

AFFIDAVIT OF NATHANIEL E FRANK-WHITE

1. I am a Records Request Processor at the Internet Archive. I make this declaration of my own personal knowledge.
2. The Internet Archive is a website that provides access to a digital library of Internet sites and other cultural artifacts in digital form. Like a paper library, we provide free access to researchers, historians, scholars, and the general public. The Internet Archive has partnered with and receives support from various institutions, including the Library of Congress.
3. The Internet Archive has created a service known as the Wayback Machine. The Wayback Machine makes it possible to browse more than 450 billion pages stored in the Internet Archive's web archive. Visitors to the Wayback Machine can search archives by URL (i.e., a website address). If archived records for a URL are available, the visitor will be presented with a display of available dates. The visitor may select one of those dates, and begin browsing an archived version of the Web. Links on archived files in the Wayback Machine point to other archived files (whether HTML pages or other file types), if any are found for the URL indicated by a given link. For instance, the Wayback Machine is designed such that when a visitor clicks on a hyperlink on an archived page that points to another URL, the visitor will be served the archived file found for the hyperlink's URL with the closest available date to the initial file containing the hyperlink.
4. The archived data made viewable and browsable by the Wayback Machine is obtained by use of web archiving software that automatically stores copies of files available via the Internet, each file preserved as it existed at a particular point in time.
5. The Internet Archive assigns a URL on its site to the archived files in the format `http://web.archive.org/web/[Year in yyyy][Month in mm][Day in dd][Time code in hh:mm:ss]/[Archived URL]` aka an "extended URL". Thus, the extended URL `http://web.archive.org/web/19970126045828/http://www.archive.org/` would be the URL for the record of the Internet Archive home page HTML file (`http://www.archive.org/`) archived on January 26, 1997 at 4:58 a.m. and 28 seconds (1997/01/26 at 04:58:28). The date indicated by an extended URL applies to a preserved instance of a file for a given URL, but not necessarily to any other files linked therein. Thus, in the case of a page constituted by a primary HTML file and other separate files (e.g., files with images, audio, multimedia, design elements, or other embedded content) linked within that primary HTML file, the primary HTML file and the other files will each have their own respective extended URLs and may not have been archived on the same dates.
6. Attached hereto as Exhibit A are true and accurate copies of browser screenshots of the Internet Archive's records of the archived files for the URLs and the dates specified in the attached coversheet of each printout.

SAP AMERICA, INC.
EXHIBIT 1025





7. Attached hereto as Exhibit B are true and accurate copies of printouts of the Internet Archive's records of the archived files for the URLs and the dates specified in the attached coversheet of each printout.
8. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

DATE: 08/16/2024

Nathaniel Frank-White
Nathaniel E Frank-White

Please see attached
All Purpose
Jurat form
for additional
Notary Events



JURAT ATTACHMENT

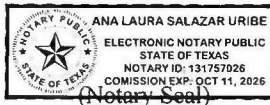
A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF Texas }

COUNTY OF Harris }

The foregoing instrument was subscribed and sworn before me this date of
08/16/2024, by Nathaniel Frank-White

This notarial act was an online notarization.



Notary's Signature Ana Laura Salazar Uribe

Registration No.: 131757026

Commission Expiration Date: October 11, 2026



EXHIBIT A

Java



Mastering IBM WebSphere Portal: Expert Guidance to Build and Deploy Portal Applications

Ron Ben-Natan, Richard Gornitsky, Tim Hanis, Ori Sasson

ISBN: 0-7645-3991-4

Paperback

552 pages

June 2004

US \$45.00  [Add to Cart](#)
[View notes, downloads, errata and other resources for this title.](#)
Description

Maximize on the power of WebSphere Portal to build and deploy portals

[Table of Contents](#)

If you use, develop, manage, or administer WebSphere applications, you are probably already building or managing Web portals—or well on your way to doing so. With this comprehensive book, you'll discover how these portals bring together important functions such as integration, presentation, organization, and customizations—functions needed in every complex application environment. The unparalleled author team of experts offers you in-depth insight on mastering the complex aspects of WebSphere Portal, walking you through every facet from installing to deployment.

[Read Excerpt:
Chapter \(PDF\)](#)
[Read Excerpt:
Chapter \(PDF\)](#)

Mastering IBM WebSphere Portal focuses on not only the portal as a server, but also how it interacts with components such as LDAP servers, enterprise applications, mobile devices, and even other portals. The authors begin with an introduction to the WebSphere product family and then explore such topics as:

[Author Information](#)

- Installing and customizing the portal, as well as migrating existing environments to version 5
- Defining portlets, pages, and user interface properties
- Applying personalization, collaboration, search, and document and content management within WebSphere Portal v. 5
- Using high availability, security and single sign-on, identity management, Web services, and enterprise applications
- Setting up a portal in a high-availability environment and integrating external applications into WebSphere Portal

The companion Web site, www.wiley.com/compbooks/ben-natan, presents all the code in the book as well as links to vendors and sources of information pertaining to WebSphere Portal.

Copyright © 2000-2004 by John Wiley & Sons, Inc. or related companies. All rights reserved. Please read our [Privacy Policy](#).



Related Subjects

Miscellaneous Object Technologies

General Object Technologies

Related Titles

More By These Authors

[Integrating Service Level Agreements: Optimizing Your OSS for SLA Delivery \(Paperback\)](#)

[Integrating Service Level Agreements: Optimizing Your OSS for SLA Delivery \(E-Book\)](#)

Java

[Professional XML Development with Apache Tools: Xerces, Xalan, FOP, Cocoon, Axis, Xindice \(Paperback\)](#) by Theodore W. Leung

[Beginning Java 2, SDK 1.4 Edition \(Paperback\)](#) by Ivor Horton

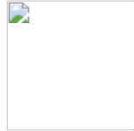
[Expert One-on-One J2EE Design and Development \(Paperback\)](#) by Rod Johnson

[Professional Jakarta Struts \(Paperback\)](#) by James Goodwill, Richard Hightower

[The Apache Way \(Paperback\)](#) by Ian McFarland

[Join a Computing Mailing List](#)

Java



Mastering IBM WebSphere Portal Server: Expert Guidance to Build and Deploy Portal Applications

Ron Ben-Natan, Ori Sasson, Richard Gornitsky, Tim Hanis

ISBN: 0-7645-3991-4

Paperback

544 pages

July 2004

US \$45.00 [Add to Cart](#)

Description

- Portals represent a booming IT market, and enterprises that build portals are making six-figure-plus investments in software, creating a huge demand for information on these products
- IBM's WebSphere Portal more than doubled its market share from 2000 to 2001, making it the current leader in this field
- Addresses the full life cycle of portals, touching upon all issues that users will encounter in a real enterprise environment
- Each chapter features sample code and detailed, step-by-step instructions for all procedures, addressing the latest software release
- Ron Ben-Natan is a leading expert on WebSphere and has written several books and articles on the subject
- Companion Web site offers additional information and sample code

[Printer-ready version](#)

[E-mail a friend](#)



Featured Title



Effective VisualAge for Java, Version 3: Includes Coverage of Versions 3.02 and 3.5
by Scott Stanchfield, Isabelle Mauny

Related Subjects

Miscellaneous Object Technologies

General Object Technologies



Join a Computing Mailing List

Java (116)

Listings: 1-25 26-50 51-75 76-100 more...

Sort listing by: **A-Z**
Z-A
Publication Date
Author

Refine listing by: **All Formats**
Books
Media
E-Books

J2ME Enterprise Development

by Imtiyaz Haque, Brian O'Connor
Paperback, April 2002
US \$39.99 [Add to Cart](#)

JMX Programming

by Mike Jasnowski
Paperback, August 2002
US \$49.99 [Add to Cart](#)

JSP Weekend Crash Course

by Jeremy Kawaller, William Massie
Paperback, July 2001
US \$24.99 [Add to Cart](#)

Java 2 and JavaScript for C and C++ Programmers, Revised Edition

by Michael C. Daconta, Al Saganich, Eric Monk
Paperback, March 1999
US \$69.99 [Add to Cart](#)

Mastering Apache Velocity

by Joseph D. Gradecki, Jim Cole
Paperback, July 2003
US \$40.00 [Add to Cart](#)

Mastering Apache Velocity

by Joseph D. Gradecki, Jim Cole
E-Book, September 2003

Mastering AspectJ : Aspect-Oriented Programming in Java

by Joseph D. Gradecki, Nicholas Lesiecki
Paperback, March 2003
US \$45.00 [Add to Cart](#)

Mastering BEA WebLogic Server: Best Practices for Building and Deploying J2EE Applications

by Gregory Nyberg, Robert Patrick, Paul Bauerschmidt, Jeff McDaniel, Raja Mukherjee
Paperback, August 2003
US \$50.00 [Add to Cart](#)

Mastering Enterprise JavaBeans, 2nd Edition

by Ed Roman, Scott Ambler, Tyler Jewell
Paperback, December 2001
US \$45.00 [Add to Cart](#)

Mastering IBM WebSphere Portal Server: Expert Guidance to Build and Deploy Portal Applications

by Ron Ben-Natan, Ori Sasson, Richard Gornitsky, Tim Hanis
Paperback, July 2004
US \$45.00 [Add to Cart](#)

Mastering Jakarta Struts

by James Goodwill
Paperback, August 2002
US \$40.00 [Add to Cart](#)

Mastering Jakarta Struts

by James Goodwill
E-Book, October 2002

Mastering JavaServer Faces

by Bill Dudney, Jonathan Lehr, Bill Willis, LeRoy Mattingly
Paperback, May 2004
US \$40.00 [Add to Cart](#)

Mastering JBuilder

by Mike Rozlog, Geoffrey Goetz, Sung Nguyen
Paperback, April 2003
US \$50.00 [Add to Cart](#)

Mastering JSP Custom Tags and Tag Libraries

by James Goodwill
Paperback, February 2002
US \$45.00 [Add to Cart](#)

Mastering JXTA: Building Java Peer-to-Peer Applications

by Joseph D. Gradecki
Paperback, August 2002
US \$45.00 [Add to Cart](#)

Mastering JXTA: Building Java Peer-to-Peer Applications

by Joseph D. Gradecki
E-Book, November 2002

Mastering Resin

by Richard Hightower, Joseph D. Gradecki
Paperback, August 2003
US \$45.00 [Add to Cart](#)

Mastering RMI: Developing Enterprise Applications in Java and EJB

by Rickard Oberg
Paperback, February 2004

Paperback, February 2001
US \$49.99  [Add to Cart](#)

Mastering Tomcat Development

by Ian McFarland, Peter Harrison
Paperback, October 2002
US \$45.00  [Add to Cart](#)

Mastering Tomcat Development

by Ian McFarland, Peter Harrison
E-Book, October 2002

More Java Pitfalls : 50 New Time-Saving Solutions and Workarounds

by Michael C. Daconta, Kevin T. Smith, Donald Avondolio, W. Clay Richardson
Paperback, March 2003
US \$40.00  [Add to Cart](#)

MySQL and Java Developer's Guide:

by Mark Matthews, Jim Cole, Joseph D. Gradecki
Paperback, February 2003
US \$45.00  [Add to Cart](#)

Objects, Data Structures and Abstraction: Using Java

by Elliot Koffman, Paul Wolfgang
Paperback, July 2004
US \$87.95  [Add to Cart](#)

Patterns in Java: A Catalog of Reusable Design Patterns Illustrated with UML, 2nd Edition, Volume 1

by Mark Grand
Paperback, October 2002
US \$45.00  [Add to Cart](#)

[Listings: 1-25](#) [26-50](#) [51-75](#) [76-100](#) [more...](#)

Links

Chapter 1 Introducing WebSphere Portal

[Learn more about WebSphere family](#)

[Learn more about WebSphere Portal](#)

[Learn more about the WebSphere Product family with WebSphere Product Family Overview and Architecture Redbook](#)

[Find and download third party portlets in the WebSphere Portal Catalog](#)

[Need support \(who doesn't\). Go to the WebSphere Portal support page.](#)

Chapter 2 Installing WebSphere Portal on Windows 2000 Server and Chapter 3 Installing WebSphere Portal on Linux

[Get WebSphere Portal 5.0 Fix Pack 2](#)

[Get WebSphere Portal 5.0.2 Cumulative Fix 1](#)

[Find WebSphere Portal Product Documentation](#)

[Get the latest IBM HTTP Server](#)

[Find support for IBM HTTP Server](#)

Chapter 4 Customizing WebSphere Portal

[Find out more about Cloudscape](#)

[Get the latest fixpacks for DB2 or UDB.](#)

Chapter 5 Installing WebSphere Portal Tools and Problem Analysis

[Get the WebSphere Portal toolkit.](#)

