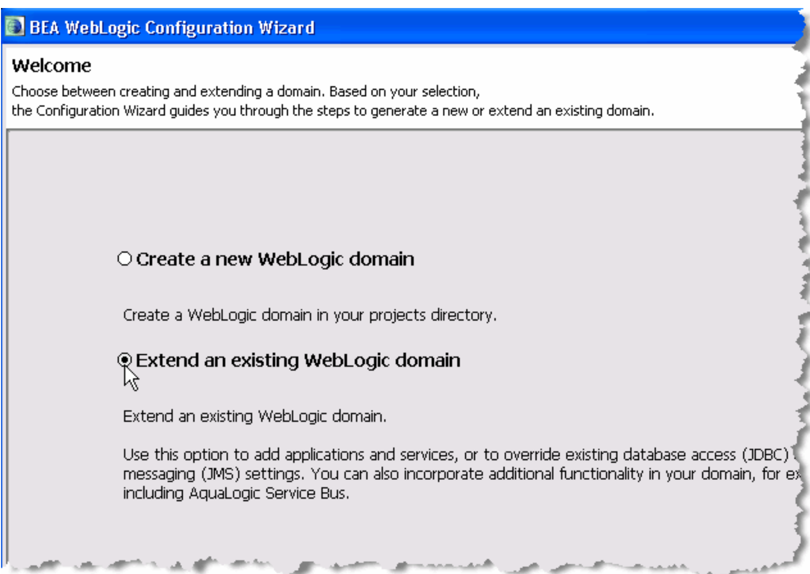
This section explains how to extend your WebLogic Server domain to include the components of a simple producer.

You extend the domain using an extension template. An extension template defines applications and services that can be used to extend an existing domain. The extension template you will use in this example is called `wsrp-simple-producer.jar`.

1. Start the BEA WebLogic Configuration Wizard. To do this, execute the `config.cmd` (or `config.sh`) command in `WEBLOGIC_HOME/common/bin`.

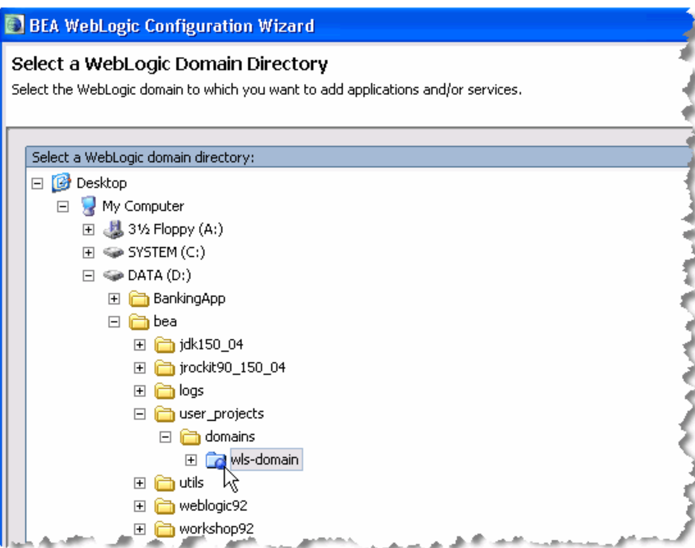
2. In the Welcome dialog of the configuration wizard, select **Extend an existing WebLogic domain**, as shown in Figure 8-3, and click **Next**.

**Figure 8-3 Extend a Domain**



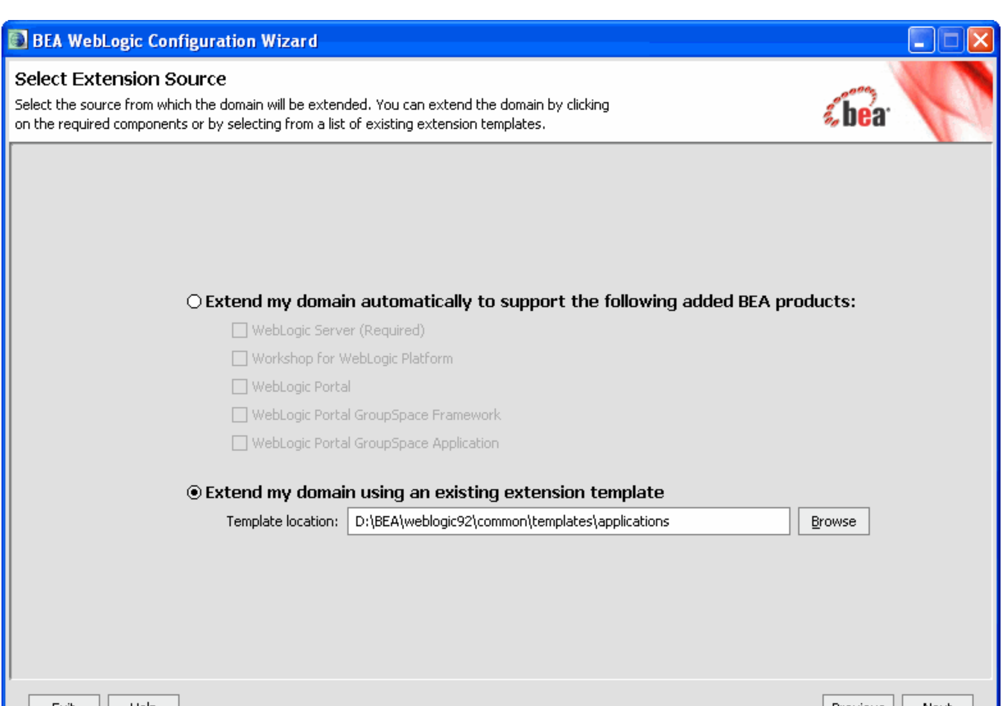

3. In the Select a WebLogic Domain Directory dialog, navigate to the WebLogic Server domain that you want to extend, select it, as shown in Figure 8-4, and click **Next**.

**Figure 8-4 Select a Domain Directory**




4. In the Select Extension Source dialog, select **Extend my domain using an existing extension template**, as shown in Figure 8-5, and click **Next**.

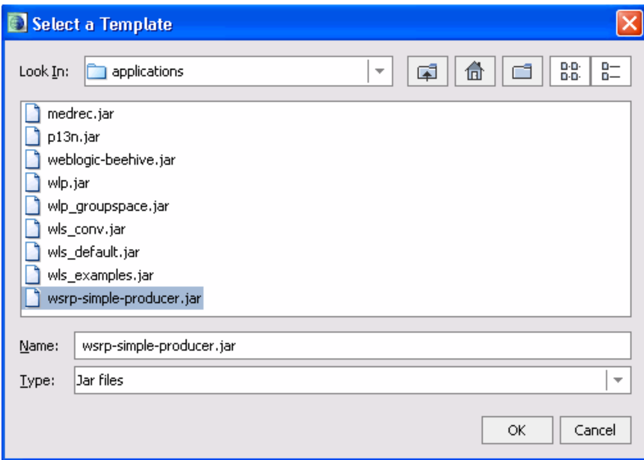
**Figure 8-5 Select Extension Source**




5. Click **Browse**.
6. In the Select a Template dialog, select the following JAR file, as shown in Figure 8-6:

   `WEBLOGIC_HOME/common/templates/applications/wsrp-simple-producer.jar`

**Figure 8-6 Selecting the Template**




7. Click **OK** when you have selected the file.
8. In the configuration wizard, click **Next** and complete the wizard steps as appropriate. When you reach the last dialog, click **Extend**.

**Checkpoint:** At this point, you have extended the WebLogic Server domain so that it can function as a simple WSRP producer. Next, you need to configure your web projects.

# Configuring a Web Project

After you have a WebLogic Server domain that is configured to function as a WSRP producer, you also need to enable any web projects that you deploy to function as a WSRP producer in the domain. After you configure a web project to function as a WSRP producer, portlets you deploy in that project will be available to consumers.

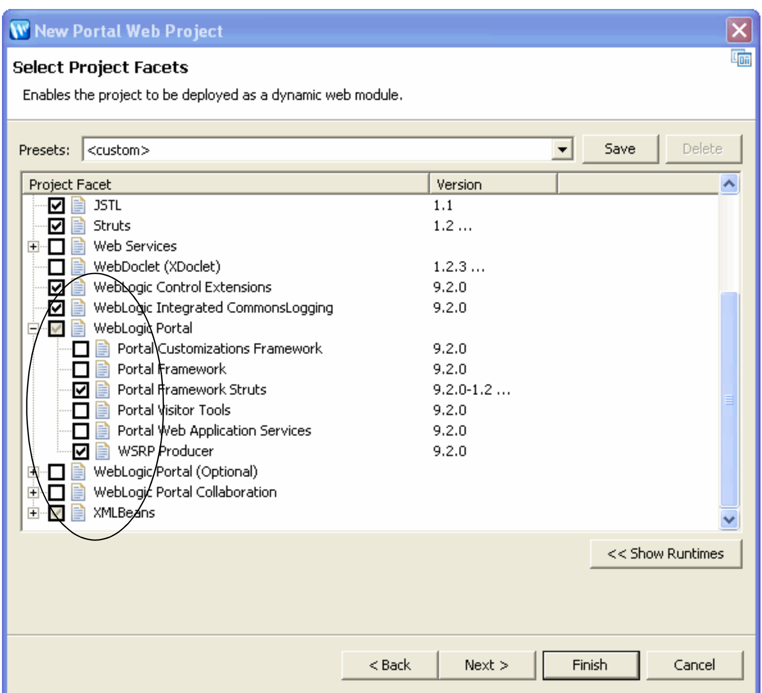
## Create a Web Project

You need to create a web project that is enabled with WSRP producer components. In this example, we demonstrate how to enable a Dynamic Web Project. This type of project does not contain any WebLogic Portal components or WSRP producer components by default.

1. Open Workshop for WebLogic.
2. Select **File > New > Other**.

3. In the New – Select a wizard dialog, open the **Web** folder and select **Dynamic Web Project**. The Dynamic Web Project dialog appears.
4. Enter a name for the project, and click **Next**. The Select Project Facets dialog appears.
5. In the Select Project Facets dialog, expand the WebLogic Portal node, and select only the following facets, as shown in Figure 8-7:
   - **Portal Framework Struts**
   - **WSRP Producer**

**Figure 8-7 Select Project Facets**




6. Click **Finish**.

**Checkpoint:** You have created a web project in which you can create portlets that will be visible to consumers.

# Testing the Producer Configuration

To test the producer configuration, you can do the following:

- Create a Server on the Producer
- Test for a Producer WSDL
- Create a Portlet in the Producer Web Application
- Consuming a Producer Portlet

## Create a Server on the Producer

If you have not done so, create a WebLogic Server in which to run the application on the producer. To do this:

1. Start Workshop for WebLogic.
2. Select **File > New > Other**.
3. In the Select dialog, open the Server folder and select **Server**.
4. Follow the wizard prompts to create the server. Use the WebLogic Server domain that you configured to function as a WSRP producer and add the WSRP-producer enabled web project to the server.
5. Start the server.

---

**Tip:** For more information on creating a server using Workshop for WebLogic, see the WebLogic Portal tutorial "Setting Up Your Portal Development Environment."

---

## Test for a Producer WSDL

The first test to perform is to check that the producer web application returns a WSDL description when you enter the WSDL URL in a browser.

1. Start WebLogic Server.
2. Enter the WSDL URL for the web project in a browser. For example:

```
http://localhost:7001/myWebApp/producer?wsdl
```

If the server and web application are configured properly, the WSDL file appears in the browser. A sample WSDL file is shown in Figure 8-8.

**Figure 8-8 Example WSDL File**

```
- <wsdl:definitions targetNamespace="urn:oasis:names:tc:wsrp:v1:wsdl">
    <wsdl:import namespace="urn:oasis:names:tc:wsrp:v1:bind"
    location="http://www.oasis-open.org/committees/wsrp/specifications/version1/wsrp_v1_bindings.wsdl"/>
    <wsdl:import namespace="urn:bea:wsrp:ext:v1:bind" location="wlp_wsrp_v1_bindings.wsdl"/>
  - <wsdl:service name="WSRPService">
    - <wsdl:port name="WSRPBaseService" binding="urn:WSRP_v1_Markup_Binding_SOAP">
        <soap:address location="http://localhost:7001/strutsHello/producer"/>
      </wsdl:port>
    - <wsdl:port name="WSRPServiceDescriptionService"
      binding="urn:WSRP_v1_ServiceDescription_Binding_SOAP">
        <soap:address location="http://localhost:7001/strutsHello/producer"/>
      </wsdl:port>
    - <wsdl:port name="WLP_WSRP_Ext_Service" binding="urn1:WLP_WSRP_v1_Markup_Ext_Binding_SOAP">
        <soap:address location="http://localhost:7001/strutsHello/producer"/>
      </wsdl:port>
    </wsdl:service>
  </wsdl:definitions>
```

**Checkpoint:** If the WSDL file appears in the browser, then the server is functioning as a producer. You can now create portlets in the web application that can be consumed as remote portlets in consumer applications.

# Create a Portlet in the Producer Web Application

You can use Workshop for WebLogic to create portlets in the web application on the producer. If you created a Dynamic Web Application, you can create one of the following types of portlets:

- Java Page Flow Portlet
- Java Server Faces (JSF) Portlet
- Struts Portlet

For information on creating these portlet types, see the *Portlet Development Guide*.

# Consuming a Producer Portlet

Another test you can perform is to try to consume a portlet deployed in the producer from a WebLogic Portal application.

1. On another machine, create a WebLogic Portal Domain. You can use the WebLogic Configuration Wizard to do this. If you cannot use another machine, be sure the server's listen port does not conflict with the port used by the producer server.
2. Use Workshop for WebLogic to create a Portal Application and associate the application with the new WebLogic Portal Domain. If necessary, you can obtain a free developer's version of Workshop for WebLogic by visiting the BEA website.
3. Create a new Portal Web Project to the application. This application is the consumer application.
4. Create a portal in the consumer application.
5. Start the server that hosts the consumer.
6. Create a remote portlet in the Portal Web Project you just created. Point the WSDL to the web application on the producer. For example:

   `http://producerHost:producerPort/myWebApp/producer?WSDL`

   Where *producerHost:producerPort* is the IP address and port number of the machine hosting the producer, and *myWebApp* is the name of the context directory for the web application that contains the producer portlet(s) that you wish to surface. See Chapter 4, "Creating Remote Portlets" for more information.
7. On the consumer, add the remote portlet to the portal and open the portal. The portlet you created on the producer appears in the portal.

# Summary

In this section you tested a configuration where a remote portlet in a consumer references a portlet that is deployed to a producer running in a basic WebLogic Server domain.

CHAPTER 9

# Publishing to UDDI Registries

WebLogic Portal provides tools for searching UDDI registries for producers, portlets, books, and pages. In addition, WebLogic Portal allows you to publish portlets, books, and pages to UDDI registries.

This chapter explains how to publish portlets, books, and pages, and the producers in which they are deployed, to UDDI registries. This chapter also discusses an API for performing UDDI searches programatically.

---

**Tip:** The WebLogic Portal Administration Console provides search tools that let you search UDDI registries for producers and portlets. Before you can use the search features in the Administration Console, however, you must set up the consumer as explained in this chapter.

---

This chapter includes the following sections:

- What is UDDI?
- Using UDDI with WebLogic Portal
- Configuring the Producer
- Configuring the Consumer
- Searching for Producers Programatically

# What is UDDI?

Universal Description, Discovery, and Integration (UDDI) is a standard mechanism for describing and locating web services across the internet. Web services, such as WSRP producers, are typically *published* to a UDDI registry with associated metadata. Users can search UDDI registries using keywords to locate producers and the portlets and other services they offer.

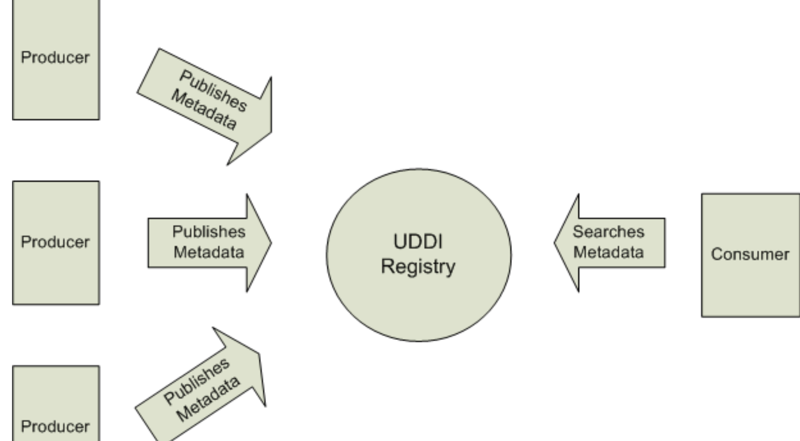
---

**Tip:** Before the availability of the UDDI registry, a WebLogic Portal developer or administrator needed to know the WSDL URL address of a specific producer to discover that producer's portlets. Now, developers and administrators can search for specific producers and their resources based on metadata queries; to locate a producer, you do not necessarily need to know its WSDL URL in advance.

---

As Figure 9-1 illustrates, metadata from producers, including metadata for portlets, books, and pages, is published to a UDDI registry. Using keywords, consumers can search UDDI registries to locate these services and consume them.

**Figure 9-1 Overview of UDDI Publishing and Searching**

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**Tip:** OASIS, the Organization for the Advancement of Structured Information Standards, is responsible for creating the UDDI standard. To read more about UDDI, including the full technical specification, go to:

http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=uddi-spec

# Using UDDI with WebLogic Portal

If you want to publish a producer and its resources to a UDDI registry, you need to configure the producer. Similarly, if you want to be able to search UDDI registries from a WebLogic Portal consumer application, you need to configure the consumer so that it can locate and use the UDDI registries.

This section summarizes the main tasks you need to perform to use UDDI registries with WebLogic Portal:

- Configure the Producer
- Configure the Consumer
- Perform Searches

## Configure the Producer

WebLogic Portal applications are not automatically published to UDDI registries. You need to configure the application to publish its resources. The section "Configuring the Producer" on page 9-4 explains how to configure a producer so that the producer and its resources (books, pages, and portlets) appear in one or more UDDI registries.

## Configure the Consumer

When a consumer is properly configured, you can search UDDI registries for producers and their resources both programmatically and interactively using the WebLogic Portal Administration Console. The section "Configuring the Consumer" on page 9-14 explains how to configure a consumer so that it can locate and search specific UDDI registries.

## Perform Searches

If you are interested in performing programmatic UDDI registry searches from a consumer, see "Searching for Producers Programatically" on page 9-15. If you are interested in the tools provided for searching UDDI registries in the Administration Console, see Chapter 17, "Adding Remote Resources to the Library."

# Configuring the Producer

This section explains how to publish producers and their resources, such as portlets, pages, and books, to a UDDI registry. To do this, you need to configure the producer properly.

This section includes the following topics:


- What Information is Published?
- Editing the Configuration File
- Configuring Third-Party Registries
- Specifying Access Credentials
- Creating tModels for Third-Party Registries
- Pre-Configuring the Business Entity
- Auto-Configuring the Business Entity
- Specifying Metadata for Searches
- Enabling and Disabling UDDI for a Producer


## What Information is Published?

All portlets, books, and pages with the `offerRemote` property set to `true` are automatically published in the properly configured UDDI registry or registries. For information on setting the `offerRemote` property, see "Enabling and Disabling UDDI for a Producer" on page 9-13.

**Note:** It is possible that empty books and pages will be published to the registry. The books and pages are resolved on a service description request and empty books/pages are excluded. Because the registry directly polls the book and page repository and the repository may contain empty pages/books, the registry might publish empty pages and books.

**Note:** Publishing occurs asynchronously, and it may take from a few seconds to several minutes to publish all portlets, pages and books in a producer to the registry. Children of pages and books are not published automatically to the registry.

Table 9-1 lists the specific types of information that are published to the UDDI registry for each published component.

**Table 9-1 Information Published to UDDI Registries**

| Elements | Attributes |
|---|---|
| Producers | • Name (required)<br>• Description<br>• Keywords<br>• WSDL URL of the producer. The developer or administrator who configures the producer must enter this URL. This URL is the WSDL URL that the consumer uses to access the producer. |
| Portlets (from `.portlet` files) | • Title (required)<br>• Description<br>• `portletHandle` (definition label) as the access URI. This is a unique value assigned to the portlet by the producer. |
| Pages (from `.page` files) | • Title (required)<br>• `pageHandle` (definition label) as the access URI. This is a unique value assigned to the page by the producer. |
| Books (from `.book` files) | • Title (required)<br>• `bookHandle` (definition label) as the access URI. This is a unique value assigned to the book by the producer. |
| Common data | • Words from the title of portlets, books and pages, and the description of portlets, are used as keywords<br>• Additional keywords added with `netuix:meta` tags. These tags can be embedded in `.portal`, `.book`, and `.portlet` files.<br>• A reference to the producer's business service |

# Editing the Configuration File

The first step in publishing a producer and its resources is to edit the configuration file `wsrp-producer-portlet-registry-config.xml`. When copied to your project from the J2EE Shared Library in which it is stored, this file is located in the `/WEB-INF` directory of each web application in a producer. This file is used to publish a producer and its resources, such as portlets, to specified UDDI registries. An example configuration file is shown in Listing 9-1.

Each of the configuration file's elements are listed and defined in Table 9-2. When editing the configuration file, be sure to complete all of the required elements, as listed in the table.

**Note:** By default, the `<enabled>` element of this file is set to `false`. When you set this element to true, the producer and all of its books, pages, and portlets are published to the specified UDDI registries. If you do not want to publish a specific book, page, or portlet, you must set its `offerRemote` property to false.

**Listing 9-1 Example wsrp-producer-portlet-registry-config.xml File**

```
<?xml version="1.0" encoding="UTF-8"?>
<wsrp-producer-portlet-registry-config
xmlns="http://www.bea.com/ns/portal/90/wsrp-producer-portlet-registry-config">

    <description>Description goes here</description>

    <!-- Set this to false to prevent this producer from publishing portlets. -->
    <enabled>true</enabled>

    <publish-url>http://localhost:7001/uddi/uddilistener</publish-url>
    <inquiry-url>http://localhost:7001/uddi/uddilistener</inquiry-url>

    <!--credential-alias>registryPublisherComplexProducer</credential-alias-->
    <username>weblogic</username>
    <password>weblogic</password>

    <producer-business-entity>
        <name>Sample Producer</name>
        <description>This is a producer business entity</description>
        <discovery-url>http://localhost:7001/portal_2/index.jsp</discovery-url>
    </producer-business-entity>

    <producer-service>
        <name>Sample Producer</name>
        <description>This producer hosts test portlets for portal_2</description>
        <wsdl-url>http://localhost:7001/portal_2/producer?WSDL</wsdl-url>
        <keyword>skiing</keyword>
        <keyword>hiking</keyword>
        <keyword>camping</keyword>
        <keyword>cycling</keyword>
```

```
    </producer-service>
</wsrp-producer-portlet-registry-config>
```

Table 9-2 describes the configuration file's elements.

**Note:** The registry credential alias set in `wsrp-producer-portlet-registry-config.xml` file must not match the global credential in `wsrp-consumer-security-config.xml`. Setting the global credential is explained in "Modifying Global Credentials" on page 18-2.

**Table 9-2 Elements in the wsrp-producer-portlet-registry-config.xml File**

| Element | Description |
|---|---|
| `<enabled>` | Set this element to `true` to publish the producer's portlets, books, and pages to the UDDI registry specified by the `<publish-url>` element. This element is set to `false` by default. |
| `<description>` | You can put any arbitrary text in a description element. This element is typically used to embed comments in the file. |
| `<publish-url>`<br>`<inquiry-url>` | (required) UDDI registries typically have two URLs associated with them. The publish URL allows creation and update of elements. The inquiry URL allows searches, but does not allow updating or creating. |
| `<credential-alias>`<br>or<br>`<username>`<br>`<password>` | (required) To publish producer information to a UDDI registry, you must have the necessary credentials. There are two ways to specify these credentials:<br>• Specify a credential alias using the `<credential-alias>` element. Credential aliases are defined in the Administration Portal. For detailed information on defining a credential alias, see "Specifying Access Credentials" on page 9-9.<br>• Specify a user name and password directly. This second method is not recommended, because it requires a clear text password. |

**Table 9-2 Elements in the wsrp-producer-portlet-registry-config.xml File (Continued)**

| Element | Description |
|---|---|
| `<producer-business-entity>` | (required) A business entity is the highest level UDDI data construct. This element specifies the owner of the published web services. Typically, the name of a company or department is specified.<br>The `<producer-business-entity>` element includes the following elements:<br>• `<name>` (required) — A unique name for the service.<br>• `<description>` — A description of the service. Required if the business entity is auto-configured.<br>• `<discovery-url>` — Provides a discovery URL for the producer. The URL specified here must be a valid URL, and not a URL template. Required if the business entity is auto-configured.<br>See "Pre-Configuring the Business Entity" on page 9-10 and "Auto-Configuring the Business Entity" on page 9-11 for more information. |
| `<producer-service>` | (required) The `<producer-service>` element defines a business service. A business service is a UDDI data construct that specifies entities that offer services, such as WSRP producers. Business services are owned by business entities.<br>The `<producer-service>` entity includes the following elements:<br>• `<name>` (required) — A unique name for the service.<br>• `<description>` — A description of the service.<br>• `<wsdl-url>` (required) — A publicly available WSDL URL for the producer.<br>• `<keyword>` (optional, recommended) — Keywords are used by UDDI queries to locate producers. You can define as many keywords as you like. |

# Configuring Third-Party Registries

To configure a WebLogic Portal application to use a third-party UDDI registry, you need to:

- Obtain the correct `<publish-url>` and `<query-url>` addresses and add them to the `wsrp-producer-portlet-registry-config.xml` configuration file. For information on this configuration file, see "Editing the Configuration File" on page 9-5.
- Obtain the correct credentials to publish to a third-party registry. For detailed information on defining a credential alias, see "Specifying Access Credentials" on page 9-9.
- Create appropriate tModels for the third-party registry. For detailed information on tModels, see "Creating tModels for Third-Party Registries" on page 9-9.

## Specifying Access Credentials

Some registries may offer both publish and inquiry services at the same URL, while some others use separate URLs for these two services. Consult the specific registry documentation to find out the actual URLs.

Depending on how the registry enforces access control, you may also need to enter either a set of credentials or an alias to a credential. The credentials must allow sufficient permission to access all UDDI publish operations. Again, consult the registry's documentation to find out the access control policies.

You can set access credentials in the `wsrp-producer-portlet-registry-config.xml` or using the WebLogic Portal Administration Console.

For information on the configuration file, see "Configuring the Producer" on page 9-4. For information on setting credentials through the Administration Console, see "Modifying the Producer Portlet Registry" on page 18-3.

## Creating tModels for Third-Party Registries

Services stored in UDDI registries are categorized and identified by their taxonomies. Basically, a taxonomy, also called a tModel, is a name/key mapping.

For the purpose of publishing them to UDDI registries, producers, portlets, books, and pages all have taxonomies, which are defined in XML files. Default taxonomies are provided to describe producers, portlets, books, and pages for WebLogic Server's internal UDDI registry. If you want to use a third party registry, log in to that registry and create a tModel for each taxonomy found in the internal WebLogic UDDI registry. Consult the documentation provided for the third-party registry for information on how to create taxonomies for that particular registry.

The internal WebLogic UDDI tModel files are located in:

*`WEBLOGIC_HOME`*`/portal/lib/wsrp/tModels`

where *WEBLOGIC_HOME* is the root directory for your WebLogic installation.

---

**Tip:** A *tModel* is a data structure representing a service type (a generic representation of a registered service) in the UDDI registry. Each business registered with UDDI categorizes all of its Web services according to a defined list of service types. Businesses can search the registry's listed service types to find service providers. The tModel is an abstraction for a technical specification of a service type; it organizes the service type's information and makes it accessible in the registry database. Another UDDI data structure, the *bindingTemplate* organizes information for specific instances of service types. When businesses want to make their specification-compliant services available to the registry, they include a reference to the `tModelKey` for that service type in their `bindingTemplate` data.

Each tModel consists of a name, an explanatory description, and a Universal Unique Identifier (UUID). The tModel name identifies the service, such as, for example, online order placement. The description supplies additional arbitrary information about the service. The unique identifier, called a `tModelKey`, is a series of alphanumeric characters, such as `uuid:4CD7E4BC-648B-426D-9936-443EAAC8AI`.

---

# Pre-Configuring the Business Entity

If you pre-configure a business entity directly in the UDDI registry, you can then associate that entity with a producer using only the name of the business entity. For example, Listing 9-2 shows a `<producer-business-entity>` element that identifies a pre-configured business entity. In this case, the entity with the name "My Portlet Producer" was pre-configured in the UDDI registry. In this example, the `<description>` and `<discovery-url>` elements are not necessary.

For information on configuring `<producer-business-entity>` and `<producer-service>` entities for a given UDDI registry, consult the documentation for that registry. Typically, you can also use the JAXR API to programmatically create business entities.

**Listing 9-2 Business Entity Description for a Pre-Configured Producer**

```
<producer-business-entity>
    <name>My Portlet Producer</name>
</producer-business-entity>
```

If you pre-configure a business entity, WebLogic Portal requires only the name of the business entity to use it (as shown in Listing 9-2). Multiple producer web applications can use the same business entity by using this same name. If you want different producer web applications to use their own unique business entity, use unique names for your business entities.

# Auto-Configuring the Business Entity

WebLogic Portal can automatically create a business entity if you supply the `<discovery-url>` element in the `wsrp-producer-portlet-registry-config.xml` file. For example, the `wsrp-producer-portlet-registry-config.xml` file configuration shown in Listing 9-3 allows the business entity to be created automatically.

**Listing 9-3 Business Entity Description for an Auto-Configured Producer**

```
<producer-business-entity>
    <name>My Portlet Producer</name>
    <description>This is my business entity</description>
    <discovery-url>http://somehost:port/path</discovery-url>
</producer-business-entity>
```

When you deploy the web application, the producer first checks the registry to see if a business entity with the specified name exists. If not, WebLogic Portal creates a new business entity with the given `<name>`, `<description>`, and `<discover-url>`.

# Specifying Metadata for Searches

By adding metadata, such as keywords, to producers, portlets, pages and books, you will improve the ability of consumers to find those resources in a search. This section discusses how to add searchable metadata for portlets, books, and pages. For information on adding publishing producer metadata, see "Adding Producer Metadata" on page 9-11.

## Adding Producer Metadata

UDDI searches can locate producers using metadata that has been added to the `wsrp-producer-portlet-registry-config.xml` file described previously. Both the `<name>` and `<description>` elements of the `<producer-service>` element are searchable. In addition,

you can use the `<keyword>` element of the `<producer-service>` element to add metadata, as shown in Listing 9-4.

#### Listing 9-4 Specifying Producer Metadata Keywords

```
<producer-service>
     <name>Colorado Producer</name>
     <description>
          This producer offers portlets related to Colorado.
     </description>
     <wsdl-url>http://colorado/producer?wsdl</wsdl-url>
     <keyword>skiing</keyword>
     <keyword>hiking</keyword>
     <keyword>camping</keyword>
</producer-service>
```

## Adding Portlet Metadata

UDDI searches can locate portlets by their title and description. When you create a portlet, you are required to give it a title, and, optionally, you can enter a description. The text of these two fields is available to UDDI searches. In addition to these tags, you can use the `<netuix:meta>` tag to provide searchable metadata. To do this, add a `meta` tag and specify `name` and `content` attributes. Listing 9-5 shows a sample portlet file with a `meta` tag that specifies a named item (activities) with several content attirubtes (hiking, camping, fishing). The separator attribute simply specifies a character to separate multiple content values.

#### Listing 9-5 Portlet with Metadata Tags

```
<?xml version="1.0" encoding="UTF-8"?>
<portal:root

xmlns:netuix="http://www.bea.com/servers/netuix/xsd/controls/netuix/1.0.0"

xmlns:portal="http://www.bea.com/servers/netuix/xsd/portal/support/1.0.0"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://www.bea.com/servers/netuix/xsd/portal/support/
```

```
1.0.0 portal-support-1_0_0.xsd">
    <netuix:portlet definitionLabel="index_1" title="Activities">
    <netuix:meta name="activities" content="hiking;camping;fishing"
        separator=";"/>
        <netuix:titlebar>
            <netuix:maximize/>
            <netuix:minimize/>
        </netuix:titlebar>
        <netuix:content>
            <netuix:jspContent contentUri="/activities.jsp"/>
        </netuix:content>
    </netuix:portlet>
</portal:root>
```

### Adding Book and Page Metadata

UDDI searches can locate specific books and pages by their title. When you create a book or page, you are required to give it a title. This title is available to UDDI searches. Just as with portlets, you can embed the `<netuix:meta>` tag in `.book` and `.page` files to add searchable metadata keywords. See Listing 9-5 for an example.

**Note:** Only remoteable `.book` and `.page` files can be published to UDDI registries. See Chapter 6, "Offering Books, Pages, and Portlets to Consumers" for more information on creating remoteable books and pages.

By default, the `<enabled>` element of this file is set to `false`. You must set it to `true` to publish the producer.

## Enabling and Disabling UDDI for a Producer

You can enable or disable UDDI searching for an entire producer web application or for specific portlets, books, and pages.

### Enabling and Disabling a Producer Web Application for UDDI Searches

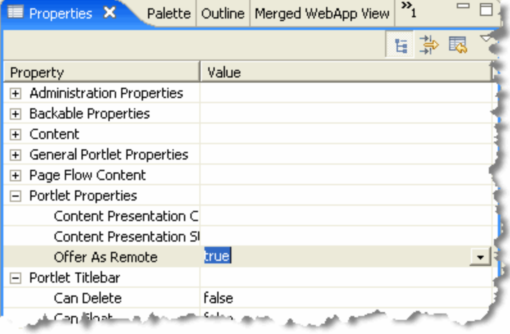
You can disable UDDI publishing for an entire web application by setting the `<enabled>` element in the `wsrp-producer-portlet-registry-config.xml` file to `false`. If this element is `false`, then none of the portlets, pages, or books in the web application will be accessible to UDDI queries. If the element is `true`, then all portlets, pages, and books in the web application are published, unless individually disabled using with the `offerRemote` property.

The wsrp-producer-portlet-registry-config.xml file is located in the /WEB-INF directory of each web application in a producer. (To edit this file, you must first copy it from the J2EE Shared Library in which it is stored into your project.)

## Enabling and Disabling Individual Producer Resources for UDDI Searches

The offerRemote property can be set to true or false for any portal resource (portlets, pages, and books) that can be remote. If true, then the resource is offered as remote, and it can be discovered and consumed remotely by a consumer. If false, then the resource is hidden from view from consumers. You can set this property from the Properties view for a portlet, book, or page, as shown in Figure 9-2.

**Figure 9-2 Setting the offerRemote Property**




**Note:** Changing the offerRemote value in no way affects the contents of the registry. If the offerRemote property is changed to false after the entity has been published, the producer will not delete the entity from the registry. For example, a portlet may exist in the registry if it was published, but be unavailable to WebLogic Portal consumers if offerRemote is set to false.

# Configuring the Consumer

In order to use the search tools, either through the API or the WebLogic Portal Administration Console, you must set up the wsrp-consumer-portlet-registry-config.xml for the consumer. This file defines the UDDI registry information, such as UDDI inquiry URL, number of rows to return, and description. A consumer may need to search more than one registry and all registries must be defined in this file.

**Note:** The `wsrp-consumer-portlet-registry-config.xml` file is located in the `META-INF` directory of the enterprise application. By default, this file is empty. You must configure this file, as described in this section, or administrators and users will not be able to use the UDDI search feature. (To edit this file, you must first copy it from the J2EE Shared Library in which it is stored into your project.)

Listing 9-6 shows an example configuration file. After you configure the consumer, you must restart the application.

**Listing 9-6 wsrp-consumer-portlet-registry-config.xml File**

```
<wsrp-consumer-portlet-registry-config

xmlns="http://www.bea.com/ns/portal/90/wsrp-consumer-portlet-registry-config">
     <description>WLP Tools WSRP Registry Configuration</description>
     <registry>
         <name>defaultRegistry</name>
         <title>Default Registry</title>
         <description>This is the default registry.</description>
         <default>true</default>
         <inquiry-url>http://localhost:7001/uddi/uddilistener</inquiry-url>
         <max-results>500</max-results>
     </registry>
     <registry>
         <name>SecondRegistry</name>
         <title>Second Registry</title>
         <description>Another registry.</description>
         <default>false</default>
         <inquiry-url>http://localhost:8080/uddi/inquiry</inquiry-url>
         <max-results>500</max-results>
     </registry>
</wsrp-consumer-portlet-registry-config>
```

# Searching for Producers Programatically

WebLogic Portal provides two ways to search for producers. If you are working in the staging or production environments, you can use the WebLogic Portal Administration Console to search for

producers. WebLogic Portal also exposes an API that lets you search programmatically. You might use the API if you wanted to write your own search tool.

**Note:** Empty books and pages do not show up in UDDI searches.

For information on searching for producers in the Administration Console, see Chapter 17, "Adding Remote Resources to the Library."

The rest of this section discusses how to use the API to search for producers. This section includes the following parts:

- The UDDI Query API
- Sample Code

# The UDDI Query API

WebLogic Portal provides an API that you can use to search UDDI registries for producers, portlets, pages, and books. Typically, this API is used for the development of custom search tools.

The following packages contain the API that you can use to search UDDI registries for producers, portlets, pages, and books:

- `com.bea.wsrp.registry`

  This package contains classes let you get and set configuration information for a UDDI registry. The classes in this package are described in Table 9-3.

- `com.bea.wsrp.registry.entries`

  This package contains classes that represent registry entries, such as producers, portlets, books, and pages. Methods in these classes let you get and set keywords, titles, descriptions, and other data elements for these entries. The classes in this package are described in Table 9-4.

- `com.bea.wsrp.registry.find`

  This package contains classes that let you construct and execute UDDI registry queries. The classes in this package are described in Table 9-5.

The following tables summarize the classes in these three packages. Please refer to the Javadoc for detailed information on these classes.

