

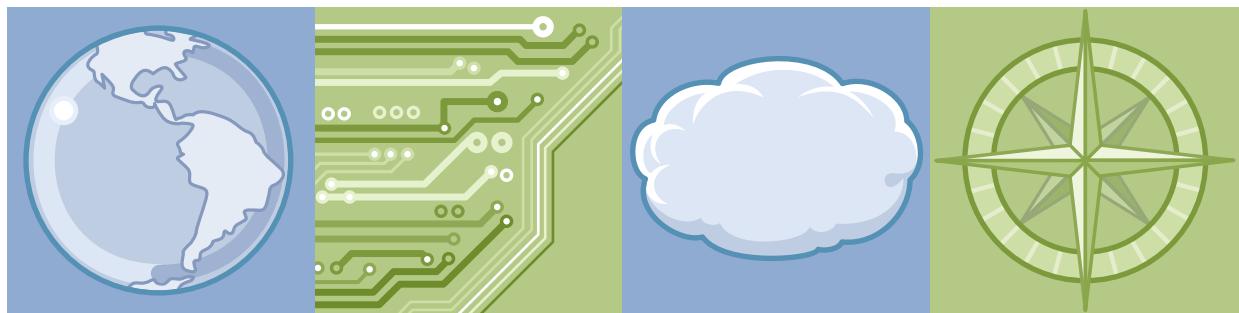


IBM Training

Student Notebook

Installation and Administration of IBM WebSphere Portal 8.5 on Linux

Course code WPL95 ERC 1.0



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Course description

Installation and Administration of IBM WebSphere Portal 8.5 on Windows

Duration: 5 days

Purpose

This comprehensive course combines informative lectures and discussions with relevant activities and labs so that you can administer IBM WebSphere Portal 8.5. In the first half of the course, the focus shifts to installation and configuration of WebSphere Portal V8.5. Configuration includes the database that WebSphere Portal uses, federated user registries, and clustering for scalability and fault tolerance. In the second half of the course, you practice common day-to-day administration tasks on IBM WebSphere Portal Server 8.5, including portlet installation, security configuration, and WebSphere Portal site management.

Audience

The target audience for this course is experienced system administrators that are new to WebSphere Portal or need to refresh WebSphere Portal administration skills. They are responsible for installing and configuring WebSphere Portal and its day-to-day management.

Prerequisites

The prerequisites for this course include:

- Understanding the WebSphere Application Server and JVM environments
- Experience with the WebSphere Application Server and JVM environments
- Database administration experience
- Network security experience

Objectives

After completing this course, you should be able to:

- Use the features, functions, and procedures of IBM WebSphere Portal 8.5 to achieve the following tasks:
- Configure WebSphere Portal to use an IBM Tivoli Directory Server LDAP server

- Create a Network Deployment cell that contains a single node cluster
- Select the best topology for your organization's needs
- Turn on logging and tracing
- Use XML Access to streamline management activities
- Back up and restore data
- Implement release management practices
- Add portlets to pages by using the new drag and drop of the page builder
- Deploy a new portlet
- Manage access
- Create and apply visibility rules
- Work with syndication feeds
- Integrate mashups
- Configure search
- Customize or brand the portal
- Deploy a custom theme
- Transfer the ready-to-use data from the Derby database to DB2 Universal Database

Contents

- WebSphere Portal installation
- Configuration
- Portal security
- Page management
- Deploying portlets
- Portal security management
- Personalization attribute-based administration
- Portal search
- Other miscellaneous administrative portlets
- Usage/site analytics
- Mashup integration
- Virtual portlets and realms
- XML access
- Staging to production
- Creating a cell

- Federating a portal node into a cell
- Portal clusters
- Troubleshooting
- Theme architecture (branding)
- Production topologies
- Production procedures

Agenda

Day 1

- Welcome
- Unit 1. Introduction
- Unit 2. Installing WebSphere Portal
- Exercise 1. Installing WebSphere Portal Server 8.5
- Unit 3. Configuring WebSphere Portal
- Exercise 2. Configuring the portal database
- Unit 4. LDAP and security for WebSphere Portal
- Exercise 3. Enabling portal security by using an LDAP repository

Day 2

- Unit 5. Page management
- Exercise 4. Exploring portal page hierarchy and portal commands
- Unit 6. Deploying portlets
- Exercise 5. Deploying a portlet
- Unit 7. WebSphere Portal security management
- Exercise 6. Implementing security and creating a Developer Administration page
- Unit 8. Attribute-based administration
- Exercise 7. Creating rules

Day 3

- Unit 9. WebSphere Portal search
- Exercise 8. Using external search engines
- Unit 10. Other administrative portlets
- Exercise 9. Creating custom names
- Unit 11. WebSphere Portal usage analysis
- Exercise 10. Enabling and reading the logs
- Unit 12. Virtual portlets and realms
- Exercise 11. Configuring realms and virtual portals

Day 4

- Unit 13. XML access
- Exercise 12. Using XML Access
- Unit 14. Staging to production
- Exercise 13. Deploying resources from staging to production
- Unit 15. Creating a cell
- Exercise 14. Create a deployment manager profile
- Unit 16. Federating a portal node into a cell
- Exercise 15. Federating and clustering the portal node

Day 5

- Unit 17. Managing portlets in WebSphere Portal clusters
- Unit 18. Troubleshooting
- Exercise 16. Troubleshooting a portal
- Unit 19. Theme architecture
- Unit 20. Production topologies
- Unit 21. Production procedures
- Unit 22. Course summary

Unit 1. Introduction

What this unit is about

Welcome to IBM WebSphere Portal 8.5. This unit covers WebSphere Portal architecture and configuration.

What you should be able to do

After completing this unit, you should be able to:

- Explore the WebSphere Portal architecture
- Explore the default port assignments
- Administer WebSphere Portal by using the attribute-based technique
- Explore the core concepts

Unit objectives

After completing this unit, you should be able to:

- Explore the WebSphere Portal architecture
- Explore the default port assignments
- Administer WebSphere Portal by using the attribute-based technique
- Explore the core concepts

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Figure 1-1. Unit objectives

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Notes:

Topics

- WebSphere Portal and WebSphere Application Server
- WebSphere Portal software stack and architecture
- Core concepts

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Figure 1-2. Topics

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Notes:

1.1. WebSphere Portal and WebSphere Application Server

This topic describes the WebSphere Portal installation and the WebSphere Application Server instance.

WebSphere Portal and WebSphere Application Server



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10.1

Figure 1-3. WebSphere Portal and WebSphere Application Server

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Notes:

WebSphere Application Server

- WebSphere Application Server (WAS) is an application server that provides an infrastructure for running scalable, enterprise level Java based web applications and services. (It is a Java Enterprise Edition, Java EE, application server).
- WebSphere Application Server is the foundation for running WebSphere applications, such as WebSphere Portal. The portal server application runs inside of WAS.
- Applications run on WAS can be as simple as basic websites or as complex as enterprise-wide transaction processing applications.
- The services provided by WAS, include HTTP session management, user repository management, authentication, database connectivity, clustering, administration, security, performance, and transaction management.

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Figure 1-4. WebSphere Application Server

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Notes:

Web Applications - Basics

- A web-application is any application that uses a web browser as its client. Communication with the server is via HTTP, just like normal web-page browsing.
- They are examples of client-server applications. The client (a web browser, handles user interaction and presentation using JavaScript, HTML and CSS), while the server (WAS, handles data access and business logic using Java).
- Web applications are popular due to the ubiquity of web browsers, and their lower cost of rollout and maintenance. Web browsers are sometimes called thin-clients.

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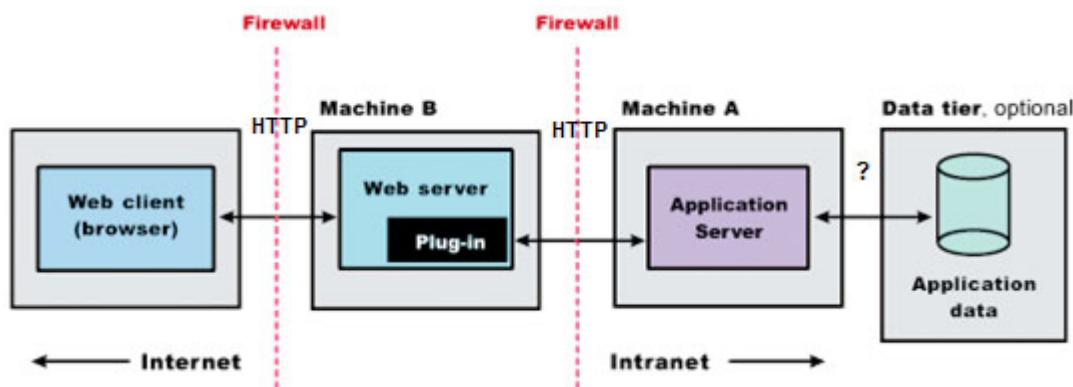
Figure 1-5. Web applications - Basics

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Notes:

Web Applications – Transport Chain

- When a user submits a request it is transported from the user's browser, via intermediary servers, to the remote server hosting the application.
- Each server interprets the request and either forwards the request to the next server in the chain or creates the required response. The response passes back through the chain to the user.



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Figure 1-6. Web applications – Transport chain

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Notes:

The Transport Chain:

- The goal of the request is to reach the application server and get it to run whatever code is required to create a response – the content that the browser presents to the user.
- Browser clients and web servers use the HTTP protocol to handle the transfer of requests and responses. Communication between the final application server and any database servers does not need to be over HTTP
- HTTP requests can be of different types: get, post, put, or delete.
- The web plug-in is a software component that is added to the IBM HTTP Server to more efficiently route WebSphere server requests.

Java Virtual Machine (JVM)

- Unlike other programming languages, Java programs require a special container to run in. This container is called a Java Virtual Machine (JVM). The JVM allows the exact same Java code to run on any hardware platform that has a valid JVM.
- Most users have a desktop JVM on their computer. WAS is an enterprise class JVM, but is fundamentally similar to the one on your desktop, though it scales to large workloads and comes with additional services.
- Each WAS instance is a separate JVM, and so has its own resources, memory space (heap), and set of applications.

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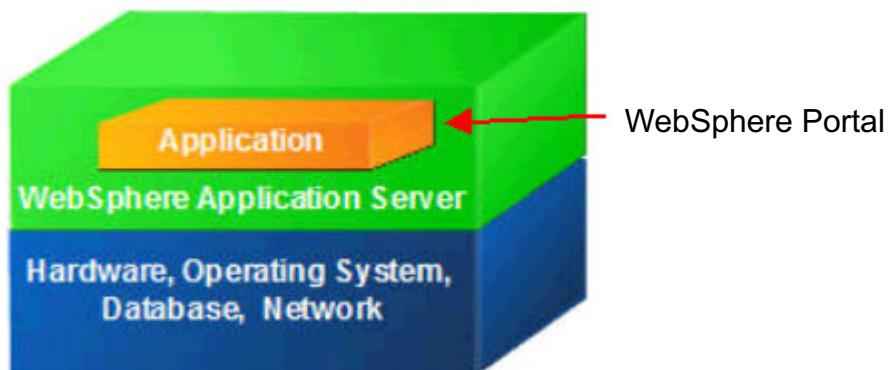
Figure 1-7. Java virtual machine (JVM)

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Notes:

WebSphere Portal as an application

- WebSphere Portal is a Java Enterprise Edition application that runs inside of the JVM supplied by WebSphere Application Server.
- Many other applications might also run on the same WAS instance.



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Figure 1-8. WebSphere Portal as an application

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Notes:

The diagram depicts a simplistic version of a WebSphere Application Server architecture.

The Application in this diagram might be any one of hundreds of applications, such as WebSphere Portal or Lotus Connections.



WAS instance portal

- The WAS instance, WebSphere_Portal hosts the portal server that responds to requests from user devices, such as browsers.
- The IBM WebSphere Application server incorporates an internal HTTP service. It is not normally directly accessed by users' browsers.
- The IBM HTTP server is:
 - Installed in a conventional deployment.
 - Included as part of the WebSphere Portal installation package.
- The primary role for the WebSphere plug-in is to route requests that arrive bearing the portal's context root.

The screenshot shows a web-based administrative interface titled "Application servers". At the top, there is a header bar with the title "Application servers" and a "Help" link. Below the header, a message says: "Use this page to view a list of the application servers in your environment and the status of each of these servers. You can also use this page to change the status of a specific application server." There is a "Preferences" link with a gear icon. The main content area is a table with the following columns: Name, Node, Host Name, and Version. A single row is visible, showing "WebSphere_Portal" under Name, "portal01" under Node, "isscp803.svgs.usma.ibm.com" under Host Name, and "ND 8.0.0.3" under Version. At the bottom of the table, it says "Total: 1".

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Figure 1-9. WebSphere Application Server instance portal

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Notes:

One component that you install as part of the HTTP server is the WebSphere plug-in. The primary role for the plug-in is to route requests that arrive that have the context root of WebSphere Portal to an appropriate portal instance that can respond to the request. The default context root is /wps/portal.

Integrated Solutions Console (ISC)

- Definition
 - The Integrated solutions console, often called the ISC, is the centralized administration console for WebSphere.
- Principles
 - Almost all the configurations that relate to WebSphere and underlying components can be done by using the ISC.
 - For WebSphere Portal, the underlying WebSphere application server is administered by using its own ISC.
 - Administration tasks like start/stop of portal instance, security, and database configurations can be completed by using the ISC.

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Figure 1-10. Integrated Solutions Console (ISC)

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Notes:

Welcome wasadmin | Help | Logout

Welcome

Integrated Solutions Console provides a common administrative console for multiple products. The table lists the product suites that can be administered through this installation. Select a product suite to view more information.

Suite Name	Version
WebSphere Application Server	8.0.0.0

About this Integrated Solutions Con...
Integrated Solutions Console, 8.0.0.0
Build Number: n1118.03
Build Date: 5/3/11

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5724-H88, 5724-J08, 5724-J63

- Web browser-based tool that manages WebSphere Application Server
- Supports a full range of product administrative activities

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Figure 1-11. Integrated Solutions Console (ISC)

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Notes:

WebSphere Portal server configuration

WebSphere Portal derives its configuration from two different sources:

1. XML files
 - The applications server's configuration XML files define the application server's setup and relation to its WebSphere portal server.
 - The principal application of WebSphere portal is `wps.ear`.
 - Portlets that serve business needs and administrative purposes are deployed as enterprise archive (EAR) files.
2. The configuration database that stores page definitions, page layouts, and many other features of the portal environment.

The screenshot shows the 'Application servers' interface with the title 'Application servers > WebSphere Portal > Installed applications'. It displays a list of installed applications, with 'wps' highlighted by a red arrow. Other applications listed include ibm_personTagServlet_var, ilwcm-wcmsearchreed, lwp.addtoseametimelist.war, lwp_dynamicPersontag.war, lwp_groupsviever.var, lwp_peoplePicker.var, lwp_peoplefinder.var, edc, pxnpublish, pxnscheduler, wci, wcm, websiteDisplay, and wps_scheduler.

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Figure 1-12. WebSphere Portal Server configuration

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Notes:

Two servers to administer

WebSphere Portal administration is really the administration of two different servers:

1. WebSphere Application Server:

- The configuration is stored in XML files in the profile folder.
- Configuration changes made mostly using the ISC. Other tools include ConfigEngine and WSAdmin (command line and script interfaces).

2. WebSphere Portal Server:

- The configuration is stored in the Portal database.
- Configuration changes made mostly via the portal administration page and portlets, Other tools include XML Access and the Portal Scripting interface.

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Figure 1-13. Two servers to administer

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Notes:

A profile is the set of folders that store all the configuration details of a WebSphere Application Server instance.

While not necessary, it can be helpful to distinguish between configuration changes that affect the application server and those changes that affect the portal server. If the change is written to an XML file in the profile folder, then the change was an application server configuration change. If the change is written to the portal database, then it was a portal server configuration change.

As the portal server runs inside of the application server, changes to the application server directly affect the portal server.

1.2. WebSphere Portal software stack and architecture

This topic describes the relationship between the two separate application server profiles.

WebSphere Portal software stack and architecture



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Figure 1-14. WebSphere Portal software stack and architecture

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Notes:

Examining the application server profiles

- WebSphere Portal installation creates two WebSphere Application Server profiles:
 1. `wp_profile` (which contains a server called `WebSphere_Portal`) runs the WebSphere Portal-related applications:
 - WebSphere Portal
 - IBM Web Content Manager
 - Virtual Member Management
 - Integrated Solutions Console
 2. `cw_profile` (which contains a server called `server1`) contains the Integrated Solutions Console and the configuration wizard.

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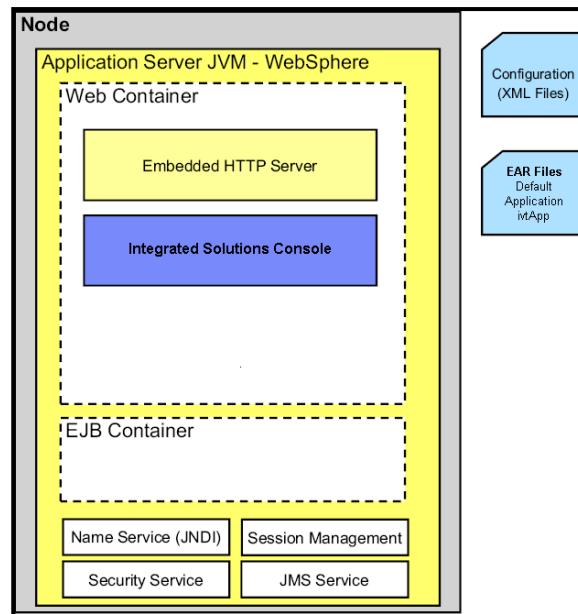
Figure 1-15. Examining the application server profiles

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Notes:

Examining cw_profile

- No portal application `wps.ear` file is on this instance.
- Has its own Integrated Solutions Console.



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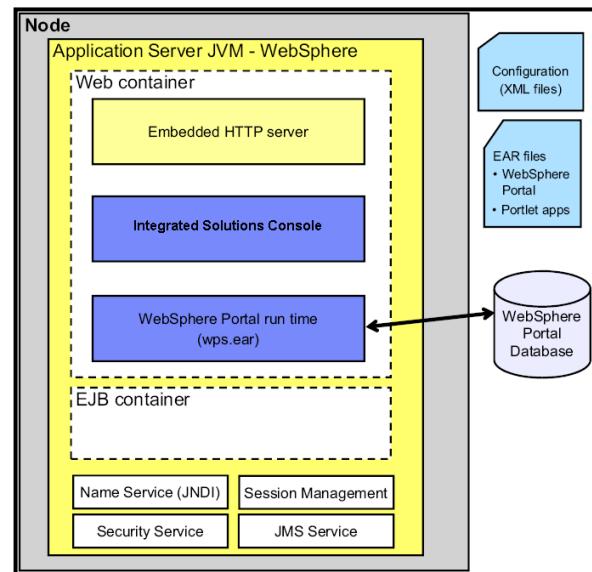
Figure 1-16. Examining cw_profile

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Notes:

Examining wp_profile

- In addition to the WebSphere Application Server tools, you have the following WebSphere Portal Administration tools:
 - WebSphere Portal administration portlets
 - XML Access
 - wpscript
 - ConfigEngine



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Figure 1-17. Examining wp_profile

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Notes:

You have the following WebSphere Portal administration tools in addition to the WebSphere Application Server tools:

- The administration portlets of WebSphere Portal.
- XML Access, which is an XML-based scripting tool.
- wpscript, which is a language that augments the WebSphere wsadmin tool.
- ConfigEngine: you can run ConfigEngine tasks from a read-only ConfigEngine directory that allows you to manage multiple profiles from one location.



Methods for defining port assignments

- Two methods are possible to determine port assignments for each of the server instances.
1. Start one of the server instances and go to the Ports page of the Integrated Solution Console. This method requires that you know the port number on which the ISC application listens.
 2. Use the `serverindex.xml` document if you do not know any port numbers. You can find this document in the node configuration subdirectory of the profile installation directory.

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Figure 1-18. Methods for defining port assignments

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Notes:

Method 1 - Navigating to the Ports page (1 of 2)

- You can use the following steps to navigate to the Ports page of the ISC:
 - Connect to the Integrated Solution Console Application by using either of the inbound admin ports.
 - Click **Servers > Application servers > WebSphere_Portal > Ports**

Select	Port Name	Host	Port	Transport Details
Filter: WC*				
	WC_adminhost	*	10042	View associated transports
	WC_adminhost_secure	*	10032	View associated transports
	WC_defaulthost	*	10039	View associated transports
	WC_defaulthost_secure	*	10029	View associated transports
Total 18 Filtered total: 4				

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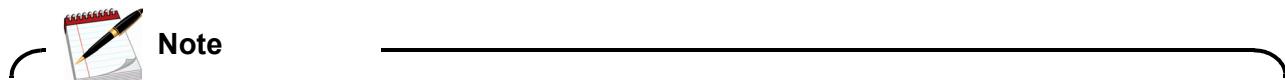
Figure 1-19. Method 1 - Navigating to the Ports page (1 of 2)

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Notes:

These steps apply to any server instance.

- Connect to the Integrated Solutions Console by using either of the inbound admin ports.
- Click **Servers > Application servers > (server instance) > Ports**.



Accessing the ISC on the WebSphere_Portal instance: Use the default HTTP port 10042 or default HTTPS port 10032 to access the Integrated Solutions Console on the WebSphere_Portal instance.



Method 1 - Navigating to the Ports page (2 of 2)

- Default port assignments on the WebSphere_Portal instance

<input type="checkbox"/> Port Name	Host	Port	Transport Details
<i>You can administer the following resources:</i>			
BOOTSTRAP ADDRESS	isscp803.swg.usma.ibm.com	10035	No associated transports
CSIV2_SSL_MUTUALAUTH_LISTENER_ADDRESS	isscp803.swg.usma.ibm.com	10033	No associated transports
CSIV2_SSL_SERVERAUTH_LISTENER_ADDRESS	isscp803.swg.usma.ibm.com	10036	No associated transports
DCS_UNICAST_ADDRESS	*	10030	View associated transports
IPC_CONNECTOR_ADDRESS	localhost	10037	No associated transports
ORB_LISTENER_ADDRESS	isscp803.swg.usma.ibm.com	10034	No associated transports
SAS_SSL_SERVERAUTH_LISTENER_ADDRESS	isscp803.swg.usma.ibm.com	10041	No associated transports
SIB_ENDPOINT_ADDRESS	*	10028	View associated transports
SIB_ENDPOINT_SECURE_ADDRESS	*	10038	View associated transports
SIB_MQ_ENDPOINT_ADDRESS	*	10040	View associated transports
SIB_MQ_ENDPOINT_SECURE_ADDRESS	*	10031	View associated transports
SIP_DEFAULTHOST	*	10027	View associated transports
SIP_DEFAULTHOST_SECURE	*	10026	View associated transports
SOAP_CONNECTOR_ADDRESS	isscp803.swg.usma.ibm.com	10025	No associated transports
WC_adminhost	*	10042	View associated transports
WC_adminhost_secure	*	10032	View associated transports
WC_defaulthost	*	10039	View associated transports
WC_defaulthost_secure	*	10029	View associated transports
Total 18			

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Figure 1-20. Method 1 - Navigating to the Ports page (2 of 2)

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Notes:

Method 2 - The serverindex.xml document

- You can find the serverindex.xml document in the node configuration subdirectory of the profile installation directory.

<wp_profile_root>\config\cells\cellName\nodes\nodeName

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Figure 1-21. Method 2 - The serverindex.xml document

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Notes:

If the first method is not practical, you can employ the second to determine the port assignments for the server instances by examining the serverindex.xml document.



Reminder

Remember that the root of this directory is normally represented by a variable, such as <wp_profile_root>, and is written with the following syntax:

<wp_profile_root>\config\cells\portal99\nodes\portal99

You learn about a similar variable later in this course.

Administrators might find it convenient, and therefore desirable, to define a server identity by using the ICS. Defining a server identity this way brands the browser title bar of the ICS web interface and the banner of the ICS.



Windows

The Windows directory for the `serverindex.xml` file in this course is either of the following directories:

C:\IBM\WebSphere\wp_profile\config\cells\portal09\nodes\portal01
C:\IBM\WebSphere\wp_profile\config\cells\portal00\nodes\portal02

1.3. Core concepts

This topic describes the core concepts: WebSphere Portal, portlets, pages, and page aggregation.

Core concepts



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Figure 1-22. Core concepts

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Notes:

Defining portal, pages, and portlets

- Portal
 - When a user browses to a website that is using WebSphere Portal software, the person accesses a single point of entry to many different web-based resources.
 - WebSphere Portal aggregates those resources in one place and requires the user only to log in to the portal itself and not to each resource separately.
 - An important part of any portal site, is the use of portlets.
- Portlet
 - Portlets are pluggable Java programs that are used to display web content, or provide access to applications and web services.
 - The output from each portlet is a markup fragment that is displayed in its own portlet window.
- Portal page
 - A portal page is an aggregation of the output of each portlet, plus the header, footer and page layout supplied by the page theme.

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Figure 1-23. Defining portal, pages, and portlets

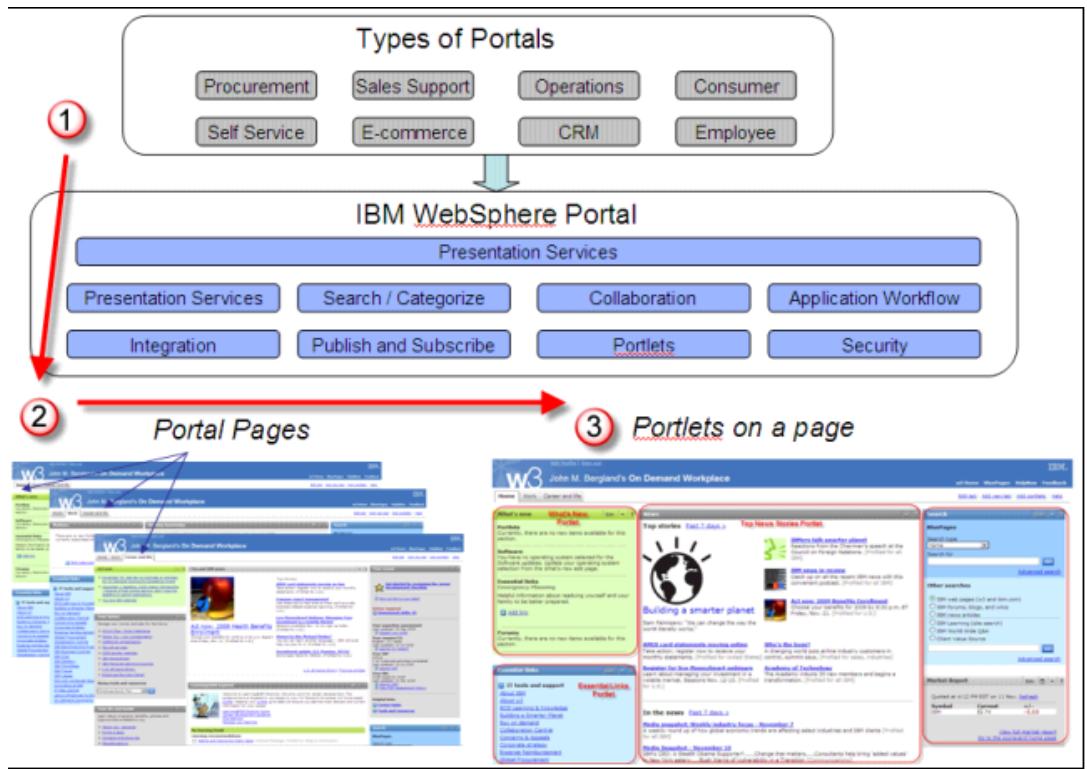
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Notes:

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Portal, pages, and portlets



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Figure 1-24. Portal, pages, and portlets

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Notes:

Portlets

- Description
 - Portlets are reusable Java based web modules that run on a portal server and provide access to web-based content, applications, and other resources.
 - From a user's perspective, a portlet is a window on a portal site that provides a specific service or information, for example, a calendar or news feed.
- Design
 - Portlets are intended to be assembled into a larger portal page, with multiple portlets, and can display different data for each user.
 - The portlet container provides a run time environment in which portlets are instantiated, used, and finally deleted.
 - Companies can create their own portlets or select portlets from a catalog of IBM or third-party portlets.

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Figure 1-25. Portlets

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Notes:

Generally, portlets are administered more dynamically than servlets. Portlet applications that consist of several portlets can be installed and removed by using the portal administration interface while the portal server is running. In a similar manner, an administrator with appropriate access rights can change the settings of a portlet at any time without stopping or restarting the portal server. Portlets can be created and deleted dynamically. For example, a clipping administration portlet can create new portlet instances whenever an administrator creates a clipping.

From an application development perspective, portlets are pluggable Java web modules that are designed to run inside a portlet container of a portal server. Each portlet on the page is responsible for providing its output in the form of markup fragments to be integrated into the portal page. The portal is responsible for providing the markup that surrounds each portlet. In HTML, for example, the portal can provide markup that gives each portlet a title bar with minimize, maximize, help, and edit icons.

Portlets and the Servlet API

Portlets are special types of web modules that are designed to run in the context of a portal. They are written to comply with a portlet API that is similar to the servlet API but addresses portal-specific areas of concerns. In contrast to servlets, portlets might not send errors directly to browsers, forward requests, or write arbitrary markup to the output stream. Another difference compared to servlets is that portlets rely on specific features of the portal infrastructure, such as user profile information, storing and retrieving persistent settings, and getting client information.

Portlet Containers

WebSphere® Portal supports two different portlet APIs by providing two portlet containers.

Java Portlet Specification API	<ul style="list-style-type: none"> • WebSphere Portal supports the Java Portlet Specifications 1.0 and 2.0 • Also known as JSR168 and JSR286
IBM Portlet API	<ul style="list-style-type: none"> • IBM Portlet API is deprecated for WebSphere® Portal Version 6.0 and later versions, but it is still supported. • These API are maintained for compatibility with earlier versions. • Many admin portlets use this API.

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Figure 1-26. Portlet containers

WPL951.0

Notes:

The portlet container provides a runtime environment in which portlets are instantiated, used, and finally deleted. Portlets rely on the portal infrastructure to access user profile information, participate in window and action events, communicate with other portlets, access remote content, lookup credentials, and to store persistent data. The Portlet API provides standard interfaces for these functions. The portlet container is not a stand-alone container like the servlet container. Instead, it is implemented with the servlet container and reuses the functions that the servlet container provides.

The Java Portlet Specification API is based on `javax.portlet` interfaces.

The IBM Portlet API is based on `org.apache.jetspeed.portlet` interfaces.

You can place both types of portlets on portal pages. However, a portlet cannot mix classes and methods from both packages.

The web archive (WAR) file

- Portlets are packaged as WAR files.
- It contains:
 - One or more JAR file(s)
 - Additional files like graphics, style sheets, JSP files
 - Two deployment descriptors:
 - portlet.xml (Portlet deployment descriptor)
 - web.xml (Servlet deployment descriptor)
- Enterprise Application Archives (EAR) files are used to package more complex applications.
 - They can contain other components that are not applicable to a portlet, such as Enterprise JavaBeans (EJBs).

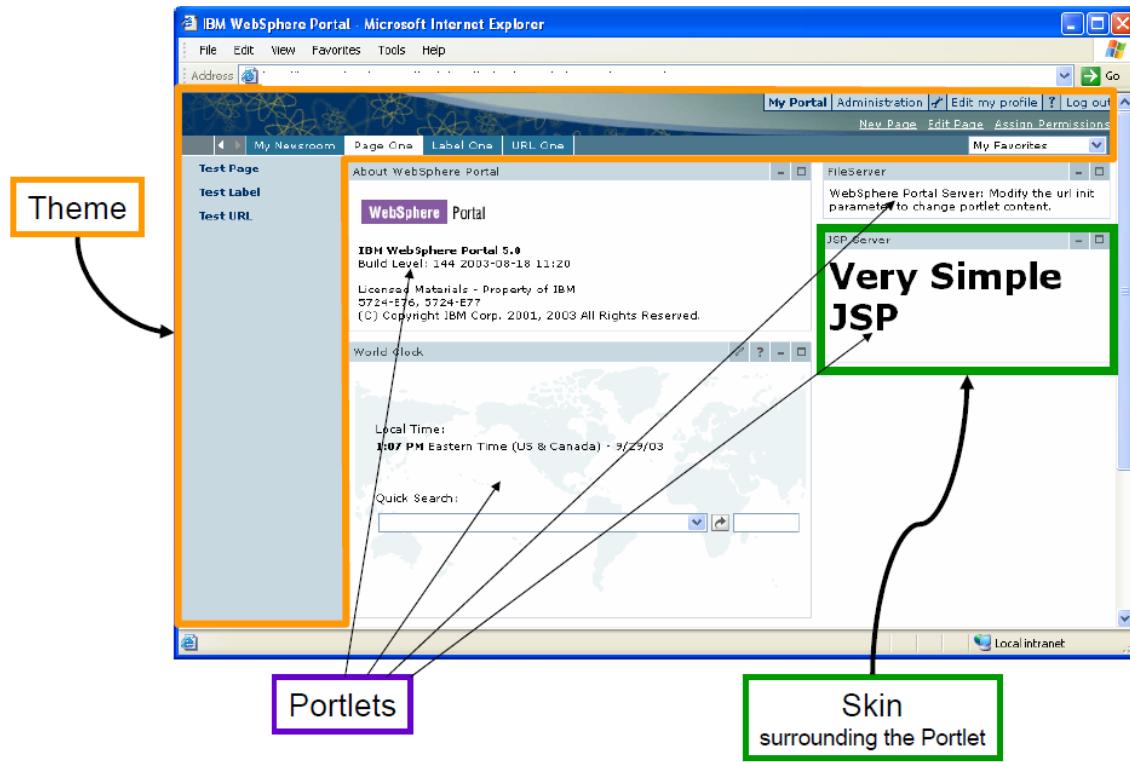
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Figure 1-27. The web archive (WAR) file

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Notes:

Themes and skins



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Figure 1-28. Themes and skins

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Notes:

Each page in the portal is associated with a theme and each portlet with a skin. Themes control the overall page layout and appearance. There is one defined per page. Skins are wrappers around each portlet. They can be different for each portlet and provide portlet controls for portlet modes and states.

 WebSphere Education



Navigational Nodes

A node is a generic term which includes:



Title	Unique name	Status
Welcome	wps.My Portal.Welcome	Active
Documents	pdmWorkspace	Active
My Work	wps.My Portal.My Work	Active
My Finances	wps.My Portal.My Finances	Active
My Newsroom	wps.My Portal.My Newsroom	Active
Link to IBM	6_0_69	Active

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Figure 1-29. Navigational Nodes

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Notes:

A node is a generic term that includes page, label, and URL. Page and Label nodes can have child nodes. Page nodes can have portlets added to them.

WebSphere Education

IBM

Understanding navigation

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Figure 1-30. Understanding navigation

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Notes:

Four types of navigation are provided with the Portal 8.5 theme:

1. Top

- Displays links for the pages directly under Content Root, such as Home, Administration, and Applications. Accessed via buttons in the upper left corner.

2. Primary

- Displays links, also thought of as tabs, for the child pages of the currently selected top page, such as Welcome and Getting Started for Home.

3. Secondary

- Displays links, also thought of as tabs, for the child pages of the currently selected primary page.

4. Side

- Displays links for the child and grandchild pages of the currently selected top page. Out of box, it is used under Administration.



Page aggregation

- Portal responsibilities:
 - Provide users with a consistent view of portal applications
 - Allow users to define specific sets of applications
 - Present applications to users in a single context
- Steps for aggregating content:
 1. Gather information about the user, the device, and the selected language
 2. Select the active portlets from the set of applications to which the user has access
 3. Aggregate the output of the active portlets into a coherent and usable display

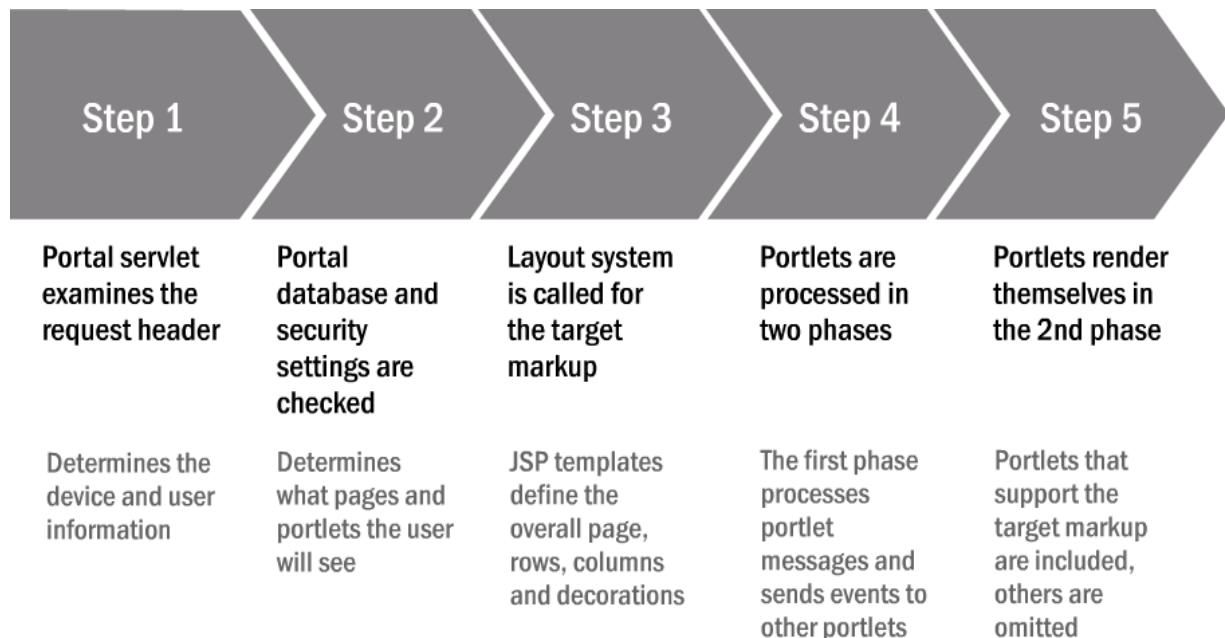
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Figure 1-31. Page aggregation

WPL951.0

Notes:

Process for constructing pages



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Figure 1-32. Process for constructing pages

WPL951.0

Notes:



Rendering the output (1 of 2)

After determining the active page, the portal uses the layout of the page to place the portlets.

A screenshot of the IBM WebSphere Portal interface. On the left, there's a sidebar for "My Blog" with a "Create Post" button and navigation links for "Previous", "Main", and "Next". The main content area displays a blog entry titled "My First Blog Entry" by "wp8admin" at 5:50:01 PM. The entry contains placeholder text about a blog post. To the right, there's a "Recent Posts" section with a link to "My First Blog Entry". Below that is a "Websphere Portal News" section containing several news items with titles like "Friendly URL name remains after navigating away from friendly URL page", "Deployment using XMLAccess fails with EJPPD0001E", and "While running the portal-post-upgrade task on Portal V 6.1.x, you might see DB2 SQL error SQLCODE: -443 in Migration.log file". Each news item includes a publish date and a brief description.

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Figure 1-33. Rendering the output (1 of 2)

WPL951.0

Notes:

Rendering the output (2 of 2)

The Portal Window	The complete response including the banner and the portal page
The Banner	Top area containing <ul style="list-style-type: none"> • Company logo, slogan, welcome message • Page navigation • Other portal controls such as Log in links
The Screen	Area in which the portlets are displayed Layout defined by row and column containers
A Row	A container inside the page Arranges containers or portlets in a horizontal format
A Column	A container inside the page Arranges containers or portlets in a vertical format
A Control	The framing around a portlet including an area for portlet controls Control links/buttons may include maximize , restore , minimize , edit configure and help The control also calls the rendering of the portlet output

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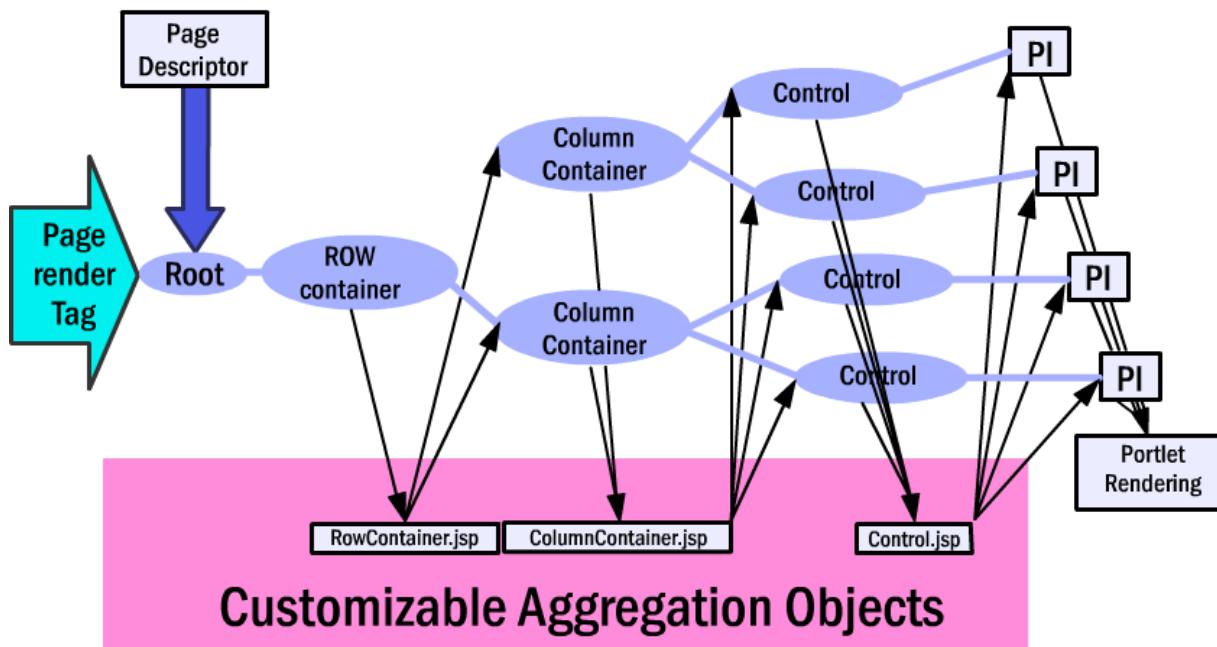
Figure 1-34. Rendering the output (2 of 2)

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Notes:

Aggregation overall flow

Page Aggregation



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Figure 1-35. Aggregation overall flow

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Notes:

Unit summary

Having completed this unit, you should be able to:

- Explore the WebSphere Portal architecture
- Explore the default port assignments
- Administer WebSphere Portal by using the attribute-based technique
- Explore the core concepts

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Figure 1-36. Unit summary

WPL951.0

Notes:



Checkpoint

1. WebSphere Portal installs two different profiles.
What are they?
2. Where can you look up port assignments?
3. What are the two deployment descriptor files?

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Figure 1-37. Checkpoint

WPL951.0

Notes:

Write your answers here:

- 1.
- 2.
- 3.

Checkpoint answers

1. WebSphere Portal installs two different profiles.
What are they?

Answer: `wp_profile` and `cw_profile`. `wp_profile` hosts the Portal server and `cw_profile` hosts the configuration wizard.

2. Where can you look up port assignments?

Answer: on the `serverindex.xml` file and on the integrated solution console ports page.

3. What are the two deployment descriptor files?

Answer: `web.xml` and `portlet.xml`.

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Figure 1-38. Checkpoint answers

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Notes:

Unit 2. Installing WebSphere Portal

What this unit is about

This unit explores the installation and configuration options for WebSphere Portal.

What you should be able to do

After completing this unit, you should be able to:

- Review the different installation options for WebSphere Portal
- Describe the various configuration choices

Unit objectives

After completing this unit, you should be able to:

- Review the different installation options for WebSphere Portal
- Describe the various configuration choices

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Figure 2-1. Unit objectives

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Notes:



Topics

- Installation options, methods, and sources for installing WebSphere Portal
- Configuring WebSphere Portal

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Figure 2-2. Topics

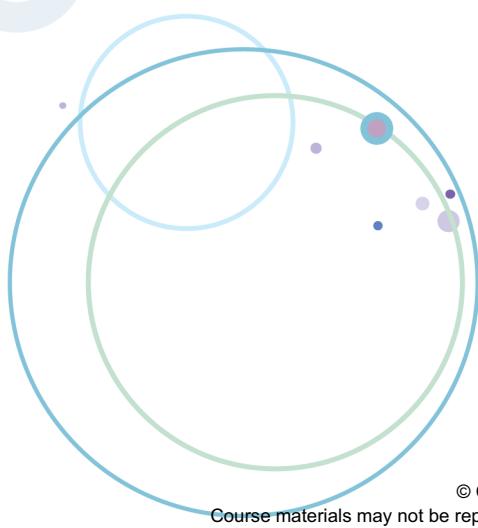
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Notes:

2.1. Installation options, methods, and sources for installing WebSphere Portal

This topic presents installation options and IBM Installation Manager.

Installation options, methods, and sources for installing WebSphere Portal



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10.1

Figure 2-3. Installation options, methods, and sources for installing WebSphere Portal

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Notes:

Installation methods

- You can install WebSphere Portal by using the following methods:
 - A graphic user interface (GUI) program
 - A silent unattended installation that uses a response file

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Figure 2-4. Installation methods

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Notes:

IBM Installation Manager

- WebSphere Portal Version 8.0 is the first version to adopt *IBM Installation Manager*.
 - The interface replaces the earlier installer that was used to install, update, and uninstall WebSphere Portal.
 - Installation Manager is a single installation program that can use remote or local software flat-file repositories to install, modify, or update WebSphere Portal products (fix packs).
 - Use of Installation Manager is adopted as a standard across most other IBM software products.

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Figure 2-5. IBM Installation Manager

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Notes:

WebSphere Portal Version 8.0 is the first version to adopt the IBM Installation Manager user interface. The interface replaces the program that is based on InstallShield MultiPlatform (ISMP) that installed, updated, and uninstalled previous versions. Installation Manager is a single installation program that can use remote or local software flat-file repositories to install, modify, or update new WebSphere Portal products. It determines and shows available packages (including products, fix packs, interim fixes, and so on), checks prerequisites and interdependencies, and installs the selected packages. You also use the Installation Manager to easily uninstall the packages that it installed.



Using IBM Installation Manager

- In IBM Installation Manager:
 - Start Installation Manager and add repositories from
 - File > Preferences > Repositories
 - Use the Install option on the main screen
- On *Install Packages*:
 - Select packages to install
 - Select the WebSphere Application Server, WebSphere Portal, and Java SDK packages.

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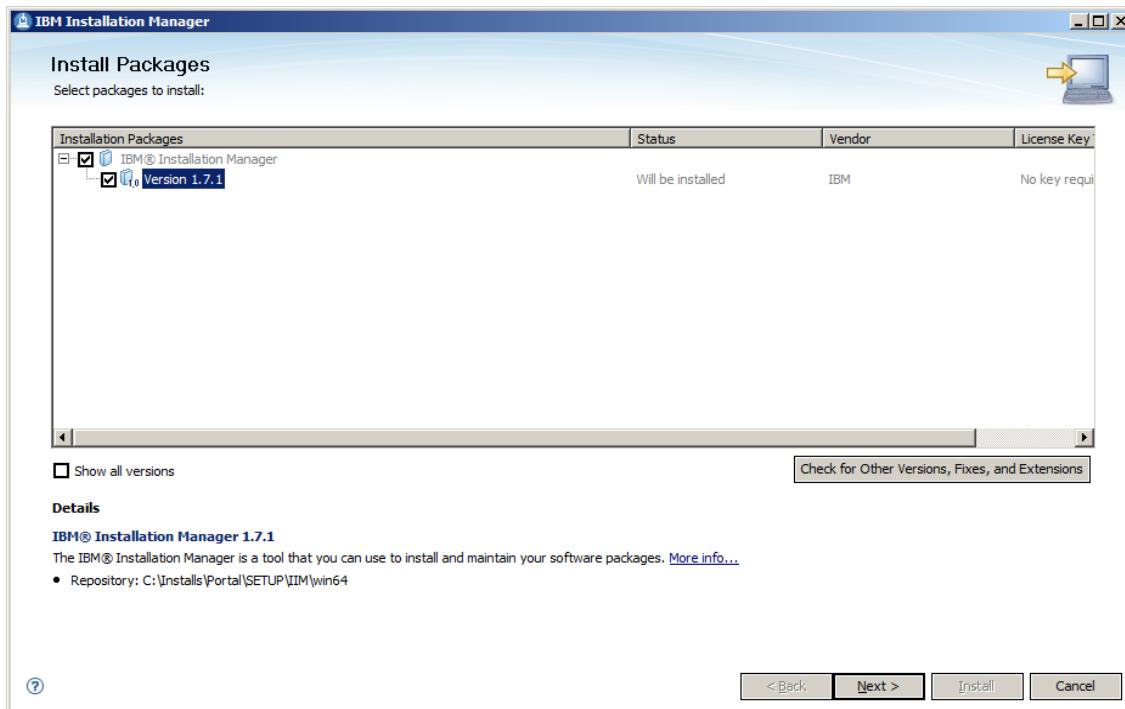
Figure 2-6. Using IBM Installation Manager

WPL951.0

Notes:



IBM Installation Manager screen



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Figure 2-7. IBM Installation Manager screen

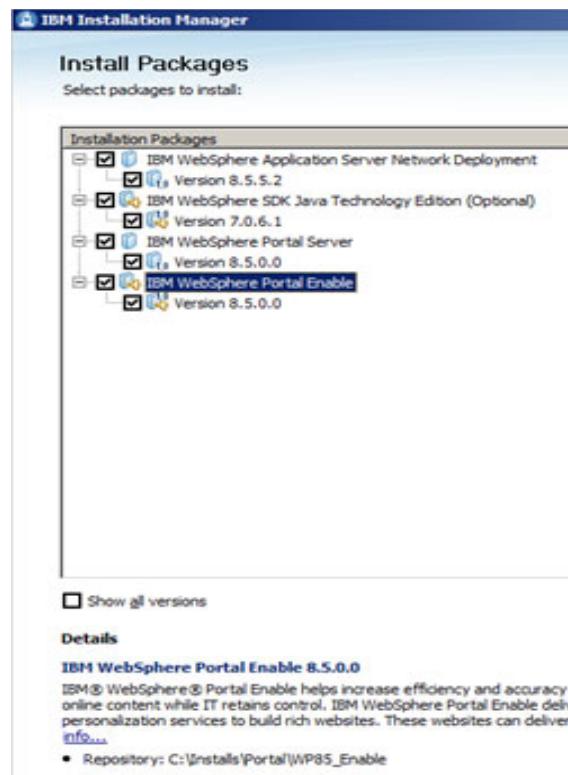
WPL951.0

Notes:

This figure shows the IBM Installation Manager screen.

WebSphere Portal Enable and WebSphere Portal Extend

- The *WebSphere Portal Enable* edition includes all the features of WebSphere Portal Server with integrated web content management, document libraries, and advanced portal search.
- The *WebSphere Portal Extend* edition includes all the features of WebSphere Portal Enable and adds services for collaboration and electronic forms.



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Figure 2-8. WebSphere Portal Enable and WebSphere Portal Extend

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Notes:

To run the Installation wizard, follow these steps:

- From within the **Installation Setup** folder:



- When the wizard opens, choose the WebSphere Portal entitlement that you purchased.

The WebSphere Portal Enable edition includes all the features of WebSphere Portal Server with integrated web content management, document libraries, and advanced portal search.

The WebSphere Portal Extend edition includes all the features of WebSphere Portal Enable and adds services for collaboration and electronic forms.

- Accept the license agreement.

4. Specify the installation directory. A short path is always preferred. In Windows, do not add a space in the path name. (In Windows, drive:\IBM\WebSphere is recommended. In Linux, /opt/IBM/WebSphere is the default.)
5. Enter the node name and fully qualified host name. The *node name* identifies the WebSphere Portal installation in a Network Deployment.

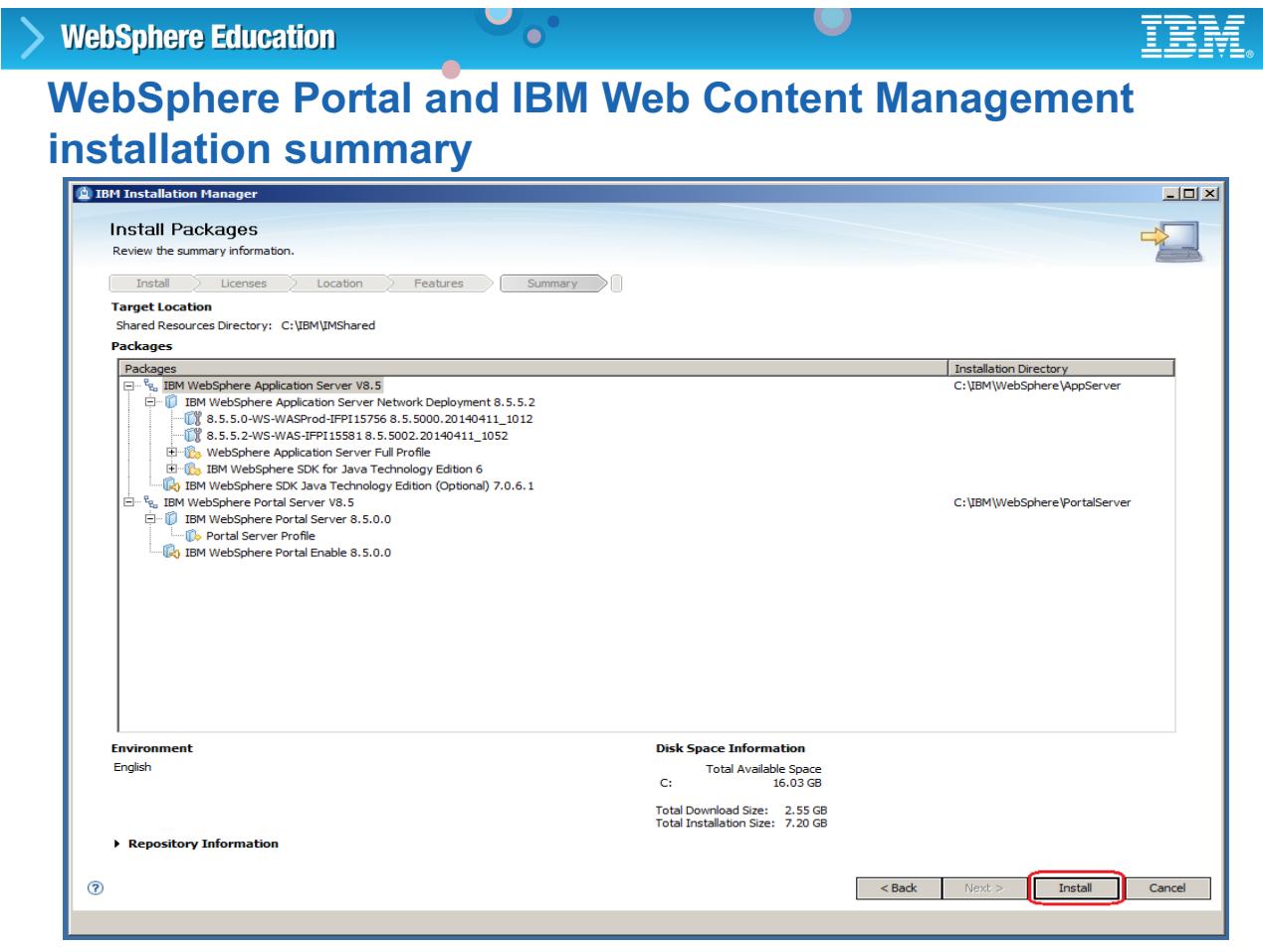
If you plan to federate the node and if this node is the primary node, modify the node name with an alternative, such as wpsPrimaryNode.

6. Enter the administrative user ID and password.

The credentials are used to initially administer the WebSphere Portal Server, the web content management infrastructure, and the underlying WebSphere Application Server. The user ID and password are stored in a file-based realm in the federated repository of the application server.

7. Specify the Windows Services setting if you are installing WebSphere Portal on Windows.

Setting WebSphere Portal to run as a Windows service can be helpful if the server is a stand-alone installation. The Node Agent process is responsible for the state of the underlying application server of WebSphere Portal in a federated environment.



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Figure 2-9. WebSphere Portal and IBM Web Content Management installation summary

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Notes:

Review the installation summary. Click **Install** if the values are correct.

You can use the summary as a documentation source and for ensuring that the intended choices and values were provided.

Using the silent unattended installation

- WebSphere Portal simplifies highly repetitive processes by using a *response file* to install or uninstall.
- For silent installation, do the following steps:
 - Install IBM Installation Manager
 - Record installation details as a response file
 - Use the response file to install Portal
- To record the installation details, run the following command from Installation Manager directory:
 - *IBMIM.exe -record path to response xml file -skipInstall tempinstall directory*
- The previous steps record only the configuration. Then, do the actual installation by using the response file that is generated.

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Figure 2-10. Using the silent unattended installation

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Notes:

You might need to modify the response file to reflect variations among target platforms. A sample installation response file, *installresponse.txt*, and a sample uninstallation response file, *uninstallresponse.txt*, are in the software setup directory such as *I-setup* or *W-Setup*.

Start the silent installation by using the following command syntax, which varies depending on your environment:

 Windows _____
 install.bat -options "path_to_file\response_filename"



Information

Warning message for failure to detect ports: If the GUI or console mode installation program fails to detect ports for either WebSphere Application Server or WebSphere Portal, a warning message is displayed. The installer offers you another chance to enter the values. If the silent installation fails to detect ports, the installer exits.

Installation sources

You can configure your installation software source by using one of the following options:

DVD	Using a DVD is simplest option because no further preparation for starting the installation is required.
<i>Local file system or network folders</i>	Folders are required for silent installations. They are more practical, in most cases, because you are not prompted to supply a path for the next disk equivalent. The benefit of network folders is that the effort to configure them does not need to be repeated for each installation.
<i>Live repository</i>	Installation Manager can download the required installation files directly from Passport Advantage or other live repositories. Download speed can slow installation.

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Figure 2-11. Installation sources

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Notes:

Multiple profile feature

- WebSphere Portal 7 and above supports a *multiple profile* feature.
- Principles
 - You install WebSphere Portal once and then create multiple profile instances that are based on the original installation.
 - A profile is the folders and files that define all the specific configuration settings of a server.
 - Multiple profiles means you can create multiple independent portal instances (servers), or back them up to quickly recover from configuration problems.

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Figure 2-12. Multiple profile feature

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Notes:

Create extra profiles immediately after installation if you want each profile instance to use the unmodified version of the WebSphere Portal configuration, or after configuration if they should use the completed configuration.

Creating profiles is covered in a later unit: Creating a cell.

2.2. Configuring WebSphere Portal

This topic explains how to configure WebSphere Portal.