[Learn more about IBM Tivoli Web Site Analyzer](#)

Chapter 11 Document and Content Management within WebSphere Portal

[Learn more about LWWCM with Lotus Workplace Web Content Management Redbook.](#)

[Get more information on Lotus Workplace Web Content Management Redbook](#)

[Get support for Lotus Workplace Web Content Management Page.](#)

Chapter 13 Extending Portlet Functionality: Portlets

[WebSphere Portal Info Center: Developing Portlets](#)

[WebSphere Portal and Lotus Workplace Catalog](#)

Chapter 14 Portlet Programming Model and API

[WebSphere Portal Info Center: Developing Portlets](#)

[Comparing the JSR 168 Java Portlet Specification with the IBM Portlet API](#)

[JSR 168: Portlet Specification](#)

Chapter 15 WebSphere Portlet Development Environment

[WebSphere Studio](#)

[IBM Portal Toolkit](#)

Chapter 16 Portlet Development

[Portlet Development Best Practices and Coding Guidelines](#)

[Portlet Development Guide](#)

Chapter 17 Portlet Interactive Debug and JSR 168 Example

[Best practices: Developing portlets using JSR 168 and WebSphere Portal V5.02](#)

[WebSphere Portal: Using JSR 168 with WebSphere Portal](#)

Chapter 18 Struts Portlet Framework

[WebSphere Portal Info Center: Developing Portlets](#)

[Developing and Deploying a Struts Application as a WebSphere Portal V5 Portlet](#)

[Apache Struts Web Application Framework](#)

Chapter 19 Implementing Authentication for Large Enterprises

[Learn more about implementing authentication using LDAP with Flexible authentication solution with IBM Tivoli](#)

[Directory Integrator and IBM WebSphere Portal Redpaper.](#)

[Learn more about IBM Tivoli Directory Server.](#)

[Learn more about LDAP with Understanding LDAP Redbook.](#)

[Good site to get LDAP help.](#)

[Get help with Windows Server 2003 Active Directory.](#)

[Learn more about The Sun Java System Directory Server 5.2 \(formerly Sun ONE Directory Server 5.2\)](#)

Chapter 20 Integrating Security and Identity Management Tools

[WebSphere Application Server V5.0 Security Redbook](#)

[A Secure Portal Using WebSphere Portal V5 and Tivoli Access Manager V4.1 Redbook](#)

[IBM Tivoli Access Manager for e-business Redbook](#)

[Enterprise Business Portals with IBM Tivoli Access Manager Redbook](#)

[Tivoli Access Manager](#)

[Tivoli Resource Center](#)

[Tivoli area in developerworks](#)

[Netegrity SiteMinder](#)

[Securing J2EE Applications on IBM WebSphere Application Server with SiteMinder white paper](#)

[Using Netegrity SiteMinder Authentication for WebSphere Portal white paper](#)

Chapter 21 Designing High Availability into your Portal Server

[Get help creating a high availability server with More about High-Volume Web Sites Redbook](#)

[IBM WebSphere V5.0 Performance, Scalability, and High Availability: WebSphere Handbook Redbook is another good reference to create a cluster.](#)

Chapter 22 WebSphere Portal Support for Web Services and Remote Portlets

[Web Service for Remote Portlets Specification v1.0](#)

[WSRP white paper on developerWorks](#)

[Web Service for Remote Portlets for WebSphere Portal Technology Preview](#)

[WSRP Conformance Test Kit on alphaWorks](#)

[Web Services area on developerWorks](#)

[Links to the IBM UDDI business registry and the IBM UDDI test registry can be found at](#)



ISBN 0-7645-3991-4

Wiley Technology
Publishing
Timely. Practical.
Reliable.

[Link to the IBM WebSphere Business Registry and the IBM WebSphere Registry Center forum at](#)

Chapter 23 Integrating External Applications with WebSphere Portal

[WebSphere Portal Catalog](#)

[JCA Extensions in WAS white paper](#)

[Introduction to JCA tutorial](#)

[Connecting Self-Service Applications to the Enterprise Redbook](#)

[Developing Applications with JCA-based Tools white paper](#)

[WebSphere Studio Application Developer Integration Edition](#)

[WebSphere Adapter for mySAP.com](#)

[Sun's JCA page](#)

[WebSphere Adapter area](#)

[SAP NetWeaver page](#)

[PeopleSoft Portal Packs](#)

Chapter 24 Supporting Mobile Users

[IBM WebSphere Everyplace Server Service Provider and Enable Offerings: Enterprise Wireless Applications redbook](#)

[IBM WebSphere Everyplace Server: A Guide for Architects and Systems Integrators redbook](#)

[IBM's WebSphere Everyplace Access page](#)

[WebSphere Everyplace Access Version 4.3 Handbook for Developers redbook](#)

[\[Home \]](#)

[\[Links \]](#)

[\[Updates \]](#)

Resources for [Authors](#) | [Librarians](#) | [Instructors](#) | [Booksellers](#) | [Press](#) | [Investors](#)

Copyright © 2000-2006 by John Wiley & Sons, Inc., or related companies. All rights reserved. Please read our [Privacy Policy](#).

[Site Map](#)

Mastering IBM WebSphere Portal

by *Ron Ben-Natan, Richard Gornitsky, Tim Hanis and Ori Sasson*

Welcome to the companion Web site for Mastering IBM WebSphere Portal Server..

Installable Portlet Web Archive files (WAR) that contain the source code are provided for the example portlets described in this book. Most code references in the portlet development chapters are taken from these portlets. There are three files for the sample portlet application, one using the IBM portlet API, one using the JSR 168 API and one using the Struts Portlet Framework. These are described in chapters 16, 17 and 18 and the links below can be used to retrieve the WAR files.

The code listing link for Chapter 3 provides the HTTP startup script referenced in that chapter.

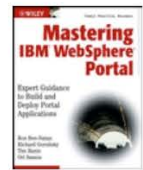
- Chapter 03 - reference [HTTPStartupscript.sh](#)
- Chapter 16 - reference [Poll.war](#)
- Chapter 17 - reference [Poll_JSR.war](#)
- Chapter 18 - reference [Poll_Struts.war](#)

In addition to the sample portlet code, we also provided useful reference and resource [links](#) organized by chapter.

[[Home](#)]

[[Links](#)]

[[Updates](#)]



ISBN 0-7645-3991-4

Wiley Technology
Publishing
Timely. Practical.
Reliable.

INTERNET ARCHIVE

WayBackMachine

217 captures

14 Aug 2004 - 21 Feb 2

http://www.redbooks.ibm.com/Redbooks.nsf/pages/howtobuy?Open

Go

JUN

AUG

SEP

25

2006

2007

2008

About this capture

IBM

Country/region [select]

Redbooks

Search

Home

Business services

IT services

Products

Support & downloads

My IBM

IBM Redbooks®

Drafts

Redbooks

Redpapers

Technotes

Redbooks Domains

Residencies

Workshops

Additional Materials

How to order

About Redbooks

Contact us

Mailing list

RSS feeds



How to order IBM Redbooks

This section explains the various ways to order hardcopy Redbooks. IBM employees should use their normal publications ordering process.

Online Orders



IBM Publications Center

Most IBM Redbooks can be ordered online using the "**Order Hardcopy**" link located below the book title of virtually every IBM Redbooks abstract page on this Web site. Collections of Redbooks on CD-ROM can also be ordered online via the "**Order now**" button located on each CD-ROM page.

Just find the book you want, click **Order Hardcopy** and the book will be delivered to your doorstep, worldwide! Payment can be made by credit card.

[IBM Publications Center](#) offers most recently published IBM Redbooks. Payment options are via customer number (minimum net amount of USD 35.00 required), or by credit card. Taxes are computed for credit card orders only. Select a country first when using this site. Allow approximately two weeks for standard delivery. Books can be ordered approximately two to three weeks after the initial online publishing date.

Telephone Orders

In the United States and Canada

Outside North America

1-800-879-2755 (option 1)

(+45) 4810-1540 - English, or;
Local country coordinator phone number is in the 'How to Order' section at the [IBM Publications Center](#) (long distance telephone charges may apply)

Fax Orders

Fax this [FORM](#) to:

In the United States and Canada

Outside North America

1-845-559-6039

See **How to Order** section at the [IBM Publications Center](#)

E-mail Orders

In your E-mail, please include all the information requested on this [FORM](#). Send your order to:

In the United States and Canada

Outside North America

mdcinfo@us.ibm.com

See **How to Order** section at the [IBM Publications Center](#)

Mail Orders

Mail this [FORM](#) to:

In the United States

In Canada

Outside North America

IBM Publications
Publications Customer Support
P.O. Box 29570
Raleigh, NC 27626-0570
USA

IBM Publications
144-4th Avenue, S.W.
Calgary, Alberta T2P 3N5
Canada

See **How to Order** section at the [IBM Publications Center](#)

E-mail this page

Print this page

Digg this

Save to del.icio.us

About IBM

Privacy

Contact

Terms of use

Page 18 of 97

<https://web.archive.org/web/20040814234403/http://www.redbooks.ibm.com/Redbooks.nsf/pages/howtobuy?Open>

INTERNET ARCHIVE
WayBackMachine

http://www.redbooks.ibm.com/Redbooks.nsf/pages/howtobuy?Open

Go

JUL
AUG
14
2004

OCT

2003

2005

About this capture

217 captures
14 Aug 2004 - 21 Feb 2

IBM®

Redbooks

Home | Products & services | Support & downloads | My account

→ Select a country

Redbooks Home

Publications:

- Drafts
- Redbooks
- Redpapers
- Technotes
- Additional materials

Redbook Domains:

- Select one --

Residencies

Workshops

Redbooks on CD

How to buy

About Redbooks

Contact us

Mailing list

Related links:

- IBM Publications
- Technical Training
- Developers
- IBM Business Partners



How to buy IBM Redbooks

This section explains the various ways to order hardcopy or [CD-ROM collections](#) of ITSO Redbooks. IBM employees should use their normal publications ordering process.

Online Orders



IBM Publications Center

Most IBM Redbooks can be ordered online using the **"Buy now"** link located in the right-hand navbar of virtually every Redbook Abstract page on this website. Collections of Redbooks on CD-ROM can also be ordered online via the **"Buy now"** button located on each CD-ROM page.

Just find the Redbook you want, click **Buy Now** and the Redbook will be delivered to your doorstep, worldwide! Payment can be made by credit card.

[IBM Publications Center](#) offers most recently published IBM Redbooks. Payment options are via customer number (minimum net amount of USD 35.00 required), or by credit card. Taxes are computed for credit card orders only. Select a country first when using this site. Allow approximately two weeks for standard delivery. Books can be ordered approximately two to three weeks after the initial online publishing date.

Telephone Orders

In the United States	1-800-879-2755
In Canada	1-800-IBM-4YOU
Outside North America	(+45) 4810-1540 - English, or; Local country coordinator phone number is in the 'How to Order' section at the IBM Publications Center (long distance telephone charges may apply)

Fax Orders

Fax this [FORM](#) to:

In the United States	1-800-445-9269
In Canada	1-800-445-9269
Outside North America	See How to Order section at the IBM Publications Center

E-mail Orders

In your E-mail, please include all the information requested on this [FORM](#). Send your order to:

In the United States	fax@us.ibm.com
In Canada	pubscan@us.ibm.com
Outside North America	See How to Order section at the IBM Publications Center

Mail Orders

Mail this [FORM](#) to:

In the United States	IBM Publications Publications Customer Support P.O. Box 29570 Raleigh, NC 27626-0570 USA
In Canada	IBM Publications 144-4th Avenue, S.W. Calgary, Alberta T2P 3N5 Canada
Outside North America	See How to Order section at the IBM Publications Center

About IBM | Privacy | Terms of use | Contact

Redbooks Home

Redbooks Home
Drafts
Redbooks
Redpapers
Technotes
Redbook Domains
Residencies
Workshops
Redbooks on CD
Additional Materials
How to order
About Redbooks
• Redbooks
• Residencies
• Residents
• Workshops
Contact us
Mailing list

Redbooks About

Redbooks, Drafts(Redpieces) and Redpapers

IBM Redbooks are ITSO's core product. They typically provide positioning and value guidance, installation and implementation experiences, typical solution scenarios, and step-by-step "how-to" guidelines. They often include sample code and other support materials that are also available as downloads from this site. They are available as hardcopy books, in IBM Redbook CD-ROM collections, and on the Internet through this site. Refer to the '[How to order](#)' page for order details.

[Redbooks](#) are created through the ITSO [residency process](#) and are generally published 30-90 days after residency completion.

[Drafts \(Redpieces\)](#) are redbooks under development. The objective of making the draft versions available is to speed up access to books that are not yet published. Consequently they are less polished and have not undergone the formal review that takes place for completed IBM Redbooks.