**Table 9-3 com.bea.wsrp.registry.entries Package**

| Class or Interface | Purpose |
|---|---|
| `BaseEntry` | Represents a producer, portlet, page, or book in the UDDI registry. |
| `RegistryEntry` | Represents a base class for producer-offered entities (portlets, pages, and books). |
| `ProducerEntry` | Represents a producer entry. This class contains the producer's metadata including its WSDL URL. |
| `PortletEntry` | Represents a portlet entry in the UDDI registry. |
| `PageEntry` | Represents a page entry in the UDDI registry. |
| `BookEntry` | Represents a book entry in the UDDI registry. |

**Table 9-4 com.bea.wsrp.registry Package**

| Class or Interface | Purpose |
|---|---|
| `ConnectInfo` | Contains connection information for a UDDI registry, such as the inquiry URL and an optional set of properties. |
| `RegistryConfig` | Represents a UDDI registry's configuration information, such as the registry name and inquiry URL. |

**Table 9-5 com.bea.wsrp.registry.find Package**

| Class or Interface | Purpose |
|---|---|
| `FindRequest` | Specifies search criteria. |
| `RegistryFinder` | Finds producers, portlets, pages, and books. Also provides methods to get details of pre-configured registries. |

## Sample Code

The code fragment in Listing 9-7 shows how the API can be used to search for and discover portlets and producers in a UDDI registry.

**Listing 9-7 UDDI Search Code Fragment**

```
import com.bea.wsrp.registry.entries.*;
import com.bea.wsrp.registry.*;
import com.bea.wsrp.registry.find.*;

public class UDDIQuery {


    public void doQuery() {

        ConnectInfo ci = RegistryFinder.getDefault();
        FindRequest fr = new FindRequest();
        fr.addName("Hello");
        fr.addKeyword("hello");
        fr.addKeyword("world");

        List<PortletEntry> portlets = registryFinder.findPortlets(fr, connectInfo);

        //-- User selects a portlet from the list.

        Key producerKey = portletEntry.getProducerKey();
        fr = new FindRequest();
        fr.setProducerServiceKey(producerKey);
        List<ProducerEntry> producers = registryFinder.findProducers(fr, connectInfo);

        //-- User selects a producer from the list.

        }
    }
```

CHAPTER 10

# The Interceptor Framework

The Interceptor Framework is a consumer-side framework that lets you programmatically intercept and modify markup and user interaction-related WSRP messages sent to and received from producers. This framework exposes a set of interfaces that you can implement. These interfaces let you examine the content of a WSRP message and take specific action based on that content. For example, if a producer sends a registration error back to the consumer, an interceptor can detect that error and display an informative message to the user or, perhaps, automatically return the information required to complete the registration.

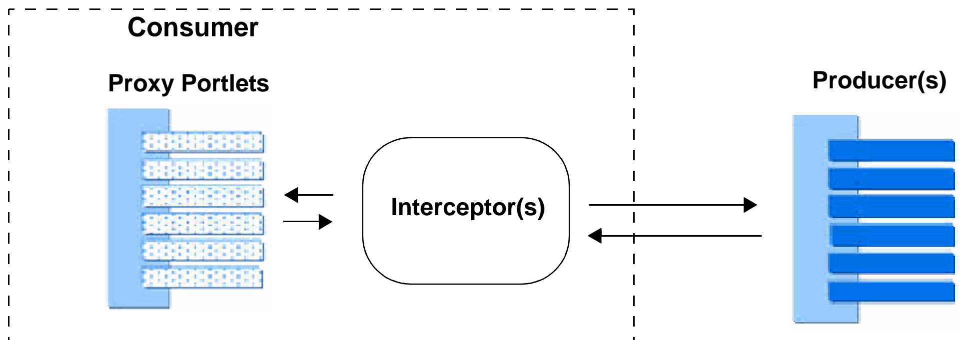
This chapter includes the following topics:


- Introduction
- Use Cases
- Basic Steps
- Designing Interceptors
- Interceptor Interfaces
- Configuring Interceptors
- Order of Method Execution
- Implementing an Error-Handling Interceptor

# Introduction

As Figure 10-1 illustrates, interceptors are implemented in the consumer. They intercept and allow processing of incoming and outgoing WSRP messages passed between the consumer and one or more producers. Interceptors are associated with specific consumer web applications (web application scoped). You can also group together several interceptors to accommodate more complex use cases.

**Figure 10-1 Interceptors Run in Consumer Applications**




The interceptor framework defines five public interceptor interfaces. To work with interceptors, you implement one or more of these interfaces and register your implementation classes in a configuration file called `wsrp-consumer-handler-config.xml`. This configuration file is web application-scoped, and resides in the consumer web application's `WEB-INF` directory. See "Configuring Interceptors" on page 10-10 for more information on the configuration file.

To work with interceptors effectively, you must be familiar with basic WSRP operations, such as `getMarkup` and `performBlockingInteraction`. You need to understand the purpose of these operations and how they fit into the life cycle of proxy portlets. See "Designing Interceptors" on page 10-4.

The rest of this chapter explains how to use these interfaces and includes detailed examples and use cases.

# Use Cases

If you are a consumer-side developer, you can use the Interceptor Framework for many different purposes. Some of the most common use cases for interceptors include:

- **Handling Errors –** You can use interceptors to handle errors returned from a producer. For instance, if a specific producer is not registered, you can trap the registration error and handle it as you wish. You may display an informative message to the user, or you may choose to automatically register the producer. An interceptor can also catch an I/O exception, which can occur if the producer is unavailable. In this case, you might choose to handle the error by displaying an informative message for the user, prevent future requests to the producer, or chose to redirect to another producer.
- **Caching Markup –** You can implement an interceptor to cache markup returned from a producer. This feature allows you to use any external caching system you choose. In addition, by caching markup on the consumer, you can, in some circumstances, reduce round-trip communication between the consumer and producer.
- **Validating Data** – You can use interceptors to filter user submitted data. If you detect the user's data is invalid, you can display an informational message, or you can prevent the data from being sent to the producer.
- **Replacing Markup** – An interceptor can filter, replace, modify markup data sent from the producer. An interceptor can also modify the navigational state of a remote portlet. For information on navigational state, see "Life Cycle of a Remote Portlet" on page 3-13.
- **Modifying HTTP Headers** – Interceptors can add or remove some kinds of HTTP headers, and can also inspect response headers. Refer to the Javadoc for details on which kinds of HTTP headers can be modified by Interceptors.

# Basic Steps

This section lists the basic steps involved in creating an interceptor. More detailed information on each step is available in the other sections of this chapter. The basic steps include:

- **Determine the purpose of your interceptors.** When you know the work you want to accomplish with interceptors, you can then decide which of the interfaces to implement. For more information, see "Designing Interceptors" on page 10-4.
- **Configure the interceptors.** After you know the names of your interceptor classes, you need to specify the interceptor classes in a configuration file. See "Configuring Interceptors" on page 10-10 for detailed information.
- **Implement the interceptor interface(s)**. The interceptor interfaces are discussed in "Interceptor Interfaces" on page 10-5. For more detailed information on the interceptor interfaces, you can refer to the Javadoc.
- **Test the interceptors.**

# Designing Interceptors

When designing interceptors, you must first decide what kind of work you want to perform. Depending on the task, you can implement one or more of the interfaces. Each interface is designed to handle a particular type of WSRP operation. For instance, if you are interested in intercepting form data before it is sent to a producer, you might choose to implement the IBlockingInteractionInterceptor. If you are handling registration faults, then you might implement all of the interfaces.

Interceptors are designed to handle the following types of WSRP operations. These operations are wrapped in SOAP messages that are passed between consumers and producers using WSRP:

- `initCookie` and `initCookieResponse`
- `getMarkup` and `getMarkupResponse`
- `performBlockingInteraction` and `performBlockingInteractionResponse`
- `handleEvents` and `handleEventsResponse`
- `getRenderDependencies` and `setRenderDependencies`

To use interceptors effectively, you need to be familiar with the purpose of these operations and how they relate to the life cycle of a proxy portlet. For instance, `performBlockingInteraction` requests are sent when a user submits form data in a portlet.

---

**Tip:** If you are interested in learning more about WSRP and the preceding types of WSRP operations, see *Inside WSRP* (on the dev2dev web site). For a more general overview, see Chapter 3, "Federated Portal Architecture."

---

When designing interceptors, also think about the number of interceptors you need to accomplish your work. You can associate more than one interceptor with a producer by creating a group of interceptors. A group is subject to specific rules that govern the order in which methods are executed. For more information see "Order of Method Execution" on page 10-12.

---

**Tip:** Because every request might not have the same data available, it is important to add proper null-condition checks and take appropriate action if data is missing.

---

# Interceptor Interfaces

This section describes the five public interceptor interfaces, their methods, method return values, and the context objects that are accessible to the interface methods. This section includes these topics:

- Context Objects
- Interfaces
- Interface Methods
- Interceptor Method Return Values

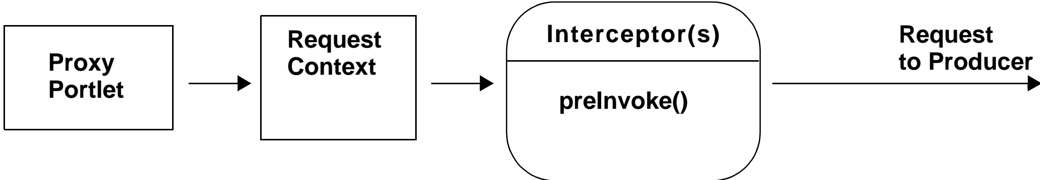
## Context Objects

The interceptor methods receive context objects that you can use to get and set values in the intercepted SOAP messages. The context object created for each type of interceptor varies depending on the WSRP operation it represents. For instance, the `initCookie` context object does not contain the same information as the context object for the `handleEvents` operation. For detailed information on these objects, refer to the Javadoc for the interceptor interfaces. This section describes the flow in which request and response context objects are created and used by interceptors.

Before a message is sent to a producer, or after it is received, the interceptor framework creates an appropriate context object that is passed to the interceptor methods. This object wraps certain elements related to the message. Using methods of the context object, the interceptor can retrieve and set these elements. For example, when a user clicks a link in a remote portlet, the interceptor framework creates a request context object which it then passes to the `preInvoke()` method of the interceptors. After passing through the interceptors and possibly being modified, the request object is used to construct a message that is sent to the producer. Likewise, the interceptor framework constructs a response context object from an incoming message and passes the object the appropriate interceptor methods.

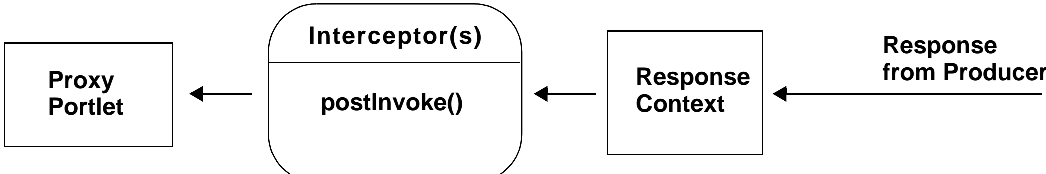
As illustrated in Figure 10-2, a request context is passed to the `preInvoke()` methods of registered interceptors. The request context contains information related to the portlet. After processing by one or more interceptors, the interceptor framework creates a message. This message includes any modifications made by the `preInvoke()` method.

Figure 10-2 Handling a Request Context Object



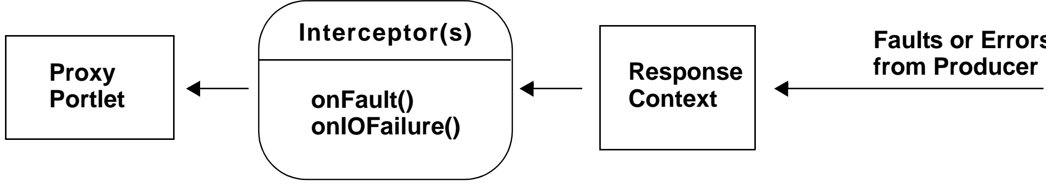

Similarly, as shown in Figure 10-3, the response context object created from an incoming message is passed to the `postInvoke()` method the interceptors that are associated with the producer that generated the response.

Figure 10-3 Handling a Response Context Object




Finally, as shown in Figure 10-4, the response context object created from an incoming error or fault message is passed to either the `onFault()` or `onIOFailure()` method. Note that in the case of an `onIOFailure`, a response SOAP message might not be generated.

Figure 10-4 Handling an Error or Fault




# Interfaces

The five public interceptor interfaces are summarized in Table 10-1. These interfaces are in the `com.bea.wsrp.consumer.interceptor` package. Javadoc is available for these interfaces.

**Table 10-1 Interceptor Interfaces**

| Interface | Description |
|---|---|
| IGetMarkupInterceptor | Allows you to intercept and modify a message that is being sent in a `getMarkup` message or received in a `getMarkupResponse`. |
| IInitCookieInterceptor | Allows you to intercept the `initCookie` request. This request is made the first time a consumer displays a proxy portlet for a given user. The request allows the producer to initialize cookies and return them to the consumer. |
| IBlockingInteractionInterceptor | Allows you to intercept and modify a `performBlockingInteraction` message. |
| IHandleEventsInterceptor | Allows you to intercept a `handleEvents` request or response. |
| IGetRenderDependenciesInterceptor | Allows you to intercept a `getRenderDependencies` request or response. Render dependencies include cascading stylesheet (CSS) files and scripts, such as JavaScript files, upon which the proper rendering of the portlet depend. For more information on render dependencies, see the section "Portlet Appearance and Features" in the *Portlet Development Guide*. |

# Interface Methods

Each interceptor interface includes the same four methods. Table 10-2 summarizes the interceptor methods and when each method is called. Possible return values for each method are discussed in "Interceptor Method Return Values" on page 10-8.

**Tip:** The following table is a general summary only, and does not include method parameters or return values. The specific method signatures depend on the interface in which the method is used. Refer to the Javadoc for a detailed description of each method and its parameters.

**Table 10-2 Interceptor Methods**

| Method | Description |
|---|---|
| `preInvoke()` | This method is called before creating a SOAP message to send to the producer. For example, this method is called after a user clicks on a link in a proxy portlet. One use of this method is to intercept a user's input data to verify that it is complete. |
| `postInvoke()` | This method is called after a producer has processed its request and sent a response back to the consumer. This method can be used to intercept and filter the markup returned by the producer. |
| `onFault()` | This method is called when the producer returns a fault. This method can be used to examine the error and display an informational message or take another appropriate action. |
| `onIOFailure()` | This method is called when the there is an IOException while sending or receiving a message. This method can be used to display an informational message or take another appropriate action. |

# Interceptor Method Return Values

The following tables list the possible return values for each of the four interceptor methods:


- Table 10-3, "Return Values for preInvoke()," on page 10-9
- Table 10-4, "Return Values for postInvoke()," on page 10-9
- Table 10-5, "Return Values for onFault()," on page 10-9
- Table 10-6, "Return Values for OnIOFailure()," on page 10-10


For more information on return values, see "How Return Status Affects Execution Order" on page 10-14.

**Table 10-3 Return Values for preInvoke()**

| Return Value | Description |
|---|---|
| `Status.PreInvoke.CONTINUE_CHAIN` | Indicates normal execution. |
| `Status.PreInvoke.ABORT_CHAIN` | Skips calling `preInvoke()` methods of the subsequent interceptors, but sends the message to the producer. |
| `Status.PreInvoke.SKIP_REQUEST_ABORT_CHAIN` | Skips calling `preInvoke()` methods of the subsequent interceptors and skips sending the request message to the producer. |

**Table 10-4 Return Values for postInvoke()**

| Return Value | Description |
|---|---|
| `Status.PostInvoke.CONTINUE_CHAIN` | Indicates normal execution. |
| `Status.PostInvoke.ABORT_CHAIN` | Skips calling `postInvoke()` methods of the subsequent interceptors. |

**Table 10-5 Return Values for onFault()**

| Return Value | Description |
|---|---|
| `Status.OnFault.CONTINUE_CHAIN` | Indicates normal execution. The consumer will handle the fault if rest of the interceptors also return `CONTINUE_CHAIN` status. |
| `Status.OnFault.ABORT_CHAIN` | Skips calling `onFault()` methods of the subsequent interceptors. The consumer will handle the fault. |

**Table 10-5 Return Values for onFault()**

| Return Value | Description |
|---|---|
| `Status.OnFault.RETRY` | Re-sends the message that caused the fault. The `onFault()` methods of the subsequent interceptors are not called. |
| `Status.OnFault.HANDLED` | Skips calling `onFault()` methods of the subsequent interceptors and assumes that fault has been consumed by the interceptor. The interceptor is responsible for providing all response data. |

**Table 10-6 Return Values for OnIOFailure()**

| Return Value | Description |
|---|---|
| `Status.OnIOFailure.CONTINUE_CHAIN` | Indicates normal execution. The consumer will handle the IO failure if the rest of the interceptors also return `CONTINUE_CHAIN` status. |
| `Status.OnIOFailure.ABORT_CHAIN` | Skips calling `onIOFailure()` methods of the subsequent interceptors. The consumer will handle the fault. |
| `Status.OnIOFailure.RETRY` | Re-sends the message that caused the IO failure. The `onIOFailure()` methods of the subsequent interceptors are not called. |
| `Status.OnIOFailure.HANDLED` | Skips calling `onIOFailure()` methods of the subsequent interceptors and assumes that the IO failure is consumed by the interceptor. The interceptor is responsible for providing all response data. |

# Configuring Interceptors

The interceptors are configured in `wsrp-consumer-handler-config.xml`, a web application scoped configuration file. This configuration file requires two entries: `interceptor` and `interceptor-group`. Both of these entries must be present in the configuration file.

The <interceptor> element specifies the fully qualified interceptor classname and provides an arbitrary, unique name. The interceptor class must also be in the web application's class path or another accessible classpath, such as a system-defined classpath. Each interceptor specified by an <interceptor> element must be referenced in a group, therefore, you must configure at least one <interceptor-group>.

The <interceptor> element includes the following elements.

- name – A unique name within the scope of a web application.
- producer-handle – (Optional) If you specify the handle for a registered producer, the intereceptor(s) in the group will only be called on messages receieved from or sent to that producer. If you do not specify a producer handle, then the interceptor(s) in the group will be called for all producers associated with the consumer.
- interceptor-name – The name(s) of the interceptors you want to include in the group. Use the name(s) specified in the interceptor element(s).

The <interceptor-group> element includes the following elements.

- name – A unique name within the scope of a web application.
- producer-handle – (Optional) If you specify the handle for a registered producer, the intereceptor(s) in the group will only be called on messages receieved from or sent to that producer. If you do not specify a producer handle, then the interceptor(s) in the group will be called for all producers associated with the consumer.
- interceptor-name – The name(s) of the interceptors you want to include in the group. Use the name(s) specified in the interceptor element(s).

For more information on groups, and the order in which methods in groups are called, see "Order of Method Execution" on page 10-12.

Listing 10-1 shows a simple configuration, including two interceptors and one group.

**Listing 10-1 Configuring Interceptors**

```
<interceptor>
    <name>AutoRegisteringInterceptor</name>
    <class-name>myInterceptors.AutoRegistrationInterceptor</class-name>
</interceptor>

<interceptor>
```

```
    <name>ErrorMessageCustomizer</name>
    <class-name>myInterceptors.ErrorMessageCustomizer</class-name>
</interceptor>
<interceptor-group>
    <name>Group_1</name>
    <producer-handle>MyProducer</producer-handle>
    <interceptor-name>AutoRegistrationInterceptor</interceptor-name>
    <interceptor-name>ErrorMessageCustomizer</interceptor-name>
</interceptor-group>
```

# Order of Method Execution

This section discusses the factors that affect the order of method execution in interceptors and groups of interceptors.

- Overview
- Basic Order Of Execution in a Group
- How Return Status Affects Execution Order
- Instance Creation and Reuse
- Example Chains

## Overview

An interceptor group is a collection of interceptors whose methods are called in a well-defined order. A group can be associated with a specific producer or not associated with any producer. If associated with a single producer, then the interceptors in the group will be called only when requests and responses occur between the consumer and that specific producer. If no producer is associated with a group, then the group's interceptors are called when communication occurs between the consumer and all producers associated with it. For detailed information on configuring a group, see "Configuring Interceptors" on page 10-10.

## Basic Order Of Execution in a Group

This section describes the order in which interceptor methods are called if all methods return a status value of `CONTINUE_CHAIN`.

Recall that all interceptors contain four methods: `preInvoke()`, `postInvoke()`, `onFault()`, and `onIOFailure()`. In an interceptor chain, all of the `preInvoke()` methods are executed, then the `postInvoke()` methods, the `onFault()` methods, and finally the `onIOFailure()` methods.

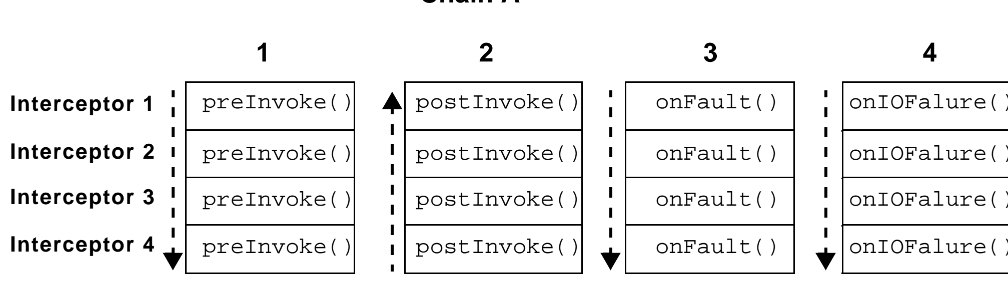
Figure 10-5 illustrates the order in which methods in an interceptor chain are called for the following chain definition:

**Listing 10-2 Example Interceptor Chain Definition**

```
<interceptor-chain>
    <name>Chain-A</name>
    <producer-handle>myProducer</producer-handle>
    <interceptor-name>Interceptor2</interceptor-name>
    <interceptor-name>Interceptor3</interceptor-name>
    <interceptor-name>Interceptor3</interceptor-name>
    <interceptor-name>Interceptor4</interceptor-name>
</interceptor-chain>
```

The illustration assumes that all methods return the `CONTINUE_CHAIN` status. Note that all of the `preInvoke()` methods are called first in the order in which the interceptors appear in the chain configuration, then the `postInvoke()` methods are called in the reverse order. After all the `postInvoke()` methods are called, the `onFault()` methods are called in the order shown in Figure 10-5. Finally, the `onIOFailure()` methods are called in the order shown in Figure 10-5. If `onFault()` or `onIOFailure()` are called, then `postInvoke()` is not called.

**Figure 10-5 Default Method Order in Interceptor Chains**



**Tip:** Be aware that you can define interceptors in the configuration file that are associated with specific producers or not associated with any specific producer. An unassociated interceptor does not have a `<producer-handle>` element defined with it. Unassociated interceptors are always called first for all producer transactions, before the interceptors that are associated with a specific producer are called. Unassociated interceptors are called in the order in which they appear in the configuration file. See "Configuring Interceptors" on page 10-10 for more information.

## How Return Status Affects Execution Order

The return status of interceptor methods also affects the order in which interceptor methods are executed. It's helpful to think of chains of interceptor methods. It's easier to understand the way interceptor chains work if you think of four separate chains: a `preInvoke()` chain, a `postInvoke()` chain, an `onFault()` chain, and an `onIOFailure()` chain. If you think of chains this way, it's easier to understand the effect of return status on the execution of the chain.

Table 10-7 summarizes the possible return values for interceptor methods and how they affect the order of execution in a chain.

**Table 10-7 Interceptor Method Return Values**

| Return Value | Description |
|---|---|
| `CONTINUE_CHAIN` | If all methods return a `CONTINUE_CHAIN` status, interceptors in a chain are executed in order. |
| `ABORT_CHAIN` | Skips calling methods of the subsequent interceptors in the chain, but sends the message on to the producer. A use case for `ABORT_CHAIN` is when you trap a registration error. If the interceptor is able to fix the error, it can then be re-submitted to the producer. |
| `SKIP_REQUEST_ABORT_CHAIN` | Skips calling methods of the subsequent interceptors in the chain and skips sending the request message to the producer. A use case for `SKIP_REQUEST_ABORT_CHAIN` is when the interceptor performs caching. If markup exists in the cache, there may be no reason to perform further processing and return a message to the producer. |

**Table 10-7 Interceptor Method Return Values**

| Return Value | Description |
|---|---|
| HANDLED | Skips calling the fault-handling methods of the subsequent interceptors in the chain and assumes that fault has been consumed by the interceptor. The interceptor is responsible for providing markup data inputstream, in the absence of it will result in rendering “no markup found error” error message in the portlet. |
| RETRY | Re-sends the message that caused the fault. The fault-handling methods of the subsequent interceptors in the chain are not called. Only one retry is permitted per message. |

**Note:** If `ABORT_CHAIN` or `SKIP_REQUEST_ABORT_CHAIN` is returned from `preInvoke()`, all of the interceptors will still be called, in reverse order, during the `postInvoke()` phase.

# Instance Creation and Reuse

A new instance of an interceptor implementation class is created for every message before calling `preInvoke()`. This same instance is reused to call `postInvoke()`, `onFault()`, and `onIOFailure()`. This allows you to set and use instance variables within the scope of a request. For a given instance, all methods are called once; however, `preInvoke()` and `postInvoke()` can be called one more time if the `RETRY` status is returned by either `onFault()` or `onIOFailure()`. Only one retry is permitted per message.

# Example Chains

This section includes several examples that illustrate the flow of method execution in an interceptor chain. Refer to Table 10-7 for details on interceptor return values referred to in these examples.

Figure 10-6 illustrates the flow in an interceptor chain when the `preInvoke()` method is called on the chain. When a status of `ABORT_CHAIN` returned, a message is immediately returned to the producer. The `preInvoke()` methods of subsequent interceptors in the chain are not called.

**Figure 10-6 preInvoke() Chain with ABORT_CHAIN Return Value**

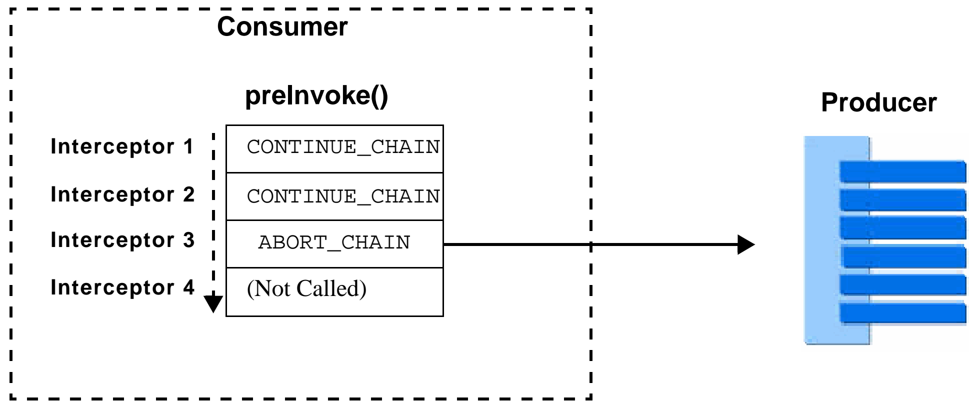



Figure 10-7 illustrates another example of the flow in an interceptor chain when the `preInvoke()` method is called on the chain. When a status of `SKIP_REQUEST_ABORT_CHAIN` is returned, no message is sent to the producer. The `preInvoke()` methods of subsequent interceptors in the chain are not called.

**Figure 10-7 preInvoke() Chain**

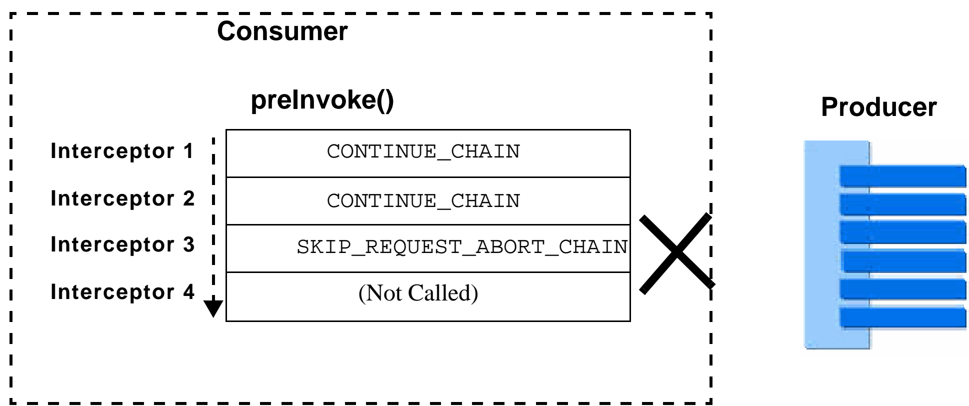



Figure 10-8 illustrates the flow in an interceptor chain when the `onFault()` method is called on the chain. When a status of `RETRY` is returned, the same message that caused the failure, with possible modifications inserted by the interceptor, is returned to the producer. The `onFault()` methods of subsequent interceptors in the chain are not called. Only one retry is permitted. If the

same fault is returned, the interceptor framework assumes that the error is handled by the interceptor, and a status of `HANDLED` is returned.

**Figure 10-8 onFault() Chain with RETRY Return Value**

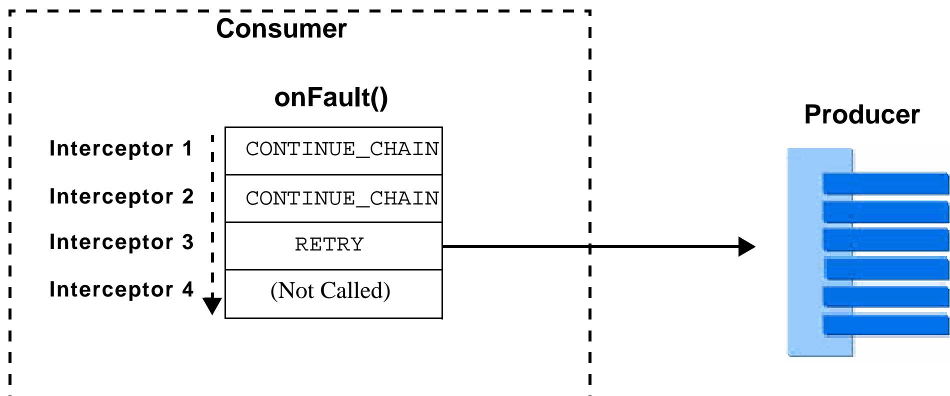
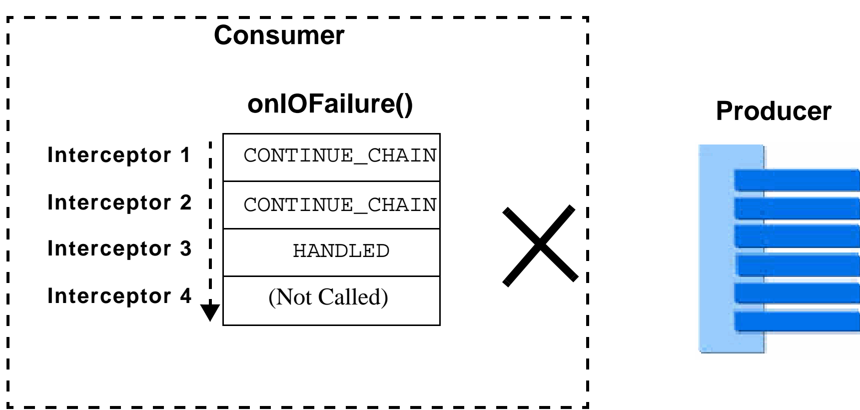



Figure 10-9 illustrates the flow in an interceptor chain when the `onIOFailure()` method is called on the chain. In this case, the no message is returned to the producer, and the framework assumes that fault has been consumed by the interceptor. The `onIOFailure()` methods of subsequent interceptors in the chain are not called. Only one retry is permitted. The second retry is not honored, and the fault or exception is passed to a proxy portlet. If the same fault is returned, the interceptor framework assumes that the error is handled by the interceptor, and a status of `HANDLED` is returned.

**Figure 10-9 onIOFailure() Chain with HANDLED Return Value**



# Implementing an Error-Handling Interceptor

This section illustrates two simple interceptor implementations. The first implements the `onFault()` method and modifies the error message that is returned to the producer. The second implements `onFault()` and redirects portlet to display an error page.

This section includes these sections:

- Modifying an Error Message
- Including an Error JSP Page

## Modifying an Error Message

You can use interceptors to retrieve and modify exceptions thrown from the producer. In Listing 10-3, the `onFault()` method retrieves a Throwable from the response. You can design an `onFault()` method to examine the exception and take any appropriate action. In this case, the error message is retrieved, modified, and written back to the IGetMarkupResponseContext object. The return status `HANDLED` has the following effects:

- If the interceptor is part of a chain, it skips calling subsequent `onFault()` methods in the chain.
- Returns markup data to the producer. This markup is then displayed in the portlet. If you do not return markup data to the producer, the portlet displays the message “No Markup Found Error.”

**Listing 10-3 ErrorMessageCustomizer**

```
import com.bea.wsrp.consumer.interceptor.IGetMarkupInterceptor;
import com.bea.wsrp.model.markup.IGetMarkupRequestContext;
import com.bea.wsrp.model.markup.IGetMarkupResponseContext;
import com.bea.wsrp.consumer.interceptor.Status;
import weblogic.xml.util.StringInputStream;

public class ErrorMessageCustomizer implements IGetMarkupInterceptor
{
    public Status.PreInvoke preInvoke(IGetMarkupRequestContext requestContext)
    {
        return Status.PreInvoke.CONTINUE_CHAIN;
    }

    public Status.PostInvoke postInvoke(IGetMarkupRequestContext requestContext,
                                        IGetMarkupResponseContext responseContext)
    {
```

```
        return Status.PostInvoke.CONTINUE_CHAIN;
    }

    public Status.OnFault onFault(IGetMarkupRequestContext requestContext,
                              IGetMarkupResponseContext responseContext,
                              Throwable t)
    {
        String message = "This Message is Customized by ErrorMessageCustomizer\n";
        message = message + t.getMessage();
        StringInputStream stringInputStream = new StringInputStream(message);
        responseContext.setMarkupData(stringInputStream);

        return Status.OnFault.HANDLED;
    }

    public Status.OnIOFailure onIOFailure(IGetMarkupRequestContext requestContext,
                          IGetMarkupResponseContext responseContext, Throwable t)
    {
        return Status.OnIOFailure.CONTINUE_CHAIN;
    }
}
```

# Including an Error JSP Page

In this example, the `onFault()` method is implemented to include an error JSP page in the portlet.

**Listing 10-4 DisplayErrorPage Class**

```
import com.bea.wsrp.consumer.interceptor.IGetMarkupInterceptor;
import com.bea.wsrp.model.markup.IGetMarkupRequestContext;
import com.bea.wsrp.model.markup.IGetMarkupResponseContext;
import com.bea.wsrp.consumer.interceptor.Status;
import weblogic.xml.util.StringInputStream;
import myClasses.MyError;

public class DisplayErrorPage implements IGetMarkupInterceptor
{
    public Status.PreInvoke preInvoke(IGetMarkupRequestContext requestContext)
    {
        return Status.PreInvoke.CONTINUE_CHAIN;
    }

    public Status.PostInvoke postInvoke(IGetMarkupRequestContext
                    requestContext, IGetMarkupResponseContext responseContext)
```

```
    {
        return Status.PostInvoke.CONTINUE_CHAIN;
    }

    public Status.OnFault onFault(IGetMarkupRequestContext requestContext,
                              IGetMarkupResponseContext responseContext,
                              Throwable t)
    {
        try
        {
           if (t instanceof MyError) {
                responseContext.render(requestContext.getHttpServletRequest(),
                                  requestContext.getHttpServletResponse(),
                                  "/redirectTarget/myTarget.jsp");
            } else {
                responseContext.render(requestContext.getHttpServletRequest(),
                                  requestContext.getHttpServletResponse(),
                                  "/redirectTarget/defaultTarget.jsp");
          }
        }
        catch (ServletException e)
        {
            e.printStackTrace();
        }
        catch (IOException e)
        {
            e.printStackTrace();
        }

        return Status.OnFault.HANDLED;
    }

    public Status.OnIOFailure onIOFailure(IGetMarkupRequestContext
                requestContext, IGetMarkupResponseContext
                responseContext, Throwable t)
    {
        return Status.OnIOFailure.CONTINUE_CHAIN;
    }
}
```

CHAPTER 11

# Federating User Profiles

WebLogic Portal enables user profile information to be passed from consumers to producers. This feature allows many of the Personalization features available in WebLogic Portal to function in a federated portal. This chapter explains how to work with user profile information in a federated portal. Before a federated portal can use user profile information, some configuration is required in both the consumer and producer applications.

This chapter includes the following topics:


- Introduction
- Configuring the Producer
- Configuring the Consumer


## Introduction

This section summarizes the purpose of user profile propagation and how WebLogic Portal propagates user profile data in a federated environment.

### What are User Profiles?

A user profile is a collection of property sets that contain user-specific information. WebLogic Portal provides many features that rely on user profiles. For example, the WebLogic Portal Personalization features rely on user profiles to deliver customized content to specific types of users.

For example, you could create a property set in Workshop for WebLogic called **human resources** that contains properties such as **gender**, **hire date**, and **email address**. This information can be used to personalize the user's experience in your portal. When users log into a portal, the portal can access the property values and target them with personalized content, e-mails, pre-populated forms, and discounts based on the Personalization rules you set up.

See the *Interaction Guide* for more information on personalization. For detailed information on creating user profiles, see *User Management Guide*.

# User Profiles in Federated Portals

For a WebLogic Portal producer to return personalized content to a consumer, user information must be conveyed from the consumer to the producer. The basic requirements for using user profile information in a federated portal include:

- On the producer, declare the user properties to request from the consumer. The best practice is to request only those properties that are required by the portlets that are deployed on the producer. See "Configuring the Producer" on page 11-3 for more information.
- On the consumer, provide a mapping file, if necessary, that maps the requested user properties with equivalent properties that exist on the consumer. The consumer uses the WebLogic Portal Personalization (P13N) API to retrieve the requested user properties on the consumer. See "Configuring the Consumer" on page 11-10 for more information.

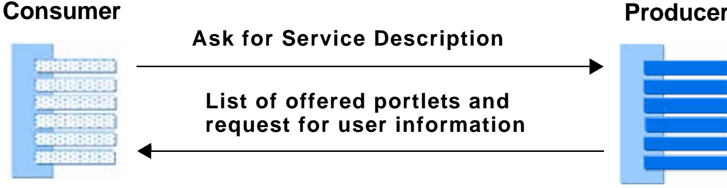
---

**Tip:** Once retrieved, the list of the properties required for a specific portlet is stored in the consumer database for future access.