Configuring WebSphere Portal



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Figure 2-13. Configuring WebSphere Portal

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Notes:



Developer mode (1 of 2)

- Configure a developer mode portal server to improve startup performance for development.
- Do not use WebSphere Portal in development mode while in a production environment.
- How?
 - Switches the Java virtual machine (JVM) to development mode: Sets initial heap size to maximum, which improves startup performance by reducing the amount of garbage collection that occurs during startup.
 - Also stops most portlets from initializing on server start.

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Figure 2-14. Developer mode (1 of 2)

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Notes:

Developer mode (2 of 2)

- Run the following task from the wp_profile_root\ConfigEngine directory:

```
ConfigEngine.bat enable-develop-mode-startup-performance  
-DWasPassword=password
```

- You must restart WebSphere Portal Server to render the change effective.
- The whitelist specifies the portlets to initialize on server start.
 - The whitelist is stored in the file:
`<wp_profile_root>\PortalServer\config\StartupPerformance\wp.base_TargetMapExclList.properties`.
- Add a line for the name of each application as it is known to the application server
- Find a list of applications by using the Integrated Solutions Console

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Figure 2-15. Developer mode (2 of 2)

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Notes:

If you need to restore WebSphere Portal to a normal runtime state:

- Run the following task from the wp_profile_root\ConfigEngine.bat
`disable-develop-mode-startup-performance -DWasPassword=password`
- Restart the portal to apply the change.

Empty portal

- Use the *empty portal* configuration to support the initial import of a full export from a staged environment.
 - Run the following task from the `wp_profile_root/ConfigEngine` directory:

```
ConfigEnginebat empty-portal -DWasPassword=password
```

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Figure 2-16. Empty portal

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Notes:

For more information about this task, see Topic 14.5, "Using Release Builder".



Information

No content available message: After you run the empty-portal task, you see an error message that indicates that no content is available if you access WebSphere Portal Server. You can ignore this message until you import another configuration into the server.

Unit summary

Having completed this unit, you should be able to:

- Review the different installation options for WebSphere Portal
- Describe the various configuration choices

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Figure 2-17. Unit summary

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Notes:



Checkpoint

1. Portal 8.x supports _____ for installation, update, and uninstallation.
 - A. IBM Installation Manager
 - B. Portal Installation Manager
 - C. Rational Installation Manager

2. Developer mode is good for production servers.
 - A. Yes
 - B. No

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Figure 2-18. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.



Checkpoint answers

1. Portal 8.x supports _____ for installation, update, and uninstallation.

Answer: A

- A. IBM Installation Manager

2. Developer mode is good for production servers.

Answer: B

- B. No

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Figure 2-19. Checkpoint answers

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Notes:

Exercise 1



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Figure 2-20. Exercise 1

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Notes:

Exercise objectives

At the end of this exercise, you should be able to:

- Install WebSphere Portal Server 8.5

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Figure 2-21. Exercise objectives

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Notes:

Unit 3. Configuring WebSphere Portal

What this unit is about

This unit provides an introduction to WebSphere Portal configuration.

What you should be able to do

After completing this unit, you should be able to:

- Explain how ConfigEngine works
- Define the contents of the portal configuration database
- Determine any issues that surround the default database configuration
- Explain the reasons to split the portal configuration database
- Use the WebSphere Portal configuration wizard to migrate the portal configuration database

Unit objectives

After completing this unit, you should be able to:

- Explain how ConfigEngine works
- Define the contents of the portal configuration database
- Determine any issues that surround the default database configuration
- Explain the reasons to split the portal configuration database
- Use the WebSphere Portal configuration wizard to migrate the portal configuration database

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Figure 3-1. Unit objectives

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Notes:



Topics

- Working with ConfigEngine and the Configuration Wizard
- Configuring the database

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Figure 3-2. Topics

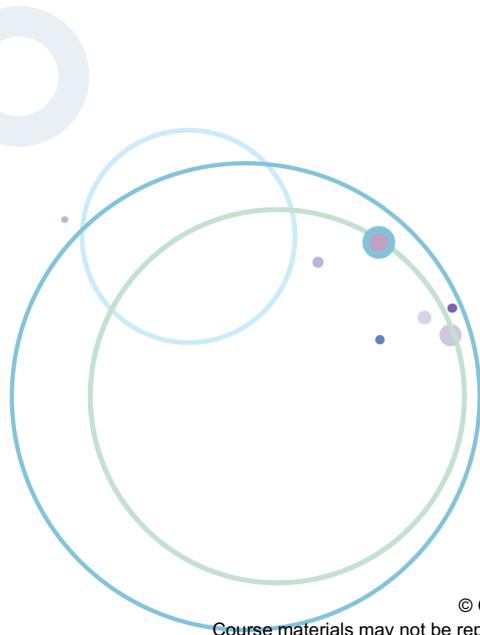
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Notes:

3.1. Working with ConfigEngine and the Configuration Wizard

This topic presents an overview of ConfigEngine and the Configuration Wizard.

Working with ConfigEngine and the Configuration Wizard



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Figure 3-3. Working with ConfigEngine and the Configuration Wizard

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Notes:



ConfigEngine overview

- ConfigEngine is a primary tool for administrators of WebSphere Portal for several versions of the product.
- ConfigEngine has a console-based interface, works with properties stored in key files, and, based on predefined tasks, interacts with system resources through extra scripting interfaces and APIs.
- The installation creates a running Portal instance, but it is not suitable for production use.

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Figure 3-4. ConfigEngine overview

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Notes:

Deployment considerations such as database back end, user repositories, fault tolerance, and process management require extra configuration.



ConfigEngine Wizard overview

- The ConfigWizard is a convenient graphical presentation of some of the predefined tasks that ConfigEngine manages.
- If installing WebSphere Portal with IBM Installation Manager, the task offers an option to start the Configuration Wizard to complete the common postinstallation tasks.

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Figure 3-5. ConfigEngine Wizard overview

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Notes:

Updated Configuration Wizard in Portal 8.5

- WebSphere Portal 8 provided an improved configuration wizard with more features. Portal 8.5 extends the capabilities of the wizard even further.
 - It supports workflows to create customized scripts for common configuration tasks.
 - It provides a web UI to run ConfigEngine tasks.
 - Workflows that are included are categorized as follows:
 - Set up a stand-alone server
 - Set up a cluster
 - Add on new capability
 - Update or maintain a current environment
 - More options

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Figure 3-6. Updated Configuration Wizard in Portal 8.5

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Notes:

Workflows in Configuration Wizard

Set up a Stand-alone Server	<ul style="list-style-type: none"> Databases Transfer Enable Federated Security
Set up a Cluster	<ul style="list-style-type: none"> Database Transfer Enable Federated Security Create a Deployment Manager Create a Cluster Create an Additional Cluster Node
Add on new capability	<ul style="list-style-type: none"> Install Add-ons Uninstall Add-ons
Update or Maintain a Current Environment	<ul style="list-style-type: none"> Migrate a Stand-alone Server Migrate a Cluster Steps 1 - 3
More options	<ul style="list-style-type: none"> Recycle Managed IBM WebSphere Portal Cell Create the IBM Portal Profile Remove the IBM Portal Profile

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Figure 3-7. Workflows in Configuration Wizard

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Notes:

Working with ConfigEngine: Tips and files

- Tips
 - Always make a backup of property files before making edits.
 - Always make a backup of the configuration repository before running ConfigEngine tasks.
 - Do not store passwords in properties files; instead, pass them as arguments such as -DPortalAdminPwd=<mypassword>.
- Files
 - ConfigEngine works with the property files and command-line inputs.
 - The `wkplc.properties` file, which is in the `wp_profile_root\ConfigEngine\properties` directory, is the primary file for storing input data.

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Figure 3-8. Working with ConfigEngine: Tips and files

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Notes:



Using a parent.properties file

- What?
 - WebSphere Portal supports the use of parent properties files.
 - It is useful in situations where you want to do the same configuration tasks on multiple computers.
- How?
 - To use a parent properties file when starting a WebSphere Portal configuration task, specify the parentProperties property when starting the configuration program.
 - When you use a parent properties file during configuration, a property value from that file supersedes a value for the same property in the xxxx.properties file.

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Figure 3-9. Using a parent.properties file

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Notes:

- Good to know:
 - SaveParentProperties specifies that the property values set in the parent properties file are copied to the main properties file (for example, wkplc.properties) on successful completion of the configuration task to reflect the current state of the configuration information.

Using a parent.properties file: Syntax

- Use the following syntax to include parent properties and save parent properties attribute:

```
ConfigEngine.bat -DparentProperties=/directory/helper.properties  
DSaveParentProperties=true
```

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Figure 3-10. Using a parent.properties file: Syntax

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Notes:

3.2. Configuring the database

This topic explains the tasks for database configuration and configuration properties.

Configuring the database



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Figure 3-11. Configuring the database

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Notes:

Portal configuration database (1 of 2)

- WebSphere Portal uses the configuration database to do the following tasks:
 - Determine page configuration, layout, and contents.
 - Store user-specific customizations.
 - Store web content.
 - Maintain document libraries.
 - Store personalization rules and data.
- By default, the installation of WebSphere Portal creates a single database, with multiple domains (schemas), for all of its configuration data.

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Figure 3-12. Portal configuration database (1 of 2)

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Notes:

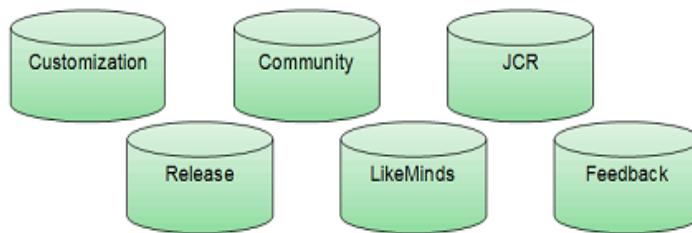
The *portal configuration databases* contain the configuration of pages, portlets, and all of the resources for WebSphere Portal.

The installation creates a single open source Derby database. The following issues are known for the Derby database, among others:

- It runs in the same Java process as WebSphere Portal, which impacts performance.
- A single-process database cannot be clustered.
- A non-secured database can be copied and analyzed.

Portal configuration database (2 of 2)

- After installation, administrators must make their own database choices, based on their organization's needs and standards.
- The initial configuration database consists of multiple domains and all configuration content.
- In Portal 8.5, the LikeMinds and Feedback domains are deprecated.



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Figure 3-13. Portal configuration database (2 of 2)

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Notes:



Database transfer: ConfigEngine properties

- The ConfigEngine scripting tool provides the capability to transfer data from the Derby database to several mainstream database server products.
- To use the ConfigEngine scripting tool, edit the following files to define the settings that are required for your database server:
 - `wkplc.properties`
 - `wkplc_comp.properties`

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Figure 3-14. Database transfer: ConfigEngine properties

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Notes:

Resources for ConfigEngine to transfer the database

- For details about using ConfigEngine to transfer the database, separate resource web pages exist for either a stand-alone or clustered server.
- The current suggestion is to use the Configuration Wizard, as it makes the parameter entry less error-prone.

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Figure 3-15. Resources for ConfigEngine to transfer the database

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Notes:



Windows

Windows stand-alone: Configuring WebSphere Portal to use a database

http://www-10.lotus.com/ldd/portalwiki.nsf/dx/Windows_standalone_Configuring_your_portal_to_use_a_database_wp8



Windows

Windows clustered server: Configuring WebSphere Portal to use a database

http://www-10.lotus.com/ldd/portalwiki.nsf/dx/Windows_clustered_server_Configuring_your_portal_to_use_a_database_wp8



Database transfer

- You can transfer data from any one database to any other database by using the following methods:
 - ConfigEngine, which uses a command line
 - ConfigWizard, which uses a GUI
- The following target databases are the only ones that IBM supports for use with Portal:
 - IBM DB2 or DB2 pureScale
 - IBM DB2 for iSeries
 - IBM DB2 for z/OS
 - Oracle (RAC) 11g / 12c
 - SQL Server 2008 / 20012

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Figure 3-16. Database transfer

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Notes:

Options for splitting the Portal database

- The installation creates multiple schemas.
- The installation includes the following options:
 - Keep it as one database.
 - Split certain schemas into their own databases.
 - Split all schemas into separate databases.
 - Split databases across multiple servers.
- When deciding to split the database, consider the following points:
 - Split the database into multiple databases if you want to improve performance.
 - Split the database for replication and redundancy of databases.
 - Run WebSphere Portal without the customization database.
- When deciding to split the schemas across multiple databases, the primary criteria must be to achieve data redundancy and reduce single point of failure.
- Performance must always be a secondary criterion.

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Figure 3-17. Options for splitting the Portal database

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Notes:



Information

Achieving data redundancy and reducing single point of failure: Your primary criteria must be to achieve data redundancy and reduce single point of failure, even though you might want to split the schemas across multiple databases. Your secondary criteria should always be performance.



Configuring the portal databases

- To transfer the portal configuration data to one or more enterprise databases with using ConfigWizard, follow those steps.
 - Steps 3 - 10 are illustrated on the following pages.
1. Start server1.
 2. Open the wizard URL in a browser.
 3. Click Set Up a Stand-alone Server.
 4. Click Database Transfer.
 5. System information questions.
 6. Database setup questions.
 7. Database users questions.
 8. Enter admin user information.
 9. Customize database setup values.
 10. Run the transfer.

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Figure 3-18. Configuring the portal databases

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Notes:

The URL for the configuration wizard is: <http://PortalHostName:10200/ibm/wizard>

Configuring the portal databases: Step 3

Configuration Wizard

Complete essential configuration tasks with less reading and time spent editing properties files. Repeat common configuration tasks on different servers by using wizard selections saved from another session as a starting point for a new session. [Learn More](#)

Set Up a Stand-alone Server

Set up a stand-alone server environment to use for development, demonstrations, and small production sites. For guidance, see [Roadmaps for installation and deployment](#).

Set Up a Cluster

Set up either a dynamic or static cluster to use for production sites. For guidance, see [Roadmaps for installation and deployment](#) and select the roadmap that best matches your needs.

Add On New Capability

Install and deploy a new capability or remove an add-on.

Update or Maintain a Current Environment

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Figure 3-19. Configuring the portal databases: Step 3

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Notes:

3. Click **Set Up a Stand-alone Server**.



Configuring the portal databases: Step 4

Set Up a Stand-alone Server

Set up a stand-alone server environment to use for development, demonstrations, and small production sites. For guidance, see [Roadmaps for installation and deployment](#).
[Learn More](#)

Database Transfer

Select this option to transfer data from Apache Derby to any of the database types that are supported by WebSphere Portal.

Enable Federated Security

Add an LDAP user registry to the default federated repository to store user account information for authorization.

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Figure 3-20. Configuring the portal databases: Step 4

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Notes:

4. Click **Database Transfer**.



Configuring the portal databases: Step 5

Database Transfer

1 Answer Questions
In progress

2 Customize Values

3 Configure

Answer questions about your environment so that the wizard can determine which fields you must complete. Then, you can run the configuration, save your settings, or download the instruction and script files to run later. If you saved your settings from a previous session, you can upload the settings now. [Learn More](#)

[Upload Saved Selections](#)

[System Information](#)

[Database Setup](#)

[Database Users](#)

Target operating system:

Target portal profile name:

Target portal profile home directory:

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Figure 3-21. Configuring the portal databases: Step 5

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Notes:

5. System information questions.



Configuring the portal databases: Step 6

Database Transfer

1 Answer Questions
In progress

2 Customize Values

3 Configure

Answer questions about your environment so that the wizard can determine which fields you must complete. Then, you can run the configuration, save your settings, or download the instruction and script files to run later. If you saved your settings from a previous session, you can upload the settings now. [Learn More](#)

[Upload Saved Selections](#)

System Information

Database Setup

Database Users

Database management software:

DB2

?

Do you want to transfer to one database or multiple databases:

One database
 Multiple databases

?

Is the database hosted on the same server as the portal:

Yes
 No

?



Do you want the wizard to create your databases:

Yes, create my databases for me
 No, generate scripts for me that I can use to create the databases

?

Do you want the wizard to create users and assign them permission:

Yes, create my users and assign them appropriate permission
 No, generate scripts that I can use to create the

?

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Figure 3-22. Configuring the portal databases: Step 6

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Notes:

6. Database setup questions.



The screenshot shows the top navigation bar of the WebSphere Education portal. On the left is the "WebSphere Education" logo with a right-pointing arrow. On the right is the "IBM" logo with a registered trademark symbol. The background is a light blue gradient.

Configuring the portal databases: Step 7

Database Transfer

1 Answer Questions
In progress

2 Customize Values

3 Configure

Answer questions about your environment so that the wizard can determine which fields you must complete. Then, you can run the configuration, save your settings, or download the instruction and script files to run later. If you saved your settings from a previous session, you can upload the settings now. [Learn More](#)

[Upload Saved Selections](#)

[System Information](#)

[Database Setup](#)

[Database Users](#)

Do portal database domains use the same user ID and passwords:
 Yes No

Do you need runtime database user ID for day-to-day operations:
 Yes No

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Figure 3-23. Configuring the portal databases: Step 7

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Notes:

7. Database user questions.



Configuring the portal databases: Step 8

Database Transfer

1 Answer Questions Complete

2 Customize Values In progress

3 Configure

System Information Database Setup

*WebSphere Application Server administrator ID: ?

*WebSphere Application Server administrator password: ?

*Re-enter the password

< >

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Figure 3-24. Configuring the portal databases: Step 8

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Notes:

8. Enter the user name and password for the WebSphere Application Server administrator user.

WebSphere Education

IBM

Configuring the portal databases: Step 9

Database Transfer

1 Answer Questions Complete 2 Customize Values In progress 3 Configure

System Information Database Setup Advanced

*Configuration user ID: ?

*Configuration password: ?

*Re-enter the password:

*Database administrator ID: ?

*Database administrator password: ?

*Re-enter the password:

Runtime user: ?

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Figure 3-25. Configuring the portal databases: Step 9

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Notes:

9. Customize values for database setup.



Configuring the portal databases: Step 10

Database Transfer

1 Answer Questions
Complete

2 Customize Values
Complete

3 Configure
In progress

Optional

[Download Wizard Selections](#)

Download your selections in case you need to run the configuration again. You can also use your selections as a starting point to set up another server. [Learn More](#)

[Download Configuration Scripts](#)

If you plan to run scripts to set up the configuration instead of running the steps from the wizard, then download an archive of the scripts. The archive is named WorkflowInstanceScriptsAll.zip. [Learn More](#)

Click **Start Configuration** to begin. When the wizard reaches a manual step, it pauses the process until you can complete the manual step. You cannot cancel a running configuration. If you leave the page or lose your connection, the configuration continues to run. Log back in to return to a configuration that is in progress. [Learn More](#)

[Start Configuration](#)

[Reset Steps](#)

Step	Task	Status
1	Manual Step: Create the database users and groups. Instructions for Step 1 Mark Step Complete	Not Started
2	Back up the properties files that the wizard uses during the configuration. View Step Command Run Step Skip Step	Not Started
3	Create your databases. View Step Command Run Step Skip Step	Not Started

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Figure 3-26. Configuring the portal databases: Step 10

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Notes:

- Run the transfer. Either click **Start Transfer** to automatically run through all the wizard steps in order, or select and run each step one at a time.

Unit summary

Having completed this unit, you should be able to:

- Explain how ConfigEngine works
- Define the contents of the portal configuration database
- Determine any issues that surround the default database configuration
- Explain the reasons to split the portal configuration database
- Use the WebSphere Portal configuration wizard to migrate the portal configuration database

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Figure 3-27. Unit summary

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Notes:

Checkpoint

1. Configuration wizard in WebSphere Portal 8 supports workflows for common configuration tasks.
 - A. True
 - B. False

2. Which is the primary file for storing input data that is used by ConfigEngine tasks?
 - A. wkplc_comp.properties
 - B. wkplc.properties
 - C. wkplc_dbtype.properties

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Figure 3-28. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.



Checkpoint answers

1. Configuration wizard in WebSphere Portal 8 supports workflows for common configuration tasks.

Answer: A

- A. True

2. Which is the primary file for storing input data that is used by ConfigEngine tasks?

Answer: B

- B. wkplc.properties

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Figure 3-29. Checkpoint answers

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Notes:

Exercise 2



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Figure 3-30. Exercise 2

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Notes:



Exercise objectives

At the end of this exercise, you should be able to:

- Use the WebSphere Portal configuration wizard to migrate the WebSphere Portal configuration database

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Figure 3-31. Exercise objectives

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Notes:

Unit 4. LDAP and security for WebSphere Portal

What this unit is about

This unit describes Lightweight Directory Access Protocol (LDAP)-based authentication and portal security.

What you should be able to do

After completing this unit, you should be able to:

- Define LDAP-based authentication
- Select an appropriate LDAP

Unit objectives

After completing this unit, you should be able to:

- Define LDAP-based authentication
- Select an appropriate LDAP

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Figure 4-1. Unit objectives

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Notes:



Topics

- LDAP-based authentication
- Portal security

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Figure 4-2. Topics

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Notes:

4.1. LDAP-based authentication

This topic describes LDAP-based authentication.

LDAP-based authentication



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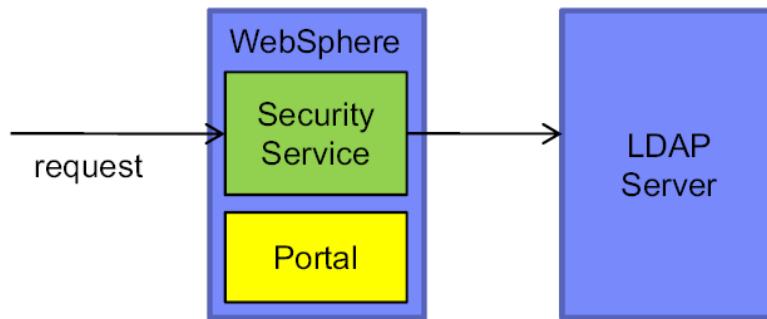
Figure 4-3. LDAP-based authentication

WPL951.0

Notes:

Overview of LDAP-based authentication

- Most organizations use a security environment that is based on an LDAP repository.
- You can configure earlier versions of WebSphere Portal to use either a stand-alone or federated LDAP, but Portal 8.5 should always use a federated LDAP.
 - Configuring the stand-alone LDAP makes it the exclusive repository for WebSphere Portal.
 - Configuring a federated LDAP adds one LDAP at a time into the existing mechanism.



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Figure 4-4. Overview of LDAP-based authentication

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Notes:

LDAP is not so much a repository as it is a protocol for accessing a repository without having to know the underlying storage mechanism.

The protocol provides a standardized interface to the repository. The information that this repository manages loosely adheres to a specification for the LDAP schema. Thus, different LDAP repositories have different schemas. Examples are IBM Security Directory Server (Tivoli Directory Server), IBM Lotus Domino, and Microsoft Active Directory. One requirement for implementing LDAP integration is to understand the schema requirements, classes, and attributes that are managed by the LDAP repositories you integrate.

Configuring a federated LDAP adds one LDAP at a time into the existing mechanism. With this configuration, you can authenticate against the database and any number of LDAPs, making it a highly flexible configuration. Each user must be uniquely named across the entire federated repository.

4.2. Portal security

This topic explains how you can provide security for WebSphere Portal.

Portal security



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Figure 4-5. Portal security

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Notes:

Authentication

- The authentication process is the same regardless of the repository configuration.
- WebSphere Application Server generates a security token that is based on the user's credential information.

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Figure 4-6. Authentication

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Notes:



“Remember me” cookie

- The portal passes the security token, an LTPA token, back to the user's access device in the form of a *cookie*.
- The browser sends the cookie back to WebSphere Portal to serve as the user's credential on subsequent access requests.
- The cookie is:
 - Valid for the length of the user's portal session
 - Invalidated when the user logs off
 - Also invalidated when the user's session expires because of a lack of activity

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Figure 4-7. “Remember me” cookie

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Notes:

Enhancing security

- You can further enhance the security in the following ways:
 - Linking to an LDAP server only over a secure backbone
 - No user traffic goes across the backbone.
 - Encrypting traffic between WebSphere and LDAP (HTTPS connection)
 - Employing an external security system, such as the following examples:
 - IBM Security Access Manager (Tivoli Access Manager)
 - WebSEAL

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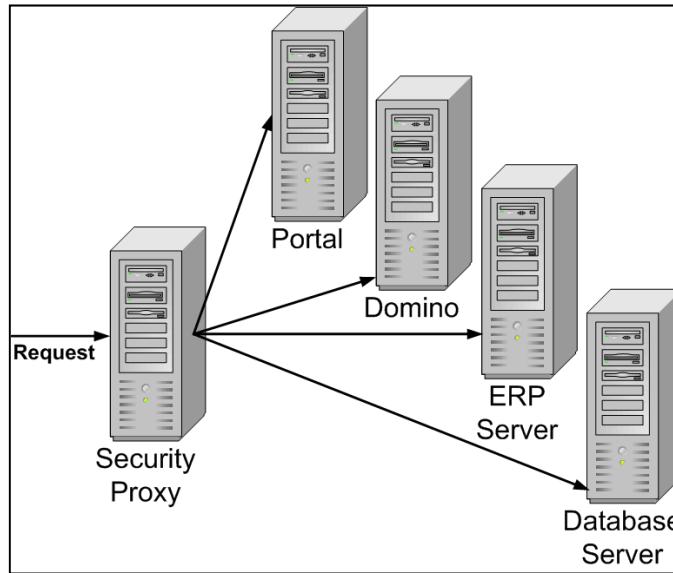
Figure 4-8. Enhancing security

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Notes:

Step-up authentication

- Extend the single sign-on (SSO) mechanism to servers outside of the portal scope by employing the token mechanism.
- Domino servers accept the same token as WebSphere Portal.



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Figure 4-9. Step-up authentication

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Notes:

You can authenticate the user at the edge of the network and generate a token that is acceptable to other servers to extend it further. The additional servers implement a Trust Association Interceptor (TAI) that validates the tokens over those servers.

Impersonation (1 of 2)

- What?
 - Use *Impersonation* to access the portal as though you are another user.
- Why?
 - A support specialist can use this feature to view pages, portlets, and other portal components to find issues and errors.
 - Support staff uses the impersonation feature to validate a reported problem and test the solution.
 - For example, support staff accesses the portal system as a manager without needing the manager's password.

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Figure 4-10. Impersonation (1 of 2)

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Notes:

Impersonation (2 of 2)

- How?
 - Enable the impersonation feature.
 - Assign the *Can Run As User* role to the users who will use the impersonation features.
 - Use the default Impersonation portlet to impersonate specific users.
 - Alternatively, create a resource environment provider to enable impersonation and develop a custom portlet for impersonating users.

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Figure 4-11. Impersonation (2 of 2)

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Notes:

Consider the following points about impersonation:

- Client-side aggregation

Client-side aggregation does not support user impersonation. Ensure that you do not activate client-side aggregation on any portal pages where the impersonation portlet is deployed.

- User impersonation and people awareness

When a user who is enabled for impersonation impersonates other users, the people awareness feature is disabled for the entire session for which that user is authenticated.

- Impersonation and back-end data

Impersonation does not give users access to the data that a portlet generates.

- Assigning *Can Run As User* role

Administration > Access > User and Group Permissions > Users > Select the user > Select Resource Type > Virtual Resources > USERS > Select Explicitly Assign on the *Can Run As User* role.



Enabling impersonation

- Impersonation is turned off by default and must be enabled.
- To enable the impersonation feature, follow these steps:
 1. Add a custom property to the WP Authentication Service.
 2. Add a custom property to the WP PortletServiceRegistryService.
 3. Restart the server.
- Impersonation is enabled after you restart the server.

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Figure 4-12. Enabling impersonation

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Notes:

VMM and LDAP integration

- Virtual Member Management (VMM) stores information that pertains to user repositories.
 - Repositories can be based on a file, database, or LDAP.
 - Uses a database to federate and track its child repositories
 - The database does not contain the individual user information BUT the information necessary to access the child repositories.
- VMM supports the configuration of property extension databases in those circumstances where a user might need attributes that the repository does not manage.
- The `wimconfig.xml` file is the principle file for the configuration of VMM.
 - Do not directly edit this file. ConfigEngine is used to update `wimconfig.xml`, by using values that are read from the `wkplc.properties` file.

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Figure 4-13. VMM and LDAP integration

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Notes:

Stand-alone LDAPs

- Ensure that all required users and groups are available to WebSphere Portal to authenticate against an LDAP.
- The definition of a Portal Administrator ID and a WebSphere Administrator ID are required.
- In Portal 8.5, stand-alone LDAPs are deprecated. Upgrading an existing server with a stand-alone LDAP to Portal 8.5 is supported.

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Figure 4-14. Stand-alone LDAPs

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Notes:

It can include groups for collaboration, document management, and content management, depending on the features that you configure for your portal.

Some groups are required and some other groups are commonly created.

- Required groups are:
 - Portal administrators and virtual portal administrators
 - WebSphere administrators
- Commonly created groups are:
 - Document and content reviewers
 - Document and content approvers



Federated repositories (1 of 2)

- Configure a federated LDAP by using either ConfigEngine or ConfigWizard:
 - ConfigEngine provides a command-line user interface.
 - ConfigWizard is the graphical user interface.

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Figure 4-15. Federated repositories (1 of 2)

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Notes:

Federated repositories (2 of 2)

Using ConfigEngine

- Edit the `wkplc.properties` file to configure a federated LDAP.
 - This file sets the appropriate search and other parameters for the chosen LDAP.
- Validate the configuration, and then create the LDAP.
- If you intend to use an ID and group from the newly added LDAP as the administrator credentials, run the `wp-change-portal-admin-user` task.

Using ConfigWizard

- You can also add and configure single and federated LDAPs by using ConfigWizard.
- ConfigWizard can be accessed from the Integrated solutions console.
- Go to `cw_profile` and start `server1`.
- Log in to integrated solutions console and click Configuration Wizard.

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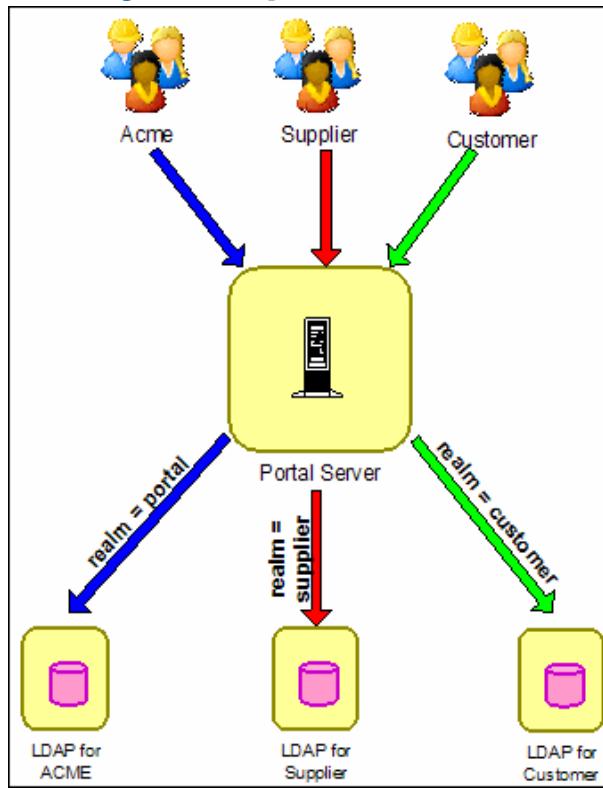
Figure 4-16. Federated repositories (2 of 2)

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Notes:

You must also run the `wp-change-portal-admin-user` task if you intend to use an ID and group from the newly added LDAP as the administrator credentials.

Federated repository example



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Figure 4-17. Federated repository example

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Notes:

- Defining a federated repository has important constraints:
 - A group in one of the repositories cannot encompass members from another repository.
 - Names must be unique across the entire federated repository.
- The federated repository can act as a single namespace.

Security for immediate use

- The VMM uses a file-based repository security when you install WebSphere Portal.
- If you are building a cell, this security is also used on the deployment manager.
- Before federating your WebSphere Portal node into the cell:
 - The required group for WebSphere Portal administrators and administrative users must be defined in the deployment manager's security repository.
 - If these groups are not defined, the WebSphere Portal administrators group and administrative user are lost when federating the node into the deployment manager.

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Figure 4-18. Security for immediate use

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Notes:

When you federate the WebSphere Portal node into the deployment manager cell, the security settings of the portal node are replaced with the deployment manager's security settings.

Custom LDAP integration

- A *custom repository* can be configured if none of the immediate-use repositories is sufficient.
- Setting up custom user repositories involves such tasks as defining extra repositories to the default federated user registry.
- Your development team must create a custom Java class that implements the UserRegistry interface of WebSphere Application Server.

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Figure 4-19. Custom LDAP integration

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Notes:

The property extension database

- The property extension database was formerly called the *look-aside database*.
- A *property extension database* can be used with federated repositories, stand-alone LDAP, or a custom registry.
- You can choose to use a property extension database if the schema of the user repository does not support a specific attribute or is read-only.

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Figure 4-20. The property extension database

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Notes:

External security managers

- Organizations with central access control management needs often use *external security managers* to do authentication and authorization for WebSphere Portal.
- These managers can handle authentication only or can be configured to handle both authentication and authorization.
- For authorization, provide custom unique names for externalized portal resources.
 - The security managers can then easily and accurately define access to those resources.
- Using an external security manager to do only authorization is not currently supported.

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Figure 4-21. External security managers

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Notes:



Unit summary

Having completed this unit, you should be able to:

- Define LDAP-based authentication
- Select an appropriate LDAP

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Figure 4-22. Unit summary

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Notes:



Checkpoint

1. Property extension database is used when _____
 - A. User repository does not support specific attribute
 - B. User repository is not updated
 - C. User repository is read only

2. VMM configuration is stored in _____
 - A. wimconfig.xml
 - B. wkplc.properties.
 - C. ServerIndex.xml

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Figure 4-23. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.

Checkpoint answers

1. Property extension database is used when _____

Answer: A and C

- A. User repository does not support specific attribute
- C. User repository is read only.

2. VMM configuration is stored in _____

Answer: A

- A. wimconfig.xml

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Figure 4-24. Checkpoint answers

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Notes:

Exercise 3



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Figure 4-25. Exercise 3

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Notes:



Exercise objectives

At the end of this exercise, you should be able to:

- Edit security properties
- Validate properties
- Update Portal security information

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Figure 4-26. Exercise objectives

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Notes:

Unit 5. Page management

What this unit is about

This unit covers common page and portlet management techniques.

What you should be able to do

After completing this unit, you should be able to:

- Navigate the WebSphere Portal administrative interface
- Explore some concepts: page, label, and nodes
- Design an effective page hierarchy
- Create a page and a page hierarchy
- Manage page properties and layouts

Unit objectives

After completing this unit, you should be able to:

- Navigate the WebSphere Portal administrative interface
- Explore some concepts: page, label, and nodes
- Design an effective page hierarchy
- Create a page and a page hierarchy
- Manage page properties and layouts

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Figure 5-1. Unit objectives

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Notes:

Topics

- Navigating and managing WebSphere Portal 8.5
- Setting up and designing page hierarchy
- Creating pages and page management

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Figure 5-2. Topics

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Notes:

5.1. Navigating and managing WebSphere Portal 8.5

This topic explains how to navigate the administrative interface and the page hierarchy.

Navigating and managing WebSphere Portal 8.5



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Figure 5-3. Navigating and managing WebSphere Portal 8.5

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Notes:

Administrative interface (1 of 2)

- The administration of WebSphere Portal can be done graphically and through scripting.
- Graphical administration
 - The graphic interface is delivered through portlets that are centrally on the administration pages of the WebSphere Portal.
 - Many aspects of portlet and page customization can also be carried out directly from the user-facing pages.
 - Configuration Wizard provides a GUI-based tool for configuring the server.
- Scripting administration
 - Scripting is used to manage WebSphere Portal resources: pages and portlets.
 - Scripting is shown through two interfaces:
 - WebSphere Portal Scripting Interface
 - XML Access configuration interface

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Figure 5-4. Administrative interface (1 of 2)

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Notes:

Administrative interface (2 of 2)

- The WebSphere Portal Release Builder provides an administrative tool for moving configurations from one environment to another.
- Type of tasks that are done through the Integrated Service Console:
 - Setting environment variables
 - Setting trace levels
 - Other low-level WebSphere Application Server configuration tasks
- The WebSphere Portal administration pages can be accessed, in a default deployment, by using the following URL:
`http://<portalhost>:10039/wps/myportal/Administration`

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Figure 5-5. Administrative interface (2 of 2)

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Notes:

The portal administration pages can be accessed, in a default deployment, by using the following URL: `http://<portalhost>:10039/wps/myportal/Administration`

In this address, replace `<portalhost>` with the IP address or host name of your portal.

Administrative tasks in WebSphere Portal

- Creating and managing pages:
 - Page creation focuses on the hierarchical arrangement of WebSphere Portal nodes, including portal pages.
- Installing portlets
- Managing WebSphere Portal security

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Figure 5-6. Administrative tasks in WebSphere Portal

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Notes:

5.2. Setting up and designing page hierarchy

This topic describes how to set up and design a page hierarchy.

Setting up and designing page hierarchy



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Figure 5-7. Setting up and designing page hierarchy

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Notes:

Page and page hierarchy

- A page can be the parent, sibling, or child of other organizational elements such as other pages and labels.
- A page hierarchy is the arrangement of portal pages, labels, and URLs.
- By default, all pages that are created in WebSphere Portal are ready for web content.

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Figure 5-8. Page and page hierarchy

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Notes:

A portal page is just a web page that a Portal server renders and delivers. It is where the displayed content is defined and organized.



Designing the page hierarchy (1 of 2)

- Following aspects need to be considered:
 - WebSphere Portal features
 - New pages in a default environment would be created as children of the 'Home' label, or under your own top-level navigational node.
 - Performance
 - Design your pages with load and refresh times in mind.
 - Usability
 - Employ WebSphere Portal ability to fix column width or use a responsive design.
 - Employ good practices that make the hierarchy easy to navigate, and pages easy to navigate and read.

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Figure 5-9. Designing the page hierarchy (1 of 2)

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Notes:

Designing the page hierarchy (2 of 2)

- Significant factors to consider for maintainability:
 - Securability
 - The arrangement of pages should take advantage of role inheritance and propagation.
 - Reusability
 - Pages with similar layouts use common page templates.
- Other important factors:
 - Organization
 - Users can navigate easily and do not lose a sense of context of the other pages in the hierarchy.
 - Flexibility
 - Pages can be moved within the hierarchy without impacting naming schemes.
- The hierarchy should be both logical and predictable.

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Figure 5-10. Designing the page hierarchy (2 of 2)

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Notes:

WebSphere Portal has three node types

- Label node:
 - Is organizing node
 - Contains no content
 - Is used to organize children page nodes
 - Displays the content from the first child page node
 - In order for all labels to function correctly, needs to have, at some level below, a page, or content node among its children
- Page node:
 - Contains content in the form of portlets
 - Can also have their own children pages and labels
- URL node:
 - Contains a link to redirect to a web page from any URL, or from within the same Portal server.

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Figure 5-11. WebSphere Portal has three node types

WPL951.0

Notes:



Information

Label with no page or URL: If a label does not contain a page or URL as a child, the message “This page does not support content” is displayed in the browser.

Content and container nodes

- Pages and labels
 - Pages and labels are known as container nodes. (Can have children)
 - Only a page can serve as a content container. (Can hold markup)
 - Pages are both container nodes and content nodes.
 - Labels are also container nodes but they are not content nodes.
- URL
 - URL is not container node.
 - URL is displayed to the user in the page hierarchy with the same presentation as pages and labels.
 - Either a URL node consists of a reference to another Portal node or the URL refers to an external web URL.

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Figure 5-12. Content and container nodes

WPL951.0

Notes:

Page hierarchy is the arrangement of portal pages, labels, and URLs. Typically a label contains page nodes among its child nodes. When a user selects a label, the content of the first child page node is displayed. If a label does not contain any child page nodes, then the “No content is available” message is displayed.

Pages are container nodes and content nodes. As a container node, pages can include, as child nodes, other pages, labels, and URLs. Labels are also container nodes, but they are not content nodes. That is, they cannot show portal content. As container nodes, they can contain other labels, pages, and URLs.



Creating a new label node

- Steps to follow:
 - Step 1. Clicking **New Label** in the Manage Pages portlet takes you to the label properties dialog.
 - Step 2. The **Friendly URL name** gives you the ability to create friendly URLs at the same time that you create a page.
- The new label can inherit the render mode of the parent or one of two specific modes:
 - Client Side Aggregation
 - Server Side Aggregation

New label: Content Root

Title:

Unique Name:

Note: If the unique name you entered for this page already exists, it will be used as the friendly URL name:

Theme: Portal Default Theme

Theme Style (Theme Policy): Inherit Parent Theme Policy

Icon:

Aggregation - Render Mode:
 This setting will revert to SSA during runtime if the theme policy does not support the selected mode.
 Inherit Parent Render Mode
 Client Side Aggregation - Rendering
 Server Side Aggregation - Rendering
 I want to make this page my private page

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Figure 5-13. Creating a new label node

WPL951.0

Notes:

The following example shows use of friendly URL names:

`http://<portalhost>/wps/myportal/Home/HR.`

Pages and labels do not require friendly URL names, though they are recommended.

When sharing a friendly URL name, remember that the reference must include the node hierarchy at every level down to the page or label that you want to access. When users access the node, regardless of whether they enter the friendly URL in their browser, the full node hierarchy is displayed in the browser. The WebSphere Portal navigation state information appends this human-readable URL. It means that a user can bookmark the page with a reasonable expectation that the bookmark remains valid. For persistent bookmarks that are unaffected by changes in the WebSphere Portal node hierarchy, consider use of Vanity URLs, described in Unit 10, "Other administrative portlets".

Creating a new page node (1 of 3)

- Step 1. Type the title of the new page in the **Title** field.
- Step 2. Type the unique name of the page in the **Unique Name** field.
- Step 3. Type a unique URL in the **Friendly URL name** field.
- Step 4. Select a Theme to determine the look of the new page.
- Step 5. Select a Theme Style to select a style to apply to the page.
- Step 6. In the Icon field, enter a path and file name for a page icon.

Title:

Unique Name:

Note: If the unique name you entered for this page already exists, it will be converted to a friendly URL name.

Friendly URL name:

Theme: —Inherit Parent Theme—

Icon:

I want to make this page my private page

Aggregation - Render Mode:

Inherit Parent Render Mode

Client Side Aggregation - Rendering

Server Side Aggregation - Rendering

Page Properties

This page can be added to a user's My favorites!

Users can derive pages from this page.

Type of Page

Static Content

A content page with these properties:
URI of Layout Template of HTML: dav:fs-type1/themes/GetPageLayoutTemplate

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Figure 5-14. Creating a new page node (1 of 3)

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Notes:

There are a number of steps to follow when creating a page node:

- Step 1. Type the title of the new page in Title. This is the title for the default locale.
- Step 2. Type the unique name of the page in Unique Name. If you specify a unique name that is already associated with an existing page, the new page is not created with the specified unique name, but with a serialized identifier, which the system default provides.
- Step 3. Type a name that is unique at this page hierarchy level in the Friendly URL name. This Friendly URL is a custom address for your page that is easy to remember and share. Note: When creating Vanity URLs or creating or modifying a page, make sure that Vanity URLs and friendly URLs in your portal do not match, partially overlap, or otherwise interfere with each other. For example, do not use strings such as home, ibm, ibm.com, and do not use strings that were previously used as Vanity URLs or friendly URLs in your portal already. Otherwise, infinite browser redirect loops might occur, sometimes without an error message. To determine such strings, create an export from your portal by using the XML configuration interface and scan the exported XML result output file for the string that you want to use for your URL Mapping or for your friendly URL. By default, the portal ensures that the friendly URL name that you enter is

unique. However, this enforcement does not include derived pages with an inherited friendly name and siblings that are moved in by a personalization rule.

- Step 4. Select a Theme to determine the look of the new page.
- Step 5. Select a Theme Style to select a style to apply to the page. Note: This field is visible only if the selected theme can be customized with a theme policy.
- Step 6. In the Icon field, enter a path and file name for a page icon. This icon is displayed in the tab next to the page title. The path for this image must be relative to the theme.

Creating a new page node (2 of 3)

- Render mode
 - Step 7. Select “I want to make this page my private page” to restrict access to the page by other users.
- Page properties
 - Step 8. If you want to allow other users to bookmark this page, check “This page can be added to a user’s My favorites list”.
 - Step 9. Check “Other pages can share the contents of this page” if you want others to share these contents.

Title:

Unique Name:

Note: If the unique name you entered for this page also contains a slash, it will be converted to a friendly URL name:

Friendly URL name:

Theme: —Inherit Parent Theme—

Icon:

I want to make this page my private page

Aggregation - Render Mode:

This setting will revert to SSA during runtime if the theme is changed.

Inherit Parent Render Mode

Client Side Aggregation - Rendering

Server Side Aggregation - Rendering

Page Properties

This page can be added to a user's My favorites list

Users can derive pages from this page.

Type of Page

Static Content

A content page with these properties:
URI of Layout Template of HTML: dav:fs-type1/themes/GetPageLayoutTemplate

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Figure 5-15. Creating a new page node (2 of 3)

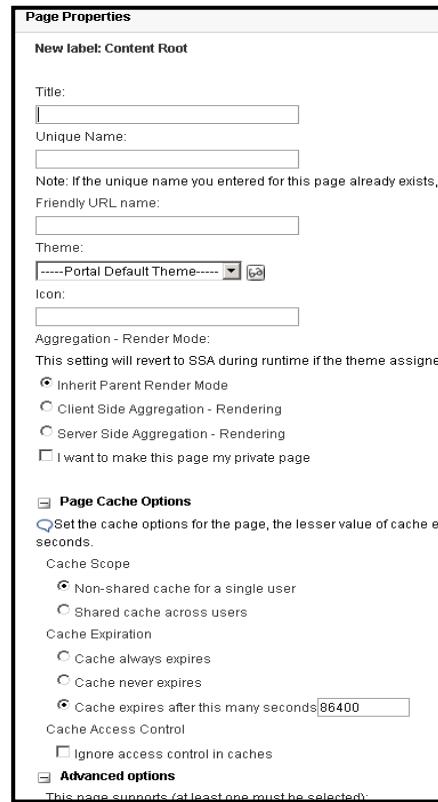
WPL951.0

Notes:

- Step 7. Select “I want to make this page my private page” to restrict access to the page by other users.
- Step 8. If you want to allow other users to bookmark this page, check “This page can be added to a user’s My favorites list”. If a user bookmarks this page, it is available from My favorites in the banner.
- Step 9. Check “Other pages can share the contents of this page” if you want others to share these contents. If checked, users can reference this page when they create a page.

Creating a new page node (3 of 3)

- Step 10. Select the **Type of Page**.
 - Standard Portal Layout: to create a page with a layout that Portal predefines.
 - Static Layout: to create the page layout by using a markup file. (Preferred option)
- Step 11. Select the **Page Cache Options**.
 - Cache Scope
 - Cache Expiration
 - Cache Access Control
- Step 12. Click **OK** to save the settings for the new page and add new content.



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Figure 5-16. Creating a new page node (3 of 3)

WPL951.0

Notes:

- Step 10. For Type of Page, select either Standard Portal Layout to create a page with a layout that Portal predefines, or Static Layout to create the page layout by using a markup file. Only Static Layout pages allow full use of the on-page editing and configuration options.
- Step 11. For Page Cache Options, select one of the following options:
 - Cache scope: If the page markup is the same for all users, selecting Shared cache across users provides the best performance.
 - Cache Expiration: Use this option to set how long, in seconds, the cache is used. Selecting "Cache never expires" means that content is always retrieved from the cache.
 - Cache Access Control: By default, the portal does not support shared caching for authenticated pages. Checking Ignore access control in caches overrides this behavior. However, it might allow an anonymous and potentially malicious user to access secure content from that page.

Step 12. Click OK to save these settings for the new page, and then add new content. Click Cancel if you want to return to Manage Pages without creating the page.

5.3. Creating pages and page management

This topic describes how to create and manage a page: properties, customization, and layout.

Creating pages and page management



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10.1

Figure 5-17. Creating pages and page management

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Notes:

Creating a page from a page template

- Clicking **Create Page From** on the Manage Pages window takes you to the Page Properties page.
- Creating a page from a template requires a title.
- A template should be selected.
 - If a template is not selected, the page that is created is the portal default page.
- Optionally, select an IBM Web Content Manager site area to map to this page.

Page Properties

New template-based page / New Web Content page:Content Root
 Use the controls below to specify your page properties. Optionally,

Title:

Friendly URL name:

Aggregation - Render Mode:
 This setting will revert to SSA during runtime if the theme assigned wi
 Inherit Parent Render Mode
 Client Side Aggregation - Rendering
 Server Side Aggregation - Rendering
 I want to make this page my private page

Page Template
 The new page will be based on the following page template:

No template
 No template
 Sample Web Content Page Template
W My Template

Web Content folder: **Select**

OK **Cancel**

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Figure 5-18. Creating a page from a page template

WPL951.0

Notes:



Create a page hierarchy

- Create a hierarchy with the Manage Pages portlet.

Manage Pages

Use the controls below to work with your pages. Browse or search for pages to work with. Click New to create new pages, labels and urls. Activate and deactivate pages, re-order, edit properties and layout, move, export, assign permissions and delete pages. For more information, click Help.

Search by: Title starts with Search:

[Select Page](#) > [Content Root](#) > [Home](#)

Pages in Home Add, Edit, Delete, and Reorder pages

[New Page](#) [New Label](#) [New URL](#) [New Page from...](#)

Page 1 of 1		
Title	Unique name or Identifier	Status
Getting Started	ibm.portal.Home.Getting Started	Active
Features	ibm.portal.home.Features	Active
FixIt	id:Z6_421FGT46I87Q60I6G40TJO20G0	Active

Page 1 of 1

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Figure 5-19. Create a page hierarchy

WPL951.0

Notes:

Clicking **Create Page From** on the Manage Pages window takes you to the Page Properties page. At a minimum, creating a page from a template requires a title, as noted by the **Title** field in the Page Properties window. A template should be selected, but if one is not selected, the page that is created is the WebSphere Portal default page.

Changing page properties after creation

- Two options:
 - Option 1: Click the **Properties** icon.
 - Option 2: Go to the page and click **Edit Page Properties** on the Page menu.
- In the Advanced options section of the portlet properties form:
 - Create a list of allowed portlets for this page.
 - Set international titles and descriptions.
 - Set page parameters.
 - Create and map visibility rules.

Advanced options

[This page has a list of allowed portlets.](#)

[I want to set titles and descriptions.](#)

[I want to set parameters.](#)

Control Display through Rule Mapping

Show or Hide page rule: No rule mapped ▾

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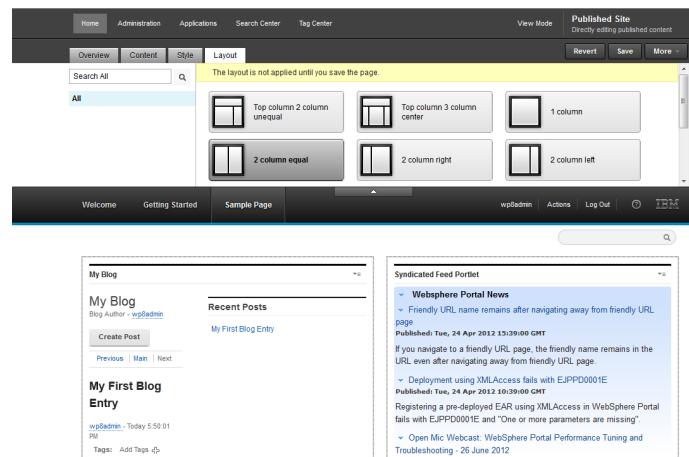
Figure 5-20. Changing page properties after creation

WPL951.0

Notes:

Page layout customization

- Use the Content tab to do the following tasks:
 - Customize the column layout.
 - Change the column layout.
 - Add portlets.
- You can limit column width based on pixels or percentage basis.
- You cannot limit the vertical display height of a portlet or page.



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Figure 5-21. Page layout customization

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Notes:

Page layout can be as simple or complex as you choose. In most cases, the best layout is the simplest one. In addition to the provided page layouts, you can customize the layout to add rows and columns. You can limit the column width based on pixels or percentage.

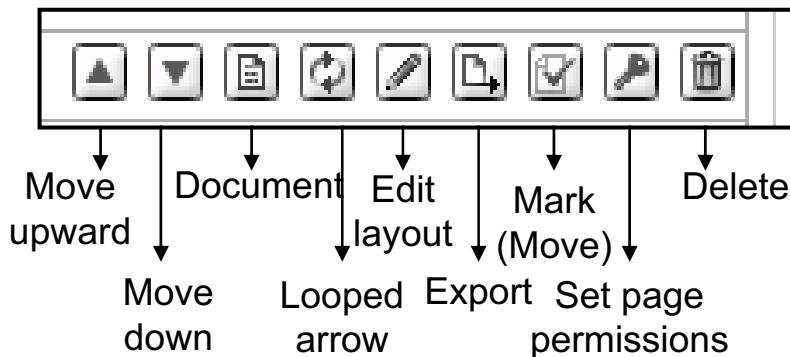
Remember that you cannot limit vertical display length of a portlet or page.

On the Change Layout tab, you can take the following actions:

- Customize the column layout by using the Show layout tools.
- Change the column layout by using the Column icons.
- Add portlets by clicking **Add portlets**.

Manage Pages portlet icons

- Each page on the Manage Pages portlet is listed with a row of icons.



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Figure 5-22. Manage Pages portlet icons

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Notes:

Each page on the Manage Pages portlet has a series of icons to edit page settings.

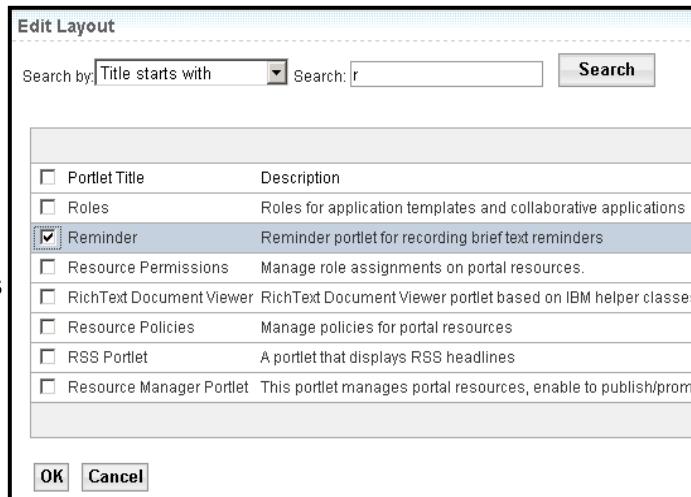
Looking at this figure, from left to right, the first two icons manage the placement of the node in its relationship to other sibling nodes. The third icon, the Document icon, enables you to edit the node properties. You might see a fourth icon, a “looped arrow” icon. This icon, if shown, indicates that the page is based on a page template.

The remaining icons are **Edit Layout**, **Export**, **Mark** (meaning prepare to move the page elsewhere in the portal node hierarchy), **Set Page Permissions**, and **Delete** icons.

After you select an option to edit the page layout, you can click **Show Layout Tools** to view the layout tools.

Layout and portlets

- Portlets are applications that adhere to a specification such that they operate within the WebSphere Portal container.
 - Administrators deploy and manage these small applications.
 - After the portlets are available to WebSphere Portal, a portlet's content will be rendered when the portlet is placed on a page.
- Portlets can be added by clicking **Add portlets** after a page is placed in Edit Layout mode.



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Figure 5-23. Layout and portlets

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Notes:

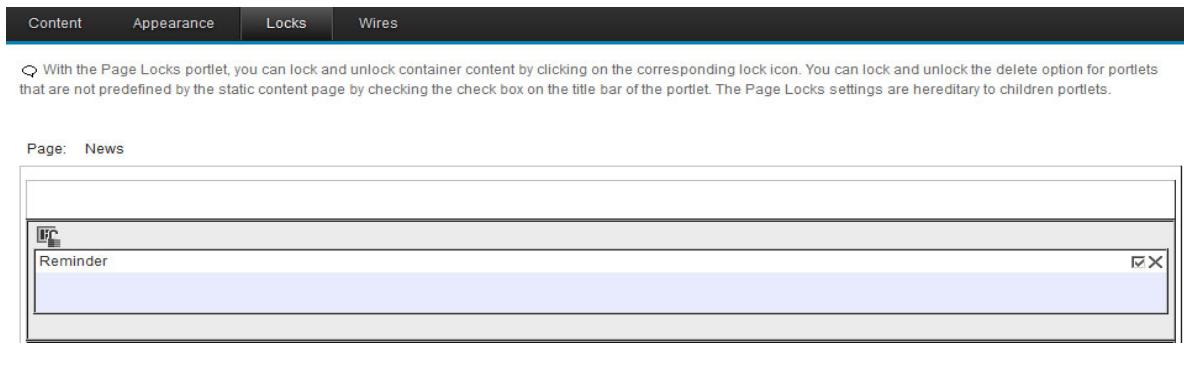
Examples of the specifications that WebSphere Portal supports are JSR 286 and the older standard, JSR 168.

You select how you want to search for the portlets by using the Search by field. The portlets are not shown in any particular order when using this option.

Select the portlet or portlets that you want to display on a page and click **OK**.

Locking containers, portlets, and content

- In some cases, designers and administrators might need to protect some page elements from being modified or deleted.
- Locking rules
 - Locking the container content prevents portlets from being modified.
 - Locking a portlet prevents it from being deleted.
- Containers and their content can be protected by using the **Locks** tab when editing a page's layout.



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Figure 5-24. Locking containers, portlets, and content

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Notes:

Allowing some users the ability to customize pages provides them with a sense of “ownership” in the portal. You can lock containers and the container content of key areas to retain necessary control.



Information

Remember the following points about portlets:

- Placing a portlet on a page creates a unique portlet instance.
 - Customize each portlet instance uniquely.
 - Deletion of a portlet instance causes unrecoverable loss of customizations.
- Lock container content to prevent users from adding portlets to pages.
Locking container content might cause performance issues on pages.
- Restrict portlets that can be placed on a page.

Managed pages overview

- You can create content pages quickly right in the portal site context.
- Using page templates, you can:
 - Create portal pages that are ready for content
 - Drop web content onto the page from the site toolbar
 - Drop wikis, blogs, articles, and other content directly onto the new page
- You can create child or sibling pages in one step.
- IBM Web Content Manager library syndication can now be used to move portal page changes between environments.

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Figure 5-25. Managed pages overview

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Notes:

Managed pages brings portal page and web content management closer together.

As you create pages, you define the navigation structure and page hierarchy.