[Redpapers](#) are shorter technical documents that are only Web-published. They can be the result of ITSO residencies and may also be contributed from other sources. They reflect working experiences on the specific topic.

Related links ...

→ [Copyright Information](#)

- Related links
- IBM Publications
 - Technical training
 - Developers
 - IBM Business Partners
 - IBM Press books

<https://web.archive.org/web/20070630023413/http://www.redbooks.ibm.com:80/Redbooks.nsf/pages/about?Open>

INTERNET ARCHIVE

WayBackMachine

214 captures

14 Aug 2004 - 7 Jun 20

http://www.redbooks.ibm.com/Redbooks.nsf/pages/about?Open

Go

APR JUN 30 AUG

2006 2007 2008

About this capture

Country/region [select]

Redbooks

Search

Home Business solutions IT services Products Support & downloads My IBM

IBM Redbooks®

Drafts

Redbooks

Redpapers

Technotes

Redbooks Domains

Residencies

Workshops

Additional Materials

How to order

About Redbooks

• Redbooks

• Residencies

• Residents

• Workshops

Contact us

Mailing list

RSS feeds

Redbooks

About

IBM International Technical Support Organization

IBM Redbooks are developed and published by the IBM International Technical Support Organization, ITSO. The ITSO develops and delivers skills, technical know-how, and materials to IBM technical professionals, Business Partners, clients, and the marketplace in general.

The ITSO works with IBM Divisions and Business Partners in the process of developing IBM Redbooks, Redpapers, Technotes, workshops, and other materials. The ITSO is part of the IBM Global Content Services organization within IBM Sales & Distribution.

The ITSO's value-add information products address product, platform, and solution perspectives. They explore integration, implementation, and operation of realistic client scenarios that include PeopleSoft, Linux, Windows, SAP, Oracle, and others.

Contact ITSO

✉ redbooks@us.ibm.com

Who we work with

Software Group

- Application Integration and Middleware
- Information Management software
- Lotus software
- Tivoli software
- Small and Medium Business
- Rational
- WebSphere software

IBM Systems Group

- System i
- System p
- System x
- System z
- System Storage

IBM Global Services

- Global Business Services
- Global Technology Services

Other

- Research Division
- Business Partners

E-mail this page

Print this page

About IBM

Privacy

Contact

Terms of use

INTERNET ARCHIVE

WayBackMachine

13 captures

4 Mar 2007 - 18 Jun 20

https://www.redbooks.ibm.com/abstracts/sg246076.html?Open

Go

FEB

MAR

SEP

04

2007

2009

About this capture

2006

United States change

Terms of use

Redbooks

Search

Home

Products

Services & industry solutions

Support & downloads

My IBM

IBM Redbooks > Lotus

IBM Redbooks®

Drafts

Redbooks

Redpapers

Technotes

Redbooks Domains

Residencies

Workshops

Additional Materials

How to order

About Redbooks

Contact us

Mailing list

RSS feeds

Related links

- IBM Publications
- Technical training
- Developers
- IBM Business Partners
- IBM Press books



IBM WebSphere Portal V5 A Guide for Portlet Application Development

This book

 [Download PDF](#) (10.2 MB)

 [View as HTML](#)

 [Order Hardcopy](#)

 [Get Adobe® Reader®](#)

 [Tips for viewing](#)

 [Additional Material](#)

Abstract

This IBM Redbook helps you design, develop and implement portlet applications using the IBM WebSphere Studio Site Developer and the Portal Toolkit V5. The information provided in this redbook targets Business-to-Employee (B2E) enterprise applications, but most of the scenarios presented apply to Business-to-Consumer (B2C) applications as well. In this redbook, you will find step-by-step examples and scenarios showing ways to integrate your enterprise applications into an IBM WebSphere Portal environment using the WebSphere Portal APIs provided by the Portal Toolkit to develop portlets as well as extend your portlet capabilities to use other advanced functions such as cooperative portlets, national language support, action events, portlet messaging, Credential Vault, Web Services and portlet debugging capabilities.

Elements of the portlet API are described and sample code is provided. The scenarios included in this redbook can be used to learn about portlet programming and as a basis to develop your own portlet applications. You will also find numerous scenarios describing recommended ways to develop portlets and portlet applications using the APIs provided by the IBM WebSphere Portal Toolkit. The sample scenarios in this redbook have been developed using the WebSphere Studio Site Developer but they can also be developed using the WebShere Studio Application Developer. A basic knowledge of Java technologies such as servlets, JavaBeans, EJBs, JavaServer Pages (JSPs), as well as XML applications and the terminology used in Web publishing, is assumed.

Table of Contents

Chapter 1. Overview

Chapter 2. Portlet API

Chapter 3. Portal Toolkit

Chapter 4. A first portlet application

Chapter 5. Action event handling

Chapter 6. Portlet debugging

Chapter 7. Portlet messaging

Chapter 8. National Language Support (NLS)

Chapter 9. Accessing Web Services

Chapter 10. Using the Credential Vault

Chapter 11. Accessing back-end JDBC databases

Chapter 12. Cooperative portlets

Chapter 13. Advanced cooperative portlets

Chapter 14. Struts portlets

Chapter 15. Portlet preview

Chapter 16. Remote Server Attach

Appendix A. Portlet development platform sample installation

Appendix B. Automatically redeploying portlets

Appendix C. Additional material

Profile

Publish Date

03 February 2004

Rating: ★★★★★

(based on 24 reviews)

→ Rate this book

Author(s)

[Juan Rodriguez](#)

[Serena Chan](#)

[Belen Gonzalez](#)

[George Kroner](#)

[Monica Parlangelo](#)

[Sandro Schwedler](#)

[Andre Venancio](#)

ISBN

0738498513

IBM Form Number

SG24-6076-00

Number of pages

570

About IBM | Privacy | Contact

INTERNET ARCHIVE

WayBackMachine

45 captures

5 Nov 2005 - 5 Dec 202

https://www.redbooks.ibm.com/abstracts/sg246792.html

Go

OCT

NOV

FEB

05

2005

2007

About this capture

IBM

United States change

Terms of use

Redbooks

Search

Home

Products

Services & solutions

Support & downloads

My account

IBM Redbooks

Redbooks Home

Drafts

Redbooks

Redpapers

Technotes

Redbook Domains

Residencies

Workshops

Redbooks on CD

Additional Materials

How to order

About Redbooks

Contact us

Mailing list

Related links

IBM Publications

Technical training

Developers

IBM Business Partners

IBM Press books

IBM Redbooks

Draft

IBM Workplace Web Content Management: Web Content Management for Portal 5.1 and IBM Workplace Web Content Management 2.5

This Draft

Download PDF (8.9 MB)

Get Adobe® Reader®

Additional Material

Tips for viewing

Abstract

IBM® Workplace™ Web Content Management is a powerful and sophisticated Web content management product designed to accelerate development and delivery of critical business information. It enables "end-to-end" collaboration for content creation, approvals, management, retention, and publishing across Internet, intranet, extranet and portal assets. Despite its power, it is remarkably easy to use. It simply requires standard office skills to rapidly harness and optimize the flow of information.

Within this book, we provide a comprehensive approach to better understanding and utilizing Web Content Management. We address the specific technical aspects of IBM Workplace Web Content Management™ product, discussing its underlying architecture and features, recommending deployment scenarios, and providing detailed discussions on how to best use the product and take advantage of built in features and its extensible API. To address the needs of a broad range of users, from those new to the product to those with much more experience, we first provide a basic tutorial on building a site, while also then building upon this foundation to explore advanced topics and opportunities for customization. In addition to discussing specific technical features, this book also discusses the key concepts and best practices for creating a accurate Information Architecture and site framework. Finally, this book addresses how to upgrade Web Content Management data from earlier versions of the product, as well as migrate data in from external web content management systems.

*** Note - Code Samples can be downloaded from the following URL: <ftp://www.redbooks.ibm.com/redbooks/SG246792/> *****

Table of Contents

Chapter 1. Introduction to IBM Web Content Management

Chapter 2. Product Architecture and Deployment Planning

Chapter 3. Installation and Configuration for IBM Workplace Web Content Management

Chapter 4. Workplace Web Content Management, 2.5 Edition

Chapter 5. Key Concepts and Terminology

Chapter 6. Information Architecture and Site Design

Chapter 7. Building the River Bend Site - Step by step guide for building a web site with WCM

Chapter 8. Caching and Pre-rendering considerations

Chapter 9. Advanced Workplace Web Content Management / Portal Integration

Chapter 10. Search functionality for IBM Workplace Web Content Management

Chapter 11. Personalization rules for WCM

Chapter 12. Working with the API

Chapter 13. Working with the API - Examples and advanced topics

Chapter 14. Migrating from a previous version

Chapter 15. Migrating content into Web Content Management

Appendix A. Additional material

Special Notices

These pages are Web versions of IBM Redbooks- and Redpapers-in-progress. They are published here for those who need the information now and may contain spelling, layout and grammatical errors.

This material has not been submitted to any formal IBM test and is published AS IS. It has not been the subject of rigorous review. Your feedback is welcomed to improve the usefulness of the material to others.

IBM assumes no responsibility for its accuracy or completeness. The use of this information or the implementation of any of these techniques is a customer responsibility and depends upon the customer's ability to evaluate and integrate them into the customer's operational environment.

Profile

Last Update

03 October 2005

Planned Publish Date

30 October 2005

Rating: ★★★★★

(based on 2 reviews)

Rate this Draft

Author(s)

John Bergland

Marilyn Flax

Michael Fromin

Amier Jordan

Theresa Smit

Oliver Trabert

Thomas Radigewski

IBM Form Number

SG24-6792-00

Feedback

Send e-mail

About IBM

Privacy

Contact

Page 36 of 97



IBM WebSphere® Everyplace Access V5 Handbook for Developers and Administrators Volume III: E-Mail and Database Synchronization

This Redbook

 [Download PDF](#) (5.2 MB)

 [Get Adobe® Reader®](#)

Hardcopy will be available on April-16-2005

Abstract

This IBM Redbook is part of a series of four volumes related to WebSphere Everyplace Access Version 5.0. These books will help you plan, install, administer, and develop mobile applications to run in a WebSphere Everyplace Access Version 5.0 environment. The information provided in these books targets business-to-employee (B2E) enterprise applications, but most of the scenarios presented apply to business-to-consumer (B2C) applications as well. These books provide step-by-step examples and scenarios showing ways to integrate your enterprise applications into a WebSphere Everyplace Access environment using the WebSphere Studio Site Developer and the Everyplace Toolkit, as well as extend your online and offline application capabilities to use other advanced functions.

This book also contains step-by-step sample scenarios showing ways to synchronize Domino and Microsoft Exchange e-Mail servers as well as relational JDBC databases with DB2 Everyplace databases on your client devices such as Pocket PCs and Palm devices.

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

The following IBM WebSphere® Everyplace Access V5 redbooks are part of this offering:

- IBM WebSphere® Everyplace Access V5 Handbook for Developers and Administrators Volume I: Installation and Administration, SG24-6462
- IBM WebSphere® Everyplace Access V5 Handbook for Developers and Administrators Volume II: Application Development, SG24-6463
- IBM WebSphere® Everyplace Access V5 Handbook for Developers and Administrators Volume III: E-Mail and Database Synchronization, SG24-6676
- IBM WebSphere® Everyplace Access V5 Handbook for Developers and Administrators Volume IV: Advanced Topics, SG24-6677

Table of Contents

- Chapter 1. PIM and E-mail synchronization with Domino Server
- Chapter 2. Exchange 2000 and 2003 Synchronization
- Chapter 3. Synchronizing with DB2 databases
- Chapter 4. Synchronizing with Oracle databases
- Appendix A. Sample Oracle Enterprise Edition installation

Profile
Publish Date 14 April 2005
Rating: Not yet rated → Rate this Redbook
Author(s) Juan Rodriguez Anna Gangituno Gianfranco Rutigliano Guillermo Villavicencio
ISBN 0738490636
IBM Form Number SG24-6676-00
Number of pages 324

EXHIBIT B

PART

I

WebSphere Portal Primer

COPYRIGHTED MATERIAL

CHAPTER

1

Introducing WebSphere Portal

What is a portal and why do I need it? What does WebSphere Portal offer that I can't do with custom code? In this chapter, we will answer these questions and introduce you to the WebSphere brand and more specifically to WebSphere Portal. We will show you how WebSphere Portal can help you rapidly develop and deploy applications that will impact your bottom line by introducing you to its features and architecture. At the end of this chapter you will understand why you need a portal and how WebSphere Portal meets your portal requirements.

What Is a Portal and Why Do We Need Them?