---

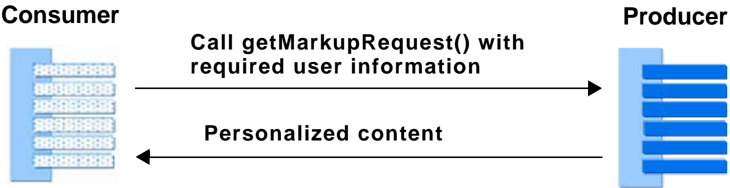
As shown in Figure 11-1, after a consumer first contacts a producer, the producer responds with a list of the portlets it offers and with a request for the user information that each portlet requires.

**Figure 11-1 Producer Requests User Information from Consumer**



If a portlet requires user information, the consumer will attempt to supply that information as part of the `getMarkupRequest()` to the producer before the portlet can be rendered, as illustrated in Figure 11-2. WebLogic Portal uses the P13N API, typically in conjunction with a mapping file, to retrieve the requested user properties on the consumer.

**Figure 11-2 Producer Returns Personalized Content**




## Platform for Privacy Preferences (P3P)

The WSRP protocol specifies a standard format for storing and exchanging user information. This format, called Platform for Privacy Preferences (P3P), is an internet standard. You can configure WebLogic Portal applications to accept user information presented in this format as well as in the WebLogic Portal user profile format.

See "P3P Examples" on page 11-15 for more information. The P3P specification is available on the W3C website, www.w3.org/TR/P3P.

# When to Use this Feature

Use this feature if the user properties defined on the producer and consumer do not match. When exactly the same user properties exist on the consumer and producer, you do not need to use this feature.

---

**Tip:** In a production environment, the best practice is to specify a property set and property name for each user property you want to propagate. Retrieving all properties is inefficient when only a small subset of properties is needed.

---

# Configuring the Producer

To use user profile information in a federated portal, you need to declare on the producer which user properties are required by the portlets deployed on the producer. The declared properties are

marshalled in a response to the consumer and returned to the consumer application, which must then return the requested user property values when registering the producer.

The procedures for configuring portlets deployed in a producer to use user profile information differs depending on whether you are configuring Java portlets or non-Java portlets.

This section includes the following topics:

- Configuring Java Portlets
- Configuring Non-Java Portlets

# Configuring Java Portlets

The Java Portlet Specification specifies how Java portlets access user attributes such as the name, email address, phone number, and other attributes of the user. This section explains how to specify user attributes for Java portlets deployed in a producer application, and how Java portlets retrieve user information.

**Tip:** For detailed information on how user information is accessed by Java portlets, refer to the User Information section of the Java Portlet Specification.

## Configuring the Deployment Descriptor (portlet.xml)

The Java Portlet Specification defines the `<user-attribute>` element for specifying user attributes required by a deployed Java portlet. Figure 11-1 shows an excerpt of a `portlet.xml` file with user properties specified. The `<name>` elements specify user attribute names.

**Listing 11-1 Specifying User Properties in portlet.xml File**

```
<portlet-app>
...
    <user-attribute>
        <name>Employee/Language</name>
    </user-attribute>
    <user-attribute>
        <name>Employee/Role</name>
    </user-attribute>
```

```
...
</portlet-app>
```

## Retrieving User Information in a Java Portlet

The Java Portlet Specification also specifies how Java portlets retrieve user information from the portal environment in which they are deployed. The portlet can retrieve a Map object that contains the user attributes of the user who initiated the request. You can retrieve this Map object from the request using the `PortletRequest.USER_INFO` constant.

The example code in Listing 11-2 shows how a Map of user information is retrieved from the request in a JSP associated with a Java portlet. User property values are retrieved from the Map using the user property names as keys.

**Listing 11-2 Retrieving User Information in a Java Portlet**

```
...

    Map<String, Object> props;
    PortletRequest portletRequest = (PortletRequest)
    request.getAttribute("javax.portlet.request");
    if (portletRequest != null) {
        props = (Map<String, Object>)
       portletRequest.getAttribute(PortletRequest.USER_INFO) ;
    } else {
        props = null ;
    }

    if (props == null) {%>
        <p>Empty Profile</p>
    <%} else {%>
       <p><%= props.get("Employee/Language") %></p>
       <p><%= props.get("Employee/Role") %></p>
    <%}%>
...
```

### Mapping User Information on the Consumer

If the user properties on the consumer and producer do not match, you can create a mapping file on the consumer. In addition, all requested P3P properties must be specified in the mapping file. A mapping file allows the consumer to retrieve user properties that map to the properties requested by the producer. For detailed information on mapping user properties, see "Configuring the Consumer" on page 11-10.

## Configuring Non-Java Portlets

This section explains how to specify user attributes for non-Java portlets deployed in a producer application.

### Configuring the Deployment Descriptor File

For non-Java portlets, you specify required user properties in the descriptor file `wsrp-producer-config.xml`. This file is located in the `WEB-INF` directory of your producer web application. Listing 11-3 shows a sample `wsrp-producer-config.xml` file. The `<requiredUserProperties>` element specifies the required user properties for portlets deployed in the producer web application (shown in bold type). In the example, the value `All` specifies that consumer must supply all available user profile information to the producer. Other possible values are discussed in this section.

**Listing 11-3 Sample wsrp-producer-config.xml File**

```
<?xml version="1.0" encoding="UTF-8"?>
<wsrp-producer-config
    xmlns="http://www.bea.com/servers/weblogic/wsrp-producer-config/9.0"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:uddi="urn:uddi-org:api_v2"

xsi:schemaLocation="http://www.bea.com/servers/weblogic/wsrp-producer-conf
ig/9.0 wsrp-producer-config.xsd">
    <description></description>
    <service-config>
        <registration required="true" secure="false"/>
        <service-description secure="false" supports-method-get="true"/>
        <markup secure="false" rewrite-urls="true" transport="string"/>
        <portlet-management required="true" secure="false"/>
```

```
    </service-config>
    <supported-locales>
        <locale>en</locale>
        <locale>en-US</locale>
    </supported-locales>
    <requiredUserProperties properties="All">
    </requiredUserProperties>
</wsrp-producer-config>
```

The `<requiredUserProperties>` element contains one attribute, called `properties`, which takes one of these three values:

- **`All`** – Instructs the consumer to send all user profile information. For example:

  ```
  <requiredUserProperties properties="All">
  ```

- **`None`** – Instructs the consumer to send no user profile information. For example:

  ```
  <requiredUserProperties properties="None">
  ```

- **`Specified`** – Instructs the consumer to send only specified user profile information. Use the `<specifiedProperties>` sub-element to list the user information required by the portlet. For example:

  ```
  <requiredUserProperties properties="specified">
    <description>These are required properties</description>
    <specifiedProperty name="Employee/name"/>
    <specifiedProperty name="Employee/gender"/>
    <specifiedProperty name="Employee/number"/>
  </requiredUserProperties>
  ```

The value given for the `name` property can take one of these forms:

- *`propertySet/propertyName`* – The name of a property set defined on the producer and the name of a property in that property set. For example:

  ```
  <requiredUserProperties properties="specified">
    <specifiedProperty name="Employee/gender"/>
  </requiredUserProperties>
  ```

- *`propertySet/`*`*` – The name of a property set defined on the producer and an asterisk (*), which specifies that all properties in that property set are required. For example:

```
<requiredUserProperties properties="specified">
  <specifiedProperty name="Employee/*"/>
</requiredUserProperties>
```

- *p3pName* – Specify P3P user properties. For example:

```
<requiredUserProperties properties="specified">
  <specifiedProperty name="name/given"/>
  <specifiedProperty name="gender"/>
</requiredUserProperties>
```

If no user information is specified in `wsrp-producer-config.xml`, the behavior is the same as if a value of `None` were specified in `<requiredUserProperties>`.

## Retrieving User Information in a Portlet

The code excerpt in Listing 11-4 shows how user properties are retrieved in a portlet's JSP file using the P13N tag `<profile:getProperty>`.

**Listing 11-4 Retrieving Values in a Portlet**

```
...
<%
    if (request.getUserPrincipal() != null) {
  %>
      <profile:getProfile profileKey="<%=
request.getUserPrincipal().getName() %>"      />
  <%
  } else { %>
      <profile:getProfile profileKey="anonymous" groupOnly="true" />
  <%
  }
  %>

  <tr>
<td>Name</td>
<td id="wsrp_date"><profile:getProperty propertySet=
"Employee" propertyName="name"/></td>
  </tr>
  <tr>
    <td>Gender</td>
```

```
    <td id="wsrp_int_code"><profile:getProperty propertySet=
    "Employee" propertyName="gender"/></td>
    </tr>
  <tr>
...
```

## Handling User Property Extensions

If a WebLogic Portal or non-WebLogic Portal consumer sends extended P3P user profile information, the portlet can retrieve the extensions as a List object obtained from the `<profile:getProperty>` tag. Listing 11-5 shows example code that extracts a List containing telephone extensions. In this case, the property `homeInfo/postal/extensions` is an extended WSRP user property.

**Listing 11-5 Retrieving User Profile Extensions**

```
<profile:getProperty propertySet="<%= UserProperty.P3P_PROPERTY_SET_NAME
%>" propertyName="homeInfo/postal/extensions" id="postalExtsObj"/>
        <%
            List<Element> teleExts = (List<Element>) postalExtsObj;
            if (teleExts != null) {
                for (int i = 0 ; i < teleExts.size() ; i++) {
                   String extStr = teleExts.get(i)

        %>
                   <tr> <td>Postal Extension[<%= i %>]</td>
                   <td colspan="2"
                   id="postal_extensions[<%=i%>]"><%= extStr %></td> </tr>
        <%       }
             }%>
```

### Mapping User Information on the Consumer

Consumers may map the user properties requested by producers to properties that exist on the consumer. For detailed information on mapping user properties, see "Configuring the Consumer" on page 11-10.

# Configuring the Consumer

In many cases, the user property set and property names that exist on a producer do not match those on the consumer. Therefore, WebLogic Portal allows you to map these names appropriately. This section explains how to map property set and property names using a configuration file or programatically with a mapping class.

This section includes these topics:

- Using a Mapping File
- Using a Mapping Class
- Mapping Constants

## Using a Mapping File

Specify user profile mappings in the `wsrp-user-property-config.xml` file. This file is located in the `WEB-INF` directory of the consumer web application.

As shown in Listing 11-6, the element `<wsrp-user-property-map-bean>` is the top-level element that can appear in this configuration file. The elements that can fall under `<wsrp-user-property-map-bean>` are shown in bold type and include:

- **`<user-property-map>`** – Creates a producer to consumer mapping that applies to all producers registered with the consumer.
- **`<producer-user-property-map>`** – Creates a mapping tied to a specific producer, indicated with the `<producer-handle>` element.
- **`<mapper-class-name>`** – Lets you supply a class that peforms mappings programatically. You must specify the fully qualified classname of the mapping class. For more information on creating a mapping class, see "Using a Mapping Class" on page 11-12.

As shown in Listing 11-6, the `<producer-user-property-map>` element can be used to create producer-specific mappings directly or with a mapping class.

**Listing 11-6 Example wsrp-user-property-config.xml File**

```
<?xml version="1.0" encoding="UTF-8"?>
<wsrp-user-property-map-bean
xmlns="http://www.bea.com/ns/portal/90/wsrp-user-property-config">

    <!-- Maps ldap/name -> Employee/name for all registered producers -->
    <user-property-map>
        <producer-property-name>Employee/name</producer-property-name>
        <consumer-property>ldap/name</consumer-property>
    </user-property-map>

    <!-- Specifies a mapper class to apply to all registered producers -->
    <mapper-class-name>myClasses.MyUserPropertyMapper1</mapper-class-name>

    <!-- User Property Map for specific producer -->
    <producer-user-property-map>
        <producer-handle>complexProducer</producer-handle>
        <user-property-map>
            <producer-property-name>Employee/number</producer-property-name>
            <consumer-property>"xxxxxx"</consumer-property>
        </user-property-map>
    </producer-user-property-map>

    <!-- Specifies a mapper class for specific producer -->
    <producer-user-property-map>
        <producer-handle>complexProducer2</producer-handle>
        <mapper-class-name>myClasses.MyUserPropertyMapper2</mapper-class-name>
    </producer-user-property-map>
</wsrp-user-property-map-bean>
```

The `<producer-property-name>` sub-element of `<user-property-map>` specifies the *`propertySet`/`propertyName`* pair of the requested producer property, and the `<consumer-property>` sub-element specifies the equivalent pair that exists on the consumer.

The `<producer-property-name>` and `<consumer-property>` pairs can take the following forms:

- *`propertySetName/propertyName`* – The name of a property set and the name of a property in that property set. For example:

```
<producer-property-name>propertySetName-A/propertyName-A</producer-property-name>
<consumer-property>propertySetName-B/propertyName-B</consumer-property>
```

- *propertySetName/** – The asterisk (*) specifies that all properties in that property set are mapped. This pattern assumes that the same property names exists in the mapped property sets on the consumer and the producer.

  For example, the following lines map all properties in `propertySetName-A` on the producer to `propertySetName-B` on the consumer.

```
<producer-property-name>propertySetName-A/*</producer-property-name>
<consumer-property>propertySetName-B/*</consumer-property>
```

- *propertyValue* – Maps a property name from the producer to a constant value. For example, the following lines map the property called `propertyName-A` from the producer to an arbitrary string constant. In addition to strings, you can specify other types of constants. For more information, see "Mapping Constants" on page 11-14.

```
<producer-property-name>propertySetName-A/propertyName-A
</producer-property-name>
<consumer-property>"aStringValue"</consumer-property>
```

# Using a Mapping Class

In addition to using a mapping file to map requested producer properties to consumer properties, you can create a mapping class to programmatically map and set user property values on the consumer. To use a mapping class, you need to do the following:

- Write the mapping class.
- Configure the mapping class in the `wsrp-user-properties-config.xml` file.

## Writing the Mapping Class

To create a mapping class, do the following:

1. Extend the com.bea.wsrp.consumer.userproperty.DefaultUserPropertyMapper class.
2. Override the `getProducerProperties` method to implement the mapping functions that you want to create. For detailed information on this method, refer to the Javadoc. The mapper class example in Listing 11-7 sets the gender property for a user based on the user's name.

**Note:** Extending DefaultUserPropertyMapper and overriding `getProducerProperties` is the simplest and best practice, although it is not required. You can also extend its abstract base class if you want to.

3. Configure the mapper class in the `wsrp-user-property-config.xml` file. To do this, add lines to `wsrp-user-property-config.xml` that follow the pattern shown in Listing 11-7,

where *producerHandle* is the unique name that identifies the producer on the consumer, and *myClasses.MyMapperClass* is the full classname of the mapper class.

**Listing 11-7 Example Mapper Class**

```
package com.bea.portlet.qa.wsrp.userprops;

import java.util.Arrays;
import java.util.Collection;
import java.util.HashSet;
import java.util.Map;
import java.util.Set;

import com.bea.p13n.property.EntityPropertyCache;
import com.bea.wsrp.consumer.userproperty.DefaultUserPropertyMapper;
import com.bea.wsrp.consumer.userproperty.RequiredUserProperties;
import com.bea.wsrp.consumer.userproperty.UserProperty;

public class TestUserPropertyMapper extends DefaultUserPropertyMapper {
    private final static Set<String> MALE_NAMES = new HashSet<String>() ;
    private final static Set<String> FEMALE_NAMES = new HashSet<String>() ;

    static {
        final String[] maleNames = {"Nate","Nathan","Eric","Subbu","Scott"};
        MALE_NAMES.addAll(Arrays.asList(maleNames)) ;
        final String[] femaleNames = {"Mandy","Geeta","Jenn","Jen","Jenny"} ;
        FEMALE_NAMES.addAll(Arrays.asList(maleNames)) ;
    }

    /**
     * Map set the user's gender if user.name.given is set
     * @param requiredProperties the properties requested by the producer
     * @param map  A map where the key is the producer's name and
     * the value is the consumer's name
     * @param profile the User's profile on the consumer
     * @return the properties mapped to the producer
     */
    public Collection<UserProperty> getProducerProperties(
            RequiredUserProperties requiredProperties,
            Map<String, String> map,
            EntityPropertyCache profile) {

        final Collection<UserProperty> properties =
        super.getProducerProperties(requiredProperties, map, profile) ;
        if (requiredProperties.isPropertyRequired("HR", "gender")) {
          final String givenName = (String) getProperty(profile, "HR", "name.given") ;
            if (MALE_NAMES.contains(givenName)) {
                addUserProperty(properties, "HR", "gender", "M") ;
            } else if (FEMALE_NAMES.contains(givenName)) {
                addUserProperty(properties, "HR", "gender", "F") ;
            }
```

```
        }
        return properties ;
    }
}
```

### Configuring the Mapping Class

You need to declare mapping classes in the `wsrp-user-properties-config.xml` file. To do this, use the `<mapper-class-name>` element. This element takes a fully qualified classname as its property, as shown in the following example:

```
<mapper-class-name>myClasses.MyMapperClass</mapper-class-name>
```

You can place this element directly under the `<wsrp-user-property-map-bean>` element or the `<producer-user-property-map>` element. For detailed information on the configuration file, see "Using a Mapping File" on page 11-10.

## Mapping Constants

In addition to mapping user properties to user properties, you can map user properties to constant values. You can map to constants in the configuration file or in a mapper class. Listing 11-8 shows part of a `wsrp-user-properties-config.xml` file where a property called `long` is mapped to a constant of type long, which is enclosed in `/L` delimiters.

**Listing 11-8**

```
...
        <user-property-map>
            <producer-property-name>map/long</producer-property-name>
            <consumer-property>/L42/L</consumer-property>
        </user-property-map>
...
```

Table 11-1 includes the full set of constant delimiters.

**Table 11-1 Constant Delimiters**

| Type | Delimiter | Example |
| --- | --- | --- |
| String | " | "Hello World" |
| Boolean | /B | /Btrue/B |
| Long | /L | /L42/L |
| Double | /D | /D3.14159/D |
| Date | /T | /T1975-09-27T14:38:11-07:00/T |

If you create a mapping class, you can specify constants using the delimiters shown in Table 11-1 or use the constants defined in the `com.bea.wsrp.consumer.userproperty.UserProperty` interface. For details on this interface, refer to the Javadoc.

# P3P Examples

This section recasts some of the examples given previously in this chapter to show how to use P3P attributes instead of WebLogic Portal user attributes. This section includes the following examples:

This section includes these examples:

- Example: portlet.xml file with P3P Attributes
- Example: Retrieving P3P User Information in a Java Portlet
- Example: Retrieving User Information in Other Portlets

## Example: portlet.xml file with P3P Attributes

The portlet.xml file is a standard deployment descriptor for Java portlets. Listing 11-9 shows a `portlet.xml` file that includes P3P attributes. For more information on this file, see "Configuring Java Portlets" on page 11-4.

P3P attribute names always begin with the prefix `user`, and by convention, a dot (.) separator is used to separate elements of a name (for example: `user.name.given`). For a complete set of names used by Java portlets, refer to the Java Portlet Specification.

**Listing 11-9 Specifying User Properties in portlet.xml File**

```
<portlet-app>
…
    <user-attribute>
        <description>User Given Name</description>
        <name>user.name.given</name>
    </user-attribute>
    <user-attribute>
        <description>User Last Name</description>
        <name>user.name.family</name>
    </user-attribute>
    <user-attribute>
        <description>User eMail</description>
        <name>user.home-info.online.email</name>
    </user-attribute>
    <user-attribute>
        <description>Company Organization</description>
        <name>user.business-info.postal.organization</name>
    </user-attribute>
...

</portlet-app>
```

## Example: Retrieving P3P User Information in a Java Portlet

The example code in Listing 11-10 shows how a Map of user information is retrieved from the request in a JSP associated with a Java portlet. Note that standard P3P user property names, such as `user.bdate`, are used in the file.

**Listing 11-10 Retrieving User Information in a Java Portlet**

```
...
Map<String, Object> props;
    PortletRequest portletRequest = (PortletRequest)
    request.getAttribute("javax.portlet.request");
```

```
    if (portletRequest != null) {
        props = (Map<String, Object>)
       portletRequest.getAttribute(PortletRequest.USER_INFO) ;
    } else {
        props = null ;
    }

    if (props == null) {%>
        <p>Empty Profile</p>
    <%} else {%>
       <p><%= props.get("user.bdate") %></p>
       <p><%= props.get("user.business-info.telecom.telephone.intcode")
%></p>
    <%}%>
...
```

## Example: Retrieving User Information in Other Portlets

The code excerpt in Listing 11-11 shows how P3P properties are retrieved in a portlet's JSP file using the P13N tag `<profile:getProperty>`. WebLogic Portal recognizes the constant `com.bea.wsrp.consumer.userproperty.UserProperty.P3P_PROPERTY_SET_NAME` to be the set of standard P3P user properties.

**Listing 11-11 Retrieving P3P Values in a non-Java Portlet**

```
<%@ page import = "com.bea.wsrp.consumer.userproperty.UserProperty" %>
...
<%
    if (request.getUserPrincipal() != null) {
  %>
     <profile:getProfile profileKey="<%= request.getUserPrincipal().getName() %>"
     />
  <%
  } else { %>
      <profile:getProfile profileKey="anonymous" groupOnly="true" />
  <%
  }
```

```
  %>

  <tr>
    <td>Date</td>
    <td id="wsrp_date"><profile:getProperty propertySet=
    "<%= UserProperty.P3P_PROPERTY_SET_NAME %>" propertyName="bdate"/></td>

  </tr>
  <tr>
    <td>Int Code</td>
    <td id="wsrp_int_code"><profile:getProperty propertySet=
    "<%= UserProperty.P3P_PROPERTY_SET_NAME %>" propertyName=
    "businessInfo/telecom/telephone/intcode"/></td>
  </tr>
...
```

CHAPTER 12

# Consumer Entitlement

Consumer entitlement allows producers to decide which portlets to offer to consumers based on registration properties.

This chapter includes these topics:


- Introduction
- Configuring a Producer
- Registering a Consumer
- Modifying Registration Properties


## Introduction

WSRP allows consumers to pass information to producers during registration. Through the User Management features of WebLogic Portal, you can create roles based on this registration information. The roles, in turn, can be used to entitle specific portlets for specific consumers. This feature allows producers to control which portlets are offered to specific consumers.

The basic steps to entitle consumers based on registration properties include:

1. Define one or more application-defined property sets using Workshop for WebLogic. See "Creating an Application Property Set" on page 12-2.
2. Modify the `wsrp-producer-config.xml` configuration file for each portal web application on the producer. See "Editing the Producer Configuration File" on page 12-3.

3. Define user entitlements based on the application-defined property set(s). See “Defining Consumer Entitlements” on page 12-5.

No configuration is required by consumers. All of the configuration takes place on the producer. Once the producer is properly configured, required registration information is sent to the consumer in response to a service description request. The consumer simply prompts the user to enter the registration information requested by the producer through either the WebLogic Portal Administration Console or Workshop for WebLogic.

A typical use case for consumer entitlements is to provide one consumer access to a set of portlets and another consumer access to another set of portlets. For example, suppose your company has several partners. The administrator of the producer could create a registration property with a set of unique values. The administrator could then give each partner their own unique registration property value. When partners register the producer, they are required to enter their value as a registration property, which entitles them to receive a specific set of portlets.

# Configuring a Producer

This section explains how to configure a producer to entitle consumers based on registration properties.

---

**Tip:** You can only define consumer entitlements in a complex producer. For information on complex producers, see “Understanding Producers and Consumers” on page 3-4.

---

The basic steps include:

- Creating an Application Property Set
- Editing the Producer Configuration File
- Defining Consumer Entitlements

## Creating an Application Property Set

The first step in creating entitlements for consumers based on registration properties is to create one or more Application-Defined Property Sets using Workshop for WebLogic. These property sets are used to specify the values a consumer must supply to a producer at registration time.

---

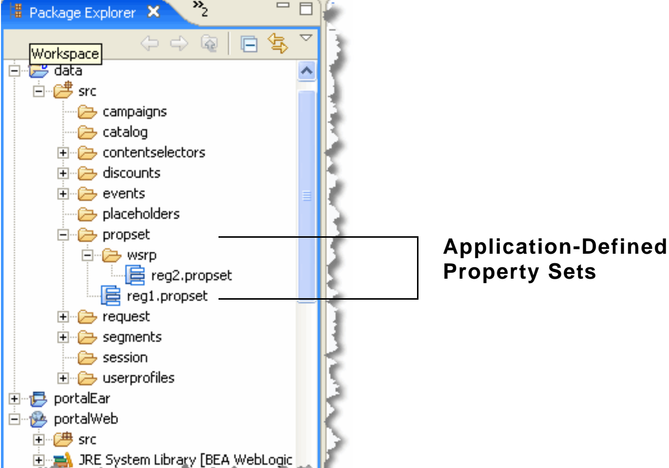
**Tip:** Application-Defined Property Sets must be created in a Datasync project. For detailed information on creating Application-Defined Property Sets, see the *Interaction Management Guide*.

---

For example, if you create a property set containing a set of identification keywords. When the producer receives the registration information from the consumer, it can evaluate the keyword it receives and, based on a visitor entitlement, return a specific set of portlets. If the user registers with a different keyword, a different set of portlets could be returned.

The property sets you create appear in Workshop for WebLogic in the datasync project's **src/propset** folder. Figure 12-1 shows a sample **propset** folder containing two property sets.

**Figure 12-1 Application-Defined Property Sets**




## Editing the Producer Configuration File

After you create property sets containing consumer registration properties and optional default values, you need to make the producer aware of these property sets. To do this, you must edit the configuration file `wsrp-producer-config.xml`. Only the property sets listed in this configuration file are sent to consumers for registration. This configuration file includes a `<registration>` element. This element includes the `<property-uri>` element, which specifies paths to each of the property sets you defined for that producer. By default, a producer

includes a path /wsrpregistrationproperties. You can either put .propset files in that directory or create other directories as needed and list them in the <property-uri> element.

---

**Tip:** By default, the wsrp-producer-config.xml file is stored in a J2EE Shared Library. To edit the file, you must first copy it from the J2EE Shared Library to your workspace. To do this, switch to the Merged Projects view in Workshop for WebLogic. In the WEB-INF directory of the producer web application, right-click the wsrp-producer-config.xml file (it appears in an italic font) and select **Copy to Project**. The configuration file is then copied from the J2EE Shared Library to your filesystem, where you can edit it. Any local changes you make to the file take precedence over the J2EE Shared Library version.

---

Listing 12-1 shows a sample <registration> element in a wsrp-producer-config.xml file. A directory called /wsrpregistrationproperties is created and configured by default in the wsrp-producer-config.xml file. Any property sets placed in this directory are automatically sent to the consumer as registration properties. In addition, all property sets in the /wsrp directory will be sent to the consumer as registration properties. The paths specified in the <property-uri> element are relative to the META-INF/data directory of each producer web application. Note that the directory name /wsrp is an example only; you can create property sets under any directory name you choose. If you do not provide specific property sets using <property-uri> elements, WebLogic Portal imports all Application-Defined Property Sets for registration properties.

**Listing 12-1 Registration Element**

```
<service-config>
        <registration required="false" secure="false">
            <property-uri>/wsrpregistrationproperties</property-uri>
            <property-uri>/wsrp</property-uri>
        </registration>
        <service-description secure="false" supports-method-get="true"/>
        <markup secure="false" rewrite-urls="true" transport="string"/>
        <portlet-management required="true" secure="false"/>
    </service-config>
```

The isStrict keyword is a <registration> keyword that causes registration to fail in a specific case, as specified in Table 12-1.

**Table 12-1 isStrict Keyword**

| Value of isStrict | Explanation |
|---|---|
| `isStrict = true` | Causes registration to fail if both of these are true:<br>• a consumer provides a property value for a registration property that has a restricted set of values defined *and*<br>• the provided value(s) do not fall within the restricted set of values. |
| `isStrict = false` | (Default) If the consumer sends a value that lies outside of the set of values associated with a registration property set, the user can register, but the registration value(s) are not saved. In this case, entitled portlets that require these values will not be offered to the consumer. |

The `isStrict` keyword is part of the `<registration>` element. The `isStrict` keyword is show in bold type in Listing 12-2.

**Listing 12-2 isStrict Keyword**

```
<service-config>
   <registration required="true" secure="false" isStrict="true">
      <property-uri>/wsrpregistrationproperties</property-uri>
      <property-uri>/wsrp</property-uri>
</registration>
   </service-config>
```

# Defining Consumer Entitlements

After you have created property sets for consumer registration and added them to the `wsrp-producer-config.xml` file, you can create visitor entitlements based on the property sets.

In the WebLogic Portal Administration Console, you can define Role Expressions for consumer registration. Figure 12-2 shows the **Role Expressions** tab selected for a Visitor Role called **role1**.

**Figure 12-2 Role Expressions Tab**

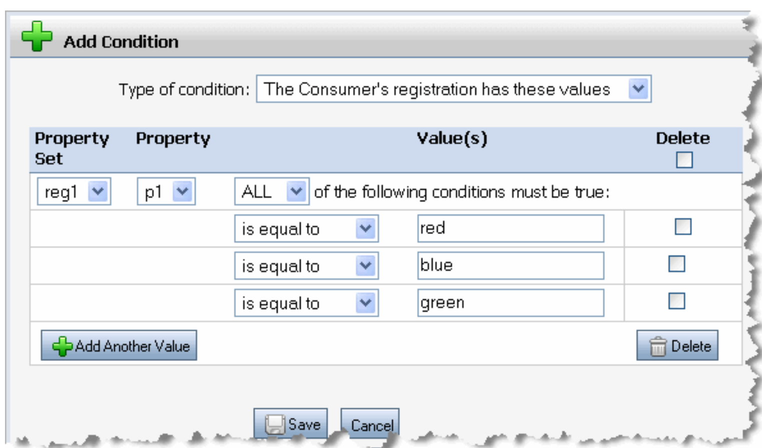
The role expressions are used to dynamically determine whether or not a consumer belongs to a visitor entitlement role. Individual portlets can then be offered based on membership in that role.

The basic procedure for creating a visitor entitlement in the Administration Console includes:

1. Creating a visitor role.
2. Defining one or more consumer registration expressions in the role.
3. Entitling specific portlets based on the role.

For example, you can define a role with the following Role Expression: If the property **p1** equals **red**, **blue**, or **green**, then consumer is considered to be a role member. The producer then returns all portlets that are entitled for that role to the consumer. Figure 12-3 shows the Add Conditions dialog in the WebLogic Portal Administration Console. This dialog is used to define Role Expressions. When creating entitlements for consumer registration, select the **The Consumer's registration has these values** option from the **Type of condition** drop-down menu.

**Figure 12-3 Setting Registration Properties**



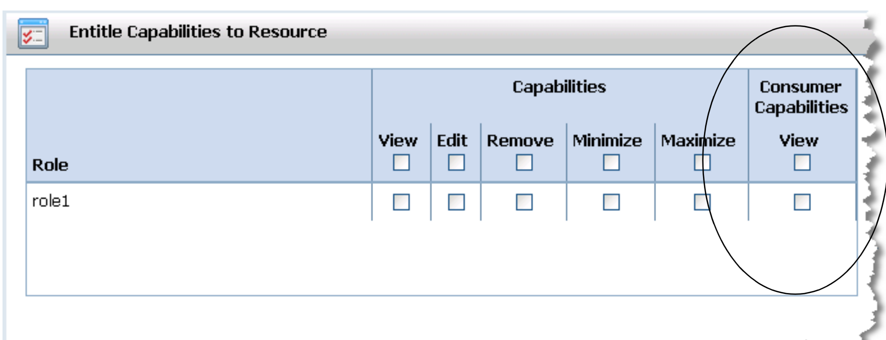

Detailed information on setting up visitor entitlements is beyond the scope of this guide. See the *Security Guide* for information on this topic.

To entitle a portlet with a consumer registration role, do the following:

1. In the Administration Console, select the portlet you want to entitle.
2. Select the Entitlements tab.
3. Click **Add Role**.
4. Use the Add Role dialog to select the role to add to the portlet, and click **Save**. The Entitle Capabilities to Resource dialog appears, as shown in Figure 12-4.

**Note:** Only the **View** option listed under the Consumer Capabilities column applies to consumer registration entitlements. If you select the Consumer Capability **View**, the only other capability you can set is the **View** capability under the Capabilities column. In this way, you can enable the portlet for viewing as both a local and a remote portlet. The other options listed under Capabilities (**Edit**, **Remove**, **Minimize**, and **Maximize**) are disabled for consumer registrations.

**Figure 12-4 Entitling Capabilities to Resource Dialog**

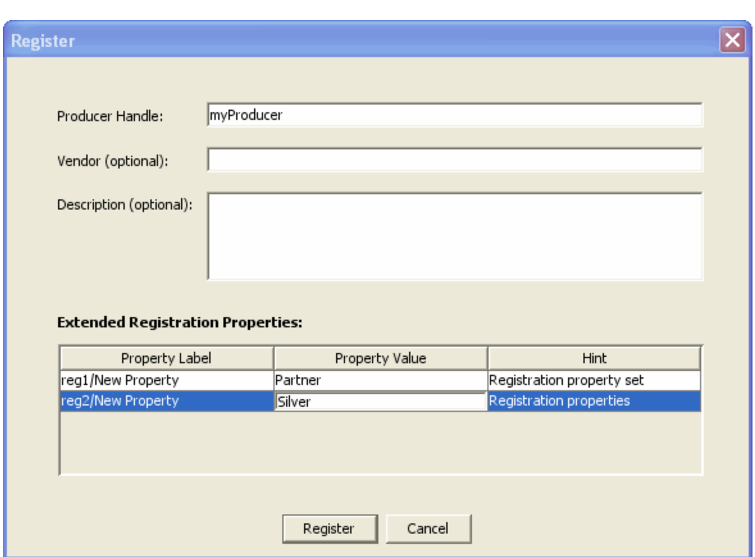



# Registering a Consumer

When you register a consumer with a producer that has been configured to request registration properties, the producer asks the consumer to provide values for those properties. In Workshop for WebLogic, the set of extended registration properties and optional default values are added to the Register dialog, which appears when you attempt to create a remote portlet. On each subsequent request by the consumer, the producer retrieves these registration properties and uses them to make entitlement decisions.

Figure 12-5 shows the registration dialog for a producer that requires registration properties. In this example, two properties are requested: **reg1** and **reg2**. The property values entered by the user are sent to the producer. The producer retrieves the values and stores them. On subsequent requests, the producer compares the stored registration values to the registration values it requires. If the registration values are accepted, the producer uses them to determine to which role the consumer belongs. Once the consumer's role is established, the producer returns only entitled portlets to the consumer.

**Figure 12-5 Register Dialog**




**Tip:** When you register a producer, the consumer sends a `getServiceDescription` request to the producer. The producer's response includes the `<registration>` element. This element includes a list of the types of registration properties the producer requires. The consumer then populates the registration dialog with the appropriate fields. The user fills out these fields and submits them with the registration request. For information on getServiceDescription and other WSRP operations, see Chapter 3, "Federated Portal Architecture."

# Modifying Registration Properties

Using the WebLogic Portal Administration Console, you can modify the registration properties for a producer that has already been registered with a consumer. When the consumer re-registers the producer, some portlets that were previously in use might not be available or some additional portlets might be available to the consumer. For detailed information on modifying the registration properties for a producer using the Administration Console, see "Modifying Producer Registration Properties" on page 18-4.

CHAPTER 13

# Transferring Custom Data

WebLogic Portal supports a relatively simple technique for passing custom data between consumers and producers. A set of interfaces is provided that let you attach arbitrary data to request and response objects. This chapter explains how to use these interfaces to achieve custom data transfer and includes detailed examples.

This chapter includes the following topics:


- What is Custom Data Transfer?
- Custom Data Transfer Interfaces
- Performing Custom Data Transfer
- Transferring XML Data
- Deploying Your Own Interface Implementations


## What is Custom Data Transfer?

Custom data transfer allows portlet developers to exchange arbitrary data between producers and consumers. The primary use cases for custom data transfer are:

- To send and receive data that WebLogic Portal does not usually send or receive.
- To send and receive data that the WSRP protocol does not allow.

**Note:** It is recommend that you use this technique only after trying other techniques for data transfer. The preferred technique for transferring data between producers and consumers

is to use custom events. For more information, see “Data Transfer with Custom Events” on page 7-23.

Some example use cases for custom data transfer include:

- You are a portal developer building a portal with a set of location-sensitive portlets deployed on one or more producers. You would like to supply a zip code to each of these portlets in a request so that each portlet can use this zip code to generate location-aware markup.
- You want to send arbitrary data such as theme or style information or user profile data to portlets.

Custom data transfer allows you to easily resolve these situations and many others like them. The technique for using custom data transfer is straightforward, and involves these primary tasks:

1. Create one or more “holder” classes that implement the interfaces listed in the following section, “Custom Data Transfer Interfaces.” A serializable default implementation of the interfaces, called SimpleStateHolder is provided with WebLogic Portal.
2. Place a serializable holder object in a request or response object, as appropriate. For example, in a consumer application, you can set a holder object as a request parameter and retrieve it in the producer application. See “Custom Data Transfer with a Complex Producer” on page 13-4 for a detailed example of this technique.

Both simple producers and complex producers can take advantage of this feature.

# Custom Data Transfer Interfaces

The following interfaces enable the transfer of data between producers and consumers. To perform custom data transfer, implementations of these interfaces must be deployed on both the consumer and producer.

“Performing Custom Data Transfer” on page 13-3 includes a detailed example demonstrating how to use these interfaces. For more information on these interfaces, refer to their Javadoc descriptions.

**Note:** These interfaces are not supported for events and render depencencies requests.

**com.bea.wsrp.ext.holders.InteractionRequestState**

Allows the consumer to send some arbitrary data to the producer when an interaction (such as a form submission) occurs.

**com.bea.wsrp.ext.holders.InteractionResponseState**
Allows the producer to return some arbitrary data to the consumer after an interaction occurs.

**com.bea.wsrp.ext.holders.MarkupRequestState**
Allows the consumer to send some arbitrary data to the producer when a portlet is being refreshed.

**com.bea.wsrp.ext.holders.MarkupResponseState**
Allows the producer to return some arbitrary data to the producer after portlet is rendered.

**com.bea.wsrp.ext.holders.XmlPayload**
Transfers XML data between consumers and producers. You can place an instance of this class directly in request and response objects. For more information, see "Transferring XML Data" on page 13-26.

---

**Tip:** If you do not want to create your own implementations of these interfaces, the serializable com.bea.wsrp.ext.holders.SimpleStateHolder class provides a default implementation. The examples in this chapter use SimpleStateHolder to pass custom data.