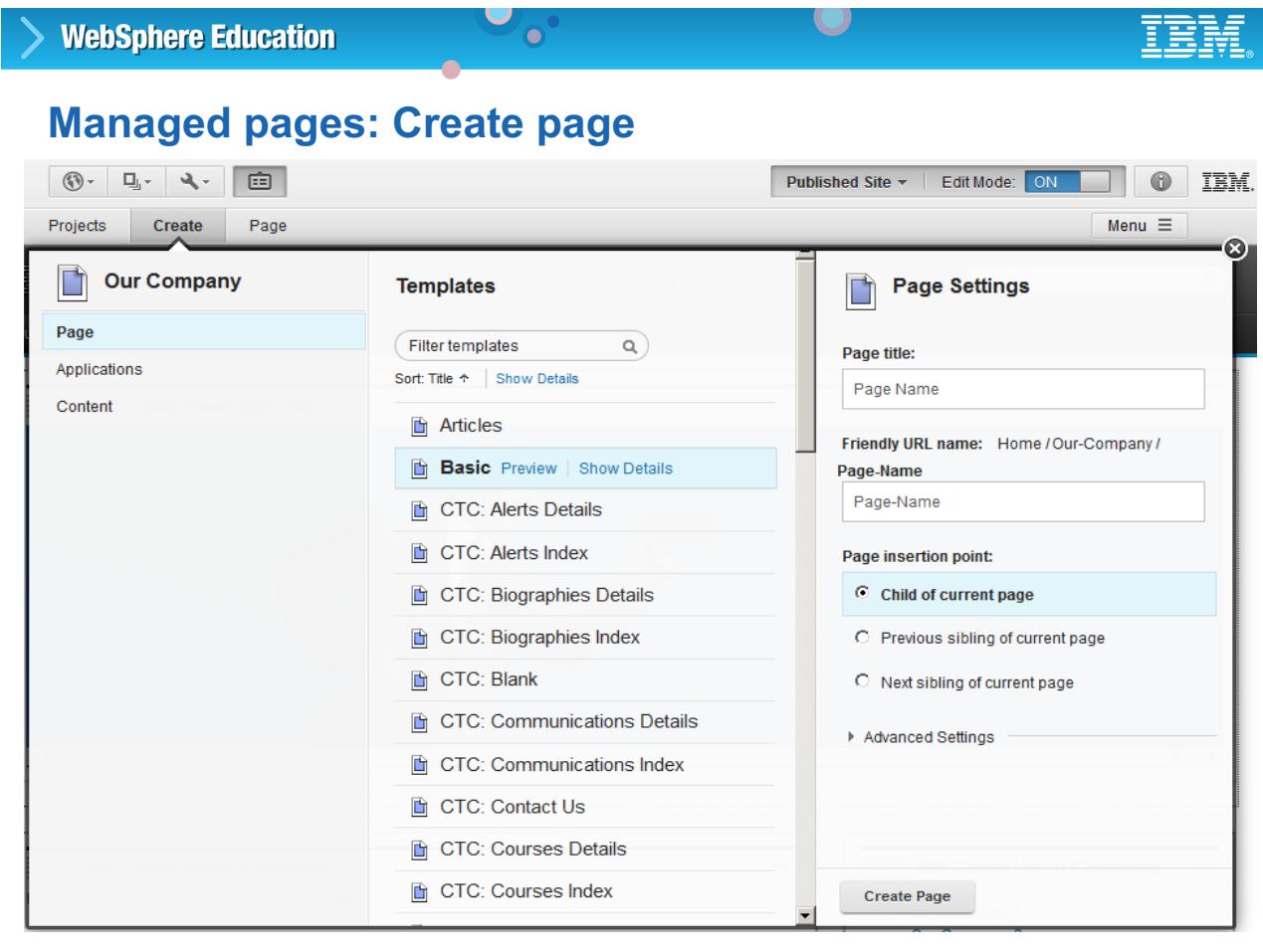


Figure 5-26. Managed pages: Create page

WPL951.0

Notes:

You can create pages that are children or sibling that appear immediately before or after the current page in the navigational hierarchy. Any page template that is defined on the current server can be used.

Creation of new pages by means of on-page menus has been available since version 7. Version 8.5 adds more flexibility and the ability to set more page properties.

The screenshot shows the WebSphere Education interface. At the top, there's a blue header bar with the 'WebSphere Education' logo on the left and the IBM logo on the right. Below the header, the title 'Managed pages: Edit page properties' is displayed in a large, bold, blue font. The main area is a dialog box titled 'Our Company'. On the left, there's a sidebar with tabs for 'General', 'Layout', 'Style', and 'Vanity URLs'. The 'General' tab is selected. The main content area has two tabs: 'Basic' (selected) and 'Details'. Under 'Basic', there are fields for 'Location' (Content Root > Home), 'Project' (None), 'Page URL' (/wps/myportal/Home/Our-Com...), 'Vanity URL' (None), 'Page Properties', 'Theme' (Portal 8.5 (Inherited)), and 'Profile' (Content Authoring (Inherited)). Under 'Details', there are fields for 'Edits and Updates' (Updated: Jul 24, 2014, 5:19 PM - wpsadmin, Created: Jul 24, 2014, 5:19 PM - wpsadmin, Author: wpsadmin) and 'Contents and Templates' (Default site area: Our Company, Default content: Our Company, Current content: Default, Page template: Section, Workflow: None). The dialog box has a 'Delete' button in the top right corner. The top of the dialog box also has buttons for Published Site, Edit Mode (ON), and a help icon.

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Figure 5-27. Managed pages: Edit page properties

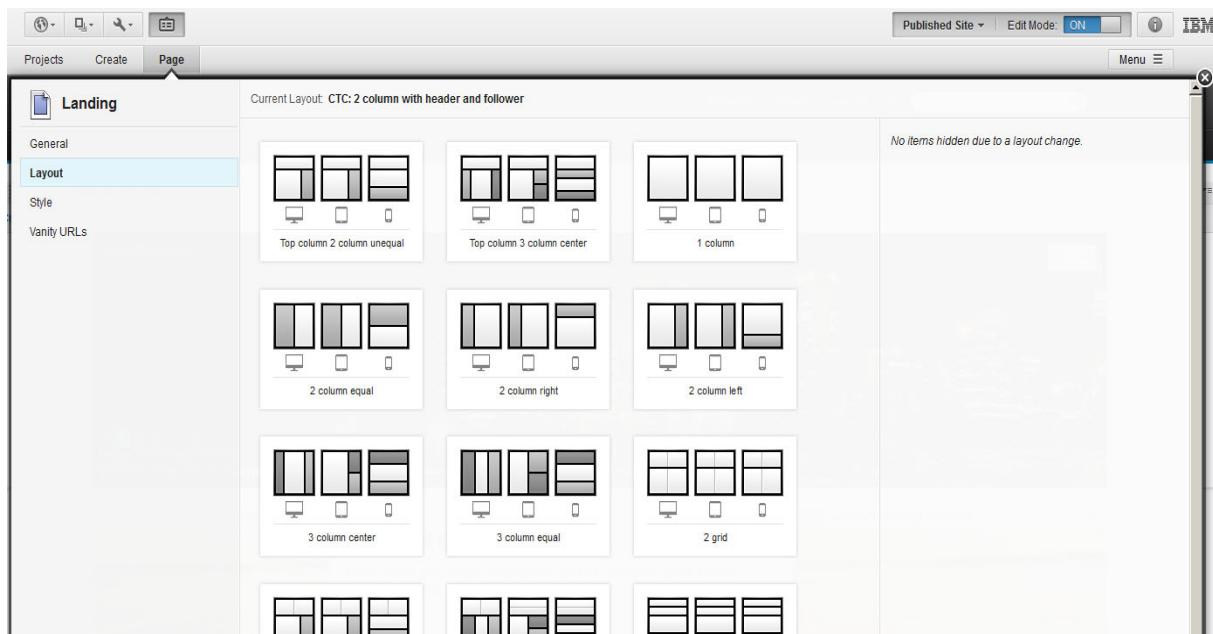
WPL951.0

Notes:

In Portal 8.5, most page properties can now be edited from the on-page dialogs. In Portal 8.0, few page properties could be edited from the on-page dialogs. Portal versions before 8.0 do not support any on-page editing of page properties.



Managed pages: Edit page layout



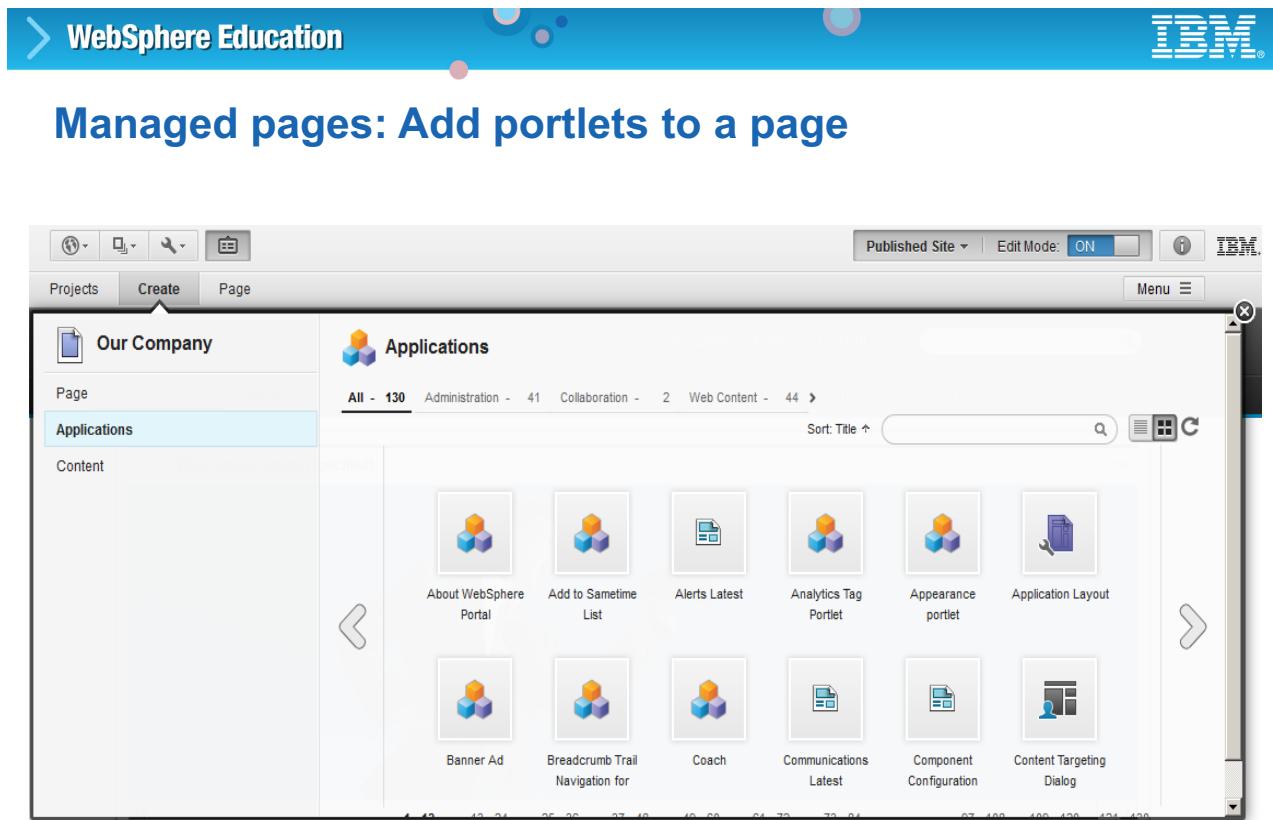
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Figure 5-28. Managed pages: Edit page layout

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Notes:

Changing a page layout by means of on-page menus, for Static Layout pages, has been available since version 7. Version 8.5 adds more flexibility and features layout with a responsive design.



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Figure 5-29. Managed pages: Add portlets to a page

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Notes:

Adding portlets to pages by means of on-page menus has been available since version 7. Version 8.5 has an updated user interface.

Unit summary

Having completed this unit, you should be able to:

- Navigate the WebSphere Portal administrative interface
- Explore some concepts: page, label, and nodes
- Design an effective page hierarchy
- Create a page and a page hierarchy
- Manage page properties and layouts

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Figure 5-30. Unit summary

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Notes:

Checkpoint

1. What are the two primary node types in the WebSphere Portal page hierarchy?
2. What are the differences?

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Figure 5-31. Checkpoint

WPL951.0

Notes:

Write your answers here:

- 1.
- 2.

Checkpoint answers

1. What are the two primary node types in the WebSphere Portal page hierarchy?

Answer: Pages and labels.

2. What are the differences?

Answer:

- Pages and labels are known as container nodes.
- Only a page can serve as a content container.
- Pages are both container nodes and content nodes.
- Labels are also container nodes but they are not content nodes.

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Figure 5-32. Checkpoint answers

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Notes:

Exercise 4



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Figure 5-33. Exercise 4

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Notes:

Exercise objectives

At the end of this exercise, you should be able to:

- Start and stop the portal
- Log in to the portal
- Create a user ID through the sign-up process
- Explore the structure of the portal Administration area
- Create a page on the portal and place a portlet on it

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Figure 5-34. Exercise objectives

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Notes:

Unit 6. Deploying portlets

What this unit is about

This unit explains how to deploy portlets.

What you should be able to do

After completing this unit, you should be able to:

- Deploy portlet applications
- Manage deployed portlets

Unit objectives

After completing this unit, you should be able to:

- Deploy portlet applications
- Manage deployed portlets

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Figure 6-1. Unit objectives

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Notes:

Topics

- Portlet deployment
- Page hierarchy and portlets

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Figure 6-2. Topics

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Notes:

6.1. Portlet deployment

This topic describes three portal deployment methods, two types of environments, the use of web modules, and how to configure portlets.

Portlet deployment



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Figure 6-3. Portlet deployment

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Notes:

Three ways to deploy portlets

- Portlets can be deployed in three ways.
 1. Manage Web Modules portlet
 - > A web application archive (WAR file) is deployed directly to the portal server where it is registered and installed as an EAR file.
 2. XML Access approach
 - > This approach presumes that the portlets are already installed on a source portal server from which the XML Access file can be exported.
 3. Predeployment approach
 - > This approach employs the XML Access interface, and is used if a portlet is dependent on other Java Platform, Enterprise Edition resources, such as Enterprise JavaBeans (EJB).

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Figure 6-4. Three ways to deploy portlets

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Notes:

Developers create *portlets* as web applications that are grouped in a portlet application, where the deployment unit is a *web archive (WAR)*. These applications are written to one of several portlet APIs. The preferred API is the standard portlet specification, JSR 286. Two older specifications are JSR 168 and the proprietary IBM portlet API. The developer provides the WAR file to the portal administrator for deployment. Other portlet sources include the IBM portal catalog and third-party vendors.

Regardless of the source of the portlet, you can deploy portlets in one of three ways. Two methods employ the XML scripting interface, XML Access, and the third method employs a graphic interface, the Manage Web Modules portlet.

In the *Manage Web Modules portlet* approach, a web application archive (WAR file) is deployed directly to the portal where it is registered and installed, by WebSphere Portal, as an EAR file.

One approach employs the XML scripting interface, XML Access. The scripting interface is an alternative that is frequently used in release management for updating a production environment such that changes introduced in a staging environment are deployed. Web modules, the web archive that contains portlets must be deployed to the target system before execution of the XML Access script.

The other approach for employing the XML Access interface can be related to a portlet's dependency on other Java Platform, Enterprise Edition resources, such as Enterprise JavaBeans (EJB). This approach is described as *predeployment*. The WebSphere Application Server administrator installs an enterprise application (EAR) to the application server in a predeployment scenario. The portlet or portlets are then registered with the portal by using XML Access. This approach can be described as ISC + XML Access. The former is required to properly configure the enterprise Java components. The latter is required to register the module's portlets with the WebSphere Portal Server.

The initial phase of the portlet deployment is the same whether the portal environment is clustered or stand-alone. The difference is in the need to leave time for the distribution of the portlet binary files across the members of the cluster before enabling the portlet and making it available to the user community.



Stand-alone environment

- When a web module (WAR) file is uploaded to the WebSphere Portal:
 - A single WebSphere Portal instance registers portlets, pages, and other WebSphere Portal resources in the Release portal database
 - The WAR file is “wrapped” in an enterprise archive module (EAR) file and WebSphere Portal deploys it to the underlying application server
 - The portlet or portlets are started immediately

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Figure 6-5. Stand-alone environment

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Notes:

Clustered environment

- In a clustered environment, the administrator can select any WebSphere Portal instance.
 - A WebSphere Portal instance registers portlets, pages, and other WebSphere Portal resources in the Release portal database.
- When the WebSphere Portal instance wraps the web module as an EAR, the source binary files are:
 - Not installed directly into the member
 - Installed to the cluster as a group
- The Deployment Manager and the node agents manage this task.

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Figure 6-6. Clustered environment

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Notes:



Using the Manage Web Modules portlet

- Left-side navigation bar on the Administrative pages:
 - From the Portlet Management menu, select Web Modules.
 - The Manage Web Modules portlet is then displayed.
 - A blank status means that the portlet is running OK.

Name	API Type	Status
PortalLogViewer.war	JSR 168	
reminder.war	IBM API	
login.war	JSR 168	
selfCare.war	JSR 168	
wsrpproxy.war	JSR 286	
WelcomePortlet.war	IBM API	
sitemap.war	JSR 168	
portletWiring.war	IBM API	
PortletManager.war	IBM API	
ManageWebservices.war	IBM API	

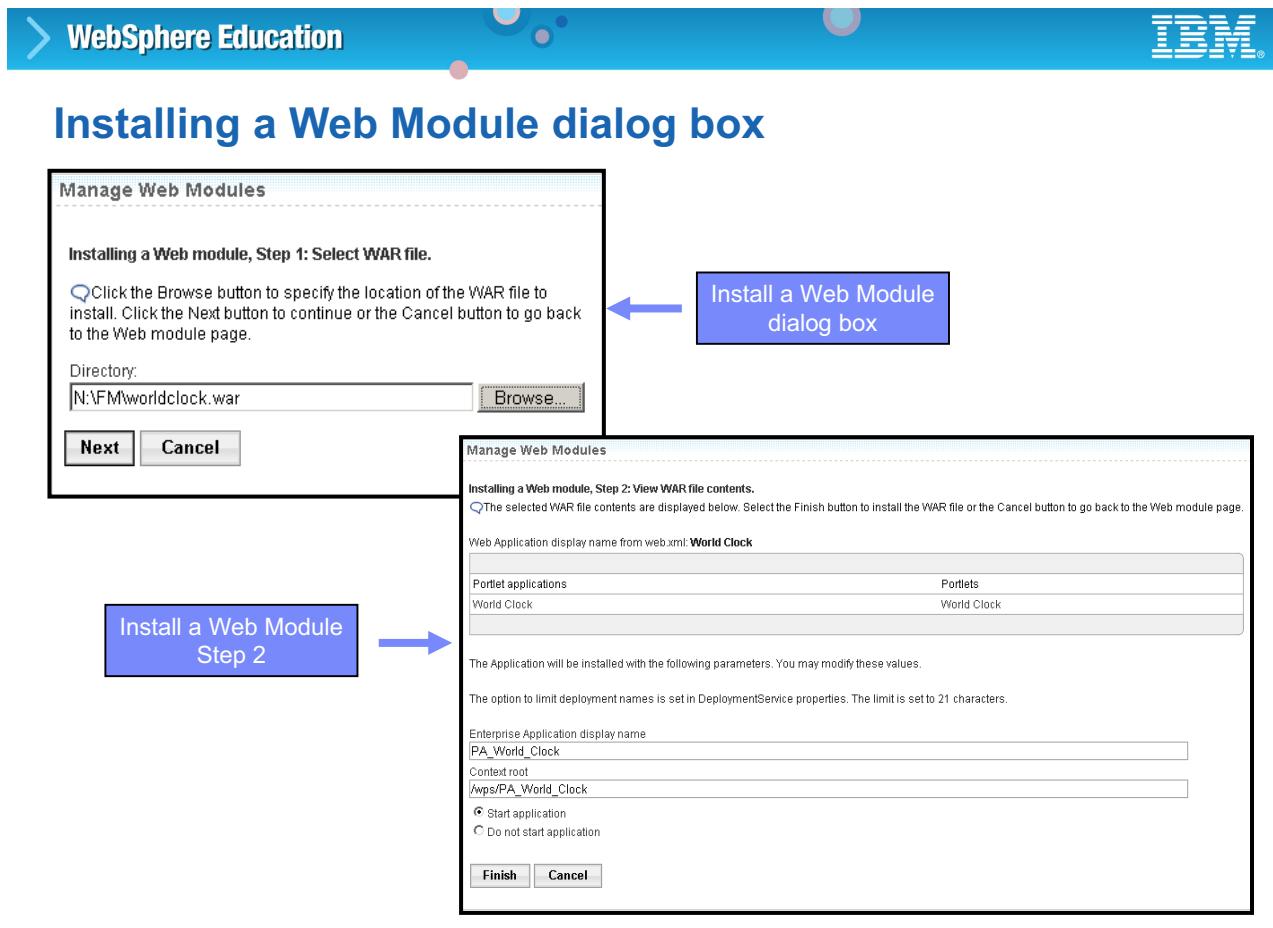
Figure 6-7. Using the Manage Web Modules portlet

WPL951.0

Notes:

The graphical administrative interface for portlet deployment is the Manage Web Modules portlet. On the left navigation bar, expand **Portlet Management > Web Modules**.

After a portlet is deployed, the portlet application is displayed in the list of portlets that are available to the portal. The application status is displayed in the web modules listing. The application is started if the Status column is blank.



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Figure 6-8. Installing a Web Module dialog box

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Notes:

Clicking Install from above the list of web modules opens the window for uploading the web module. You must provide the full path and file name of the module that you are attempting to install. The right side of this figure illustrates the deployment options of display name, context root and whether the portlet should be started immediately after deployment.



Configuring portlets

- Each portlet has one set of parameters, which are configurable by an administrator.
- Use the Configure Portlet icon.
- The developer sets up read-only preferences.

Title	API Type	Unique name	Provided	Remote portlet	Status
Portlet Wiring Tool	IBM API	wps.p.Wiring			
Manage Web Modules	IBM API	wps.p.Portlet Manager			
Manage Portlets	IBM API	wps.p.Manage My Portlets			
Manage Applications	IBM API	wps.p.Manage My Portlet Applications			
Web Service Configuration	IBM API	wps.p.Manage Webservices			
Themes and Skins	IBM API	wps.o.Themes And Skins Manager			
Edit Layout	IBM API	wps.p.Content Layout			
Page Properties	IBM API	wps.p.Properties			
Manage Pages	IBM API	wps.p.Manage Pages			
Organize Favorites	IBM API	wps.p.Favorites			

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Figure 6-9. Configuring portlets

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Notes:

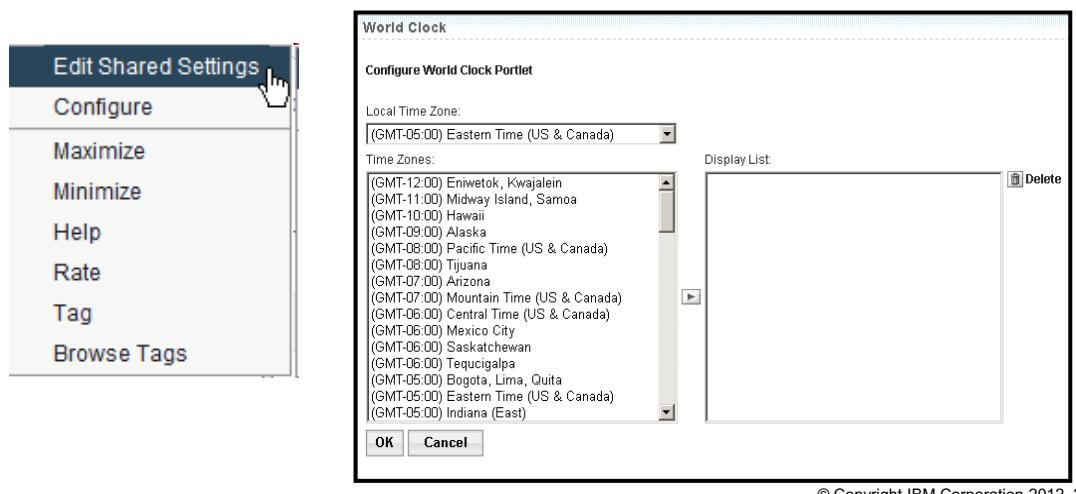
Developers can create portlets that are configurable by an administrator. For example, the administrator points the portlet to a specific database server or web service for its content.

Each portlet has one set of parameters, which an administrator can configure. The developer sets up read-only preferences.

If supported by the portlet, each placed instance of the portlet can have its own independent set of configuration parameters. These local configuration parameters can either be for all users of the portlet instance, or can even be individualized so each user can have their own configuration settings.

Setting shared settings

- Users with Editor privileges on a portlet can set default customization values for other users. (If the portlet offers this mode.)
- For example, a line-of-business application in which managers of each division prefer settings that are consistent with their region, such as setting the preferences for a World Clock portlet.



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Figure 6-10. Setting shared settings

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Notes:

A portlet that is displayed to a user can be switched to several customization modes. These modes include Personalize (Edit), Edit Shared Settings, and Configure. Which, if any, of these modes are available in the portlet menu depends on the modes that are written into the portlet code, whether the menu is available (defined by the skin), and by the user's role on the portlet such as User or Privileged User. This figure shows an example of the menu with the Edit Shared Settings option.

Skin: A **skin** is a presentation component that wraps portlets on a portal page. Skins and a related term, themes are covered in a later unit.

The portal supports further configuration by users in addition to the administrator configuration. Users with Editor privileges on a portlet can set default customization values for other users. An example might be a line-of-business application in which managers of each division prefer settings that are consistent with their region. Although it is not a line-of-business application, this figure shows how a user can set the preferences for a World Clock portlet.

6.2. Page hierarchy and portlets

This topic describes how you can transport a page hierarchy from one WebSphere Portal to another using the export and import process.

Page hierarchy and portlets



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10.1

Figure 6-11. Page hierarchy and portlets

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Notes:

Export and import



- Create page hierarchy
- Perfect it

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Figure 6-12. Export and import

WPL951.0

Notes:

You can propagate your page hierarchy from one portal to another through a simple export and import process. The most common way is to create a page hierarchy on your staging portal, perfect it, and then moving it to the production portal by using the export and import process.

With the export and import process, one can move pages and portlets with complete fidelity. Page hierarchies are exported by using XML Access. Two mechanisms are available to administrators: The export and import options on the Portal administration page, and the XML Access command-line tool.

Exporting a page hierarchy (1 of 2)

- Expand **Portal User Interface** on the Administrative page, and select **Manage Pages**.
- Find the top-level node of the tree you want to export, and click the Export icon.

Title	Unique name or Identifier	Status
Home	ibm.portal.Home	Active
Hidden Pages	ibm.portal.HiddenPages	Active
Administration	ibm.portal.Administration	Active
Applications	ibm.portal.page.Applications	Active
Page Customizer	ibm.portal.PageCustomizer	Active

Figure 6-13. Exporting a page hierarchy (1 of 2)

WPL951.0

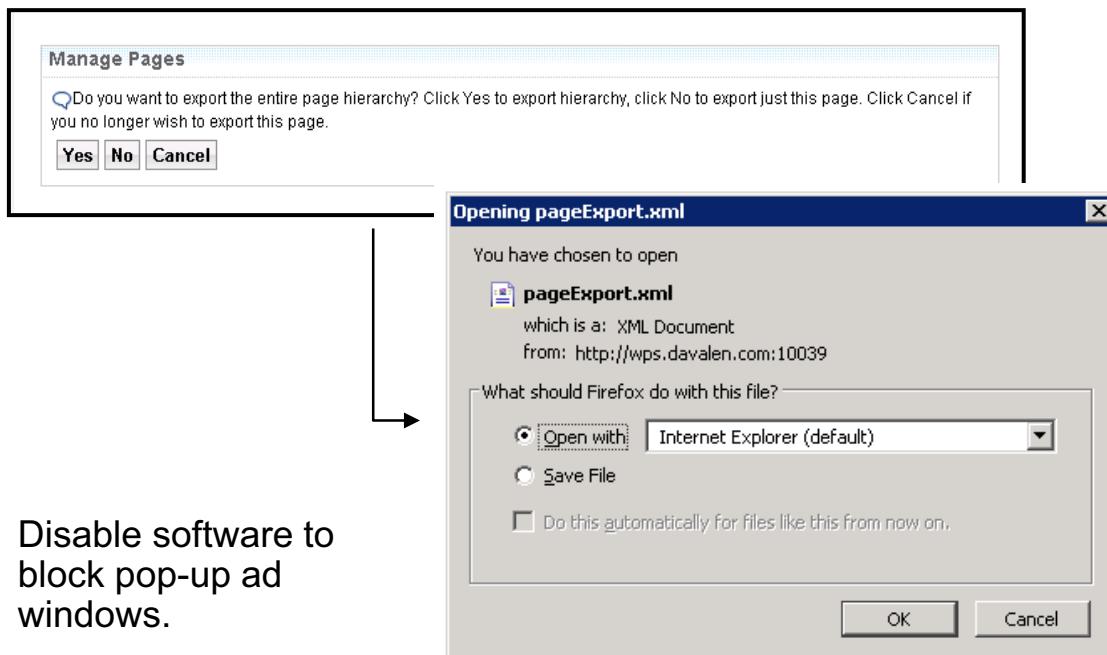
Notes:

With the export and import process, one can move pages and portlets with 100% fidelity. Page hierarchies are exported by using XML Access.

By exporting a page hierarchy, you can back up page layouts and transport to another system, for example, desktop development to a test server, test to staging, or staging to production.

The first and simplest means of exporting is to use the Manage Pages portlet. Under **Portal User Interface** on the Administrative Pages, and click **Manage Pages**. Navigate the portal page hierarchy until you find the top-level node of the tree that you want to export. Then, click the Export icon.

Exporting a page hierarchy (2 of 2)



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Figure 6-14. Exporting a page hierarchy (2 of 2)

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Notes:

When you click the **Export** icon, you are prompted to choose whether to export the entire page hierarchy or just the selected node. Click **Yes** to export the hierarchy or **No** to export just the selected node.

Then, you are prompted for a file name and location for storing the XML file that the export generates.

Remember to disable software that blocks pop-up ad windows; otherwise, the browser cannot open the prompt.



Importing a page hierarchy

- To import a page, under **Portal Settings** in the left side navigator, select **Import XML**.
- Enter or browse for the required file, and click Import.

Import XML

Import XML Step 1 of 1: Browse for XML File

Click the Browse button to specify the location of the XML file to import. Click the Import button to import the specified XML file. For more information, click Help.

Directory:

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Figure 6-15. Importing a page hierarchy

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Notes:

XML Access

- Users can use the XML Access scripting interface available from the command line of any WebSphere Portal instance in addition to the graphic interface that the Administration pages provide.
- An export command file must be composed to do an export by using XML Access.
- This file is passed to the scripting interface, and two files are generated as a result:
 - An Export file that contains exported data
 - A log of the export process that the XML Access scripting interface runs

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Figure 6-16. XML Access

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Notes:

You can use the XML Access scripting interface in addition to the graphic interface that the administration pages provide. The initial file can be manually written. It is much easier to export a file and then make any necessary edits.

The XML Access scripting interface is available from the command line of any portal instance. An export command file must be composed to do an export by using XML Access. This file is passed to the scripting interface, and two files are generated as a result. One file is the export file that contains the exported data, and the other file is a log of the export process that the XML Access scripting interface runs.

The result file of an export or a similar file can be passed to the scripting engine to import a page hierarchy by using the XML Access scripting interface. In this case, a log file is created indicating the status of the import.

Unit summary

Having completed this unit, you should be able to:

- Deploy portlet applications
- Manage deployed portlets

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Figure 6-17. Unit summary

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Notes:

Checkpoint

1. In what approaches can a portlet be deployed?
 - A. Predeployment approach
 - B. Manage Web Modules portlet only approach
 - C. XML Access approach

2. What level of privileges must a user have on a portlet to set default customization values for other users?
 - A. User
 - B. Privileged user
 - C. Editor

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Figure 6-18. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.

Checkpoint answers

1. In what approaches can a portlet be deployed?
 - Answer: A, B, and C
 - A. Predeployment approach
 - B. Manage Web Modules portlet only approach
 - C. XML Access approach
2. What level of privileges must a user have on a portlet to set default customization values for other users?
 - Answer: C
 - C. Editor

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Figure 6-19. Checkpoint answers

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Notes:

Exercise 5



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10.1

Figure 6-20. Exercise 5

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Notes:

Exercise objectives

At the end of this exercise, you should be able to:

- Deploy portlet applications

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Figure 6-21. Exercise objectives

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Notes:

Unit 7. WebSphere Portal security management

What this unit is about

This unit provides an introduction to portal security management.

What you should be able to do

After completing this unit, you should be able to:

- Define the portal resource security mechanism
- Explain security terminology
- Grant access to portal resources to users
- Implement security on pages
- Implement security on portlets
- Describe how Portal can be integrated with OpenID and OAuth

Unit objectives

After completing this unit, you should be able to:

- Define the portal resource security mechanism
- Explain security terminology
- Grant access to portal resources to users
- Implement security on pages
- Implement security on portlets
- Describe how Portal can be integrated with OpenID and OAuth

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Figure 7-1. Unit objectives

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Notes:



Topics

- Overview of role-based security
- Defining WebSphere Portal resources security mechanism
- Blocking role propagation and inheritance
- Access control settings
- Granting privileges
- Traversal
- Securing portal page hierarchy

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Figure 7-2. Topics

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Notes:

7.1. Overview of role-based security

This topic describes privileges, propagation, inheritance, and traversal.

Overview of role-based security



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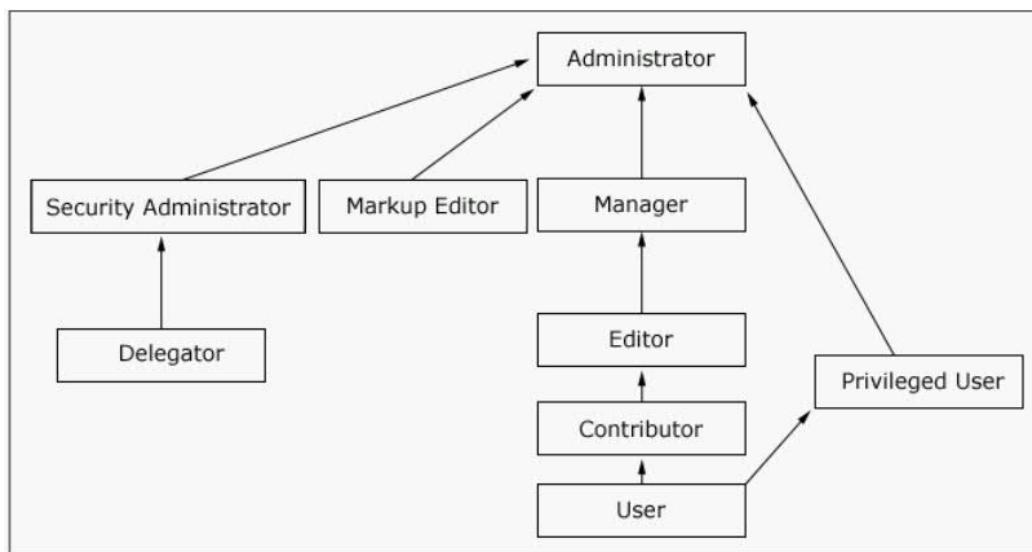
Figure 7-3. Overview of role-based security

WPL951.0

Notes:

Privileges

- Privileges are:
 - The capabilities by which a user can interact with WebSphere Portal resources, such as portlets and pages
 - Defined by the role type and its relationship with a resource



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Figure 7-4. Privileges

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Notes:

Roles provide permissions for users to perform specific operations on resources. For example, Editor is a role where users can view, modify, and create resources. Roles are denoted as Role@Resource; for example, Editor@Portal Page. Roles are organized in a hierarchy. Roles that are higher in the hierarchy generally include the permissions of roles that are lower in the role hierarchy. For example, to install Web Modules, the Editor role on the virtual resource Web Modules, Editor@Web Modules, is the minimum role assignment for this operation. The Manager role is higher in the hierarchy than the Editor role. For this reason, the Manager role includes the permissions of the Editor role. Manager@Web Modules also allows users to install Web Modules.

Roles and actions (1 of 2)

Administrator	<ul style="list-style-type: none">Has unrestricted access on resources, including creating, configuring, and deleting resources
Security Administrator	<ul style="list-style-type: none">Create and delete role assignments on resources
Delegator	<ul style="list-style-type: none">Assign the Delegator role to principals (users and groups), allow roles to be granted to them
Can Run as User (User impersonation)	<ul style="list-style-type: none">Allow users to view pages, portlets, and other portal components as another user
Manager	<ul style="list-style-type: none">Create new resources, and configure and delete existing resources that are used by multiple users

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Figure 7-5. Roles and actions (1 of 2)

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Notes:

Roles and actions (2 of 2)

Editor	<ul style="list-style-type: none">Create new resources and configure existing resources that are used by multiple users
Markup Editor	<ul style="list-style-type: none">Edit the HTML source for static portal pages
Contributor	<ul style="list-style-type: none">View portal content and creating new resources.This role does not include the permission to edit resources.
Privileged user	<ul style="list-style-type: none">View portal content, customize portlets and pages, create new private pages
User	<ul style="list-style-type: none">View portal content. For example, view a specific page
No role assigned	<ul style="list-style-type: none">Cannot interact with resource

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Figure 7-6. Roles and actions (2 of 2)

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Notes:

Resource hierarchy

- Access to a resource can be assigned explicitly on the resource or inherited from a parent resource.
- Inheritance / propagation is an essential means of managing user privilege.
- There are two mechanisms of hierarchical access:
 - Inheritance / Propagation
 - Traversal

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Figure 7-7. Resource hierarchy

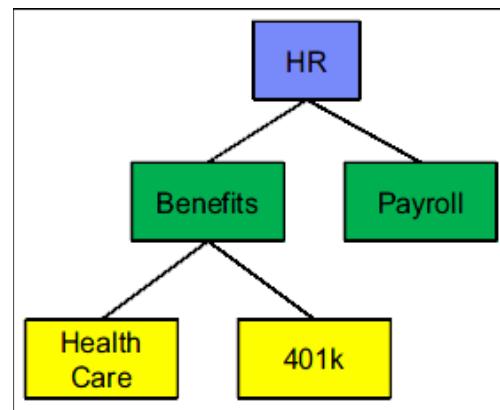
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Notes:

If user privileges were managed only by explicitly setting permissions for each resource, the effort, other than being tedious, is unmanageable. For this reason, inheritance / propagation is an essential means of managing user privilege.

Inheritance

- Inheritance assures that descendants derive their security settings from their parent.
 - If assigned to the *Privileged User* role on the HR label, by default, the user is implicitly granted the same privileges on all child nodes.
 - Explicit privileges supersede implicit privileges.
 - When a user is a member of two distinct roles on any resource such as *User* and *Privileged User*, the user gains the highest privileges available by the assignment.



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Figure 7-8. Inheritance

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Notes:

Inheritance assures the propagation of privilege so that descendants derive their security settings from their parent. For example, when assigning rights to the HR page, all child nodes inherit rights by default, which is illustrated in this figure.

This default behavior can be altered through inheritance blocking. A user's privilege does not necessarily extend to each child in a page hierarchy.

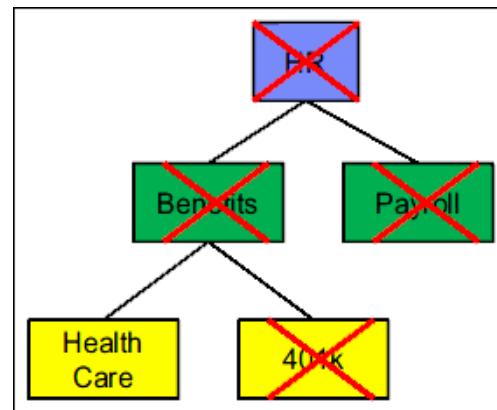
A well-designed page hierarchy simplifies security role assignments:

- If an administrator assigns a user group to the *Privileged User* role on the HR label, by default, the user is implicitly granted the same privileges on all child nodes.
- If the administrator assigns explicit privileges for the same user group or any members of that group, the explicit privileges supersede the implicit privileges.
- If a user is a member of two distinct roles on any resource, for example, *User* and *Privileged User*, the user gains the highest privileges available by the assignment.

It is possible that a user's privilege on some resources is blocked while other resources in the same page hierarchy are permitted.

Traversal

- Traversal is the ability to go to a page without having privileges on intermediate pages.
- For example, a user requires access to a page far down in the hierarchy, without having any privileges on pages in between.
- WebSphere Portal uses traversal to handle this scenario implicitly.
- The user sees a non-active link for all pages between the top of the hierarchy and the page where they have privileges.



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Figure 7-9. Traversal

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Notes:

Traversal is the ability to go to a page without having privileges on intermediate pages. This figure illustrates a typical scenario where a user has no privileges on HR, Benefits, Payroll, or 401k, but is a *Privileged User* on Health Care.

When defining a page hierarchy, circumstances might arise where a user requires access to a page far down in the hierarchy, without having any privileges on pages in between. WebSphere Portal uses *traversal* to handle this scenario implicitly.

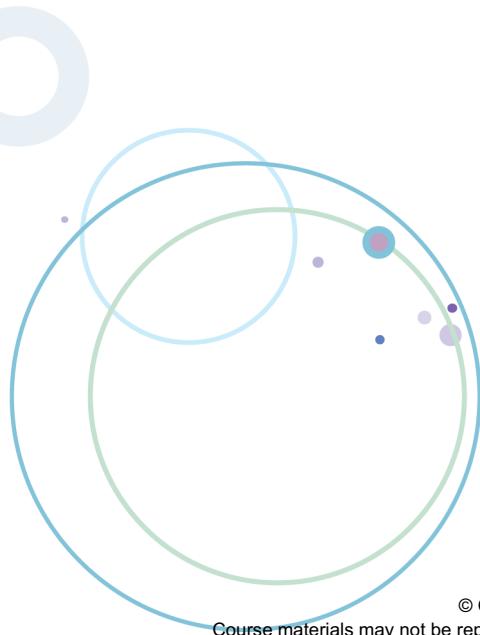
The user sees a non-active link for all pages between the top of the hierarchy and the page where they have privileges. The user does not see any content on the pages where the user does not have privileges. The page that is automatically displayed is the first one for which the user has explicit privileges.

Consider traversal from the perspective of role assignments. When users have access on resources, such as a Page, they receive implicit permission to go to those resources. This means a guaranteed ability to navigate through all parent resources of those resources. The parent resources show only their title to the user, while the corresponding resource content (such as the portlets on the page) remains inaccessible.

7.2. Defining WebSphere Portal resources security mechanism

This topic describes the WebSphere Portal resource security mechanism and exploring WebSphere Portal roles and resources.

Defining WebSphere Portal resources security mechanism



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10.1

Figure 7-10. Defining WebSphere Portal resources security mechanism

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Notes:

WebSphere Education

Defining the WebSphere Portal resource security mechanism

- Authorization implementation is done by assigning permissions to users based on specific predefined roles.
 - Authentication** is handled by IBM WebSphere Application Server security to determine who the user is.
 - Authorization** is handled by WebSphere Portal to determine what the user is allowed to do.

WebSphere Portal > Access > Resource Permissions

Resources	Assign Access	Unique name or Identifier
Content Root	<input type="button" value="Edit"/>	wps.content.root

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Figure 7-11. Defining the WebSphere Portal resource security mechanism

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Notes:

Users are assigned resource privileges through the Resource Permissions portlet.

Exploring the resources of WebSphere Portal

- Resources are the manageable assets of the WebSphere Portal.
- The most commonly managed resources are:
 - Pages
 - Portlets
- Other common resources include:
 - Page Templates
 - Web Content Libraries
 - Portal Search Collections
 - Web Modules

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Figure 7-12. Exploring the resources of WebSphere Portal

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Notes:

WebSphere Portal defines many different resources that require security role assignments. Resources are the manageable assets of the portal. The most commonly managed resources are *pages* and *portlets*.

7.3. Blocking role propagation and inheritance

This topic explores blocking role propagation and inheritance.

Blocking role propagation and inheritance



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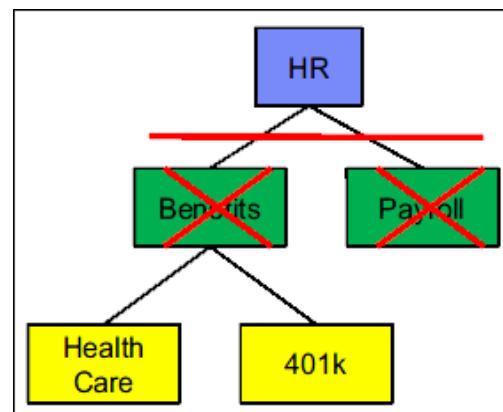
Figure 7-13. Blocking role propagation and inheritance

WPL951.0

Notes:

Blocking propagation

- Blocking propagation:
 - Disables the roles that should not propagate from parent to child
 - Prunes the branch below it
- For example, blocking propagation from the HR label does not affect propagation of privileges from the Benefits page to its children.



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Figure 7-14. Blocking propagation

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Notes:

The administrator can block the propagation of privileges from parent to child by disabling the roles that should not propagate. Blocking propagation effectively prunes the branch beneath it.

This figure illustrates how blocking propagation from the HR label does not affect the propagation of privileges from the Benefits page to its children, Health Care, and 401(k).

How to block all propagated rights

Resource Permissions

Human Resources

Roles	Allow Propagation	Allow Inheritance	Edit Role
Administrator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Security Administrator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Delegator	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Manager	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Editor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Privileged User	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
User	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Page 1 of 1

[Display/Modify Owner](#)

Apply **Done**

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Figure 7-15. How to block all propagated rights

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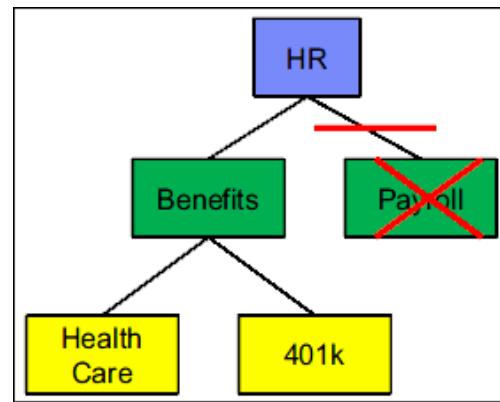
Notes:

In the Resource Permissions window, clear the **Allow Propagation** check boxes for all roles to block all propagated rights from HR to any child pages. *Administrator* and *Security Administrator* cannot be blocked. Also, apply explicit rights to the child pages. Health Care and 401k still inherit from Benefits, based on the window that is shown in this figure.

You must click **Apply** after changing the **Allow Propagation** or **Allow Inheritance** check boxes, or the changes will be lost.

Blocking inheritance

- Blocking inheritance allows more selective pruning of branches in the page hierarchy.
- In this example, you can alter inheritance on the payroll page to disallow inheritance from its specific parent, the HR label.



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Figure 7-16. Blocking inheritance

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Notes:

Blocking inheritance allows more selective pruning of branches in the page hierarchy. This figure shows how you can alter inheritance on the Payroll page to not allow inheritance from its specific parent, the HR label.



How to block inheritance

Resource Permissions

Payroll

Roles	Allow Propagation	Allow Inheritance	Edit Role
Administrator	✓	✓	<input type="button" value="Edit"/>
Security Administrator	✓	✓	<input type="button" value="Edit"/>
Delegator	✓	□	<input type="button" value="Edit"/>
Manager	✓	□	<input type="button" value="Edit"/>
Editor	✓	□	<input type="button" value="Edit"/>
Privileged User	✓	□	<input type="button" value="Edit"/>
User	✓	□	<input type="button" value="Edit"/>

Page 1 of 1

Display/Modify Owner

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Figure 7-17. How to block inheritance

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Notes:

In the Resource Permissions window, clear the **Allow Inheritance** check boxes for all roles to block all inherited rights from parent to Payroll. Again, *Administrator* and *Security Administrator* cannot be blocked. The children of Payroll still inherit from Payroll even after applying explicit rights to Payroll, as shown in this figure.

You must click **Apply** after changing the **Allow Propagation** or **Allow Inheritance** check boxes, or the changes will be lost.

7.4. Access control settings

This topic describes portal access control settings for pages and portlets.

Access control settings



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Figure 7-18. Access control settings

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Notes:

Virtual users and groups

- The WebSphere Portal defines the following specific virtual users/groups for security role assignments:
 - The **Anonymous Portal User** matches all users who are not yet logged in to WebSphere Portal (unauthenticated)
 - The **All Authenticated Portal Users** group is composed of all WebSphere Portal users who are logged in to the WebSphere Portal.
 - The **All Portal User Groups** is a super group that is composed of all authenticated users who are members of any non-virtual group.

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Figure 7-19. Virtual users and groups

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Notes:

Initial access control settings - portlet

- The only user who has privileges on a newly deployed portlet is the user that deployed it.
- To deploy a portlet, a user must be a member of the Manager role on the virtual resource, WebSphere Portal.
- To allow a user to customize a portlet, that user must be granted *Privileged User* privileges on the portlet application or portlet.
- Guidelines for defining user default rights on the portlet:
 - Deploying a new portlet application provides rights to the deployer
 - Portlet instances inherit role assignments from the portlet application
 - Average users have no rights on administrative portlets
 - All authenticated WebSphere Portal users have the Privileged User role on most other portlets

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Figure 7-20. Initial access control settings - portlet

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Notes:



Initial access control settings - page

- Guidelines when defining user default rights on pages:
 - A newly created page inherits rights from its parent.
 - Users have Privileged User rights on the home page. All child pages inherit these rights.
 - Users can: (These changes are personal customizations)
 - Edit the page layout
 - Create private pages
 - Add, move, and delete portlets.
 - Customize portlets.
 - Create and delete portlet wires
 - Grant page access rights in the same way as portlet rights.

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Figure 7-21. Initial access control settings - page

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Notes:

7.5. Granting privileges

This topic outlines the steps to grant portlet privileges.

Granting privileges



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10.1

Figure 7-22. Granting privileges

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Notes:

Granting privileges to a portlet (1 of 8)

- Portlet instances inherit privileges from their portlet applications.
- You can:
 - Block propagation
 - Make explicit role assignments

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Figure 7-23. Granting privileges to a portlet (1 of 8)

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Notes:

Portlet instances inherit privileges from their portlet applications, similar to how pages inherit privileges from their parent pages. You can block propagation from the application to the portlet, and you can make explicit role assignments to the portlet.

The next item is to look at the steps to follow when granting privileges.

Granting privileges to a portlet (2 of 8)

- Steps to follow to grant privileges to a portlet:
 - Step 1. Click the **Administration** link.
 - Step 2. Click **Portlet Management > Portlets**.
 - Step 3. Search for the portlet.
 - Step 4. In the Manage Portlets window, click the **Assign access to portlet** link ().
 - Step 5. In the Resource Permissions window, click the **Edit Role** icon that is next to the required privilege level.
 - Step 6. Click **Add** to add a group or user.
 - Step 7. From the **Search for Users or User Groups** list, select **Users or Groups**.
 - Step 8. Continue adding users or user groups by clicking **Add**.

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Figure 7-24. Granting privileges to a portlet (2 of 8)

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Notes:

These steps are explained in the next slides.

Granting privileges to a portlet (3 of 8)

- Step 1. Click the **Administration** link.
- Step 2. Click **Portlet Management > Portlets**.
- Step 3. Search for the portlet.
- Step 4. In the Manage Portlets window, click the **Assign access to portlet** link.

The screenshot shows the 'Manage Portlets' interface. At the top, there is a search bar with 'Search by: Title starts with' and a dropdown menu, followed by a search input field containing 'Worl' and a 'Search' button. Below the search bar, a message reads: 'Portlets Click Copy to create a duplicate of the portlet. Click Configure to set titles, descriptions and parameters. Click Delete to remove the portlet from your portal. Click Assign Access to allow others to work with the portlet.' A table lists portlets with columns: Title, API Type, Unique name, Provided, Remote portlet, and Status. The first row shows 'World Clock' as an 'IBM API'. To the right of the table are several icons: a gear, a copy symbol, a pencil, a delete symbol, and a key symbol. The key symbol is highlighted with a red box. At the bottom of the table, it says 'Page 1 of 1'.

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Figure 7-25. Granting privileges to a portlet (3 of 8)

WPL951.0

Notes:

Granting privileges to a portlet (4 of 8)

- Step 5. In the Resource Permissions window, click the **Edit Role** icon that is next to the required privilege level.

The screenshot shows a 'Resource Permissions' window for a 'World Clock' portlet. The window has a header 'Resource Permissions' and a sub-header 'World Clock'. It displays a table of roles and their inheritance status. The 'Edit Role' column, which contains icons for each role, is highlighted with a red box. The table data is as follows:

Roles	Allow Inheritance	Edit Role
Administrator	✓	
Security Administrator	✓	
Delegator	✓	
Manager	✓	
Editor	✓	
Privileged User	✓	
User	✓	

Page 1 of 1

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Figure 7-26. Granting privileges to a portlet (4 of 8)

WPL951.0

Notes:

Granting privileges to a portlet (5 of 8)

- Step 6. Click **Add** to add a group or user.

The screenshot shows the 'Resource Permissions' interface for the 'World Clock' portlet. At the top, a message box displays 'EJPA04008W: No members found in the role.' Below this, a button labeled '+ Add' is highlighted with a red box. The main content area is titled 'World Clock > Privileged User'. It contains a table with three columns: 'Members in the Role', 'Delete Member from Role', and 'Inherited'. The table body states 'There are no entries to display.'

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Figure 7-27. Granting privileges to a portlet (5 of 8)

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Notes:



Granting privileges to a portlet (6 of 8)

- Step 7. From the Search for Users or User Groups list, select Users or Groups.

Resource Permissions

Search for Users or User Groups: **User Groups**

Search by: **All available**

[World Clock](#) > [Privileged User](#) > Add Role Members

Page 1 of 1	
<input type="checkbox"/>	Users and User Groups
<input type="checkbox"/>	All Authenticated Portal Users
<input type="checkbox"/>	All Portal User Groups
<input checked="" type="checkbox"/>	Clock Watchers
<input type="checkbox"/>	wpsadmins

Page 1 of 1

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Figure 7-28. Granting privileges to a portlet (6 of 8)

WPL951.0

Notes:

Granting privileges to a portlet (7 of 8)

- Step 8. Continue adding users or user groups by clicking **Add**.

The screenshot shows the 'Resource Permissions' interface. At the top, a message box displays: 'EJPAO4003I: Members successfully added to the role.' Below this, a red box highlights the '+ Add' button. The main content area is titled 'World Clock > Privileged User'. It shows a table with three columns: 'Members in the Role', 'Delete Member from Role', and 'Inherited'. Under 'Members in the Role', it lists 'Clock Watchers'. Under 'Delete Member from Role', there is a delete icon. At the bottom of the page, a footer indicates 'Page 1 of 1'.

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Figure 7-29. Granting privileges to a portlet (7 of 8)

WPL951.0

Notes:

Note the Members that are successfully added to the role message – Clock Watchers in this case.



Granting privileges to a portlet (8 of 8)

A screenshot of the IBM WebSphere Portal interface. At the top, there's a navigation bar with a magnifying glass icon and the text "Search". Below it is a banner with the text "IBM WebSphere Portal". The main content area features a "World Clock" portlet. Inside the portlet, the local time is shown as "5:13 PM Eastern Time (US & Canada) - 7/16/08". A "Time Zone" section lists "Hawaii" and "Alaska" with their respective times: "11:13 AM (7/16/08)" and "1:13 PM (7/16/08)". There's also a "Quick Search" input field with a dropdown arrow and a search icon. Below the portlet is a "Reminder" section with the date "Wednesday, July 16, 2008" and the message "No reminders found". A context menu is open on the right side of the portlet, with "Personalize" as the top item. Other options in the menu include "Minimize", "Maximize", "Move Down", "Delete", and "Help".

Local Time:
5:13 PM Eastern Time (US & Canada) - 7/16/08

Time Zone

Hawaii	11:13 AM (7/16/08)
Alaska	1:13 PM (7/16/08)

Quick Search:

Reminder

Wednesday, July 16, 2008
No reminders found

Personalize

- Minimize
- Maximize
- Move Down
- Delete
- Help

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Figure 7-30. Granting privileges to a portlet (8 of 8)

WPL951.0

Notes:

This figure shows the results.

Granting different privileges on a single portlet (1 of 3)

- Privileges are assigned to portlets not portlet instances.
 - Placing the same portlet on multiple pages does not affect user privileges for the portlet.
 - To have different privileges on portlet instances, you must create a copy of the portlet and set the different permissions on the two copies.
-
- Steps to follow to set different privileges on a portlet:
 - Step 1. In the Manage Portlets window, click the **Copy the portlet** icon ().
 - Step 2. Assign the appropriate rights to the copy.

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Figure 7-31. Granting different privileges on a single portlet (1 of 3)

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Notes:

These steps are explained in the next slides.

WebSphere Education

IBM

Granting different privileges on a single portlet (2 of 3)

- Step 1. In the Manage Portlets window, click the **Copy the portlet** icon.

The screenshot shows the 'Manage Portlets' interface. At the top, there's a search bar with 'Search by: Title starts with' dropdown set to 'Title starts with' and a search input field containing 'Worl'. A 'Search' button is to the right. Below the search bar, a message says: 'Portlets Click Copy to create a duplicate of the portlet. Click Configure to set titles, descriptions and parameters. Click Delete to remove the portlet from your portal. Click Assign Access to allow others to work with the portlet.' A table lists portlets:

Title	API Type	Unique name	Provided	Remote portlet	Status
World Clock	IBM API				

Below the table are several icons: a gear, a copy icon (highlighted with a red box), a pencil, a trash can, and a key. The text 'Page 1 of 1' is at the bottom of the table and the page.

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Figure 7-32. Granting different privileges on a single portlet (2 of 3)

WPL951.0

Notes:



Granting different privileges on a single portlet (3 of 3)

- Step 2. Assign the appropriate rights to the copy.

Manage Portlets

Copy portlet

A new portlet application will be created when you make a copy of a portlet. The copied portlet will be associated with the new portlet application that gets created. Please provide a name for the new portlet application and a name for the portlet that is being copied.

Please provide the new name for the portlet application World Clock:

Please provide the new name for portlet World Clock:

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Figure 7-33. Granting different privileges on a single portlet (3 of 3)

WPL951.0

Notes:

Analyzing role interactions on pages and portlets

- A user cannot customize the portlet if a user has Privileged User privileges on the portlet and only User privileges on the page.
 - When a user has rights, the user sees a “Personalize” option in the menu.
 - In this example, the user does not have the rights to change the page or portlet; hence the Personalize option is not displayed.



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Figure 7-34. Analyzing role interactions on pages and portlets

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Notes:

Certain interactions exist between privilege settings even though privileges are not inherited between a page and a portlet. The user cannot customize the portlet if a user has *Privileged User* privileges on the portlet and only *User* privileges on the page.

When the user has rights, the user sees a Personalize option on the menu. However, because the user does not have the rights to change the page or portlet, the Personalize option is not displayed, as you can see in the menu that is shown in this figure.

7.6. Traversal

This topic describes traversals and presents a typical traversal scenario.

Traversal



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Figure 7-35. Traversal

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Notes:

The need for traversal

- Traversal is the ability to go to a page without having privileges on intermediate pages.
- The need for traversal
 - In defining a page hierarchy, there might be circumstances where a user requires access to a page far down in the hierarchy, without having any privileges on pages in between.