When the Internet was first introduced, applications were simple and text based. Graphics were soon introduced, and programmers found out that much of the development effort was shifting to look and feel rather than implementing business function. Then developers felt it would be cool to integrate various other sites into their own; however, this generated a smorgasbord look and feel. Security soon became an issue and each site then required authentication. If the developer had integrated multiple sites into his or her own site, the user would endure the frustrating experience of having to do multiple logins on a single site, each with a different name and password. By the 1990s the Internet was experiencing a massive boom when numerous software companies and IT departments were developing software; however, most of it provided the same functionality. Many groups were designing search engines and collaboration software and IT managers were questioning why they were constantly redesigning the wheel and

4 Chapter 1

why productivity and quality were so low. Then, if there weren't enough headaches, Internet applications were required to be accessible on many different devices with very different attributes such as desktops, mobile phones, and palm pilots. Some devices can handle sophisticated graphics and have lots of visual room while others have limited input and output capabilities (e.g., a mobile phone).

Portals, specifically WebSphere Portal, help today's businesses address the Internet challenges. It helps programmers focus on developing the business functionality by letting the portal manage the look and feel, personalization, content management, and security. It allows users to integrate different applications from disparate locations and enables them to seamlessly exchange information. Each user can create a personalized device-independent "desktop" with a consistent look and feel by using drag and drop components. Much of the functionality that is required for Web experience does not have to be programmed but can be found in the portal library, a collection of "shrink wrap packaged" portlets or portal applications.

The WebSphere Family

WebSphere is a software platform that enables you to develop, deploy, and integrate all types of enterprise-scale e-business applications: from business to business, customer to business, employer to employee, on demand, and even legacy.

WebSphere is made up of three components (Figure 1-1): foundation and tools, reach and user experience or business portals, and business integration.

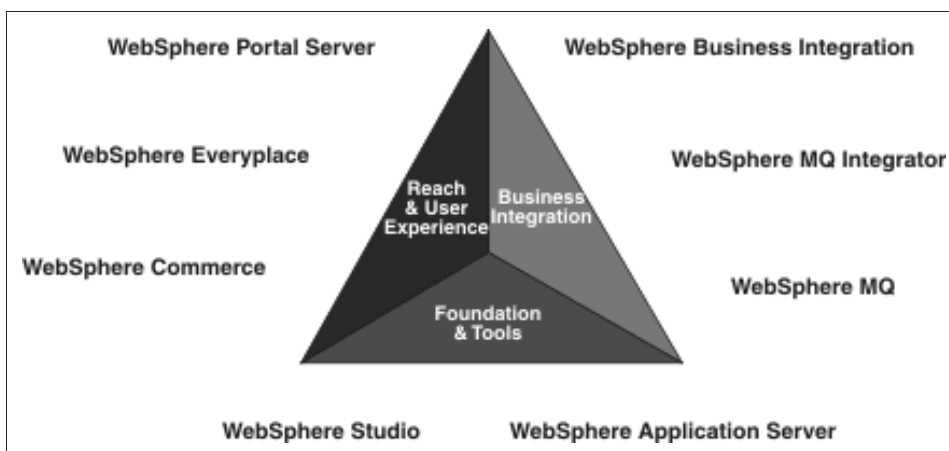


Figure 1-1 IBM WebSphere components.

Foundation and Tools

The “engine” and the “frame” of the WebSphere constitute the WebSphere Application Server (WAS). It is the environment in which you run and manage your Java applications. WAS is a complete, open standard Java 2 Platform, Enterprise Edition (J2EE) 1.4 application server that enables you to perform the following tasks:

1. Integrate easily to other e-business and legacy applications through its support of J2EE Connector Architecture. This gives a consistent way of connecting and communicating to other applications without complex programming.
2. Communicate to other distributed systems using guaranteed and reliable persistent high-performance messaging based on the Java Messaging Service (JMS) and/or Web Services.
3. Deploy and administer applications with ease on a single server. With the optional WebSphere Application Server Network Deployment, you can manage and administer a large number of servers and reduce your administration costs with its automated server management. Installation and administration capabilities are further enhanced through the support of Java Management Extensions, which enables integration with third-party system management products such as Tivoli, Candle, and CA.
4. WAS provides you with performance optimization and reliability by allowing you to control and isolate each application run-time environment. With the WebSphere Application Server Network Deployment option, you get high availability and high transaction support through clustering and caching. Using clustering, it supports load balancing and automatic failover capability. Load balancing can be done at the routers, Web servers, or the application servers. It also provides content-based routing and edge-based caching.
5. Sophisticated and complete security support through
 - a. Secure system resources with the Java 2 security model
 - b. Standardize authentication with Java Authentication and Authorization Services (JAAS)
 - c. Secure communication channels (TLS/SSL) using Java Secure Socket Extension
 - d. Security encryption and message authentication using Java Cryptographic Extension
 - e. Public Key Infrastructure (PKI) integration based on Java Cryptographic Architecture. PKI manages the issuing,

6 Chapter 1

distribution, and authentication of private and public digital keys. Digital keys are used to authenticate an individual or a resource.

- f. Secure interoperability between application servers
 - g. Support for registries based on Lightweight Directory Access Protocol (LDAP)
 - h. Single sign-on support using Trust Association Interceptor or Lightweight Third Party Authentication (LTPA)
6. Deploy applications independent of hardware and software environments. WAS can be deployed on Intel, Sun, HP, and IBM hardware platforms running AIX, Linux, zOS, OS/400, Solaris, HP-UX, and Windows 2000/2003.

To enable rapid deployment of applications on WAS, IBM provides WebSphere Studio: a suite of integrated application development tools based on the ECLIPSE open standard framework. From a single user to a large team environment, developers can rapidly develop, debug, and test their WebSphere Applications and then seamlessly deploy into a WAS environment. The WebSphere Studio integrates with the Rational product line including modeling to code generation, testing, and version control.

The foundation and tools component also includes WebSphere Host Integration family, which enables you to integrate your legacy assets with your e-business.

Business Integration

WebSphere Business Integration is a suite of 24 products that provides end-to-end integration by performing the following tasks:

- 1. Using modeling to design, simulate, and plan business processes
- 2. Providing products that facilitate linking people, processes, applications, system, and data
- 3. Enabling you to connect to your customers and partners
- 4. Allowing you to control and track business processes
- 5. Enabling you to review, analyze, and improve processes and performance

Items 1, 4, and 5 are supported by the WebSphere Business Integration. Item 2 is supported through message brokering and formatting using WebSphere Business Integration Message Broker. IBM WebSphere Business Integration Message Broker transforms and enhances real-time information between applications that use different message structures and formats.

Introducing WebSphere Portal 7

Item 3 is supported by WebSphere MQ. WebSphere MQ allows you to integrate applications using messaging.

WebSphere Business Portals

WebSphere Business Portal suite focuses on the e-business user experience. It consists of WebSphere Commerce, WebSphere Everyplace, WebSphere Voice, and WebSphere Portal.

WebSphere Commerce enables a user to create selling, buying, and channel management solutions for anything from a simple on-line sales channel to a multitier integrated demand chain.

WebSphere Everyplace provides a suite of tools that facilitate the delivery of Web pages and e-business applications to a broad range of mobile devices.

WebSphere Voice supports development and deployment of conversational and voice recognition e-business solutions. It also provides translation services and unified messaging that includes voice mail, e-mail, and faxes.

The last product, but the most important from this book's perspective, is WebSphere Portal, which, according to IBM's Web site (www.ibm.com), provides "a single point of personalized interaction with applications, content, processes, and people." Now we explore this statement and elaborate what it means.

What Is WebSphere Portal?

Previously in this chapter, we discussed what a portal is. WebSphere Portal provides all these capabilities plus the availability and scalability required for large enterprise applications. But to really understand what WebSphere Portal is, you need to look at from the users', programmers', and administrators' perspectives.

The User Experience

WebSphere Portal allows users to create their own virtual desktops that are machine independent. Each user can create his or her own portal pages and customize the content and look and feel of these pages. They can add functionality to their pages through *portlets*, which are portal applications. Portlets are custom made by your sites' programmers, downloaded from the IBM portal catalog, or are available from software vendors. Each portlet has settings that allow users to customize the functionality for their environment. An extensive set of portlets is available from IBM and its partners

8 Chapter 1

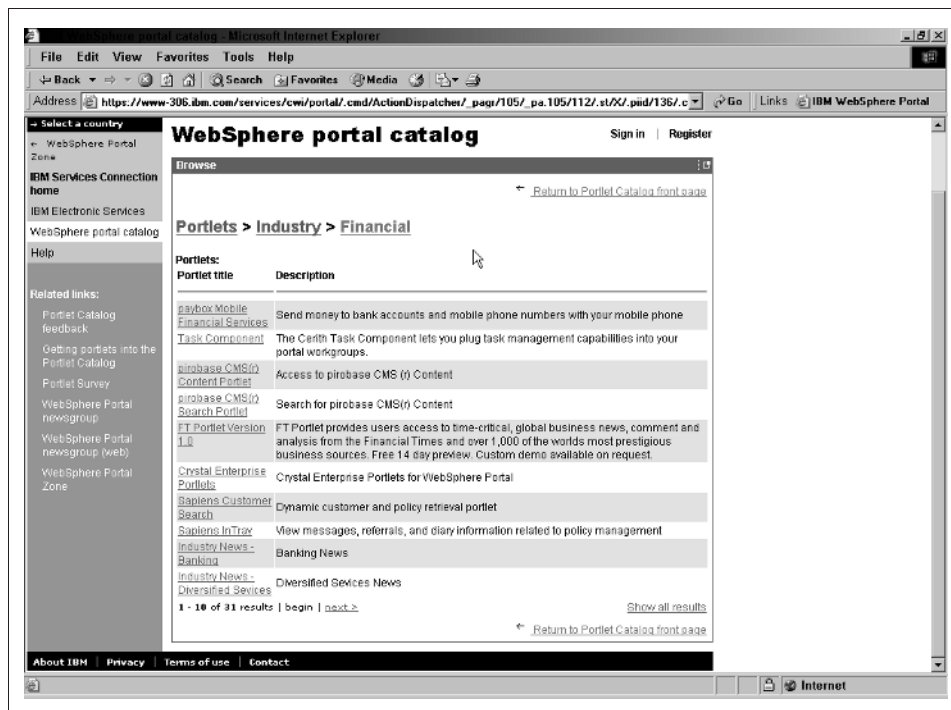


Figure 1-2 Financial portlet section of the WebSphere Portal Catalog.

through the Portal Catalog at www.ibm.com/software/genservers/portal/portlet/catalog.

At last count IBM had 531 portlets in its catalog. Figure 1-2 shows some financial portlets available from the catalog. Portlets can be easily added to a page by clicking on the Edit Layout link at the top page you want to customize.

Users can have as many personalized pages as they want. They are arranged in a hierarchical manner with any level of depth starting from their home page. Based on their permissions, users can choose for each page or set of pages their own themes, skins, and layout. Themes define the fonts, colors, spacing, and other look-and-feel components of the page. They are a combination of cascading style sheets, JSP files, and images. Skins comprise title bars, borders, shadows, etc. that surround the portlets. Each page and the pages associated with its tree can have their own theme and skins, thus creating a virtual portal. Each department that enters into the portal will have its own look and feel.

WP Page Navigation supports complex navigation trees and labels that logically group a set of navigation elements.

WebSphere Portal allows users to view content on multiple devices and in multiple languages, including double byte and bidirectional. It also

Introducing WebSphere Portal 9

generates markup that complies with the American Disability Act Section 508 Web Accessibility Standards and the guidelines of the W3C Web Accessibility Initiative. If the portal needs automatic translation, users can incorporate WebSphere Translation Server.

Content Management

WP provides the user the ability to syndicate content or to get up-to-date personalized and filtered content and services from multiple subscriber sources such as Financial Times, Hoovers, Factiva, and others. These subscribers support the Rich Site Summary (RSS) format, so their news and entertainment content can be displayed, managed, and edited with WP's built-in RSS portlet.

WebSphere Portal also enables the user to manage the creation, approval, and publishing of Web content through the support of Web Content Management products. Integration kits are provided on how to publish RSS content from Web Content Management vendors such as Documentum and Vignette. WebSphere Portal also provides its own sophisticated Web Content Management system called IBM Lotus Workplace Web Content Management (ILWWCM).

ILWWCM (formally known as Aptrix) is an enhanced Web Content Management System that replaced WebSphere Content Publishing. ILWWCM is a separately installed component that you need to get from your IBM representative. In the next version, it should be totally integrated into WebSphere Portal.

ILWWCM is designed for organizations with users that publish content to a Web site, whether it is marketing updating product information or human resources updating information on benefits. Content can be published through templates or forms and consists of images, Word documents, Excel, HTML, and so forth.