---

# Performing Custom Data Transfer

This section presents examples that illustrate how to use custom data transfer between consumers and producers. Both examples use the serializable com.bea.wsrp.ext.holders.SimpleStateHolder class, which implements the five interfaces listed previously in "Custom Data Transfer Interfaces" on page 13-2. This class provides a default implementation of the above interfaces that lets you exchange simple name-value pairs of data.

The examples include:

- Custom Data Transfer with a Complex Producer

  This example demonstrates custom data transfer between a consumer and a complex producer.

- Custom Data Transfer in a Simple Producer

  This example demonstrates custom data transfer between a consumer and a simple producer.

# Custom Data Transfer with a Complex Producer

This example explains how to transfer data from a consumer to a complex producer. For information on complex producers, see "WebLogic Portal Producers" on page 3-6.

## Example Overview

In this example, a backing file in the consumer application packages arbitrary data in a com.bea.wsrp.ext.holders.SimpleStateHolder object. This object is attached to a request using the setAttribute() method. The producer retrieves the data from the request and places it in a JSP page. The modified page is then displayed by the consumer application.

The example consists of these steps:

1. Setting Up the Example
2. Creating the Producer JSP and Portlet
3. Federating zipTest.portlet to the Consumer
4. Creating a Backing File
5. Testing the Consumer Application

## Setting Up the Example

If you want to try the example discussed in this chapter, you need to run Workshop for WebLogic and perform the prerequisite tasks listed in Table 13-1. For detailed information on performing these basic setup tasks, see the WebLogic Portal tutorial *Setting Up Your Portal Development Environment*.

**Table 13-1 Prerequisite Tasks**

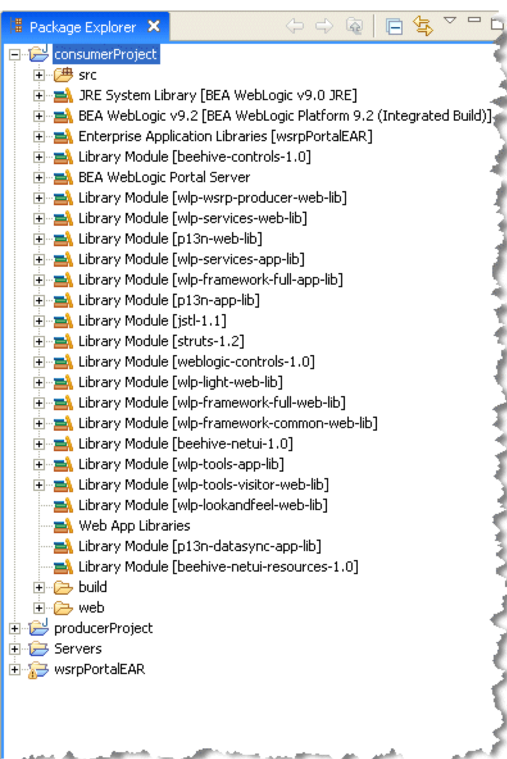
| Task | Recommended Name |
|---|---|
| Create a Portal domain. | `wsrpPortalDomain` |
| Create a Portal EAR Project. | `wsrpPortalEAR` |
| Create a BEA WebLogic v9.2 Server. | N/A |
| Associate the EAR project with the server. | N/A |

**Table 13-1 Prerequisite Tasks (Continued)**

| Task | Recommended Name |
|---|---|
| Create a Portal Web Project and add it to the EAR. | `consumerProject` |
| Create a second Portal Web Project and add it to the EAR. | `producerProject` |

Figure 13-1 shows the Package Explorer after the prerequisite tasks have been completed.

**Figure 13-1 Package Explorer After Prerequisite Tasks are Completed**



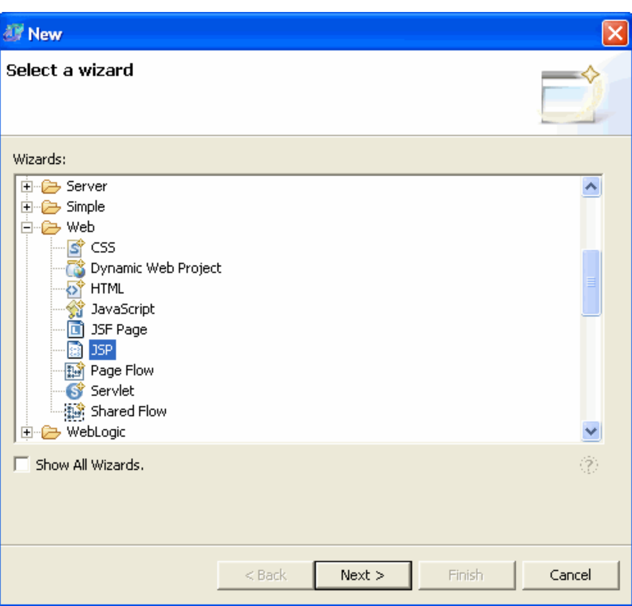

We also assume that you know how to view and edit portlet properties in the Properties view. For information, see the *WebLogic Portal Portlet Development Guide*.

## Creating the Producer JSP and Portlet

With the example environment in place, create a JSP file on the producer and a portlet to surface that file. Code placed in the JSP file retrieves a SimpleStateHolder object from the request, retrieves its data payload, and displays the data.

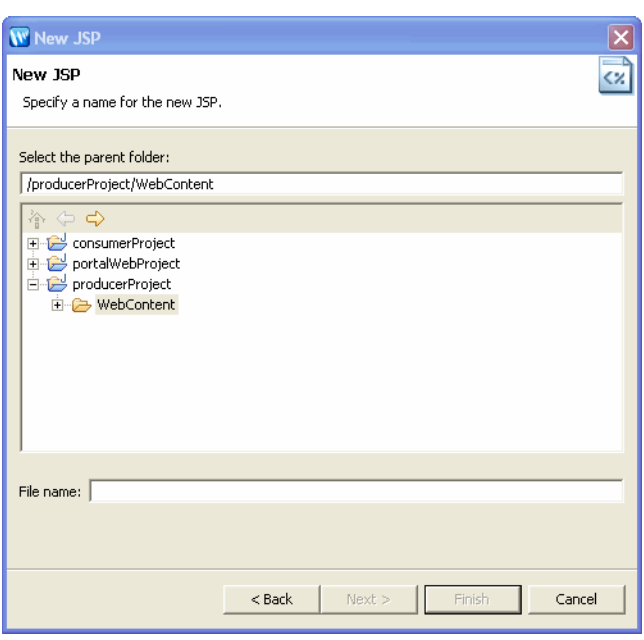
1. Be sure you have set up the example environment as explained previously in "Setting Up the Example" on page 13-4.
2. Right-click **producerProject** in the Package Explorer and select **New > Other**. The New – Select a wizard dialog appears.
3. In the New – Select a wizard dialog, open the **Web** folder, select **JSP**, as shown in Figure 13-2, and click **Next**.

**Figure 13-2 Creating a New JSP File**




The New JSP Page dialog box appears, as shown in Figure 13-3.

**Figure 13-3 New JSP Page Dialog Box**




4. In the New JSP dialog, expand the **producerProject** folder and select the **WebContent** folder.
5. In the **File name** field, enter `zipTest.jsp` and click **Finish**.

   The default JSP file appears in the editor, as shown in Figure 13-4.

**Figure 13-4 JSP Source File in the Editor**

6. Replace the entire contents of the JSP source file with the code in Listing 13-1.

**Listing 13-1 Code to Get State from the Request**

```
<%@ page import ="com.bea.wsrp.ext.holders.SimpleStateHolder,
         com.bea.wsrp.ext.holders.MarkupRequestState"%>
<%
    SimpleStateHolder state = (SimpleStateHolder)
    request.getAttribute(MarkupRequestState.KEY);
    String zip = (String) state.getParameter("zipCode");
%>
<%=zip%>
```

Figure 13-5 shows the editor with the new source code.

**Figure 13-5 New JSP Source for zipTest.jsp**

```
<%@ page import ="com.bea.wsrp.ext.holders.SimpleStateHolder,
        com.bea.wsrp.ext.holders.MarkupRequestState"%>
<%
    SimpleStateHolder state = (SimpleStateHolder)
    request.getAttribute(MarkupRequestState.KEY);
    String zip = (String) state.getParameter("zipCode");
%>
<%=zip%>
```

7. Save the file.

---

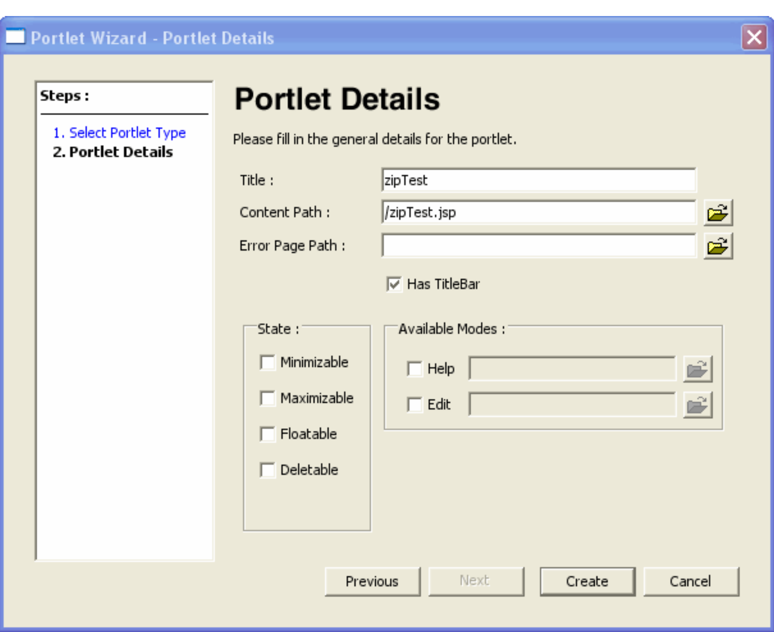
**Tip:** Later in this example, you will add a backing file to the proxy portlet in the consumer web application. This backing file creates the SimpleStateHolder object, adds some data to it, and puts the object into the request that is sent from the consumer to the producer. For more information on SimpleStateHolder, refer to its Javadoc description.

---

8. In the Package Explorer view, open the `producerProject/WebContent` folder. Right-click `zipTest.jsp` in the **WebContent** folder and select **Generate Portlet...**

   The Portlet Details dialog box appears. Note that `zipTest.jsp` already appears in the **Content Path** field, as shown in Figure 13-6.

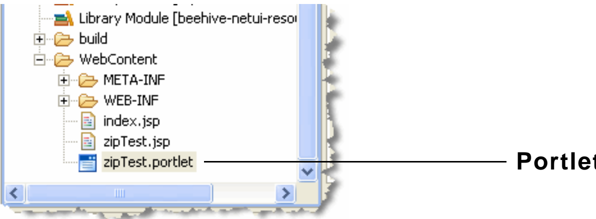
**Figure 13-6 Portlet Details with zipTest.jsp Included**




9. In the **State** checkbox, select **Minimizable** and **Maximizable**, and click **Create**.

   The portlet `zipTest.portlet` appears in the Package Explorer, as shown in Figure 13-7.

**Figure 13-7 New JSP Portlet**

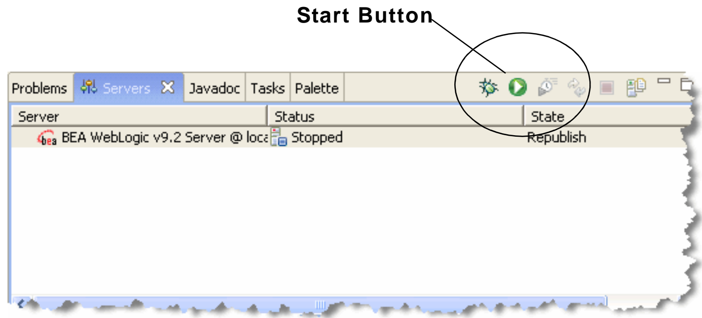



## Federating zipTest.portlet to the Consumer

Next, create a remote portlet in the consumer application to surface in `zipTest.portlet` from the producer. Use the following steps.

1. Be sure that WebLogic Server is running. If not, select the Servers tab. Make sure the **BEA WebLogic v9.2 Server** is selected, and click the **Start** button, as shown in Figure 13-8.

**Figure 13-8 Click the Start Button to Start the Server**




2. In the Package Explorer, open the **consumerProject** folder.
3. Right-click the **WebContent** folder, and select **New > Portlet**.

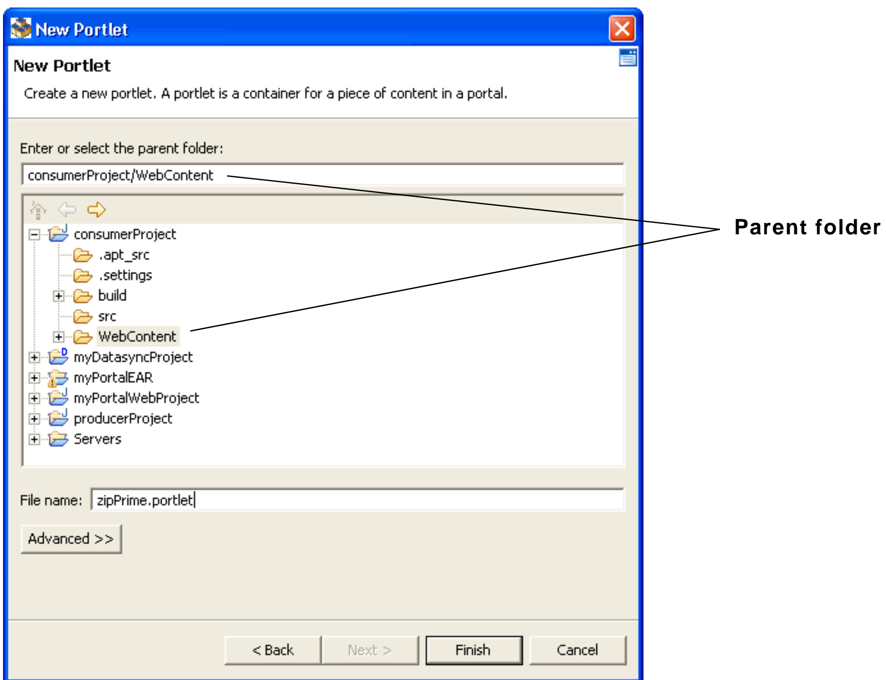
---

**Tip:** The **Portlet** selection only appears on the **New** menu if you are using the Portal perspective. Switch to the Portal perspective if **Portlet** does not appear on the menu.

---

The New Portlet dialog box appears, as shown in Figure 13-9.

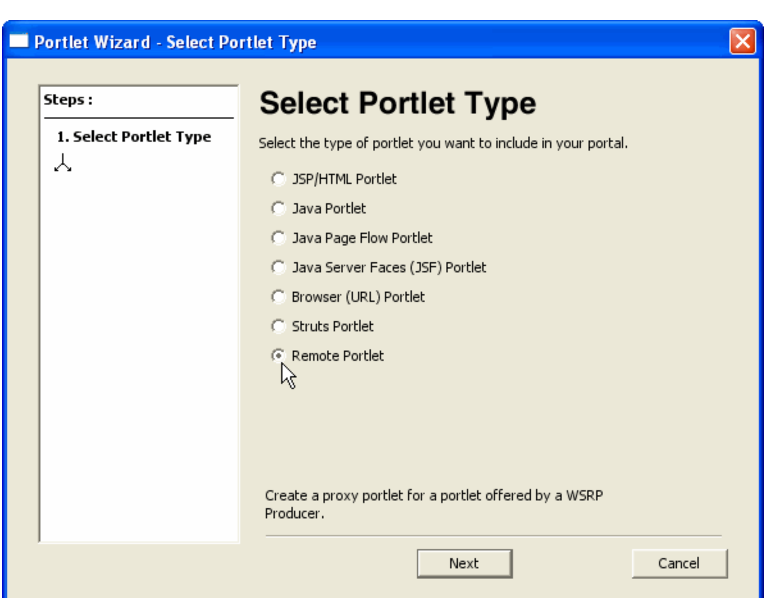
**Figure 13-9 New Portlet Dialog**




4. In the New Portlet dialog, select **WebContent** as the parent folder, enter `zipPrime.portlet` in the **File name** field, and click **Finish**.

   The Select Portlet Type dialog box appears as shown in Figure 13-10.

**Figure 13-10 Select Portlet Type Dialog**




5. Select **Remote Portlet** and click **Next**. The Portlet Wizard – Producer dialog box appears.
6. In the Portlet Wizard – Producer dialog, select **Find Producer** and, in the field provided, enter the following WSDL URL, as shown in Figure 13-11:

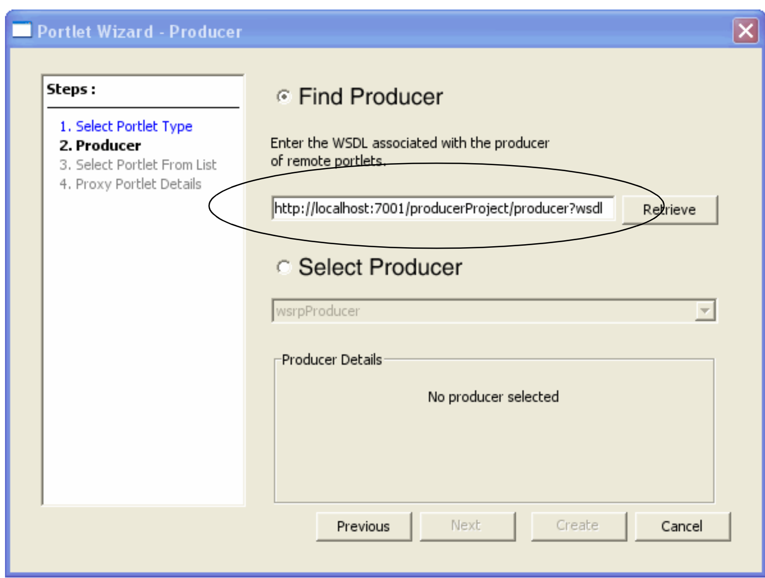
```
http://localhost:7001/producerProject/producer?wsdl
```

---

**Tip:** Of course, the host name `localhost` is only appropriate if the producer is running on the same server as the consumer. We co-located the consumer and producer to simplify the presentation of this example. Typically, producers and consumers do not run in the same server.

---

**Figure 13-11 The WSDL URL**




7. After entering the WSDL URL, click **Retrieve**.

---

**Tip:** WSDL stands for Web Services Description Language and is used to describe the services offered by a producer. For more information, see "Secure WSRP messages" on page 3-10.

---

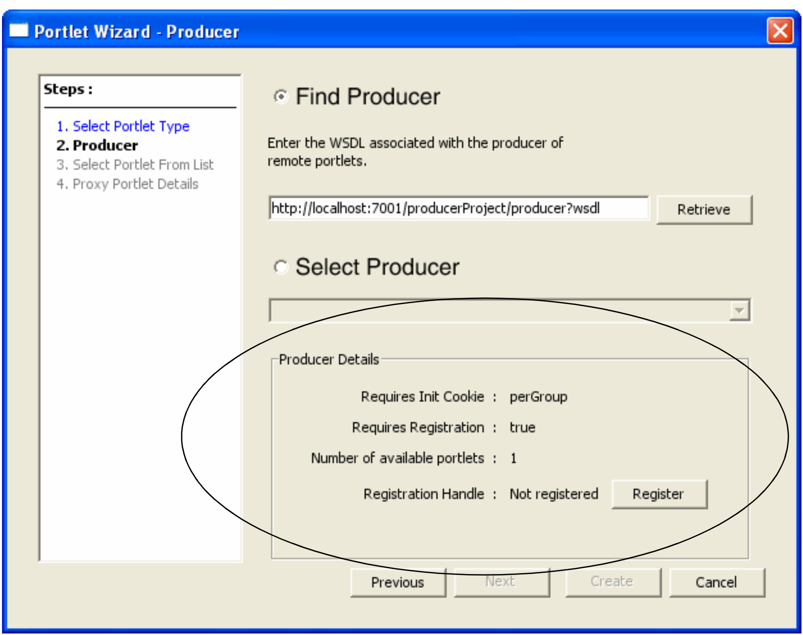
After a few moments, the Portlet Wizard – Producer dialog box refreshes, and registration information appears in the **Producer Details** panel, as shown in Figure 13-12.

---

**Tip:** Registration is an optional feature described in the WSRP specification. A WebLogic Portal complex producer implements this option and, therefore, requires consumers to register before discovering and interacting with portlets offered by the producer. See "Complex Producers" on page 3-7 for more information.

---

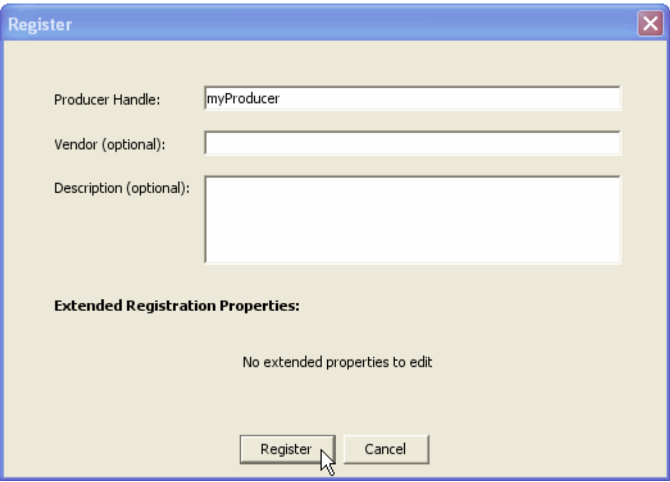
**Figure 13-12 Producer Retrieved**




8. Click **Register**. The Register dialog appears.

9. In the Register dialog, enter `myProducer` in the **Producer Handle** field, as shown in Figure 13-13, and click **Register**. The handle is stored on the consumer and is used to identify the producer.

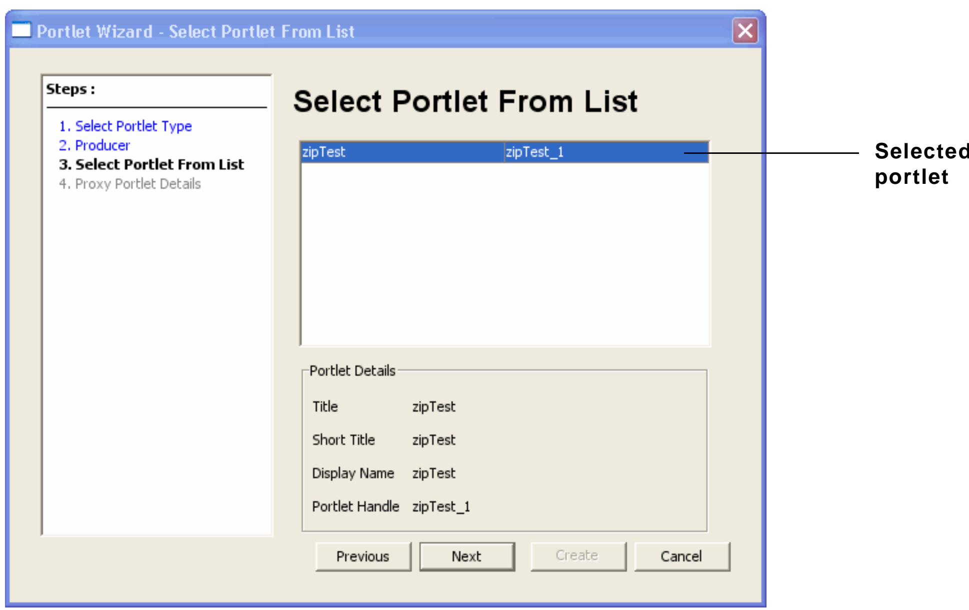
**Figure 13-13 The Register Dialog**




10. In the Portlet Wizard – Producer dialog, click **Next**. The Select Portlet from List dialog box appears.

11. From the portlet list, select **zipTest**, as shown in Figure 13-14.

**Figure 13-14 Select Portlet from List Dialog Box**



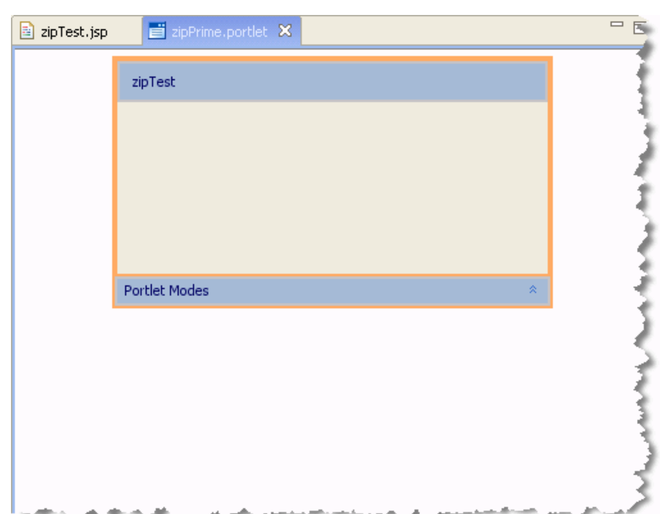

12. Click **Next**. The Proxy Portlet Details dialog box appears, as shown in Figure 13-15.

**Figure 13-15 Proxy Portlet Details Dialog Box**

13. Click **Create**.

    The new portlet appears in the Editor, as shown in Figure 13-16.

**Figure 13-16 New Remote Portlet zipPrime.portlet in the Editor**




## Creating a Backing File

In this step, you will create a backing file called `CustomDataBacking.java` in the consumer application. Then, you will attach the backing file to the remote portlet you created previously, `zipPrime.portlet`.

---

**Tip:** A backing file is a Java class that adds functionality to a portlet. For information on backing files, see the *Portlet Development Guide*.

---

1. In the Package Explorer tree, open the **consumerProject** folder, right-click the **src** folder, and create a new folder called `backing`.

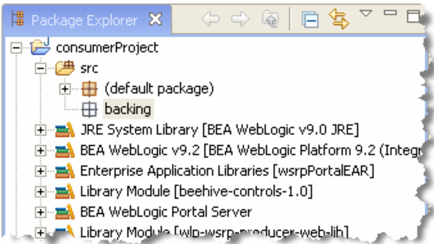
   The **src/backing** folder appears in the Package Explorer, as shown in Figure 13-17.

   ---

   **Tip:** Alternatively, instead of a folder, you can create a Java package.

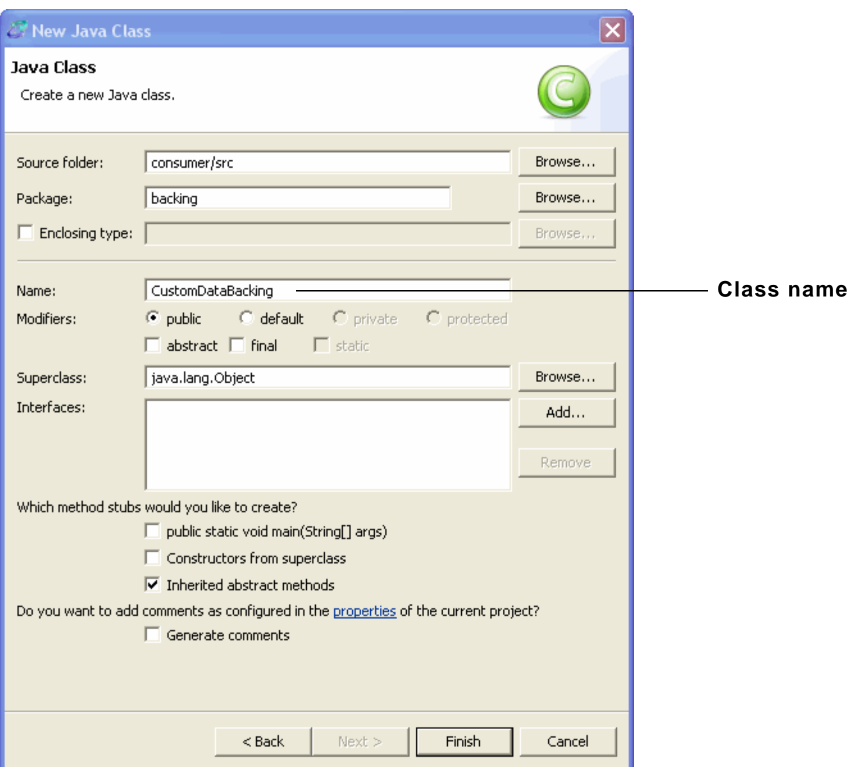
   ---

**Figure 13-17 backing Folder**




2. Right-click the **backing** folder and select **New > Class**. The New Java Class dialog appears, as shown in Figure 13-18.

**Figure 13-18 New Java Class Dialog**



3. In the **Name** field, enter `CustomDataBacking` and click **Finish**. The new Java source file appears in the editor.

4. Replace the entire contents of the Java source file with the code in Listing 13-2.

**Listing 13-2 Adding an Instance of SimpleStateHolder**

```
package backing;

import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import com.bea.netuix.servlets.controls.content.backing.AbstractJspBacking;
import com.bea.wsrp.ext.holders.MarkupRequestState;
import com.bea.wsrp.ext.holders.SimpleStateHolder;

public class CustomDataBacking extends AbstractJspBacking
{
   private static final long serialVersionUID = 1L;

   public boolean preRender(HttpServletRequest request,
      HttpServletResponse response)
   {
      SimpleStateHolder state = new SimpleStateHolder();
      state.addParameter("zipCode", "80501");
      request.setAttribute(MarkupRequestState.KEY, state);
      return true;
   }
}
```

5. Save the file. The completed backing file is shown in Figure 13-19.

**Figure 13-19 CustomDataBacking.java in the Editor**

zipTest.jsp | zipPrime.portlet | *CustomDataBacking.java

```
package backing;

import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import com.bea.netuix.servlets.controls.content.backing.AbstractJspBacking;
import com.bea.wsrp.ext.holders.MarkupRequestState;
import com.bea.wsrp.ext.holders.SimpleStateHolder;

public class CustomDataBacking extends AbstractJspBacking

{
   private static final long serialVersionUID = 1L;
   public boolean preRender(HttpServletRequest request,
      HttpServletResponse response)
   {
      SimpleStateHolder state = new SimpleStateHolder();
      state.addParameter("zipCode", "80501");
      request.setAttribute(MarkupRequestState.KEY, state);
      return true;
   }
}
```

---

**Tip:** The backing file implements the AbstractJspBacking.preRender() method. This method is called *before* the request is sent to the producer. The implementation attaches a SimpleStateHolder object containing custom data to the request. This object will be retrieved on the producer where the data is extracted and displayed in the remote portlet.

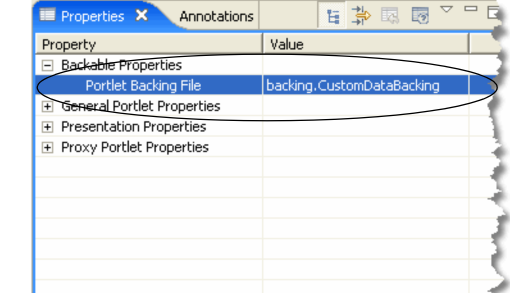
---

6. Double-click `zipPrime.portlet` to display it in the editor.
7. Add the backing file to `zipPrime.portlet`. To do this, enter the full classname of the backing file in the **Backing File** field in the Properties view:

   ```
   backing.CustomDataBacking
   ```

   Figure 13-20 shows the class name after it has been added.

**Figure 13-20 Adding a Backing File**




## Testing the Consumer Application

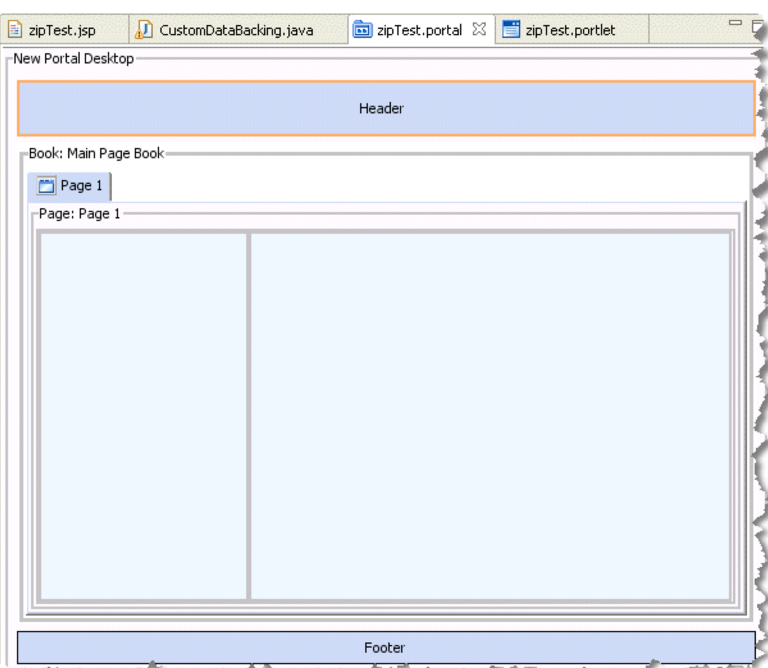
With the consumer application components in place, you can now test the configuration. If the test is successful, the zip code 80501, provided by the backing file, will appear in the remote portlet when it is rendered.

To test the application, do the following:

1. In the Package Explorer, right-click **consumerProject/WebContent** and select **New > Portal**. The New Portal dialog appears.
2. In the **File name** field, enter `zipTest.portal` and click **Finish**.

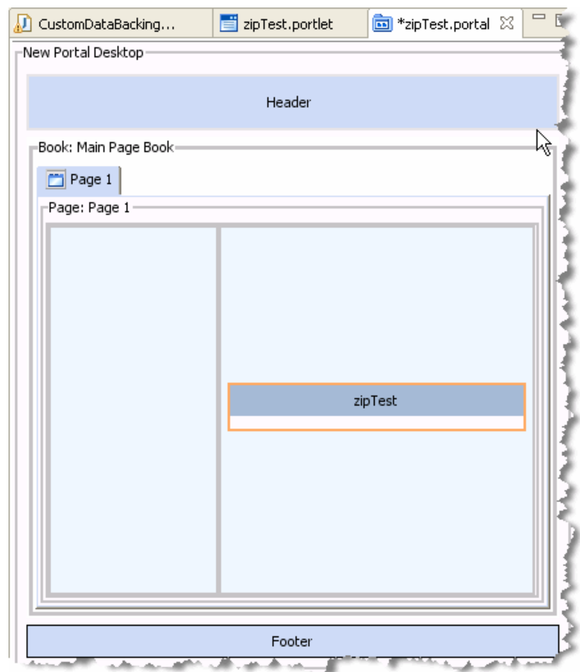
   The portal is created and appears in the editor, as shown in Figure 13-21.

**Figure 13-21 zipTest.portal in the Editor**




3. Drag **zipTest.portlet** from Package Explorer view into the portal. (You can place it in either the left or right column; in Figure 13-22, it is in the right-hand column).

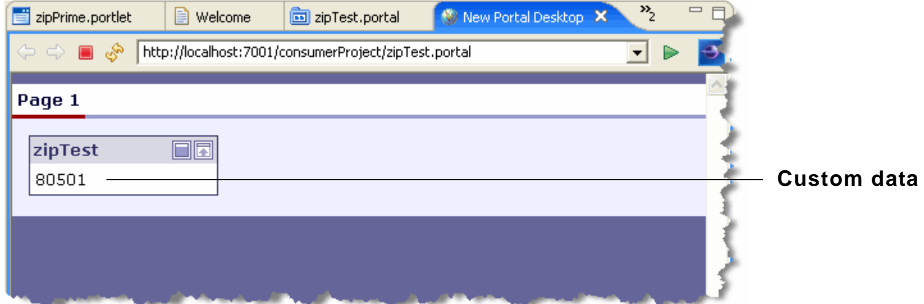
**Figure 13-22 zipTest.portlet Added to zipTest.portal**




4. Save the portal.
5. Run the portal. To do this, right-click **zipTest.portal** in the Package Explorer and select **Run As > Run on Server**.
6. In the Run On Server – Define a New Server dialog, click **Finish**.

   The portal appears in the Workshop for WebLogic browser. The custom data sent from the consumer displays in the portlet, as shown in Figure 13-23.

**Figure 13-23 zipTest.portal Successfully Rendered**




# Custom Data Transfer in a Simple Producer

The previous section, "Custom Data Transfer with a Complex Producer" on page 13-4, explains how to transfer data between a WebLogic Portal consumer application and a complex producer running in a WebLogic Portal domain. You can also transfer data between a WebLogic Portal consumer and a simple producer running in a WebLogic Server domain.

---

**Tip:** For a detailed discussion of complex and simple producers, see "WebLogic Portal Producers" on page 3-6.

---

The basic steps involved in using custom data transfer with a simple producer are:

1. Properly configure a simple producer running in a WebLogic Server domain. The procedure for doing this is explained in Chapter 8, "Configuring a WebLogic Server Producer."
2. Use the Custom Data Transfer interfaces listed in "Custom Data Transfer Interfaces" on page 13-2 to set and retrieve data in request and response objects. Follow the same basic procedure described for complex producers in "Custom Data Transfer with a Complex Producer" on page 13-4.

# Transferring XML Data

Use an implementation of the com.bea.wsrp.ext.holders.XmlPayload interface to transfer XML data (objects of type Element) between consumers and producers. You can place an instance of this class directly in request and response objects. For more information on the XmlPayload interface, refer to its Javadoc description.

Listing 13-3 shows sample code that uses XmlPayload.

**Listing 13-3 XmlPayload Example**

```
//-- Create an Element object to send.
Element xml = ...

XmlPayload payload = new XmlPayload(xml);
httpRequest.setAttribute(MarkupRequestState.KEY, payload);
```

# Deploying Your Own Interface Implementations

This section discusses guidelines for implementing the custom data transfer interfaces listed in "Custom Data Transfer Interfaces" on page 13-2.

- General Guidelines
- Implementation Rules

## General Guidelines

- The implementation must be serializable.
- The same class version of the implementation must be deployed on both the producer and consumer. If the versions are different, the implementations must make sure to have the same `serialVersionUID` for all versions.
- Sending large amounts of data may have performance implications.

**Tip:** The `com.bea.wsrp.ext.holders.SimpleStateHolder` class provides a default implementation of the four data transfer interfaces. This class lets you exchange simple name-value pairs of data. For detailed information on the methods of this class, refer to its Javadoc description.

## Implementation Rules

Whether a consumer or producer can send custom data depends on the type of request. These rules apply:

- Consumers can always send `InteractionRequestState`. There are no exceptions.