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Figure 7-36. The need for traversal

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Notes:

The screenshot shows the IBM WebSphere Education portal interface. At the top, there's a blue header bar with the 'WebSphere Education' logo on the left and the 'IBM' logo on the right. Below the header, the main content area has a title 'Traversal – HR scenario'. The interface features a navigation bar with tabs: Home, Human Resources (which is selected), Getting Started, Web 2.0 Introduction, and Feeds. Below the navigation bar is a search bar with the placeholder 'All Sources' and a search icon. On the left, there's a sidebar with a 'Benefits' section expanded, showing 'Health Care' as the selected item. The main content area contains a 'Reminder' box with a date 'Friday, July 18, 2008' and a bullet-pointed message: 'Welcome to the Health Care home page. Don't forget to submit your coverage request by June 1.'

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Figure 7-37. Traversal – HR scenario

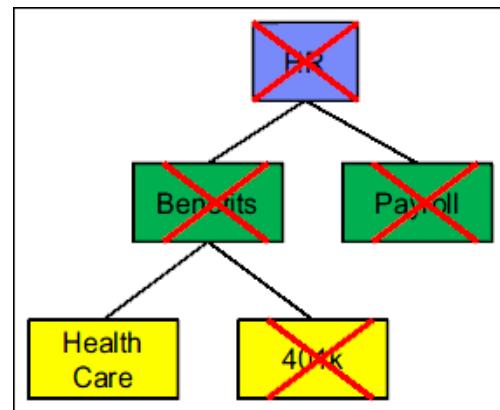
WPL951.0

Notes:

In this typical scenario, a user has no privileges on HR, Benefits, Payroll, or 401k, but is a *Privileged User* on Health Care, as illustrated in this figure.

Effects of traversal

- The user sees a non-active link for all pages between the top of the hierarchy and the page where they have privileges.
- The user does not see any content on the pages where the user does not have privileges.
- The page that is automatically displayed is the first one for which the user has explicit privileges.



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Figure 7-38. Effects of traversal

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Notes:

7.7. Securing portal page hierarchy

This topic offers suggestions for securing WebSphere Portal pages and introduces the OpenID support.

Securing portal page hierarchy



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Figure 7-39. Securing portal page hierarchy

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Notes:

Setting resource permissions

- Suggestions for creating and securing a page and portlet hierarchy:
 - Organize the hierarchy to permit security through inheritance
 - Assign roles no higher than Privileged User to the average WebSphere Portal user
 - Lock container content to prevent users from adding or deleting content
 - Copy portlets to assign different levels of access
 - Assign a user the same privileges on the page as the highest privilege on any portlet on the page
 - The user gets the highest level of access granted to them by more than one group

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Figure 7-40. Setting resource permissions

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Notes:



What is OpenID and OAuth?

- OpenID and OAuth:
 - Method of decentralized user authentication
 - Users can select an identity provider to host their profile information
 - Provider of User management determines method that is used
- Google, Yahoo, Facebook, and other web platforms host information for users and they also provide access to their existing user communities.
 - Google, PayPal, Microsoft, Yahoo, and many others use OpenID specifications.
 - Facebook Google, Amazon, Netflix, and many others use OAuth (1.0, 2.0) specifications.
 - OpenID and OAuth offer distinctly different technical implementations, and can be used in a complimentary manner.

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Figure 7-41. What is OpenID and OAuth?

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Notes:

Integrating OpenID and OAuth with Portal (1 of 2)

- WebSphere Portal requires trusted relationship between the identity provider and WebSphere Application Server.
 - WebSphere Application Server provides a plug-in point, a trust association interceptor (TAI), to create a trust that is based on the identity provider information.
 - WebSphere Portal
 - Provides a new implementation of this plug-in point that handles the communication between the identity provider and WebSphere Portal as the service provider.
 - Trusts the identity provider and grants the user entrance.

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Figure 7-42. Integrating OpenID and OAuth with Portal (1 of 2)

WPL951.0

Notes:

Integrating OpenID and OAuth with Portal (2 of 2)

Two options to integrate external users into the WebSphere Portal environment

Option 1

- Require an existing binding between a local Portal account and a remote identity provider account.
 - Can request extra validation from the users and have internal accounts for the users.
 - The binding is stored in a user attribute, which requires a writable user repository.

Option 2

- Give all users of an identity provider access to your Portal environment as an identified user.
 - Grant special access rights to these users without the requiring them to register with WebSphere Portal.
 - Requires fewer steps for your business users.

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Figure 7-43. Integrating OpenID and OAuth with Portal (2 of 2)

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Notes:

Unit summary

Having completed this unit, you should be able to:

- Define the portal resource security mechanism
- Explain security terminology
- Grant access to portal resources to users
- Implement security on pages
- Implement security on portlets
- Describe how Portal can be integrated with OpenID and OAuth

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Figure 7-44. Unit summary

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Notes:

Checkpoint

1. IBM WebSphere security handles authorization to determine who the user is, and the WebSphere Portal handles authentication to determine what the user is allowed to do.
 - A. True
 - B. False

2. What are the specific virtual users / groups for security role assignments that Portal has as default?
 - A. Anonymous Portal User
 - B. All Authenticated Portal Users
 - C. All Portal User Groups

3. Traversal is the ability to go to a page without having privileges on intermediate pages.
 - A. True
 - B. False

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Figure 7-45. Checkpoint

WPL951.0

Notes:

Write your answers here:

- 1.
- 2.
- 3.



Checkpoint answers

1. IBM WebSphere security handles authorization to determine who the user is, and the WebSphere Portal handles authentication to determine what the user is allowed to do.

Answer: **B**
B. False
2. What are the specific virtual users / groups for security role assignments that Portal has as default?

Answer: **A, B, and C**
A. Anonymous Portal User
B. All Authenticated Portal Users
C. All Portal User Groups
3. Traversal is the ability to go to a page without having privileges on intermediate pages.

Answer: **A**

A. True

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Figure 7-46. Checkpoint answers

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Notes:

Exercise 6



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10.1

Figure 7-47. Exercise 6

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Notes:

Exercise objectives

At the end of this exercise, you should be able to:

- Describe security roles, propagation, and inheritance
- Describe initial security settings, virtual users, and groups
- Assign permissions to pages and portlets
- Set resource access for each user group
- Create an inheritance block
- Explain traversal permissions
- Configure traversal permissions
- Create an Administration page

Ask for assistance: All parts of this exercise are conducted on the portal99 virtual machine. Ask your instructor for assistance if you have questions about any steps in this exercise.

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Figure 7-48. Exercise objectives

WPL951.0

Notes:

Unit 8. Attribute-based administration

What this unit is about

This unit describes attribute-based administration by using personalization rules and theme policies.

What you should be able to do

After completing this unit, you should be able to:

- Define attribute-based administration
- Create a visibility rule
- Manage visibility rules
- Assign visibility rules to portlets and pages

Unit objectives

After completing this unit, you should be able to:

- Define attribute-based administration
- Create a visibility rule
- Manage visibility rules
- Assign visibility rules to portlets and pages

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Figure 8-1. Unit objectives

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Notes:



Topics

- Personalization
- Administering the WebSphere Portal by using attribute-based techniques
- Creating and managing visibility rules

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Figure 8-2. Topics

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Notes:

8.1. Personalization

This topic describes personalization and rules.

Personalization



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10.1

Figure 8-3. Personalization

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Notes:

About personalization

- Personalization shapes the WebSphere Portal experience by using logical rules that drive content to the website, or other behaviors, such as navigation, are altered.
- You define how the site interacts with users by writing readable logic statements.
 - These statements define a condition to evaluate and an action to take based on the outcome of an evaluation.
- Personalization is used to place content according to rules, and map rules to content spots.
- Campaigns organize sets of personalization behavior, and give rules start and stop dates.

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Figure 8-4. About personalization

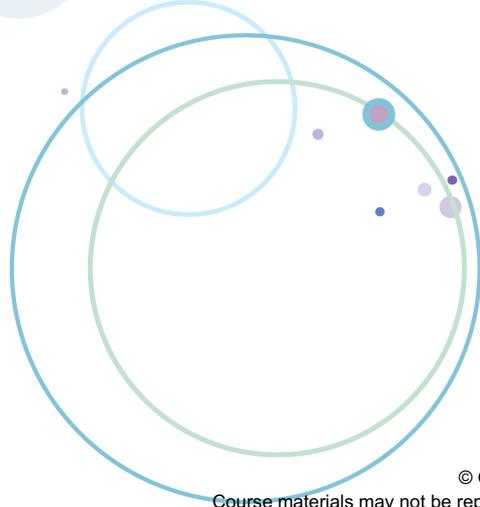
WPL951.0

Notes:

8.2. Administering the WebSphere Portal by using attribute-based techniques

This topic describes attribute-based administration and related techniques.

Administering the WebSphere Portal by using attribute-based techniques



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Figure 8-5. Administering the WebSphere Portal by using attribute-based techniques

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Notes:

Attribute-based administration

- Attribute-based administration is a tool to define the content and behavior of WebSphere Portal by using logical rules.
 - Visibility rules are a form of attribute-based administration.
 - Access control is not an implementation of attribute-based administration.

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Figure 8-6. Attribute-based administration

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Notes:

Access control and visibility rules (1 of 2)

- Access control:
 - Determines the persistent access of a user or group to WebSphere Portal resources. For portlets, it affects all instances.
- Visibility rule:
 - Provides a transient means to manage the presentation of resources.
 - Allows evaluation of user-specific data before displaying a resource.
 - Filters portlet/page visibility according to the rule logic, assuming that access control permits the user access to a resource.
 - Example: Displaying a specific portlet only if the user is from a specific region of the country.
- For portlets, the rule is applied to a specific portlet instance.

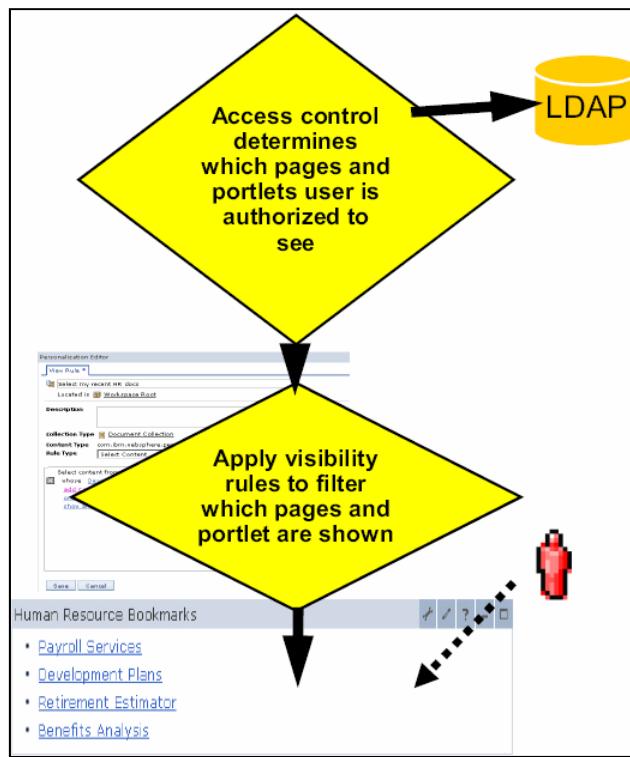
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Figure 8-7. Access control and visibility rules (1 of 2)

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Notes:

Access control and visibility rules (2 of 2)



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Figure 8-8. Access control and visibility rules (2 of 2)

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Notes:

If a user has privileges on the resource, all applicable rules are evaluated, and the resource is displayed or hidden based on the outcome of the rule evaluation. This figure shows an example where the following actions occur:

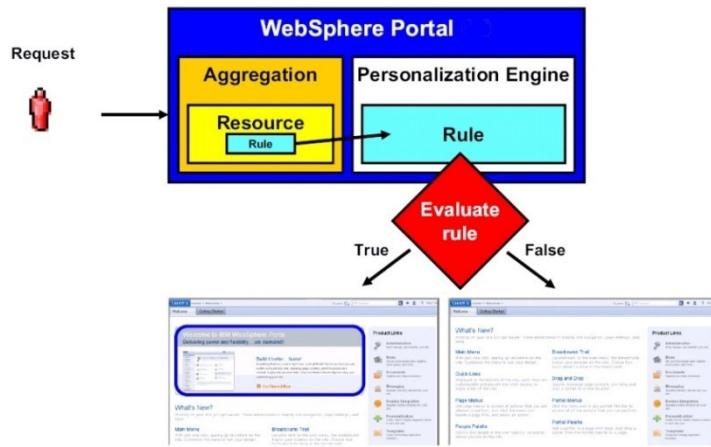
- The user logs in to IBM WebSphere Portal.
- Portal checks the access control list to determine what the user is authorized to view.
- The content is then filtered based on the visibility rules.

WebSphere Portal security is always the overriding factor in displaying a resource.

If a user has no privileges on a specific page or portlet, no visibility rules are evaluated on the page or portlet.

WebSphere Portal and visibility rules (1 of 2)

- The WebSphere Portal personalization capabilities provide the rule creation, storage, and evaluation mechanism that are necessary to implement visibility rules.
- Visibility rules are a feature of the personalization engine.



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Figure 8-9. WebSphere Portal and visibility rules (1 of 2)

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Notes:

As illustrated in this figure, visibility rules take advantage of the personalization engine. The personalization engine evaluates the applicable rules at run time and shows or hides the resource, depending on the outcome of the evaluation.

WebSphere Portal and visibility rules (2 of 2)

- Visibility rules can evaluate based on the following criteria:
 - Lightweight Directory Access Protocol (LDAP) attributes
 - Time of day
 - Properties, such as custom attributes that portlet developers define
 - Session information
- WebSphere Portal automatically triggers rule evaluation.
- You can assign rules to pages and portlets.
- The application programming interface (API) starts the rules programmatically.

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Figure 8-10. WebSphere Portal and visibility rules (2 of 2)

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Notes:

For example, you can hide a portlet from users depending on their geographical location. You must ensure that the LDAP schema includes the user location attribute, and then create a visibility rule to hide the portlet based on a location attribute. The visibility rule is assigned to a portlet.

Rule evaluation and errors

- Principles
 - Errors can occur during rule evaluation.
 - If an error occurs when locating or using a rule that is assigned to a page or portlet, by default, that page or portlet is hidden.
- Suggested practices
 - If a problem occurs during evaluation, err on the side of caution and hide the resource.
 - You might need to change this behavior for testing purposes in a development environment.
 - Update the `rulesEngine.visibilityDefault` property in the `PersonalizationService.properties` file to override this behavior globally.

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Figure 8-11. Rule evaluation and errors

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Notes:

The following examples are ways that you might evaluate error conditions:

- A rule is not found or an exception occurs during rule execution.

In this case, the page or portlet is hidden by default.
- Change the default behavior by modifying the `rulesEngine.visibilityDefault` property in `PersonalizationService.properties`, from **hide** to **show**.

This file is in the `wp_profile_root/PortalServer/config/config/services/` directory.
- The user, or other object, is not found during rule execution.

The `rulesEngine.throwObjectNotFoundException` property specifies the behavior. If **false**, the error is recorded in the portal log file and the rule is evaluated as if the required object attribute is null. The `visibilityDefault` value would then control if the page or portlet is displayed. Set the value of this property to **true** to throw an exception if the object is not found.

8.3. Creating and managing visibility rules

This topic describes the creation and management of visibility rules.

Creating and managing visibility rules



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10.1

Figure 8-12. Creating and managing visibility rules

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Notes:

Suggested practice

1. Create visibility rules from the Personalization Navigator.
2. Apply the rules when editing a page layout or the page properties.

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Figure 8-13. Suggested practice

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Notes:



1. Create visibility rules (1 of 2)

- For Portal 8.X theme-based pages
 - From the following areas:
 - Edit Layout portlet
 - Page properties
 - Personalization Navigator
- For Portal 7 (Page Builder) theme-based pages
 - From the following areas:
 - On the page
 - Edit Layout portlet
 - Page properties
 - Personalization Navigator

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Figure 8-14. 1. Create visibility rules (1 of 2)

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Notes:

You can create visibility rules from the following areas for Portal 8.X theme-based pages:

- In Page Properties, click **Advanced Properties > Control Display through rule mapping**.
- In the Edit Layout portlet, click **Edit Page Layout > Show Portlet Rule Mappings > Create New Rule**.
- In the Personalization Navigator, click **New > Rule**.

You can create visibility rules from the following extra area for existing Portal 7 (Page Builder) theme-based pages:

- On the page, click the **Action** tab and select **Edit Page Properties**.

Creating rules from the Personalization Navigator offers the following advantages:

- Allows better management of existing rules
- Provides full access to personalization resources
- Allows editing of any existing rule with the Personalization Editor



1. Create visibility rules (2 of 2)

- A page needs to be created for whomever is to create and manage the rules.
- This user needs the *Personalization Navigator* and *Personalization Editor* portlets.

The screenshot shows two overlapping windows. The top window is the "Personalization Navigator" with the title "Browsing Workspace". It lists two items: "alwaysHidden" and "publisrule", both categorized as "Visibility Rule". The bottom window is the "Personalization Editor" with the title "Document Info". It shows details for a document named "Workspace Root" located in "RULESWORKSPACE". The document info includes fields for Title (None), Document Type (Portal Workspace Root), Description (None), Last Modified (None), and Created (None).

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Figure 8-15. 1. Create visibility rules (2 of 2)

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Notes:

A user with Administrator access can always access the personalization features on the **Applications > Personalization > Business Rules** page.



2. Applying visibility rules

- Principles
 - Rules can be applied while editing page layouts, editing page properties, or through XML Access.
 - Applying rules through XML Access applies to situations where you deploy releases from staging to production.
 - Deploying rules from one environment to another requires extra steps.
- Visibility rules for pages and portlets
 - Applying a rule with XML Access is a key part of the page and portlet deployment process.
 - When a user creates a derived page, the derived page automatically inherits all visibility rules.

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Figure 8-16. 2. Applying visibility rules

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Notes:

Unit summary

Having completed this unit, you should be able to:

- Define attribute-based administration
- Create a visibility rule
- Manage visibility rules
- Assign visibility rules to portlets and pages

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Figure 8-17. Unit summary

WPL951.0

Notes:

Checkpoint

1. Access control is an implementation of attribute-based administration
 - A. True
 - B. False
2. What action should you take if an error is encountered in applying visibility rules?
 - A. Make content hidden by default
 - B. Make content visible by default
 - C. Display error message
3. Which property is modified to change the default behavior in case of an error?
 - A. rulesEngine.visibilityDefault
 - B. PersonalizationService.properties

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Figure 8-18. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.
- 3.

Checkpoint answers

1. Access control is an implementation of attribute-based administration: True/False?
Answer: B
B. False
2. What action should you take if an error is encountered in applying visibility rules?
Answer: A
A. Make content hidden by default
1. Which property is modified to change the default behavior in case of an error?
Answer: A
A. rulesEngine.visibilityDefault

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Figure 8-19. Checkpoint answers

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Notes:

Exercise 7



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10.1

Figure 8-20. Exercise 7

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Notes:

Exercise objectives

At the end of this exercise, you should be able to:

- Describe Edit Layout attributes that control applying rules
- Create a visibility rule
- Apply a rule to a portlet or a page

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Figure 8-21. Exercise objectives

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Notes:

Unit 9. WebSphere Portal search

What this unit is about

Users need a single entry point to resources. A portal serves to aggregate content from many content sources across the enterprise. Search is a strategic means by which users discover relevant information.

What you should be able to do

After completing this unit, you should be able to:

- Determine which search options to use
- Work with search collections, search links, and the external search results portlet
- Work with the search engine optimization features

Unit objectives

After completing this unit, you should be able to:

- Determine which search options to use
- Work with search collections, search links, and the external search results portlet
- Work with the search engine optimization features

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Figure 9-1. Unit objectives

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Notes:



Topics

- Comparing search options
- Working with WebSphere Portal Search
- Search Engine Optimization

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Figure 9-2. Topics

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Notes:

9.1. Comparing search options

This topic compares WebSphere Portal search options.

Comparing search options



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10.1

Figure 9-3. Comparing search options

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Notes:

Search services options

- You can select either of the following search options depending on your needs.
 - WebSphere Portal Search Service:
 - Manages search collections that contain WebSphere Portal pages, content that is managed by Web Content Management, or indexed web pages
 - Remote Content Server Search Service:
 - Configures search portlets for a local operation or remote search service
 - Has possible performance benefits by offloading and balancing system load
 - Is required for cluster WebSphere Portal environment

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Figure 9-4. Search services options

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Notes:



Content source, collection, and search collection

- A *content source* is a target content repository.
- A *collection* is the index against which searches are submitted regardless of the constituent content sources.
- A *search collection* is the administrative focus for WebSphere Portal Search.

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Figure 9-5. Content source, collection, and search collection

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Notes:

Type of content sources

Manage Search

Manage Search > Default Portal Search Service > **Davalen**

Create a New Content Source

Collection - **Davalen** Content Source -

Content source type: **Web site**

Seedlist provider

General Parameters

Content Source Name:

* Collect documents linked from this URL:

Levels of links to follow: **5 levels**

Number of documents to collect: **1,000**

Stop collecting after (min): **60**

Stop fetching a document after (sec): **5**

Links expire after (days): **Unlimited**

Remove broken links after (days): **10**

* Required field

Create **Cancel**

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Figure 9-6. Type of content sources

WPL951.0

Notes:

- WebSphere Portal Search supports following types of content sources:
 - Website
 - Seedlist provider
 - Portal site
 - Web Content Management (WCM) site
- Content source types are types of crawlers.



Type of crawlers

- Website crawler
- Seedlist provider crawler
- Portal site crawler
- Web Content Management site crawler

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Figure 9-7. Type of crawlers

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Notes:

Crawlers in detail

- *Website crawler*
 - Used for remote sites regardless of whether they are portal sites.
 - The crawler does not index the site if the remote website target URL contains the following code:

```
<META NAME="ROBOTS" CONTENT="NOINDEX, NOFOLLOW">
```
- *Seedlist provider crawler*
 - Special HTTP crawler that is used to crawl external sites that publish their content by using the seedlist format:
 - The format is an ATOM/XML-based format specifically for publishing application content, including all its metadata.
- *Portal site crawler* is used for your local portal site.
- *WCM site crawlers* are used for Web Content Management content.

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Figure 9-8. Crawlers in detail

WPL951.0

Notes:

Each crawler is software that is engineered to find hyperlinks and metadata from defined target sites. A crawler finds this information according to the type of site.

Website crawler

The crawler returns and indexes only anonymous pages if the remote site is a WebSphere Portal Server.

Seedlist provider crawler

This type of crawler is more effective and reduces the effort that is required of the crawler. The crawler expends less effort because only updated content between crawling sessions is gathered.

Portal site crawler

Crawling a portal site consists of three security dimensions. First, crawling a remote site is restricted to anonymous pages. Second, crawling secured pages on a local site requires credentials for the crawler. Third, when users search the index of the secured site, the results are filtered according to the access settings of the searching user.

Remember that the credentials that the crawler uses are stored on the disk in plain text unless extra steps are taken. You can encrypt the data.



Information

Securing the crawler credentials: The XML scripting interface is described in Unit 13, "XML access". Secure the crawler credentials by locating the searchsecret.xml file in the <portal_root>/search/wp.search.admin/bin directory. Make a copy of the file and save the copy as a working copy so that the original is available as a template. Edit the file and locate the value CHANGE TO YOUR SECRET KEY and replace it with an encryption string of your own choosing.

The modified file is used as an input file for the XML scripting interface to define a slot that is called search.secret in the credential vault. Slots and the credential vault are described in the product documentation. After you run the XML Access script, check the output file and correct any errors. When the script is successful, delete the input file that contains the encryption key.

The following example shows the syntax:

```
xmlaccess.sh|bat -in copiedsearchsecret.xml -out searchsecretsresults.xml -user  
wpsadmin -pwd wpsadmin -url http://local_host:local_port/wps/config
```

Web Content Management site crawler

The previous comments and the note about portal crawler search security apply also to the Web Content Management site crawler.

Manage Search portlet (1 of 2)

Manage Search

Manage Search

Choose from the links below to create and manage Search Services, Search Collections, or Search Scopes. Select Search Services to manage Portal or Content Model Search Services and subsequently, the search collections and content sources contained within. Select Search Collections to display and manage all search collections across various search services. Select Search Scopes to manage the scopes that appear in the Search Center.

<input type="checkbox"/> Search Services	Create and modify search service types
<input type="checkbox"/> Search Collections	Create and modify collections of searchable content
<input type="checkbox"/> Search Scopes	Create and modify search scope to deploy to user

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Figure 9-9. Manage Search portlet (1 of 2)

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Notes:

- To access the Manage Search portlet, go to **Administration pages > Manage Search**.
- Use the *Manage Search* portlet to create a search collection or manage an existing one.

The screenshot shows the WebSphere Education interface with a blue header bar. On the left is a navigation arrow pointing right, followed by the text "WebSphere Education". On the right is the IBM logo. Below the header, the title "Manage Search portlet (2 of 2)" is displayed in large blue text. The main content area has a light gray background with a dotted border. At the top of this area, the text "Manage Search" is followed by a breadcrumb trail: "Manage Search > Default Portal Search Service". Below this, a dropdown menu labeled "Search service: Default Portal Search Service" is shown. A section titled "Search Collections" contains a note: "Select a search collection to view its content sources. Use the buttons to add a collection or refresh the collection information. You can also use the icons in the table to view pending documents, search and browse documents and collections, manage collection taxonomies, import or export collections, add documents into the collection, and delete collections." Below the note are two buttons: "New Collection" and "Refresh". A table follows, with the first row containing headers: "Search Collection", "Collection Description", "Service", and "Documents". The second row contains three entries: "JCRCollection1" (Collection Description: Default Portal Search Service, Documents: 318), "Portal Content" (Collection Description: Default Portal Search Service, Documents: 143), and "WebContentCollection" (Collection Description: Default Portal Search Service, Documents: 0). Each entry has a set of icons to its right. The table ends with a page number "Page 1 of 1".

Figure 9-10. Manage Search portlet (2 of 2)

WPL951.0

Notes:

The previous portlet shows a list of existing collections.

9.2. Working with WebSphere Portal Search

This topic describes search scope, search links, and the external search results portlet.

Working with WebSphere Portal Search



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10.1

Figure 9-11. Working with WebSphere Portal Search

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Notes:

Search scope

<input type="button" value="New Scope"/> <input type="button" value="Refresh"/>		
Page 1 of 1		
Scope Name	Scope Description	Status
All Sources	All Sources accessible by the user	Active <input type="button" value="▼"/> <input type="button" value="Delete"/>
Managed Web Content	Search in WCM	Disabled by the system <input type="button" value="▼"/> <input type="button" value="▲"/> <input type="button" value="Delete"/>
dvn		Active <input type="button" value="▲"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>

Page 1 of 1

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Figure 9-12. Search scope

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Notes:

This figure is an example of the search scope container within the Manage Search portlet.

- The search scope provides users with options to narrow their search by defining search scopes.
- A search scope's container is a collection, which can narrow the search to a content source within the collection.
- In the Manage Search portlet:
 - A list of existing scopes, a description, and status are provided.
 - You can sort the scopes, and the Search Center then reflects the order that you select.

The screenshot shows the WebSphere Education interface. At the top, there's a navigation bar with links like 'WebSphere Portal', 'Home', 'My Mashups', 'Sibling of Getting Started', 'Administration', 'Applications', 'Search Center' (which is underlined), 'Tag Center', 'Orders', and 'Sales'. Below the navigation bar is a secondary menu with 'HR Benefits' and 'wpsadmin' dropdowns, along with 'Actions', 'Help', 'Log Out', and a search bar containing 'portal'. The main content area is titled 'Search Center' and contains a search bar with 'dwv' and 'portal' entered. A message says 'Please Configure a Suggested Links Collection.' On the right, there's a 'Suggested Links' section and an 'External Search Results' section listing 'IBM developerWorks : Lotus : Articles' and 'developerWorks'.

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Figure 9-13. Search scope in Search Center

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Notes:

This figure shows the Search Center. In the upper left corner, you see the name of a search scope that is set as the default scope. You see a selection, including the default scope, all sources, and a custom link in the Search Center portlet.

Creating a search scope

1. Click **New Scope** in the Manage Search portlet to create a scope.
2. Enter a value for the Scope Name field in the New Search Scope window.
3. Enter an icon in the Customer Icon URL field to provide a way to brand the scope.
4. Leave the Status at the default value of **Active**.
5. Change the default value of **Visible to Anonymous Users** from **No** to **Yes**.

The screenshot shows the 'Manage Search' dialog box with the following details:

- OK | Cancel**
- New Search Scope**
- Scope Name:** (Input field)
- Description:** (Input field)
- Custom Icon URL:** (Input field) with a note: "Only enter the name of the icon image if it exists in the default icon directory (/wps/images/icons/) or the absolute exists elsewhere." and a "Check Icon Path..." button.
- Status:** Active Inactive
- Visible to Anonymous Users:** Yes No
- Query Text (optional):** (Input field)
- Select Features:** (Text area) All features are included in this scope unless you select specific one.
- Type** and **Values** (Table)

Type	Values
	There are no entries to display.

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Figure 9-14. Creating a search scope

WPL951.0

Notes:

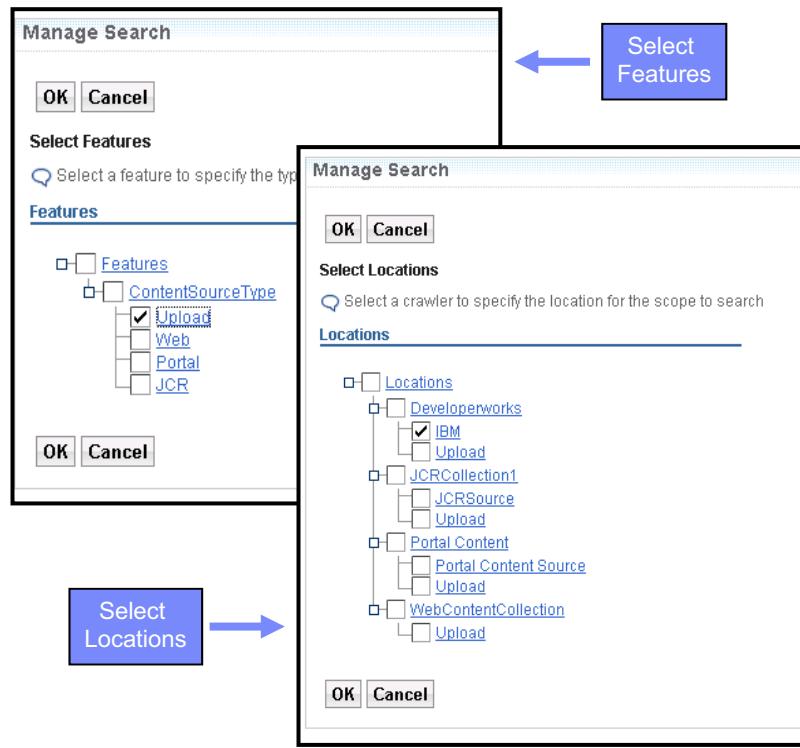
The Manage Search portlet provides a list of existing scopes, a description, and status. You can sort the scopes, and the Search Center reflects the order that you select. If you move a particular scope to the top of the list, it becomes the default scope for user searches. A scope is not available for search if it is inactive.



Narrowing the search scope

You can narrow the scope in two ways:

- Select Features
- Select Locations



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Figure 9-15. Narrowing the search scope

WPL951.0

Notes:



Search links

- By adding custom links to search locations, users can direct searches to external search engines such as Google or Yahoo.
- These links are displayed in the Search Center selection menu of search options.
- The interface to create custom links is on the same page as scopes.
 - Select **New Custom Link** and provide a name for the link and a URL.

New Custom Link		
Page 1 of 1		
Custom Link Name	URL	Status
Google	http://www.google.com	Active
Page 1 of 1		

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Figure 9-16. Search links

WPL951.0

Notes:

Creating a search link by using the Manage Search portlet

The interface to create custom links is on the same page as scopes as shown in this figure.



New Custom Link window

Manage Search

New Custom Link

Enter a name and a URL for the custom link

Status: Active Inactive

* Custom link name:

* Link URL:

Custom Icon URL

Only enter the name of the icon image if it exists in the default icon directory (/wps/images/icons/) or the absolute file path if the image exists elsewhere.

* Required fields

In order to set the name in other locales you have to create it first and then edit the custom link

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Figure 9-17. New Custom Link window

WPL951.0

Notes:

When you click **New Custom Link**, the New Custom Link window opens. In this window, you must provide a name for the link and a URL. Additionally, you can provide a branded icon for the external search site.



External Search Results portlet

- Brings the results of searches from third-party external search engines into Portal.
- You can add more than one copy of the External Search Results portlet to the Search Center page.
- You can configure each of these portlets to display a specific number of search results.

The screenshot displays the 'External Search Results' portlet interface. At the top, it says 'External Search Results'. Below that, there's a list of search results from 'IBM developerWorks : Lotus : Articles' under the heading 'developerWorks'. The first result is titled 'Integrating IBM Lotus Quickr 8.5 for Domino with IBM Enterprise Content Management: Configuration and best practices'. Its description states: 'The ability to integrate with IBM® Enterprise Content Management was introduced in IBM Lotus® Quickr® 8.5 for Domino®. In this article we discuss how it works and how to configure and use related features. It's assumed that you're familiar with Lotus Quickr and that you've already installed Lotus Quickr for Domino.' Another result listed is 'Administering IBM Lotus Domino 8.5 servers for beginners', which is described as a white paper providing an overview of administering IBM Lotus Domino, including components and terminology. The final result shown is 'IBM Lotus Domino 8.5.2 XPages discussion database server performance', which discusses the performance of XPages in Domino 8.5.2.

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Figure 9-18. External Search Results portlet

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Notes:

This figure shows an example of this portlet on the Search Center page.



External Search Results portlet: Configuration settings

Configure portlet: External Search Results
Web module: searchCenter.war

Preference and Values Enter a new preference and value pair in the blank fields to create a new preference for this portlet, or click Delete to remove a preference and value. Click OK to keep your changes or Cancel to quit.

New Preference:	New value:	<input type="button" value="Add"/>
-----------------	------------	------------------------------------

Preference		Value		
com.ibm.portal.preventRenderType	iwidget		<input type="button" value="Delete"/>	<input type="button" value="Edit"/>
externalXsltUrl			<input type="button" value="Delete"/>	<input type="button" value="Edit"/>
numOfEntries	3		<input type="button" value="Delete"/>	<input type="button" value="Edit"/>
searchEngineFullPageUrl			<input type="button" value="Delete"/>	<input type="button" value="Edit"/>
searchEngineUrl	http://www.ibm.com/developerworks/views/rss/customrssatom.jsp?zone_by=Lotus&type_by=Articles&search_by=\${searchTerms}		<input type="button" value="Delete"/>	<input type="button" value="Edit"/>

Page 1 of 1

I want to set titles and descriptions.

Enable parallel rendering

Cache Scope for HTTP and fragment caches

Non-shared cache for a single user
 Share cache across all users (not applicable if "cache always expires" option is selected below)

Cache Expiration for HTTP and fragment caches

Portlet cache always expires
 Portlet cache never expires
 Portlet cache expires after this many seconds

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Figure 9-19. External Search Results portlet: Configuration settings

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Notes:

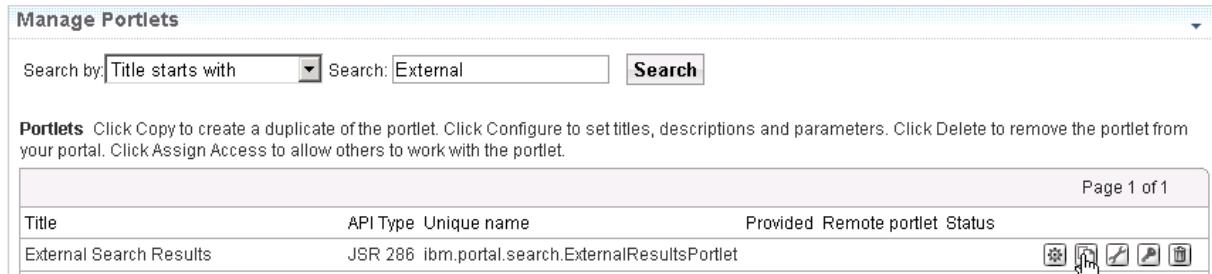
The configuration settings can be accessed from **Administration** pages > **Portlet Management** > **Portlet**.

- Select the **configure** icon.
- Copy the portlet first if you want to place more External Search Results portlets on the Search Center page.
- Browse or search for the portlet to copy.
- Choose the copy icon, provide a new name for the portlet, and then configure the copy.



The image shows the WebSphere Education logo on the left and the IBM logo on the right, both set against a blue header bar.

Manage Portlets window



A screenshot of the 'Manage Portlets' window. At the top, there's a search bar with 'Search by: Title starts with' dropdown and a search input field containing 'External' with a 'Search' button. Below the search bar, a note says: 'Portlets Click Copy to create a duplicate of the portlet. Click Configure to set titles, descriptions and parameters. Click Delete to remove the portlet from your portal. Click Assign Access to allow others to work with the portlet.' A table lists one portlet entry:

Title	API Type	Unique name	Provided	Remote portlet	Status
External Search Results	JSR 286	ibm.portal.search.ExternalResultsPortlet			

On the far right of the table, there are icons for Copy, Configure, Delete, and Assign Access. Above the table, it says 'Page 1 of 1'.

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Figure 9-20. Manage Portlets window

WPL951.0

Notes:

You need to set the search engine URL in the portlet's configuration, as shown in this figure.



Setting the search engine URL in the portlet configuration

Configure portlet: Google Search Results

Web module: searchCenter.war

Preference and Values Enter a new preference and value pair in the blank fields to create a new preference for this portlet, or click Delete to remove a preference and value. Click OK to keep your changes or Cancel to quit.

New Preference:	New value:	<input type="button" value="Add"/>
Page 1 of 1		
Preference	Value	
com.ibm.portal.preventRenderType	iwidget	
externalXsltUrl		
numOfEntries	3	
searchEngineFullPageUrl		
searchEngineUrl	http://news.google.com/news?output=rss&q=\${searchTerms}	
Page 1 of 1		

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Figure 9-21. Setting the search engine URL in the portlet configuration

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Notes:

9.3. Search Engine Optimization

This topic explains enhanced support that is provided in WebSphere Portal Version 8, for search engine optimization.

Search Engine Optimization



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Figure 9-22. Search Engine Optimization

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Notes:

Search Engine Optimization

- Many search engines reference the title (<title></title>) content.
- In version 8, page metadata is rendered as keywords in the HTML <head></head>.
- The metadata is taken from IBM Web Content Manager.
- Metadata includes: title, keywords, category, and more.

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Figure 9-23. Search Engine Optimization

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Notes:

- Search engine optimization (SEO) focuses on improving the visibility of a page or website in search engine results.
- A basic technique of SEO is adding HTML title and meta tags to your page source.
- These meta tags are used to define keywords and other metadata that search engines and crawlers can use when creating search indexes and collections.
- When including content in a page with a web content viewer, you can improve the SEO of the page by adding title and meta tags with values derived from the web content itself.

Unit summary

Having completed this unit, you should be able to:

- Determine which search options to use
- Work with search collections, search links, and the external search results portlet
- Work with the search engine optimization features

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Figure 9-24. Unit summary

WPL951.0

Notes:

Checkpoint

1. A _____ is the index against which searches are submitted regardless of the constituent content sources.
 - A. Group
 - B. Collection
 - C. Search Engine

2. In WebSphere Portal version 8, page metadata is rendered as keywords in _____.
 - A. HTML <head></head>
 - B. HTML <body></body>
 - C. HTML <title></title>

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Figure 9-25. Checkpoint

WPL951.0

Notes:

Write your answers here:

- 1.
- 2.



Checkpoint answers

1. A _____ is the index against which searches are submitted regardless of the constituent content sources.
Answer: **B**
B. Collection

2. In WebSphere Portal version 8, page metadata is rendered as keywords in _____
Answer: **A**
A. HTML <head></head>

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Figure 9-26. Checkpoint answers

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Notes:

Exercise 8



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Figure 9-27. Exercise 8

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Notes:



Exercise objectives

At the end of this exercise, you should be able to:

- Configure external search scopes
- Update the Ajax proxy configuration
- Configure the External Search Results portlet to pull from Yahoo!

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Figure 9-28. Exercise objectives

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Notes:

Unit 10. Other administrative portlets

What this unit is about

This unit provides an introduction to other administrative portlets.

What you should be able to do

After completing this unit, you should be able to:

- Support existing clients
- Use web clippings
- Define Friendly URLs
- Define URL mappings
- Create a custom name

Unit objectives

After completing this unit, you should be able to:

- Support existing clients
- Use web clippings
- Define Friendly URLs
- Define URL mappings
- Create a custom name

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Figure 10-1. Unit objectives

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Notes:

Topics

- Portal clients
- Friendly URLs
- Vanity URLs
- Custom unique names

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Figure 10-2. Topics

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Notes:

10.1. Portal clients

This topic describes Portal clients.

Portal clients



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10.1

Figure 10-3. Portal clients

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Notes:



About client support

- Types of client support
 - Existing client support
 - Adding client support
- Manage WebSphere Portal clients by using the portlet in **Administration pages > Portal Setting > Supported Clients**.

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Figure 10-4. About client support

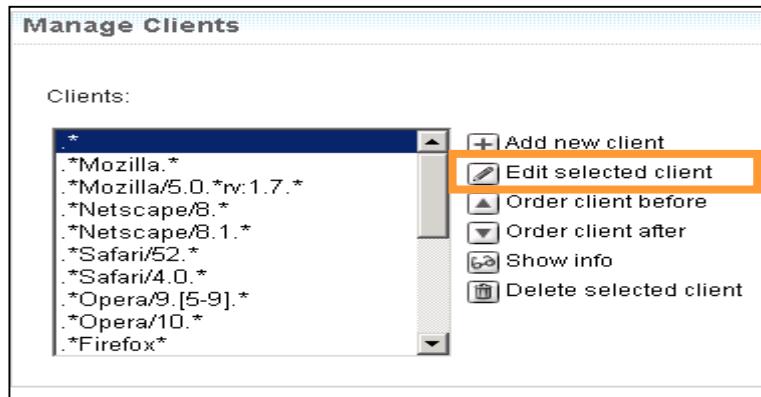
WPL951.0

Notes:



Existing client support (1 of 2)

- Choose an existing client and modify it by selecting the **Edit Selected Client** icon.



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Figure 10-5. Existing client support (1 of 2)

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Notes:

Existing client support (2 of 2)

- Change the user agent string, markup, manufacturer, model, version, capability list, such as HTML support, and position relative to other items in the list.

Manage Clients

User Agent:	<input type="text" value=".*Mozilla/5.0.*rv:1.7.*"/>
Markup:	<input type="text" value="html"/>
Markup Version:	<input type="text" value="mozilla"/>
Manufacturer:	<input type="text" value="Mozilla Foundation"/>
Model:	<input type="text" value="Web Browser"/>
Version:	<input type="text" value="1.7"/>
Capabilities:	<input type="button" value="Add"/> <input type="button" value="Delete"/> HTML_JAVASCRIPT <input type="button" value="Up"/> <input type="button" value="Down"/> HTML_CSS <input type="button" value="Up"/> <input type="button" value="Down"/> HTML_2_0 <input type="button" value="Up"/> <input type="button" value="Down"/>
Position:	<input type="text" value="after .*Mozilla.*"/>
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

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Figure 10-6. Existing client support (2 of 2)

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Notes:

Changes are not likely to be needed to the default entries.

Adding client support

- You can create new entries for the supported clients list by using a similar approach to the one described for existing clients.
- Ensure that the user agent entry is consistent with the value that the client presents during server requests, or requests might not be handled correctly.

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Figure 10-7. Adding client support

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Notes:

10.2.Friendly URL

This topic describes Friendly URL in portal.

Friendly URLs



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Figure 10-8. Friendly URLs

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Notes:



What is a friendly URL?

- Friendly URLs provide a way for users to define a custom address for a portal page that is easy to remember and share.
- Friendly URLs facilitate better navigation across portal pages.
- External applications can also use friendly URLs to provide links directly to content items in the portal
- Friendly URLs for web content take the following general form:
 - http://host_name:port_number/wps/portal/path_to_content

Friendly URL example

http://portal00:10039/wps/portal/Home/page_one/my_page

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Figure 10-9. What is a friendly URL?

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Notes:

10.3. Vanity URLs

This topic describes vanity URLs.

Vanity URLs



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10.1

Figure 10-10. Vanity URLs

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Notes:

Defining vanity URLs

- Vanity URLs are short URLs that are easier for people to remember and enter, and that map to portal pages and labels, and even to specific content on a page.
- Vanity URLs are part of managed pages, and are edited from the portal toolbar. Page editors can therefore create and manage them.
- A page can have only one friendly URL but many vanity URLs.
- Vanity URLs are unaffected by changes in the WebSphere Portal typology, such as moving pages to alternative hierarchy locations.

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Figure 10-11. Defining vanity URLs

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Notes:

Use vanity URLs in print media, and other locations where reliable URLs are needed.

Vanity URLs contain none of the portal page hierarchy. The URL syntax consists of the following format:

host_name:port_number/wps/vanityurl/trips

A friendly URL, in contrast, might look similar to the following example:

host_name:port_number/wps/portal/Home/HumanResources/Trips

Vanity URLs are not retained while inter-reacting with the target page. The familiar portal-generated URL replaces the vanity URL, for navigational state management, as soon as it is rendered.



Creating a vanity URL

- This screen capture shows a second vanity URL being added to the Business Support page.

A screenshot of the WebSphere Portal interface. The top navigation bar includes 'Projects', 'Create', and 'Page' tabs, with 'Page' selected. The main area shows a project titled 'Business Support' with sections for 'General', 'Layout', 'Style', and 'Vanity URLs'. The 'Vanity URLs' section is currently active. A modal dialog box titled 'Add Vanity URL' is open, containing fields for 'Vanity URL Name' (set to 'BusinessSupport') and 'Content Language' (set to 'Site Visitor Language'). Under 'Web Content', the radio button for 'Use default content: "Business Support"' is selected. At the bottom of the dialog is a 'Save' button. A message at the top of the dialog box states 'Vanity URL was updated successfully.'

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Figure 10-12. Creating a vanity URL

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Notes:



Using a vanity URL

- To use the vanity URL “BizSupport”, enter the following URL:

http://host_name:port_number/vanityurl/BizSupport

For example

http://wcm85:10039/vanityurl/BizSupport

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Figure 10-13. Using a vanity URL

WPL951.0

Notes:

10.4. Custom unique names

This topic describes custom unique names and explains how to create them.

Custom unique names



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10.1

Figure 10-14. Custom unique names

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Notes:

Defining custom unique names

- Object IDs identify WebSphere Portal resources, and are guaranteed to be unique.
- These generated values are extended alphanumeric strings that are hard to remember.
- You can use the portlet to assign human-readable names to these resources.

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Figure 10-15. Defining custom unique names

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Notes:

For example, use of the XML configuration interface to move resources from staging to production is much easier when unique names are used as they are part of the export. Developers can also use unique names to link portlets to other portal resources. The custom unique names are far easier to work with if external access control systems manage security.

The screenshot shows a portlet titled "Creating custom unique names (1 of 3)". At the top left is a navigation bar with a right-pointing arrow and the text "WebSphere Education". At the top right is the IBM logo. Below the title, there is a search bar with a dropdown menu set to "Title starts with" and a search input field with the placeholder "Search:" followed by a "Search" button. A breadcrumb trail shows "Root > Home". The main content area displays a table of custom unique names:

Select	Page title	Unique name or Identifier
<input type="radio"/>	Getting Started	ibm.portal.Home.Getting Started
<input type="radio"/>	Features	ibm.portal.home.Features
<input type="radio"/>	TopGun	com.davalen.tg2.starting.pages.root
<input type="radio"/>	Human Resources	HR

Below the table, the text "Page 1 of 1" appears twice. At the bottom of the portlet are two buttons: "OK" and "Cancel".

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Figure 10-16. Creating custom unique names (1 of 3)

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Notes:

Access the **Manage Custom Unique Names** portlet from **Administration** pages > **Portal Settings** > **Custom Unique Names**.



Creating custom unique names (2 of 3)

Manage Custom Unique Names

Select type choose a type from the list below

Resource type

[Pages](#)

[Portlet Applications](#)

[Portlets](#)

[URL Mapping Contexts](#)

[User Groups](#)

[Web Modules](#)

[WSRP Producers](#)

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Figure 10-17. Creating custom unique names (2 of 3)

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Notes:

Select resources by type, such as Pages, and then browse or search for the resource.




Creating custom unique names (3 of 3)

- Select the **Edit** icon to define or modify the unique name.
- Use caution when editing unique names.

My Pages and unique names click the edit icon to assign, edit, or remove unique names for your Pages

Page Title	Unique Identifier	Unique Name	Page 1 of 15	[Edit]	[Delete]	[Print]
Users and Groups	Z6_CGAH47L008LG50IAHUR9Q33843	ibm.portal.Users and Groups				
Wires	Z6_CGAH47L008LG50IAHUR9Q33GB2	ibm.portal.Wires				
Personalization Picker	Z6_CGAH47L008LG50IAHUR9Q33405	ibm.portal.Personalization.Picker				
Content	Z6_CGAH47L000J790IAH1AFAN1003	ibm.portal.Applications.Content				
Web Content Management	Z6_CGAH47L000GLG70IAH1UJA728J7	com.ibm.wps.hiddenpage.wcm.Authoring_Portlet				
Welcome	Z6_CGAH47L000J790IAH1AFAN1GG3	ibm.portal.Applications.Templates>Welcome				
Home	Z6_CGAH47L008LG50IAHUR9Q330E6	ibm.portal.ThemeLinks.ExpandedQuickLinksShelfLinks.Expl				
Credential Vault	Z6_CGAH47L008LG50IAHUR9Q338S0	ibm.portal.Credential Vault				
Explore	Z6_CGAH47L008LG50IAHUR9Q330E0	ibm.portal.ThemeLinks.ExpandedQuickLinksShelfLinks.Expl				
HR Benefits	Z6_KRPRMVF000A420IQB0EOE230O7	com.ibm.hr.benefits				

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Figure 10-18. Creating custom unique names (3 of 3)

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Notes:

For example, pages are listed by name and show the object ID and unique name, if defined as illustrated in this figure.

Unit summary

Having completed this unit, you should be able to:

- Support existing clients
- Use web clippings
- Define Friendly URLs
- Define URL mappings
- Create a custom name

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Figure 10-19. Unit summary

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Notes:

Checkpoint

1. Vanity URLs are not bound to WebSphere Portal topology.
 - A. True
 - B. False
2. A page can have more than one vanity URL.
 - A. True
 - B. False
3. External applications can use _____ to provide link to portal content.
 - A. URL mapping
 - B. Friendly URL
 - C. Web clipping portlet
 - D. A and B

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Figure 10-20. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.
- 3.

Checkpoint answers

1. Vanity URLs are not bound to WebSphere Portal topology.
Answer: A
A. True.
1. A page can have more than one vanity URL.
Answer: A
A. True.
2. External applications can use _____ to provide link to portal content.
Answer: D
D. A and B

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Figure 10-21. Checkpoint answers

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Notes:

Exercise 9



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10.1

Figure 10-22. Exercise 9

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Notes:

Exercise objectives

At the end of this exercise, you should be able to:

- Create custom names

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Figure 10-23. Exercise objectives

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Notes:

Unit 11. WebSphere Portal usage analysis

What this unit is about

This unit shows how to gather data on IBM WebSphere Portal usage and how to analyze the data. You can collect the following types of data:

- Server-side data, which consists mainly of technical data that is internal to WebSphere Portal
- Behavioral data, which is how users use WebSphere Portal

What you should be able to do

After completing this unit, you should be able to:

- Explain how to use portal usage analysis
- Determine how to analyze user behavior

Unit objectives

After completing this unit, you should be able to:

- Explain how to use portal usage analysis
- Determine how to analyze user behavior

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Figure 11-1. Unit objectives

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Notes:

Topics

- Monitoring portal usage
- Active Site Analytics for user behavior analysis

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Figure 11-2. Topics

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Notes:

11.1. Monitoring portal usage

This topic describes monitoring portal usage.

Monitoring portal usage



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10.1

Figure 11-3. Monitoring portal usage

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Notes:

Why is it useful to monitor portal usage?

- Organizations invest significant effort to implement a WebSphere Portal solution and need quantifiable answers to following types of questions:
 - "Is the focus of use what we expected?"
 - "How are users changing their usage and how can we meet their new needs?"
 - "What do they look for using search?"
 - "How do users arrive at our site?"

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Figure 11-4. Why is it useful to monitor portal usage?

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Notes:

WebSphere Portal and usage data

- The WebSphere Portal configuration service, *WP_SiteAnalyzerLogService* resource provider, determines the type of site analysis data that WebSphere Portal logs at run time.
- It writes usage records to a dedicated log file if site analysis logging is enabled.
- The WebSphere Portal configuration service, *WP_SiteAnalyzerLogService*, determines the type of site analysis data that WebSphere Portal logs at run time.

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Figure 11-5. WebSphere Portal and usage data

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Notes:

Data points available on the server side

- Type of events logged based on the service configuration:
 - Page management, such as creating, reading, updating, and deleting pages.
 - Page and portlet requests by users.
 - Session activities, such as login, logout, timeout, and login failed.
 - User management actions, such as creating, reading, updating, and deleting users and groups.
- The resulting log entries comply with the National Center for Supercomputing Applications (NCSA) Combined industry standard.

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Figure 11-6. Data points available on the server side

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Notes:

You can monitor the applications on your WebSphere Portal by analyzing the log entries. The site analysis infrastructure that WebSphere Portal provides accommodates most scenarios.



Information

Custom report: You must write a custom report to log custom business events that occur in portlets. You can obtain a more sophisticated evaluation of WebSphere Portal usage or generate reports for portlet action by writing such a report.

You can find more information at the following WebSphere Portal wiki pages:

- Analyzing portal usage data
http://www-10.lotus.com/ldd/portalwiki.nsf/dx/Analyzing_portal_usage_data_wp8
- Logging and analyzing server-side site data
http://www-10.lotus.com/ldd/portalwiki.nsf/dx/Logging_and_analyzing_server_side_site_data_wp8

Enabling server-side logging

- Principles
 - Site analysis logging is not enabled by default.
 - The names and locations of the log files need to be specified as parameters in `WP_SiteAnalyzerLogService` to enable site analysis logging.
- Steps for enabling server-side logging procedure:
 1. Specify the names for the log files and backup log files.
 2. Specify the date format for tokens in the log file names.
 3. Specify the interval to back up log files.
 4. Activate loggers as appropriate.
 5. Restart WebSphere Portal.

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Figure 11-7. Enabling server-side logging

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Notes:

1. Specify the names for the log files and backup log files.
 - a. Specify the location and file name of the log file as follows:

`SiteAnalyzerFileHandler.fileName`

The default value is `logs/$APPSCVER_NAME/sa.log`.

- b. Specify the location and file name of the backup file for the log file as follows:

`SiteAnalyzerFileHandler.backupFileName`

The default value is `logs/$APPSCVER_NAME/sa_$CREATE_TIME.log`. The current data is stored in the `sa_$CREATE_TIME.log` backup file, and a new `sa.log` log file is created when the log file is backed up.

You can specify the following tokens as part of the directory location or file name:

- `$APPSCVER_NAME` is the name of the application server. Use this token for vertical clusters to enforce that the different application servers write to different files if they share file system.

- \$CREATE_TIME is the date and time that the file is created. Specify the format of this token in SiteAnalyzerFileHandler.dateFormat.
 - \$CLOSE_TIME is the date and time that the file is closed. Specify the format of this token in SiteAnalyzerFileHandler.dateFormat.
2. Specify the date format for tokens in the log file names:

`SiteAnalyzerFileHandler.dateFormat`

Specify a value to format the date and time for the \$CLOSE_TIME and \$CREATE_TIME tokens as in the following example:

`SiteAnalyzerFileHandler.dateFormat=yyyy.MM.dd- HH.mm.ss`

3. Specify the interval to back up log files.

The following parameter sets the backup interval in minutes. Specify the value 1 - 60.

`SiteAnalyzerFileHandler.minutesPerLogFile`

The following line sets the backup interval in hours. Specify a value 1 - 24.

`SiteAnalyzerFileHandler.hoursPerLogFile`

The following line sets the backup interval in days. Specify any value that indicates the number of days between backups.

`SiteAnalyzerFileHandler.daysPerLogFile`



Hint

Tips for specifying the date and interval: When specifying the date and interval, consider these tips:

- Use the smallest interval if you enable more than one date format interval.
 - The file is backed up after 60 minutes if you specify 60 minutes.
 - The file is backed up on the next full hour, for example, 01:00, 02:00, if you specify one hour.
- The file is backed up at 24:00 (midnight), if you specify an interval of days.

4. Activate the loggers as appropriate.

Select the logger that you plan to activate and set the value to true, as in the following example:

`SiteAnalyzerSessionLogger.isLogging=true`



Hint

Site analysis logging can affect performance. Consider choosing to disable loggers for this reason when necessary. Set the value to false to disable loggers.

5. Restart WebSphere Portal.

Available loggers: List and description

WebSphere Portal Server analysis logger	Description and activity logged
SiteAnalyzerSessionLogger.isLogging (Session activities, such as login, logout, time out, login failed)	HTTP requests that include the URLs: /Command/Login /Command/Logout
SiteAnalyzerUserManagementLogger.isLogging (User management actions, such as creating, reading, updating, and deleting users and groups)	HTTP requests that include the URLs: /Command/UserManagement/ CreateUser /Command/UserManagement/ DeleteUser /Command/UserManagement/ CreateGroup /Command/UserManagement/ DeleteGroup
SiteAnalyzerPageLogger.isLogging (Page management, such as creating, reading, updating, deleting pages)	HTTP requests that include the URLs: /Page/* /Command/Customizer/ CreatePage /Command/Customizer/ EditPage /Command/Customizer/ DeletePage
SiteAnalyzerPortletLogger.isLogging (Requests of portlets by users)	HTTP requests that include the URL /Portlet/*
SiteAnalyzerJSRPortletLogger.isLogging	Web content viewer requests

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Figure 11-8. Available loggers: List and description

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Notes:

Reading the log files

- Process
 - The WebSphere Portal site analysis information is in `/wp_profile_root/logs/app_server_name/sa_date_time.log`.
 - `wp_profile_root` is the WebSphere Portal root directory and `date_time` is the date and time the file is created.
- Log file name and format
 - The current, active, log file is named `sa.log`.
 - Format is National Center for Supercomputing Applications (NCSA) Combined log format, a combination of the NCSA Common log format and three extra fields:
 - referrer
 - user_agent
 - cookie

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Figure 11-9. Reading the log files

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Notes:

Sample log file entry example

```
9.37.3.88 - customer2 [10/Apr/2010:21:33:16 +0000]
"GET
/Portlet/146/Welcome_Portlet?PortletPID=146&PortletMode=
View&PortletState=Normal
HTTP/1.1" 200 -1 "http://myserver.company.com/Page/110/ Welcome"
"Mozilla/4.0 (compatible; MSIE 5.5; Windows NT 4.0)"

"JSESSIONID-OXDFAPVR4SXYZOIHSLVGA2Y"
```

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Figure 11-10. Sample log file entry example

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Notes:



Example

Sample log file entry

```
9.37.3.88 - customer2 [10/Apr/2010:21:33:16 +0000]
"GET
/Portlet/146/Welcome_Portlet?PortletPID=146&PortletMode= View&PortletState=Normal
HTTP/1.1" 200 -1 "http://myserver.company.com/Page/110/ Welcome"
"Mozilla/4.0 (compatible; MSIE 5.5; Windows NT 4.0)"
"JSESSIONID-OXDFAPVR4SXYZOIHSLVGA2Y"
```

The following table describes each field:

Table 11-1: Log field descriptions

Field	Log field name and description
9.37.3.88	Host: The IP address of the HTTP client that sent the request. The IP address that is logged is of the reverse proxy server rather than the HTTP client if a reverse proxy server is between the client and WebSphere Portal.
- (hyphen character)	ref931: The identifier user to identify the client that makes the request. The field is set to the hyphen character (-) if the client identifier is unknown.
customer2	User Name: The user ID for the client. The field is set to the hyphen character (-) if the user ID is unknown.
[10/APR/2010:21:33:16 +0000]	Date: time zone: The date and time of the HTTP request.
"GET /Portlet/146/Welcome_Portlet? PortletMode=View&PortletState= Normal HTTP/1.1"	Request: The HTTP method, the URL of the requested resource, and the version of the HTTP that is used by the client.
200	Status code: The HTTP status code for the request.
-1	Bytes: The number of bytes of data that is transferred from the client as part of the request. A value of -1 means <i>unknown</i> .
"http://myserver.company.com/ Page/110>Welcome"	Referrer: The URL that linked the client to the website. The referrer might not be logged for some requests. The field is set to empty double quotation marks (" ") in such cases.
"Mozilla/4.0 (compatible; MSIE 5.5; Windows NT 4.0)"	user_agent: The type of web browser that the client uses.
"JSESSIONID=OXDFAPVR4SXYZ OIHLVGA2Y"	cookies: The name and value of a cookie that was sent to the client browser. The list is delimited by the semicolon character (;) if multiple cookies are sent.