Through the ILWWCM administrator, users can contribute content, have it categorized, and deployed in a controlled manner using a workflow model. ILWWCM manages the task list of each user and through the establishment of role security enables what content can be changed, created, or deleted by a user. With the use of the workflow model, it coordinates the review and publishing process.

To address more sophisticated content manager requirements, use IBM Content Manager.

Document Management

WebSphere Portal Document Manager (PDM) provides users the ability to view, add, edit, and delete documents within a common folder hierarchy

10 Chapter 1

that can be user-defined. Documents can be made available immediately or to go through an approval process using a defined workflow model. PDM uses WP's access controls, so users can define who can create, read, update, and/or delete a document based on their roles. Authorizations can be set by folder, which will be inherited to the subfolders. PDM provides a subscription capability that enables users to see in their Update folder, for a specified period, a document when it is changed.

PDM supports multiple different types of documents and provides productivity components that enable users to create and edit rich text, spreadsheets, and presentation documents within their browser.

Search

WebSphere Portal provides the user with a vast range of search capabilities. It is built on a sophisticated search engine that supports free-text queries with query assistance and query word completion. Queries can be performed in any language and can use wildcard, advance query operators, synonyms, stop word lists, and fielded search options. The results of the search can be summarized, clustered, and/or categorized using categories that are predefined (over 2,400 categories) or user-defined. WP can index and then search text and 200 other file formats using built-in document filters over the intranet or Internet. Use of the search capabilities is made through the search portlet, the WP crawler, or the document indexer. Both the crawler and the document indexer have a complete scheduler.

Enhanced search is also provided through IBM Lotus Extended Search and DB2 Information Integrator. Portlets using these technologies can integrate and combine other search engines and indexes. Lotus Extended search also allows seamless searches across a collection of Domino servers, databases, and the Internet where the user perceives that the collection of systems is a single server.

Collaboration

WebSphere Portal provides complete support for collaboration through the Notes, Domino, and Domino Web Access portlets. These portlets provide access to collaboration applications that use Lotus Notes databases on Domino servers such as Mail, Calendar, To Do, Notes View, TeamRoom, and Discussion. Additional portlets are available that integrate Domino.doc, Discovery Server, QuickPlace (Lotus Team Workplaces), and Sametime (Lotus Instant Messaging and Web Conferencing).

WP offers Collaboration Center, which is a framework that integrates People Finder, the Web Conference Center, QuickPlace, and Sametime.

Introducing WebSphere Portal 11

QuickPlace provides workspaces for sharing and organizing ideas while Sametime provides instant messaging, shared white boards, and electronic meeting support.

WebSphere Portal enables integration of Domino, Sametime, QuickPlace, and Discovery Server into your portlet by providing Lotus Collaboration Components that are a suite of APIs and JSP tags.

Personalization

WebSphere Personalization server, which is a component of WebSphere Portal, provides the ability to display specific content to site users based on business rules. A business rule is the representation of a business requirement using a coding language based on English language syntax and semantics. The personalization server works by performing the following tasks:

1. Creating a user profile by collecting user information and classifying it into segments
2. Creating models for the content that defines it by its attributes. For instance, a content model might contain product name, price, and age segment.
3. Matching the user segment to the content on the basis of any combination of filtering, rules, or recommendation engine.

The personalization rules are referenced in the portlets. They are created using Web-based tools. You use the rules to classify site visitors into segments and then match the content to the segment.

Another method provided to match site visitors with content is through the recommendation engine. The recommendation engine uses statistical techniques to identify groups of users with similar interests.

WebSphere Portal also provides implicit profiling services that enable the dynamic creation of personalization business rules based on site visitor data.

WebSphere Portal also provides campaign management tools, which enable a business goal to be reached by defining and executing a set of business rules. For instance, you may have a campaign to increase sales of a particular product. To do this, you define business rules that identify likely customers based on the attributes of site visitors or registered users. Content can be displayed on your Web site or personalized e-mail can be sent. Campaigns have start and stop times; they can be prioritized, and can be run in parallel with other campaigns.

12 Chapter 1

Performance

No matter how sophisticated your portal is, it will not be effective if it does not meet your performance, functional, and personalization requirements. WebSphere Portal creates logs that feed into the IBM Tivoli Web Site Analyzer. The Web Site analyzer will analyze the data and report metric in both graphic and text formats so that you can determine the effectiveness of your Web site and focus on areas to improve it.

The Developer Experience

WebSphere Portal allows the developer to focus on functionality development rather than deal with look-and-feel function. Programmers create portlets that are simple Java applications that are extensions to HTTP servlets. Through portlets, they can access and manipulate Web-based content (such as Web pages, syndicated content feeds) and other Java applications/portlets through messaging and/or Web services and not have to deal with issues relating to look and feel. Figure 1-3 shows the page layout and how portlets fit in.

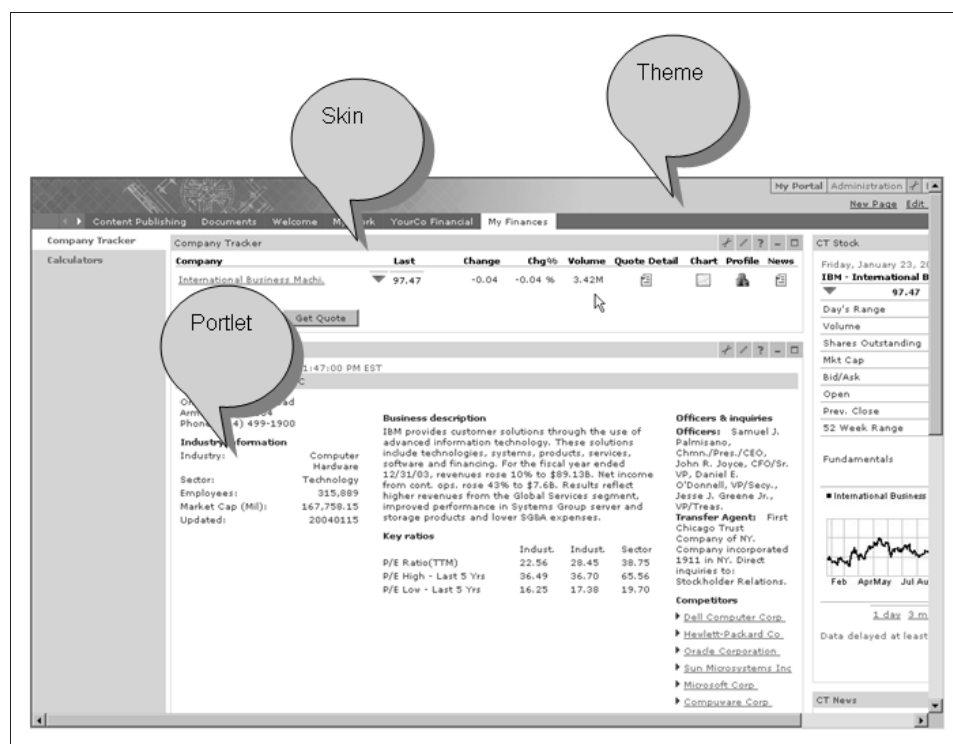


Figure 1-3 The parts of a portal page.

Introducing WebSphere Portal 13

WebSphere Portal also provides a mechanism for portlets to communicate with each other. The developer can send information through a portlet action and a portlet message. For instance, when a portlet displays information on a city, a second portlet can display its weather information by having the city portlet create a portlet action and encode it into the URL that is used for displaying weather. Upon clicking the URL, an action listener is called and then a portlet message is sent to the city portlet for the name of the city.

This method requires an extensive design and coding work. WP provides another method to pass messages independently called cooperative portlets. Cooperative portlets can be “Click-2-Action” or “wired.” Portlets express their desire to interact with a broker who at runtime matches data types between the sources of one portlet with the action of another portlet. If a match occurs with a “Click-2-Action portlet,” a pop-up menu appears on the page that will enable the user to transfer the data to the connected portlet. If the portlet is wired by an administrator, then the data will be exchanged automatically as opposed to having to wait for the user to click the pop-up menu.

WP gives developers the ability to develop portlets very easily using Web Clipping. This feature enables developers to visually or text select portions of a Web page and create a portlet that displays the information and optionally rewrite the links. Clipping portlet can support other sites’ security through the use of WP Credential Vault.

Through the portlet Application Programming Interface (API), WebSphere Portal provides programmers the ability to dynamically discover available services, thus keeping service code independent of the portlet. WP provides discoverable services for managing the portal’s content repository, persistent TCP/IP connections, and the Credential Vault. Other services such as mail can be implemented by the portal developer.

WebSphere Portal provides developers with a rich set of security API. Portal server supports the JAAS architecture. JAAS is a component of the standard Java security model that enables authenticating subjects and fine-grain access control. Developers can use the JAAS API to access JAAS-enabled back-end applications and can also use the credential API to authenticate without seeing the credential secret.

WP provides developers with support for Web Services for Remote Portlets (WSRP) 1.0, a new standard that allows “plug-n-play” of Web Services with Portals. WSRP enables remoting the presentation layer as opposed to regular Web services, which focus on remoting application data. WSRP transmits the actual markup rendered by the remote portlet.

WP provides basic support for JSR 168 1.0 portlets. JSR 168 is a Java Specification Request that defines a common set of portlet capabilities and API. This will allow JSR 168 compliant portlets to run in any vendor’s portlet container that supports the JSR 168 standard.

14 Chapter 1

If developers need to quickly access Enterprise Application Systems such as SAP, PeopleSoft, Siebel, then they can use WebSphere Portal Application Integrator. This tool allows rapid development of portlets through a GUI. The developer chooses fields and operation that he or she wants enabled in the portlet from objects found by the tool through querying the back-end system. Operations include searching, updating, deleting, and creating records. WPAI can also support integration of relational databases and Domino applications.

Developers can easily develop, test, and debug portlets using WebSphere Studio suite in conjunction with the portal toolkit. Wizards are available to you for creating portlets, building the portlet deployment descriptor, packaging it into a WAR file, and then deploying it into your production or test WP server.

The Administrator Experience

WebSphere Portal enables an administrator to have complete dynamic control over user access right for every portal resource including portlets, pages, and user groups. Control is set by using permissions. The permissions are defined by the user role. WP has defined roles (Administrator, Security Administrator, Delegator, Manager, Editor, Privileged User, and User), which the administrator or user associates with the resource. A role has a set of permissions that determine whether he/she can view, update, delete, or create the resource. If a role is assigned to a page, group, or folder, then resources below the parent inherit the permissions unless they are specifically blocked. A user can also delegate his or her role to other users. Administrators can also lock pages and/or page layout, thus restricting the impact component users can have on the company portal.

WebSphere Portal Member Services provides administration services through portlets for creating, updating, and deleting portal users and for managing their access rights. These services are provided at both the user and group levels. Users can be members of one or more groups and groups can be members of other groups. Users also have the ability to register and manage their own account information in the language of their choice (given that support has been implemented). Portal Administrators can define the information about the user that will be collected. User profile information can be supported in an LDAP and/or a database. Extended information about a user profile that is not supported by the default LDAP schema can be stored in a look-aside database.

Users can administer themselves (“self-care”) or a separate administrator can perform the administration. Registration and self-care are done using forms that are easily modified.

Introducing WebSphere Portal 15

WebSphere Portal supports form-based authentication (HTML user prompted form) through WAS or a third-party authentication server such as Tivoli Access Manager or Netegrity Siteminder. Single sign-on is also supported through WAS, and third-party authentication servers are also supported using LTPA tokens. WP also provides a Credential Vault service that allows portlets to store and access securely user IDs and passwords for applications that are accessed on remote systems.

WebSphere Portal gives the administrator the ability to control the portal globally by setting the default language, the cache timeout, handling of new user sessions, taking action when an unauthorized user accesses a portlet, and mapping of URLs.

WP also enables administrators to define new mobile devices and browsers so the portal will know what markup language to use and what the capabilities of the device/browser are.

Of course, WP also provides the standard features that allow users and administrators to easily install, activate, and configure portlets, themes, skins, and pages.

Tools are also provided to ease batch administration, migration, and configuration. Administrators can also enable and control tracing.

WebSphere Portal Architecture

So you now understand what WebSphere Portal does, but you would wonder how it works. WebSphere Portal is basically a suite of J2EE Enterprise Applications running and interacting with each other on the WAS.