- Producers can always return `InteractionResponseState`. There are no exceptions.
- Consumers can send `MarkupRequestState` only when there is a need to refresh the portlet. For example, if caching is enabled on the remote portlet, consumer may not always send a request to the producer to generate markup.
- Consumers cannot return `MarkupResponseState` if any the following options are enabled:
  - Returning markup as an attachment
  - Local proxy

  In both the cases, the producer invokes the portlet (typically JSPs) after creating the SOAP response, which is too late to update the SOAP response.

CHAPTER 14

# Other Topics and Best Practices

This chapter focuses on best practices for developing portlets in a producer. By following the practices described in this chapter, you will help to ensure that remote portlets created in consumers function properly. We recommend that you review Chapter 3, "Federated Portal Architecture" before reading this chapter.

This chapter the following sections:

- Decouple Rendering from Interaction
- Avoid Interportlet Dependencies
- Avoid Portal Layout Dependencies
- Avoid Coupling by URL
- Avoid Accessing Request Parameters in Rendering Code
- Avoid Moving Producers
- WebLogic Server Producers
- Security for Remote Portlets
- Error Handling
- Portlet Programming Guidelines and Best Practices
- Designing for Performance
- Using Local Proxy Mode

- Monitoring and Logging
- User Sessions on CWEB Applications
- Using Multiple Views with Remote Portlets
- Handling User Identity Changes
- Editing the WSRP WSDL Template File

# Decouple Rendering from Interaction

As explained in "Life Cycle of a Remote Portlet" on page 3-13, the rendering and interaction phases of a remote portlet's life cycle are decoupled. As a result, you cannot expect a portlet to receive the same HTTP response or request for the render phase as it receives for an interaction.

A portlet that is being rendered must not expect to receive form data in the request object. This is because the request may have been submitted some time ago and is being rendered now, and you may not have the same data.

If you want to maintain data between requests, you need to store that data locally, typically in the session. For instance, if you are processing and order ID, you can store that ID locally.

If you are using page flows, data is automatically passed forward. However, if you are using backing files with a remote portlet, you need to make sure that data is stored in the session, because you won't get back the same request object.

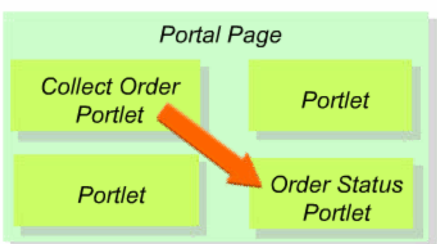
To avoid problems, keep the following points in mind:

- Portlets will not get the same servlet request for the interaction and render phases, even after the first rendering after an interaction.
- Decouple rendering from interaction processing. A portlet should be able to render itself as many times as necessary without depending on the user's interaction directly. Store interaction changes for future rendering. Note that WebLogic Portal stores state automatically for page flows.
- Use JSP tags with render parameters.
- Use HTTP session for backing files.

# Avoid Interportlet Dependencies

Rather than create explicit depdendencies between portlets, use events to communicate between portlets. For example, suppose that on a portal page, there is a portlet for collecting orders and a portlet for displaying the status of all orders. When an order is taken, data is stored in the database, and the data is then displayed in the order status portlet, as shown in Figure 14-1.

**Figure 14-1 Interportlet Dependencies**




In this scenario, a strong dependency is created between the collect order and the order status portlets. The Collect Order portlet needs to somehow communicate some information (the order ID) to the Order Status portlet. Storing the ID in the session or other common state between the portlets creates a strong dependency between the Collect Order and Order Status portlets. Depending on the implementation of the portlets, if one of them is changed or replaced, the changes will necessarily affect the other portlet.

To avoid this dependency, use events to communicate between portlets. In this example, if an event is used to communicate order information to the order status portlet, the order status portlet does not have to care about where the order came from. The order status portlet just handles an event, retrieving, for example, an order ID from the event's payload.

For more information on how event handling occurs in WebLogic federated portals, see "Interportlet Communication with Events" on page 3-22.

- Use events to communicate between remote portlets.
- Use event names for dependencies.
- Avoid using sourceDefinitionLabels on events.

# Avoid Portal Layout Dependencies

Some portals are built with inherent portal layout dependencies. For example, a login portlet might be designed to function differently if it is on a human resources page versus a finance page. In other words, when an interaction takes place, the portlet tries to find out what page it is on before taking action. This practice closely couples the portlet to the Portal Framework elements, such as pages, books, or desktops on the consumer.

This scenario does not work in a federated portal, because the producer does not know what page layouts exist on the consumer. Avoid this scenario when possible. If it is required, deploy those portlets locally on the consumer, or use shared components where possible and create alternative layouts that are offered through separate portlets.

# Avoid Coupling by URL

If you embed URLs in your portlets, such as in links, you may find that your portlets work as expected when they are running locally. However, when you move those portals to a federated environment, the links no longer work. For example, in the following code fragment, a developer is invoking the action of a page flow portlet on the same portal using string manipulation. In a federated portal, this sort of construction will not work. Typically, this sort of programming arises because of reverse engineering, where a developer looks at and copies how links are created.

```
String url = ”http://mydomain.com/portal/portal.portal?”;
url = url + ”myportlet_actionOverride=login”;
url = url + ”...”;
```

Likewise, the following resource URL will not work in a federated portal because it includes an explicitly specified link to a document. Because the document doesn’t exist on the consumer, the consumer doesn’t know what to do with it:

```
<img src=”images/logo.jpg”/>
<a href=”/docServlet?docId=9999”>Download</a>
```

Common URL problems found in federated portals include the following. These problems stem from the fact that remote portlets do not follow the same URL structure as portlets in a local environment.

- Creating links to page flow actions, images, or files through string manipulation.
- Directly adding parameters to URL strings.
- Getting a page flow action name from the outer request.

It is important that you let the WebLogic Portal Framework create URLs for you using the proper set of JSP tag libraries and utility classes. Use the following tags and classes:

- netui tags
- page flow tags
- struts tags
- render tags
- GenericURL class

All of these tags go through the WebLogic Portal URL rewriters and will work properly in a federated environment.

It is important to realize that there are inherent differences between remote portlets and local portlets. Developers must not expect that all correctly functioning local portlets will function properly as remote portlets, although in many cases they do.

# Avoid Accessing Request Parameters in Rendering Code

When you deploy a local portlet, the portlet can access the request parameters from the portal's request and the request attributes set by other portlets on the same page. If you implement a portlet to depend on such request parameters and attributes, the portlet will not function correctly in a WSRP environment. In a WSRP environment, remote portlets are running on remote systems; the HTTP request received by a remote portlet on a producer is not the same as the one that is received by the consumer portal.

# Avoid Moving Producers

When you add producers and create remote portlets, the producer registry (`WEB-INF/wsrp-producer-registry.xml`) and the portal framework database tables contain specific information about the producer, such as its WSDL address and the addresses of ports described in the WSDL. If you propagate or move the producer from one environment to another, this data becomes invalid. In this case, consumers whose proxy portlets reference the producer's portlets will no longer be able to find them.

**Note:** Currently, WebLogic Portal only supports a shared registration model, where staging and production environments share the same producer registration handle. For more information on shared registration and propagating WSRP producers, see the *Production Operations Guide*.

You can update the database entries for a producer programmatically. The following class provides methods to get and update producer information:

```
com.bea.wsrp.consumer.management.producer.ProducerManager
```

Refer to the Javadoc for information on this class.

# WebLogic Server Producers

In some cases, you may want to expose portlets with WSRP from a producer environment that does not include any WebLogic Portal components. For example, you may be running a Struts Web application in a Basic WebLogic Server Domain, or a Java Page Flow application in a Basic WebLogic Workshop Domain. In either case, WebLogic Portal is not part of the server configuration. For detailed information on using a non-portal server domain to host remote portlets, see Chapter 8, "Configuring a WebLogic Server Producer."

If you are using a Portal Web application as your producer, all the portal artifacts are available in the web application; however, for any WSRP producer that is not a Portal Web application, you cannot use portal features such as property sets. If you need to access portal features in your producer, use a Portal Web application.

# Security for Remote Portlets

To secure messages, implement SSL on any port through which the producer will be offered. For detailed information on configuring single sign-on security for federated portals, see:

- Chapter 15, "Establishing WSRP Security with SAML" – Discusses how to configure SAML security between WebLogic Portal domains. This chapter also covers cross version compatibility: security between WebLogic Portal 9.2 and 8.1x domains.
- Chapter 16, "Configuring Username Token Security" – Username Token, or UNT, is an alternative to SAML and provides the same basic single sign-on capability as SAML provides.

# Error Handling

This section gives an overview of error handling techniques for federated portals.

### On the Producer

To prevent stack traces from appearing, handle errors on the producer side and provide a suitable business message.

### On the Consumer

In Workshop for WebLogic, with a remote portlet open, do the following:

1. Click the portlet in the editor to display the Properties view.
2. Enter a path for the error page (JSP or HTML page).

### Interceptors

You can use interceptors to handle errors returned from a producer. For instance, if a specific producer is not registered, you can trap the registration error and handle it as you wish. For detailed information on using interceptors, see Chapter 10, "The Interceptor Framework."

## Portlet Programming Guidelines and Best Practices

This section discusses guidelines and best practices for developing remote portlets.

- Requests and Sessions

  If two or more remote portlets share session data, host them on the same producer. You cannot assume that session information will be shared by portlets hosted on different systems.

- Look and Feel
  - Let portlets use standard style attributes and specify those attributes on the portal skins. For information on Look & Feel, see the *Portal Development Guide*.
- Backing Files
  - You can use backing files on the consumer side (remote-portlet) to take some action based on session / request objects or property sets. For information on backing files, see the *Portlet Development Guide*.
- Caching WSRP Portlets
  - Producer – Use `<wl:cache>` or `p13nCache` wherever possible.

– Consumer (remote-portlet) – Use the `RenderCacheable` attribute if you want to cache the remote portlet's rendered HTML. However, this is a session scoped cache and is not configurable.

For more information on caching, see the "Portlet Caching" section of the *Portlet Development Guide*.

# Designing for Performance

To ensure optimal performance of your producers and consumers, we recommend the following performance tuning guidelines on the producer and the consumer.

## Performance Guidelines for Producers

- Enable attachment support by adding `<markup transport="attachment"/> to WEB-INF/wsrp-producer-config.xml`, as shown in Listing 14-1.

**Listing 14-1 Enabling Attachment Support**

```
<?xml version="1.0" encoding="UTF-8"?>
wsrp-producer-config
    xmlns="http://www.bea.com/servers/weblogic/wsrp-producer-config/8.0"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.bea.com/servers/weblogic/wsrp-producer-conf
ig/8.0
wsrp-producer-cnfig.xsd">

    <service-config>
        <registration required="false" secure="true"/>
        <service-description secure="true"/>
        <markup secure="true" rewrite-urls="true" transport="attachment"/>
        <portlet-management required="false" secure="true"/>
    </service-config>
```

- Let the producer create correct URLs by using consumer-supplied URL templates. This is the default practice.

- Use caching. For more information on caching, see the section “Portlet Caching,” in the *Portlet Development Guide*.
- Enable multi-threaded (forked) rendering. For more information, see the section “Parallel Portlet Rendering,” in the *Portlet Development Guide*.

## Performance Guidelines for Consumers

- Accept the default behavior to enable caching for remote portlets.
- Enable forked rendering for remote portlets.
- Set connection timeout. See “Setting a Timeout Value on a Remote Portlet” on page 5-13 for detailed information on setting timeouts.
- Disable logging by undeploying MessageMonitor servlet from `WEB-INF/web.xml`.

# Using Local Proxy Mode

Local proxy support allows co-located producer and consumer web applications to short-circuit network I/O and “SOAP over HTTP” overhead. When you enable this feature, the consumer tries to determine if the producer is deployed on the same server and, if it discovers that the producer is so deployed, it uses a local proxy to send requests to the producer. If the producer is not deployed on the same server, the consumer uses the default remote proxy. Remote producers can still be invoked as usual even when the local proxy support is enabled.

This section describes how to implement local proxy support. It includes information on the following subjects:

- Why Use Local Proxy Mode?
- Deployment Configuration
- When to Use and Not Use

## Why Use Local Proxy Mode?

Local proxy mode provides a number of advantages over the default remote proxy when you are working with co-located consumers and producers. Among the most significant advantages of local proxy mode are:

- Avoids local network I/O.

- Avoids serialization and deserialization of SOAP.
- Invokes remote portlets using the same execute thread.
- Writes portlet markup directly to the response without intermediate buffers.
- Enables large file uploads without causing `OutOfMemoryErrors`.

Additionally, by enabling local proxies, customers can take advantage of the decoupling benefits of WSRP without incurring its performance overhead.

# Deployment Configuration

To take advantage of local proxy support, do the following:

1. Deploy the producer and consumer web applications on the same server. These applications could be in the same enterprise application or across different enterprise applications.
2. Enable local proxy support by setting `<enable-local-proxy>` to `true` in `WEB-INF/wsrp-producer-registry.xml` in the consumer web application, as shown in Listing 14-2:

**Listing 14-2 Setting `<enable-local-proxy>` to "true"**

```
<wsrp-producer-registry
   xmlns="http://www.bea.com/servers/weblogic/wsrp-producer-registry/8.0"
   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
   xsi:schemaLocation="http://www.bea.com/servers/weblogic/wsrp-producer-
      registry/8.0 wsrp-producer-registry.xsd">

   <!-- Upload limit (in bytes) -->
   <upload-read-limit>1048576</upload-read-limit>

   <!-- Timeout (in milli seconds) -->
   <connection-timeout-secs>120000</connection-timeout-secs>

   <!-- Enable local proxy -->
   <enable-local-proxy>true</enable-local-proxy>

...
</wsrp-producer-registry>
```

You can also enable local proxy support by setting a system property `com.bea.wsrp.proxy.LocalProxy.enabled = true`. If this system property is set to true, it will override the `<enable-local-proxy>` setting in `WEB-INF/wsrp-producer-registry.xml`.

Local proxy support is disabled by default in web application templates.

## When to Use and Not Use

As powerful a tool as local proxy support is, you should only use it when it will benefit your application. The most common reasons for using local proxy support are:

- When portlets are deployed in self-contained web applications on the same server. The local proxy support provides isolated portlet deployment. In this mode, each portlet web application can be deployed as a WSRP producer. Portlets can therefore be loaded by separate class loaders and have their own servlet context and session. Portlet web applications can be deployed/undeployed without affecting the portal web application.
- When you don't need advanced monitoring software between the producer and consumer

On the other hand, you should not use local proxy support when interoperating with non-BEA producers and consumers.

# Monitoring and Logging

You can monitor activity between producers and consumers by using the message monitor servlet installed with Workshop for WebLogic. You can also create custom logs to display specific information about WSRP sessions.

This section contains information on these subjects:

- Using the Monitor Servlet
- Creating Custom Logs

## Using the Monitor Servlet

To monitor the response and request headers, as well as the action SOAP messages that are passed between producers and consumers, do the following:

1. Ensure that the producer and consumer applications whose communication you want to monitor are running.

2. Open a new browser and enter the following URL:

`host:port/webProject_name/monitor`

Where:

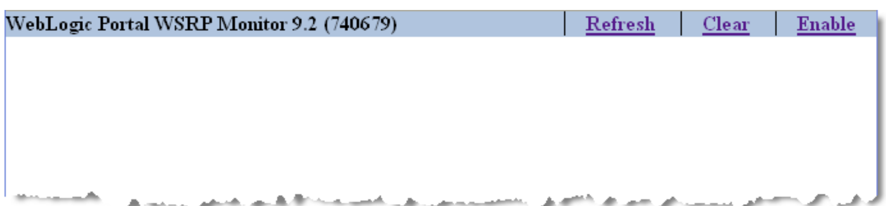
- *host:port* is the host and port you want to monitor. This can be the host and port of either the producer or consumer server.
- *webProject_name* is the web project you want to monitor.

For example:

`http://localhost:7001/wsrpMonitorTest/monitor`

The monitor appears in the browser, as shown in Figure 14-2.

**Figure 14-2 Message Monitor**




Click **Enable** to start monitoring. Click **Refresh** to see the latest transactions. Click **Clear** to remove all messages from the browser window.

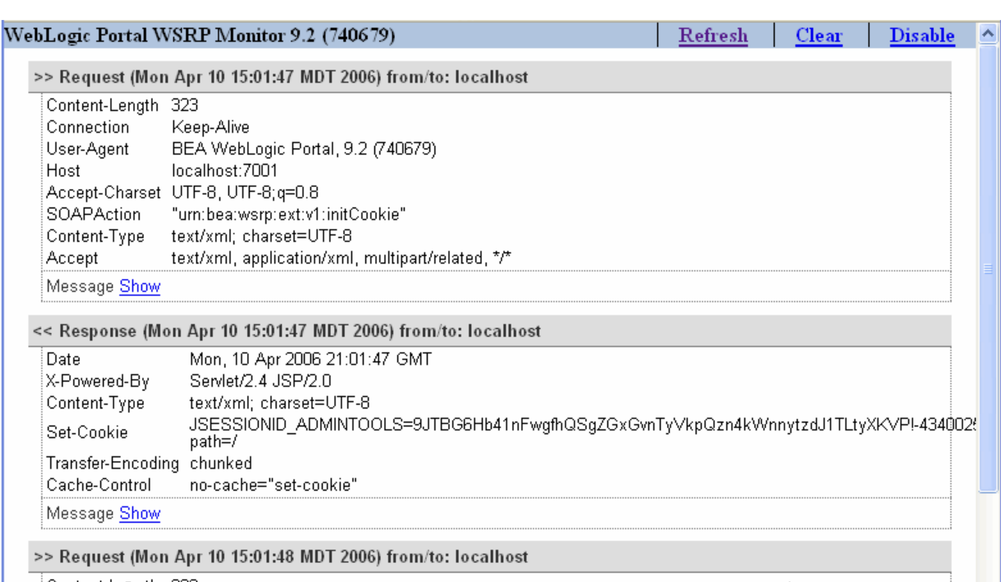
---

**Tip:** The monitor does not display new transactions until you click **Refresh**.

---

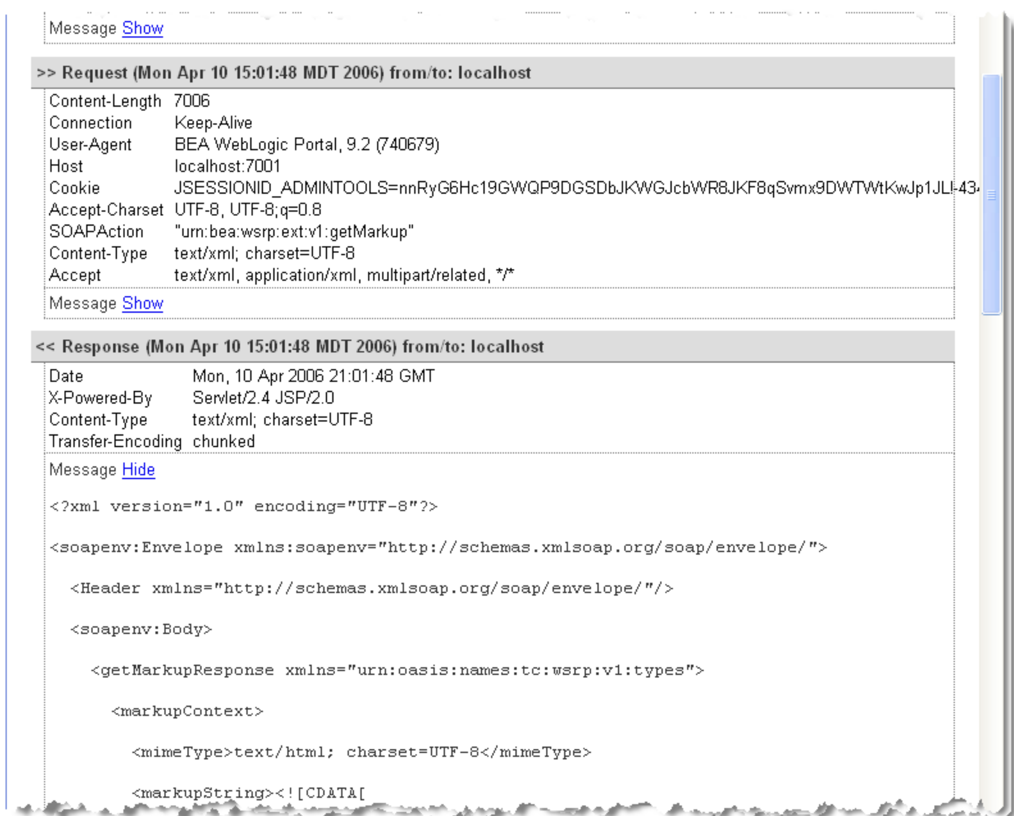
Each time the remote portlet communicates with the producer, a request and response message headers appear on the monitor screen, as shown in Figure 14-3.

**Figure 14-3 Monitor Appearing in a Browser**




By clicking **Show**, you can display the content of the request or the response, as shown in Figure 14-4. Click **Hide** to close the message content.

**Figure 14-4 Message Content**




# Creating Custom Logs

To create custom logs, we recommend that you use the Interceptor Framework described in Chapter 10, "The Interceptor Framework."

You can also create custom logs that display particular information about a WSRP session by using Logger and Handler objects instantiated by WebLogic Server. You can use these objects to create your own message handlers and subscribe them to loggers. For example, if you want the remote portlet to listen for the messages that the producer generates, you can create a handler and subscribe it to a logger in the producer. For detailed information on using Logger and Handler objects, see the WebLogic Server topic, "Filtering WebLogic Server Log Messages."

# Configuring Session Cookies

This section describes two techniques for preventing the loss of the consumer session when resource requests are made to a remote portlet. These techniques include:

- Using Different Cookie Names
- Using a System Property

## Using Different Cookie Names

If you have a remote portlet that contains images, WebLogic Portal sends cookies and other headers from the producer to the browser when an image resource is requested. Note that when resource requests are made to a portlet in a producer, it is possible for the user's browser to drop or lose the consumer session. This situation occurs when the producer and consumer are configured to include only the default path ("/") in the session cookies, which causes the browser to replace the `Set-Cookie` header set by the consumer with the `Set-Cookie` header set by the producer.

To prevent this potential loss of the consumer session, open `weblogic.xml`, and configure your web applications to include the domain name and web application path for session cookies. This technique prevents the cookie names from overlapping. Please refer to session-descriptor in the WebLogic Server document "weblogic.xml Deployment Descriptor Elements" for details on how to set the domain name and path.

## Using a System Property

In most cases, using different cookie names solves the problem of lost consumer sessions following resource requests. In some cases, however, this solution does not work. One such use case is when single sign-on is used with the producer and consumer running in the same domain. In this case, identical cookie names are required. For cases where using different cookie names does not work, set the following system property:

```
wlp.resource.proxy.servlet.block.response.headers=true
```

By enabling this system property, WebLogic Portal prevents a `Set-Cookie` header from being sent back to the user's browser. This property prevents the consumer's cookie from being overwritten by the producer's cookie on the browser when a resource is returned. Using this technique, you can keep the cookie names the same for both the producer and consumer applications, which is required for single sign-on.

# User Sessions on CWEB Applications

User sessions on CWEB applications might be lost if session cookies between producers and consumers overlap. To prevent this, open `weblogic.xml`, configure your web applications to include the domain name and web application path for session cookies. Please refer to session-descriptor in the WebLogic Server document "weblogic.xml Deployment Descriptor Elements" for details on how to set the domain name and path.

# Using Multiple Views with Remote Portlets

Whenever multiple views of a remote portlet are created, links in the portlets can be inconsistent and not work properly. Typically, multiple views occur when a remote portlet uses the popup mechanism in a page flow, or when a user floats a remote portlet using the portlet **Float** button.

If a WebLogic Portal producer is set up to use consumer-supplied URL templates, the producer caches those templates in a session created on the producer. However, when multiple views of a portlet are created either through the page flow popup mechanism, or through a **Float** button, the cached templates may not be valid for the current view.

You can correct the inconsistent links using one of these methods:

- Disabling the caching of templates for your remote portlets. To do this, in the `.portlet` file for each remote portlet that is affected, change the value of the `templatesStoredInSession` element to `false`.
- Configure the producer to require consumer rewriting. To do this, set the `rewrite-urls` element to FALSE in the `wsrp-producer-config.xml` file.

# Handling User Identity Changes

If the user's identity changes while a request generated from the portal is in progress, remote portlets can behave inconsistently. Typically, this occurs when the portal desktop includes a portlet or other mechanism for logging in and logging out a user. If the user identity changes, any user-specific data loaded by the portal can become invalid. In the case of remote portlets, such data includes their persistent state. When user identity changes, the consumer portal can send incorrect persistent state data to producers.

To avoid this problem, be sure to always use a browser redirect call immediately after a login or logout. The browser redirect ensures that data loaded by the portal is valid for the request.

# Editing the WSRP WSDL Template File

You can customize the producer-generated WSDL. For example, you might want the WSDL to point to a proxy server other than the default one. To customize the default WSDL, you can edit the wsrp-wsdl-template.wsdl file. The easiest way to edit this file is to copy it to your workspace in Workshop for WebLogic. To do this, locate the file in the Merged Projects view in Workshop. Right-click the file and select **Copy to Workspace**. The WSDL template file uses URL templates. See Javadoc for the GenericURL class for information on configuring URL templates.

When you copy and edit the `wsrp-wsdl-template.wsdl` file, you must also copy several supporting files to your web application. You can copy the files using the Copy to Workspace feature. The additional files you need to copy include:

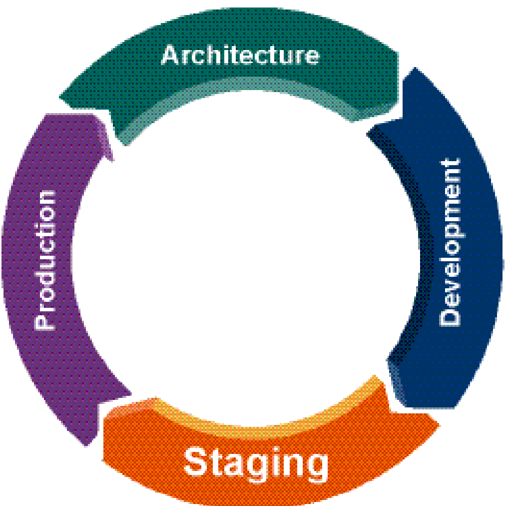
- `wlp_wsrp_v11_types.xsd`
- `wlp_wsrp_v1_types.xsd`
- `wsrp_v1_full.wsdl`
- `wsrp_v1_types.xsd`
- `wsrp-wsdl-template.wsdl`
- `wlp_wsrp_v1_bindings.wsdl`
- `wsrp_v1_bindings.wsdl`
- `wsrp_v1_interfaces.wsdl`
- `wsrp-wsdl-full.wsdl`
- `xml.xsd`

# Part III Staging

Part III, Staging, includes the following chapters:

- Chapter 15, "Establishing WSRP Security with SAML"
- Chapter 16, "Configuring Username Token Security"
- Chapter 17, "Adding Remote Resources to the Library"

In the staging phase of the portal life cycle, you use the WebLogic Portal Administration Console to create portal desktops, manage users and groups, and perform other administration tasks. You can add producers and consume portlets, books, and pages that are deployed in producers. In a staging environment, you build and test all of your portal's components before moving the portal to production.




If you are developing federated portals, you perform most of the security configuration in the staging environment using the WebLogic Portal Administration Console and WebLogic Server Administration Console.

For more information about the portal life cycle, see the *WebLogic Portal Overview*.

CHAPTER 15

# Establishing WSRP Security with SAML

This chapter discusses how to configure the security realms of WebLogic Portal producers and consumers running in different domains. In the first part of this chapter, we explain the configuration that is required when both the producer and consumer are running in WebLogic Portal 9.x domains. In the second part of this chapter, the case of mixed domains is discussed, where the producer and consumer can be running in either WebLogic Portal 8.1x or 9.x domains.

This chapter includes the following sections:


- SAML Security Between WebLogic Portal 9.x Domains
- SAML Security Between WebLogic Portal 8.1x and 9.x Domains
- Using SAML Security with a Name Mapper
- Allowing Virtual Users


## SAML Security Between WebLogic Portal 9.x Domains

This section explains the procedure for configuring WSRP security using custom SAML tokens when the producer and consumer are running in different WebLogic Portal 9.x domains. Use the procedure described in this section to configure security on production systems where custom SAML tokens are required.

**Note:** By default, with no previous configuration, WebLogic Portal 9.x domains share a common key. This allows you to quickly create, for demonstration or testing purposes, federated portals that require user authentication without undergoing the configuration procedure described in this section.

**WARNING:** It is recommended that you do not use the default key described in the previous note in a production environment. Using this default setting allows any consumer to connect to your producer.

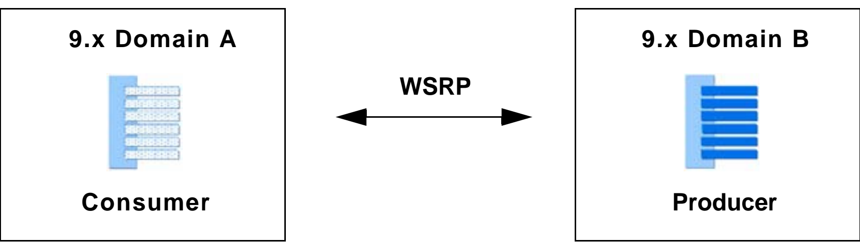
This section includes these topics:

- Overview
- Setting Up the SAML Configuration Example
- Configuring the Consumer
- Configuring the Producer
- Testing the Configuration

# Overview

In a typical scenario, consumer and producer applications are running in separate WebLogic Portal 9.x domains, as shown in Figure 15-1.

**Figure 15-1 Basic Use Case**



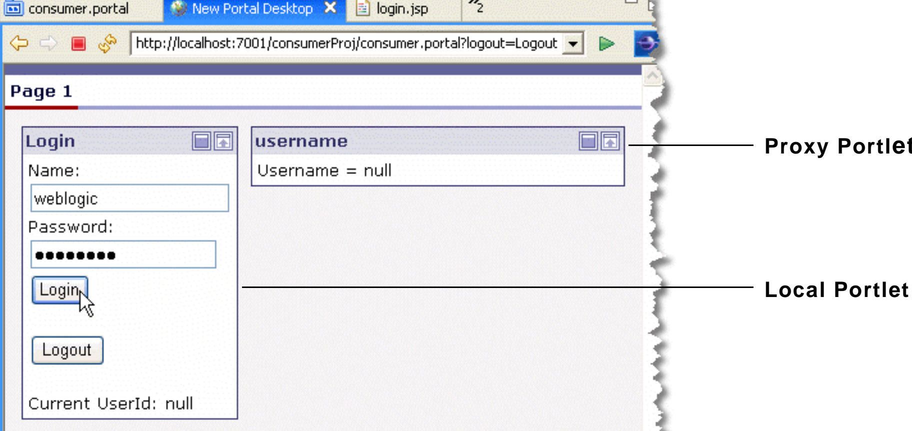

By default, WebLogic Portal specifies SAML as the default security token type for WSRP. If you are running in a demonstration or development environment, no further configuration is required. However, for a production environment it is recommended that you perform the SAML configuration described in this section.

# Setting Up the SAML Configuration Example

This section describes an example federated portal application where the producer and consumer are running in different WebLogic Portal 9.x domains. This example provides a basis for discussing how to configure SAML security between these domains.

The portal shown in Figure 15-2 includes a local portlet on the left and a remote (proxy) portlet on the right. The local portlet is a login portlet. When a user logs in successfully, the producer portlet displays the user's name. As you will see, however, unless SAML security is properly configured, an error results when a user logs in to the portal.

**Figure 15-2 Consumer Portal Before User Login**




As you can see in Figure 15-2, the proxy portlet renders without error before a user logs in. It isn't until a user attempts to log in that a SAML message is sent, resulting in an error.

**Checkpoint:** This section described an example federated portal where the consumer and producer are running in separate WebLogic Portal domains. In the following sections, we explain how to configure the consumer and producer so that the SAML token sent from the consumer is accepted by the producer.

# Configuring the Consumer

To correct the error shown in the previous section, you need to configure both the consumer and the producer. This section discusses the consumer configuration.

## Generate a Key

**Tip:** Anytime you generate a new key, you must copy the keystore to the entire cluster.

This section explains how to generate a key on the consumer using the keytool utility, a Java utility distributed by Sun Microsystems that manages private keys and certificates. For detailed information on keytool, refer to the Sun Microsystems website.

**Note:** By default, the consumer has a keystore that the server uses for its SSL key. The default keystore is called `DemoIdentity.jks`. If you are using a different keystore, then modify the one that you are currently using.

1. On the consumer, open a command window and CD to the `WEBLOGIC_HOME/server/lib` directory.
2. Run the keytool command to generate a new key, as shown in Figure 15-3. For example, the following command generates a key called `testalias`.

   ```
   keytool -genkey -keypass testkeypass -keystore DemoIdentity.jks
   -storepass DemoIdentityKeyStorePassPhrase -keyalg rsa -alias testalias
   ```

   The options used in the example keytool command include the following:

| Command parameter | Description |
|---|---|
| **keytool** | A Java tool used to generate a key. |
| **-genkey** | Instructs the keytool to generate a key. |
| **-keypass** | Specifies the password to be used with the new key. |
| **-keystore** | Specifies the name of the keystore. A keystore stores keys and certificates. The default keystore, `DemoIdentity.jks`, is implemented as a file that protects private keys with a password. |
| **-storepass** | Specifies the password for the keystore. |
| **-keyalg** | Specifies the encryption algorithm for the keystore. You must use `rsa` for the key algorithm. If you use another algorithm, you will receive an error when the consumer sends a SAML message. |
| **-alias** | Specifies a name for the generated key. |

**Figure 15-3 Generating a Key**

```
C:\WINDOWS\system32\cmd.exe
D:\bea\weblogic92\server\lib>
D:\bea\weblogic92\server\lib>
D:\bea\weblogic92\server\lib>
D:\bea\weblogic92\server\lib>
D:\bea\weblogic92\server\lib>
D:\bea\weblogic92\server\lib>
D:\bea\weblogic92\server\lib>
D:\bea\weblogic92\server\lib>keytool -genkey -keypass testkeypass -keystore Demo
Identity.jks -storepass DemoIdentityKeyStorePassPhrase -keyalg rsa -alias testal
iaskey
What is your first and last name?
  [Unknown]:
What is the name of your organizational unit?
  [Unknown]:
What is the name of your organization?
  [Unknown]:
What is the name of your City or Locality?
  [Unknown]:
What is the name of your State or Province?
  [Unknown]:
What is the two-letter country code for this unit?
  [Unknown]:
Is CN=Unknown, OU=Unknown, O=Unknown, L=Unknown, ST=Unknown, C=Unknown correct?
  [no]:  yes

D:\bea\weblogic92\server\lib>
```

## Export the Key

Export the key from the consumer server. In the same command window that you used to generate the key, in the same directory, run the keytool command with the `-export` option, as shown in Figure 15-4. For example, the following command generates a key file called `testalias.der`.

```
keytool -export -keypass testkeypass -keystore DemoIdentity.jks -storepass
DemoIdentityKeyStorePassPhrase -alias testalias -file testalias.der
```

**Figure 15-4 Exporting the Certificate**

```
C:\WINDOWS\system32\cmd.exe
D:\bea\weblogic92\server\lib>
D:\bea\weblogic92\server\lib>
D:\bea\weblogic92\server\lib>keytool -genkey -keypass testkeypass -keystore Demo
Identity.jks -storepass DemoIdentityKeyStorePassPhrase -keyalg rsa -alias testal
iaskey
What is your first and last name?
  [Unknown]:
What is the name of your organizational unit?
  [Unknown]:
What is the name of your organization?
  [Unknown]:
What is the name of your City or Locality?
  [Unknown]:
What is the name of your State or Province?
  [Unknown]:
What is the two-letter country code for this unit?
  [Unknown]:
Is CN=Unknown, OU=Unknown, O=Unknown, L=Unknown, ST=Unknown, C=Unknown correct?
  [no]:  yes

D:\bea\weblogic92\server\lib>keytool -export -keypass testkeypass -keystore Demo
Identity.jks -storepass DemoIdentityKeyStorePassPhrase -alias testaliaskey -file
 testalias.der
Certificate stored in file <testalias.der>

D:\bea\weblogic92\server\lib>
```

## Modify the Consumer's Security Realm

This section explains the procedure for configuring the consumer to use the key that you generated.

---

**Tip:** A security realm is a container for the mechanisms–including users, groups, security roles, security policies, and security providers–that are used to protect WebLogic resources. You can have multiple security realms in a WebLogic Server domain, but only one can be set as the default (active) realm. The default is called **myrealm**.