11.2. Active Site Analytics for user behavior analysis

This topic describes Active Site Analytics (ASA) for user behavior analysis.

Active Site Analytics for user behavior analysis



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10.1

Figure 11-11. Active Site Analytics for user behavior analysis

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Notes:

Active Site Analytics (ASA)

- WebSphere Portal provides Active Site Analytics (ASA), which allows you to collect data on how your users use WebSphere Portal.
- Is used in combination with a third-party analytics system, such as IBM Digital Analytics (formerly IBM Coremetrics Web Analytics).
- Can provide in-place report charts, called overlay reports.



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Figure 11-12. Active Site Analytics (ASA)

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Notes:



Overlay reports

- Description
 - Active Site Analytics (ASA) overlay reports are graphical statistics reports about individual portal resources, such as pages or portlets.
- Format
 - The statistics graph is shown on the portal page in the format of an overlay over a portlet/page.
- Access rights
 - You can define which users can view the reports by setting the appropriate access rights.
- User
 - The user must at least be in the USER role on the virtual resource OVERLAYREPORTS and at least in the USER role of the resource to view reports for

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Figure 11-13. Overlay reports

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Notes:

Setting up overlay reports

- To set up overlay reports, take the following steps:
 - Enable data collection
 - Enable inline display of IBM Digital Analytics reports by enabling overlay reports
 - To further customize the tagging of your site, assign site promotions to pages and portlets as required (optional).
- You can customize your own overlay reports by setting specific parameters as required.

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Figure 11-14. Setting up overlay reports

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Notes:

Configuring a Credential Vault for overlay reports

- Principles
 - Portal overlay reports show data from the IBM Digital Analytics system.
 - To access the IBM Digital Analytics system, you must store your user information in a *Credential Vault* slot.
- *Credential Vault* slot
 - Information that is stored in the vault should include:
 - IBM Digital Analytics client ID
 - IBM Digital Analytics user name
 - IBM Digital Analytics authentication key.
 - The *Credential Vault* slot that is used for storing the user information must have the slot name of com.ibm.portal.asa.coremetrics.slot.

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Figure 11-15. Configuring a Credential Vault for overlay reports

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Notes:

In the credential slot, you need to enter the Coremetrics (IBM Digital Analytics) user name and client ID, separated by a number sign (#), either as a shared user ID in the portal Administration user interface, or as an external-id in the XML configuration interface script.

Page metadata

- A rich set of page metadata is provided as part of WebSphere Portal themes and skins. Examples:
 - Page title
 - Page identifier
 - Portlet title and portlet identifier
- About aggregator script
 - You can write scripts, called aggregators, to retrieve the data.
 - The WebSphere Portal includes two sample aggregators that are named `SampleAggregator.js` and `CoremetricsAggregator.js`.
 - Add the aggregator scripts to pages as required.
 - The aggregator is then injected into the markup of the page the next time that the page is rendered.

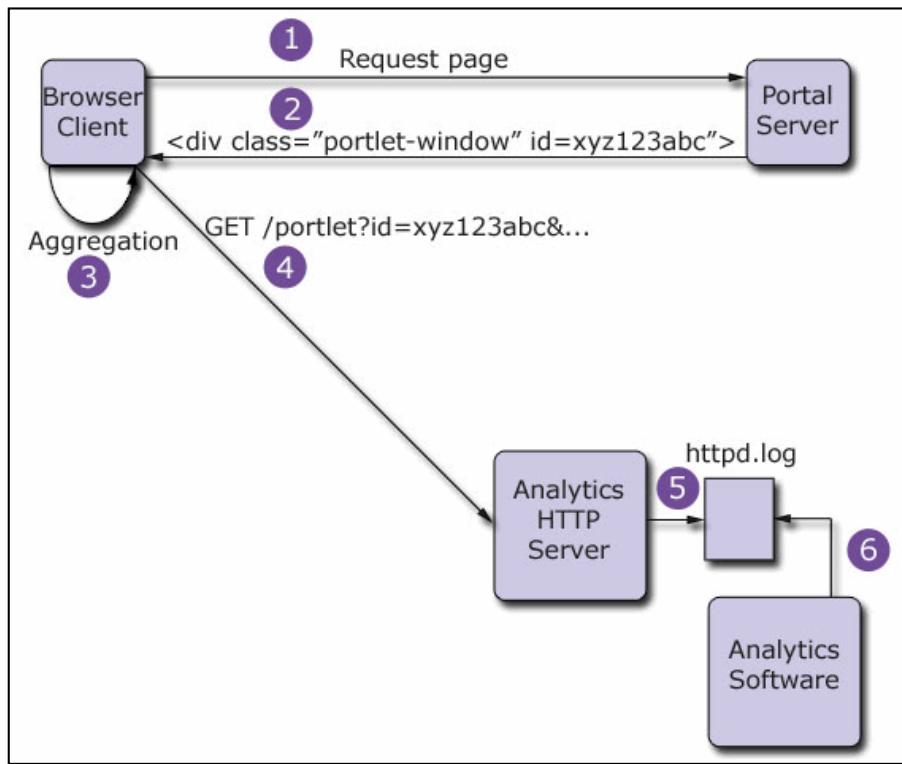
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Figure 11-16. Page metadata

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Notes:

How an aggregator fits into the flow



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Figure 11-17. How an aggregator fits into the flow

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Notes:

This figure shows an example of how an aggregator fits into the regular flow.

Aggregator and microformat

- Aggregator
 - The user behavior data is retrieved for analysis from markup that is embedded in the WebSphere Portal pages.
 - The aggregator that is associated with the page formats the data so that it can correspond to the requirements of the external analytics server to which it is finally submitted.
 - You can change the information that is retrieved from the page and submitted for analysis by changing the JavaScript code.
- Microformat
 - The data is represented as a *microformat* in the WebSphere Portal page HTML DOM (document object model) tree and tagged with CSS classes. Example:

```
<span class="asa.portlet.title">My Portlet</span>
```

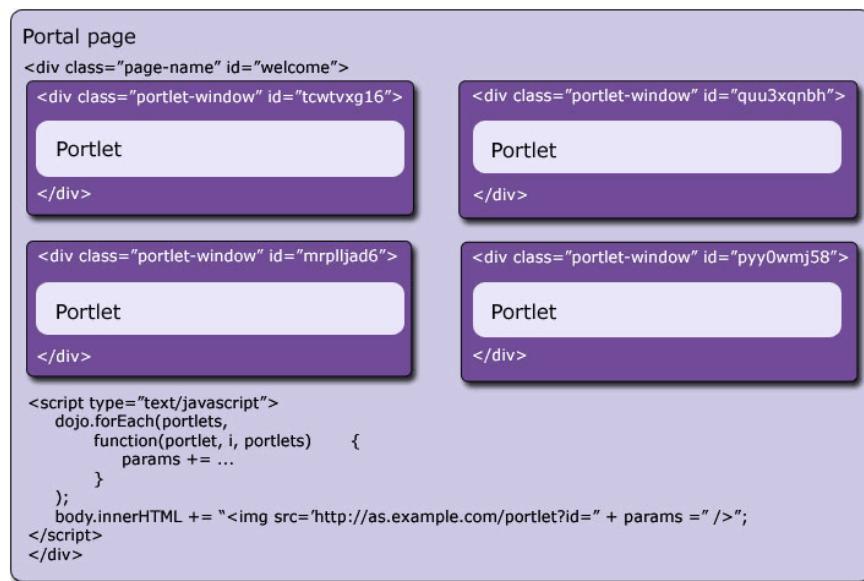
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Figure 11-18. Aggregator and microformat

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Notes:

Page structure with annotated portlets



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Figure 11-19. Page structure with annotated portlets

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Notes:

This figure represents a page structure with annotated portlets.

Samples and custom aggregator

- You can write your own aggregators scripts to retrieve data for Active Site Analytics from the WebSphere Portal themes and skins.
 - The WebSphere Portal themes and skins come with plugpoints that allow you to inject custom JavaScript snippets.
 - You can write an aggregator to retrieve the instances of the microformat in which you are interested.
 - The aggregator script is a JavaScript file.
 - A standard JavaScript code implementation builds URLs with Active Site Analytics parameters.

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Figure 11-20. Samples and custom aggregator

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Notes:

You can write an aggregator to retrieve the instances of the microformat in which you are interested. For example, the aggregator can find all CSS classes that start with asa. You can extract that data and submit it to the external analytics service, where the data is then recorded and processed for evaluation.

Tips for writing aggregators

- The aggregator can use the Active Site Analytics Mediator SPI to be able to react to Ajax page updates.
- If pages are server-side rendered and do not use Ajax, a simple script without the SPI is acceptable.
- Add the aggregator script file to the js folder in the theme folder by using WebDAV.

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Figure 11-21. Tips for writing aggregators

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Notes:

Keep in mind the following extra tips for writing aggregators:

- The aggregator can iterate over all instances of metadata to retrieve the relevant information for the HTML DOM tree. The aggregator collects and formats individual data according to the requirements of the external analytics service within the iteration loop.
- The aggregator adds an element (for example, a tracking image) to the HTML DOM tree of the current page after all instances of metadata are collected. Adding this element with a source URL, which points to the external analytics service, triggers a browser request from that remote location. The browser submits this data to the external analytics service because the element URL contains the collected metadata as HTTP GET parameters. It can also directly use an XMLHttpRequest POST.
- The sample aggregators contain more detailed information about the process of collecting, formatting, and submitting data.

Identifying and solving problems

- If Active Site Analytics is not working correctly, check the following items:
 - Verify that the HTML markup of the WebSphere Portal page contains the metadata for which the aggregator is looking.
 - Make sure that the tagging method that is used in themes, skins, and portlets matches the expected behavior of the aggregator.
 - If you use the Active Site Analytics Mediator SPI and your aggregator is not notified about DOM changes as expected, you can enable client-side tracing by using the resource environment provider WP CommonComponentConfig Service. Set the following two configuration properties:

```
cc.isDebugEnabled=true
cc.traceConfig=["com.ibm.wps.analytics.*"]
```

- Specify the following trace string to review what occurs in the aggregator inclusion.

```
com.ibm.wps.theme.extensions.ActiveSiteAnalytics=debug
```

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Figure 11-22. Identifying and solving problems

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Notes:

- Ensure that the tagging method that is used in the themes, skins, and portlets matches the expected behavior of the aggregator. For example, the Page Builder theme is included with the portal tags and all metadata with CSS classes whose names start with asa. The sample aggregators look for those CSS classes to retrieve portlet identifiers and portlet titles.
- Remember that aggregators are regular JavaScript files. All tools and helpers that are applicable to generic JavaScript debugging also apply to developing and debugging an aggregator.

WebSphere Portal supported aggregator tags

Portal supports many aggregator tags, including the following ones:

- Portlet Window ID
- Portlet Window Title
- Friendly URL
- Page Title
- Web Content Management Content Title
- Web Content Management Content ID

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Figure 11-23. WebSphere Portal supported aggregator tags

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Notes:

WebSphere Portal supports the following aggregator tags for Active Site Analytics:

Portlet window ID - The unique identifier of the portlet. Tag it as `asa.portlet.id`. It is injected into the skin.

Portlet window title - The title of the portlet because it is delivered to the client. Tag it as `asa.portlet.title`. It is injected into the skin.

Friendly URL - The friendly URL of the current page without navigational state. Tag it as `asa.url`. This element is empty if no friendly URL was set for the page.

Page title - The title of the page in the WebSphere Portal default language. Tag is as `asa.page.title`. It is injected into the theme.

Web Content Management Content Title - The title of the Web Content Management content item that is displayed in a portlet. It is not necessarily the same as the portlet window title. Tag it as `asa.wcm.content_item.title`. It is injected into the Web Content Management Rendering Portlet.

Web Content Management Content ID - The content ID of the Web Content Management content item that is displayed in a portlet. Tag it as `asa.wcm.content_item.id`. It is injected into the web content viewer portlet.

Assigning an aggregator to a page

1. Click **Administration > Manage Pages**.
2. Locate the page, or label, to which you want to assign the aggregator. Use the **Manage Pages** portlet to locate the page..
3. Click **Edit Page Properties** for the page that you selected.
4. Click **Expand Advanced Options** (the plus sign (+)) next to **Advanced Options** to expand the available choices.
5. Click the **I want to set parameters** link.
6. Type `asa_aggregator` in the New Parameter field.
7. Type the name of the aggregator script file in the New value field.
8. Click **Add**.
9. Verify that the new parameter is added to the list.
10. Click **OK** to return to the main Page Properties screen.
11. Click **OK** to save your changes and return to the Manage Pages screen.

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Figure 11-24. Assigning an aggregator to a page

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Notes:



Information

Children and parent pages: Children pages inherit the script that was set on the parent page. You can use these same steps to make the appropriate assignment if you want to use a different aggregator on a child page.

You can also use these steps to block inheriting the aggregator setting from the parent page. The difference is to leave the property value blank. As a result, no aggregator is assigned for the page, and all children of the page inherit the new setting.



Aggregators and themes

- WebSphere Portal provides the Portal 8.5 theme that is prepared for use with Active Site Analytics. (Portal 8.0 and Portal 7 Page Builder theme is also compatible.)
- You can also enhance the other WebSphere Portal themes or create your own custom theme to use the Active Site Analytics functions.
- Complete the following steps to make Active Site Analytics work in a custom theme:
 1. Add metadata to the page.
 2. Include an aggregator with the page.
 3. Include microformats of interest that are related to the statistical data you want to collect.

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Figure 11-25. Aggregators and themes

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Notes:

Adding metadata to the page

- Principles
 - An aggregator picks up information that is stored in the DOM tree of a page.
 - This information must be present in the HTML source of the page.
 - The preferred approach is to implement the theme or skin so that they write all the necessary information into the DOM tree of the page.
- For example, you can add the identifier of a portlet to the DOM tree by adding the following line to the skin.html file in the theme WebDAV folder:

```
<span class="asa.portlet.title">My Portlet</span>
```

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Figure 11-26. Adding metadata to the page

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Notes:

Including aggregators with the page

- WebSphere Portal includes a default implementation of the theme extension point
com.ibm.portal.theme.plugin.ActiveSiteAnalyticsAggregators.
- It locates and includes a JavaScript with a name that corresponds to the specified value in the `asa_aggregator` key that is given with the page metadata.
- Add the code in this example somewhere near the closing body tag (`</body>`) of the `themeName\nls\theme_languageCode.html` file of the theme WebDAV folder.

```
<portal-theme-ext:themeExtension
    id="com.ibm.portal.theme.plugin.ActiveSiteAnalyticsAggregators"
>
    <portal-theme-ext:themeExtensionLoop>
        <portal-theme-ext:themeExtensionItemText />
    </portal-theme-ext:themeExtensionLoop>
</portal-theme-ext:themeExtension>
```

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Figure 11-27. Including aggregators with the page

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Notes:

This code loops over every implementation of the theme extension point and runs it.

Including microformats of interest

- You might need to modify the skins that a theme uses so that all of the microformat information that you want to be captured is present when the page is rendered.
 - For example, you can add the following code to the skin.html file of a skin to ensure the portlet ID of all portlets on the page is available for the aggregator script to discover:

```
<span class="asa.portlet.id" style="display:none;"><%= myPortletID %></span>
```

- The `asa_sample.js` file, in this case, looks for elements with the class `asa.portlet.id` to find the portlet ID of all portlets present on the page.

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Figure 11-28. Including microformats of interest

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Notes:

For example, developers can add the following code to the skin.html file of a skin:

```
<span class="asa.portlet.id" style="display:none;"><%= myPortletID %></span>
```

Adding this code to the file ensures that the portlet ID of all portlets that are using the modified skin on a page are available for the aggregator script to discover.

Portlet titles can be rendered by using code similar to the following example:

```
<portal-skin:portletTitle />
```

You can provide an extra span element with a class defined for titles that the analytics JavaScript file looks for to capture such portlet titles:

```
<span class="asa.portlet.title"><portal-skin:portletTitle /></span>
```

The `asa.portlet.title` class, in this case, is recognized as the class for all span elements that encompass the rendered text of the portlet titles.

Unit summary

Having completed this unit, you should be able to:

- Explain how to use portal usage analysis
- Determine how to analyze user behavior

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Figure 11-29. Unit summary

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Notes:

Checkpoint

1. How is the user behavior data, which is used for analysis, retrieved from WebSphere Portal pages?
 - A. Comment
 - B. Markup
 - C. Tag

2. The WebSphere Portal site analysis information is stored in which file?
 - A. SystemOut.log
 - B. sa_date_time.log
 - C. Trace.log

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Figure 11-30. Checkpoint

WPL951.0

Notes:

Write your answers here:

- 1.
- 2.



Checkpoint answers

1. How is the user behavior data, which is used for analysis, retrieved from WebSphere Portal pages?
Answer: B
B. Markup
2. The WebSphere Portal site analysis information is stored in which file?
Answer: B
B. sa_date_time.log

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Figure 11-31. Checkpoint answers

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Notes:

Exercise 10



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10.1

Figure 11-32. Exercise 10

WPL951.0

Notes:



Exercise objectives

At the end of this exercise, you should be able to:

- Enable site analysis logging
- Review the logs

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Figure 11-33. Exercise objectives

WPL951.0

Notes:

Unit 12. Virtual portlets and realms

What this unit is about

This unit provides an introduction to virtual portlets and realms.

What you should be able to do

After completing this unit, you should be able to:

- Differentiate between true and virtual portals
- Define a realm
- Identify Virtual Member Manager (VMM) configuration files
- Identify scoped and non-scoped resources
- Create a virtual portal
- Customize the provisioning script for virtual portals

Unit objectives

After completing this unit, you should be able to:

- Differentiate between true and virtual portals
- Define a realm
- Identify Virtual Member Manager (VMM) configuration files
- Identify scoped and non-scoped resources
- Create a virtual portal
- Customize the provisioning script for virtual portals

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Figure 12-1. Unit objectives

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Notes:



Topics

- Virtual portals and realms
- Creating a realm
- Creating a virtual portal
- Scoped and non-scoped resources
- Virtual portal provisioning script

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Figure 12-2. Topics

WPL951.0

Notes:

12.1. Virtual portals and realms

This topic describes virtual portals, true portals, and realms, and examines WebSphere security.

Virtual portals and realms



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Figure 12-3. Virtual portals and realms

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Notes:

Virtual and true portals

- Virtual portals:
 - Are administrative entities
 - Are logical portals
 - Share hardware resources
 - Share licenses
 - Share software installation and updates
 - Share portal resources
 - Allow separate user communities
- True portals:
 - Usually have independent hardware and software
 - Usually require separate updates for each portal instance
 - Each portal has a unique set of portal resources
 - Have a single user community

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Figure 12-4. Virtual and true portals

WPL951.0

Notes:

Virtual portals are administrative entities and are logical portals that share hardware and software installation. They have the following key benefits:

- Delegating the administration of a virtual portal. A team of administrators from another organization can manage user privilege for some resources that a virtual portal employs.
- Associating discrete user communities with unique virtual portals.



Realm

- Description
 - Defined subset of the total portal user repository
 - Collection of congruous and continuous users that a user repository manages
- About realm definition
 - Creating a virtual portal begins with realm definition.
 - Define a realm for use with a specific virtual portal before creating the virtual portal.
 - You cannot change to another realm after you create a virtual portal.
 - Each portal might have distinctly different user communities.

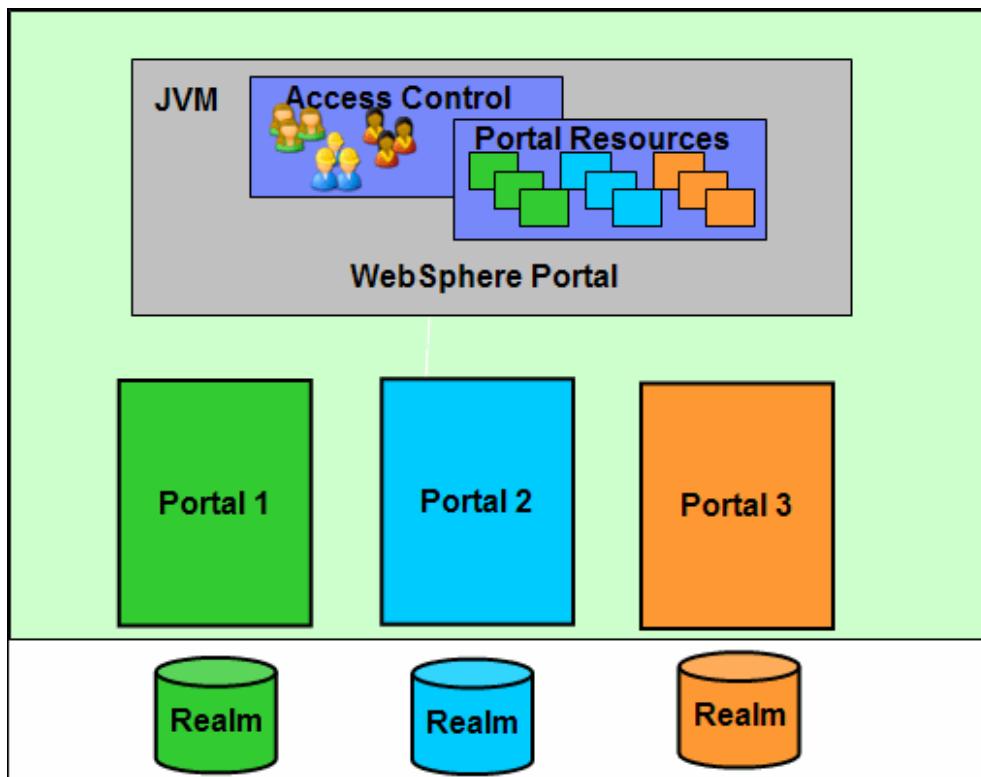
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Figure 12-5. Realm

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Notes:

Realm and virtual portal



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Figure 12-6. Realm and virtual portal

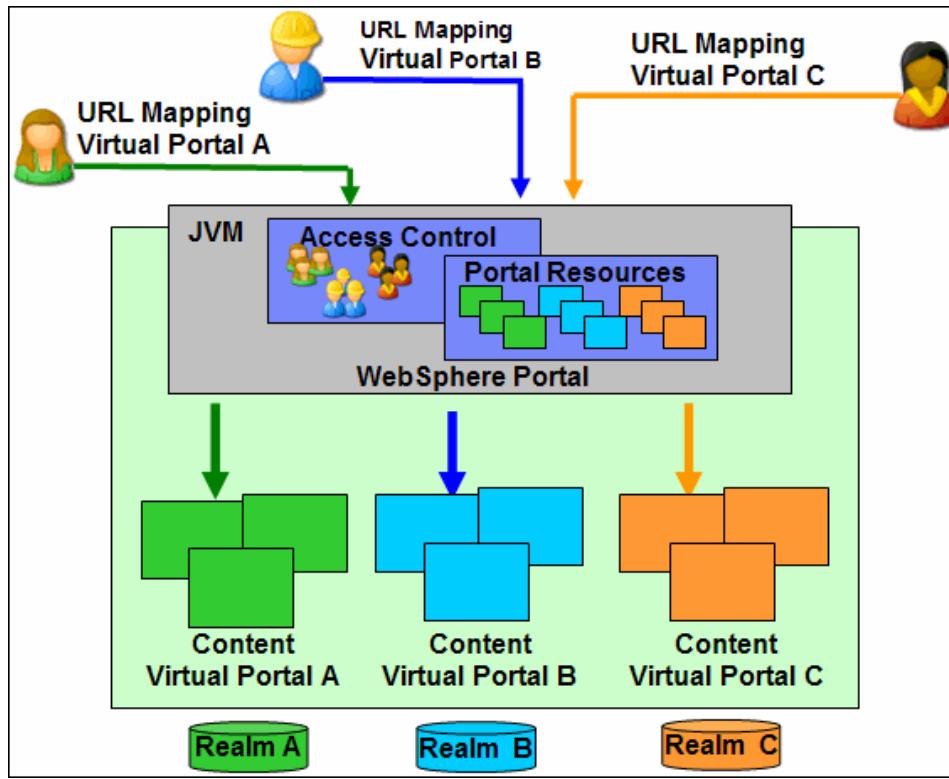
WPL951.0

Notes:

A single “true” portal can be configured to host as many as 150 virtual portals, as illustrated in this figure.

- Creating realms enables the administrator to tailor the user community to the virtual portal.
- By dividing the repository into realms, the administrator can segment the user community based on the distinguished naming characteristics of the repository.
- Different administrative groups can be assigned to each virtual portal.
- Creating security realms enables subdivision of an all-encompassing federated repository.

Create multiple virtual portals



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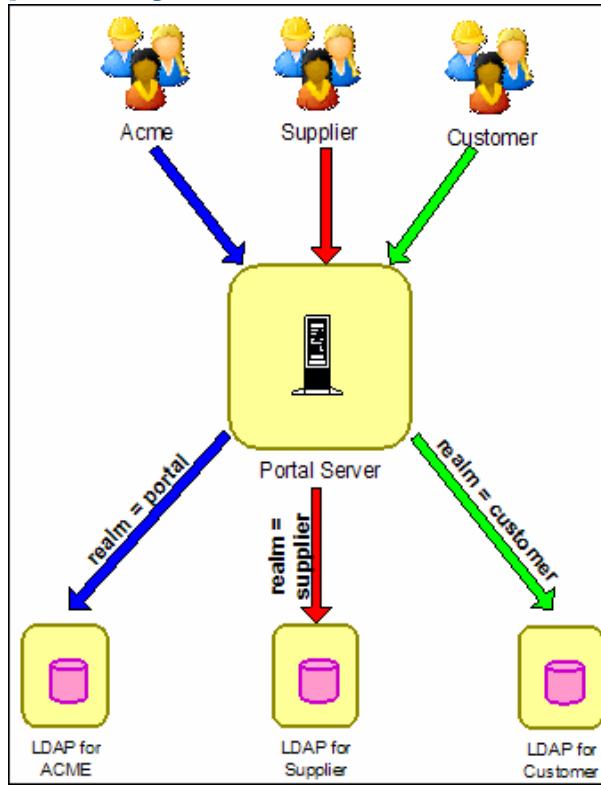
Figure 12-7. Create multiple virtual portals

WPL951.0

Notes:

- Multiple logical portals for different user communities can be created with the virtual portal feature.
- General advantages
 - Shared hardware and shared software instance
 - One IBM WebSphere Portal software installation for all portals
 - A shared WebSphere Application Server or cluster for all portals
- Each virtual portal can have different
 - User population
 - Anonymous pages
 - Configuration
 - Administration groups

Federated repository and realms



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Figure 12-8. Federated repository and realms

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Notes:

This figure represents federated repository and realms.

12.2.Creating a realm

This topic explains how to create a realm.

Creating a realm



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Figure 12-9. Creating a realm

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Notes:

Adding realm support for a virtual portal

- Use the ConfigEngine configuration utility to update the `wimconfig.xml` file to add realm support.
- To create a realm, follow these steps:
 1. Modify the `wkplc.properties` file before running each task.
 2. Run `wp-create-base-entry` to create base DNs.
 3. Run `wp-create-realm` to create the realm definition along with the initial participating base entry.
 4. Run `wp-add-realm-baseentry` to add extra base entries to an existing realm.
 5. Run `wp-add-ldap-entitytype-rdn` to define new search bases.
 6. Restart all servers in the cell.

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Figure 12-10. Adding realm support for a virtual portal

WPL951.0

Notes:

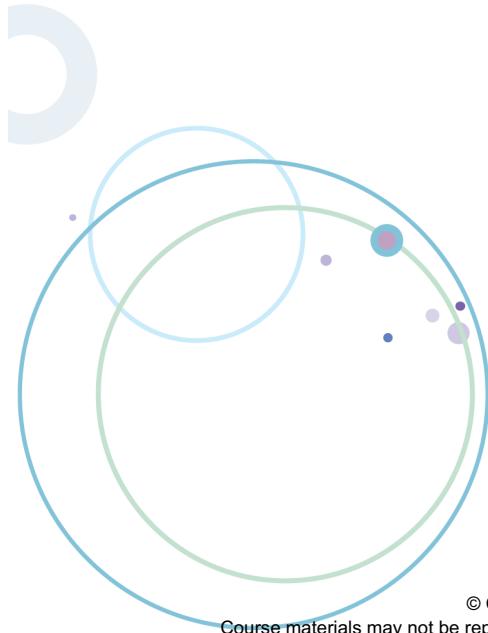
For step 6, restart all servers in the cell after completing the tasks:

- a. Stop the portal instances.
- b. Stop the node agents.
- c. Stop the deployment manager.
- d. Start the deployment manager.
- e. Start the node agents.
- f. Start the portal instances.

12.3.Creating a virtual portal

This topic explains how to use the Virtual Portal Manager portlet for virtual portal creation and management.

Creating a virtual portal



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Figure 12-11. Creating a virtual portal

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Notes:

Using the Virtual Portal Manager portlet

Virtual Portal Manager

Use the controls below to manage your portals. Click new virtual portal to create a portal. Click on a portal's title or URL to go to a portal. Click the edit icon to modify title and description. Click the delete icon to remove a portal.

New Virtual Portal

Page 1 of 1			
Title	URL Context	Hostname	Description
WebSphere Portal *			The Initial Virtual Portal instance. 

Note: the relative URL for a virtual portal consists of /wps/portal/ + a URL context from above.
* Denotes base portal installation.

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Figure 12-12. Using the Virtual Portal Manager portlet

WPL951.0

Notes:

- Virtual portals are managed with the Virtual Portal Manager portlet.
- The original portal, WebSphere Portal, is defined as a Virtual Portal instance.



Creating a new virtual portal (1 of 3)

1. Click Administration > Virtual Portals > Manage Virtual Portals > New Virtual Portal.
2. Enter a title.
3. Define a URL context, to append to the original context, and a virtual host name. Users can use either to access the virtual portal.

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Figure 12-13. Creating a new virtual portal (1 of 3)

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Notes:

The virtual portal host name, enables the user to access the virtual portal by using the unique host name. You cannot define a host name that is identical to the default portal host name.

Creating a new virtual portal (2 of 3)

4. Choose a defined realm. The realm must exist before creating the virtual portal.
5. Define the initial admins group.

The screenshot shows the 'Virtual Portal Manager' interface for creating a new virtual portal. The title bar says 'Virtual Portal Manager'. The main area is titled 'Create New Virtual Portal' with a note: 'Provide the information requested below and click OK to create a new virtual portal. Click the search icon to search for an admin user group. Click the preview icon to preview the theme.' The form fields are as follows:

- Virtual portal title:** NewYorkPortal
- Virtual portal description:** East Coast Employee Portal
- URL Context:** /wps/portal/newyork
- Virtual portal hostname:** http://hyp.newyork.ibm.com:10040/wps/portal/
- User realm:** defaultWIMFileBasedRealm
- Initial admin user group:** (a valid user realm must be specified first) nyadmins
- Default theme:** Portal

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Figure 12-14. Creating a new virtual portal (2 of 3)

WPL951.0

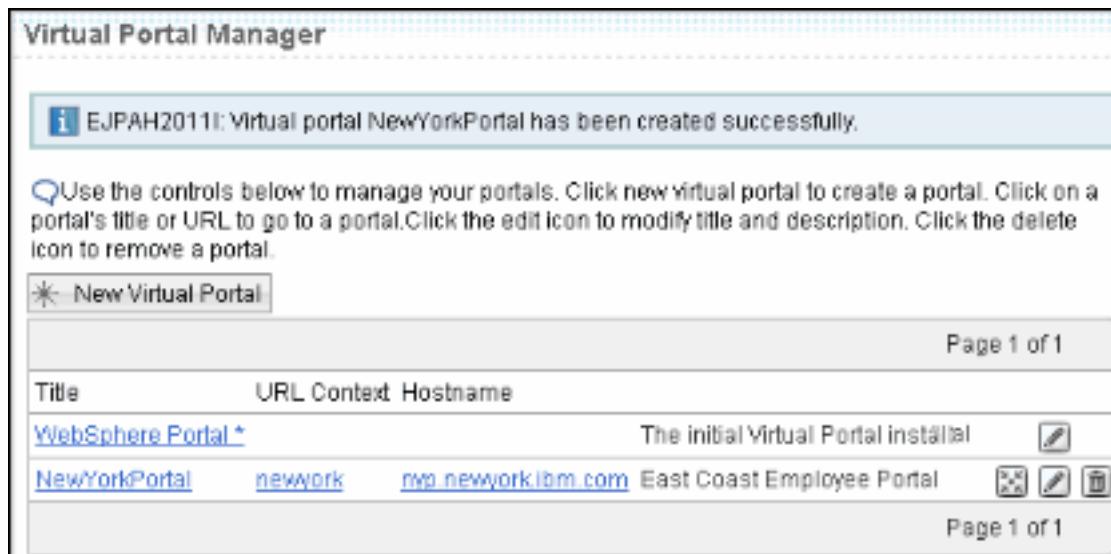
Notes:

The initial admins group can be the same as the default portal, but is usually a smaller group. The admins group that is specified here has a sharply curtailed set of privileges.



Creating a new virtual portal (3 of 3)

6. Address the virtual portal.



The screenshot shows a "Virtual Portal Manager" interface. At the top, a success message says "EJPAH2011I: Virtual portal NewYorkPortal has been created successfully." Below it, instructions advise using controls to manage portals, creating a new one, or editing existing ones. A table lists the portal "NewYorkPortal" with URL "newyork" and hostname "nyp.newyork.ibm.com". The table includes columns for Title, URL Context, Hostname, Description, and actions (Edit, Delete). The bottom of the page shows "Page 1 of 1".

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Figure 12-15. Creating a new virtual portal (3 of 3)

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Notes:

Connect to the virtual portal by using either of the following addresses:

<http://mydomain.com/wps/portal/newyork>
<http://nyp.newyork.ibm.com/wps/portal>

Virtual portal and managed pages

- When you create a virtual portal:
 - A workspace is created that contains a new *Portal Site web content library*.
 - Any managed pages that are created in the virtual portal are stored in the *Portal Site library*.
 - These pages are visible only within the virtual portal because web content libraries are not shared across virtual portals.
 - Syndication of the Portal Site library for a virtual portal is the same as syndication of any other web content library.

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Figure 12-16. Virtual portal and managed pages

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Notes:

12.4.Scoped and non-scoped resources

This topic describes scoped and non-scoped resources.

Scoped and non-scoped resources



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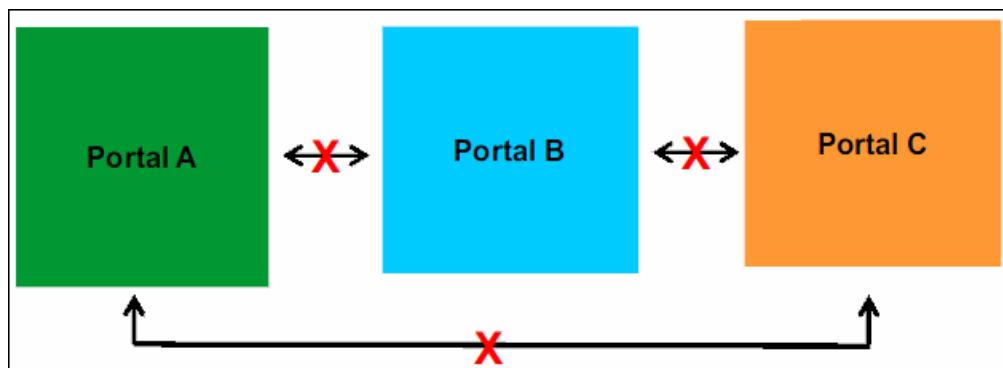
Figure 12-17. Scoped and non-scoped resources

WPL951.0

Notes:

Defining scoped resources

- *Scoped resources* are resources that are only available to a specific virtual portal.
 - Use access control to restrict individual users or group access permissions within the context of a specific virtual portal.
 - Restrict access to these resources by virtual portal users through portal access control.



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Figure 12-18. Defining scoped resources

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Notes:

Scoped resources have the following characteristics, among others:

- They can be assigned to a specific virtual portal.
- They cannot be shared between virtual portals.
- They can be customized for each virtual portal.

This figure illustrates how you can restrict access to these resources by virtual portal users through portal access control.

Some resources can be scoped to use within individual virtual portals. Technically, this situation is not the same as a scoped resource. For practical purposes, use of an ACL to scope a resource serves the same result.

Scoped resources include:

- Pages and labels
- Portlet instances
- Portal search collections

Defining non-scoped resources

- Non-scoped resources are shareable resources across many virtual portals.
- Following *non-scoped* resources can be scoped by using portal access control:
 - Portlets and portlet applications
 - Web modules and URL mapping contexts
 - Users and groups
- Following *non-scoped* resources, among others, cannot be scoped by using portal access control:
 - Themes and skins
 - Vault segments and vault slots
 - Application templates and composite applications
 - Policies

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Figure 12-19. Defining non-scoped resources

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Notes:

Non-scoped resources have the following characteristics, among others:

- All virtual portals share them.
- Customization affects all virtual portals.
- Some resources can be scoped through the Portal access control.

12.5. Virtual portal provisioning script

This topic describes the virtual portal provisioning script.

Virtual portal provisioning script



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Figure 12-20. Virtual portal provisioning script

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Notes:

Virtual portal provisional script

- The provisioning script defines the default pages that are created in a new virtual portal and their layout and contents.
- You can control the appearance of new virtual portals by altering the provisioning script or creating one of your own.

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Figure 12-21. Virtual portal provisional script

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Notes:

Managing the virtual portal asset

The screenshot shows the Integrated Solutions Console interface. The left sidebar has a navigation menu with 'View: All tasks' at the top, followed by 'Welcome', 'Guided Activities', 'Servers', 'Applications' (which is expanded to show 'New Application', 'Application Types' (with 'WebSphere enterprise applications' and 'Business-level applications'), and 'Assets' (which is selected)), 'Services', 'Resources' (with 'Schedulers' and 'Object pool managers'), 'JMS', and 'JDBC'. The right panel is titled 'Assets' and contains a message: 'Use this page to manage assets in the asset repository. Assets represent physical binary (EJB) Java(TM) archive (JAR) files, EAR files, Service Component Architecture (SCA) components such as PHP applications.' Below this are 'Import', 'Delete', 'Update', and 'Export' buttons, and a toolbar with icons for file operations. A search bar labeled 'Select Name' is present. A list of assets is shown with 'VirtualPortal.zip' selected. At the bottom, it says 'Total 1'.

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Figure 12-22. Managing the virtual portal asset

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Notes:

The virtual portal provisioning script is stored inside the VirtualPortal.zip asset, available from the Integrated Solutions Console, under **Applications > Application Types > Assets**. Export this file and extract it to access the provisioning script. When a new provisioning script is created, it must be compressed, for example as myVirtualPortal.zip, and the compressed file be added as a new asset. Alternatively, it might be added back to VirtualPortal.zip and that asset updated.

Customizing the default Virtual Portal content

1. Locate the existing script, from the virtual portal asset.
2. Create a script and add it to the existing VirtualPortal.zip or create a new compressed file. Update the VirtualPortal.zip asset or add the new compressed file as a new asset.
3. From the Virtual Portal Manager portlet menu, select **Configure** and enter the new script name.

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Figure 12-23. Customizing the default Virtual Portal content

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Notes:

The screenshot shows a 'Manage Portlets' dialog box. At the top, it says 'Edit parameter SCRIPT_INIT_VP' with a note: 'Enter a new value for the selected parameter.' Below this, there are two input fields: 'Parameter:' containing 'SCRIPT_INIT_VP' and 'Value:' containing 'WebSphere:assetname=VirtualPortal.zip:Init'. At the bottom are two buttons: 'OK' and 'Cancel'.

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Figure 12-24. Providing a script name

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Notes:

Use the Virtual Portal Manager portlet configuration settings to provide the script name. The parameter is "SCRIPT_INIT_VP" and the value must be:

WebSphere: *assetname=myVirtualPortal.zip:myInitVirtualPortalScript.xml*

Unit summary

Having completed this unit, you should be able to:

- Differentiate between true and virtual portals
- Define a realm
- Identify Virtual Member Manager (VMM) configuration files
- Identify scoped and non-scoped resources
- Create a virtual portal
- Customize the provisioning script for virtual portals

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Figure 12-25. Unit summary

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Notes:

Checkpoint

1. Map each of the following four statements to either A or B where
 - A. True portal B. Virtual portal
 1. Have a unique set of portal resources
 2. Allow separate user communities
 3. Share licenses
 4. Provide strong isolation of applications
2. What is alternative to manually editing the wimconfig.xml file?
 - A. Editing by using a custom code
 - B. Use ConfigEngine Utility
 - C. Editing from integrated solutions console

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Figure 12-26. Checkpoint

WPL951.0

Notes:

Write your answers here:

- 1.
- 2.

Checkpoint answers

1. Map each of the following four statements to either A or B where
A. True portal B. Virtual portal
Answer: **1A, 2B, 3B, 4A**
 1. Have a unique set of portal resources
 2. Allow separate user communities
 3. Share licenses
 4. Provide strong isolation of applications
2. What is alternative to manually editing the wimconfig.xml file?
Answer: **B**
B. Use ConfigEngine Utility

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Figure 12-27. Checkpoint answers

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Notes:

Exercise 11



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10.1

Figure 12-28. Exercise 11

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Notes:

Exercise objectives

At the end of this exercise, you should be able to:

- Enable security with multiple realm support
- Modify the VMM configuration files to support multiple realms
- Create a virtual portal

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Figure 12-29. Exercise objectives

WPL951.0

Notes:

Unit 13. XML access

What this unit is about

This unit describes the Extensible Markup Language (XML) configuration interface as a tool to manage the resources for IBM WebSphere Portal 8.5. It includes release management and configuration updates.

What you should be able to do

After completing this unit, you should be able to:

- Describe the XML configuration interface
- Review how the XML configuration tool works
- Export configurations

Unit objectives

After completing this unit, you should be able to:

- Describe the XML configuration interface
- Review how the XML configuration tool works
- Export configurations

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Figure 13-1. Unit objectives

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Notes:

Topics

- XML configuration interface for WebSphere Portal
- Examples of when to use XML Access

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Figure 13-2. Topics

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Notes:

13.1.XML configuration interface for WebSphere Portal

This topic explains what the XML configuration interface is and how it is used.

XML configuration interface for WebSphere Portal



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10.1

Figure 13-3. XML configuration interface for WebSphere Portal

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Notes:

XML configuration interface: Changes in Portal 8

- WebSphere Portal Version 8.0 includes the following items:
 - New resource tags:
 - Device-class
 - Global-target-settings
 - Target
 - New XML attributes:
 - A new Boolean flag system for content-mapping tags
 - Parameter sections for task nodes
 - New attribute target-portletdefinitionref on cross-page-wire items
 - Removed XML resources:
 - Event-handler
- XML schemas are compatible with the previous version. There are no documented changes from 8.0 to 8.5.

There is a new xml schema PortalConfig_8.5.0.xsd for this version.
The Portal 8.0 schema is PortalConfig_8.0.0.xsd.

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Figure 13-4. XML configuration interface: Changes in Portal 8

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Notes:

XML configuration interface: Overview (1 of 2)

- The XML configuration interface, often called XML Access, is a batch processing tool that facilitates WebSphere Portal updates.
- The basis of the interface:
 - Consists of XML files that are created in compliance with a schema, `PortalConfig_8.5.0.xsd`.
 - Provides three fundamental tasks: export, update, and delete
- The specific nature of the tasks depends on the structure and content of the XML file, or script, that is passed to the configuration interface.

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Figure 13-5. XML configuration interface: Overview (1 of 2)

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Notes:

The schema can be extracted and examined from the
`<PortalServer_root>\base\wp.xml\shared\app\wp.xml.jar` file.



Information

Working custom unique names: As soon as possible, define custom unique names for all WebSphere Portal resources. These names make reading your XML Access scripts much easier.

XML configuration interface: Overview (2 of 2)

- Numerous sample scripts are available in the <PortalServer_root>/doc/xml-samples directory.
- Using XML Access is easier if you start by making copies of the sample scripts and adapt them for your environment.
 - For example, to export the WebSphere Portal configuration without users, you can use the Export.xml sample script.

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Figure 13-6. XML configuration interface: Overview (2 of 2)

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Notes:

XML script file structure

- The export file contains the XML declaration, followed by the main element, *request*.
- The *request* element contains the following attributes:
 - The *Namespace* attribute refers to the *PortalConfig* schema.
 - The *Type* attribute specifies the general nature of the example in an export request.
 - The *Export-users* attribute specifies that users are not exported.
- The export file also includes a *portal* element with an *action* attribute.
 - The *portal* element indicates which parts of the portal configuration to export or update.
 - The *action* attribute defines the type of action to be done on the specified scope.

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Figure 13-7. XML script file structure

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Notes:

Export.xml sample file contents:

```
<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="PortalConfig_8.0.0.xsd" type="export"
export-users="false">
    <portal action="export"/>
</request>
```

Example scripts

1. Export page attributes
2. Create a Producer definition (WSRP service provider)

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Figure 13-8. Example scripts

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Notes:

Example script 1: Export page attributes

- The file begins with the XML declaration and the main element, `request`.
- The distinguishing features are reflected in the portal element's `action` attribute value, `locate`.
- The `content-node` element's `unique-name` attribute, `com.portal.ssa.SamplePage`, identifies a portal resource in the node hierarchy.

```
<?xml version="1.0" encoding="UTF-8"?>
- <request type="export" xsi:noNamespaceSchemaLocation="PortalConfig_8.0.0.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <!-- sample for exporting a page -->
  - <portal action="locate">
    <content-node action="export" uniquename="ibm.portal.ssa.SamplePage"/>
  </portal>
</request>
```

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Figure 13-9. Example script 1: Export page attributes

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Notes:

The file also includes a portal element with an `action` attribute. The portal element indicates which parts of the portal configuration must be exported or updated. In this example, the entire portal configuration is in scope. The `action` attribute defines the type of action to be done on the specified scope.

Example script 2: Creating a Producer definition

- This script is used to create a producer (WSRP service provider)
- Replace

http://producer_portal_host:producer_port/wp_contextRoot with the appropriate values for the environment of your Producer.

```
<?xml version="1.0" encoding="UTF-8" ?>
<request type="update" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="PortalConfig_8.0.0.xsd" create-oids="true">
  <portal action="locate">
    <wsrp-producer action="update" uniquename="ibm.portal.MySampleProducer1">
      <porttype type="service-description" update="set">
        <unsecure-url> http://producer_portal_host:producer_port/wp_contextRoot/WSRPServiceDescriptionService</unsecure-url>
      </porttype>
      <porttype type="markup" update="set">
        <unsecure-url>http://producer_portal_host:producer_port/wp_contextRoot/WSRPBaseService</unsecure-url>
      </porttype>
      <localizedata locale="en">
        <title>My Sample Producer 1</title>
      </localizedata>
    </wsrp-producer>
  </portal>
</request>
```

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Figure 13-10. Example script 2: Creating a Producer definition

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Notes:

The script defines values for the description, service URL, and title.

Content-node element

- The content-node element refers to an element in the navigational node hierarchy of the portal.
- content-node includes the following components:
 - Pages that display portlets
 - Labels that are used to organize the node hierarchy that do not include display portlets
 - URLs consisting of references internal or external to the portal

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Figure 13-11. Content-node element

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Notes:

For a more discrete example of a page export, see the ExportPage.xml sample script.

As illustrated in Figure 13-8, "Example scripts," on page 13-11, the file begins with the XML declaration and the main element, request. The distinguishing features are reflected in the portal element's action attribute value, locate. This value instructs the interface to locate, within the configuration, a particular resource. The content-node element's unique-name attribute, com.portal.ssa.SamplePage, identifies a portal resource in the node hierarchy. The action attribute value is defined to export the identified resource.

Always export and replace an entire stack of page layers. For example, do not use the scripting interface to modify layout layers. Also, do not try to work with derived pages through manually created XML Access scripts. Use the administration portlets to edit page layouts and then export the result into an XML response file.

In addition to content-node resources, you can work with users, portlets, themes, skins, and other commonly managed resources.

13.2.Examples of when to use XML Access

This topic presents examples of when to use XML Access and describes exporting configurations.

Examples of when to use XML Access



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10.1

Figure 13-12. Examples of when to use XML Access

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Notes:

XML scripting interface

- The XML scripting interface is ideal for incorporating additions, updates, and deletions to WebSphere Portal:
 - Transferring or migrating between computers
 - Backing up the portal configuration
 - Copying parts of a configuration
 - Creating a WebSphere Portal configuration file by an XML export
 - Installing extra resources on WebSphere Portal
 - Handling recurring administration tasks in an automated and reproducible manner
 - Handling these administrative tasks remotely, that is from another server through an HTTP(S) connection

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Figure 13-13. XML scripting interface

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Notes:

The XML scripting interface is ideal for incorporating additions, updates, and deletions to WebSphere Portal:

- Transferring or migrating between computers, such as during hardware upgrades
- Backing up the portal configuration as part of a larger backup strategy
- Copying parts of a configuration, such as specific pages, from one portal to another
- Creating a WebSphere Portal configuration file by an XML export
- Installing extra resources on WebSphere Portal
- Handling recurring administration tasks in an automated and reproducible manner
- Handling these administrative tasks remotely, that is from another server through an HTTP(S) connection

XML scripting interface: Syntax

- To work with the syntax of the XML scripting interface in its most basic form, open a command prompt in the <wp_profile_root>\PortalServer\bin directory and enter the following command:

```
xmlaccess -user <wps_administrator> -password  
<wps_admin_password> -url  
<your_portal_host>:10039/wps/config -in input_file.xml  
-out result_file.xml
```

- How does it work?
 - The input file reflects the schema typed request parameters.
 - The output file contains the results of the requested action.
 - Information, including password, are sent unencrypted.
 - The name and password are visible on the console and the process view.

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Figure 13-14. XML scripting interface: Syntax

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Notes:

Use a secure channel for your communications. The following alternative syntax can be used for passing credentials:

```
xmlaccess -askForCredential -url myhost:10039/wps/config -in input_file.xml -out  
result_file.xml
```

The -askForCredential parameter prompts for the name and password and does not show the values in the console or in the process view.

Object ID

- Description
 - WebSphere Portal generates the object ID when the object is created.
- Principles
 - When you examine an XML export result file, you find an object ID attribute for each resource.
 - These object IDs uniquely identify resources, and they are the means by which one resource refers to another.
 - Editing object IDs in the XML files can lead to unexpected outcomes.
 - The values of the object IDs are unlikely to conform with the internally required format.

Understanding object ID is essential for successfully working with the XML configuration interface.

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Figure 13-15. Object ID

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Notes:



Resource objectid attribute

- The resource objectid attribute is used for the following tasks:
 - Look up resources for locate, export, update, or delete actions.
 - Assign the object ID if the action is create.
 - Assign the object ID if the action is update and the object ID does not exist in the target system.
 - Describe links from one reference to another.

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Figure 13-16. Resource objectid attribute

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Notes:

In addition to object ID usage within WebSphere Portal, you can use object IDs within your script, so that, when a resource is imported, a new object ID are created.

Using object IDs in a script: Two methods

Set the `create-oids` attribute of the `request` element to true

Define ad hoc object IDs

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Figure 13-17. Using object IDs in a script: Two methods

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Notes:

Using object IDs in a script: Methods in detail

- Set the `create-oids` attribute of the `request` element to true
 - This setting has a global effect on all object IDs contained in the script
 - Your portal generates new object IDs for every resource whose `action` attribute is set to update or create.
- Define ad hoc object IDs
 - Set the value of an `objectid` attribute to a value, such as a string name.
 - You must first “define” the name in your script.

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Figure 13-18. Using object IDs in a script: Methods in detail

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Notes:

Web-app element (portlets)

Many times a script must not only export a page; it must also include the portlets that are displayed on the page.

— Example:

- In addition to a content - node element, the script locates a web - app element. The portal element action *attribute* is *locate*.
- The unique - name attribute of the content - node specifies a specific page.
- The uid attribute of the web - app element specifies a discrete web module.

```
<request xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="PortalConfig_7.0.0.xsd" type="export">
  <!-- sample for exporting a page with portlet -->
  - <portal action="locate">
    <web-app action="export" uid="com.ibm.wps.cp.portlet.tagcloud.webmod" />
    <content-node action="export" uniquename="ibm.portal.ssa.SamplePage" />
  </portal>
</request>
```

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Figure 13-19. Web-app element (portlets)

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Notes:

Other portal resources

- In addition to pages and other content-nodes, you can manage users, web modules, portlets, and other portal resources.
- To implement elegant scripted management of your portal implementation, consult the sample files, the configuration schema, and the XML configuration reference.

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Figure 13-20. Other portal resources

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Notes:

For more information, see the WebSphere Portal family wiki at:

http://www-10.lotus.com/ldd/portalwiki.nsf/dx/XML_configuration_reference_wp8

Unit summary

Having completed this unit, you should be able to:

- Describe the XML configuration interface
- Review how the XML configuration tool works
- Export configurations

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Figure 13-21. Unit summary

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Notes:



Checkpoint

1. The parameter `-askForCredential` results in:
 - A. Prompt for user name and password
 - B. Display user name and password
 - C. Skips user name and password

2. XML configuration schema is not compatible with the previous version.
 - A. True
 - B. False

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Figure 13-22. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.

Checkpoint answers

1. The parameter `-askForCredential` results in
Answer: A
 - A. Prompt for user name and password

2. XML configuration schema is not compatible with the previous version.
Answer: B
 - B. False

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Figure 13-23. Checkpoint answers

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Notes:

Exercise 12



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Figure 13-24. Exercise 12

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Notes:

Exercise objectives

At the end of this exercise, you should be able to:

- Export the WebSphere Portal 8.5 configuration
- Verify that the export process ran successfully

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Figure 13-25. Exercise objectives

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Notes:

Unit 14. Staging to production

What this unit is about

This unit covers potential test to staging to production scenarios. It examines the transitions from one environment to another.

What you should be able to do

After completing this unit, you should be able to:

- Manage the IBM WebSphere Portal 8.X release lifecycle
- Define staging and production systems
- Implement releases
- Export WebSphere Portal configurations
- Use the Release Builder tool

Unit objectives

After completing this unit, you should be able to:

- Manage the IBM WebSphere Portal 8.X release lifecycle
- Define staging and production systems
- Implement releases
- Export WebSphere Portal configurations
- Use the Release Builder tool

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Figure 14-1. Unit objectives

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Notes:

Topics

- Moving from a staging to production environment
- Staging and production systems
- Release lifecycle
- Implementing releases
- Using Release Builder
- Moving artifacts manually

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Figure 14-2. Topics

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Notes:

14.1.Moving from a staging to production environment

This topic covers staging versus production and determining what is moved into production.

Moving from a staging to production environment



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Figure 14-3. Moving from a staging to production environment

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Notes:

Staging, production environment, and configuration management

- Staging
 - Staging is the process of building the final, tested release with the intention of deploying that release to production.
 - This environment is commonly called the staging environment.
- Production environment
 - The production environment is the intersection of the full implementation of applications and the IBM WebSphere Portal configuration with the live target audience.
- Release management
 - Release management, or staging, is the process of moving a portal release to the next environment in the chain.

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Figure 14-4. Staging, production environment, and configuration management

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Notes:

Staging gives you and your testing team the opportunity to see how WebSphere Portal looks in production before you release it to your customers or employees.

Determining what is moved into production

Many companies have their own terms for moving into production, such as *elevation*, *promotion*, *release*, *uplift*, and *deployment*.

Your portal consists of portlets, servlets, Enterprise JavaBeans (EJB), and other Java Platform, Enterprise Edition artifacts that developers provide. Designers provide themes, skins, and administrators with information. Architects define the content tree, which consists of labels, URLs, and pages.

Resources in WebSphere Portal have a system generated object ID that uniquely identifies them. These object IDs are generated when resources are created and are globally unique. Object IDs that different WebSphere Portal installations automatically generate can never be the same.

When you exchange resources between different WebSphere Portal installations by using XML Access, you can do so without worrying about possible object ID conflicts. The `objectid` attribute in an XML export represents object IDs.

A resource that has an object ID can optionally also have a unique name. Custom Unique Names are described in Unit 10, "Other administrative portlets". You can use the unique name to identify the resource unambiguously. Unique names are useful if you need a symbolic way to identify certain resources.



Information

Creating custom unique names: Assign unique names as early as possible in the release cycle, preferably in development. Administrators might not see the need to assign unique names to all WebSphere Portal resources in the beginning, especially in early development. A more thoroughly defined unique name practice will give maximum flexibility for future upgrades and migration.

For example, for one portlet WAR file that contains multiple portlet applications, the initial deployment.xml does not need a unique name for the individual portlet application. Specifying a unique name for the WAR module is sufficient for deployment. Later, if you need to update just one portlet application (for example, changing initial portlet configuration), you must update the entire module.

Staging to production: Managed pages

- There are methods for transferring managed pages from a staging to a production environment:
 - Export and import operations
 - Portal application archive
 - Syndication
- The syndication feature of IBM Web Content Manager transfers all required page artifacts and content at the same time.

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Figure 14-5. Staging to production: Managed pages

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Notes:

The following methods can also be used on earlier releases of Portal, prior to version 8.0, that do not support managed pages:

- Export and import operations
- Portal application archive

14.2. Staging and production systems

This topic defines the staging system and production environments.