In Figure 1-4, you can see the WebSphere Portal Architecture. It consists of three components: the page aggregator, the portlet container and services, and the J2EE engine. It starts with the page aggregator getting an HTTP request from WAS and then performing the following tasks:

1. Determines the device and user information based on the request
2. Collects the pages and portlets requested and then filters them based on the user entitlements
3. The portal dispatches specific Java Server Pages (JSPs), which issue includes for portlet Web modules. These portlet Web modules are invoked as servlets and are then rendered based on their service method (edit vs. view). This process results in the layout of the rows, columns, and graphics of the page.
4. Portlets that perform actions and execute messages such as Click-2-Action are processed first.

16 Chapter 1

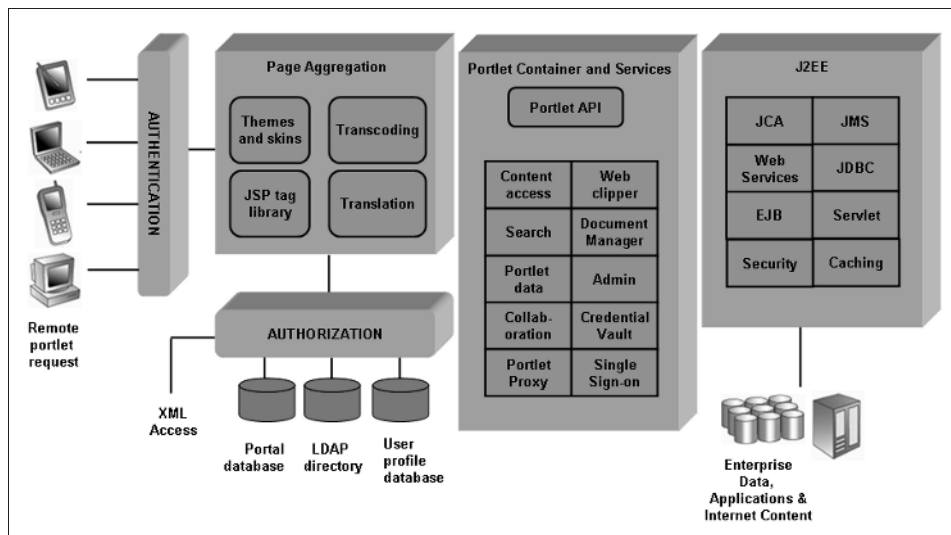


Figure 1-4 The WebSphere Portal Architecture.

5. Portlets that support the target markup are added to the rendering phase.

The second component is the Portlet Container and services. This component controls the portlets and provides services for them to interact with other applications or platforms. Portlets are simple independent HTTP servlets that are reusable and communicate with each other or other resources with well-defined interface. Services, such as Search, collaboration, and Document Manager, extend the functionality of the portlet to support an Enterprise environment.

The standard for the portlet API is JSR 168. JSR 168 is still evolving and as such is still a subset of the functionality of the WP Portlet API. As JSR 168 evolves, the respective WP Portlet API will be deprecated. Presently, both API are very different, have their own containers, and are supported independently.

The last component is the J2EE Engine under which Portal runs. J2EE or Java 2 Platform, Enterprise Edition is an open standard made of components needed to build enterprise applications. J2EE also defines the application and platform model these components run under.

The Java Application Model consists of application components: Java application clients, applets, servlets, JSPs, and Enterprise Java Pages (EJPs). J2EE also defines the Java run-time environment each component runs in. They are called containers and they run on Java 2 Platform, Standard Edition. J2EE also standardizes services which enable applications to integrate with Enterprise Applications. Services comprise JDBC for database

Introducing WebSphere Portal 17

connectivity, JMS for messaging, JavaMail, JAAS for JavaMail, Java API for XML Processing (JAXP), Java IDL, and Java Transaction Architecture for persistent transactions. IBM WebSphere Application Server is fully J2EE certified. Certification is obtained executing successfully the compatibility test suite.

In the WebSphere Portal architecture, you can see that security through authorization and authentication is supported by both the portlet container and services component and the J2EE engine.

WebSphere Portal Packaging

IBM WebSphere Portal V5.0 has two types of packages for the enterprise and two additional packages for small business. Table 1-1 describes the packages for the enterprise. IBM WebSphere Portal Enable for Multiplatforms, version 5.0 is the basic package, while IBM WebSphere Portal Extend for Multiplatforms version 5.0 is the full package.

Table 1-1 Packaging for WebSphere Portal Enable and Extend for Multiplatforms, Version 5.0

COMPONENT	DESCRIPTION	ENABLE	EXT-END
Portal server	J2EE application running in WAS. Provides portal framework consisting of presentation, user management, security, connectivity, and other services. Also includes IBM Cloudscape, version 5.1; a Java-based database.	X	X
WebSphere Application Server Enterprise 5.0 Fix Pack 1	Provides J2EE services for WebSphere Portal. Includes IBM HTTP Server and deployment manager	X	X
IBM Directory Server version 5.1	LDAP Directory Server for storing and retrieving user data required for authentication	X	X
IBM DB2 Universal Database Enterprise Server Edition, version 8.1 with Fix Pack 1	Relational database required to store portal data	X	X

(continued)

18 Chapter 1

Table 1-1 (continued)

COMPONENT	DESCRIPTION	ENABLE	EXT-END
Portal toolkit 5.0	WebSphere Studio plug-in that aids in the development, testing, and debugging of portlets	X	X
WebSphere Studio Site Developer version 5.0 with Fix Pack 1	Integrating development environment for building, debugging, testing, and deploying J2EE applications with HTML pages, servlets, and JSPs	X	X
Web Content Management	Provides complete Web content management system, document management, and personalization server	X	X
IBM Tivoli Web Site Analyzer, version 4.5	Provides information on site availability and performance		X
IBM WebSphere Translation server 5.0	Translates Web pages, e-mail messages, and chat conversations into multiple languages	X	X
IBM Lotus Collaborative Components	A suite of APIs and JSP tags that enables integration of Domino, Sametime, QuickPlace, and Discovery Server into your portlet	X	X
IBM Lotus Collaboration Center	Framework that integrates People Finder, the Web Conference Center, QuickPlace and Sametime		X
IBM Lotus Extended Search version 4.0	Enables searches across distributed structured and unstructured data through a single point of access		X
Sametime	Instant messaging and online awareness		X
QuickPlace	Virtual teamrooms		X

Table 1-2 describes the packages for the small business. IBM WebSphere Portal-Express for Multiplatforms, version 5.0 is the basic package while IBM WebSphere Portal-Express Plus for Multiplatforms version 5.0 has some additional features. IBM WebSphere Portal-Express packages come with a simpler installation and the option for user or processor-based licensing.

Introducing WebSphere Portal 19**Table 1-2** Packaging for WebSphere Portal—Express and Express Plus for Multiplatforms, Version 5.0

COMPONENT	DESCRIPTION	EXPRESS	EXPRESS PLUS
Portal server	J2EE application running in WAS. Provides Portal framework consisting of presentation, user management, security, connectivity, and other services. Also includes IBM Cloudscape, version 5.1; a Java-based database	X	X
WebSphere Application Server-Express 5.0 Fix Pack 1	Provides J2EE services for WebSphere Portal. Includes IBM HTTP Server and deployment manager	X	X
IBM Directory Server Express version 5.1	LDAP Directory Server for storing and retrieving user data required for authentication	X	X
Portal toolkit 5.0	WebSphere studio plug-in that aids in the development, testing, and debugging of portlets.	X	X
WebSphere Studio Site Developer version 5.0 with Fix Pack 1	Integrating development environment for building, debugging, testing, and deploying J2EE applications with HTML pages, servlets, and JSPs	X	X
Web Content Management	Provides complete Web content management system, document management, and personalization server	X	X
IBM Lotus Collaborative Components	A suite of APIs and JSP tags that enables integration of Domino, Sametime, QuickPlace, and Discovery Server into your portlet	X	X
IBM Lotus Collaboration Center	Framework that integrates People Finder, the Web Conference Center, QuickPlace and Sametime.		X
Sametime	Instant messaging and online awareness		X
QuickPlace	Virtual teamrooms		X

WebSphere Portal Platforms

WebSphere Portal V5.0 supports the platforms shown in Table 1-3.

20 Chapter 1

Table 1-3 WebSphere Portal Platforms

PLATFORM	NAME
Hardware	■ IBM-compatible PC with Windows 2000 Server with Service Pack 2 or Service Pack 3, Windows 2000 Advanced Server with Service Pack 2 or Service Pack 3, Red Hat or SuSE operating environment ■ IBM pSeries with AIX, version 5.1 ML3 or version 5.2 operating environment ■ Sun processor with Solaris operating environment, version 8 ■ IBM zSeries or IBM S/390® Parallel Enterprise Server™ capable of running SuSE Linux Enterprise Server, version 7 (31-bit) operating environment
Software	■ AIX V5.1, 5.2, 5.3 ■ RedHat Enterprise Linux AS for Intel ■ RedHat Linux for Intel (x86) 8.0 2.4 ■ RedHat Linux for zSeries 7.2 2.4 ■ Solaris 9 (Fix level: 9 12/2002) ■ Solaris 8 (July 29, 2002 or later) ■ SuSE Linux for Intel (x86) 7.3 2.4 ■ SuSE SLES for Intel (x86) 7 2.4 ■ SuSE SLES for Intel (x86) 8 2.4 ■ SuSE SLES for S/390 8 2.4 ■ SuSE SLES for S/390 7 2.4 ■ Windows 2003 Standard ■ Windows 2003 Enterprise ■ Windows 2000 Advanced Server SP2+ ■ Windows 2000 Server SP2+
Databases	■ IBM Informix, version 9.3 or version 9.4 ■ Cloudscape, version 5.1 with Fix Pack 13 ■ Microsoft SQL Server Enterprise 2000 Service Pack 3 ■ DB2 Universal Database for z/OS and OS/390, version 7.1 ■ DB2 Universal Database Enterprise Server Edition, version 8 with Fix Pack 1 ■ DB2 Universal Database, version 7.2 with Fix Pack 7 and Fix Pack 8

Introducing WebSphere Portal 21

Table 1-3 (continued)

PLATFORM	NAME
	■ Oracle 8i, version 8.1.7 ■ Oracle 9i, version 9.2.0.1
LDAP Servers	■ IBM Directory Server, version 4.1 and version 5.1 ■ Lotus Domino Enterprise Server, version 5.0.12 ■ Lotus Domino, Release 6.0 ■ Sun ONE (formerly iPlanet) Directory Server 5.0 ■ Microsoft Active Directory (as included with Windows 2000 Server) ■ Novell eDirectory 8.6
Web Browsers	Windows platform: ■ Internet Explorer 5.5 and 6.0 ■ Opera 6.0, 6.1, and 7.0 Windows, Linux, AIX, Solaris operating environment: ■ Netscape 6.2 or 7.0 ■ Mozilla 1.0.2, 1.2.1, and 1.3

What's New in WebSphere 5.0 (including 5.0.2)

WebSphere Portal version 5.0 offers significant improvements over WebSphere Portal version 4.2.1, among which are the following:

- Installation is now simpler and more reliable.
- Cloudscape, a Java database, is installed automatically. Cloudscape requires no configuration and is maintenance free.
- Configuration utility is provided to easily customize WebSphere Portal to use other databases, LDAP Servers, or Web servers.
- Improved database and LDAP server support
- Basic support for WSRP 1.0
- Basic support for JSR 168
- Web Clipping Portlet has been updated to make clipping portlets simpler to create and perform better.
- Search has been greatly enhanced that enables you to find, index, categorize, summarize, and support more than 200 documents. Search will enable you to define your own category tree or it will automatically categorize using 2,400 predefined categories.

22 Chapter 1

- Cooperative portlets that enable dynamic portlet interaction on a page
- Portal pages can be arranged in a tree hierarchy. Administration is much easier because the child pages can inherit the parent's permissions.
- Application Portlet builders enable you to rapidly create portlets to access and manipulate data from an enterprise application.
- Improved navigation through Portlet menus. Portlet menus can be created using static XML or dynamically generated.
- Ability to map user-friendly URLs to pages so you don't have to use cryptic portal URLs
- A new document repository and management system called PDM. PDM also provides the ability to author documents such as text, word, spreadsheet, and presentations in the portal.
- The administrative interface has been enhanced with new administrative portlets, improvements in the Navigation, new and improved themes and skins, and context-sensitive links.
- Lotus Collaboration Center has been enhanced with portlets for People Finder, support for QuickPlace in My Lotus Team workplaces, support for Sametime in Lotus Web Conferences, and more.
- The business portlets have been enhanced by adding an Internet Mail Box, single Notes and iNotes portlet, a Newsgroup portlet, and Mylist portlet (simple check-off list).
- XML access, which is the batch processing interface for the portal, has been enhanced in function and documentation.
- Improved handling of error messages by enabling error messages to be localized
- Transcoding can now be used at the portlet level by administrators.
- Portal Toolkit has been updated for version 5 and includes new and improved Wizards.
- Improve performance through WAS cluster support, performance instrumentation, reduced session data, unified caching architecture based on Dynacache, smarter invalidation, and faster login times

Summary

In this chapter we introduced you to portals, which is the WebSphere product family, and more importantly to WebSphere Portal. We gave you

Introducing WebSphere Portal 23

grounding on the WP architecture, its packaging, and supported platforms. We showed some great features introduced in this version. Now that we wetted your appetite by telling you at a high level all the great things about the WebSphere Portal, let's we give you some substance. The rest of the book will show you how to install and use the product for an Enterprise environment. We will start with the first steps so you can install the product in various environments and program a simple portlet. After each chapter we will build upon the topic so that by the time you complete reading the book you will be able to deploy WebSphere Portal in an enterprise environment.