---

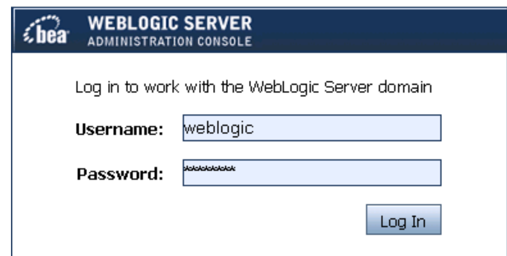
1. Log in to the WebLogic Server Administration Console on the consumer. To do this, open a browser and enter the following URL:

   `http://`*`serverIP`*`:`*`port`*`/console`

   where *`serverIP`* is the IP address of the server on which the consumer application is running, and *`port`* is the server's port number. For example:

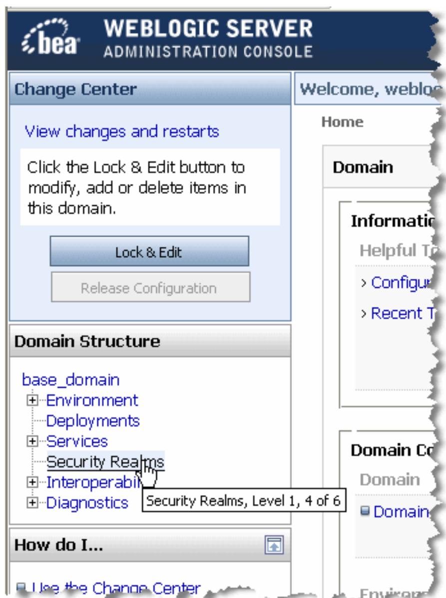
   `http://localhost:7001/console`

**Figure 15-5 WebLogic Server Administration Console Login Dialog**



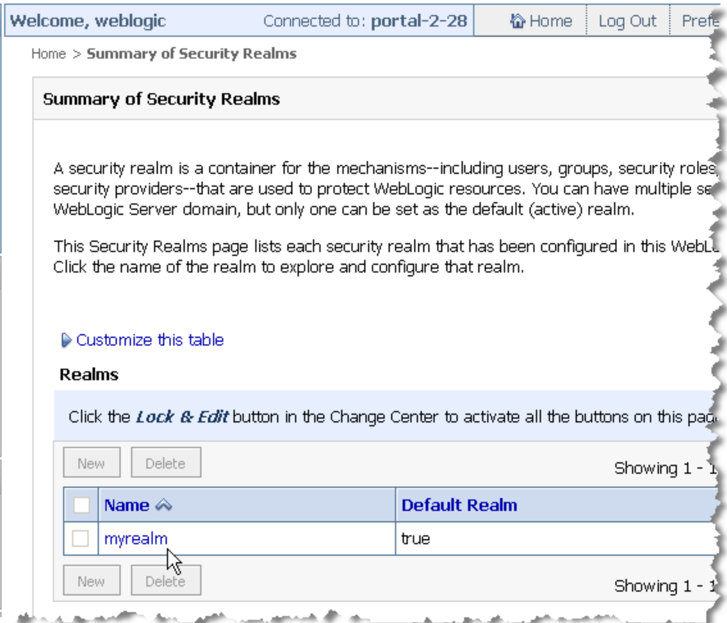

2. In the Administration Console, select **Security Realms** in the Domain Structure window, as shown in Figure 15-6.

**Figure 15-6 Selecting Security Realms**



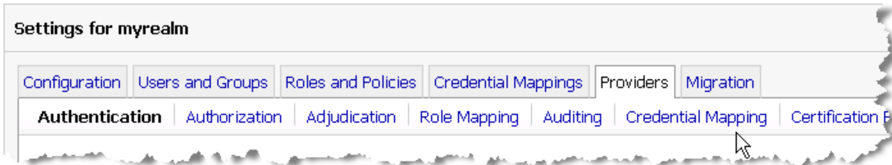

3. Select a security realm. The default security realm is called **myrealm**, as shown in Figure 15-7.

**Figure 15-7 Selecting a Security Realm**




4. Select the **Providers** tab and then the **Credential Mapping** tab, as shown in Figure 15-8.

**Figure 15-8 Selecting the Credential Mapping Tab**



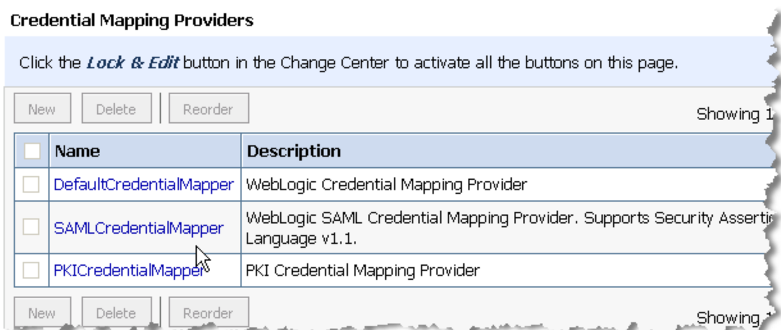

5. Select **SAMLCredentialMapper**, as shown in Figure 15-9.

---

**Tip:** The SAML Credential Mapper provider acts as a producer of SAML security assertions, allowing WebLogic Server to act as a source site for using SAML for single sign-on.

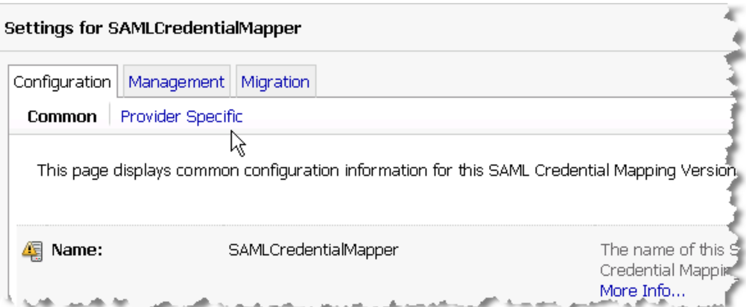
---

**Figure 15-9 Selecting the SAMLCredentialMapper**




6. Select **Provider Specific**, as shown in Figure 15-10.

**Figure 15-10 Selecting the Provider Specific Tab**



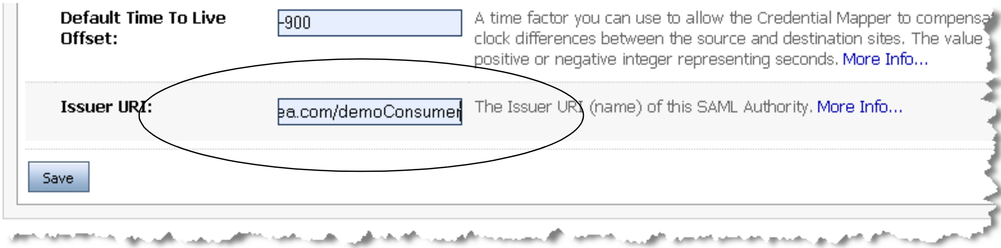

7. In the Change Center window, select **Lock and Edit**, as shown in Figure 15-11. This function blocks other users from making Administration Console changes and enables you to edit the SAMLCredentialMapper settings.

**Figure 15-11 Locking the Console**

8. Edit the **Issuer URI**, as shown in Figure 15-12. This unique URI tells the producer the origin of the SAML message and allows the producer to match the consumer with the key. Typically, the consumer's URL is used in this string to guarantee that it is unique. For example:

```
http://www.bea.com/demoConsumer
```

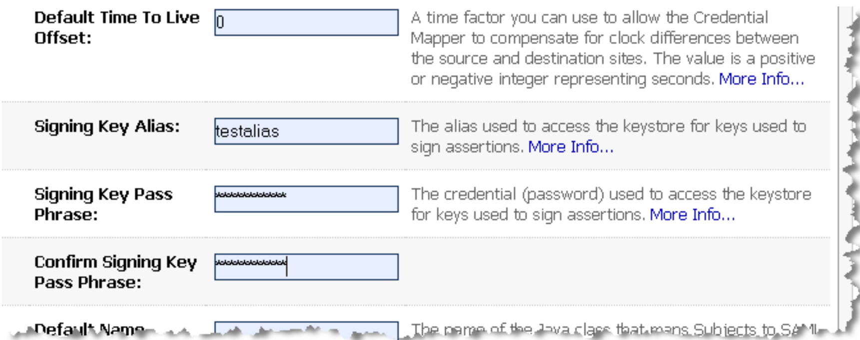
**Figure 15-12 Issuer URI**




9. Enter the **Signing Key Alias** and **Signing Key Pass Phrase**, as shown in Figure 15-13. These are the values you used when you generated the keystore. In this example they were:

| Provider Field | Value |
|---|---|
| **Signing Key Alias** | `testalias` |
| **Signing Key Pass Phrase** | `testkeypass` |

**Figure 15-13 Additional Provider Fields**




---

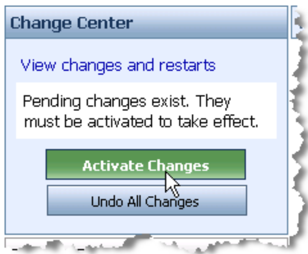
**Tip:** It is recommended that you set the **Default Time To Live** to 120 seconds, the **Cred Cache Min Viable TTL** to 10 seconds, and the **Default Time To Live Offset** to 0. Then, select the Management tab and in the relying party configuration, set the **Assertion Time To Live Offset** to the difference between the clock times of the consumer and producer (consumer time minus producer time).

---

10. Click **Save**.

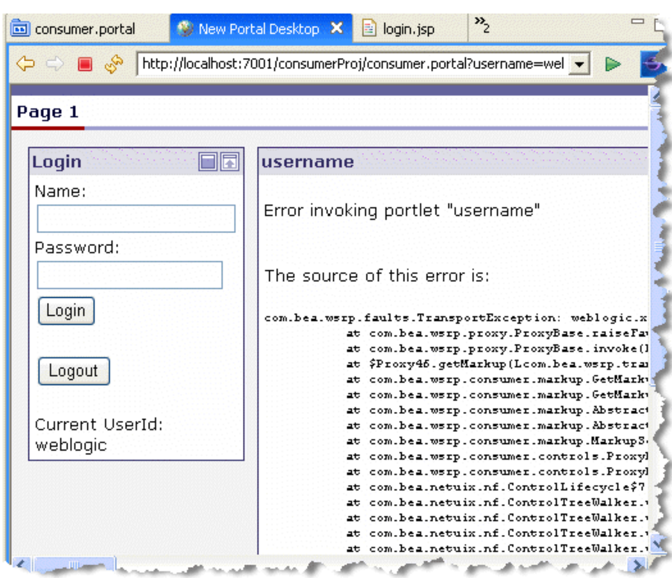
11. In the Change Center window, click **Activate Changes**, as shown in Figure 15-14.

**Figure 15-14 Activating Changes**




**Checkpoint:** At this point, the SAML credential mapper provider on the consumer is configured to use the keystore you generated. If you were to try to log in to the login portlet, you would receive an error, as shown in Figure 15-15. This is because the producer does not yet recognize the new key sent from the consumer. In the next steps, you will configure the producer to accept the key sent from the consumer.

**Figure 15-15 Login Results in an Error in the Producer Portlet**

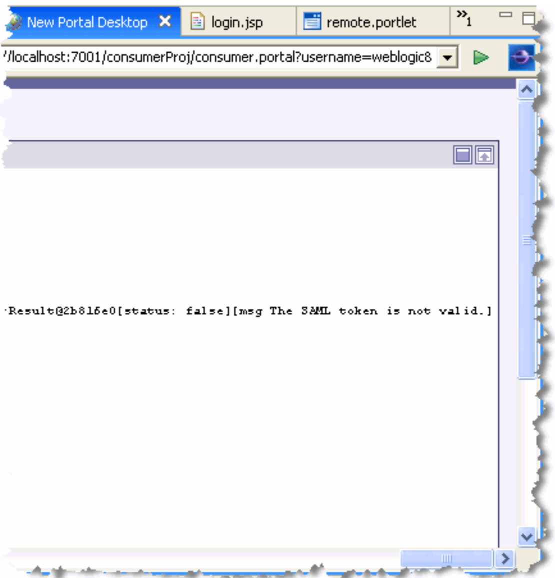



---

**Tip:** If you scroll the portal to the right, you will see that the error message says “The SAML token is not valid,” as shown in Figure 15-16:

---

**Figure 15-16 Error Message**




# Configuring the Producer

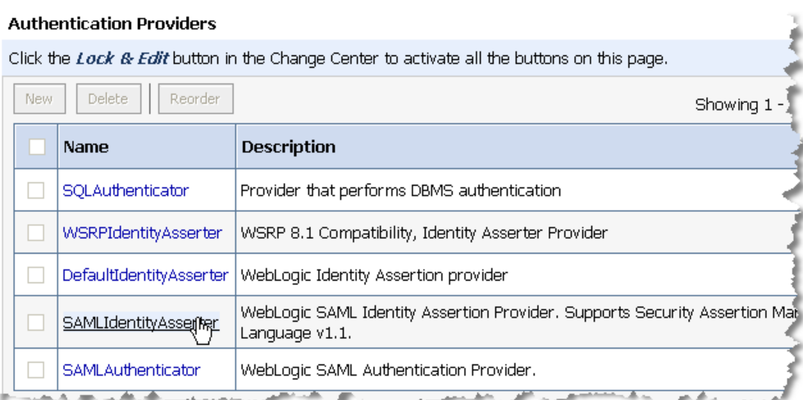
This section explains how to configure the producer. To do this, you import the certificate into the SAML asserter, and configure the asserting party properties.

## Import the Certificate

1. Copy the key file (`testailias.der`) that you generated on the consumer to the producer using any method you want, such as FTP or SMB. You can place the file in any directory on the destination machine.
2. Open the WebLogic Server Administration Console on the producer machine and log in.
3. Select **Security Realms**.
4. Select a security realm, such as **myrealm**.
5. Select the **Providers** tab.
6. Select the **Authentication** tab.

7. Select **SAMLIdentityAsserter**, as shown in Figure 15-17. An identity asserter allows WebLogic Server to establish trust by validating a user.

**Figure 15-17 Selecting the Identity Asserter**




8. Click the **Management** tab, and click **Certificates**, as shown in Figure 15-18.

**Figure 15-18 Selecting the Certificates Tab**

9. In the Certificates dialog, click **New**, as shown in Figure 15-19.

**Figure 15-19 Creating a New Certificate**

10. In the **Alias** field, enter a name for the certificate, as shown in Figure 15-20. It is a good practice to use the same name you used when you created the certificate. In this example, the name of the alias is `testalias`.

11. In the **Certificate File Name** field, enter the path to the certificate file, as shown in Figure 15-20.

**Figure 15-20 Entering Certificate Properties**

12. Click **Finish**. If there are no problems, the following message is displayed:

**The certificate has been successfully registered.**

## Configure the Asserting Party Properties

1. On the **Management** tab, click **Asserting Parties**.

---

**Tip:** The **WsrpDefault** asserting party is set up for the producer's default WSRP key. If the consumer and producer applications were running on the same server, the WSRP key of the consumer would be accepted by the producer. It is a good practice to delete the **WsrpDefault** party for an application that is in production.

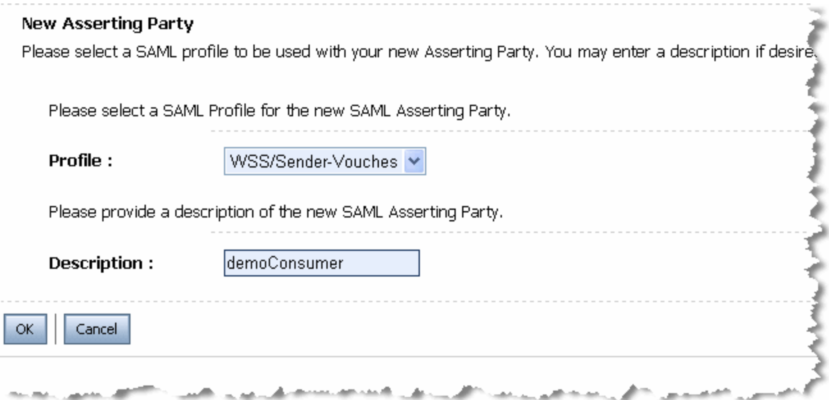
---

2. In the Asserting Parties table, click **New**, as shown in Figure 15-21.

**Figure 15-21 Creating a New Asserting Party**

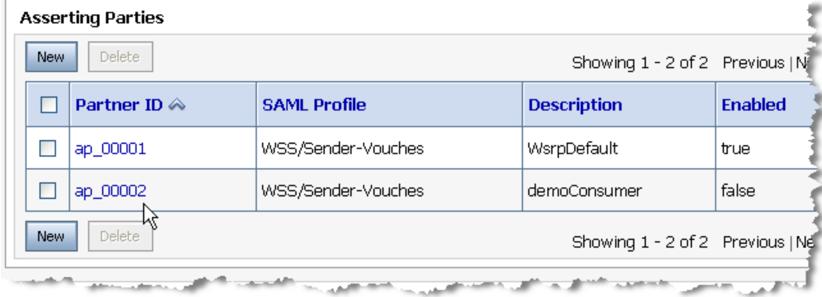
3. In the **Profile** pulldown menu, select **WSS/Sender Vouches**, as shown in Figure 15-22.
4. In the **Description** field, enter a name to identify the asserting party, as shown in Figure 15-22. For example: `demoConsumer`.

**Figure 15-22 Asserting Party Properties**




5. Enable the new asserting party. To do this, click the **Partner ID** link for the asserting party. In this example, the link is **ap_0002** for the asserting party called **demoConsumer**, as shown in Figure 15-23.

**Figure 15-23 Selecting the New Asserting Party**




6. Set the asserting party values, as listed in Table 15-1 and shown in Figure 15-24.

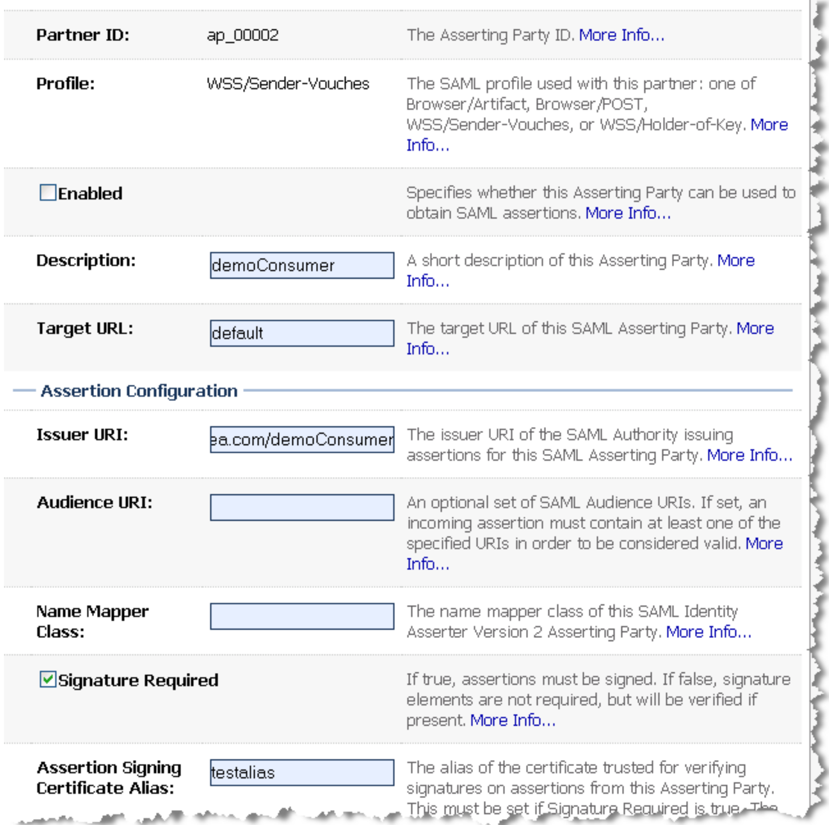
**Table 15-1 Asserting Party Values**

| Parameter | Value |
|---|---|
| **Enabled** | Select the checkbox (true). |
| **Target URL** | `default` |

Table 15-1 Asserting Party Values (Continued)

| Parameter | Value |
|---|---|
| **Issuer URI** | Use the same one that you configured on the consumer. In this example, it is `http://bea.com/demoConsumer` |
| **Signature Required** | Select the checkbox (true). |
| **Assertion Signing Certificate Alias** | Use the same one that you configured on the consumer. In this example it is `testalias`. |

Figure 15-24 Asserting Party Values



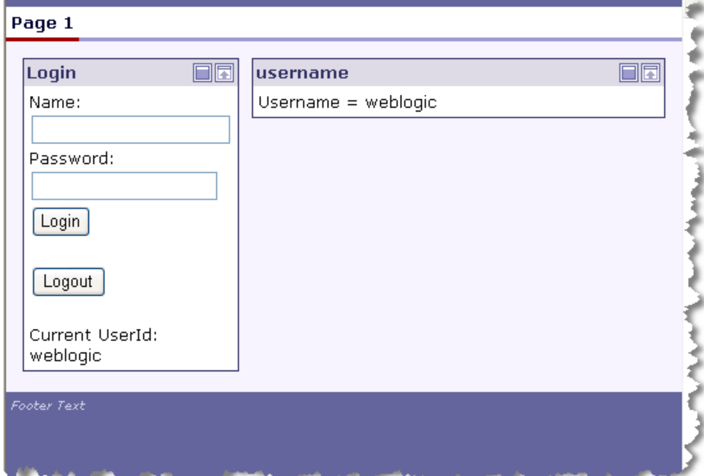
7. Click **Save**.

   If there were no problems, the message, **Settings updated successfully**, appears.

## Testing the Configuration

1. On the consumer, log into the portal application with a valid username and password (for example, weblogic/weblogic). You will see the username appear in the proxy portlet. This indicates that the SAML message was passed from the consumer to the producer, and that the producer recognized and accepted it.

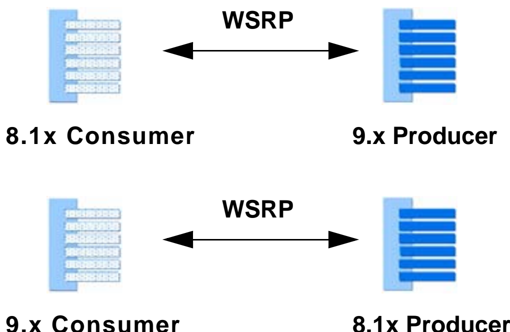
**Figure 15-25 Successful Test**




# SAML Security Between WebLogic Portal 8.1x and 9.x Domains

Producer and consumer applications developed with WebLogic Portal 9.x are compatible with producers and consumers developed with WebLogic Portal 8.1x. That is, a portal developed with WebLogic Portal 9.x can consume portlets deployed in a WebLogic Portal 8.1x domain. Similarly, portlets exposed in a WebLogic Portal 9.x producer can be consumed by an 8.1x consumer. These two use cases are summarized in Figure 15-26.

**Figure 15-26 Compatibility Use Cases**



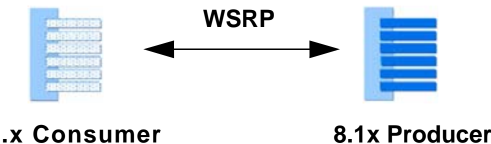

This section discusses addresses both of these use cases. The following topics are discussed:

- SAML Security Between 9.x Consumers and 8.1x Producers
- SAML Security Between 8.1x Consumers and 9.x Producers

## SAML Security Between 9.x Consumers and 8.1x Producers

This section explains how to achieve SAML-based security compatibility between a WebLogic Portal 9.x consumer and an 8.1x producer, as summarized in Figure 15-27.

**Figure 15-27 Compatibility Use Case**



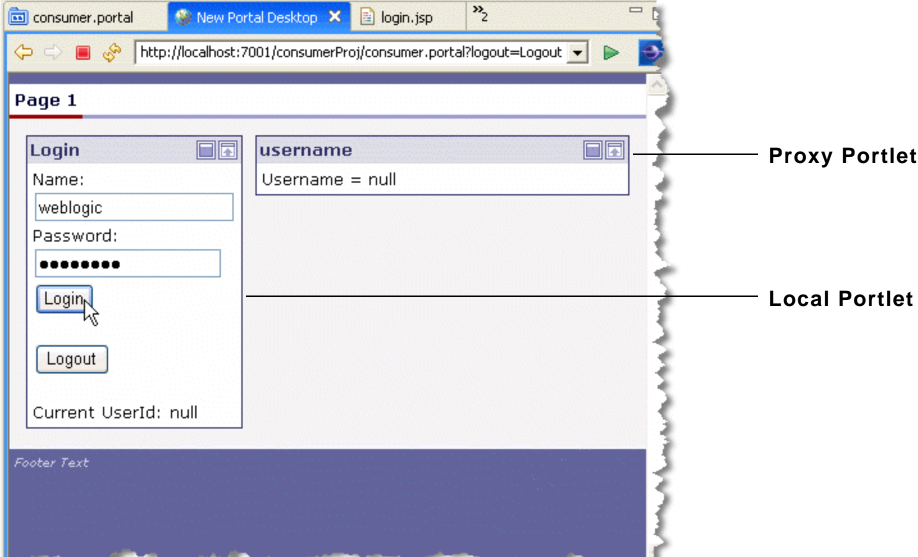

---

**Tip:** By default, with no configuration changes made to either side, WSRP between a 9.x consumer and 8.1x producer works. That is, a 9.x consumer can consume a portlet from an 8.1x producer with no configuration changes. However, if you want to use your own key for the 9.x consumer, you need to follow the procedure outlined in this section.

---

The portal shown in Figure 15-28 includes a local portlet on the left and a remote (proxy) portlet on the right. The remote portlet is deployed in an 8.1x producer. The local portlet is a login portlet. Before SAML security is properly configured, when a user logs in, the name that is returned is **null**.

**Figure 15-28 Consumer Portal Before User Login**




## Configuring the Consumer

The following sections explain how to configure the consumer with a key that can sign the SAML assertion sent to the producer. The basic tasks include:

- Generating a key
- Changing the consumer's name
- Modifying the consumer's security realm

### Generate a Key

This section explains how to generate a key on the consumer using the keytool utility, a Java utility distributed by Sun Microsystems that manages private keys and certificates. For detailed information on keytool, refer to the Sun Microsystems website.

1. On the consumer, open a command window and CD to the `WEBLOGIC_HOME/server/lib` directory.
2. Run the keytool command to generate a new key, as shown in Figure 15-29. For example, the following command generates a key called `consumer92key`.

```
keytool -genkey -alias consumer92key -keystore wsrpKeystore.jks
-storepass password -keypass consumer92pass
```

The options used in the example keytool command include the following:

| Command parameter | Description |
|---|---|
| **keytool** | A Java tool used to generate a key. |
| **-genkey** | Instructs the keytool to generate a key. |
| **-alias** | Specifies a name for the generated key. |
| **-keystore** | Specifies the name of the keystore. A keystore stores keys and certificates. The default keystore, `wsrpKeystore.jks`, is implemented as a file that protects private keys with a password. |
| **-storepass** | Specifies the password for the keystore. |
| **-keypass** | Specifies the password to be used with the new key. |

**Figure 15-29 Generating a Key**

```
C:\WINDOWS\system32\cmd.exe
02/27/2006  01:52 PM    <DIR>          user_staged_config
02/27/2006  04:10 PM         3,000,302 weblogic_eval$1.wal
02/27/2006  04:10 PM         4,763,648 weblogic_eval.dbn
02/27/2006  01:52 PM               487 workshop.properties
02/24/2006  12:15 AM             2,852 wsrpKeystore.jks
              17 File(s)      7,782,093 bytes
              13 Dir(s)  20,523,200,512 bytes free

D:\users\projects\domains\portalDomain-2-27>keytool -genkey -alias consumer92key
 -keystore wsrpKeystore.jks -storepass password -keypass consumer92pass
What is your first and last name?
  [Unknown]:
What is the name of your organizational unit?
  [Unknown]:
What is the name of your organization?
  [Unknown]:
What is the name of your City or Locality?
  [Unknown]:
What is the name of your State or Province?
  [Unknown]:
What is the two-letter country code for this unit?
  [Unknown]:
Is CN=Unknown, OU=Unknown, O=Unknown, L=Unknown, ST=Unknown, C=Unknown correct?
  [no]:  y


D:\users\projects\domains\portalDomain-2-27>
```

## Change the Consumer's Name

1. Copy the `wsrp-consumer-security-config.xml` from the J2EE Shared Library to your project. To do this in Workshop for WebLogic, open the **Merged Projects** view, find the file in the **WEB-INF** directory of your consumer web application. Right-click the file and select **Copy to Project**. For more information on copying files from J2EE Shared Libraries, see the *Production Operations Guide* and the *Portal Development Guide*.

2. Edit the file `wsrp-consumer-security-config.xml` in the `WEB-INF` directory of your consumer web application. Change the `<consumer-name>` element from `wsrpConsumer` to another arbitrary name. For example, change:

   ```
   <consumer-name>wsrpConsumer<consumer-name>
   ```

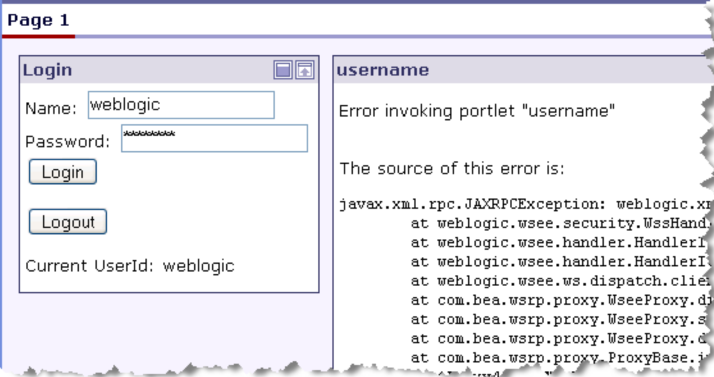
   to

   ```
   <consumer-name>consumer9x<consumer-name>
   ```

3. Restart the consumer application's server so that the change to the configuration file takes effect.

**Checkpoint:** If you try to log in to the remote portlet again, you will receive an error, as shown in Figure 15-30. This error is caused by the fact that the producer cannot find the key that was sent from the consumer. The next step is to configure the security realm for the consumer domain.

**Figure 15-30 Login Error**




## Modify the Consumer's Security Realm

1. Log in to the WebLogic Server Administration Console on the consumer. The URL for the console is:

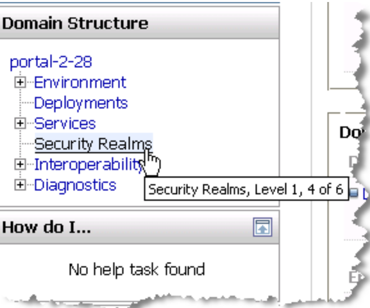
`http://`*`servername`*`:`*`portnumber`*`/console`

where *servername* is your server's IP name, and *portnumber* is the server's port. For example:

```
http://localhost:7001/console
```

2. Click the **Security Realms** link in the Domain Structure window, as shown in Figure 15-31.

**Figure 15-31 Selecting Security Realms**

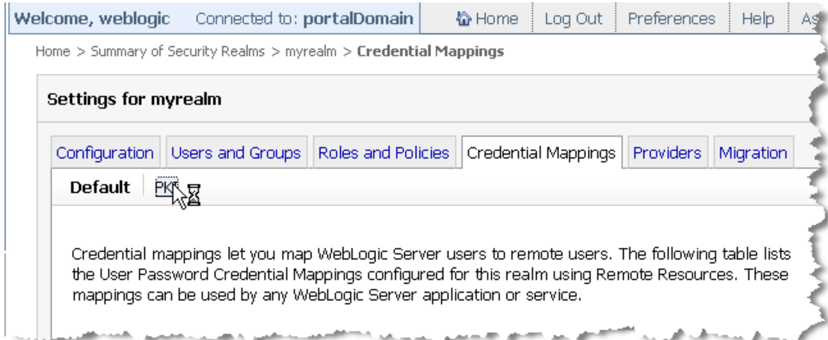



3. Select **myrealm** (or the name of the security realm you are using) and then select the **Credential Mappings** tab.

4. In the **Credential Mappings** tab, select **PKI**, as shown in Figure 15-32.

**Tip:** PKI, or public key infrastructure, allows the exchange of data through the use of a public and a private cryptographic key pair that is obtained and shared through a trusted authority. For more information, see "Configure Credential Mapping Providers," in the WebLogic Server documentation.

**Figure 15-32 Select PKI**




5. In the **PKI Credential Mappings** table, click **New** to create a new credential.
6. In the Create New Security Credential dialog, click **Next** without entering any remote resource attribute information.

---

**Tip:** By leaving the remote resource attributes blank, the credential will be accepted by all producers. If you want to specify a producer, enter the appropriate information in this dialog.

---

7. In the Create a New Security Credential Map Entry dialog, enter the following in the **Local User** field:

   `consumerName__81_COMPAT`

   where `consumerName` is the consumer name you entered previously in the `wsrp-consumer-security-config.xml` file. (Note that the name is followed by a double underscore.)

   For this example, the correct value for **Local User** is: `consumer9x__81_COMPAT`.

8. Select the **User** radio button.
9. In the **Keystore Alias** field, enter the alias you used for the key that you generated previously. In this example, the alias is `consumer92key`.
10. In the **Password** field, enter the key password you used when you generated the key. In this example, the password is `consumer92pass`.

11. Click **Finish**. Figure 15-33 shows the new principal name added to the PKI Credential Mappings: `consumer92__81_COMPAT`.

**Figure 15-33 List of PKI Credential Mappings**

12. Export the key from the consumer's keystore. Use the `keytool` utility to export the key that you created previously. You will use this key in the next set of steps to configure the WebLogic Portal 8.1x producer. For example:

```
keytool -export -alias consumer92key -keystore wsrpKeystore.jks
-storepass password -keypass consumer92pass -file consumer92.der
```

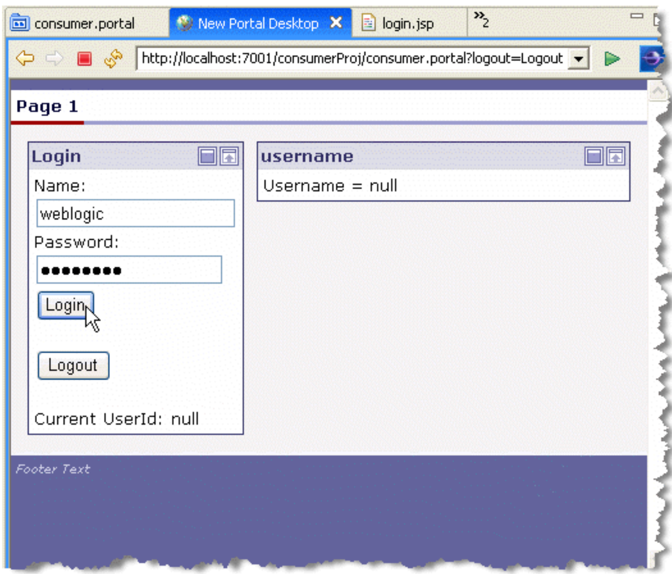
**Checkpoint:** In the previous steps, you associated this consumer, `consumer92`, to a key to sign the SAML assertion. If you now try to log in to the remote portlet, the previously seen error does not appear. This means that the consumer is now properly associated with a key. However, now after logging in, the `username` is `null`, as shown in Figure 15-34. This is because this consumer is not yet known to the producer. The next set of steps demonstrate how to configure the WebLogic Portal 8.1x producer to accept the WebLogic Portal 9.x consumer's key.

---

**Tip:** It is interesting to note an important difference between the behavior of a WebLogic Portal 9.x producer and a WebLogic Portal 8.1x producer. If a WebLogic Portal 9.x producer cannot verify what the consumer is sending, you will receive an error. If a WebLogic Portal 8.1x producer cannot verify what the consumer is sending, the producer ignores this condition and continues with an anonymous user. In addition, if an 8.1x

consumer sends an unverifiable message to a 9.x producer, the producer likewise ignores the condition and continues with an anonymous user.

**Figure 15-34 Username is Null**




## Configure the WebLogic Portal 8.1x Producer

This section explains how to configure the WebLogic Portal 8.1x producer. To do this, you import the key into the producer's keystore.

### Import the Certificate

1. Copy the previously exported certificate to the system on which the producer application is deployed, using whichever method is appropriate for your system, such as FTP or SMB. You can put this file anywhere on the destination machine.
2. In a command window, CD to the root directory of the producer's domain. For example:

```
BEA_HOME/weblogic81/user_projects/domains/portalDomain
```

3. Import the key using the keytool utility. For example:

```
keytool -import -keystore wsrpKeystore.jks -file c:\consumer92.der
-storepass password -alias consumer9x -keypass consumer92pass
```

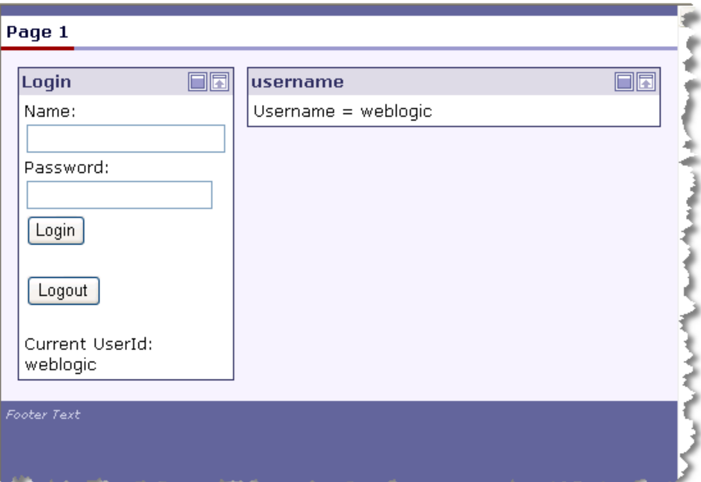
**Note:** The alias argument *must* match the consumer name you used when you created the key on the consumer. In this example, that name is `consumer9x`.

4. Restart the server in which the producer application is deployed.

### Test the Configuration

After the producer server is restarted, you can once again test the remote portlet in the consumer application. When you log into the portal, you will see that the remote portlet now recognizes the user as logged in, as shown in Figure 15-35.

**Figure 15-35 Successful Configuration**



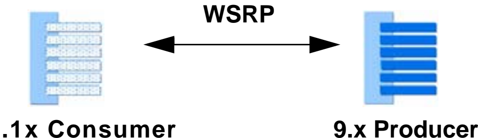

## Summary

The preceding example demonstrated how to configure SAML security between a WebLogic Portal 9.x consumer and a WebLogic Portal 8.1x producer. In the next example, you will see the reverse: configuring SAML security between a WebLogic Portal 8.1x consumer and a WebLogic Portal 9.x producer.

# SAML Security Between 8.1x Consumers and 9.x Producers

This section explains how to achieve security compatibility between a WebLogic Portal 8.1x consumer and an 9.x producer, as summarized in Figure 15-36.

**Figure 15-36 Compatibility Use Case**




The basic steps include:

- Configure the 8.1x Consumer
- Configure the 9.x Producer

## Configure the 8.1x Consumer

This section explains how to configure the 8.1x consumer. The basic steps include generating a key and configuring the WSRP Consumer Security Service in the WebLogic Administration Portal.

### Generate a Key

This section explains how to use the keytool utility to generate a key on the consumer. Keytool, a Java utility distributed by Sun Microsystems, manages private keys and certificates. For detailed information on keytool, refer to the Sun Microsystems website.