Staging and production systems



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Figure 14-6. Staging and production systems

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Notes:

Defining the staging environment (1 of 2)

- The most critical piece in the process is the move from the staging environment to the production environment.
 - The way to ensure that the process is as smooth as possible is to configure both the staging and production environments to be as identical as possible.

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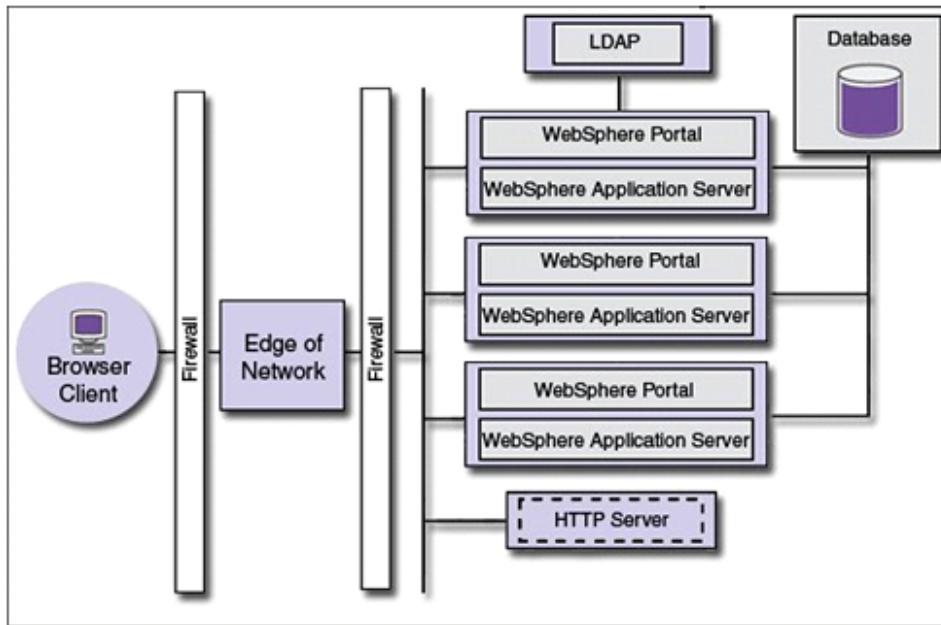
Figure 14-7. Defining the staging environment (1 of 2)

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Notes:

Defining the staging environment (2 of 2)

- The staging system must mirror the production system as closely as possible



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Figure 14-8. Defining the staging environment (2 of 2)

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Notes:

Defining the staging environment

The following list describes the *staging environment*:

- Model the staging system on the production system to have the following setup:
 - Identical operating system and release, with matching system artifacts and functions
 - Same Lightweight Database Access Protocol (LDAP) structure, with matching mapping of user access control to object IDs for preconfigured shared settings, and so on.
 - The same configuration database management system
 - Cluster staging if production is clustered, though can be fewer nodes
- Staging must be a fractional scale replica of production.

Defining the production environment

- The production environment must be the most comprehensive operational model among the different systems.
- You need to consider the following factors:
 - Scalability requirements
 - Availability requirements
 - Redundancy of key subsystems:
 - Database servers
 - LDAP servers
 - HTTP servers
 - Load balancers

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Figure 14-9. Defining the production environment

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Notes:

14.3. Release lifecycle

This topic provides an overview of the release lifecycle.

Release lifecycle



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Figure 14-10. Release lifecycle

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Notes:

About WebSphere release lifecycle

- Without an automated process, moving WebSphere Portal artifacts from test to staging and staging to production can be an error-prone process.
- Portlets, pages, configurations, and many other artifacts require migration.

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Figure 14-11. About WebSphere release lifecycle

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Notes:

Release lifecycle: Steps

1. The WebSphere Portal team develops a solution.
2. The team tests and refines the solution on test servers.
3. The solution is moved to staging and Quality Assurance (QA):
 - a) The WebSphere Portal solution consists of the following artifacts among others:
 - Portlets
 - Themes and skins
 - Portlet services
 - Configurations
 - b) The solution is developed on one system and redeployed to a separate system.
4. Conduct load testing.
5. Move the solution to production.

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Figure 14-12. Release lifecycle: Steps

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Notes:

Without an automated process, moving WebSphere Portal artifacts from test to staging and staging to production can be an error-prone process.

Among the various items that require migration are portlets, pages, configurations, and many other artifacts. Even the most organized person is likely to miss components if they are required to perform all steps manually.



Information

Managing resources: The management of resources typically includes a source control system, and assembly tasks are accomplished with tools such as Ant or Maven. These tools, in combination with other tools such as XML Access, can provide an automated build and release management system. This unit focuses on the manual tasks that an administrator might follow in the absence of an automated system.

14.4.Implementing releases

This topic defines releases and provides instructions for implementing releases.

Implementing releases



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Figure 14-13. Implementing releases

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Notes:



About release

- A release is the process of moving the environment from one to another.
- It is a complete WebSphere Portal configuration, including content and code, that is perfected and tested at a point in time and ready to be moved to the next server in the cycle.

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Figure 14-14. About release

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Notes:

A release is akin to a software vendor who releases a new version of a product. In this case, the new product version deploys within the context of WebSphere Portal.

If you transport a Java Platform, Enterprise Edition application from a staging environment to a production environment, most likely you deploy just an enterprise archive (EAR) and a minimal number of other shared artifacts. In WebSphere Portal, you configure an environment for a grouping of portlets that might interact with each other.

Defining releases

Manage WebSphere Portal configuration through the following items:	<ul style="list-style-type: none"> • Property files • ConfigEngine tasks • XML Access • wsadmin Jython/Jacl WebSphere Application Server scripting interface • wpscript Jython/Jacl-based WebSphere Portal Server scripting interface • Administration portlets
The WebSphere Portal solution release consists of the following items:	<ul style="list-style-type: none"> • Content trees • Page layouts • Access control lists • Credential vault configurations • Portlets
When creating a release strategy, consider the following areas: (See notes for details)	<ul style="list-style-type: none"> • Customer WebSphere Portal makeup • Resources to be moved • Resources that are left behind (user configuration data)

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Figure 14-15. Defining releases

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Notes:

The following list identifies important considerations when creating a release strategy:

- A customer WebSphere Portal consists of the following criteria:
 - Resources that are defined in the scope of multiple users
 - WebSphere Portal configuration
 - WebSphere Portal artifacts
 - WebSphere Portal extension artifacts
- Specify the following resources to be moved:
 - New resources added on behalf of the application
 - Existing resources
 - Updated resource attributes
 - Added or deleted list properties, such as the number of times a portlet was accessed

- Define the following resources that are left behind (user configuration data):
 - Derived and user pages
 - Portlet preferences
 - User credential data



Managing releases (1 of 2)

Tools

- The primary tools that are used for the release building process are XML Access and Release Builder.

Tasks

- Deploy the resource to the target server by importing the exported XML configuration.
- Additions, updates and deletions on the target are supported.

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Figure 14-16. Managing releases (1 of 2)

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Notes:

You can use XML Access to export a complete configuration or any selected fragment of configuration.

Managing releases (2 of 2)

1. Deploying the initial release
2. Creating the differential release
3. Importing the differential release

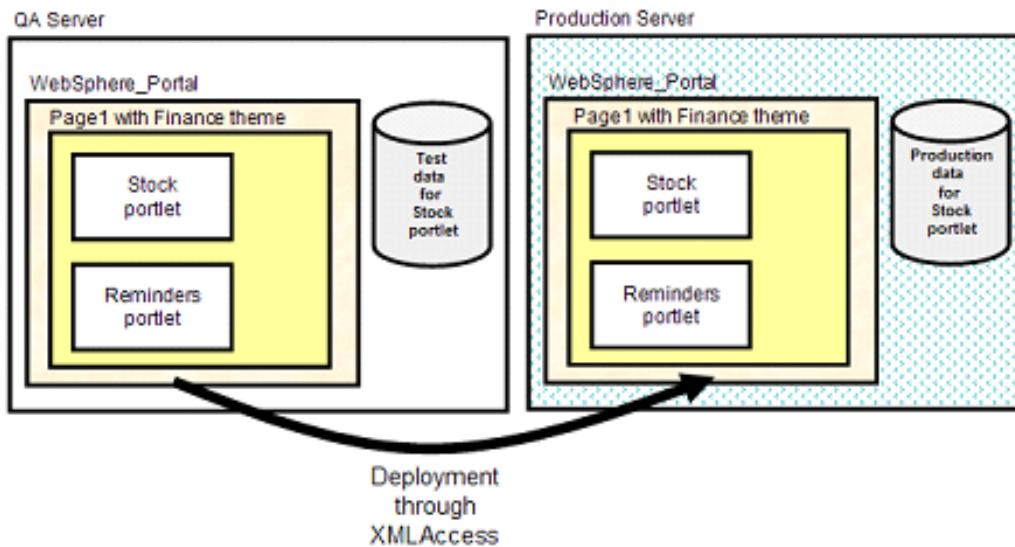
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Figure 14-17. Managing releases (2 of 2)

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Notes:

1. Deploying the initial release



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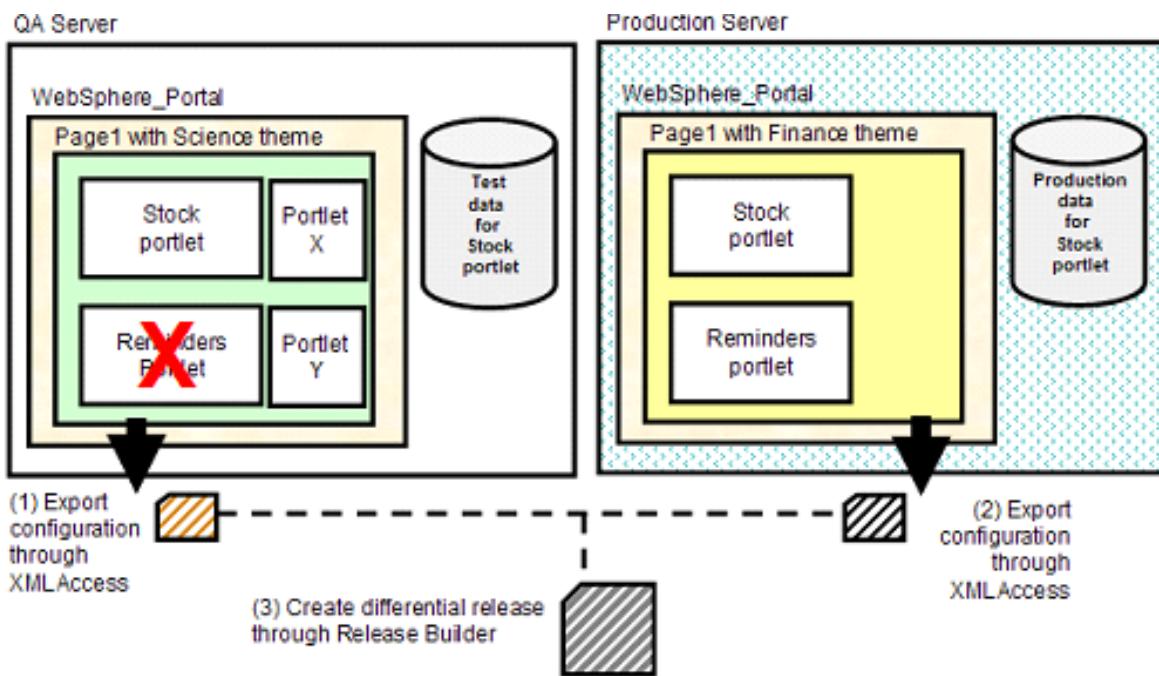
Figure 14-18. 1. Deploying the initial release

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Notes:

Deploy the resource to the target server by importing the exported XML configuration.

2. Creating the differential release



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Figure 14-19. 2. Creating the differential release

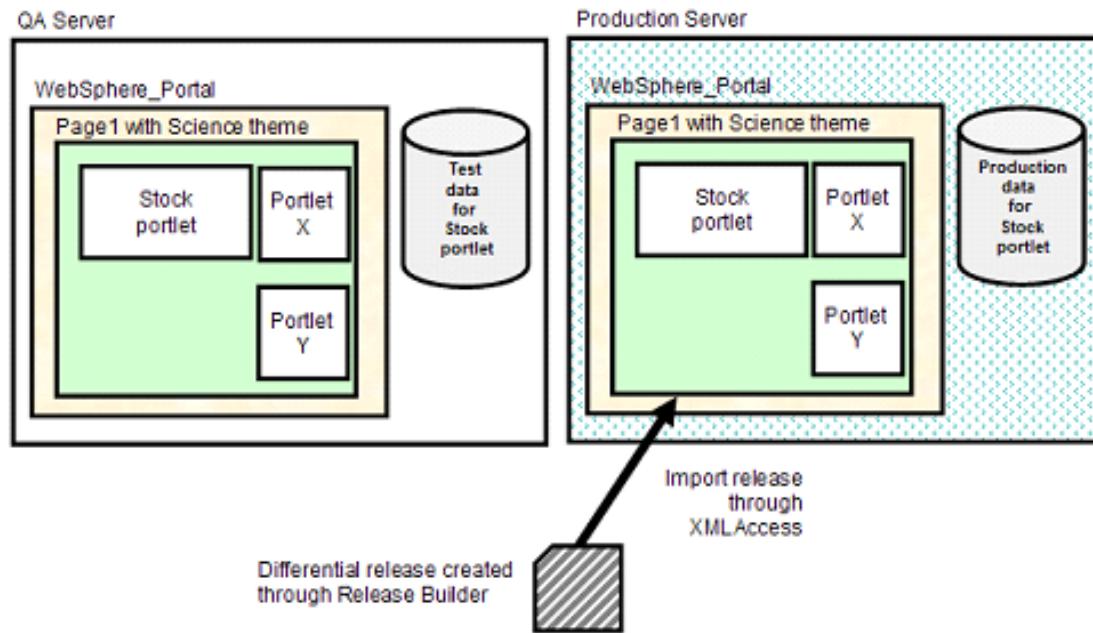
WPL951.0

Notes:

In subsequent releases, you might have removed components from the exported release. In this case, you want the configuration script to remove those components from the target server, which is a more complex process.

To build a differential release that adds new components, updates existing components, and deletes deprecated components, use the *Release Builder tool*. Export a full configuration, or the same configuration fragment, from both environments. These exports are then fed into Release Builder.

3. Importing the differential release



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Figure 14-20. 3. Importing the differential release

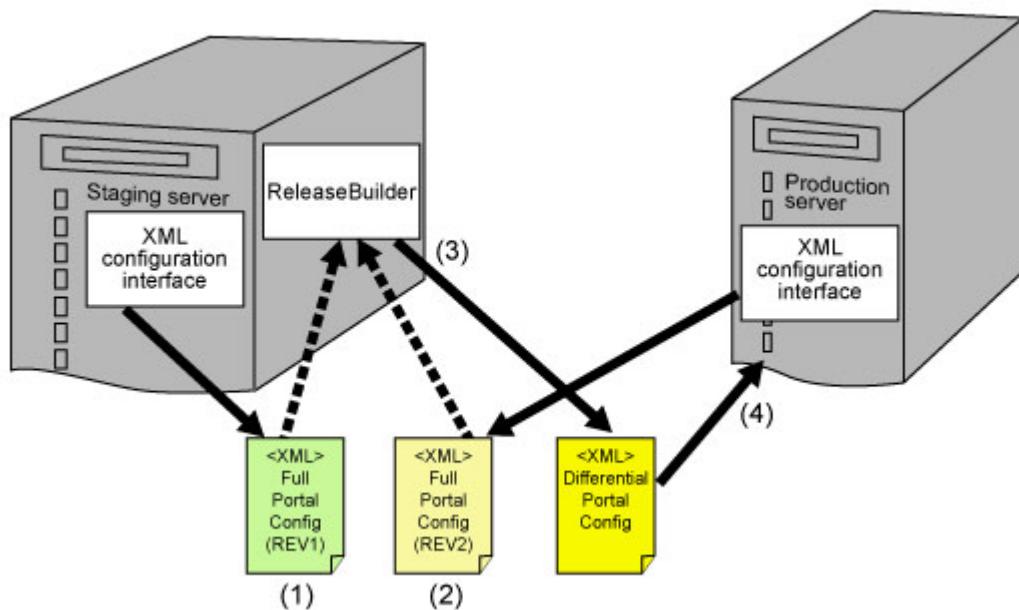
WPL951.0

Notes:

This figure illustrates importing differential release information to the production server.

When using the release builder process you can no longer directly update the production server, unless you also make an identical change to the QA server. Changes to production only invalidate the creation of the differential release, which assumes all changes were made only on the QA system.

Building a release: Steps



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Figure 14-21. Building a release: Steps

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Notes:

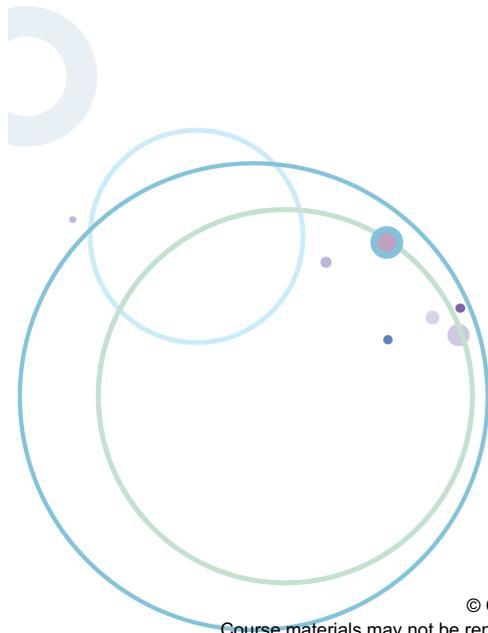
Use the following steps as a guideline for building a differential release:

1. Export the full configuration from the source WebSphere Portal.
2. Export the full configuration from the target WebSphere Portal.
3. Run Release Builder to create a differential configuration.
4. Edit the differential release file if necessary.
5. Copy the portlet artifacts to the target WebSphere Portal.
6. Import the differential release.

14.5.Using Release Builder

This topic defines Release Builder and offers instruction on how to run it.

Using Release Builder



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Figure 14-22. Using Release Builder

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Notes:

Defining Release Builder

General	Detailed
<ul style="list-style-type: none">Release Builder compares two configuration files and generates a script file that represents the delta between the two files.Use the Release Builder tool to build a differential release that adds new components, updates existing components, and deletes deprecated components.	<ul style="list-style-type: none">Compares two XML Access export filesDetermines the differencesProduces a new script to synchronize the two environmentsGenerates a script to add, update, or remove artifacts from the target WebSphere Portal Server

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Figure 14-23. Defining Release Builder

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Notes:

Running Release Builder

1. The XML Access script exports the full WebSphere Portal configuration except for the users.
2. Run this script on both the source and target servers.
3. Release Builder compares the two configurations and generates a script to fully synchronize the two environments.

Be wary of running full configurations regularly. As your portal grows:

- The synchronization process takes longer.
- Removing a set of artifacts from the staging server, which is now a full production application, generates a script that removes those same artifacts from the production server.

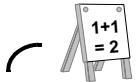
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Figure 14-24. Running Release Builder

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Notes:

The following example shows the ExportAll.xml file.


Example

The ExportAll.xml file

```
<?xml version="1.0" encoding="UTF-8"?>
<request xmlns:xsi="http://www.w3.org/2001/
    XMLSchema-instance"
    xsi:noNamespaceSchemaLocation="PortalConfig_1.4.xsd"
    type="export"
    export-users="false">
    <portal action="export"/>
</request>
```

The following example shows how, after generating the two export files, you use Release Builder to generate the differential release.



Example

Generating a differential release with Release Builder

```
ReleaseBuilder -inOld Server1Export.xml -inNew Server2Export.xml -out  
C:\ScriptLocation\Release.xml
```



Release scenarios and moving artifacts

- The types of release scenario are:
 - Complete migration
 - Partial deployments
 - Deploy fragments
- Move artifacts before running scripts to register artifacts with WebSphere Portal.

You can manually move artifacts from one environment to another.

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Figure 14-25. Release scenarios and moving artifacts

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Notes:

A complete migration

A complete migration release scenario entails the following steps:

1. Capture the entire staging configuration with XML Access.
2. Import the configuration to the production WebSphere Portal Server.

This approach is acceptable for an initial environment configuration. Do not use this approach for regularly scheduled deployments for the following reasons:

- It has large XML Access files.
- Work is duplicated each time deployment occurs.
- Virtual portals are not captured with XML Access and must be handled independently.

A partial deployment

A partial deployment release scenario entails capturing a partial configuration, such as web modules, pages, or portlets.

This scenario works for capturing WebSphere Portal navigation configuration and all associated artifacts. It does not separate applications from their navigational placement. Separation is the key to the portal architecture to eliminate such dependencies.

Deploy fragments

A “deploy fragments” release scenario entails the following steps:

1. Deploy only a specific WebSphere Portal artifact, such as portlets for content nodes.
2. Use Export XML or XML Access scripts.

XML Access scripts are short. Some can be automatically generated from Ant scripts, be authored by hand, or be exported by using the portal administration portlets.

14.6.Moving artifacts manually

This topic explains how to move your artifacts manually from one environment to another.

Moving artifacts manually



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Figure 14-26. Moving artifacts manually

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Notes:

Moving artifacts: Principles

- Identifying artifacts that Release Builder does not support
- Moving artifacts manually from staging to production

To know the types of artifacts that you must manually move, consult the two tables in your student guide.

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Figure 14-27. Moving artifacts: Principles

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Notes:

Identifying artifacts that Release Builder does not support

The following list shows some of the artifacts that you must move manually from one environment to another. Moving many of these items might require a server restart. You must move these artifacts before execution of the scripts to register artifacts, such as themes, with WebSphere Portal.

Component/Property

Portal Server Runtime: Portal system configuration

Portal Server Runtime: Performance-related settings

Portal Statistics: Statistics log settings

Portlet Services: Service configuration

Custom Login Commands: Login command

Custom Credential Vault Adapters: Vault adapters

External Security Manager: Externalized portal entitlements

Custom Credentials: Credential implementations

Java Authentication and Authorization Service (JAAS) Login Modules: Custom modules

Custom components: Custom component property files

Java Platform, Enterprise Edition Artifacts: Any IBM WebSphere Application Server configurations

Custom User Registry: Custom user registry (CUR) implementation

External Security Manager: Externalized portal entitlements

User Directory: User profiles, groups

Document Manager: Documents and roles

Personalization: Personalization rules and campaigns

Policies: Policy files

Moving artifacts manually from staging to production

The following list shows the artifacts and type.

Artifact/Type

Portlets: WAR files

Themes: Static HTML, cascading style sheet (CSS), and related files

Legacy Themes: JavaServer Pages (JSP), images, CSS, and so on

Legacy Skins: JSP and images

Legacy Portal screens: JSP and images

Portlet services: Java libraries

Java Platform, Enterprise Edition artifacts: EAR files Java libraries

Custom User Registry: Java libraries

Credential vault adapters: Java libraries

Custom credentials: Java libraries

JAAS login modules: Java libraries

Unit summary

Having completed this unit, you should be able to:

- Manage the IBM WebSphere Portal 8.X release lifecycle
- Define staging and production systems
- Implement releases
- Export WebSphere Portal configurations
- Use the Release Builder tool

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Figure 14-28. Unit summary

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Notes:



Checkpoint

1. Load testing is conducted on the _____ during staging to production.
 - A. Stage environment
 - B. Production environment.

2. Release Builder compares the two configurations and generates a script to fully synchronize the two environments.
 - A. True
 - B. False

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Figure 14-29. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.

Checkpoint answers

1. Load testing is conducted on the _____ during staging to production.
Answer: A
A. Stage environment

2. Release Builder compares the two configurations and generates a script to fully synchronize the two environments.
Answer: A
A. True

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Figure 14-30. Checkpoint answers

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Notes:

Exercise 13



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Figure 14-31. Exercise 13

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Notes:

Exercise objectives

At the end of this exercise, you should be able to:

- Use XML Access to export configurations from the staging server.
- Use Release Builder to build a differential release.
- Import and apply the differential release to the production server.

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Figure 14-32. Exercise objectives

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Notes:

Unit 15. Creating a cell

What this unit is about

This unit provides an introduction to creating a cell.

What you should be able to do

After completing this unit, you should be able to:

- Define a cell
- Use cell terminology
- Create a node
- Create a deployment manager
- Work with a deployment manager

Unit objectives

After completing this unit, you should be able to:

- Define a cell
- Use cell terminology
- Create a node
- Create a deployment manager
- Work with a deployment manager

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Figure 15-1. Unit objectives

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Notes:

Topics

- Network deployment overview
- Creating a cell
- Using profiles

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Figure 15-2. Topics

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Notes:

15.1. Network deployment overview

This topic introduces cell concepts.

Network deployment overview



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10.1

Figure 15-3. Network deployment overview

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Notes:

Cell concepts

- A *cell* is a logical grouping of WebSphere Application Server instances in a single managed entity.
- A cell consists of the following items:
 - Deployment manager
 - A WebSphere Application Server instance is responsible for the administrative functions of the cell.
 - Only one deployment manager is in a cell.
 - Node / Node Agent
 - A WebSphere Application Server that is responsible for synchronizing server configurations between the deployment manager and members of the node. There can be more than one in a cell.
 - Application server
 - The application server does the actual work that is associated with the business purposes of the cell. There is usually more than one per cell. These servers are often WebSphere Portal servers.

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Figure 15-4. Cell concepts

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Notes:



Information

Master configuration repository: The configuration data is organized under a directory whose name matches the defined name of the cell. This structure is called the *master configuration repository*. The deployment manager writes changes that are made to the files in the repository. These files are synchronized across all members of the cell through a file transfer process. If an administrator changes a file in a copy of this repository on a member of the cell, those changes are overwritten by the values in the master repository when synchronization occurs.

- Node agent

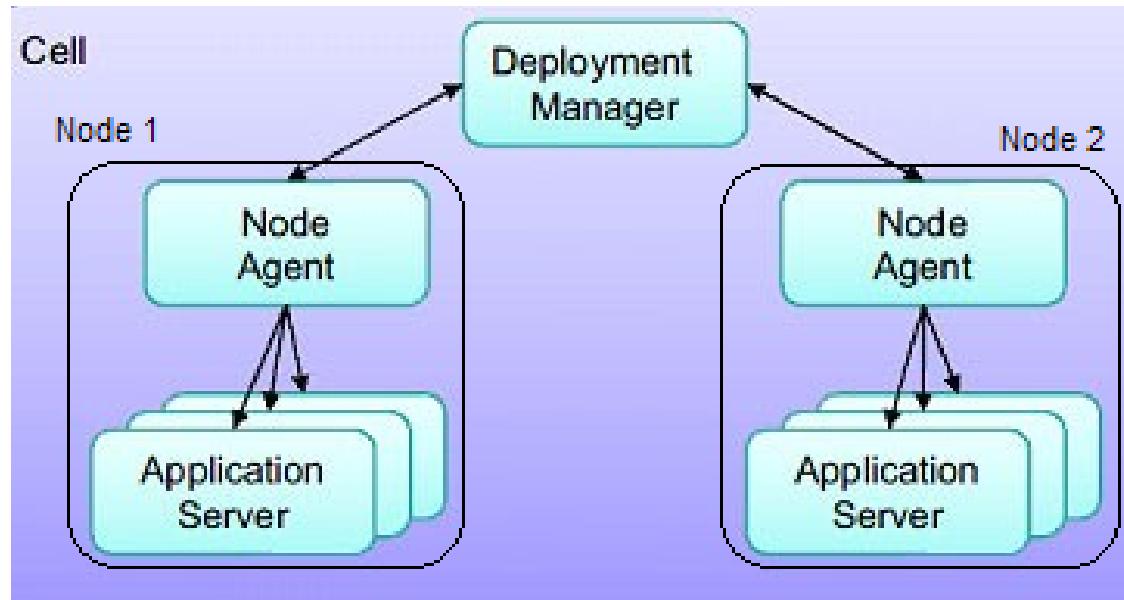
The node agent responds to directions from the deployment manager to run such tasks as stopping or starting WebSphere Application Servers that are members of the node. A node agent is associated with only one profile. A cell can contain many nodes.

- Application server

One or more application servers can be part of a single node. The node agent that is associated with a profile synchronizes the configuration of the application server or servers. The node agent that is associated with a profile synchronizes the configuration of the application server or servers.

Architecture

- The cell definition includes a logical grouping of WebSphere server instances and a central point of administration for two or more servers, as shown in the following figure.



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Figure 15-5. Architecture

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Notes:

15.2.Creating a cell

This topic describes installing, creating, and working with the deployment manager.

Creating a cell



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Figure 15-6. Creating a cell

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Notes:

Network deployment

- Installing network deployment begins with installing WebSphere Application Server:
 - You define a profile that is based on the deployment manager profile template after the installation.
 - The cell is named during the profile creation.
- The deployment manager runs a primary system application, the Integrated Solutions Console (ISC).

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Figure 15-7. Network deployment

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Notes:

Deployment manager: Features

- The deployment manager includes the following features:
 - A WebSphere instance that runs the ISC application
 - Security configuration for all cell members
 - A master copy of all applications for all cell members and configurations of all cell members
 - Configuration and management tasks for all cell members, including support for synchronization of the configuration repository with nodes

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Figure 15-8. Deployment manager: Features

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Notes:

Examining nodes (1 of 2)

- Creating a node begins with installing a WebSphere Application Server.
 - This task is usually done as part of the WebSphere Portal Server installation.
- No node agent is defined during the installation process.
- The node agent runs a primary system application, a *file transfer application*, which copies updates from the Deployment Manager to node members.

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Figure 15-9. Examining nodes (1 of 2)

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Notes:

Examining nodes (2 of 2)

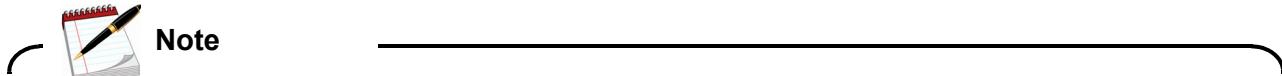
- A node agent is defined in the following scenarios:
 - Creation of a custom profile
 - Creation of a new WebSphere Portal 8.X profile
 - Federation of an existing profile
- More than one node agent can run in the same partition or physical or virtual server.
- A newly installed Portal server is stand-alone, and so has no node agent:
 - Also called a self-contained node or an unmanaged node.

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Figure 15-10. Examining nodes (2 of 2)

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Notes:



Federation: Federation is the process of joining nodes to cells. For more information about this topic, see Unit 16, "Federating a portal node into a cell".

In the first scenario, a custom profile is one in which the process of federation is carried out at the time the profile is created or is deferred until a future time by using a script that is named addNode. This scenario initially produces a node that contains only a node agent and no other WebSphere Application Server instances.

In the second scenario, you define a new profile that contains a node agent and an instance of WebSphere Application Server hosting WebSphere Portal. An active node agent is initialized when the node is federated.



Information

Federating the new node during file creation: The Profile Management Tool provides an option to federate the new node during profile creation. However, this option results in an instance of WebSphere Portal that is unstable. Do not use this option. Instead, you should defer federation and use the addNode script to federate the node.

Every instance of a node agent defines a separate node. Similarly, all nodes contain a node agent. The exception is the deployment manager node. The term *node* is used ambiguously so that a physical server, a virtual server, or logical partition is considered to be a node, which is appropriate in some cases. However, when describing a network deployment cell and its constituent members, a node coincides with the node agent regardless of the underlying platform.

More than one node agent can run in the same partition or physical or virtual server. At that point, it is a multiple node configuration from the deployment manager perspective.

15.3.Using profiles

This topic describes profiles.

Using profiles



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Figure 15-11. Using profiles

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Notes:



About profile

- A profile defines the runtime environment and includes all the files that the server processes in the runtime environment and those files that can be edited or changed.

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Figure 15-12. About profile

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Notes:

Extra profiles are built by using a captured “baseline” portal configuration as a foundation.



Multiple profiles

- With the *multiple profiles* feature, multiple, independently configured portal instances can run from the same installation.
- With multiple profiles, you can create a portal farm or a clustered environment.
- The multiple profile environments require special considerations for search collections, cluster configurations, and default profiles.

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Figure 15-13. Multiple profiles

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Notes:

You install WebSphere Portal once and then create multiple profile instances that are either based on the original installation or a captured “baseline” portal configuration.

The default installation server1 (cw_profile) instance is the target of many of the portal’s configuration scripts because of its lightweight nature.

Configuring system with multiple profiles

- Advantages
 - A single installation can be reused for multiple independent portal instances.
 - These instances can be used to support various test scenarios or development efforts.
 - You can recover from a configuration problem by deleting the current profile and re-creating it without reinstalling the product.
 - You have the flexibility to easily expand the capacity of a cluster through the creation of custom profiles without managing the extra, nonessential resources of a regular stand-alone instance.
 - You can update a deployment manager profile to handle portal servers and thus avoid all the manual preparation steps.

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Figure 15-14. Configuring system with multiple profiles

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Notes:

Multiple profiles: Search considerations

- The *Search* function does not support the sharing of search collections between multiple profiles.
- To preserve the search collections on the original profile, use the backup and restore procedures or the export and import steps:
 1. Export the existing search collections.
 2. Remove the existing search collections.
 3. Run the `enable-profiles` or `replace-profiles` configuration task to capture the portal configuration in the profile template.
 4. Import the saved search collections on the original profile.
 5. Create new profiles by using the profile templates. Default search collections are automatically created in the new profile.
- To share search collections between multiple portal server instances, configure a remote search server to support the sharing of the search collections.

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Figure 15-15. Multiple profiles: Search considerations

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Notes:

Cluster configurations

- *Clustering* is a technology for supporting robust scalability and fault tolerance. The multiple profile feature is often used in combination with clustering.
- Principles
 - If maintaining a portal installation with multiple profiles, all profiles in the cluster must be updated to maintain synchronization
 - All profiles that share product binary files must belong to the same cluster.

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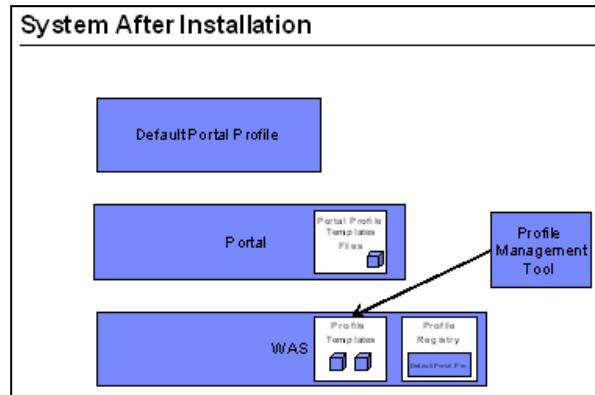
Figure 15-16. Cluster configurations

WPL951.0

Notes:

Creating profiles (1 of 2)

- Profiles are created when the product is installed; however, extra profiles can be created immediately after installation.
- To create multiple profiles:
 - Prepare the system for multiple profile support.
 - Create the profiles.
- A new configuration profile template, called the *portal profile template*, is delivered with WebSphere Portal 8.X.
- After installation, you can create configuration profiles that are based on the portal profile template.



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Figure 15-17. Creating profiles (1 of 2)

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Notes:

This figure at right shows the system after installing WebSphere Portal 8.0.

In the multiple profile environment, certain commands require a specified -profileName parameter if the profile is not the default profile. In such cases, it might be easier to use the commands in the bin directory of each profile rather than from the bin directory of the <appserver_root>. Issue one of these commands from within the bin directory of the profile. The command defaults to act on that profile unless -profileName specifies a different profile.

Creating profiles (2 of 2)

- Create the profiles by using the Profile Management Tool or the `manageprofiles` command.
- Creating or augmenting a profile requires a profile template, which is in the `PortalServer_root ProfileTemplates` directory.
- In a new profile:
 - The administrator ID and password of the new profile are set according to the input given.
 - Security configurations are preserved. Security configurations that were made before running the `enable_profile` task are preserved with the new profile.

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Figure 15-18. Creating profiles (2 of 2)

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Notes:

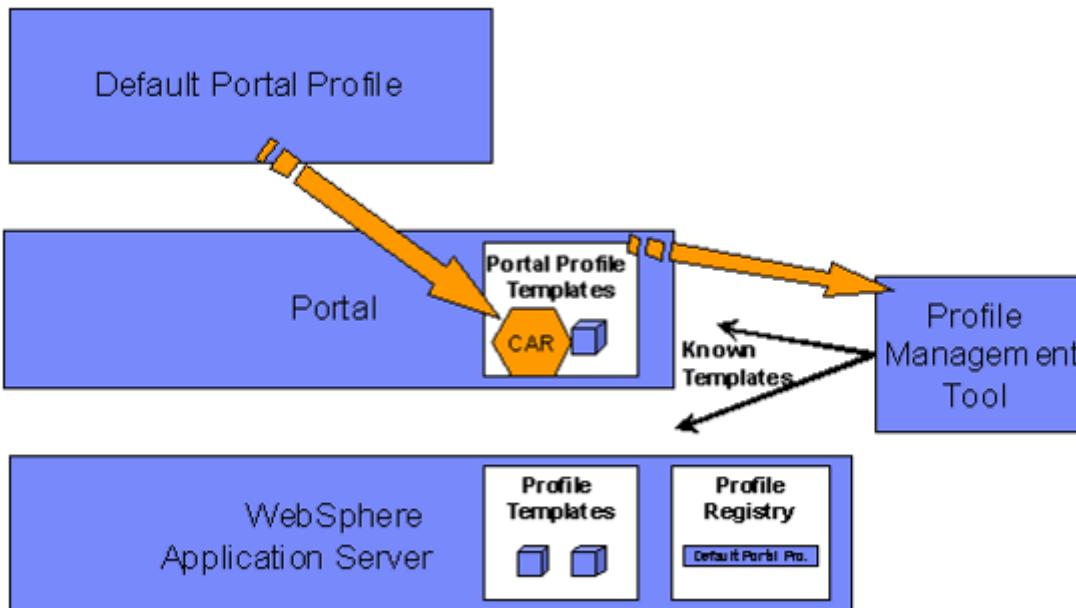
The Profile Management Tool is a GUI that guides you through the process. This GUI is the preferred method for beginners because the interface uses automatically created default values.

Creating or augmenting a profile requires a profile template, which is used to run the required actions. The templates are in the `PortalServer_root ProfileTemplates` directory. Choose the appropriate file to create or augment your profile.

The administrator ID and password for WebSphere Application Server in the newly created profile are set according to the input given. WebSphere Portal still has the same security and database configurations, including the portal administrator ID and password, as the initial profile that is used to run the `enable-profiles` task.

A fresh copy is automatically created with the new profile if your initial profile was configured to use the Derby database. If your initial profile was configured to use a non-Derby database, all the database domains of the new profile are identically configured. Likewise, any security configurations that were made before running the `enable-profiles` task are preserved with the new profile.

Running profile enablement



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Figure 15-19. Running profile enablement

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Notes:

You can then create new configuration profiles based on the portal profile template. The portal profile template must be primed with the baseline application server configuration before the creation of new configuration profiles. The “baseline” portal profile is used as a foundation for the creation of new profiles. This baseline configuration is provided in the form of a *configuration archive* (CAR) file that is created from an existing portal profile. The CAR file is created by exporting the contents of an existing portal profile.

WebSphere Application Server uses the wsadmin scripting interface to support the CAR file creation. WebSphere Portal provides a configuration task that creates the CAR file and captures extra portal-specific files to keep with the CAR file. The task also places the CAR file and any associated files in the correct directory.

Run the **enable profiles** task as follows, depending on your environment, to create the CAR file for your system from the `wp_profile-root/ConfigEngine` directory of the wanted configuration profile:



Windows

ConfigEngine.bat enable-profiles -DwasPassword

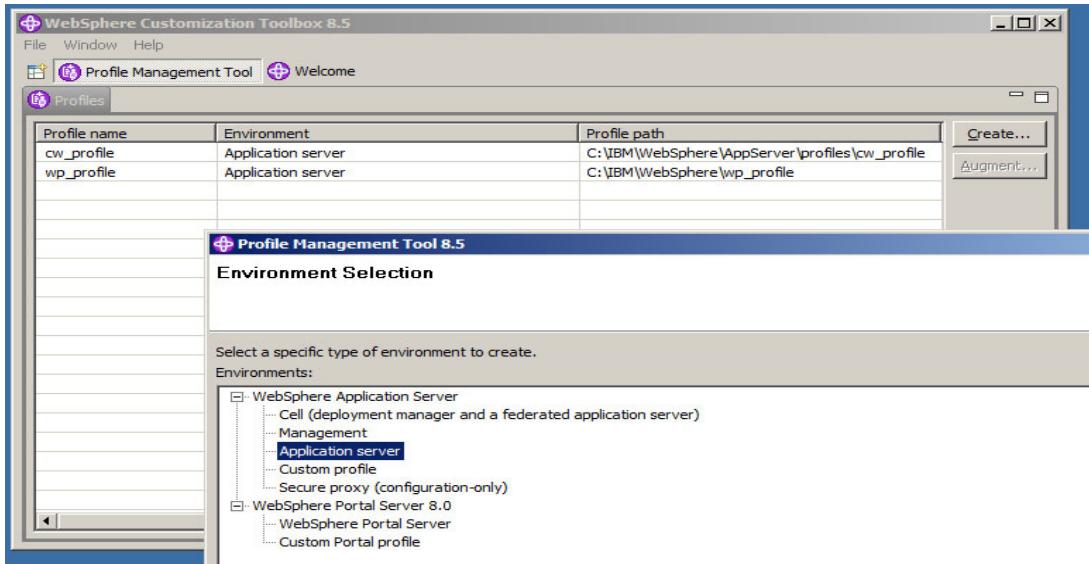
The `Portal.car` file is saved to the `PortalServer_root/profile/Templates/default.portal/configArchives` directory.

The figure shows the location of a CAR file when preparing the system for multiple profile support.

Apply only those changes to the `wp_profile` directory that must be included in all additional portal profiles after generating the initial profile template with your required configuration. The portal profile template then contains the required configuration and updates immediately when maintenance is applied.

Starting the Profile Management Tool

- Run the **pmt.bat** command from the `<appserver_root>\bin\ProfileManagement` folder
 - View a list of existing profiles, or create a new one.



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Figure 15-20. Starting the Profile Management Tool

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Notes:

See the following web page for more details about creating extra WebSphere Portal Server profiles:
http://www-10.lotus.com/ldd/portalwiki.nsf/dx/Supporting_multiple_profiles_wp8

Profile Management Tool: Create profiles

1. To start the Profile Management Tool.
2. Click **Create** to create a profile.
3. In the Environment Selection window, expand **WebSphere Portal Server 8.0** and select **WebSphere Portal Server**. Click **Next**.
4. In the Profile Name and Location window, enter the name for the new profile and its location in the file system. The name and location must be unique from other existing profiles. Click **Next**.
5. In the Node and Host Names window, provide the node name and TCP/IP host name for the new profile.
6. In the Administrative Security window, enter a user name and password, or clear Enable administrative security.
7. In the Windows Service Definition window, enter windows service options.
8. In the Profile Creation Summary window, review the information that the wizard collects. To create the profile with WebSphere Portal, click **Create**.
9. Close the Profile Management Tool.

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Figure 15-21. Profile Management Tool: Create profiles

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Notes:

To start the Profile Management Tool GUI, run the command for your system from within the AppServer_root\bin\ProfileManagement directory:



The node name must be unique from other profiles in the same management cell (under deployment manager control) if you plan to federate this profile. The host name must be a valid and reachable over the network.



Important

When creating a Custom Profile, do not enter the values for the deployment manager to federate now because it causes an unusable portal node.

Creating profiles with manageprofiles command

- You can create profiles by using the `manageprofiles` command.
- To create a profile, run the command for your system from the `AppServer_root bin` directory.

Example:

```
manageprofiles.bat -create -templatePath  
    C:\IBM\WebSphere\PortalServer\profileTemplates\defau  
    lt.portal  
    -profileName testPortal1  
    -profilePath  
        C:\WebSphere\testportal1\profiles\testportal1  
    -cellName testCell  
    -nodeName testNode
```

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Figure 15-22. Creating profiles with manageprofiles command

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Notes:



Command parameters (1 of 2)

- You can use the following extra parameters with the `manageprofiles` command:
 - `-isDefault` notes that this profile is to serve as the default profile for the installation.
 - `-isDeveloperServer` indicates that WebSphere Portal is to be configured for development mode in this profile.
 - `-nodeName` provides a node name for the new profile.
 - This parameter is required if federating this profile into a managed cell because this value must be unique from other nodes in the cell.
 - If a name is not provided, the node name defaults to a value based on the local host name.

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Figure 15-23. Command parameters (1 of 2)

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Notes:

You can augment the existing deployment manager profiles based on the existing template after running the `enable-profiles` task.

Each portal profile maintains its own independent configuration. The configuration tasks for WebSphere Portal are run against only one profile with separate property files and multiple profile options.

Command parameters (2 of 2)

Note the following script arguments:

- **-create** is the task name that the script runs.
- **-templatePath** is a path that includes the directory that contains the template you use to create your profile.
- **-hostName** uses the long form of the host's DNS name.
- **-profileName** is a meaningful name that you provide for your profile.
- **-profilePath** is a location where your profile is created and includes the name of the profile folder.
- **-cellName** is a meaningful name that you provide for your cell.
- **-nodeName** is a meaningful name that you provide for your node.
- **-enableAdminSecurity** must be set to true.
- **-adminUserName** is an administrative user name.
- **-adminPassword** is an administrative user's password.

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Figure 15-24. Command parameters (2 of 2)

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Notes:

Another use of the manageprofiles script is to list existing profiles. As profiles are listed, they are registered with the system. You can use the **listProfiles** command, as in the following example, when you are uncertain of a profile name that you want to modify:

```
manageprofiles -listProfiles
```

To determine the path of an existing profile use **-getPath** as shown in the following example:

```
manageprofiles -getPath -profileName <yourProfile>
```

You can get help from the command line by entering the following command:

```
manageprofiles -help
```

You can use other commands to delete, augment, unaugment, and determine the name of the default profile. For information about the manageprofiles script, see the **WebSphere Application Server Knowledge Center** at the following website:

<http://publib.boulder.ibm.com/infocenter/wasinfo/v8r5/index.jsp>

The Profile Management Tool and the manageprofiles script is also used to augment the deployment manager profile, which is described in Unit 16, "Federating a portal node into a cell".



Profile categories

- The Profile Management Tool divides the templates for creating profiles into two categories:
 1. Application Server
 2. WebSphere Portal Server

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Figure 15-25. Profile categories

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Notes:

Application server profile types

The WebSphere Application Server category has the following profile types:

Cell	<ul style="list-style-type: none"> For deployment manager and a federated server Creates two profiles: a deployment manager profile and one application server profile in a federated node.
Management	<ul style="list-style-type: none"> Creates a deployment manager profile.
Application server	<ul style="list-style-type: none"> Creates a stand-alone application server capable of running applications.
Custom profile	<ul style="list-style-type: none"> Creates an empty node that can be federated but does not contain an application server.
Secure proxy	<ul style="list-style-type: none"> For configuration only A secure proxy configuration-only profile for use with a DMZ secure proxy server

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Figure 15-26. Application server profile types

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Notes:

During the discussion of nodes, profiles were treated as an analogy. Remember that profiles contain configuration data for WebSphere server instances. You can use the Profile Management Tool to create and manage profiles. The Profile Management Tool divides the templates for creating profiles into two categories: application server and WebSphere Portal Server.

Portal server profile types

The WebSphere Portal Server category has the following default profile types:

WebSphere Portal Server	<ul style="list-style-type: none">Creates a stand-alone portal profile.
Custom portal profile	<ul style="list-style-type: none">Creates an empty node that is used as the basis for creation of a federated portal node.

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Figure 15-27. Portal server profile types

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Notes:

Portal server profile types

After enabling profiling, the following portal profile types are also available:

Portal.default	<ul style="list-style-type: none"> Contains a stand-alone portal server in the captured configuration.
Managed.portal	<ul style="list-style-type: none"> Custom profile that is enhanced with the portal runtime environment but does not contain any servers. The main purpose of the managed portal profile is to provide a runtime environment for extra cluster members. After the federation of this custom profile, you can use the standard portal tasks to create a portal server cluster member from an existing cluster template.
Management.portal.augment	<ul style="list-style-type: none"> Created by augmenting a standard deployment manager profile. The resulting profile holds a deployment manager that is prepared for use with portal. You can use this profile to federate the other portal profiles without needing extra manual steps.

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Figure 15-28. Portal server profile types

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Notes:



Hint

Hint for applying maintenance and maintaining profile templates for WebSphere Portal: You can apply fix packs to WebSphere Portal that affect its configuration after you initially run the enable-profiles task. After applying a fix pack, it is best to run the replace-profiles task. This way, any WebSphere Portal configuration updates that are associated with the fix packs are captured in the configuration archive, which creates extra WebSphere Portal profiles in the future.

Hint for updating WebSphere Portal profile templates due to customization: Similarly, some time after you initially run the enable-profiles task to capture the baseline WebSphere Portal configuration, you might want to further customize your baseline WebSphere Portal environment.

After you customize your baseline environment to capture an updated configuration archive file, run the replace-profiles task. This way future extra profiles will include the configuration updates.

This process does not introduce new configuration changes into existing extra Portal profiles.



Profile template and deployment manager profile

- Profile template
 - The current WebSphere Portal Server 8.X profile template is not available to the Profile Management Tool until the ConfigEngine task, enable-profiles, is completed.
- Deployment manager profile
 - You can create a deployment manager profile by using either of the following two methods:
 1. Profile Management Tool
 2. The manageprofiles script

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Figure 15-29. Profile template and deployment manager profile

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Notes:

You can create a deployment manager profile regardless of whether you run the enable-profiles task. Working with a deployment manager profile consists of two scenarios. The first scenario occurs when the deployment manager is to be implemented on the same host as the WebSphere Portal Server. The second, and by far the most common scenario, occurs when the deployment manager profile is defined on a remote host.

Creating a local deployment manager profile and preparing it to receive a WebSphere Portal node presents the fewest initial complications. The reason is that a WebSphere Application Server is installed by the WebSphere Portal installer and as a result, it meets the version and fix levels that WebSphere Portal requires.

Creating a remote deployment manager profile begins when you install WebSphere Application Server with the correct version and patch level. In a Network Deployment environment, the deployment manager must equal or exceed the version and fix level of the proposed cell members. A simple means of installing WebSphere Application Server for the deployment manager is to use a special installation method, called a *customized* installation package (CIP). This package produces an installation that meets the requirements for an application server that is hosting WebSphere Portal to join, or be federated into, the cell.

After the necessary application server version is installed, you can use the Profile Management Tool or the manageprofiles script to create a deployment manager profile.

Profile Management Tool: Profile creation

1. Start the tool from the ProfileManagement directory in the application server root.
2. Select **Advanced profile creation**, which guides you to enable deployment of the administrative console.
3. Define a name and location for the new profile.
4. Provide values for Node name, DNS Host Name (long), and Cell name for your new deployment manager or cell.
5. Enable administrative security and provide values for the User name, Password, and Confirm Password fields.

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Figure 15-30. Profile Management Tool: Profile creation

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Notes:

Remember that the name and location must be unique from other existing profiles.



Information

Augmentation: The Profile Management Tool and the manageprofiles script provide a feature that is called *augmentation*. Augmentation is used to prepare a deployment manager profile for federation of a WebSphere Portal Server node. For more information, see Unit 16, "Federating a portal node into a cell".

Ensure that the host name is valid and reachable over the network.

Certificates are required for secure communications and can be modified later. The options to create new default personal certificates is the simplest. You might need to use ports other than the default or recommended ports. The recommended ports are based on profile detection by the tool, and the numbers are automatically incremented to avoid conflicts. The default ports for WebSphere

Portal and deployment manager come from two different ranges. You can choose whether to register and control the deployment manager in this profile as a service.

**Hint**

Remember the port values and the deployment manager SOAP connector port values of the administrative console (Integrated Solutions Console) because you need these values when you manage the cell or when you federate nodes.

Two ports are listed for administration: standard (HTTP) and secure (HTTPS).

Unit summary

Having completed this unit, you should be able to:

- Define a cell
- Use cell terminology
- Create a node
- Create a deployment manager
- Work with a deployment manager

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Figure 15-31. Unit summary

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Notes:

Checkpoint

1. A cell can have how many deployment managers?
 - A. One
 - B. Two
 - C. Three

2. The node agent runs a primary system application that is called a file transfer application.
 - A. True
 - B. False

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Figure 15-32. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.



Checkpoint answers

1. A cell can have how many deployment managers?
Answer: A
A. One

2. The node agent runs a primary system application that is called a file transfer application.
Answer: A
A. True

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Figure 15-33. Checkpoint answers

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Notes:

Exercise 14



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Figure 15-34. Exercise 14

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Notes:



Exercise objectives

At the end of this exercise, you should be able to:

- Install and configure the Deployment Manager
- Use the Profile Management tool and the administrative console

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Figure 15-35. Exercise objectives

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Notes:

Unit 16. Federating a portal node into a cell

What this unit is about

This unit describes federating the existing portal into a cell.

What you should be able to do

After completing this unit, you should be able to:

- Federate a node into a cell
- Work with clusters and cluster members
- Create and manage a WebSphere Portal cluster

Unit objectives

After completing this unit, you should be able to:

- Federate a node into a cell
- Work with clusters and cluster members
- Create and manage a WebSphere Portal cluster

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Figure 16-1. Unit objectives

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Notes:



Topics

- Federating and clustering a WebSphere Portal node
- Managing a WebSphere Portal cluster

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Figure 16-2. Topics

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Notes:

16.1.Federating and clustering a WebSphere Portal node

This topic explains how to federate and cluster a WebSphere Portal node.

Federating and clustering a WebSphere Portal node



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Figure 16-3. Federating and clustering a WebSphere Portal node

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Notes:

Concepts

Server	<ul style="list-style-type: none"> A server is a Java virtual machine (JVM) that manages user applications (such as WebSphere Portal).
Node	<ul style="list-style-type: none"> A node is a logical grouping of one or more application servers. A node does not necessarily mean a single physical server.
Cell	<ul style="list-style-type: none"> A single management entity. A cell is a logical grouping of one or more nodes.
Cluster	<ul style="list-style-type: none"> A cluster is a logical grouping of one or more servers across one or more nodes The servers are managed together and participate in workload management. Servers in a cluster share resources such as applications.
New portal farms feature	<ul style="list-style-type: none"> New <i>portal farms</i> feature that is offered in WebSphere Portal 8.0 offers a mechanism for load balancing and can satisfy demand in a scalable manner.

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Figure 16-4. Concepts

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Notes:

Configuring a cluster

The process of defining a cluster consists of five phases:

1. Install WebSphere Portal.
2. Transfer the portal databases to an enterprise relational database management system (RDBMS).
3. Prepare the deployment manager.
4. Federate the node that contains WebSphere Portal.
5. Create a cluster.

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Figure 16-5. Configuring a cluster

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Notes:



Information

Derby database: The Derby database does not support more than one database connection, making this configuration unusable for a clustered environment.



Information

LDAP: According to IBM Support, you can integrate Lightweight Database Access Protocol security at anytime. Generally, when building a cluster, this task is deferred until after the node is federated and the cluster is defined. For this reason, LDAP integration is not described as a member of the federation or cluster configuration process.

You previously enabled LDAP in the labs for this course to demonstrate the typical process of defining a stand-alone instance of WebSphere Portal.

Cluster limitations

1. You must install WebSphere Portal as a stand-alone node before creating a cluster.
2. Except for the temporary state during the initial setup of the cluster, WebSphere Portal is not supported when running on a managed node that is not part of a clustered environment.
3. It is not possible to change settings through the Global Settings portlet or the XML configuration interface in a clustered environment.
4. Search must be configured as a remote search service on an application server node that is not part of the cluster.

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Figure 16-6. Cluster limitations

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Notes:

Remember the following extra points for cluster implementation:

- Do not use spaces in the cluster name or the cluster member name when creating a cluster or a cluster member.
- For the deployment manager and each WebSphere Portal node to be in the cluster, verify that each system clock is set to within 5 minutes of the others or the **addNode** command fails.

Tools to implement a federated and clustered WebSphere Portal solution

- Profile Management Tool or `manageprofiles` script
- ConfigEngine
- Application server scripts such as `AddNode`
- Property files such as `wkplc.dbdomain.properties`
- The `filesForDmgr.zip` file in the `<portalserver_root>/filesForDmgr` directory
- Integrated Solutions Console on the deployment manager

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Figure 16-7. Tools to implement a federated and clustered WebSphere Portal solution

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Notes:

The following tools are used to implement a federated and clustered WebSphere Portal solution:

- Profile Management Tool or `manageProfiles` script, which is used to define a deployment manager profile and a WebSphere Portal 8.X profile.
- ConfigEngine, which is used to create WebSphere Portal databases, run post-federation tasks, and run cluster setup tasks.
- Application server scripts, such as `addNode`, which are used to federate a WebSphere Portal application server node into a cell.
- Property files, such as `wkplc.dbdomain.properties`, which are used to specify settings for the Java Content Repository (JCR) Seedlist bus.
- The `filesForDmgr.zip` file in the `<portalserver_root>/filesForDmgr` directory, which is used to prepare a remote deployment manager to receive federation of a WebSphere Portal application server.
- Integrated Solutions Console on the deployment manager, which is used to configure environment settings, such as the JCR Seedlist bus, and to manage the cluster.



Information

Terminology: The terms such as JCR Seedlist bus, the filesForDmgr.zip file, and the wkplc.dbdomain.properties file are described later in the unit.

Preparing a remote deployment manager

- You need to take extra steps if the deployment manager is remote to ensure that it is prepared for federation.
- Only if the deployment manager is installed on a remote computer, use these steps as guideline:
 1. Copy the filesForDmgr.zip file from the <portalserver_root>/filesForDmgr directory of your local WebSphere Portal Server.
 2. Stop the deployment manager on the remote computer.
 3. Extract the filesForDmgr.zip file into the <appServer_root> directory of the remote deployment manager computer.

This ensures that the remote Deployment Manager has the same configuration as the local server.

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Figure 16-8. Preparing a remote deployment manager

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Notes:

filesForDmgr.zip is usually created by using the following command on the local node after it is configured:

`ConfigEngine.bat collect-files-for-dmgr`



Important

The deployment manager profile that you defined must be given the default name Dmgr01 and must be in the default location <appServer_root>/profiles/Dmgr01. If you did not do these two tasks, copy the metadata_wkplc.xml file from the <appServer_root>/profiles/Dmgr01/config/.repository directory to the config/.repository directory of your deployment manager profile.

Augmenting the deployment manager profile

- The `wkplc.properties` file does not generally need to be updated unless the deployment manager is configured for stand-alone LDAP.
- Use a federated repository and not a stand-alone LDAP.
- Using the Profile Management Tool or `manageProfiles` script to augment the *deployment manager profile*.
- Augmentation optimizes the deployment manager for communications with a WebSphere Portal node by increasing web container and SOAP timeout values.

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Figure 16-9. Augmenting the deployment manager profile

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Notes:

Augmentation is necessary because of the latency that is associated with the large volume of data to be sent from the node to the deployment manager during the federation process.