In the next chapter we will introduce step 1 to deploying WebSphere Portal: installing a simple portal.

PART

I

WebSphere Portal Primer

COPYRIGHTED MATERIAL

CHAPTER

1

Introducing WebSphere Portal

What is a portal and why do I need it? What does WebSphere Portal offer that I can't do with custom code? In this chapter, we will answer these questions and introduce you to the WebSphere brand and more specifically to WebSphere Portal. We will show you how WebSphere Portal can help you rapidly develop and deploy applications that will impact your bottom line by introducing you to its features and architecture. At the end of this chapter you will understand why you need a portal and how WebSphere Portal meets your portal requirements.

What Is a Portal and Why Do We Need Them?

When the Internet was first introduced, applications were simple and text based. Graphics were soon introduced, and programmers found out that much of the development effort was shifting to look and feel rather than implementing business function. Then developers felt it would be cool to integrate various other sites into their own; however, this generated a smorgasbord look and feel. Security soon became an issue and each site then required authentication. If the developer had integrated multiple sites into his or her own site, the user would endure the frustrating experience of having to do multiple logins on a single site, each with a different name and password. By the 1990s the Internet was experiencing a massive boom when numerous software companies and IT departments were developing software; however, most of it provided the same functionality. Many groups were designing search engines and collaboration software and IT managers were questioning why they were constantly redesigning the wheel and

4 Chapter 1

why productivity and quality were so low. Then, if there weren't enough headaches, Internet applications were required to be accessible on many different devices with very different attributes such as desktops, mobile phones, and palm pilots. Some devices can handle sophisticated graphics and have lots of visual room while others have limited input and output capabilities (e.g., a mobile phone).

Portals, specifically WebSphere Portal, help today's businesses address the Internet challenges. It helps programmers focus on developing the business functionality by letting the portal manage the look and feel, personalization, content management, and security. It allows users to integrate different applications from disparate locations and enables them to seamlessly exchange information. Each user can create a personalized device-independent "desktop" with a consistent look and feel by using drag and drop components. Much of the functionality that is required for Web experience does not have to be programmed but can be found in the portal library, a collection of "shrink wrap packaged" portlets or portal applications.

The WebSphere Family

WebSphere is a software platform that enables you to develop, deploy, and integrate all types of enterprise-scale e-business applications: from business to business, customer to business, employer to employee, on demand, and even legacy.

WebSphere is made up of three components (Figure 1-1): foundation and tools, reach and user experience or business portals, and business integration.

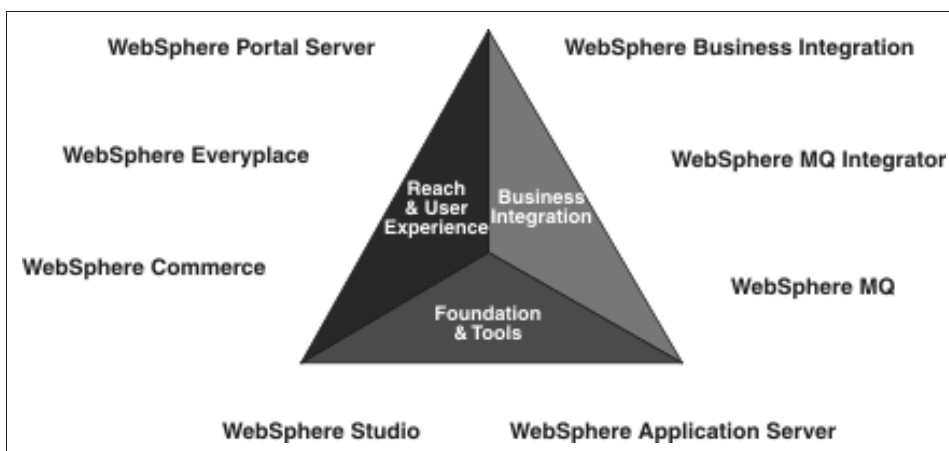


Figure 1-1 IBM WebSphere components.

Foundation and Tools

The “engine” and the “frame” of the WebSphere constitute the WebSphere Application Server (WAS). It is the environment in which you run and manage your Java applications. WAS is a complete, open standard Java 2 Platform, Enterprise Edition (J2EE) 1.4 application server that enables you to perform the following tasks:

1. Integrate easily to other e-business and legacy applications through its support of J2EE Connector Architecture. This gives a consistent way of connecting and communicating to other applications without complex programming.
2. Communicate to other distributed systems using guaranteed and reliable persistent high-performance messaging based on the Java Messaging Service (JMS) and/or Web Services.
3. Deploy and administer applications with ease on a single server. With the optional WebSphere Application Server Network Deployment, you can manage and administer a large number of servers and reduce your administration costs with its automated server management. Installation and administration capabilities are further enhanced through the support of Java Management Extensions, which enables integration with third-party system management products such as Tivoli, Candle, and CA.
4. WAS provides you with performance optimization and reliability by allowing you to control and isolate each application run-time environment. With the WebSphere Application Server Network Deployment option, you get high availability and high transaction support through clustering and caching. Using clustering, it supports load balancing and automatic failover capability. Load balancing can be done at the routers, Web servers, or the application servers. It also provides content-based routing and edge-based caching.
5. Sophisticated and complete security support through
 - a. Secure system resources with the Java 2 security model
 - b. Standardize authentication with Java Authentication and Authorization Services (JAAS)
 - c. Secure communication channels (TLS/SSL) using Java Secure Socket Extension
 - d. Security encryption and message authentication using Java Cryptographic Extension
 - e. Public Key Infrastructure (PKI) integration based on Java Cryptographic Architecture. PKI manages the issuing,

6 Chapter 1

distribution, and authentication of private and public digital keys. Digital keys are used to authenticate an individual or a resource.

- f. Secure interoperability between application servers
 - g. Support for registries based on Lightweight Directory Access Protocol (LDAP)
 - h. Single sign-on support using Trust Association Interceptor or Lightweight Third Party Authentication (LTPA)
6. Deploy applications independent of hardware and software environments. WAS can be deployed on Intel, Sun, HP, and IBM hardware platforms running AIX, Linux, zOS, OS/400, Solaris, HP-UX, and Windows 2000/2003.

To enable rapid deployment of applications on WAS, IBM provides WebSphere Studio: a suite of integrated application development tools based on the ECLIPSE open standard framework. From a single user to a large team environment, developers can rapidly develop, debug, and test their WebSphere Applications and then seamlessly deploy into a WAS environment. The WebSphere Studio integrates with the Rational product line including modeling to code generation, testing, and version control.

The foundation and tools component also includes WebSphere Host Integration family, which enables you to integrate your legacy assets with your e-business.

Business Integration

WebSphere Business Integration is a suite of 24 products that provides end-to-end integration by performing the following tasks:

- 1. Using modeling to design, simulate, and plan business processes
- 2. Providing products that facilitate linking people, processes, applications, system, and data
- 3. Enabling you to connect to your customers and partners
- 4. Allowing you to control and track business processes
- 5. Enabling you to review, analyze, and improve processes and performance

Items 1, 4, and 5 are supported by the WebSphere Business Integration. Item 2 is supported through message brokering and formatting using WebSphere Business Integration Message Broker. IBM WebSphere Business Integration Message Broker transforms and enhances real-time information between applications that use different message structures and formats.

Introducing WebSphere Portal 7

Item 3 is supported by WebSphere MQ. WebSphere MQ allows you to integrate applications using messaging.

WebSphere Business Portals

WebSphere Business Portal suite focuses on the e-business user experience. It consists of WebSphere Commerce, WebSphere Everyplace, WebSphere Voice, and WebSphere Portal.

WebSphere Commerce enables a user to create selling, buying, and channel management solutions for anything from a simple on-line sales channel to a multitier integrated demand chain.

WebSphere Everyplace provides a suite of tools that facilitate the delivery of Web pages and e-business applications to a broad range of mobile devices.

WebSphere Voice supports development and deployment of conversational and voice recognition e-business solutions. It also provides translation services and unified messaging that includes voice mail, e-mail, and faxes.

The last product, but the most important from this book's perspective, is WebSphere Portal, which, according to IBM's Web site (www.ibm.com), provides "a single point of personalized interaction with applications, content, processes, and people." Now we explore this statement and elaborate what it means.

What Is WebSphere Portal?

Previously in this chapter, we discussed what a portal is. WebSphere Portal provides all these capabilities plus the availability and scalability required for large enterprise applications. But to really understand what WebSphere Portal is, you need to look at from the users', programmers', and administrators' perspectives.

The User Experience

WebSphere Portal allows users to create their own virtual desktops that are machine independent. Each user can create his or her own portal pages and customize the content and look and feel of these pages. They can add functionality to their pages through *portlets*, which are portal applications. Portlets are custom made by your sites' programmers, downloaded from the IBM portal catalog, or are available from software vendors. Each portlet has settings that allow users to customize the functionality for their environment. An extensive set of portlets is available from IBM and its partners

8 Chapter 1

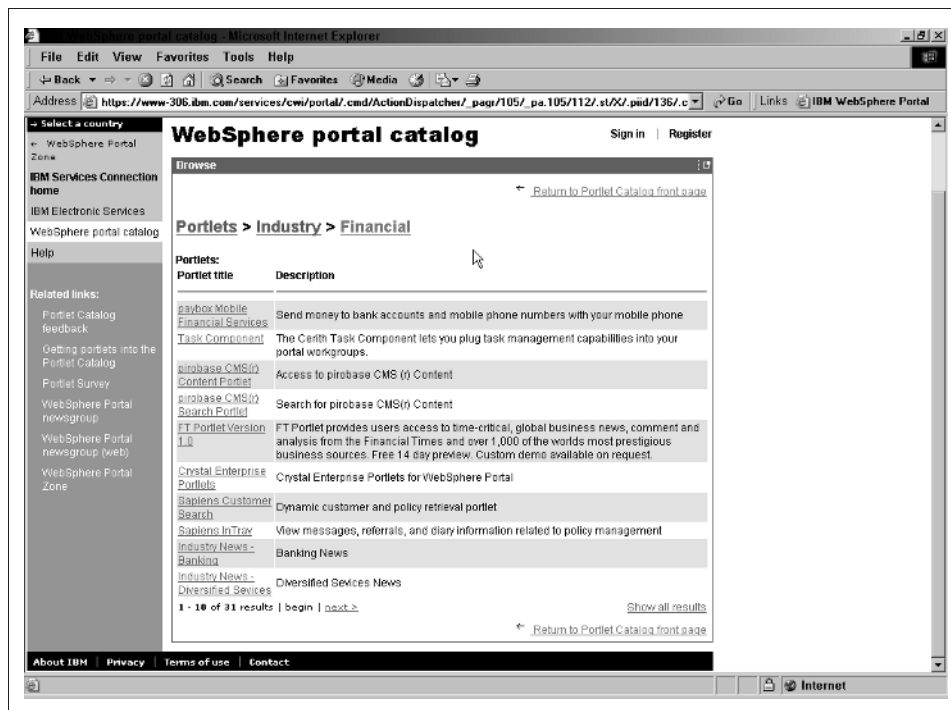


Figure 1-2 Financial portlet section of the WebSphere Portal Catalog.

through the Portal Catalog at www.ibm.com/software/genservers/portal/portlet/catalog.

At last count IBM had 531 portlets in its catalog. Figure 1-2 shows some financial portlets available from the catalog. Portlets can be easily added to a page by clicking on the Edit Layout link at the top page you want to customize.

Users can have as many personalized pages as they want. They are arranged in a hierarchical manner with any level of depth starting from their home page. Based on their permissions, users can choose for each page or set of pages their own themes, skins, and layout. Themes define the fonts, colors, spacing, and other look-and-feel components of the page. They are a combination of cascading style sheets, JSP files, and images. Skins comprise title bars, borders, shadows, etc. that surround the portlets. Each page and the pages associated with its tree can have their own theme and skins, thus creating a virtual portal. Each department that enters into the portal will have its own look and feel.