1. If you have not already done this, generate a key. To do this, CD to the root directory of the WebLogic Portal 8.1x consumer application's domain and use the keytool utility to generate the key. For example:

   ```
   BEA_HOME/weblogic81/user_projects/domains/portal
   ```

   ```
   keytool -genkey -keystore wsrpKeystore.jks -alias consumer8xkey
   -storepass password -keypass consumer8xpass
   ```

   The options used in the example keytool command include the following:

| Command parameter | Description |
|---|---|
| **keytool** | A Java tool used to generate a key. |
| **-genkey** | Instructs the keytool to generate a key. |

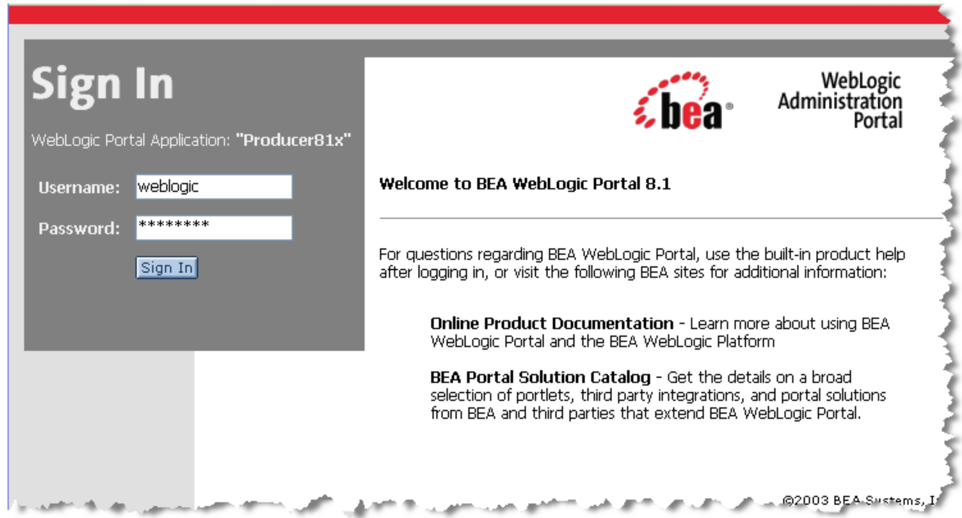
| Command parameter | Description |
| --- | --- |
| **-keystore** | Specifies the name of the keystore. A keystore stores keys and certificates. The default keystore, `wsrpKeystore.jks`, is implemented as a file that protects private keys with a password. |
| **-alias** | Specifies a name for the generated key. |
| **-storepass** | Specifies the password for the keystore. |
| **-keypass** | Specifies the password to be used with the new key. |

2. Log in to the version 8.1x WebLogic Administration Portal on the consumer application's server. To start the Administration Portal from Workshop for WebLogic, select **Portal > Portal Administration**. Or, enter the following URL in a browser:

   `http://localhost:7001/`*`applicationName`*`/login.jsp`

   where *`applicationName`* is the name of the WebLogic Portal consumer application.

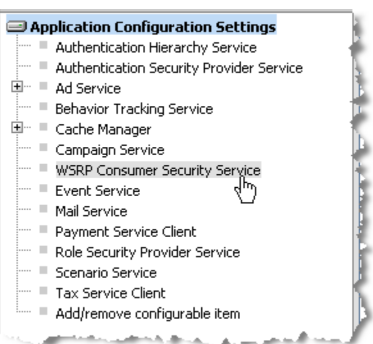
**Figure 15-37 WebLogic Administration Portal Sign In Page**




3. In the Administration Portal, select **Service Administration**.

4. In the Application Configuration Settings tree, select **WSRP Consumer Security Service**, as shown in Figure 15-38.

**Figure 15-38 Selecting WSRP Consumer Security Service**




5. In the Configuration Settings dialog, enter a name for the consumer, the **Certificate Alias** that you used when you generated the consumer key, and the **Certificate Private Key Password** that you used when you generated the key, as shown in Figure 15-39 and click **Update**.

**Figure 15-39 Entering Security Service Parameters**

6. Export the key using the keytool utility. To do this, CD to the consumer's domain root directory, and enter the appropriate keytool command. For example:

```
keytool -export -alias consumer8xkey -keystore wsrpKeystore.jks -file
consumer81.der
```

## Configure the 9.x Producer

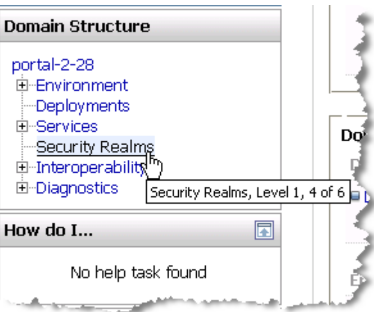
This section explains how to configure the producer. To do this, you must configure the producer's PKI credential mappings to include the consumer's certificate.

1. Copy the exported key to the WebLogic Portal 9.x producer's root domain directory using an appropriate method, such as FTP or SMB. You can put this file anywhere on the destination machine.
2. Use the keytool utility to import the key into the 9.x producer's keystore. For example:

```
keytool -import -keystore wsrpKeystore.jks -file consumer81.der -alias
consumer8xkey -keypass consumer8xpass
```

3. Log in to the WebLogic Server Administration Console on the producer server.
4. Click the **Security Realms** link in the Domain Structure window, as shown in Figure 15-31.

**Figure 15-40 Selecting Security Realms**



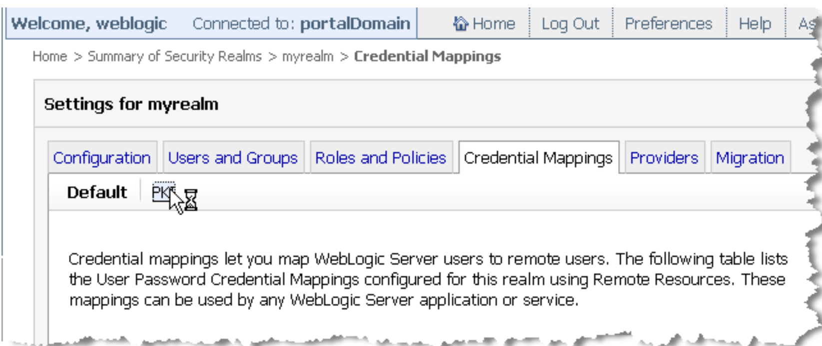

5. Select **myrealm** (or the name of the security realm you are using) and then select the **Credential Mappings** tab.
6. In the **Credential Mappings** tab, select **PKI**, as shown in Figure 15-32.

---

**Tip:** PKI, or public key infrastructure, allows the exchange of data through the use of a public and a private cryptographic key pair that is obtained and shared through a

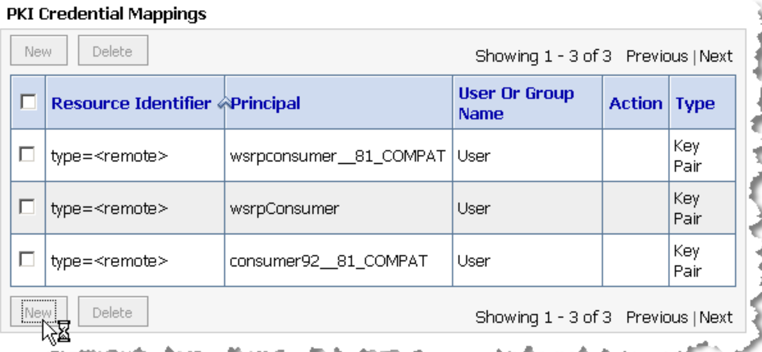
trusted authority. For more information, see "Configure Credential Mapping Providers," in the WebLogic Server documentation.

**Figure 15-41 Select PKI**




7. In the PKI Credential Mappings dialog, click **New**, as shown in Figure 15-42.

**Figure 15-42 Creating a New PKI Credential Mapping**



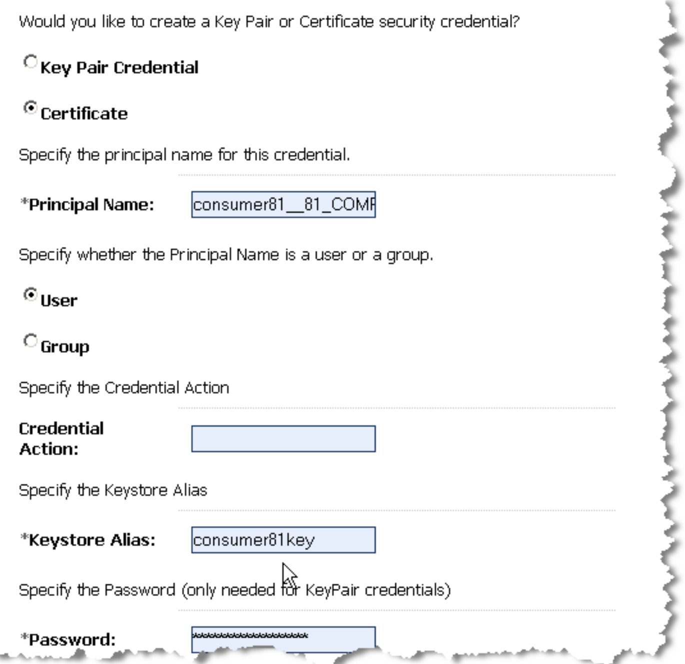

8. In the Creating the Remote Resource for the Security Credential Mapping dialog, leave all fields blank and click **Next**.

**Tip:** By leaving the fields blank, this indicates that the credential is recognized for all consumers. If you want to restrict the credential to a specific consumer, you can fill in the required information.

9. In the Create a New Security Credential Map Entry dialog, enter the following information:
   – Select the **Certificate** radio button (true).
   – In the **Principal Name** field, enter `consumerName__81_COMPAT`, where `consumerName` is the name of the consumer. In this example, the name is `consumer8x`.
   – Select the **User** radio button.
   – In the **Keystore Alias** field, enter the alias you used when you imported the keystore. In this example, it is `consumer8xkey`.
   – In the **Password** field, enter the key password you used when you imported the keystore. In this example, it is `consumer81pass`.

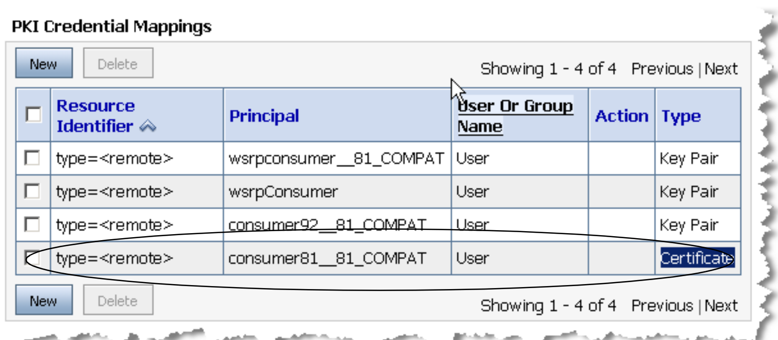
   Figure 15-43 shows the completed dialog.

**Figure 15-43 Entering PKI Credential Mappings Parameters**




10. Click **Finish**. The PKI Credential Mappings table reappears and shows that the new certificate has been added, as shown in Figure 15-44.

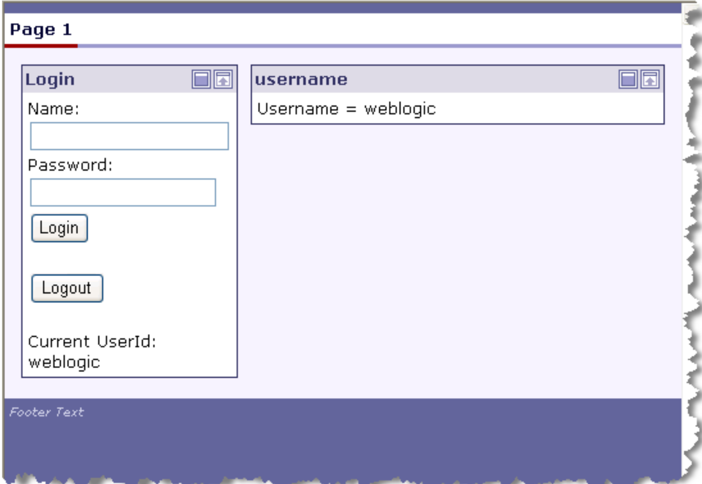
**Figure 15-44 New Certificate Added to the Producer**




## Testing the Configuration

To test the configuration, log in to the consumer portal. As shown in Figure 15-45, the username `weblogic` appears in the proxy portlet. This indicates success: the user was logged in successfully on the producer.

**Figure 15-45 Successful Test**



# Using SAML Security with a Name Mapper

A name mapper is a class that maps one user name to another. Use a name mapper when the producer and consumer have different names for the same user. This section explains how to write and configure a name mapper class on both the consumer and the producer.

If you want to use a name mapping class on the producer or the consumer, the basic steps include:

- Writing a Name Mapper Class
- Deploying the Mapper Classes
- Configuring the Mapper Classes

## Writing a Name Mapper Class

WebLogic Portal provides two username mapping interfaces:

- weblogic.security.providers.saml.SAMLCredentialNameMapper

  Implement this interface on the consumer to map a username on the consumer to a new name. See "Implementing SAMLCredentialNameMapper on the Consumer" on page 15-36 for an example.

- weblogic.security.providers.saml.SAMLIdentityAssertionNameMapper

  Implement this interface on the producer to map a username sent from the consumer to a username on the producer. See "Implementing SAMLIdentityAssertionNameMapper on the Producer" on page 15-38 for an example.

### Implementing SAMLCredentialNameMapper on the Consumer

Implement SAMLCredentialNameMapper on the consumer to provide name mapping on the consumer. Listing 15-1 shows an example implementation of SAMLCredentialNameMapper.

The mapSubject() method gets a Subject (user) and returns a SAMLNameMapperInfo object. The method provides logic to test the username and replace it with a new username. This new username is then returned in a SAMLNameMapperInfo object, which is then passed to the producer.

For detailed information on this interface, see the Javadoc.

**Listing 15-1 Example SAMLCredentialNameMapper Implementation**

```
package com.bea.wsrp.qa.security;

import java.util.Collection;
import java.util.Set;
import javax.security.auth.Subject;

import weblogic.security.SubjectUtils;
import weblogic.security.providers.saml.SAMLCredentialNameMapper;
import weblogic.security.providers.saml.SAMLNameMapperInfo;
import weblogic.security.service.ContextHandler;
import weblogic.security.spi.WLSGroup;

public class CustomSAMLNameMapperImpl implements SAMLCredentialNameMapper {

        private String nameQualifier = null;

        public CustomSAMLNameMapperImpl (){ }

        /************ SAMLCredentialNameMapper implementation**************/

        public synchronized void setNameQualifier(String nameQualifier)
        {
                this.nameQualifier = nameQualifier;
        }

        public SAMLNameMapperInfo mapName (String name, ContextHandler handler)
        {
                return new SAMLNameMapperInfo(nameQualifier, name, null);
        }

        public SAMLNameMapperInfo mapSubject (Subject subject, ContextHandler handler)
        {
                // Provider checks for null Subject...
                Set groups = subject.getPrincipals(WLSGroup.class);
                String userName = null;

                userName = SubjectUtils.getUsername(subject);
                if (userName == null || userName.equals("")) {
                        System.out.println("mapSubject: Username string is null or
                       empty, returning null");
                        return null;
                }

                if (userName.equals("testUser"))
                {
                        userName = "testUser_Mapped";
                }

                // Return mapping information...
                return new SAMLNameMapperInfo(nameQualifier, userName, groups);
```

```
        }
}
```

## Implementing SAMLIdentityAssertionNameMapper on the Producer

Implement SAMLIdentityAssertionNameMapper on the producer to provide name mapping. Listing 15-2 shows an example implementation of SAMLIdentityAssertionNameMapper. In this example, if you log in on the consumer as `testUser_Mapped`, the name mapper class retrieves that username on the producer and logs you in as `testUser_Producer`.

The mapNameInfo() method gets a SAMLNameMapperInfo object from the consumer. This object contains the name with which the user logged in on the consumer. The method provides logic to test the username from the consumer and replace it with a username on the producer.

For detailed information on this interface, see the Javadoc.

**Listing 15-2 Example SAMLIdentityAssertionNameMapper Implementation**

```
package com.bea.wsrp.qa.security;


import java.util.Collection;
import java.util.Set;
import javax.security.auth.Subject;

import weblogic.security.SubjectUtils;
import weblogic.security.providers.saml.SAMLIdentityAssertionNameMapper;
import weblogic.security.providers.saml.SAMLNameMapperInfo;
import weblogic.security.service.ContextHandler;
import weblogic.security.spi.WLSGroup;

public class CustomSAMLNameMapperImpl implements SAMLIdentityAssertionNameMapper
{
        private String nameQualifier = null;

        public CustomSAMLNameMapperImpl (){ }


        /************ SAMLIdentityAssertionNameMapper implementation*************/

        public String getGroupAttrName ()
        {
                return SAMLNameMapperInfo.BEA_GROUP_ATTR_NAME;
        }

        public String getGroupAttrNamespace ()
```

```
	{
		return SAMLNameMapperInfo.BEA_GROUP_ATTR_NAMESPACE;
	}

	public Collection mapGroupInfo(SAMLNameMapperInfo info, ContextHandler handlr)
	{
		return info.getGroups();
	}

	public String mapNameInfo(SAMLNameMapperInfo info, ContextHandler handler)
	{
		String userName = info.getName();

		if (userName == null || userName.equals("")) {
			System.out.println("mapNameInfo: Username string is null or
			 empty, returning null");
			return null;
		}

		if (userName.equals("testUser_Mapped"))
		{
			userName = "testUser_Producer";
		}

		return userName;
	}
}
```

# Deploying the Mapper Classes

Whether you are implementing a mapper class on the producer or the consumer, the class must be in the server's classpath. For information on adding classes to the server classpath, refer to the WebLogic Server topic "Adding Startup and Shutdown Classes to the Classpath."

# Configuring the Mapper Classes

You need to use the WebLogic Server Administration Console add the mapper classes to the security realm of the producer and/or consumer.

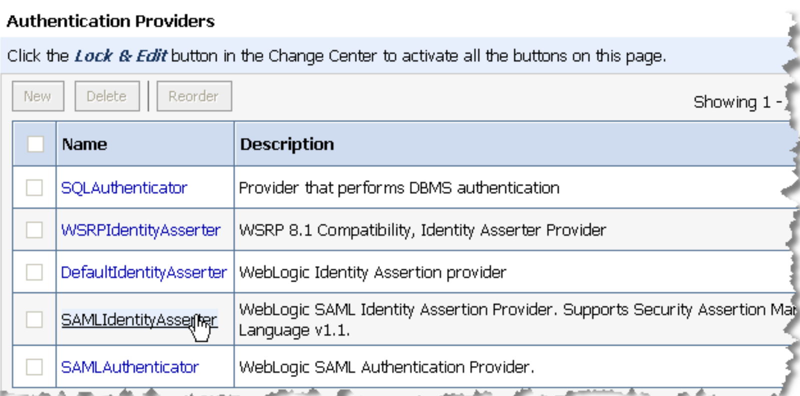
## Adding a Mapper Class to the Producer

To add a mapper class to the producer, do the following:

1. Open the WebLogic Server Administration Console on the producer machine and log in.
2. Select **Security Realms** from the Domain Structure tree.

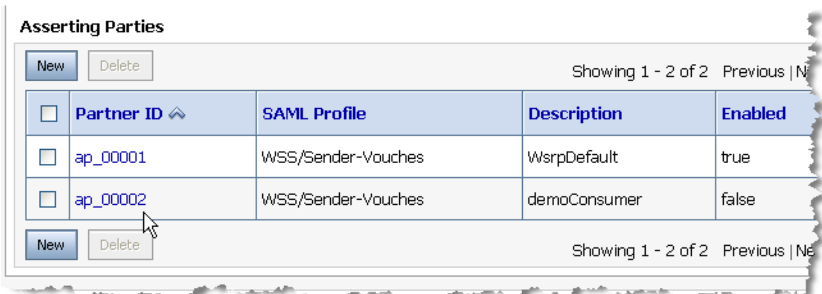
3. Select a security realm, such as **myrealm**.
4. Select **Providers**.
5. Select **SAMLIdentityAsserter**, as shown in Figure 15-17. An identity asserter allows WebLogic Server to establish trust by validating a user.

**Figure 15-46 Selecting the Identity Asserter**




6. Click the **Management** tab.
7. In the Asserting Parties table, click the **Partner ID** link for the asserting party you want to use. In this example, the link is **ap_0002** for the asserting party called **demoConsumer**, as shown in Figure 15-23.

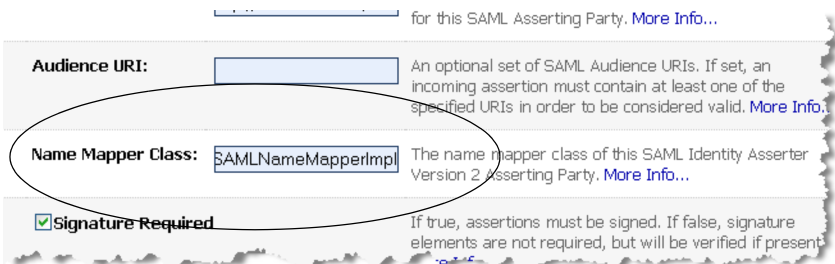
**Figure 15-47 Selecting the New Asserting Party**



8. In the **Configuration** tab, enter the full classname of the mapper class in the **Name Mapper Class** field, as shown in Figure 15-48. For example:

```
com.bea.wsrp.qa.security.CustomSAMLNameMapperImpl
```

**Figure 15-48 Entering the Name Mapper Class**




9. Click **Save**.

## Adding a Mapper Class to the Consumer

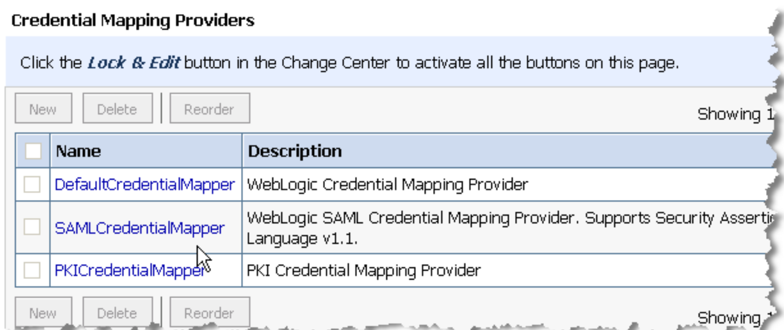
To add a mapper class to the producer, do the following:

1. Open the WebLogic Server Administration Console on the consumer machine and log in.
2. Select **Security Realms** from the Domain Structure tree.
3. Select a security realm, such as **myrealm**.
4. Select the **Providers** tab.

**Figure 15-49 Selecting the Credential Mapping Tab**

5. Select **SAMLCredentialMapper**, as shown in Figure 15-50.

**Figure 15-50 Selecting the SAMLCredentialMapper**



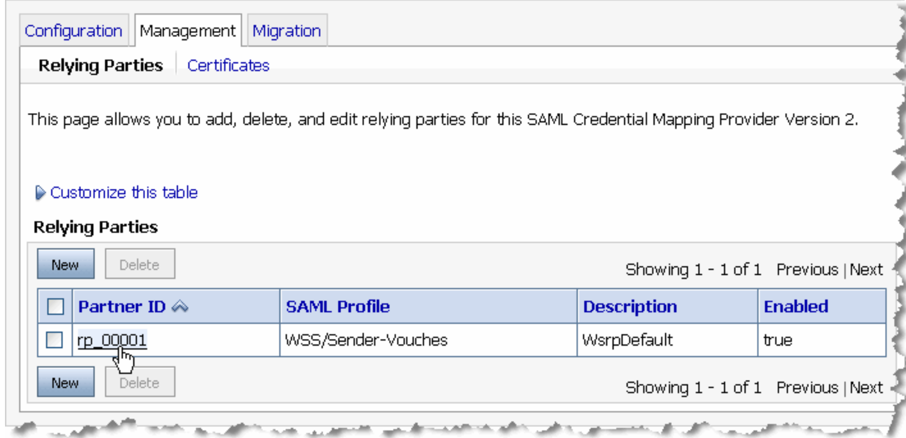

6. Select **Management** tab.
7. Select the **Relying Parties** link for the relying party you want to use. For example, the relying party shown in Figure 15-51 is **rp_00001**.

---

**Tip:** For more information on relying party configuration, see the WebLogic Server topic, "Configuring a Relying Party."

---

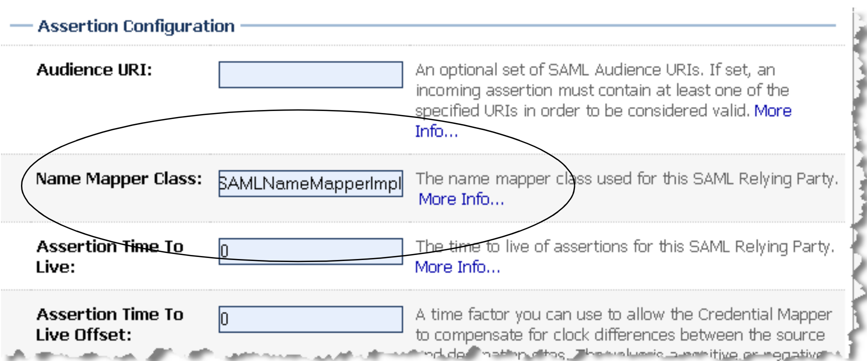
**Figure 15-51 Select the Relying Party**




8. In the **Name Mapper Class** field, enter the full classname of the mapper class, as shown in Figure 15-52. For example:

com.bea.wsrp.qa.security.CustomSAMLNameMapperImpl

**Figure 15-52 Entering the Name Mapper Class**




9. Click **Save**.

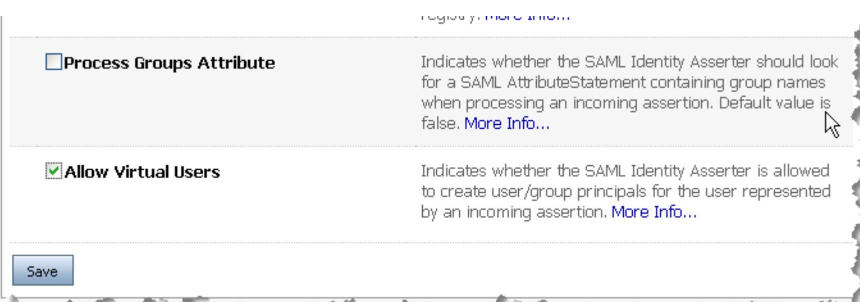
# Allowing Virtual Users

You can configure the producer to automatically create a new user if it does not recognize the username sent from the consumer. This feature is useful if you do not want to manually create a unique username on the producer for every user who might log in from a consumer application. You can use this feature as long as the producer is configured to recognize the consumer's SAML token, as explained previously in this chapter.

To configure the producer to allow virtual users:

1. Log in to the WebLogic Server Administration Console.
1. Navigate to the SAMLIdentityAsserter **Configuration** tab. For instructions on navigating to this tab, see "Adding a Mapper Class to the Producer" on page 15-39.
2. Check the **Allow Virtual Users** checkbox.
3. Click **Save**.

**Figure 15-53 All Virtual Users**



CHAPTER 16

# Configuring Username Token Security

Username Token, or UNT, is an alternative to SAML and provides the same basic single sign-on capability as SAML provides. Username Token lets you map the local user on the consumer to a user on the producer. This chapter explains how to configure User Name Token security for a federated portal.

This chapter includes the following sections:

- Configuring the Consumer
- Configuring the Producer

## Configuring the Consumer

On the consumer, you need to set up credential mappings. Credential mapping is the process whereby a legacy system's database is used to obtain an appropriate set of credentials to authenticate users to a target resource. In WebLogic Server, a Credential Mapping provider is used to provide credential mapping services and bring new types of credentials into the WebLogic Server environment. For more information on credential mapping, see the WebLogic Server topic, "Credential Mapping Providers."

1. Log in to the WebLogic Server Administration Console on the consumer. The URL for the console is:

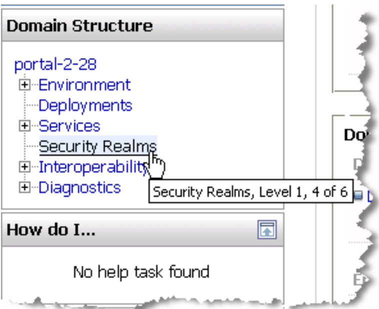
   `http://servername:portnumber/console`

   where *servername* is your server's IP name, and *portnumber* is the server's port. For example:

```
http://localhost:7001/console
```

2. Click the **Security Realms** link in the Domain Structure window, as shown in Figure 16-1.

**Figure 16-1 Selecting Security Realms**




3. Select **myrealm** (or the name of the security realm you are using).
4. Select the **Credential Mappings** tab.
5. Select the **Default** link to open the Default Credential Mappings dialog, as shown in Figure 16-2.

**Figure 16-2 Default Credential Mappings Dialog**

6. Click **New**.

7. In the Create a New Security Credential Mapping dialog, shown in Figure 16-3, complete the fields listed below.

**Figure 16-3 Completed Dialog**

- **Protocol** – The protocol for the remote resource, such as HTTP or HTTPS.
- **Remote Host** – The name of the remote resource. For example: `myproducer`
- **Remote Port** – The port number of the remote resource. For example: `7001`
- **Remote Path** – The path of the remote resource. You need to enter the markup path for the producer. Be sure to begin the path with a "`/`". For example:

```
/myProducerWebProject/producer/wsrp-1.0/markup
/myProducerWebProject/producer/wsrp-1.0/portletManagement
/myProducerWebProject/producer/wsrp-1.0/registration
/myProducerWebProject/producer/wsrp-wlp-ext-1.0/markup
/myProducerWebProject/producer/wsrp-1.0/serviceDescription
```

To obtain this path, you can enter the WSDL address of the producer in a browser. For example, if the producer web application is called myProducerWebApp, the WSDL URL is:

`http://producerHost:producerPort/myProducerWebApp/producer?wsdl`

where *producerHost* is the host name of the producer server and *producerPort* is the port number of the producer server.

The producer's WSDL definition appears in the browser. Locate the service description, and copy the markup path, as shown in Figure 16-4.

**Figure 16-4 Finding the Markup Port**

```
  </s0:Policy>
  <wsp:UsingPolicy n1:Required="true"/>
- <service name="WSRPService">
  - <port binding="s2:WSRP_v1_Markup_Binding_SOAP" name="WSRPBaseService">
      <s3:address location="http://localhost:7001/portalWebProject/producer/wsrp-1.0/markup"/>
    </port>
  - <port binding="s2:WSRP_v1_ServiceDescription_Binding_SOAP" name="WSRPServiceDescriptionService">
      <s3:address location="http://localhost:7001/portalWebProject/producer/wsrp-1.0/serviceDescription"/>
    </port>
  - <port binding="s4:WLP_WSRP_v1_Markup_Ext_Binding_SOAP" name="WLP_WSRP_Ext_Service">
      <s3:address location="http://localhost:7001/portalWebProject/producer/wsrp-wlp-ext-1.0/markup"/>
    </port>
  </service>
</definitions>
```

8. Click **Next**.

9. In the Create a New Security Credential Map Entry dialog, enter the local (consumer) username and the username on the producer to which you want to map that local name. Also, enter the password for the username on the producer, as shown in Figure 16-5.

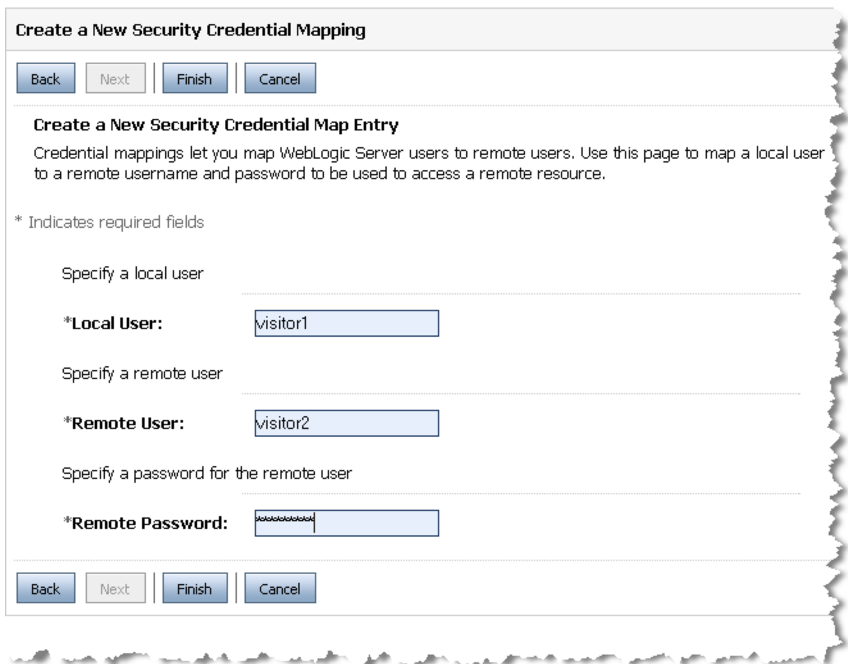
   **Note:** The local user you enter must exist on the consumer. If the user does not exist, you need to create it using the User Management feature of the WebLogic Portal Administration Console.

---

**Tip:** The local username and the username on the producer can be the same name or different names.

---

**Figure 16-5 Specify User Mapping**




10. Click **Finish**. The new mapping appears in the Default Credential Mappings table, as shown in Figure 16-6.

**Figure 16-6 Default Credential Mappings**

**Checkpoint:** You have configured a credential mapping on the consumer. The next step is to configure the producer to recognize that mapping.

# Configuring the Producer

On the producer, you need to set up authentication.

---

**Tip:** The WebLogic Authentication provider allows you to manage users and groups in one place, the embedded LDAP server. Note that the Administration Console refers to the WebLogic Authentication provider as the Default Authenticator. For more information on authentication, see the WebLogic Server topic, "Configure Authentication and Identity Assertion Providers."

---

1. Log in to the WebLogic Server Administration Console on the consumer. The URL for the console is:

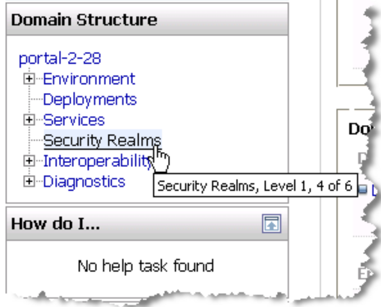
   http://*servername*:*portnumber*/console

   where *servername* is your server's IP name, and *portnumber* is the server's port. For example:

   http://localhost:7001/console

2. Click the **Security Realms** link in the Domain Structure window, as shown in Figure 16-1.

**Figure 16-7 Selecting Security Realms**




3. Select **myrealm** (or the name of the security realm you are using).

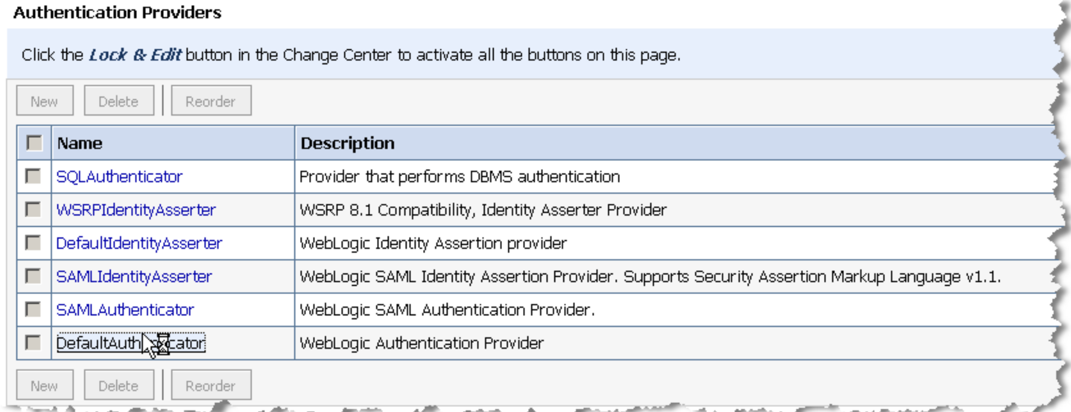
4. Select the **Providers** tab.

5. Select the **Authentication** tab.

6. Select **DefaultAuthenticator**, as shown in Figure 16-8.

> **Tip:** If the DefaultAuthenticator selection is not present, you need to add it and restart the server.

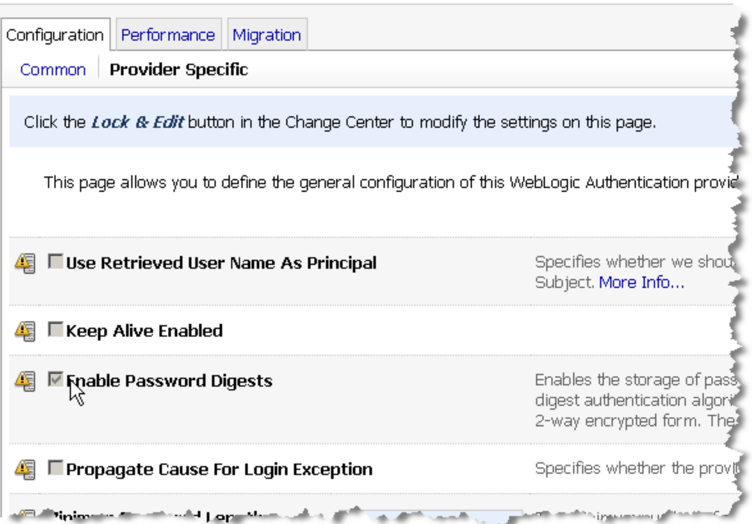
**Figure 16-8 Select the DefaultAuthenticator**




7. In the **Configuration** tab, select **Provider Specific**.

8. Select the **Enable Password Digest** checkbox, as shown in Figure 16-9. You must select this checkbox to enable the WebLogic Authentication Provider to store the password in a two-way encrypted (reversible) form.