A final step in preparation of the deployment manager for federation and cluster might be required if the short name of the WebSphere Portal administrator overlaps with a name in an LDAP repository that is known to the deployment manager.



Information

Mitigating an administration user short-name conflict: To mitigate a short-name conflict, follow these steps:

1. Log on to the Deployment Manager IBM Shareable Code.
2. Click **Security > Global security**.
3. In the Global security window, complete these steps:
 - a. Under User account repository, click Configure.

- b. In the **Primary administrative user name** field, alter the user ID so that it uses the full distinguished name. For the default file user registry, the syntax is `uid=userID, o=defaultWIMfileBasedRealm` as in the following example:
`uid=wpsadmin, o=defaultWIMfileBasedRealm`
 - c. Click **Apply**.
 4. Enter the password for the user and then confirm the password.
 5. Save all changes.
 6. Log out of the administrative console.
- 

Preparing and federating the primary node

- Changes are required to the `wkplc.properties` file if the deployment manager is using stand-alone LDAP. (Portal 8.5 does not support a stand-alone LDAP.)

To make these changes, do these tasks:

1. Log on to the Integrated Solutions Console (ISC) on the deployment manager and locate the Virtual Member Manager (VMM) settings for stand-alone LDAP.
 2. Edit the `wkplc.properties` file on the primary node by using the settings from the deployment manager.
- Federation of the node requires a SOAP connection from the computer that hosts WebSphere Portal and the computer that hosts the deployment manager.

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Figure 16-10. Preparing and federating the primary node

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Notes:

The default port for these communications is 8879. It is possible that an alternative port is in use.

addNode script

- Use the application server script, addNode, to add your WebSphere Portal node to the cell.
1. Ensure that the deployment manager is running.
 2. From a command prompt in the <profile_root>\bin of your WebSphere Portal profile, enter the script by using the following syntax:

```
addNode -<dmgr dns hostname> <dmgr port> -includeapps  
-includebuses -username <dmgr admin name>  
-password <dmgr admin password>
```

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Figure 16-11. addNode script

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Notes:



Clustering WebSphere Portal

- Cluster models available for WebSphere Portal customers:
 - Configure a *dynamic cluster* if you installed IBM WebSphere Network Deployment 8.5 or IBM WebSphere Virtual Enterprise.
 - Install a *static cluster*. (The only option if you installed IBM WebSphere Network Deployment 8.0 or earlier.)

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Figure 16-12. Clustering WebSphere Portal

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Notes:

Update the WebSphere Portal administration account to align it with the security configuration of the deployment manager. This task ensures that you have logon access to the soon-to-be-defined cluster member. You must use the full DN of the new user and group. You can review by logging on to the ISC on the deployment manager and verifying the settings that are associated with short names as described earlier:

```
ConfigEngine wp-change-portal-admin-user -DWasPassword=<dmgr admin password>
-DnewAdminId=<new portal admin> -DnewAdminPw=<new portal admin password>
-DnewAdminGroupId=<new portal admin group id>
```

Creating the cluster

- Run the post federation task after you federate your node.

```
ConfigEngine.bat cluster-node-config-post-federation
```

- Use this task to create the cluster after the deployment manager's configuration is complete and the accounts are aligned:

```
• ConfigEngine cluster-node-config-cluster-setup -DWaspwassword=
<dmgr admin password>
```

- The cluster is created.

Additional steps are required to configure the JCRSeed bus.

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Figure 16-13. Creating the cluster

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Notes:

If you stored any passwords in the property files, delete them by entering the following command:

```
ConfigEngine delete-passwords -DWaspwassword=<dmgr admin password>
```

You can clean up the common locations by entering the following ConfigEngine command:

```
ConfigEngine cleanup-work-dir -DWaspwassword=<dmgr admin password>
```

Configuring the JCRSeed bus: Steps

1. From the ISC on your deployment manager, go to **Service Integration > Buses**.
2. Select **JCRSeedBus** and find the heading “Bus members.”
3. Select **Add** and choose **Cluster**. You now see your new cluster in the menu.
4. If it is not already selected, select **Enable Messaging Engine Policy Assistance** and choose the messaging engine policy setting.
5. Choose **Data Store**.
6. Select the name of the first engine in the list and specify the data store properties.

Your portal cluster configuration process is complete.
Restart WebSphere Portal to confirm accessibility.

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Figure 16-14. Configuring the JCRSeed bus: Steps

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Notes:

Provide the following information from the wkplc_dbdomain_properties file:

- Data source Java Naming and Directory Interface (JNDI) name:
- jdbc/data_source_name, where data_source_name is the value for the jcr.DataSourceName property in the wkplc_dbdomain.properties file in the wp_profile_root/ConfigEngine/properties directory of the primary node.
- Schema name:
- Enter the value of the jcr.DbSchema property in the wkplc_dbdomain.properties file.
- Authentication alias (you might have only one in the list).

In addition, you must complete these steps:

- a. Verify that the **Create Tables** check box is selected.
- b. Review the tuning options.
- c. Review Summary and Save to Master config repository.

Your portal cluster configuration process is complete. Restart WebSphere Portal to confirm accessibility.

16.2.Managing a WebSphere Portal cluster

This topic explains how to manage a WebSphere Portal cluster.

Managing a WebSphere Portal cluster



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Figure 16-15. Managing a WebSphere Portal cluster

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Notes:

Starting and stopping the node agent

- After you federate and cluster the WebSphere Portal node, you must manage the following WebSphere Application Server instances:
 - Deployment manager
 - Node agent
 - WebSphere Application Server > WebSphere Portal.

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Figure 16-16. Starting and stopping the node agent

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Notes:

Deployment manager

To start and stop the deployment manager, enter the following commands from the <dmgr_profile>/bin directory:

To start the deployment manager

`startManager.bat`

To stop the deployment manager

`stopManager.bat`

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Figure 16-17. Deployment manager

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Notes:

In a default configuration, <dmgr_profile> is:

/WebSphere/AppServer/profiles/dmgr01



Node agents

- You can stop node agents from the Integrated Solutions Console (ISC) of the deployment manager.
- You cannot start them from this GUI because the deployment manager has no process that is running on the node from which to send a start message.
- You can start and stop agent nodes from a command line by using the following commands.
 - These actions must be done from the portal node and from the <wp_profile>/bin directory.
 - To start a node:
`startNode.bat`
 - To stop a node:
`stopNode.bat`

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Figure 16-18. Node agents

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Notes:

Starting clusters and cluster members (1 of 2)

- You can start an entire cluster or individual members of the cluster from the ISC of the Deployment Manager.
 - To start a member, find it in the list of application servers and click **Start**.
 - If you choose to start the entire cluster, you can choose either of the following options:
 - **Start**, which applies to all members and starts them in parallel
 - **Ripplestart**, which applies to all members; it starts the servers in a series

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Figure 16-19. Starting clusters and cluster members (1 of 2)

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Notes:

- Ripplestart

Applies to all members and starts the servers in the series. Use this option when scaling clusters vertically. Here, the impact of initializing several JVMs concurrently can saturate computing resources and increase the delay before users can access WebSphere Portal.



Information

Vertical clustering: Such topologies as vertical or horizontal clustering are discussed in Unit 20: Production topologies. In vertical cluster, members of the cluster, the JVMs, run on a single hardware platform.

Starting clusters and cluster members (2 of 2)

- Ripplestart option:
 - First stops and then starts each server in turn
 - Restarts servers in sequence and ensures that at least one server in the cluster is online to handle requests
 - Do not use for 2 or 3 member clusters during operational hours, as there can be load issues during the hand-over phase in smaller clusters.
 - It is always safe as a start option for a stopped cluster.

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Figure 16-20. Starting clusters and cluster members (2 of 2)

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Notes:

Use this option when scaling clusters vertically. Here, the impact of initializing several JVMs concurrently can saturate computing resources and increase the delay before users can access WebSphere Portal.



Stopping the federated portal server

- Cluster members and clusters have different stop options.
 - To stop a cluster member, go to the deployment manager console, select the server, and click **Stop**.
 - You can stop all the cluster members by selecting the cluster and choosing **Stop**.
- When stopping application servers, choose the correct stop option.

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Figure 16-21. Stopping the federated portal server

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Notes:

Stop options for cluster members

Stop	<ul style="list-style-type: none"> • Do not accept new connections. • Process all current transactions and new transaction requests from existing sessions.
Immediate Stop	<ul style="list-style-type: none"> • Do not accept new connections. • Process all current requests/transactions. • Do not accept new transaction requests.
Terminate	<ul style="list-style-type: none"> • Stop the Java virtual machine (JVM).

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Figure 16-22. Stop options for cluster members

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Notes:



Important

This option might cause data loss and corruption of transaction logs. It is not a routine choice.

Stop options for clusters

Stop	<ul style="list-style-type: none">• Applies to all members.• Do not accept new connections.• Process all current transactions and new transaction requests from existing sessions.
Immediate Stop	<ul style="list-style-type: none">• Applies to all members.• Do not accept new connections.• Process all current requests/transactions.• Do not accept new transaction requests.

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Figure 16-23. Stop options for clusters

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Notes:

Unit summary

Having completed this unit, you should be able to:

- Federate a node into a cell
- Work with clusters and cluster members
- Create and manage a WebSphere Portal cluster

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Figure 16-24. Unit summary

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Notes:



Checkpoint

1. Which of the following are part of a cluster?
 - A. Deployment manager
 - B. Node Agent
 - C. Application Server

2. Clustering provides load balancing but not fault tolerance.
 - A. True
 - B. False

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Figure 16-25. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.

Checkpoint answers

1. Which of the following are part of a cluster?

Answer: A, B, and C

- A. Deployment manager
- B. Node Agent
- C. Application Server

2. Clustering provides load balancing but not fault tolerance.

Answer: B

- B. False

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Figure 16-26. Checkpoint answers

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Notes:

Exercise 15



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Figure 16-27. Exercise 15

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Notes:

Exercise objectives

At the end of this exercise, you should be able to:

- Use Configuration Wizard.
- Federate the primary node to cluster.

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Figure 16-28. Exercise objectives

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Notes:

Unit 17. Managing portlets in WebSphere Portal clusters

What this unit is about

This unit describes the differences between deploying and updating portlets in a clustered environment as opposed to a stand-alone environment.

What you should be able to do

After completing this unit, you should be able to:

- Define the mechanics of portlet deployment in a cluster
- Install and update portlets in a cluster

Unit objectives

After completing this unit, you should be able to:

- Define the mechanics of portlet deployment in a cluster
- Install and update portlets in a cluster

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Figure 17-1. Unit objectives

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Notes:



Topics

- Deploying portlets in a cluster
- Installing or updating a portlet in a cluster
- Synchronizing nodes
- Using XML Access in a cluster

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Figure 17-2. Topics

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Notes:

17.1.Deploying portlets in a cluster

This topic describes the clustered portlet deployment task and deployment process.

Deploying portlets in a cluster



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Figure 17-3. Deploying portlets in a cluster

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Notes:



Cluster environment overview

- Operating IBM WebSphere Portal 8.X in a cluster environment incorporates three distinct entities:
 - Node agents
 - Deployment manager
 - WebSphere Portal Server

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Figure 17-4. Cluster environment overview

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Notes:

Cluster environment entities

- Node agents
 - Node agents synchronize Java Platform, Enterprise Edition resources with the master configuration repository that the deployment manager maintains.
- Deployment manager
 - The cell's deployment manager manages all Java Platform, Enterprise Edition resources.
- WebSphere Portal Server
 - When a WebSphere Portal Server is deployed to a cluster, each of the WebSphere Portal instances shares the common databases.

The methods for deploying portlets in a clustered environment must address both the management of Java Platform, Enterprise Edition resources and the WebSphere Portal databases.

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Figure 17-5. Cluster environment entities

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Notes:

Methods for portlet deployment

The following methods are commonly used to deploy portlets:

Manage Web Modules portlet	<ul style="list-style-type: none"> • Use the Manage Web Modules portlet in the test environment. • Expect to export pages and portlets when you deploy portlets as part of a release.
XML Access	<ul style="list-style-type: none"> • XML Access exports the portlets and the configuration data that is associated with the portlets.
Enterprise archive (EAR) file	<ul style="list-style-type: none"> • This method involves deploying an EAR file directly to WebSphere Portal. • Use XML Access to import the portlet definition after you deploy the EAR file.

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Figure 17-6. Methods for portlet deployment

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Notes:

XML Access is a much more reliable means of moving from test to staging, and from staging to production. You copy the portlet EAR file from the source server to the target server before importing the release. Then, you import the release file to configure the portlets on the target server.

Clustered portlet deployment task

Principle

Deploy your new portlet application to a cluster in the same way that you might deploy it to a stand-alone portal.

- Portlet deployment steps
 - Portlet update steps
1. Use the *Manage Web Modules* portlet to deploy your new application to the portal instance in which you are logged in.
 2. Synchronize all other cluster members with the deployment manager to update the remaining nodes.
 3. You can now activate the portlet to make it available to all cluster members.
 1. All portlets within the application are immediately flagged as inactive when you update a portlet application.
 2. Again, synchronize all nodes and activate the portlets.

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Figure 17-7. Clustered portlet deployment task

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Notes:

Deploying portlets by using the Manage Web Modules portlet: Steps

1. Log in to any cluster member.
 - Cluster nodes do not have to be stopped.
2. Install the portlet.
3. Synchronize all cluster nodes.
4. Activate the portlets by choosing either of the following options:
 - Activate the individual portlets by using the Manage Web Modules portlet.
(Click Activate, the lightning bolt icon, which displays only if inactive.)
 - Activate all portlets by using the ConfigEngine task, activate-portlets.

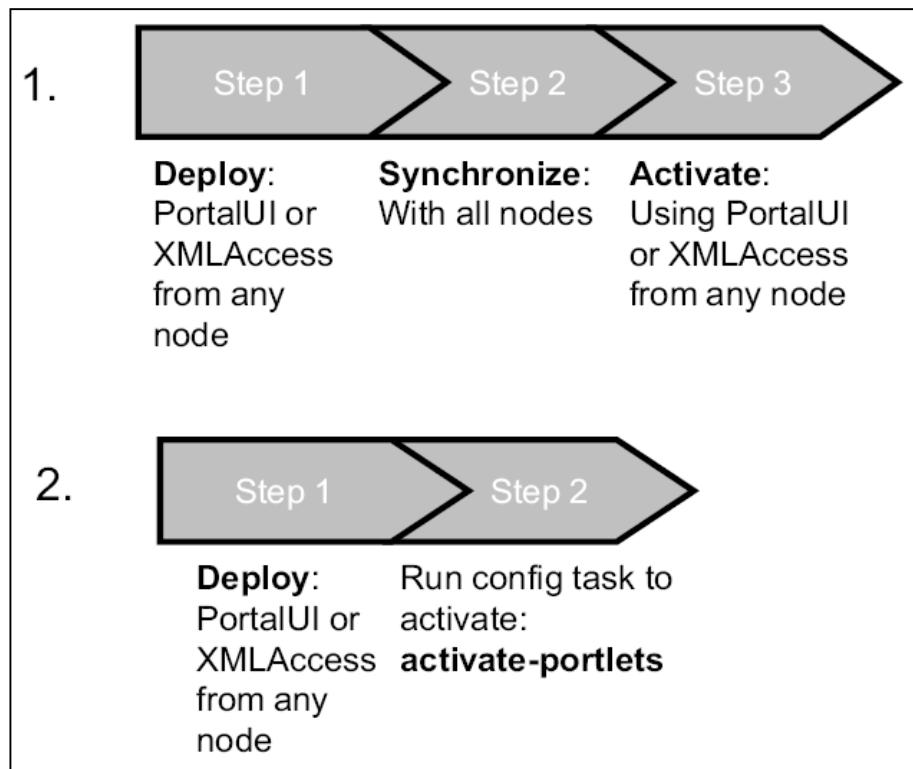
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Figure 17-8. Deploying portlets by using the Manage Web Modules portlet: Steps

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Notes:

Clustered portlet deployment processes



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Figure 17-9. Clustered portlet deployment processes

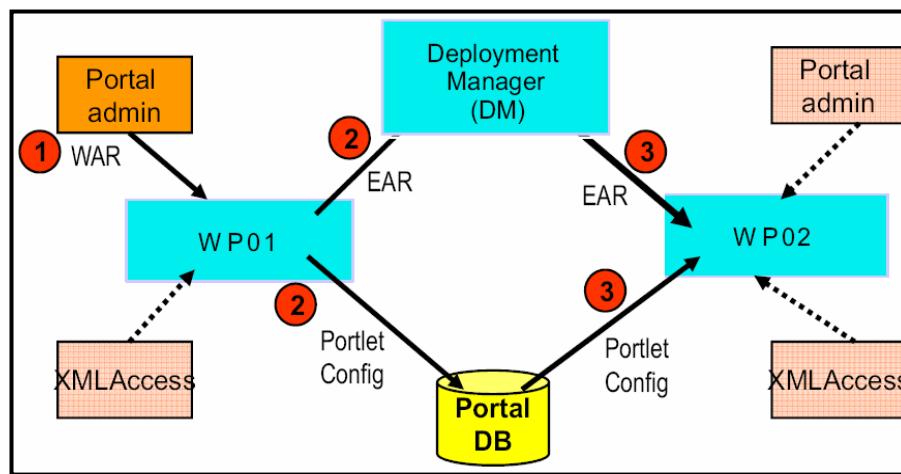
WPL951.0

Notes:

The first process, illustrated in this figure, requires manual synchronization for all nodes. The second process, also in this figure, uses the config task, ConfigEngine, to both synchronize and activate the portlets.

Portlet distribution process within a cluster

- The portlet application file, EAR file, is forwarded to the Deployment Manager, from where it is pushed to each cluster member.
- The portal configuration database is updated immediately for all members of the cluster.



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Figure 17-10. Portlet distribution process within a cluster

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Notes:

This figure illustrates the distribution process for portlet applications within a cluster.

More specifically, this figure illustrates the following tasks:

- Deploying the portlet at cluster member WP01
 - Updates the deployment manager master configuration
 - Updates the portal configuration databases
- Synchronizing nodes, which activates portlets

17.2. Installing or updating a portlet in a cluster

This topic describes installing or updating a portlet configuration in a cluster.

Installing or updating a portlet in a cluster



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10.1

Figure 17-11. Installing or updating a portlet in a cluster

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Notes:

Web archive (WAR) file

- Description of the technique:
 - If you deploy the portlet as a web archive (WAR) file, WebSphere Portal wraps the WAR file inside an EAR file for deployment.
 - When you update the WebSphere Portal database configuration, the portlet configuration is then created or updated.
 - The database is then shared across the cluster.
 - The nodes can access portlet configuration immediately after the database is installed or updated.

WebSphere Portal uses this technique because it invokes the application as though it were a Java Platform, Enterprise Edition application.

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Figure 17-12. Web archive (WAR) file

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Notes:

17.3.Synchronizing nodes

This topic describes the synchronization of nodes.

Synchronizing nodes



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Figure 17-13. Synchronizing nodes

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Notes:

Synchronization

- Description
 - With synchronization, you can apply changes to all cluster members from the master repository that the deployment manager manages.
- How to do?
 - Each portal node is configured under **Administration > Node agents > nodeagent > File synchronization service**.
 - Run the following command from the ConfigEngine directory for any cluster member to activate and synchronize the portlets:

```
ConfigEngine activate-portlets
```

- Principles
 - Default automatic synchronization is set to once per minute.
 - Portal nodes are not aware of synchronization state across all the nodes.

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Figure 17-14. Synchronization

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Notes:

ConfigEngine activate-portlets command activates the portlets and causes the deployment manager to synchronize changes across cluster members.

17.4.Using XML Access in a cluster

This topic explores the use of XML Access in a cluster.

Using XML Access in a cluster



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Figure 17-15. Using XML Access in a cluster

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Notes:

XML Access import and synchronization

- XML Access import
 - XML Access can run from any node by using either a secure HTTPS connection or an unsecure HTTP.
 - Portlets are deployed by directing the request to a specific portal server by host name and port.
 - A `File not found` exception is thrown if other cluster members handle the request and the portlet's WAR file does not exist on that node.
- Synchronization
 - Synchronization must occur after the XML Access import.
- Cluster members share the release database, which is only required if portlets are deployed.

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Figure 17-16. XML Access import and synchronization

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Notes:

Unit summary

Having completed this unit, you should be able to:

- Define the mechanics of portlet deployment in a cluster
- Install and update portlets in a cluster

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Figure 17-17. Unit summary

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Notes:

Checkpoint

1. Which of the following are methods to deploy portlet?
 - A. Manage Web Modules portlet
 - B. XML Access
 - C. Enterprise archive (EAR) file

2. WebSphere Portal wraps the web archive (WAR) file inside an EAR file for the deployment.
 - A. True
 - B. False

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Figure 17-18. Checkpoint

WPL951.0

Notes:

Write your answers here:

- 1.
- 2.



Checkpoint answers

1. Which of the following are methods to deploy portlet?
Answer: A, B, and C
 - A. Manage Web Modules portlet
 - B. XML Access
 - C. Enterprise archive (EAR) file

2. WebSphere Portal wraps the web archive (WAR) file inside an EAR file for the deployment.
Answer: A
 - A. True

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Figure 17-19. Checkpoint answers

WPL951.0

Notes:

Unit 18. Troubleshooting

What this unit is about

This unit provides an introduction to troubleshooting.

What you should be able to do

After completing this unit, you should be able to:

- Locate the relevant log files
- Articulate a problem determination methodology
- Use IBM Support Assistant
- Determine the techniques for isolating problem components
- Trace WebSphere Portal 8.X problems
- Monitor for performance

Unit objectives

After completing this unit, you should be able to:

- Locate the relevant log files
- Articulate a problem determination methodology
- Use IBM Support Assistant
- Determine the techniques for isolating problem components
- Trace WebSphere Portal 8.X problems
- Monitor for performance

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Figure 18-1. Unit objectives

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Notes:

Topics

- Overview of troubleshooting
- Tracing

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Figure 18-2. Topics

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Notes:

18.1.Overview of troubleshooting

This topic describes logs, logging and tracking, and IBM Support Assistant.

Overview of troubleshooting



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Figure 18-3. Overview of troubleshooting

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Notes:

Logging mechanisms and log files

- IBM WebSphere Application Server and IBM WebSphere Portal Server provide logging mechanisms for each phase of:
 - Installation
 - Configuration
 - Runtime
 - Deployment
- IBM WebSphere and WebSphere Portal generate many log files that are useful in problem resolution.
 - Depending of the nature of the problem, you examine the most likely log file first, moving outward to other possible candidates until you identify the problem.

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Figure 18-4. Logging mechanisms and log files

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Notes:

Log files in problem resolution

Process	Log files	Directory
Installation	Portal installation log files	Installation Manager\logs
Configuration	Configuration log files	<profile_root>\ConfigEngine\logs
Runtime	WebSphere log files for server1 logs	<profile_root>\logs\server1
	WebSphere log files for portal logs	<profile_root>\logs\WebSphere_Portal
Deployment	Deployment manager file	<dmgr_profile_root>\logs\dmgr
	Plug-in logs, which examine HTTP servers	httpd.conf file for plug-in installation location

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Figure 18-5. Log files in problem resolution

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Notes:

IBM Support Assistant Team Server

- IBM Support Assistant Team Server is a free application that can help in problem resolution.

Feature and Benefits	
Problem Determination tools	Use specialized tools to troubleshoot complex problems. Generate analysis reports or interact with rich web-based and desktop tools.
Intuitive Web UI	Emphasizing simplicity, Team Server allows you to easily open a browser to access the application and problem determination tools.
Server-based application	Install once and collaborate with multiple team members. Analysis processing can now be offloaded from your desktop.
Case management	Organize diagnostic files by problem incident or other meaningful organization approaches.
File management	Quickly navigate through case files and take various actions directly against remote files such as compress, rename, move, and more.
Automated data analysis	Automatically scan case files to discover common problem symptoms and candidate solutions.

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Figure 18-6. IBM Support Assistant Team Server

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Notes:

IBM Support Assistant Team Server is not included with your WebSphere Portal distribution, but can be installed on any workstation.

Go to the following web page to download IBM Support Assistant Team Server:

<http://www.ibm.com/software/support/isa>

The earlier IBM Support Assistant Workbench is being deprecated.

A short video is available to explain the main features:

http://www.youtube.com/watch?feature=player_embedded&v=-lVEUWxegxA



IBM Support Assistant Lite and Data Collector

- IBM Support Assistant Lite and IBM Support Assistant Data Collector are free stand-alone applications that can help in problem resolution by automatically gathering logs, files, and information.
- Are not included with your WebSphere Portal distribution, but can be installed on any workstation.
- Often used when working with IBM support to collect files to send.

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Figure 18-7. IBM Support Assistant Lite and Data Collector

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Notes:

Go to the following web page to download IBM Support Assistant Data Collectors:

<http://www.ibm.com/software/support/isa>

18.2.Tracing

This topic describes tracing and collecting diagnostic information.

Tracing



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10.1

Figure 18-8. Tracing

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Notes:

Tracing

- Tracing delivers low-level logging of the work that the WebSphere Application and Portal servers do.
- Tracing requires detailed knowledge of portal architecture.
- When considering a trace, do the following tasks:
 - Narrow down the resolution probabilities to specific portal subsystems.
 - Run tracing from the administrative console.
- Avoid use of the *Enable Tracing* portlet to initiate traces.

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Figure 18-9. Tracing

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Notes:

Most of the time, examination of the logs leads you directly to the problem resolution. When the interaction of multiple components causes a problem, or if the issue has low-level causes, you must trace the problem.

Although both tracing methods use the same mechanism, enabling tracing from the Integrated Solutions Console (ISC) is much more intuitive.



Enable tracing: Steps

In the Integrated Solutions Console:

1. Click **Troubleshooting > Logs and Trace**.
2. In the Logging and Tracing window, click the server name.
3. Click **Diagnostic Trace**.
4. Click **Log Format**.
5. Set log detail levels.

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Figure 18-10. Enable tracing: Steps

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Notes:

Enable tracing: Step 2

Server	Node	Version	Type	Status
WebSphere Portal	portal00	ND 6.1.0.15	servers	
dmqr	portalMgrNode01	ND 6.1.0.15	servers	
nodeagent	portal00	ND 6.1.0.15	servers	
server1	portal00	ND 6.1.0.15	servers	
Total 4				

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Figure 18-11. Enable tracing: Step 2

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Notes:

To enable tracing, follow these steps:

1. In the ISC, click **Troubleshooting > Logs and Trace**.
2. In the Logging and Tracing window, click the server name.



Enable tracing: Step 3

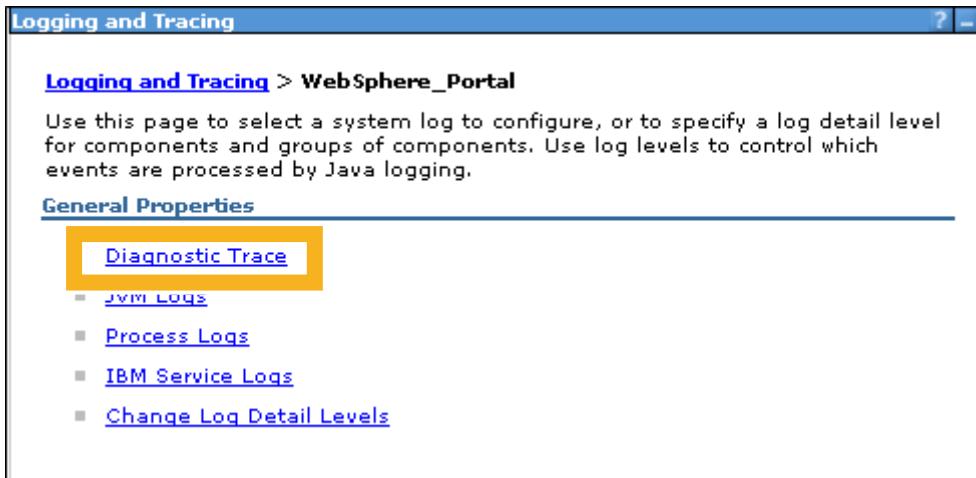


Figure 18-12. Enable tracing: Step 3

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Notes:

3. In WebSphere_Portal, click **Diagnostic Trace**.

Enable tracing: Step 4

[Logging and Tracing](#) > [WebSphere Portal](#) > Diagnostic trace service

Use this page to view and modify the properties of the diagnostic trace service. Diagnostic trace provides detailed information about how the application server components run within this managed process. Changes on the Configuration panel apply when the server is restarted. Changes on the Runtime panel apply immediately.

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Figure 18-13. Enable tracing: Step 4

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Notes:

4. In Diagnostic trace service, select an option from the **Trace Output Format** list, such as **Basic (Compatible)**. Then, click **Change Log Detail Levels**.

The following two tabs are available when setting trace options:

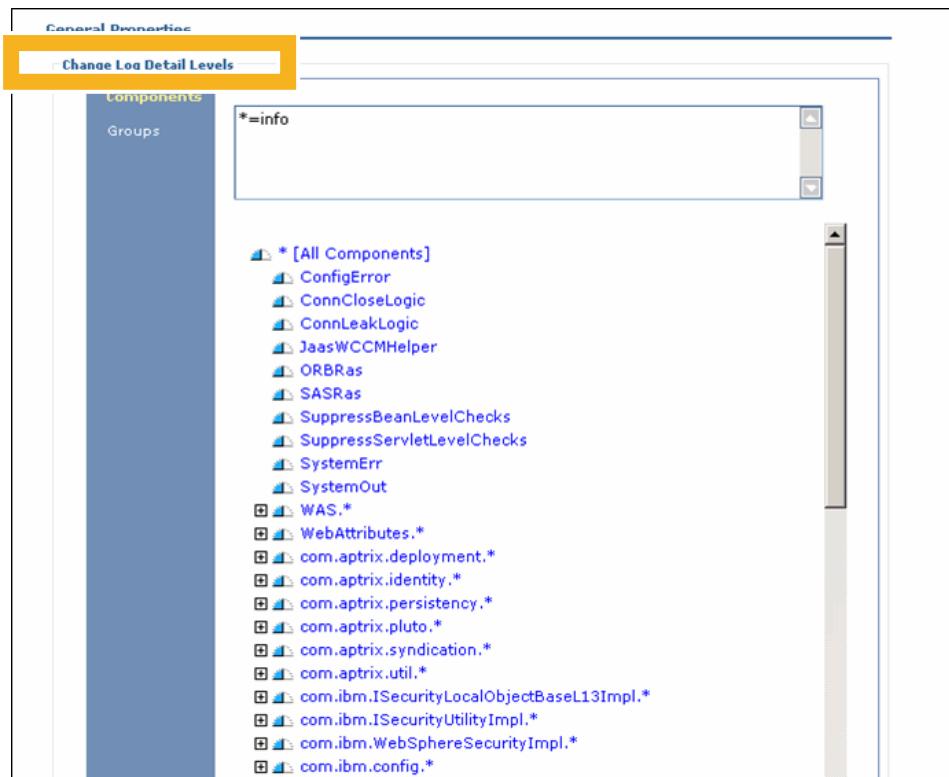
- Runtime

Runtime settings are not persistent. They are immediately effective. The settings are not retained when the server is restarted. Configuration settings apply to the current runtime state of the server.

- Configuration

Configuration settings are persistent regardless of the number of server restarts. To disable settings that were made by using the Configuration tab, you must clear them and restart the server. To trace server start issues, use the Configuration option.

Enable tracing: Step 5



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Figure 18-14. Enable tracing: Step 5

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Notes:

5. In the General Properties section, set the log detail levels.

Log detail selection can be done by typing the required logging specification strings in the box at the top of the screen, or by selecting them from the tree of logging features that is shown below the box.

Tracing: Common areas of concern

- Access control: com.ibm.wps.ac.*
- Authentication: com.ibm.wps.services.authentication.*=all
- Database: com.ibm.wps.datastore.*=all
- Personalization: com.ibm.websphere.personalization.*=all
- Portal Search: com.ibm.portal.search=all
- Portlet container: com.ibm.wps.pe.pc.*=all
- Services: com.ibm.wps.services.*=all
- XML configuration interface: com.ibm.wps.command.xml.*=all

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Figure 18-15. Tracing: Common areas of concern

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Notes:

The portal administration pages also offer a facility for tracing. In this case, they are run time only. You define the trace settings for the run time on the Administration pages by using the Enable Tracing portlet. Click **Portal Analysis > Enable Tracing** and define the trace settings.

Unit summary

Having completed this unit, you should be able to:

- Locate the relevant log files
- Articulate a problem determination methodology
- Use IBM Support Assistant
- Determine the techniques for isolating problem components
- Trace WebSphere Portal 8.X problems
- Monitor for performance

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Figure 18-16. Unit summary

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Notes:

Checkpoint

1. Trace string for access control is _____
 - A. com.ibm.wps.datastore.*=all
 - B. com.ibm.wps.ac.*
 - C. com.ibm.wps.datastore.*=

2. IBM support assistant is helpful tool for troubleshooting.
 - A. True
 - B. False

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Figure 18-17. Checkpoint

WPL951.0

Notes:

Write your answers here:

- 1.
- 2.

Checkpoint answers

1. Trace string for access control is _____

Answer: B

B. com.ibm.wps.ac.*

2. IBM support assistant is helpful tool for troubleshooting.

Answer: A

A. True

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Figure 18-18. Checkpoint answers

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Notes:

Exercise 16



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Figure 18-19. Exercise 16

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Notes:

Exercise objectives

At the end of this exercise, you should be able to:

- Locate the WebSphere Portal runtime and tracing logs
- View WebSphere Portal runtime and tracing logs by using the deployment manager administrative console
- Enable WebSphere Portal tracing by using the deployment manager administrative console
- Use the IBM Tivoli Performance Viewer to monitor WebSphere Portal resources

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Figure 18-20. Exercise objectives

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Notes:

Unit 19. Theme architecture

What this unit is about

This unit provides an introduction to theme architecture.

What you should be able to do

After completing this unit, you should be able to:

- Describe page aggregation options
- Define branding, themes, and skins
- Describe Portal 8 or 8.5 modularized theme
- Explain theme design considerations

Unit objectives

After completing this unit, you should be able to:

- Describe page aggregation options
- Define branding, themes, and skins
- Describe Portal 8 or 8.5 modularized theme
- Explain theme design considerations

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Figure 19-1. Unit objectives

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Notes:

Topics

- Client-side aggregation versus server-side aggregation
- Portal customization and branding
- Portal 8 or 8.5 theme

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Figure 19-2. Topics

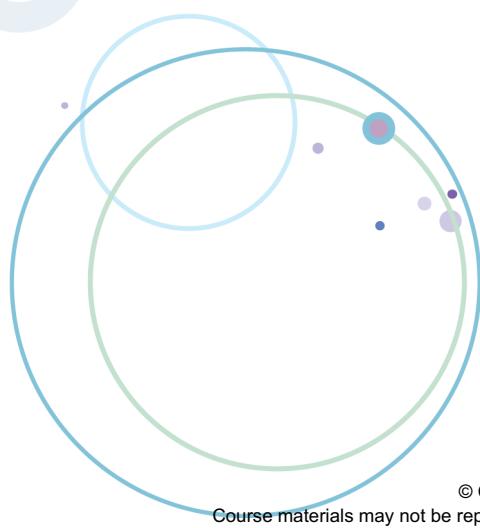
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Notes:

19.1.Client-side aggregation versus server-side aggregation

This topic describes the difference between client-side aggregation and server-side aggregation.

Client-side aggregation versus server-side aggregation



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Figure 19-3. Client-side aggregation versus server-side aggregation

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Notes:

Page aggregation concept

- Aggregation describes how the individual content elements on a page are combined into a single coherent page of HTML.
- Aggregation only took place on the server in early versions of WebSphere Portal.
- When users interacted with a page, the request sent to the server was followed by aggregation on the server side.
- Portal 7 introduced client-side aggregation.
- Portal 8.0 deprecated client-side aggregation, though it is still supported.

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Figure 19-4. Page aggregation concept

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Notes:

Understanding two aggregation options

Client-side mode

- The full page does not need to be refreshed in client-side aggregation.
- Page changes occur without a refresh of the full browser page.
- Users who interact with portlets or widgets that are enabled can update that portlet or widget without affecting the page.

Server-side mode

- Page changes cause a refresh of the full browser page in server-side aggregation.
- Interactions with portlets result in refresh of a full browser page.
- On pages that support iWidgets, interactions with portlets are processed according to the behavior of the client-side mode.

WebSphere Portal 8 and 8.5 do not support client-side aggregation with their included themes.

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Figure 19-5. Understanding two aggregation options

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Notes:

You can choose from two aggregation options: client-side aggregation and server-side aggregation. In general, *aggregation* is how information from various components is combined into a coherent view. Earlier versions of WebSphere Portal relied upon server-side aggregation as the sole means of assembling content before sending the view to a browser. The browser received the markup and created the view according to the instructions provided in the markup. The obstacle to performance became clear when content from a discrete area of the page required that the entire page be reloaded. Techniques were, and still are, available for managing this requirement. Caching technologies and portlet render behaviors can mitigate the load that repeated page loads incur.

This process is changed by such frameworks as Ajax that permit a browser to request partial page updates. Client-side aggregation allows each portlet to update independently; however, so does the resource-serving portlet programming feature, which still functions via server-side rendering.

Client-side aggregation

A full page does not need to be refreshed in client-side aggregation. Page changes can occur without refreshing a full browser page. Content that the IBM Syndicated Feed Browser provides, for example, can be relegated to the browser for aggregation. Therefore, users who interact with portlets or widgets that are enabled for client-side aggregation can update that portlet or widget

without affecting the page. It does not mean that interaction with other elements on the page that require a response from the server are unaffected. Other portlets and widgets on the page can be affected as a result of wiring. In some cases, a response from the server is required that might result in a partial page refresh through an Ajax call, or it might result in a reload of the page.

Client-side aggregation works through a JavaScript based component that is called the *client-side aggregator*. The client-side aggregator controls the interaction with the portal by making calls to a REST (Representational State Transfer) based web service on the server to get the page fragments, and doing the assembly on the client.

Server-side aggregation

In server-side aggregation, page changes cause a refresh of the full browser page. Similarly, interactions with portlets result in a refresh of the full browser page. However, on pages that support iWidgets, interaction are processed according to the behavior of the client-side mode. It does not mean that Ajax calls are not permitted. The difference might be understood in terms of granularity. By enabling server-side aggregation, you put the task of aggregating the rendered content entirely on the server. A developer might enable an update to a field, for example, through Ajax, but it is not turned on or off at the page level.

Resource-serving portlets

Since version 7 of WebSphere Portal, and the JSR286 portlet specification, it is possible to create resource-serving portlets. Combining this programming technique with Ajax calls allows for partial page refreshes even when using server-side rendering.

Extra considerations

Before choosing an aggregation option, you must understand the following trade-offs:

- Some portal pages, such as those that use existing themes, are incompatible with client-side aggregation.
- Some portlets are incompatible with client-side aggregation. (In client-side aggregation, the server wraps portlets as iWidgets.)

Some browsers cannot support client-side aggregation.

Setting page aggregation options

- Set page aggregation mode by using the Edit Page Properties portlet.
- You can access this portlet in one of two ways:
 - Administration > Pages > Manage Pages
 - Action tab > Edit Page Properties
- The choice is to inherit the parent page setting or to choose either server-side or client-side aggregation.
- The page reverts to server-side aggregation (SSA) if the theme applied to it does not support client-side aggregation (CSA).

Edit page: Getting Started

Use the controls below to work with your pages to specify your page properties. Expand the sections to view more details.

Title:

Unique Name:

Note: If the unique name you entered for this page already exists, it will not be created or updated.

Friendly URL name:

Theme:

Theme Style (Theme Policy):

Icon:

Aggregation - Render Mode:

This setting will revert to SSA during runtime if the theme assigned with the page does not support CSA.

Inherit Parent Render Mode

Client Side Aggregation - Rendering

Server Side Aggregation - Rendering

Page Properties

Type of Page

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Figure 19-6. Setting page aggregation options

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Notes:

This figure shows where you select page aggregation.

19.2. Portal customization and branding

This topic describes how to define and create a brand, how to define themes and skins, and how to implement cascading style sheets (CSS).

Portal customization and branding



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Figure 19-7. Portal customization and branding

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Notes:

Defining a brand

- About the brand
 - A brand includes the organization's logo, colors, trademarks, content, navigation, and pages among other things.
 - A brand expresses the business and practices of the organization.

The primary tools for expressing the organization's brand are themes and skins.

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Figure 19-8. Defining a brand

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Notes:

Branding turns the generic WebSphere Portal instance into the portal for your organization.

Creating a brand (1 of 2)

Creating a brand requires the input of many people.

- The ideal team lead is an experienced *user interface designer*.
- *Legal departments* must be consulted to preserve trademarks.
- *Marketing department* can contribute the necessary graphics and provide a perspective on the organization's image.

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Figure 19-9. Creating a brand (1 of 2)

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Notes:

Creating a brand (2 of 2)

Items needed

- Mastery of WebSphere Portal navigation
- Layout of the default portal
- Understanding of theme and skin architecture
- Comprehension of the business purpose of your WebSphere Portal
- Experience with HTML and CSS

Tasks to perform

- Gather graphics and red, green, and blue (RGB) color patterns
- Involve both legal and marketing departments

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Figure 19-10. Creating a brand (2 of 2)

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Notes:

19.3.Portal 8 or 8.5 theme

This topic describes the new portal 8 or 8.5 theme along with the modularized theme architecture.

Portal 8 or 8.5 theme



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10.1

Figure 19-11. Portal 8 or 8.5 Theme

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Notes:

What's new in themes for portal 8 or 8.5

New for 8

1. A new and optimized theme to separate theme from portal features.
2. Theme uses a modularized framework to separate design from function.
3. Modules can be included to enable and disable certain features.
4. To optimize themes on your website, use the theme optimization module framework.

New for 8.5

1. Simple module definition via WebDAV.
2. Updated theme analyzer.
3. Visual make-over.

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Figure 19-12. What's new in themes for portal 8 or 8.5

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Notes:

You can create themes by using modules to contribute to separate areas of pages to provide flexibility, enhance the user experience, and maximize performance.

To optimize themes on your website, use the theme optimization module framework.

The framework separates feature-specific logic and capabilities from the theme code.

Understanding the modularized theme

- Theme contains JavaScript, dynamic content (JSP files), and static resources.

<i>JavaScript</i>	<i>JavaScript</i> content includes module resources that js files define.
<i>Dynamic content</i>	<i>Dynamic content</i> includes resources that jsp files define.
<i>Static resources</i>	<i>Static resources</i> include page design resources that html, css, and graphics files define.

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Figure 19-13. Understanding the modularized theme

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Notes:

About modularization framework and modules

- Modularization framework
 - The features of a theme can be enabled and disabled by using a profile to configure them.
 - This framework also combines multiple resources into one request for greater performance.
- Modules
 - Modules are registered extensions that define a set of files (CSS, HTML, js, and so on), called contributions/sub-contributions, and are referenced in theme profiles.
 - Each module has a unique identifier.
 - Modules can declare that they depend on other modules. They are called *dependencies*.

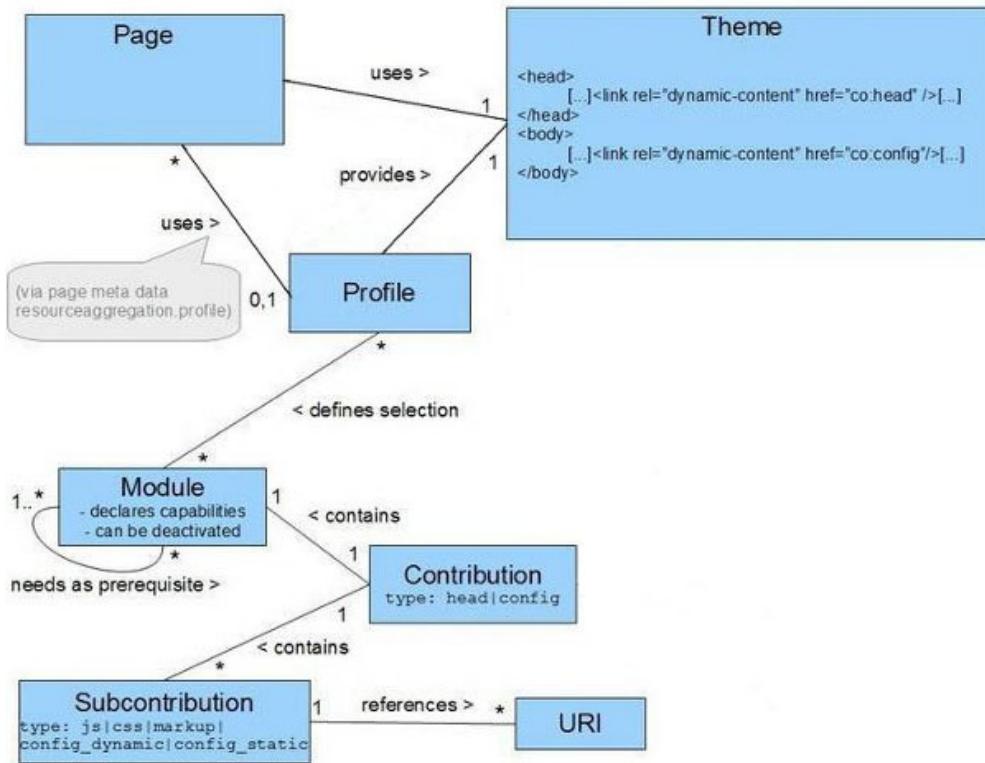
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Figure 19-14. About modularization framework and modules

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Notes:

Theme artifacts and their interrelation



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Figure 19-15. Theme artifacts and their interrelation

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Notes:



Registering theme modules (1 of 2)

- You can register *theme modules* and create and use profiles for a particular theme.
- A module defines its contributions by using a plugin.xml file.
- Global and theme-specific contributions:
 - Global contributions
 - Considered for all themes in the system by using a plugin.xml file.
 - Each contribution contains single theme module with unique id.
 - Theme-specific contributions
 - Only the theme that defines them by using a JSON file within the theme can reference them.

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Figure 19-16. Registering theme modules (1 of 2)

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Notes:

Registering theme modules (2 of 2)

- The theme module needs to be declared with extension point:
`com.ibm.portal.resourceaggregator.module`.
 - Example plugin.xml where module is deployed in application with context root /HelloWorld:

```
<extension point="com.ibm.portal.resourceaggregator.module" id="TestModule18" >
  <module id="testModule18" version="1.0" >
    <prereq id="testModuleA" />
    <capability id="capabilityA" value="1.0.0"/>
    <contribution type="head">
      <sub-contribution type="css">
        <uri value="res:/HelloWorld/css/helloWorld.css" />
      </sub-contribution>
      <sub-contribution type="js">
        <uri value="res:/HelloWorld/js/helloWorld_head.js" />
      </sub-contribution>
      <sub-contribution type="markup">
        <uri value="res:/HelloWorld/html/helloWorld_head.html" />
      </sub-contribution>
    </contribution>
  </module>
</extension>
```

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Figure 19-17. Registering theme modules (2 of 2)

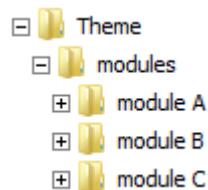
WPL951.0

Notes:

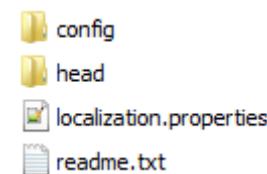
Simple modules via WebDAV

- You can create simple modules in a theme by creating a new module folder and adding the wanted files.
- The module must then be added to a profile in the theme to be used.
- The theme profile must then be assigned to a page.

Modules folder in a theme



Contents of a module folder



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Figure 19-18. Simple modules via WebDAV

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Notes:

Theme optimization analyzer portlet

- The portlet is on the Administration page, under Portal Analysis > Theme Analyzer.
- Helps analyze: Page profiles, modules, contributions, and capabilities. It also offers validation reports and exports.

The screenshot shows the 'Module Explorer' interface of the Theme Optimization Analyzer. The left pane displays a tree view of modules under the 'dojo' category, including 'dojo_19', 'getting_started_module', 'wp_client_ext', 'wp_dynamicContentSpots_85', 'wp_layout_windowstates', 'wp_portlet_css', 'wp_status_bar', 'wp_theme_high_contrast', 'wp_theme_menus', 'wp_theme_portal_85', 'wp_theme_skin_region', and 'wp_toolbar_ghost'. The right pane is titled 'Module Information' for the 'dojo' module, which has an ID of 'dojo', a count of 1, and a description of 'Mapping Module to Dojo 1.9 Core Layer'. Other details include version '<not defined>', active status 'Yes', and meta-module status 'Yes'. The location is listed as 'davfs-type1/themes/Portal8.5/contributions/dojo19.json'.

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Figure 19-19. Theme optimization analyzer portlet

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Notes:

Managing themes in the WebDAV file store

- Manage your themes directly in static HTML files that are stored in the **web-based Distributed Authoring and Versioning** (WebDAV) file store.
- Change *Style* and *Layout* through static CSS and layout templates that are stored and configured through WebDAV.

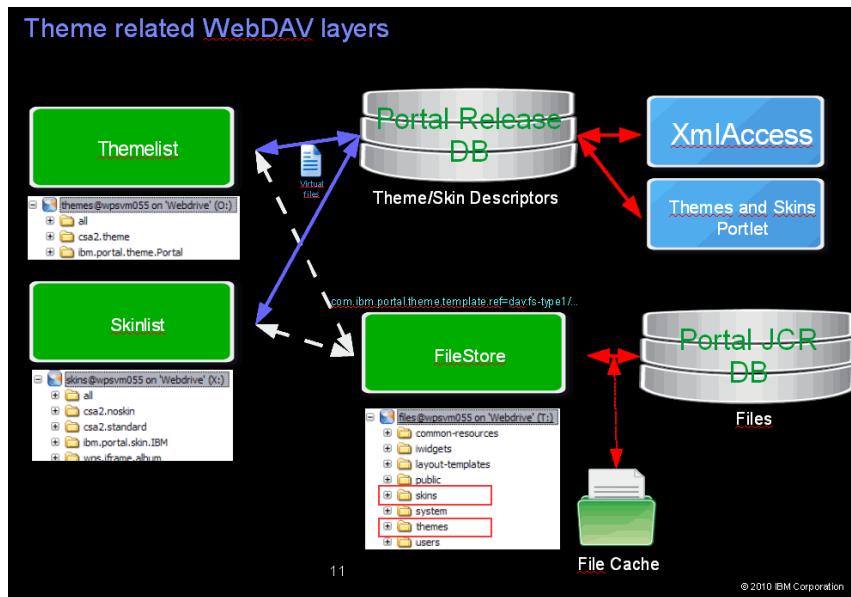


Figure 19-20. Managing themes in the WebDAV file store

WPL951.0

Notes:

WebDAV: WebDAV extends the HTTP protocol so that you can collaboratively create and edit files on a remote web server.

The WebSphere Portal implementation provides WebDAV for the following reasons:

- Management of pages
- A file store for mashup integration
- Web Content Management

The entry points for WebDAV can be identified in a service document that is retrieved from the following URL:

`http://<server:port>/wps/mycontenthandler/model/service-document`

The root for WebDAV is fs-type1 and entry points are:

- Themes: fs-type1/themes
- Skins: fs-type1/skins
- Mashups: fs-type1/users/<username>

A WebDAV client for themes might use the following URL:

`http://my_company.com:10039/wps/mycontenthandler/dav/fs-type1/themes`

Themelist folder

- You need a WebDAV client to access the theme folders.
- The entry point for new themes and existing themes is the **themelist** folder.
- You can add a theme to the **themelist** folder by first copying and renaming it.

Remote System			
/themelist			
	Name	Size	Date
📁	..		Dec 31 1969 1...
📁	all		Dec 31 1969 1...
📁	com.ibm.portal.mashup.t...		Dec 31 1969 1...
📁	com.ibm.portal.mashup.t...		Dec 31 1969 1...
📁	csa2.theme		Dec 31 1969 1...
📁	ibm.portal.theme.Portal		Dec 31 1969 1...

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Figure 19-21. Themelist folder

WPL951.0

Notes:

To create a theme, the WebDAV requires the following URL:

`http://<server:port>/mycontenthandler/dav/themelist`



Managing the WebDAV file store (1 of 2)

- You generally need to enable write access to the file store for non-administrators.
- Only administrators can write to certain folders, including public and user-owned folders immediately upon installation.

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Figure 19-22. Managing the WebDAV file store (1 of 2)

WPL951.0

Notes:

You might need to enable write-access to the file store for non-administrators. This effort applies to user folders and not specifically to the theme-related folders (or mashup-related folders).

Managing the WebDAV file store (2 of 2)

1. To enable write access for all authenticated users, add the `filestore.writeaccess.allowed` property to the WP ConfigService resource environment provider in the WebSphere Application Server administrative console.
2. Set the value for the property to *true*.

The screenshot shows the 'Integrated Solutions Console' interface. The left sidebar lists various administrative tasks under 'Resources' (Schedulers, Object pool managers, JMS, JDBC, Resource Adapters, Asynchronous beans, Cache instances, Mail, URL, Resource Environment). Under 'Resource Environment', the 'Resource Environment Providers' item is highlighted with a red arrow and circled with a yellow circle containing the number '1'. The main panel displays 'Resource environment providers' for the 'WP ConfigService' provider, specifically its 'Custom properties'. A red arrow points from the number '2' to the property 'filestore.writeaccess.allowed', which is currently set to 'true'. Other properties listed include 'filestore.cache.expiration.3.seconds' (86400), 'wps.search.home' (\$USER_INSTALL_ROOT)/PortalServer, 'wcm.pages.enabled' (true), 'wcm.config.seedlist.version' (1.0), 'wcm.config.seedlist.servletpath' (/seedlist), and 'filestore.cache.expiration.3.seconds' (86400).

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Figure 19-23. Managing the WebDAV file store (2 of 2)

WPL951.0

Notes:



Applying a theme

To apply a theme, follow these steps:

1. Edit the page properties.
2. Set the theme.
3. Set the theme policy.

The screenshot shows a dialog box titled "Edit Page Properties". It contains three fields:

- Title:** A text input field containing the value "Welcome".
- Theme:** A dropdown menu set to "-----Inherit Parent Theme-----" with a small arrow icon indicating it's a dropdown.
- Navigation type (theme policy):** Another dropdown menu set to "-----Inherit Parent Theme Policy-----" with a small arrow icon indicating it's a dropdown.

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Figure 19-24. Applying a theme

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Notes:

Unit summary

Having completed this unit, you should be able to:

- Describe page aggregation options
- Define branding, themes, and skins
- Describe Portal 8 or 8.5 modularized theme
- Explain theme design considerations

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Figure 19-25. Unit summary

WPL951.0

Notes:

Checkpoint

1. Full page refresh occurs in client site aggregation.
 - A. True
 - B. False

2. The Portal 8 theme uses _____ to separate design from function.
 - A. Modularized framework
 - B. Standard framework
 - C. Skins

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Figure 19-26. Checkpoint

WPL951.0

Notes:

Write your answers here:

- 1.
- 2.

Checkpoint answers

1. Full page refresh occurs in client site aggregation.
Answer: B
B. False

2. The Portal 8 theme uses _____ to separate design from function.
Answer: A
A. Modularized framework

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Figure 19-27. Checkpoint answers

WPL951.0

Notes:

Unit 20. Production topologies

What this unit is about

This unit covers various possible portal topologies. It also explores the process of creating a cluster.

What you should be able to do

After completing this unit, you should be able to:

- Define the default IBM WebSphere Portal 8.X installation
- Define the components of a federated WebSphere Portal installation
- Create a desktop to production environment
- Reduce single point of failure
- Create and maintain a WebSphere Portal cluster

Unit objectives

After completing this unit, you should be able to:

- Define the default IBM WebSphere Portal 8.X installation
- Define the components of a federated WebSphere Portal installation
- Create a desktop to production environment
- Reduce single point of failure
- Create and maintain a WebSphere Portal cluster

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Figure 20-1. Unit objectives

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Notes:

Topics

- Production topologies
- Building a development and production-ready deployment
- Reducing single points of failure
- Enabling redundancy for configuration data
- Database domains and databases
- Configuring databases for failover
- Capacity planning considerations
- Web Services for Remote Portlets (WSRPs)

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Figure 20-2. Topics

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Notes:

20.1. Production topologies

This topic describes the various production topologies for WebSphere Portal, including stand-alone implementations and distributed platforms, horizontal and vertical clusters, and portal farms and cloud computing.

Production topologies



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10.1

Figure 20-3. Production topologies

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Notes:

Stand-alone or distributed implementation (1 of 2)

Stand-alone implementations are suitable for proof of concept, development, and departmental platforms.

Distributed platforms are suitable for enterprise deployments.

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Figure 20-4. Stand-alone or distributed implementation (1 of 2)

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Notes:

Stand-alone or distributed implementation (2 of 2)

Stand-alone implementation	Benefits	Limitations
	<ul style="list-style-type: none"> • Simple installation • Straightforward deployment of portlets • Uncomplicated infrastructure requirements 	<ul style="list-style-type: none"> • No fault tolerance • No load balancing
Distributed platform	Benefits	Liabilities
	<ul style="list-style-type: none"> • Highly scalable • Fault tolerant 	<ul style="list-style-type: none"> • Greater deployment complexity • More effort is required to deploy artifacts such as portlets
You can implement a distributed solution by using a cluster or portal farm.		

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Figure 20-5. Stand-alone or distributed implementation (2 of 2)

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Notes:

Distributed platforms are suitable for enterprise deployments because they can support load balancing and fault tolerance, which are necessary to meet more stringent service delivery requirements.

The decision to implement a distributed solution can take several forms. One form is a cluster. Another form is to implement a portal farm.

Clustering terminology

- What is a cluster?
 - A cluster is a set of application servers that are managed together and participate in workload management.
 - The cluster is a logical representation of the application servers.
 - A cluster is not necessarily associated with any node, and does not directly correspond to any real server process that runs on any node.
- About clustering
 - Clustering is possible through horizontal scaling, vertical scaling, or a combination of both.
 - Large enterprise deployments normally implement a combination of horizontal and vertical scaling.

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Figure 20-6. Clustering terminology

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Notes:

Horizontal scaling

- What?
 - In horizontal scaling, cluster members are created on multiple physical computers (or LPARs).
- Why?
 - Allows a single WebSphere application to run on several computers while still presenting a single system image, making the most effective use of the resources of a distributed computing environment.
 - Allows for hardware fault tolerance.
- When?
 - Horizontal scaling is especially effective in environments that contain many smaller, less powerful computers, and for maximizing hardware fault tolerance.