**Figure 16-9 Enable Password Digests**




9. Select the **Users and Groups** tab.
10. Select **Users**.

    **Note:** The existing username and password will not work.

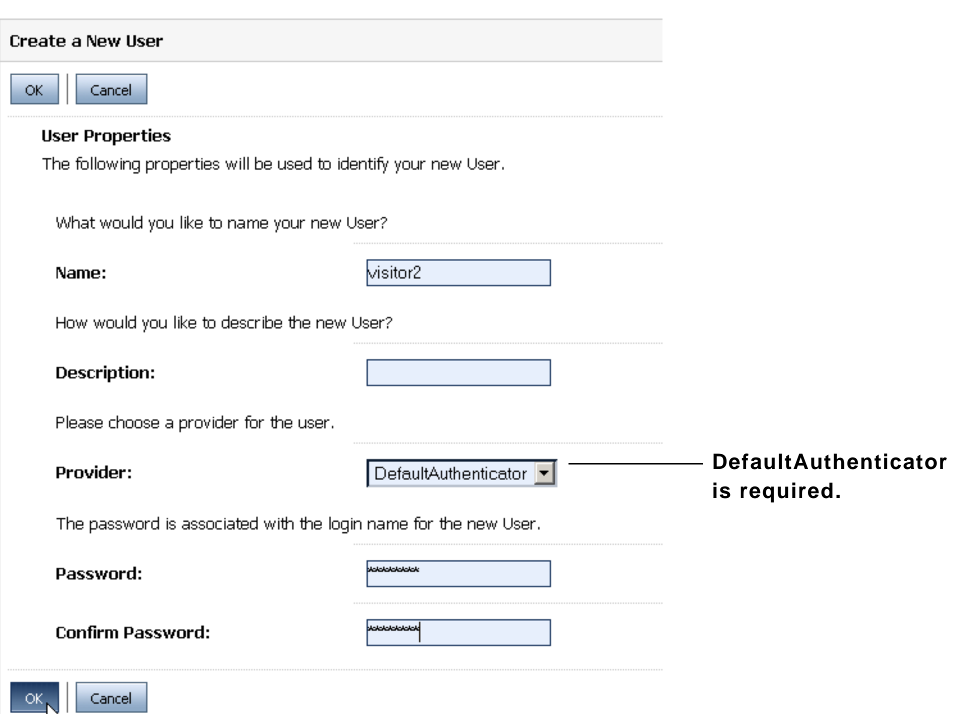
11. Click **New**, as shown in Figure 16-10. The Create a New User dialog appears.

**Figure 16-10 Create a New User**

12. In the Create a New User dialog, complete the **Name** and **Password** fields.

13. Select **DefaultAuthenticator** from the pulldown menu, as shown in Figure 16-11, and click **OK**. Note that you must use the DefaultAuthenticator for users on the producer. The user you create must match the user you mapped to when you configured the consumer (as explained previously).

**Figure 16-11 Create a New User Dialog**




# Summary

The Username Token security feature lets you set up single sign-on between consumers and producers. The Username Token method is an alternative to SAML, which is the default security for WebLogic Portal consumers and producers.

CHAPTER 17

# Adding Remote Resources to the Library

The WebLogic Portal Administration Console lets you locate producers and add their remote resources to the Portal Resources Library. Remote resources can include books, pages, and portlets. When a remote resource is added to the Library, it becomes available to you to incorporate into a portal desktop.

---

**Tip:** This chapter assumes that you are familiar with the Portal Resources Library and how to use it to assemble WebLogic Portal desktops. For detailed information on the Library and on assembling portals using the Administration Console, see the *Portal Development Guide.* This chapter also assumes you are familiar with basic federated portal concepts and terms, such as producer, consumer, and WSDL. For detailed information on federated portals, see Chapter 2, "What are Federated Portals?" and Chapter 3, "Federated Portal Architecture."

---

This chapter explains how to locate producers and incorporate their remote resources into the Portal Resources Library. The chapter includes these sections:


- Introduction
- Adding a Producer
- Adding a Remote Portlet to the Portal Library
- Adding a Remote Page to the Portal Library
- Adding a Remote Book to the Portal Library

# Introduction

You can use the WebLogic Portal Administration Console to locate remote producers, discover the resources they offer, and add them to the Portal Resources Library. After a remote resource, such as a book, page, or portlet, is added to the Library, you can add the resource to a desktop just as you would a local book, page, or portlet.

The primary advantage of remote books and pages is that they act as containers for other remote resources. For example, a producer can offer a remote book that contains several remoteable pages, each of which contain multiple remoteable portlets. When you consume that book, the remoteable pages and portlets it contains are consumed as well, with no additional steps.

---

**Tip:** The term remoteable refers to a book, page, or portlet that is deployed in a producer application and that is offered as remote. Producer application developers decide whether or not books, pages, and portlets they create are offered as remote. For detailed information on creating remoteable pages and books in a producer application, see Chapter 6, "Offering Books, Pages, and Portlets to Consumers."

---

After you consume a remote book or page, an administrator can edit it using the Administration Console. For example, an administrator can add other portlets, books, or pages to the remote book or page. Remember that such changes are not reflected back to the producer; therefore, after a remote book or page is modified on the consumer, it can become inconsistent with the original book, page, or portlet in the producer application.

The basic procedure for adding remote books, pages, and portlets to the Library includes these steps:

1. Locate and add the producer in which the remote resources are deployed.
2. If necessary, register the producer.
3. Add remote books, pages, and portlets to your Portal Resources Library.

After the remote resources are in the Library, you add them to your portal desktop as you would any other book, page, or portlet.

# Adding a Producer

To consume remote resources, such as portlets, books, and pages that are deployed in a producer, you need to first add the producer to your Portal Resources Library. After you add a

WSRP-compliant producer to the Portal Resources Library, you can make that producer's remoteable resources available for consumption by your portal.

---

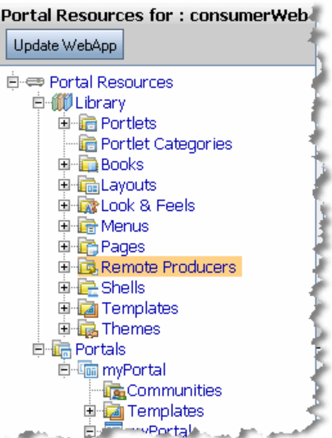
**Tip:** In the WebLogic Portal Administration Console, producer registrations are scoped to individual consumer web applications. Because there can be multiple consumer web applications in an enterprise application, it is possible that a given producer will need to be registered multiple times within an enterprise application (that is, registered for each consumer web application in which it is used).

---

To locate and register a producer using the Administration Console, do the following:

1. Expand the **Library** node in the **Portal Resources** tree and select **Remote Producers**, as shown in Figure 17-1.

**Figure 17-1 Selecting Remote Producers**

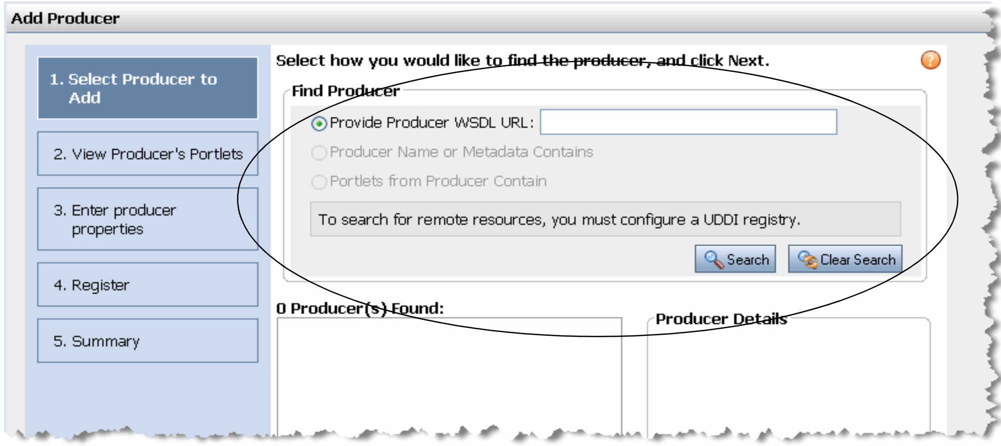



2. In the Browse Remote Producers window, select **Add Producer**, as shown in Figure 17-2. The Add Producer wizard appears.

**Figure 17-2 Select Add Producer**

3. In the Add Producer wizard, select a producer. To do this, pick from one of the following options, as shown in Figure 17-3, and click **Search**.

**Figure 17-3 Find Producer**




– **Provide Producer WSDL URL** – This option lets you specify a producer directly by entering its WSDL URL. For example:

```
http://myhost:7001/producerWebProject/producer?wsdl
```

– **Producer Name or Metadata Contains** – This option lets you search for producers by name or with metadata associated with the producer. Metadata includes keywords and description text that were entered when the producer was added to the UDDI registry. The WebLogic Portal default UDDI registry is searched unless you specify a different one by selecting it from the **Search In** dropdown menu.

- **Portlets from Producer Contain** – This option lets you search for portlets by name. This information is located through a UDDI registry. The WebLogic Portal default UDDI registry is searched unless you specify a different one by selecting it from the Search In dropdown menu. This search returns a list of portlets that contain the search string in their names.

---

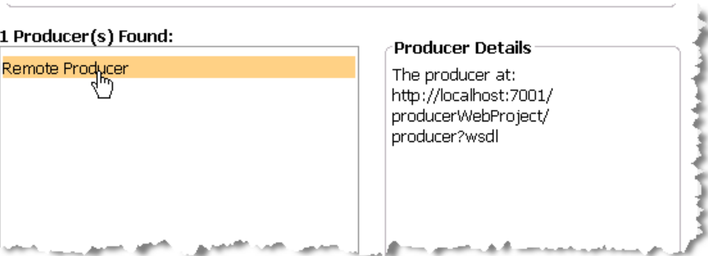
**Tip:** The previousl two options are only available if you have configured the consumer to use the UDDI search features. For information on configuring the consumer for UDDI, see Chapter 9, “Publishing to UDDI Registries.”

---

**Checkpoint:** Search results are displayed in the **Producer(s) Found** list.

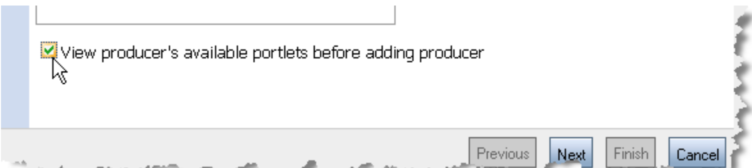
4. Select the producer you wish to add from the **Producer(s) Found** list, as shown in Figure 17-4.

**Figure 17-4 Selecting a Producer**




5. If you want to view a list of portlets hosted by the producer, select the **View producer’s portlets before adding producer** checkbox, as shown in Figure 17-5.

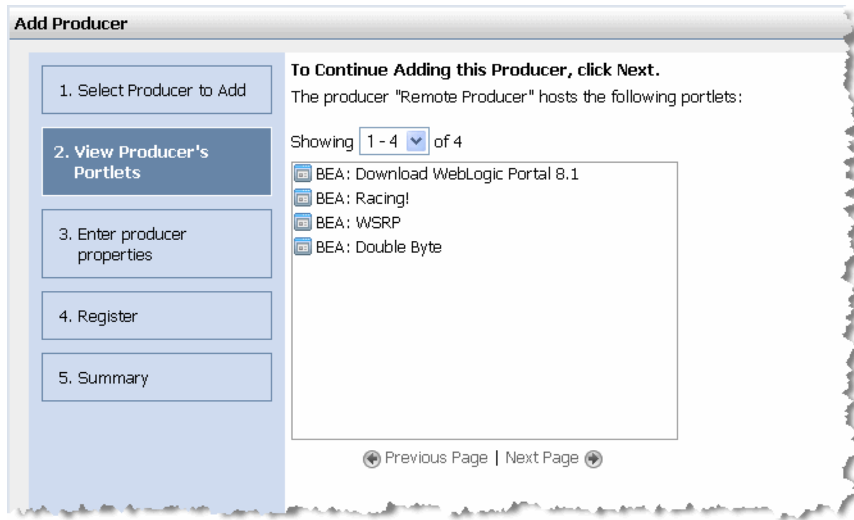
**Figure 17-5 View Producer’s Portlets Checkbox**




6. Click **Next**.
7. If the View Producer Portlets dialog appears, click **Next**. This dialog, shown in Figure 17-6, appears only if you selected the **View producer’s portlets before adding producer**

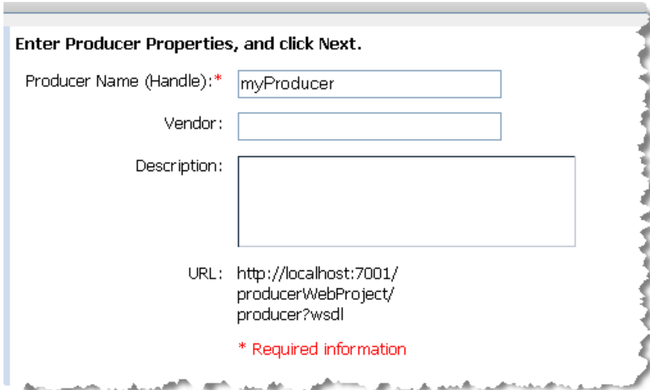
checkbox. This dialog simply lists the portlets hosted by the selected producer to help you decide if you want to add the producer or not.

**Figure 17-6 View Producer's Portlets**




8. In the Enter Producer Properties dialog, enter a name for the producer, as shown in Figure 17-7. This name is used by the consumer to identify the producer.

**Figure 17-7 Enter Producer Name**




9. In the Register dialog, enter the registration information, if any is required.

**Tip:** During registration, the producer stores information about the consumer and returns a handle to the consumer. Registration is an optional feature described in the WSRP specification. A WebLogic Portal complex producer implements this option and, therefore, requires consumers to register before discovering and interacting with portlets offered by the producer. See "Complex Producers" on page 3-7 for more information.

10. Click **Next**. The Summary dialog appears, as shown in Figure 17-8.

**Figure 17-8 Summary Dialog**

11. Click **Finish**.

**Checkpoint:** Now that you have located and added a producer, you can view and select portlets, books, and pages to add to the consumer from that producer, as explained in the following sections.

# Adding a Remote Portlet to the Portal Library

If you have added a producer that contains a remoteable portlet, you can add that portlet to your Portal Resources Library. After the remote portlet is added to the Library, you can incorporate the portlet into a page in your portal desktop.

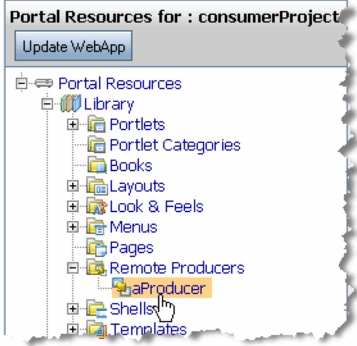
There are two ways to incorporate remote portlets into a portal using the Administration Console:

- Add a remote page that contains one or more remote portlets. For details adding remote pages, see "Adding a Remote Page to the Portal Library" on page 17-11.
- Add a remote portlet directly. This method is described in this section.

To add a remote portlet to your Portal Resources Library directly, do the following:

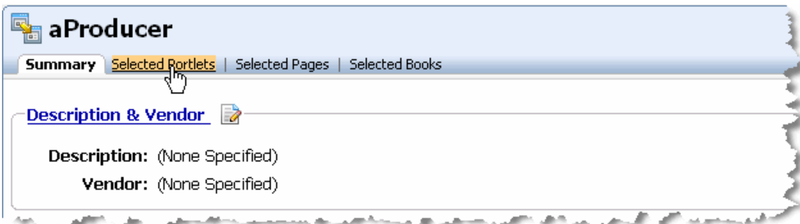
1. Open the WebLogic Portal Administration Console.
2. If you haven't done so, locate and add the producer that contains the remote portlet(s) that you want to add to your portal. The procedure for adding a producer is explained in "Adding a Producer" on page 17-2.
3. In the Portal Resources tree, open the **Library > Remote Producers** folder, and select the producer that contains the remote portlet that you want to use, as shown in Figure 17-9.

**Figure 17-9 Selecting a Producer**




4. In the producer window click the **Selected Portlets** tab, as shown in Figure 17-10.

**Figure 17-10 Selected Portlets Tab**



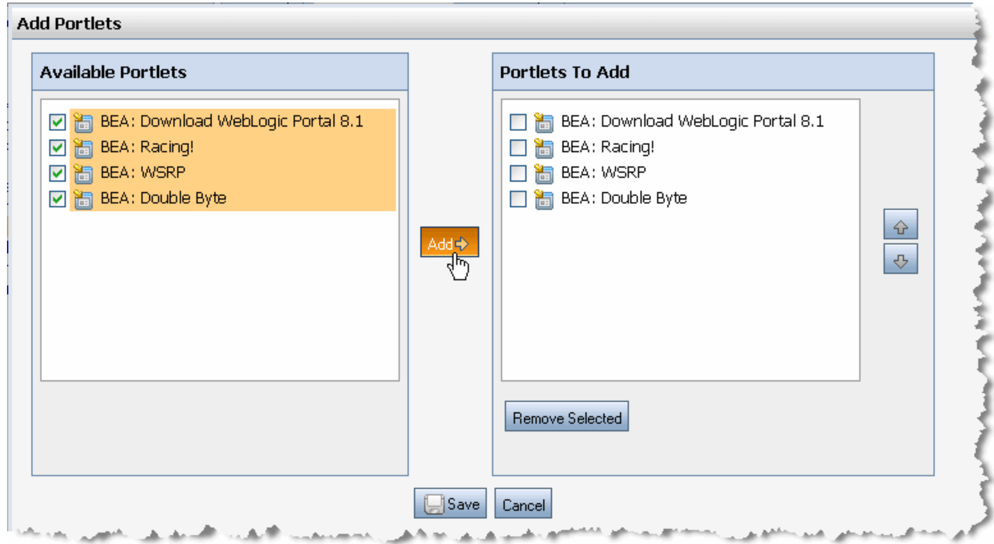

5. In the Browse Selected Portlets panel, click **Add Portlet**, as shown in Figure 17-11.

**Tip:** If the producer offers a large number of portlets, use the Search feature to narrow the selections. For instance, you can search for all portlets that begin with "a," and only those portlets will show up in the **Browse Selected Portlets** table.

**Figure 17-11 Add Portlet Button**

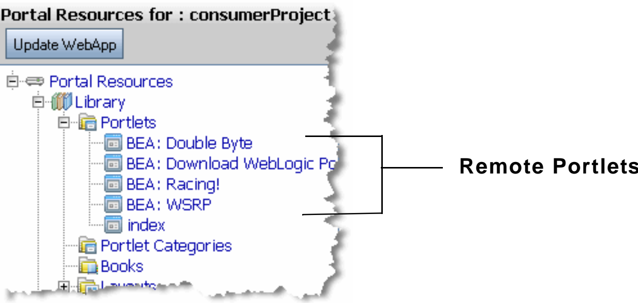
6. In the Add Portlets dialog, select the remote portlet(s) that you want to add to the Library, and click **Add** to move the selected portlets to the **Portlets To Add** column, as shown in Figure 17-12.

**Figure 17-12 Selecting Portlets to Add**



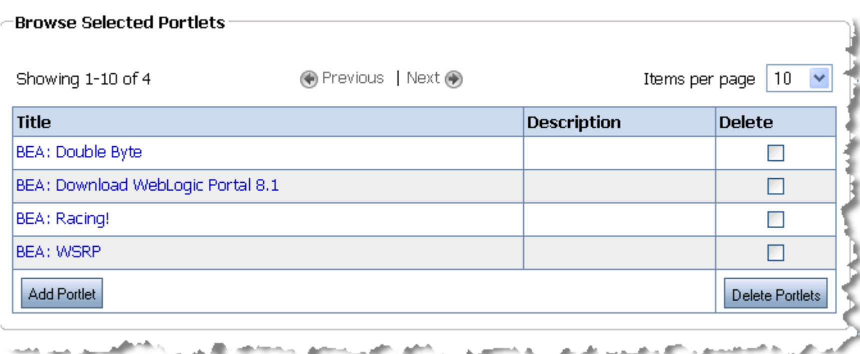
7. After moving the portlet to the **Portlets To Add** column, click **Save**. The portlets you added appears in the Library under the Portlets folder, as shown in Figure 17-13.

**Figure 17-13 Remote Portlets Added to the Library**




The added portlets also appear in the Browse Selected Portlets table in the Selected Portlets tab, as shown in Figure 17-14.

**Figure 17-14 Table Displays Added Portlets**




**Tip:** When you add a remote portlet to the Library, it is placed in the Portlets folder. This is the same folder where local portlets appear. WebLogic Portal treats the remote portlet exactly as if it were a local portlet.

**Checkpoint:** You can now add the portlet to a page in your desktop. For details on adding Library resources to a desktop, see the *WebLogic Portal Development Guide*.

# Adding a Remote Page to the Portal Library

If you have added a producer that contains a remoteable page, you can add that page to your Portal Resources Library. After the remote page is added to the Library, you can incorporate it into your portal desktop as if it were a local page.

This section explains how to add a remote page to your Portal Resources Library.

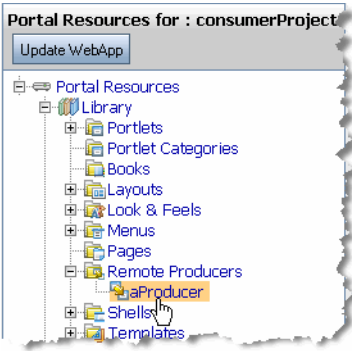
---

**Tip:** To be remoteable, the page's **Offer As Remote** property must have been set to **true** when it was created and the page must include some content. A remote page can contain any combination of remote books and portlets. Books and portlets contained within a remote page must be offered as remote. By default, books, pages, and portlets are offered as remote. For more information on creating remoteable books and pages in a producer application, see Chapter 17, "Adding Remote Resources to the Library."

---

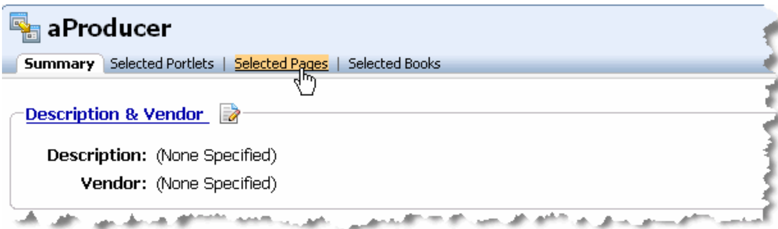
1. Open the WebLogic Portal Administration Console.
2. If you haven't done so, locate and add the producer that contains the remote page(s) that you want to add to your portal. The procedure for adding a producer is explained in "Adding a Producer" on page 17-2.
3. In the Portal Resources tree, open the **Library > Remote Producers** folder, and select the producer that contains the remote page that you want to use, as shown in Figure 17-15.

**Figure 17-15 Selecting a Producer**



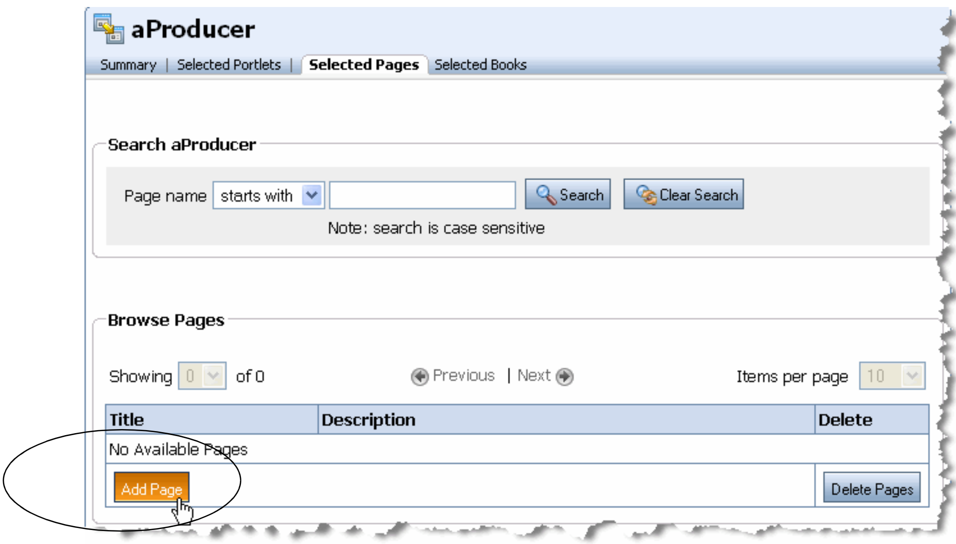

4. In the producer window, click the **Selected Pages** tab, as shown in Figure 17-16.

**Figure 17-16 Selected Pages Tab**



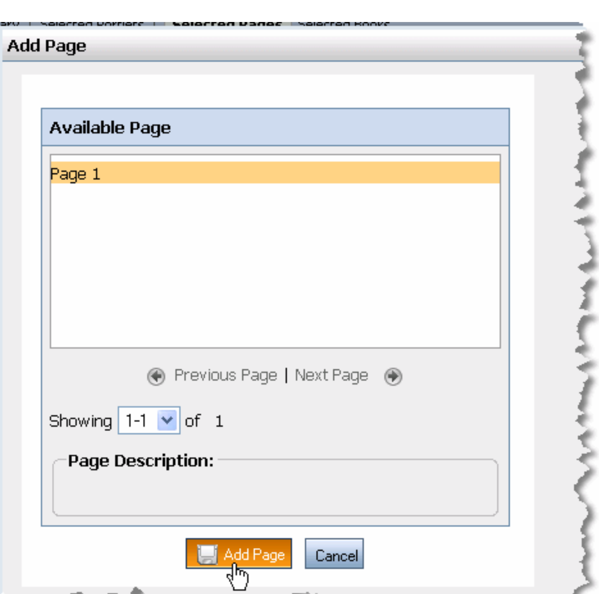

5. In the Browse Pages section, click **Add Page,** as shown in Figure 17-17.

**Figure 17-17 Add Page Button**



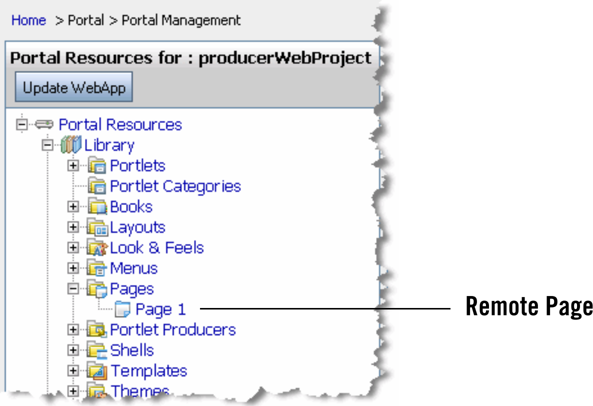

6. In the Add Page dialog, select the remote page that you want to add to the Library, and click **Add Page**. In Figure 17-18, the remote page is called **Page 1**.

**Figure 17-18 The Add Page Dialog**




**Checkpoint:** The remote page is added to the Library, as shown in Figure 17-24. You can now add the page to a desktop. For details on adding Library resources to a desktop, see the *WebLogic Portal Development Guide*.

**Figure 17-19 Remote Page Added to Library**



# Adding a Remote Book to the Portal Library

If you have added a producer that contains a remoteable book, you can add that book to your Portal Resources Library. After the remote book is added to the Library, you can incorporate it into your portal desktop as if it were a local book.

---

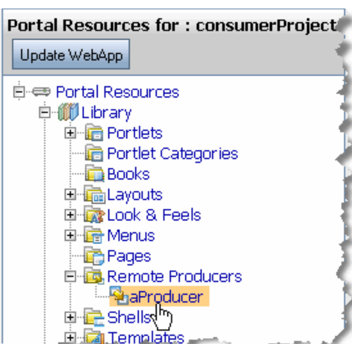
**Tip:** To be remoteable, the book's **Offer As Remote** property must have been set to **true** when it was created, and the book must include some content. A remote book can contain any combination of remote pages and portlets. Pages and portlets contained within a remote page must be offered as remote. By default, books, pages, and portlets are offered as remote. For more information on creating remoteable books and pages in a producer application, see Chapter 17, "Adding Remote Resources to the Library."

---

This section explains how to add a remote book to your Portal Resources Library.

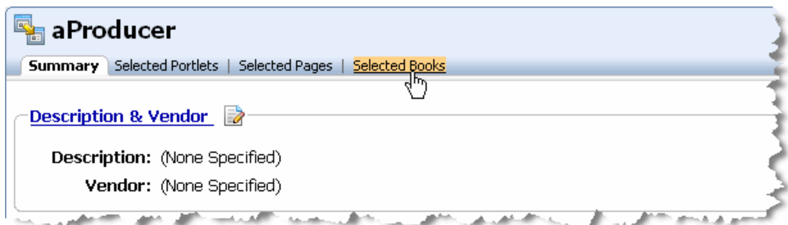
1. Open the WebLogic Portal Administration Console.
2. If you haven't done so, locate and add the producer that contains the remote book(s) that you want to add to your portal. The procedure for adding a producer is explained in "Adding a Producer" on page 17-2.
3. In the Portal Resources tree, open the **Library > Remote Producers** folder, and select the producer that contains the remote book that you want to use, as shown in Figure 17-20.

**Figure 17-20 Selecting a Producer**



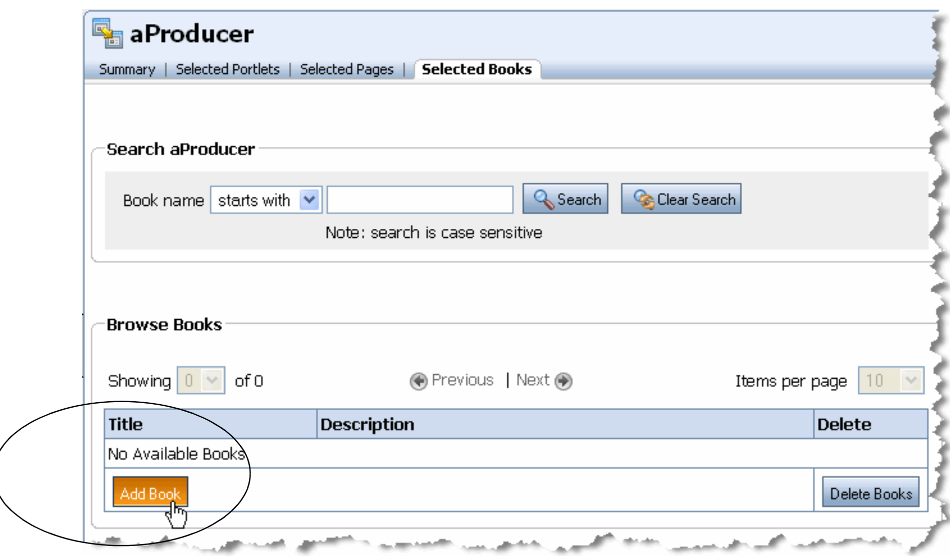

4. In the producer window, click the **Selected Books** tab, as shown in Figure 17-21.

**Figure 17-21 Selected Books Tab**



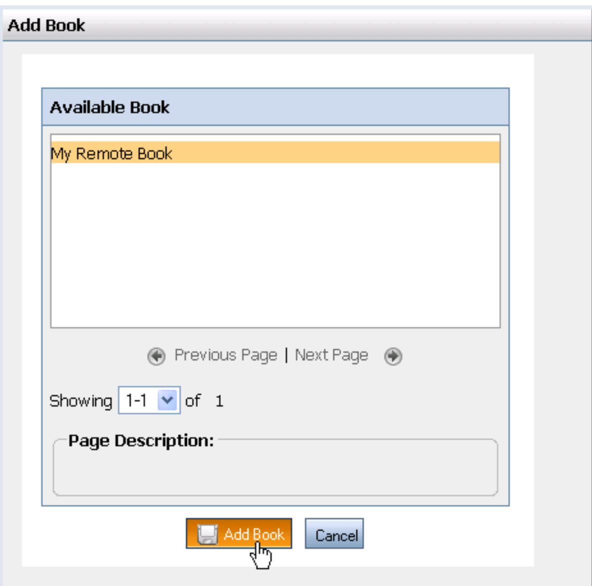

5. In the Browse Books section, click **Add Book**, as shown in Figure 17-22.

**Figure 17-22 Add Book Button**



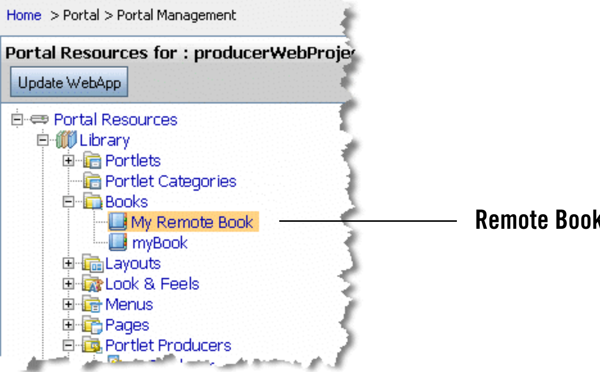

6. In the Add Book dialog, select the remote book that you want to add to the Library, and click **Add Book**. In Figure 17-23, the remote book is called **My Remote Book**.

Figure 17-23 The Add Book Dialog




**Checkpoint:** The remote book is added to the Library, as shown in Figure 17-24. You can now add the book to a desktop. For details on adding Library resources to a desktop, see the *WebLogic Portal Development Guide*.

Figure 17-24 Remote Book Added to Library

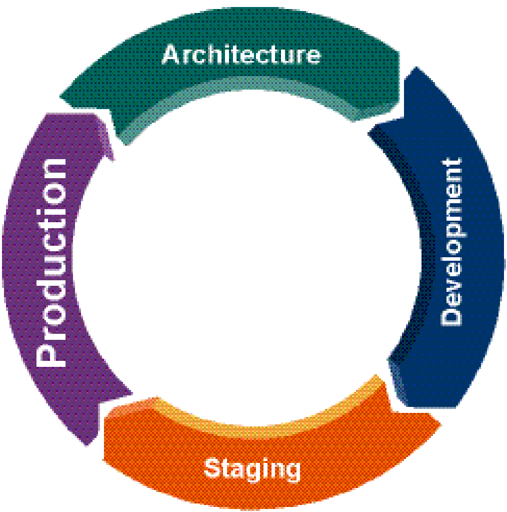


# Part IV Production

Part IV, Production, includes the following chapter:

- Chapter 18, “Managing Federated Portals”

In the production phase of the portal life cycle, your portal is live. In this phase, you can perform some management functions, such as adding users. In a federated portal, you can add and remove remote portlets, and perform most of the tasks described in Part III, Staging.




In the production phase, most of your work is done using the WebLogic Portal Administration Console. For more information about the portal life cycle, see the *WebLogic Portal Overview*.

CHAPTER 18

# Managing Federated Portals

This chapter discusses operations you typically perform to a federated portal that is in production. This chapter includes the following topics:

- Modifying the Consumer Security Configuration
- Modifying the Producer Portlet Registry
- Modifying Producer Registration Properties

## Modifying the Consumer Security Configuration

Through the Service Administration panel of the WebLogic Portal Administration Console, you can modify the following consumer security settings. These settings are configured in the file `WEB-INF/wsrp-consumer-security-config.xml` associated with the consumer web application.

You can perform the following modifications:

- Changing the Web Application
- Modifying Global Credentials
- Modifying Producer Credentials

### Changing the Web Application

This section lets you change the consumer web application for the security configuration you want to modify. To change the web application, do the following:

1. In the Administration Console, select **Configuration Settings > Service Administration**.
2. In the Resource Tree, select **WSRP > Consumer Security**.
3. To change the web application, click **Change Web Application**. The Change Web Application dialog appears.
4. To search for a consumer web application, enter the full or partial name of the application to find in the **Search for Webapps** field, and click **Search**. Any web applications that are currently deployed to the server that match the search criteria are displayed in the dialog. The search is case sensitive.
5. Select the web application you want to change to, and click **Save**.

## Modifying Global Credentials

You can edit the username and password for the security credential that is used for all producers associated with this consumer. This change modifies the security credential that is managed by the server.

1. In the Administration Console, select **Configuration Settings > Service Administration**.
2. In the Resource Tree, select **WSRP > Consumer Security**.
3. Click **Edit** in the Global Credentials section. The Edit Credentials for All Producers dialog appears.
4. Enter the new username and password, and click **Save**.

**Note:** The global credential alias set in `wsrp-consumer-security-config.xml` must not match the registry credential in `wsrp-producer-portlet-registry-config.xml`. Setting the registry credential is explained in "Modifying the Registry Credentials" on page 18-3.

## Modifying Producer Credentials

You can edit the username and password credentials associated with a specific producer.

1. In the Administration Console, select **Configuration Settings > Service Administration**.
2. In the Resource Tree, select **WSRP > Consumer Security**.
3. Click the producer handle for the producer whose credentials you want to change.
4. In the dialog, enter the new username and password, and click **Save**.

# Modifying the Producer Portlet Registry

Through the Service Administration panel of the WebLogic Portal Administration Console, you can modify the following producer portlet registry settings. These settings are configured in the file `WEB-INF/wsrp-producer-portlet-registry-config.xml` associated with a producer web application. This file is used to publish a producer and its resources, such as portlets, to specified UDDI registries.

**Tip:** For detailed information on configuring UDDI registries, see Chapter 9, "Publishing to UDDI Registries."

You can perform the following modifications:

- Changing the Web Application
- Modifying the Registry Credentials

## Changing the Web Application

To edit the producer portlet registry for a producer, you must first select a producer web application.

1. In the Administration Console, select **Configuration Settings > Service Administration**.
2. In the Resource Tree, select **WSRP > Producer Portlet Registry**.
3. To change the web application, click **Change Web Application**. The Change Web Application dialog appears.
4. To search for a producer web application, enter the full or partial name of the application to find in the **Search for Webapps** field, and click **Search**. Any web applications that are currently deployed to the server that match the search criteria are displayed in the dialog. The search is case sensitive.
5. Select the web application you want to change to, and click **Save**.

## Modifying the Registry Credentials

You can edit the credentials (username and password) of the UDDI registry to which the current web application's portlets are published. This change modifies the security credential that is managed by the server.

1. In the Administration Console, select **Configuration Settings > Service Administration**.
2. In the Resource Tree, select **WSRP > Producer Portlet Registry**.
3. Click **Edit** in the Credentials section. The Edit Credentials for WSRP Producer Registry Service dialog appears.
4. Enter the new username and password, and click **Save**.

**Note:** The registry credential alias set in `wsrp-producer-portlet-registry-config.xml` file must not match the global credential in `wsrp-consumer-security-config.xml`. Setting the global credential is explained in "Modifying Global Credentials" on page 18-2.

# Modifying Producer Registration Properties

Using the WebLogic Portal Administration Console, you can modify the registration properties for a producer that has already been registered with a consumer. When the consumer re-registers the producer, some portlets that were previously in use might not be available or some additional portlets might be available to the consumer.

For detailed information on using user profile properties with federated portals, see Chapter 11, "Federating User Profiles."

To modify a producer's registration properties, do the following:

1. In the WebLogic Portal Administration Console, select **Portal** > **Portal Management**.
2. In the Portal Resources Library tree, select **Remote Producers**, and then select the producer whose properties you want to modify.
3. In the Summary tab, select **Registration Details**.
4. In the Modify Producer Registration dialog, edit the values you want to change, and click **Modify Registration**.

**Figure 18-1 Modify Producer Registration Dialog**