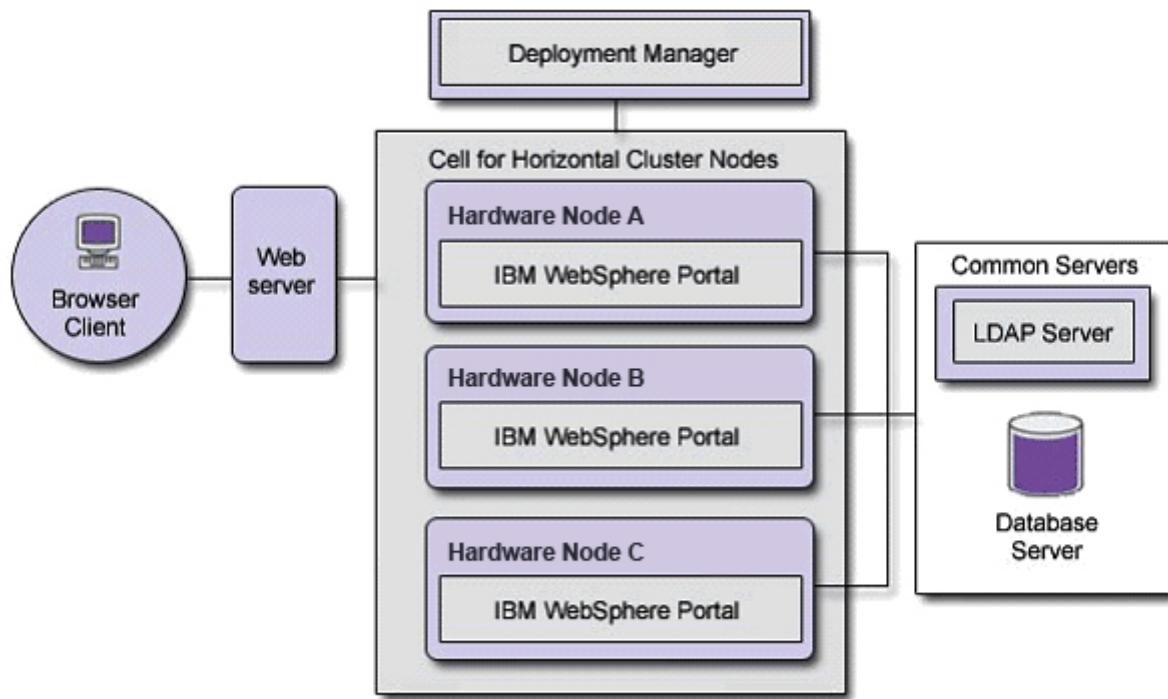
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Figure 20-7. Horizontal scaling

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Notes:

Horizontal scaling topology



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Figure 20-8. Horizontal scaling topology

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Notes:

This figure represents a horizontal scaling typology.

Vertical scaling

- What?
 - In vertical scaling, multiple cluster members for an application server are defined on the same physical computer or node.
- Why?
 - Allows the computer's processing power to be more efficiently allocated.
 - Maximizes server resource use, but multiplies the effect of hardware failures.
- When?
 - Vertical scaling is especially effective in environments that contain few powerful computers.

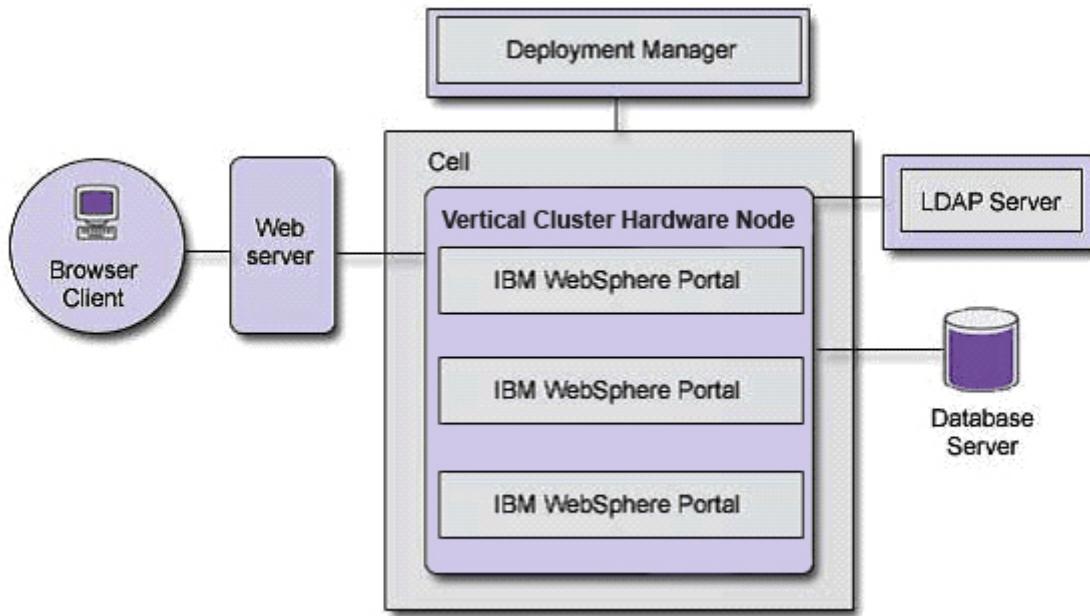
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Figure 20-9. Vertical scaling

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Notes:

Vertical scaling topology



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Figure 20-10. Vertical scaling topology

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Notes:

This figure represents a vertical scaling typology.



Horizontal cluster: Add new cluster members

To add new cluster members, follow these steps:

1. Install and configure the new portal node.
 - > **Note:** Do not configure database or security.
2. Edit the `wkplc.properties` portal node properties file.
3. Copy the following configuration files from the primary WebSphere Portal node:
 - `wkplc_comp.properties`
 - `wkplc_dbtype.properties`
4. Run the following ConfigEngine tasks:
 - `cluster-node-config-pre-federation`
 - `cluster-node-config-post-federation`

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Figure 20-11. Horizontal cluster: Add new cluster members

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Notes:

Portal farms (1 of 2)

- The term *farm* refers to a series of identically configured, stand-alone server instances.
 - The fact that they are stand-alone allows for the farm to be increased or decreased in size more easily.
- Server farms offer a simple way to build and maintain a highly scalable, highly available server environment.
- Unlike a formal cluster, no node agent or deployment manager is available in farm-type topologies.

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Figure 20-12. Portal farms (1 of 2)

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Notes:

Creating the farm requires an established content subscriber, two or more installed instances of WebSphere Portal, and an HTTP plug-in for load balancing.

Individual nodes are stand-alone nodes that can be added or removed more aggressively as resource demand increases and decreases, making the farm topology suited for today's cloud environments.

Multiple profiles can be done through virtualization technology. You can create multiple profiles, which you can use to create a portal farm or a clustered environment.

Portal farms (2 of 2)

- The farm topology has the following functional limitations:
 - No distributed cache management
 - No distributed Enterprise JavaBeans (EJB) usage
 - No coordinated task scheduling.
 - No cluster scope administrative actions, like stopping and starting
- Two supported portal farm configurations are available when setting up your portal farm:
 - Unique installation
 - One instance is shared between multiple farm instances

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Figure 20-13. Portal farms (2 of 2)

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Notes:

Setting up farm instances as unique installations

Choose the **Setting up farm instances as unique installations** option if you want all portal farm instances to be unique instances. With this option, you can have control over the server-specific configurations, which are unique from server to server. For example, you can easily apply and test changes or application updates to one server at a time in the farm. The disadvantage to this option is that all administrative actions must be repeated on every server in the farm.

Setting up farm instances by using a shared configuration

Choose the **Setting up farm instances using a shared configuration** option to set up the portal farm from a shared file system. With this option, you can maintain only one image, which makes the farm maintenance easier. Multiple copies of this one image can be used to update farm instances on a server-by-server basis. With this option, fewer resources are necessary to manage, and the environment is simple. The disadvantage to this option is that no ability exists to affect specific changes on a per-server basis, and most changes require a server restart.

After setting up your farm by using a shared configuration, you might need to disable the farm mode so that you can return the original WebSphere Portal instance that manages the shared file system to a regular, stand-alone server instance. You can then make system updates. For example, you can change the systemTemp value. Next, you can run the enable-farm-mode task to re-enable the farm or use the instance for a different purpose.

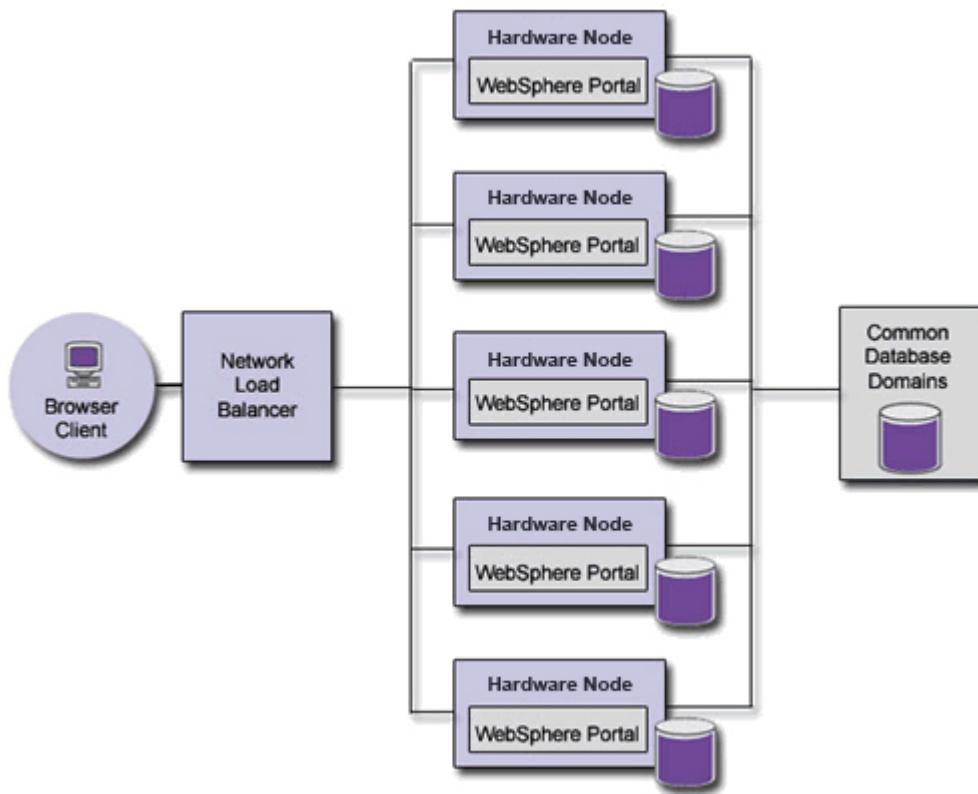


Information

For more information, see the IBM WebSphere Portal 8.0 guide at the following web address:

http://www-10.lotus.com/ldd/portalwiki.nsf/dx/Portal_farm_topology_wp8

A portal farm



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Figure 20-14. A portal farm

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Notes:

This figure shows a portal farm.



WebSphere Portal in a cloud environment

- Farming has benefits and usage patterns similar to other cloud paradigms.
 - A cloud-hosted set of computers is not required to realize a WebSphere Portal farm.

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Figure 20-15. WebSphere Portal in a cloud environment

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Notes:

WebSphere Portal in a cloud environment

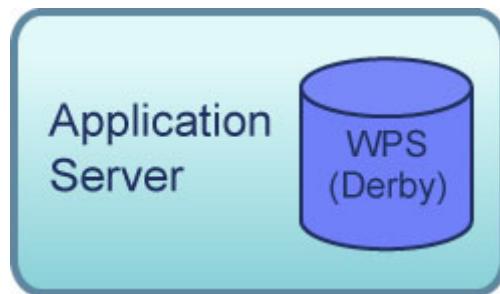
Farming has benefits and usage patterns similar to other cloud paradigms. Amazon's Elastic Compute Cloud (EC2) was used for proof of concept. You can use the same setup with your own hardware and network. A cloud-hosted set of computers is not required to realize a WebSphere Portal farm.

VMware support

Virtualization technology can be used to mass-replicate identical operating systems that are installed and configured with WebSphere Portal. VMware is fully supported in WebSphere Portal 8.x.

Default WebSphere Portal installation

- The default installation uses the Derby database for configuration, which offers the following benefits:
 - Acts as the user repository
 - Is self-contained
 - Is a Java database that runs in the server's Java virtual machine (JVM)
- Using the Derby database for configuration has the following limitations:
 - Derby is single connection and had no security



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Figure 20-16. Default WebSphere Portal installation

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Notes:

The default WebSphere Portal installation is designed for ease of installation. A functional installation is possible with minimal user input. The default WebSphere Portal is useful as a proof of concept installation. Beyond these basics, the default installation is not scalable to production requirements without significant reconfiguration.

Configuring WebSphere Portal for production

- When configuring WebSphere Portal for production, follow these steps:
 1. Transfer the configuration data from the existing Derby database to one or more databases on a relational database server.
 - Supported target servers:
 - IBM DB2 (DB2 Universal Database, iSeries, and zSeries)
 - Oracle
 - Microsoft SQL Server
 - Benefits of moving the data to a relational database server:
 - Offloads work from the portal JVM
 - Adds scalability; better performance and management
 - Security
 2. Create a Network Deployment cell, and add WebSphere Portal into the cell.

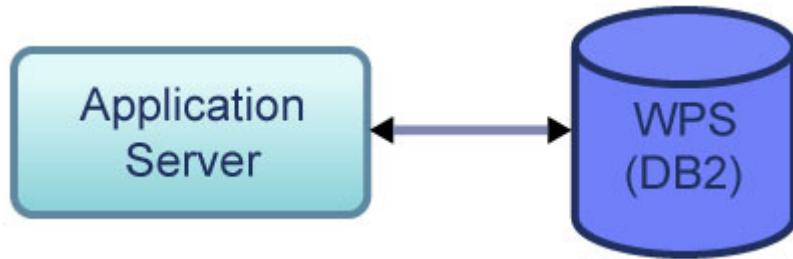
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Figure 20-17. Configuring WebSphere Portal for production

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Notes:

Configuring WebSphere Portal for production: Step 1: Database Transfer



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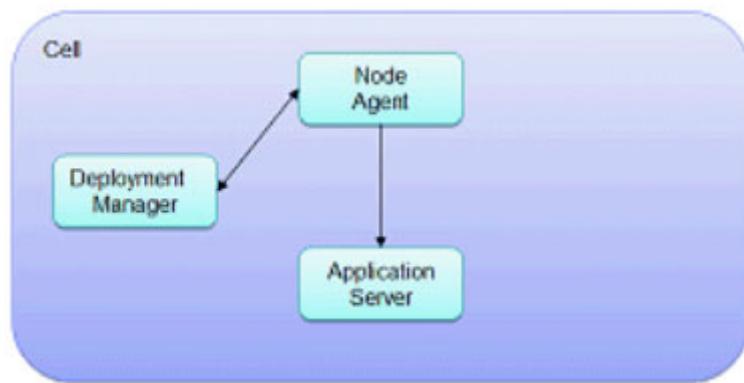
Figure 20-18. Configuring WebSphere Portal for production: Step 1: Database Transfer

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Notes:

This figure illustrates moving the data to a relational database.

Configuring WebSphere Portal for production: Step 2: Creating a cell



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Figure 20-19. Configuring WebSphere Portal for production: Step 2: Creating a cell

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Notes:

The next logical step in preparing for production is to create a Network Deployment cell, and add WebSphere Portal into the cell. Incorporating WebSphere Portal into a cell provides a central point of management for WebSphere Portal and related components, such as the HTTP server.

Creating a deployment manager and adding WebSphere Portal into the cell provides centralized management and enables clustering.

This figure illustrates adding the deployment manager and the node agent.



Extending the WebSphere Portal installation

- Creating a deployment manager and adding WebSphere Portal into the cell provides centralized management and enables clustering.
- The deployment manager can also manage one or more HTTP servers.
- Creating a portal cluster is probably the most important step in preparing for production.
 - Clustering portal servers improves perceived performance and adds failover and failover to the configuration.

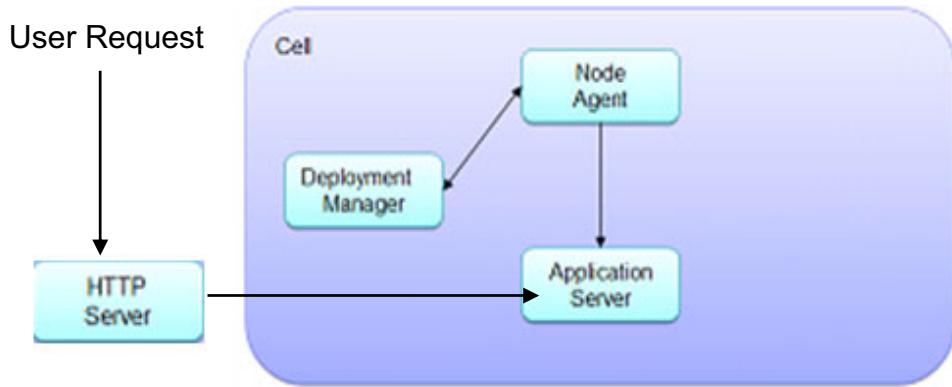
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Figure 20-20. Extending the WebSphere Portal installation

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Notes:

Extending the WebSphere Portal installation: HTTP server



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Figure 20-21. Extending the WebSphere Portal installation: HTTP server

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Notes:

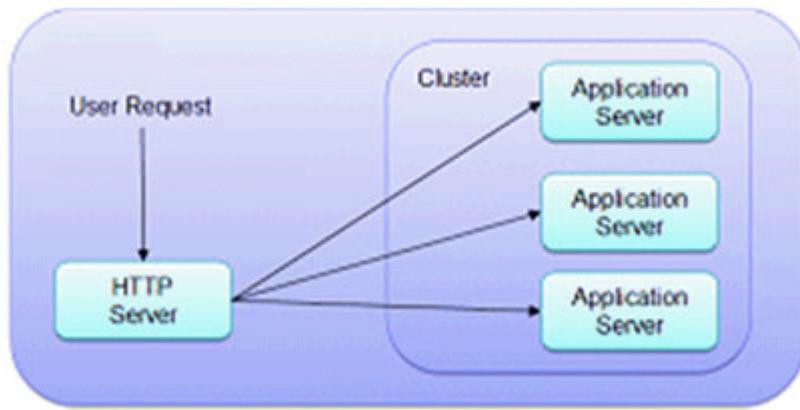
Regardless of whether you modify the default installation, you typically do not want users to connect directly to a portal by using its embedded HTTP server. To remedy this problem, you deploy an HTTP server and the WebSphere plug-in to route HTTP requests directly to WebSphere Portal. The routing table for the plug-in is the `plugin-cfg.xml` file. Whenever the configuration of WebSphere Portal or WebSphere is modified in a way that alters the HTTP transport information, you must regenerate and redeploy the `plugin-cfg.xml` file.

The deployment manager can also manage one or more HTTP servers. If you deploy IBM HTTP Server as an unmanaged node (no node agent) in the cell, the deployment manager can monitor the status of the HTTP server and detect changes that affect `plugin-cfg.xml` and automatically regenerate and redeploy the file.

Configuring an external HTTP server routes requests to the appropriate portal and can be deployed in a DMZ.

This figure illustrates the process of configuring the HTTP server.

Extending the WebSphere Portal installation: Portal cluster



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Figure 20-22. Extending the WebSphere Portal installation: Portal cluster

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Notes:

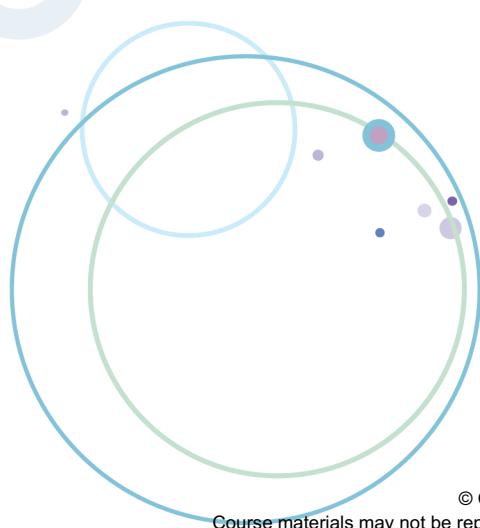
Creating a portal cluster is the most important step in preparing for production. It is suggested to create a single member cluster at the same time that you federate a portal node into a cell. In the future, when you need the clustering capabilities, adding extra cluster members becomes a simple process. Clustering introduces Work Load Management and failover capabilities to your environment. Clustering portal servers improves perceived performance and adds failover and failover to the configuration.

This figure illustrates the process of setting up the portal cluster.

20.2. Building a development and production-ready deployment

This topic explains how to build a development and production-ready environment.

Building a development and production-ready deployment



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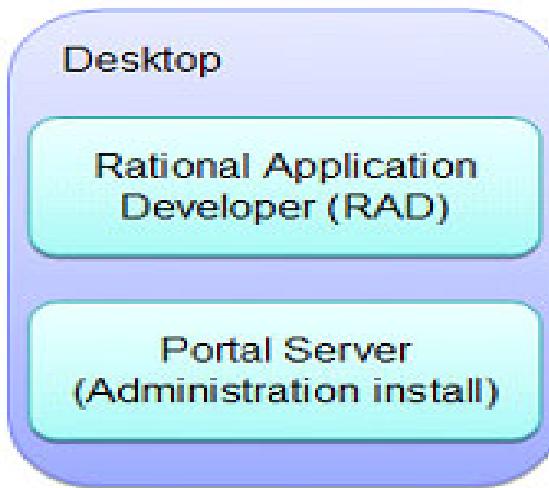
Figure 20-23. Building a development and production-ready deployment

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Notes:

Planning

- A production-ready development environment requires a portal installation at the developer desktop.
- Preliminary development work can be done at the developer desktop. However, integration testing is done on a test portal to reduce the number of problems that surface at the staging portal.



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Figure 20-24. Planning

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Notes:

The typical development environment requires a portal installation at the developer desktop. Usually, it can be a minimal installation that is known as an *administration* installation. In addition, extra configuration steps minimize the portal startup time to help benefit developer productivity.

The following key concepts apply when portal production begins at the developer desktop:

- Use Rational Application Developer 8.5 or 9 for full access to all WebSphere Portal 8.X features.
- The WebSphere Portal Developer mode has a reduced application set for faster startup.
- Enable the ConfigEngine development task:
`enable-develop-mode-startup-performance`
- Tune the portal's JVM for performance by setting the minimum JVM Heap Size to 768 MB. Tuning has the following benefits:
 - Reduces reallocations
 - Reduces garbage collection calls during server startup

This figure illustrates how production portals begin at the developer desktop.



Items to consider during production installation and setup

1. Creating a scaled-down test environment for developer testing
2. Creating a production mirror for staging environment (quality assurance)
3. Creating a full production environment

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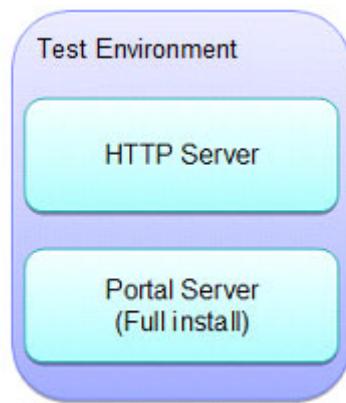
Figure 20-25. Items to consider during production installation and setup

WPL951.0

Notes:

1. Creating a scaled-down test environment for developer testing

- The following key concepts apply when creating a scaled-down test environment for developer testing:
 - Uses HTTP server
 - Uses single test server
 - Configured for security model identical to production
 - Configured to access test database servers
 - Beta-test new applications here



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Figure 20-26. 1. Creating a scaled-down test environment for developer testing

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Notes:

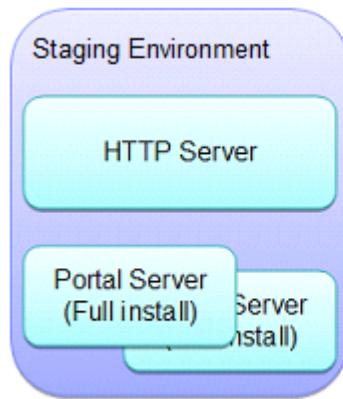
Creating a scaled-down test cell for developer testing

Although preliminary development work can be done at the developer desktop, integration testing is done on a test portal. This portal instance does not need to be scalable. Making this portal configuration as similar as possible to the staging environment typically results in fewer problems surfacing at the staging portal.

This figure illustrates a scaled-down test cell for developer testing.

2. Creating a production mirror for staging environment

- The following key concepts apply when creating a production mirror for a staging environment:
 - The staging portal must be an identical scaled down version of the production portal.
 - If the production portal is clustered, the staging portal must also be clustered.
 - The staging portal does not need to contain the same number of cluster members as the production portal.
 - A cluster that consists of two members is sufficient.



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Figure 20-27. 2. Creating a production mirror for staging environment

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Notes:

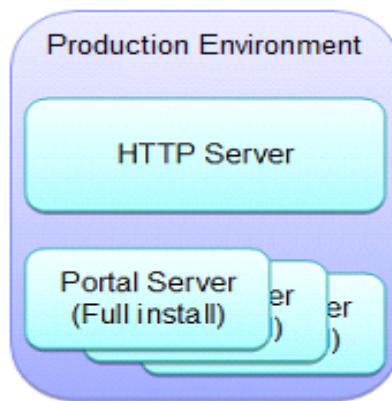
Creating a production mirror for staging cell (quality assurance)

The staging portal must be an identical scaled down image of the production portal. If the production portal is clustered, the staging portal must also be clustered. The staging portal does not need to contain the same number of cluster members as the production portal. A cluster that consists of two members must be sufficient.

This figure illustrates a production mirror for staging cell (QA).

3. Creating a full production environment

- The following key concepts apply when creating a full production environment:
 - Uses HTTP server
 - Clustered
 - Configured for security model with production LDAP
 - Configured to access Production database servers
 - Active users access this environment



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Figure 20-28. 3. Creating a full production environment

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Notes:

Creating a full production cell

The production environment should have full redundancy throughout the cell. An extra factor to consider is whether test, staging, and production should all be part of one cell.

The most important consideration is whether a single set of administrators is available for the entire cell. You cannot grant administrative access to a single WebSphere Portal instance. Security is configured globally for all cell members.

20.3.Reducing single points of failure

This topic explains how to reduce failure points.

Reducing single points of failure



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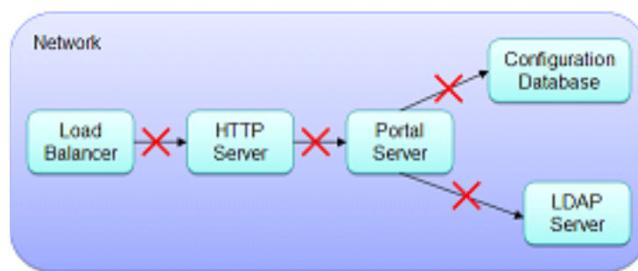
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Figure 20-29. Reducing single points of failure

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Notes:

Where single points of failure can occur



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Figure 20-30. Where single-points-of-failure can occur

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Notes:

This figure identifies where single points of failure can occur:

- Load balancer
- HTTP Server
- Portal Server
- Configuration Database Server
- LDAP Server

Approaches to reduce single points of failure

1. Deploy a hot spare to reduce dependency at the load balancer.
2. Deploy multiple HTTP servers that spread the workload to reduce dependency at the HTTP Server.
3. Reduce dependency at the portal by clustering the portal, the configuration database, and the LDAP.

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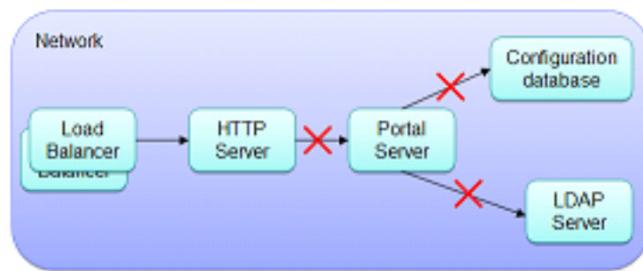
Figure 20-31. Approaches to reduce single points of failure

WPL951.0

Notes:

Reduce downtime by reducing or eliminating single points of failure. Although it is impossible to eliminate single points of failure, you can reduce them to the point where a failure at any point is statistically unlikely to occur.

1. Reducing dependency at the load balancer



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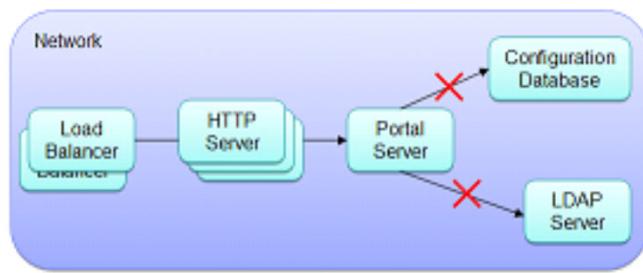
Figure 20-32. 1. Reducing dependency at the load balancer

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Notes:

This figure illustrates deploying a hot spare to reduce dependency at the load balancer.

2. Reducing dependency at the HTTP server



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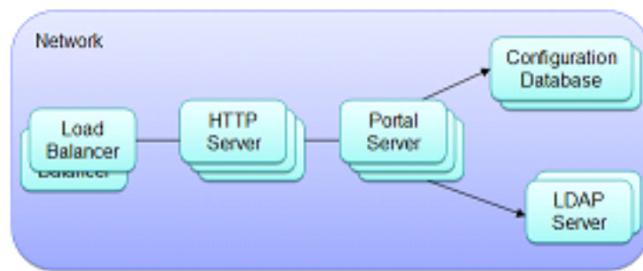
Figure 20-33. 2. Reducing dependency at the HTTP server

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Notes:

This figure illustrates deploying multiple HTTP servers that spread the workload to reduce dependency at the HTTP server.

3. Reducing dependency at the portal



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Figure 20-34. 3. Reducing dependency at the portal

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Notes:

This figure illustrates reducing dependency at the portal by clustering the portal, the configuration database, and the LDAP.

20.4. Enabling redundancy for configuration data

This topic explains how to enable redundancy for configuration data.

Enabling redundancy for configuration data



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Figure 20-35. Enabling redundancy for configuration data

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Notes:

Enabling redundancy for configuration data

- One of the more difficult areas to reduce single point of failure is the *portal configuration database*.
- A latency factor exists when attempting to have two identical real-time copies of any database.
- You can minimize the issue by splitting the data into multiple databases, one for each domain in the portal database.

The most highly volatile data is the customization data.

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Figure 20-36. Enabling redundancy for configuration data

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Notes:

20.5.Database domains and databases

This topic explains the portal database domains and databases.

Database domains and databases



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Figure 20-37. Database domains and databases

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Notes:

Database domains

- The following domains cannot be taken offline with Portal running and cannot be shared between production lines (clusters or servers):
 - Release
 - JCR
- The following domains can be taken offline with Portal running and can be shared between production lines:
 - Community
 - Customization
 - Feedback
 - LikeMinds

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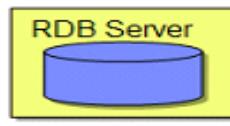
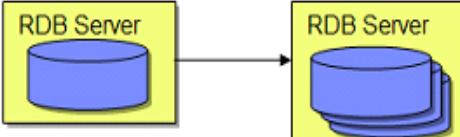
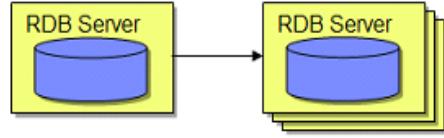
Figure 20-38. Database domains

WPL951.0

Notes:

Database split options

- The following figures illustrate various database split options, in which domains are the configuration database or schema objects.

All the domains in a single database on a single relational database (RDB) server	
Splitting domains across multiple databases on an RDB server	
Splitting domains across multiple databases on multiple RDB servers	

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Figure 20-39. Database split options

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Notes:

It is also possible to split the domains such that specific domains are in a shared database. It is not always required to split all six domains into six individual databases.

20.6.Configuring databases for failover

This topic explains how to configure your databases for failover.

Configuring databases for failover



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Figure 20-40. Configuring databases for failover

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Notes:

Database failover support options

- Option 1: Failover switch
- Option 2: LDAP failover

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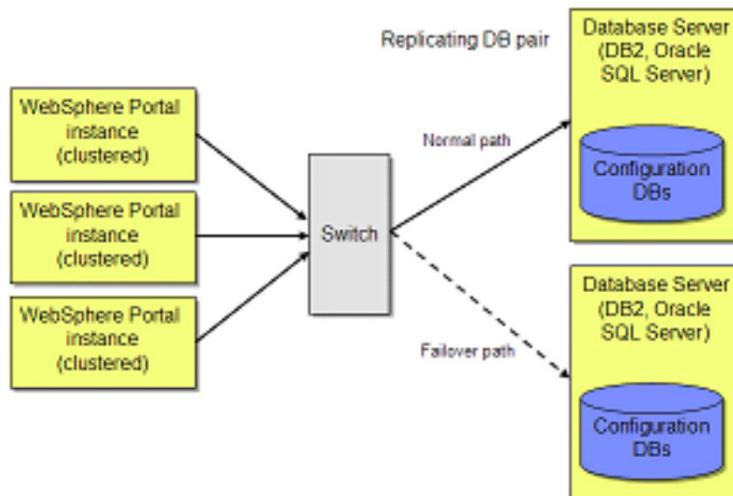
Figure 20-41. Database failover support options

WPL951.0

Notes:

Option 1: Failover switch

- The most effective way to handle failover is a managed switch that can automatically detect the failure and switch to the backup copy.



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Figure 20-42. Option 1: Failover switch

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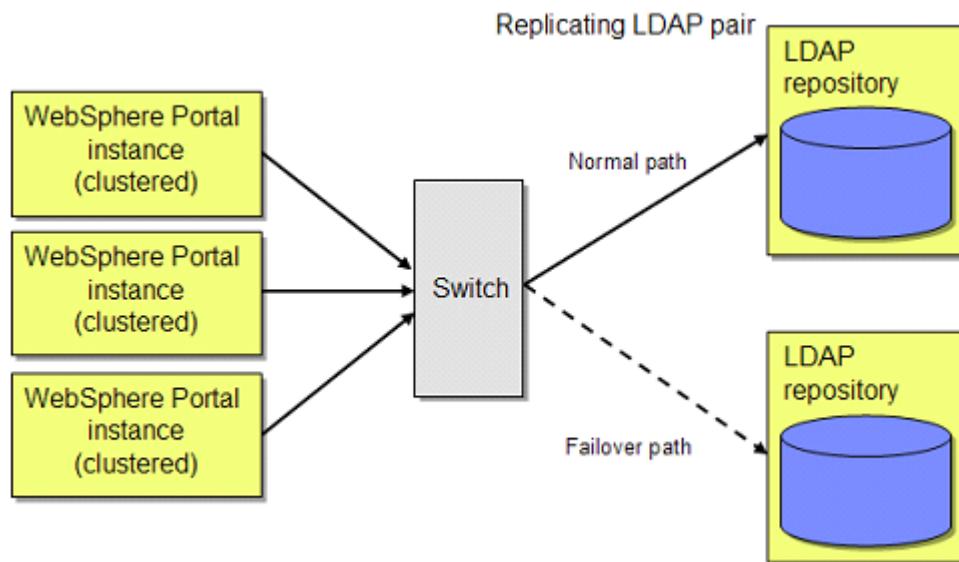
Notes:

Database failover support options

Manually switching to the backup copy of the database by altering the WebSphere Portal data source definitions was the fail-safe scenario. This process is time-consuming and prone to errors and failure.

Option 2: LDAP failover

- The failover scenario for the LDAP is similar to, although not as complex as, the database failover.



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Figure 20-43. Option 2: LDAP failover

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Notes:

Defining scalability

- The following methods can help you take scalability beyond the basics.
 - Scalability applies to virtually every subsystem of WebSphere Portal:
 - Configuration databases
 - Configuration database servers
 - Enterprise database servers
 - LDAP providers
 - Collaborative services
 - Enterprise resource planning systems
 - Failover can include redundant clusters.

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Figure 20-44. Defining scalability

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Notes:

20.7.Capacity planning considerations

This topic describes capacity planning.

Capacity planning considerations



Figure 20-45. Capacity planning considerations

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Notes:

About capacity planning

- Definition
 - Capacity planning is the effort to estimate how many WebSphere Portal Server resources are needed to meet the demands of a known number of users.
- Capacity planning metrics – Service Level Agreement (SLA)
 - WebSphere Portal login response time, which is typically around 4 seconds
 - Page-to-page response time after being already logged in, which is typically around 2 seconds

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Figure 20-46. About capacity planning

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Notes:

Capacity planning considerations

- Capacity planning and testing builds on data that is collected during performance analysis testing.
 - Simulate the load of your entire community against the cluster if you have adequate load generation capacity.
 - Measure capacity under failover circumstances if your SLA metrics specify that full performance must be maintained during a failover.
- Plan for future growth in the number of users of the system.

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Figure 20-47. Capacity planning considerations

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Notes:

You can proceed to calculate the number of nodes that are required in the following situations:

- A load test saturates a resource before any of the SLA metrics are exceeded.
- Performance testing determined that no bottlenecks would be mitigated.

In contrast to resource saturation, you must analyze the failure if SLA metrics are exceeded before resource saturation. For example, you might determine that loading a particular page exceeds the SLA load time metric and further determine that this excess is acceptable. In this case, you can calculate the number of required nodes.

The estimated number of required nodes is an extrapolation of that number. Generally, if your testing shows that a single WebSphere Portal node can sustain some users, n , in compliance with your SLA metrics, then two nodes can sustain $1.95 * n$ users. The diminishing law of return prevents a one-for-one correspondence of users on a single node to users on multiple nodes. This phenomenon can be described as *cluster overhead*. The following formula is suitable for typical horizontal clustering calculation:

$$n \cdot (1 + .95 + .95^2 + .95^3 + .95^m)$$

Remember that the portal database can become a bottleneck for logging in users. Similarly, the JCR database can be a bottleneck for sites that use IBM Web Content Manager aggressively. Extra design work can be done to isolate portal databases through database split designs, such as placing the JCR database on a separate database server than other portal databases.

Ideally, you simulate the load of your entire community against the cluster if you have adequate load generation capacity, which is usually a factor of load testing software licenses.

You also need to measure capacity under failover circumstances if your SLA metrics specify that full performance must be maintained during a failover.

You must plan for future growth in the number of users of the system. New WebSphere Portal implementations typically grow through an iteration of releases. At some point, the frequency and significance of new releases can stabilize. You can obtain data from a running production system if this situation occurs.

20.8. Web Services for Remote Portlets (WSRPs)

This topic describes WSRPs.

Web Services for Remote Portlets (WSRPs)



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10.1

Figure 20-48. Web Services for Remote Portlets (WSRPs)

WPL951.0

Notes:

Defining Web Services for Remote Portlet (WSRP)

- WSRP defines a set of standards for interactions with components that provide user-facing markup, including the processing of user interactions with that markup. Portlets can then use such components to provide a portion of the overall page markup without having to write unique code for interacting with the component.

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Figure 20-49. Defining Web Services for Remote Portlet (WSRP)

WPL951.0

Notes:

Benefits and limitations of WSRP

Benefits	Limitations
<ul style="list-style-type: none"> Allows reuse of presentation layers Ease of integration with sources such as OpenText Portal, Oracle WebLogic, and Microsoft SharePoint Server Allows separation of execution by decoupling portlet execution from portal aggregation Independent of markup and protocol Data and presentation logic 	<ul style="list-style-type: none"> Some vendors are reluctant to show proprietary services to other portals such as WebSphere Portal. The user experience of WSRP consumers is not as rich as a comprehensive portlet solution. WSRP reveals security issues due to limited control that WSRP consumers have over markup sent to them by the producer. Other content provider technologies such as RSS are often more suitable alternatives.

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Figure 20-50. Benefits and limitations of WSRP

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Notes:

Consuming a WSRP provider

You can consume a WSRP provider by using the Manage Modules portlet or the XML Access interface.

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Figure 20-51. Consuming a WSRP provider

WPL951.0

Notes:



Defining a WSRP producer: Steps overview

1. Implement a provider by using the Web Services interface of WebSphere Portal to make a WSRP provider available.
2. Use the Web Services portlet from the **Administration** pages, **Portlet Management > Web Services** to define a producer.
3. Provide a title and the WSDL location. If needed, you can pass credentials to the producer, configure security settings, and mark up requirements.

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Figure 20-52. Defining a WSRP producer: Steps overview

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Notes:



Defining a WSRP producer: Steps 1 and 2

The screenshot shows a 'Web Service Configuration' interface. At the top, there's a search bar with 'Search by: Title contains' dropdown set to 'Title contains' and the search term 'clock'. To the right is a 'Search' button. Below the search bar, a message says 'Producer Click New Producer to create a new Producer. Click Edit to edit the properties of the Producer'. A button labeled 'New Producer' with a star icon is highlighted with a mouse cursor. Below this, there's a table with two columns: 'Title' and 'Description'.

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Figure 20-53. Defining a WSRP producer: Steps 1 and 2

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Notes:

You must implement a provider by using the Web Services interface of WebSphere Portal to make a WSRP provider available to it. You need the location (URL) of the Web Services Definition Language (WSDL) file. The WSDL file defines the services and their interface to a web service client.

Use the Web Services portlet that is found on the Administration pages, **Portlet Management > Web Services** to define a producer. Click **New Producer**, as shown in this figure.

The screenshot shows a 'Web Service Configuration' dialog titled 'Edit Producer: test'. It contains fields for 'Title' (CRM Sales), 'Description' (empty), and 'URL to WSDL service definitions' (http://crm.salestools.org/ws/wsdl/service.wsdl). Below the URL field are three blue links: 'I want to specify the user attributes that should be passed to this Producer.', 'I want to set the security settings for this Producer.', and 'I want to set titles and descriptions for other languages.'. At the bottom are 'OK' and 'Cancel' buttons.

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Figure 20-54. Defining a WSRP producer: Step 3

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Notes:

You must provide a title and the WSDL location. If needed, you can pass credentials to the producer, configure security settings and markup requirements, as shown in this figure.

Consuming a WSRP provider: Steps overview

- Go to the Manage Modules portlet on the Administration pages, **Portlet Management > Web Modules**.
- Select **Consume**.
- Select a producer from the list.
- Administer access as you might do for any other module after you configure the consumer.

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Figure 20-55. Consuming a WSRP provider: Steps overview

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Notes:

WebSphere Education

IBM

Consuming a WSRP provider: Steps 1 and 2

Manage Web Modules

Search by: File name starts with Search:

Web module Click Install to install a Web module. Select a Web module to view its portlet application

Name
login.war
selfcare.war
wsrpProxy.war
WelcomePortlet.war
sitemap.war
portletWiring.war
PortletManager.war
ManageWebservices.war
ThemesAndSkinsManager.war
contentlayout.war

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Figure 20-56. Consuming a WSRP provider: Steps 1 and 2

WPL951.0

Notes:

To use the graphical portlet interface, go to the Manage Modules portlet on the Administration page, **Portlet Management > Web Modules**, as shown in this figure. Click **Consume** and then select a producer from the list.



Consuming a WSRP provider: Steps 3 and 4

Manage Web Modules

Consume Web Service, Step 1: Choose Producer.

Choose a Producer from the list below to view services to consume. Or, search for a Producer and chi

Search by: Title starts with Search:

Web Service Producers

Title	Description
Hello	

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Figure 20-57. Consuming a WSRP provider: Steps 3 and 4

WPL951.0

Notes:

A list of web services from which to choose is displayed, as shown in this figure. You administer access to it as you might any other module after configuring the consumer.

Unit summary

Having completed this unit, you should be able to:

- Define the default IBM WebSphere Portal 8.X installation
- Define the components of a federated WebSphere Portal installation
- Create a desktop to production environment
- Reduce single point of failure
- Create and maintain a WebSphere Portal cluster

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Figure 20-58. Unit summary

WPL951.0

Notes:

Checkpoint

1. What does a farm require?
 - A. Node Agent
 - B. Deployment Manager
 - C. HTTP plug-in
2. The most volatile data is the customization data.
 - A. True
 - B. False
3. Managed switch handles failover effectively.
 - A. True
 - B. False

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Figure 20-59. Checkpoint

WPL951.0

Notes:

Write your answers here:

- 1.
- 2.
- 3.



Checkpoint answers

1. What does a farm require?
Answer: C
C. HTTP plug-in
2. The most volatile data is the customization data.
Answer: A
A. True
3. Managed switch handles failover effectively.
Answer: A
A. True

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Figure 20-60. Checkpoint answers

WPL951.0

Notes:

Unit 21. Production procedures

What this unit is about

This unit describes considerations for a production portal environment.

What you should be able to do

After completing this unit, you should be able to:

- Back up the IBM WebSphere Portal 8.0 configurations
- Back up the configuration databases
- Back up Lightweight Database Access Protocols (LDAPs)
- Apply WebSphere and WebSphere Portal updates in a production environment

Unit objectives

After completing this unit, you should be able to:

- Back up the IBM WebSphere Portal 8.0 configurations
- Back up the configuration databases
- Back up Lightweight Database Access Protocols (LDAPs)
- Apply WebSphere and WebSphere Portal updates in a production environment

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Figure 21-1. Unit objectives

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Notes:

Topics

- Backup procedures for the production environment
- Applying updates in the production environment

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Figure 21-2. Topics

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Notes:

21.1. Backup procedures for the production environment

This topic describes specific backup procedures for the production environment.

Backup procedures for the production environment



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10.1

Figure 21-3. Backup procedures for the production environment

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Notes:

Backup procedures: Consistent state

- You must run a backup across the entire environment at the same point in time, or as close as is practical.
- This ensures that the state of the configuration repositories, the various application binary files, and the WebSphere Portal databases are all backed up with their respective information in a consistent relationship throughout the infrastructure.

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Figure 21-4. Backup procedures: Consistent state

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Notes:

Backing up WebSphere configurations is a crucial part of the installation and configuration process.

Backing up WebSphere configurations

- Backing up WebSphere configurations is a crucial part of the installation and configuration process.
- There are several opportunities to introduce inconsistencies in the configuration documents during the postinstallation configuration process.
- During each of these tasks, you might need to revert to a previous configuration in the process.

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Figure 21-5. Backing up WebSphere configurations

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Notes:

Opportunities to introduce inconsistencies during the postinstallation configuration process:

- Transferring configuration data to a relational database server
- Creating the deployment manager profile
- Federating the portal node into the cell
- Installing and configuring the HTTP server
- Installing the HTTP plug-in
- Enabling security
- Adding federated repositories

The *backupConfig* utility is not a substitute for full image backups. Likewise, an image backup does not account for the state of a remote WebSphere Portal database.

The BackupConfig utility

- WebSphere configurations are backed up using the *backupConfig* utility.
- The *backupConfig* utility is not a complete recovery solution.
- This utility backs up each node in the cell, including the deployment manager and each defined profile.
- Use the `-nostop` option when using the *backupConfig* utility to back up staging or production servers.
 - Failure to use this option results in the *backupConfig* utility stopping the server before creating its backup configurations.

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Figure 21-6. The BackupConfig utility

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Notes:

The *backupConfig* tool also loads the `/bin` directory for each profile.

To use *backupConfig*, follow these steps:

1. Enter the administrative user name and password.
2. Always use the `-nostop` option when backing up production nodes.
3. Add the user name and password to `soap.client.props`, as shown in the following example, to avoid prompting. Remember that doing so stores those credentials in plain text on the disk.

```
backupConfig [backup_file] [-nostop] [-quiet] [-logfile <filename>] [-replacelog]
[-trace] [-username <username>] [-password <password>] [-profileName <profile>]
[-help]
```

Backing up production databases

What?	<ul style="list-style-type: none">• You can back up your production database by using either a <i>replica copy</i> or a <i>basic backup</i>.• Replica copies of databases have a latency period before the replica copy is truly synchronized with the master copy.• Backups of databases, while they are snapshots from a specific time slot, can be updated to near currency.
How?	<ul style="list-style-type: none">• Back up IBM DB2 databases by using the <i>DB2 Control Center</i>.
Who?	<ul style="list-style-type: none">• Backups can be left to the discretion of the <i>portal administrators</i> during the configuration phase and Proof-of-Concept stage of the portal.• When in production, the backup function is most likely left to the <i>database administrator</i> (DBA).

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Figure 21-7. Backing up production databases

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Notes:

Starting the DB2 Control Center: Steps

1. Go to **Start > Programs > IBM DB2 > DB2copy1 > General Administration Tools > Control Center.**
2. Right-click a database entry and click **Backup** to add a backup directory.
3. Click **Full Backup**. Only offline backups are allowed if logging type is circular.
4. Tune your backup options.
5. Confirm the backup.
6. Schedule the backup.

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Figure 21-8. Starting the DB2 Control Center: Steps

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Notes:

Backing up LDAPs

What?	<ul style="list-style-type: none"> • WebSphere Portal puts an extra twist on the backups by allowing multiple different LDAPs to be federated into a single repository. • The backup procedure of LDAP depends on the type of LDAP. • WebSphere supports LDAP V3 compliant servers, including: <ul style="list-style-type: none"> • IBM Tivoli Directory Server (IBM Security Directory Server) • Microsoft Active Directory • Novell eDirectory • Sun Java System Directory
How?	<ul style="list-style-type: none"> • Make sure that all of the repositories are included in your backup strategy • The best method is to use vendor-supplied tools.
Who?	<ul style="list-style-type: none"> • LDAP backups typically fall under the role of network security administrators.

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Figure 21-9. Backing up LDAPs

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Notes:

One common way to back up the LDAP is to use Export LDAP Directory Interchange Format (LDIF). The best method is to use vendor-supplied tools.

21.2.Applying updates in the production environment

This topic reviews the process for applying WebSphere Portal updates in the production environment.

Applying updates in the production environment



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10.1

Figure 21-10. Applying updates in the production environment

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Notes:

Applying updates in the production environment

Recommendations

- Make sure that you have all of the necessary fixes and fix packs available for the environment before applying updates to either WebSphere or WebSphere Portal.
- Ensure that all appropriate fix packs are applied to the deployment manager instance.

IBM Installation Manager

- WebSphere Portal 8.x uses IBM Installation Manager for all installation, update, and uninstallation activities.
- Use IBM Installation Manager instead of Portal update installer for all updates.

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Figure 21-11. Applying updates in the production environment

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Notes:

Applying WebSphere Application Server updates

- Read all relevant documents before applying any updates in WebSphere.
 - Consider any WebSphere Portal implications and how an update would affect your stand-alone servers.
1. Apply updates in a test or quality assurance (QA) environment.
 2. After the procedure is tested, ensure that all WebSphere Portal functions work as expected.
 3. Document your process and proceed to staging and then production.

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Figure 21-12. Applying WebSphere Application Server updates

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Notes:

Be sure to read the product documentation that is available through download sites and embedded readme file information.

The same holds true for the network deployment cell. The deployment manager must be updated to the same or greater level than any constituent cell members. Apply any updates to a test cell first, upgrade the deployment manager, validate all WebSphere and WebSphere Portal functions, and then apply the update to the production cell.

Applying WebSphere Portal updates

1. Read all relevant documents before applying the updates.
2. Search for prerequisite WebSphere upgrades.
3. For stand-alone servers, follow these steps:
 - a. Apply the update first to a test or QA server.
 - b. Validate all WebSphere and Portal functions.
 - c. Apply the update to the production servers.
4. For cells, complete these tasks:
 - a. Apply the update first to test a cell.
 - b. Upgrade the deployment manager first.
 - c. Validate all WebSphere and Portal functions.
 - d. Apply the updates to the production cell.

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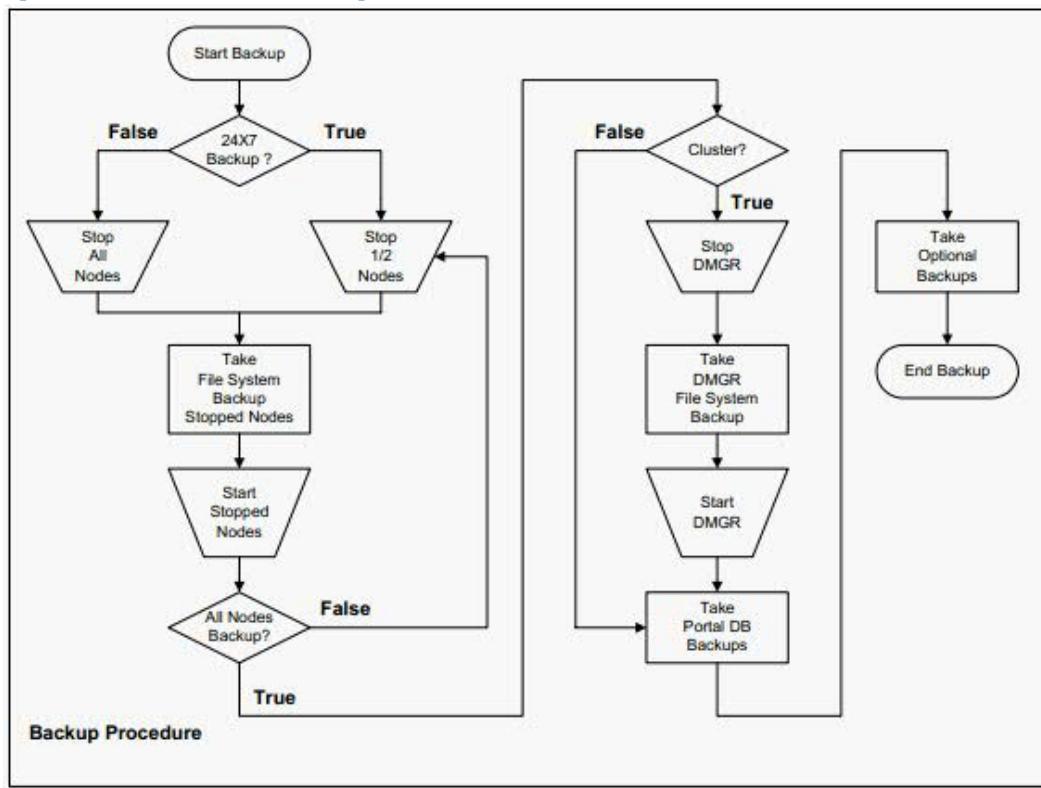
Figure 21-13. Applying WebSphere Portal updates

WPL951.0

Notes:

The steps for applying updates to WebSphere Portal are similar to the steps for applying them to WebSphere Application Server.

Sequence for backup



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Figure 21-14. Sequence for backup

WPL951.0

Notes:

The general outline of the backup procedure is:

1. Stop a group of Portal nodes in the cluster.
2. Take a file system backup of the stopped nodes.
3. Start the stopped nodes.
4. Stop another group of Portal nodes in the cluster.
5. Take a file system backup of the stopped nodes.
6. Start the stopped nodes.
7. Repeat until all the nodes are stopped and file system backups are taken of each node.
8. Stop the deployment manager
9. Take a file system backup of the Deployment Manager node.
10. Take a backup of the portal databases.
11. Optional – backup LDAP and HTTP Server directories.
12. Restart Deployment Manager.

Disaster recovery: Restore from backup

- Before restoring WebSphere Portal databases, remember to adhere to the following principles:
 - Must restore the databases for all of the non-shared database domains to ensure consistency.
 - Restoring the databases of the shareable database domains is optional.
 - Whenever you restore the WebSphere Portal databases, you must also restore the configuration and data files that were archived when the database backup was taken.
 - File system backup for WebSphere Portal includes directories that contain the configuration files.

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Figure 21-15. Disaster recovery: Restore from backup

WPL951.0

Notes:

Restoration steps

- To restore the WebSphere Portal file system, databases, and the LDAP server, follow these steps:
 - Stop all servers.
 - Move the backed up files to their original location.
 - Restore the WebSphere Portal databases
 - *Optional:* If necessary, restore your LDAP server.

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Figure 21-16. Restoration steps

WPL951.0

Notes:



Important

Do not overwrite the existing AppServer, PortalServer, or `wp_profile` root directories with the backed up files because you risk corrupting the WebSphere Portal file system. You should first remove these old directories and then extract the backed up version in its place.

Unit summary

Having completed this unit, you should be able to:

- Back up the IBM WebSphere Portal 8.0 configurations
- Back up the configuration databases
- Back up Lightweight Database Access Protocols (LDAPs)
- Apply WebSphere and WebSphere Portal updates in a production environment

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Figure 21-17. Unit summary

WPL951.0

Notes:



Checkpoint

1. Use _____ for WebSphere Portal 8 updates.
 - A. Portal Update installer
 - B. Fixpack installer
 - C. IBM Installation Manager

2. The _____ option is used with backupConfig utility to take backup without shutting down server.
 - A. -nostop
 - B. -backupAll
 - C. -skipstop

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Figure 21-18. Checkpoint

WPL951.0

Notes:

Write your answers here:

- 1.
- 2.

Checkpoint answers

1. Use _____ for WebSphere Portal 8 updates.

Answer: C

C. IBM Installation Manager

2. The _____ option is used with backupConfig utility to take backup without shutting down server.

Answer: A

A. -nostop

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Figure 21-19. Checkpoint answers

WPL951.0

Notes:

Unit 22. Course summary

What this unit is about

This unit summarizes the course and provides information for future study.

What you should be able to do

After completing this unit, you should be able to:

- Explain how the course met its learning objectives
- Access the IBM Training website
- Identify other IBM Training courses that are related to this topic
- Locate appropriate resources for further study

Unit objectives

After completing this unit, you should be able to:

- Explain how the course met its learning objectives
- Access the IBM Training website
- Identify other IBM Training courses that are related to this topic
- Locate appropriate resources for further study

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Figure 22-1. Unit objectives

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Notes:

Course learning objectives (1 of 3)

After completing this course, you should be able to:

- Use the features, functions, and procedures of IBM WebSphere Portal 8.0 to achieve the following tasks:
- Configure WebSphere Portal to use an IBM Tivoli Directory Server LDAP server
- Create a Network Deployment cell that contains a single node cluster
- Select the best topology for your organization's needs
- Turn on logging and tracing
- Use XML Access to streamline management activities
- Back up and restore data

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Figure 22-2. Course learning objectives (1 of 3)

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Notes:

Course learning objectives (2 of 3)

After completing this course, you should be able to:

- Implement release management practices
- Add portlets to pages by using the new drag and drop of the page builder
- Deploy a new portlet
- Manage access
- Create and apply visibility rules
- Work with syndication feeds
- Integrate mashups

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Figure 22-3. Course learning objectives (2 of 3)

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Notes:

Course learning objectives (3 of 3)

After completing this course, you should be able to:

- Configure search
- Customize or brand the portal
- Deploy a custom theme
- Transfer the ready-to-use data from the Derby database to DB2 Universal Database

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Figure 22-4. Course learning objectives (3 of 3)

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Notes:



To learn more on the subject

- IBM Training paths
<http://www.ibm.com/services/learning/ites.wss/us/en?pageType=page&c=a0003096>
- WebSphere Support portal
<http://www.ibm.com/software/websphere/support>
- IBM Support Assistant
<http://www.ibm.com/software/support/isa>
- WebSphere Education Assistant
<http://www.ibm.com/software/info/education/assistant/>
- IBM Redbooks
<http://www.ibm.com/redbooks>
- developerWorks
<http://www.ibm.com/developerworks>
- WebSphere Services
<http://www.ibm.com/developerworks/websphere/services/>

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Figure 22-5. To learn more on the subject

WPL951.0

Notes:

Unit summary

Having completed this unit, you should be able to:

- Explain how the course met its learning objectives
- Access the IBM Training website
- Identify other IBM Training courses that are related to this topic
- Locate appropriate resources for further study

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Figure 22-6. Unit summary

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Notes:

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