WP Page Navigation supports complex navigation trees and labels that logically group a set of navigation elements.

WebSphere Portal allows users to view content on multiple devices and in multiple languages, including double byte and bidirectional. It also

Introducing WebSphere Portal 9

generates markup that complies with the American Disability Act Section 508 Web Accessibility Standards and the guidelines of the W3C Web Accessibility Initiative. If the portal needs automatic translation, users can incorporate WebSphere Translation Server.

Content Management

WP provides the user the ability to syndicate content or to get up-to-date personalized and filtered content and services from multiple subscriber sources such as Financial Times, Hoovers, Factiva, and others. These subscribers support the Rich Site Summary (RSS) format, so their news and entertainment content can be displayed, managed, and edited with WP's built-in RSS portlet.

WebSphere Portal also enables the user to manage the creation, approval, and publishing of Web content through the support of Web Content Management products. Integration kits are provided on how to publish RSS content from Web Content Management vendors such as Documentum and Vignette. WebSphere Portal also provides its own sophisticated Web Content Management system called IBM Lotus Workplace Web Content Management (ILWWCM).

ILWWCM (formally known as Aptrix) is an enhanced Web Content Management System that replaced WebSphere Content Publishing. ILWWCM is a separately installed component that you need to get from your IBM representative. In the next version, it should be totally integrated into WebSphere Portal.

ILWWCM is designed for organizations with users that publish content to a Web site, whether it is marketing updating product information or human resources updating information on benefits. Content can be published through templates or forms and consists of images, Word documents, Excel, HTML, and so forth.

Through the ILWWCM administrator, users can contribute content, have it categorized, and deployed in a controlled manner using a workflow model. ILWWCM manages the task list of each user and through the establishment of role security enables what content can be changed, created, or deleted by a user. With the use of the workflow model, it coordinates the review and publishing process.

To address more sophisticated content manager requirements, use IBM Content Manager.

Document Management

WebSphere Portal Document Manager (PDM) provides users the ability to view, add, edit, and delete documents within a common folder hierarchy

10 Chapter 1

that can be user-defined. Documents can be made available immediately or to go through an approval process using a defined workflow model. PDM uses WP's access controls, so users can define who can create, read, update, and/or delete a document based on their roles. Authorizations can be set by folder, which will be inherited to the subfolders. PDM provides a subscription capability that enables users to see in their Update folder, for a specified period, a document when it is changed.

PDM supports multiple different types of documents and provides productivity components that enable users to create and edit rich text, spreadsheets, and presentation documents within their browser.

Search

WebSphere Portal provides the user with a vast range of search capabilities. It is built on a sophisticated search engine that supports free-text queries with query assistance and query word completion. Queries can be performed in any language and can use wildcard, advance query operators, synonyms, stop word lists, and fielded search options. The results of the search can be summarized, clustered, and/or categorized using categories that are predefined (over 2,400 categories) or user-defined. WP can index and then search text and 200 other file formats using built-in document filters over the intranet or Internet. Use of the search capabilities is made through the search portlet, the WP crawler, or the document indexer. Both the crawler and the document indexer have a complete scheduler.

Enhanced search is also provided through IBM Lotus Extended Search and DB2 Information Integrator. Portlets using these technologies can integrate and combine other search engines and indexes. Lotus Extended search also allows seamless searches across a collection of Domino servers, databases, and the Internet where the user perceives that the collection of systems is a single server.

Collaboration

WebSphere Portal provides complete support for collaboration through the Notes, Domino, and Domino Web Access portlets. These portlets provide access to collaboration applications that use Lotus Notes databases on Domino servers such as Mail, Calendar, To Do, Notes View, TeamRoom, and Discussion. Additional portlets are available that integrate Domino.doc, Discovery Server, QuickPlace (Lotus Team Workplaces), and Sametime (Lotus Instant Messaging and Web Conferencing).

WP offers Collaboration Center, which is a framework that integrates People Finder, the Web Conference Center, QuickPlace, and Sametime.

Introducing WebSphere Portal 11

QuickPlace provides workspaces for sharing and organizing ideas while Sametime provides instant messaging, shared white boards, and electronic meeting support.

WebSphere Portal enables integration of Domino, Sametime, QuickPlace, and Discovery Server into your portlet by providing Lotus Collaboration Components that are a suite of APIs and JSP tags.

Personalization

WebSphere Personalization server, which is a component of WebSphere Portal, provides the ability to display specific content to site users based on business rules. A business rule is the representation of a business requirement using a coding language based on English language syntax and semantics. The personalization server works by performing the following tasks:

1. Creating a user profile by collecting user information and classifying it into segments
2. Creating models for the content that defines it by its attributes. For instance, a content model might contain product name, price, and age segment.
3. Matching the user segment to the content on the basis of any combination of filtering, rules, or recommendation engine.

The personalization rules are referenced in the portlets. They are created using Web-based tools. You use the rules to classify site visitors into segments and then match the content to the segment.

Another method provided to match site visitors with content is through the recommendation engine. The recommendation engine uses statistical techniques to identify groups of users with similar interests.

WebSphere Portal also provides implicit profiling services that enable the dynamic creation of personalization business rules based on site visitor data.

WebSphere Portal also provides campaign management tools, which enable a business goal to be reached by defining and executing a set of business rules. For instance, you may have a campaign to increase sales of a particular product. To do this, you define business rules that identify likely customers based on the attributes of site visitors or registered users. Content can be displayed on your Web site or personalized e-mail can be sent. Campaigns have start and stop times; they can be prioritized, and can be run in parallel with other campaigns.

12 Chapter 1

Performance

No matter how sophisticated your portal is, it will not be effective if it does not meet your performance, functional, and personalization requirements. WebSphere Portal creates logs that feed into the IBM Tivoli Web Site Analyzer. The Web Site analyzer will analyze the data and report metric in both graphic and text formats so that you can determine the effectiveness of your Web site and focus on areas to improve it.

The Developer Experience

WebSphere Portal allows the developer to focus on functionality development rather than deal with look-and-feel function. Programmers create portlets that are simple Java applications that are extensions to HTTP servlets. Through portlets, they can access and manipulate Web-based content (such as Web pages, syndicated content feeds) and other Java applications/portlets through messaging and/or Web services and not have to deal with issues relating to look and feel. Figure 1-3 shows the page layout and how portlets fit in.

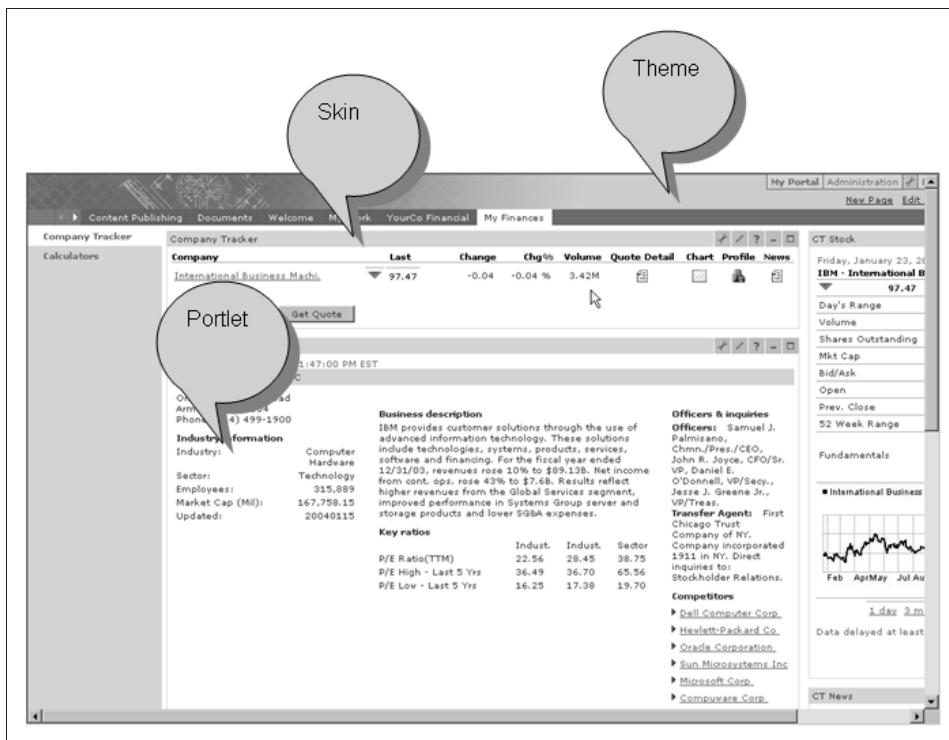


Figure 1-3 The parts of a portal page.

Introducing WebSphere Portal 13

WebSphere Portal also provides a mechanism for portlets to communicate with each other. The developer can send information through a portlet action and a portlet message. For instance, when a portlet displays information on a city, a second portlet can display its weather information by having the city portlet create a portlet action and encode it into the URL that is used for displaying weather. Upon clicking the URL, an action listener is called and then a portlet message is sent to the city portlet for the name of the city.

This method requires an extensive design and coding work. WP provides another method to pass messages independently called cooperative portlets. Cooperative portlets can be “Click-2-Action” or “wired.” Portlets express their desire to interact with a broker who at runtime matches data types between the sources of one portlet with the action of another portlet. If a match occurs with a “Click-2-Action portlet,” a pop-up menu appears on the page that will enable the user to transfer the data to the connected portlet. If the portlet is wired by an administrator, then the data will be exchanged automatically as opposed to having to wait for the user to click the pop-up menu.

WP gives developers the ability to develop portlets very easily using Web Clipping. This feature enables developers to visually or text select portions of a Web page and create a portlet that displays the information and optionally rewrite the links. Clipping portlet can support other sites’ security through the use of WP Credential Vault.

Through the portlet Application Programming Interface (API), WebSphere Portal provides programmers the ability to dynamically discover available services, thus keeping service code independent of the portlet. WP provides discoverable services for managing the portal’s content repository, persistent TCP/IP connections, and the Credential Vault. Other services such as mail can be implemented by the portal developer.

WebSphere Portal provides developers with a rich set of security API. Portal server supports the JAAS architecture. JAAS is a component of the standard Java security model that enables authenticating subjects and fine-grain access control. Developers can use the JAAS API to access JAAS-enabled back-end applications and can also use the credential API to authenticate without seeing the credential secret.

WP provides developers with support for Web Services for Remote Portlets (WSRP) 1.0, a new standard that allows “plug-n-play” of Web Services with Portals. WSRP enables remoting the presentation layer as opposed to regular Web services, which focus on remoting application data. WSRP transmits the actual markup rendered by the remote portlet.

WP provides basic support for JSR 168 1.0 portlets. JSR 168 is a Java Specification Request that defines a common set of portlet capabilities and API. This will allow JSR 168 compliant portlets to run in any vendor’s portlet container that supports the JSR 168 standard.

14 Chapter 1

If developers need to quickly access Enterprise Application Systems such as SAP, PeopleSoft, Siebel, then they can use WebSphere Portal Application Integrator. This tool allows rapid development of portlets through a GUI. The developer chooses fields and operation that he or she wants enabled in the portlet from objects found by the tool through querying the back-end system. Operations include searching, updating, deleting, and creating records. WPAI can also support integration of relational databases and Domino applications.

Developers can easily develop, test, and debug portlets using WebSphere Studio suite in conjunction with the portal toolkit. Wizards are available to you for creating portlets, building the portlet deployment descriptor, packaging it into a WAR file, and then deploying it into your production or test WP server.

The Administrator Experience

WebSphere Portal enables an administrator to have complete dynamic control over user access right for every portal resource including portlets, pages, and user groups. Control is set by using permissions. The permissions are defined by the user role. WP has defined roles (Administrator, Security Administrator, Delegator, Manager, Editor, Privileged User, and User), which the administrator or user associates with the resource. A role has a set of permissions that determine whether he/she can view, update, delete, or create the resource. If a role is assigned to a page, group, or folder, then resources below the parent inherit the permissions unless they are specifically blocked. A user can also delegate his or her role to other users. Administrators can also lock pages and/or page layout, thus restricting the impact component users can have on the company portal.

WebSphere Portal Member Services provides administration services through portlets for creating, updating, and deleting portal users and for managing their access rights. These services are provided at both the user and group levels. Users can be members of one or more groups and groups can be members of other groups. Users also have the ability to register and manage their own account information in the language of their choice (given that support has been implemented). Portal Administrators can define the information about the user that will be collected. User profile information can be supported in an LDAP and/or a database. Extended information about a user profile that is not supported by the default LDAP schema can be stored in a look-aside database.

Users can administer themselves (“self-care”) or a separate administrator can perform the administration. Registration and self-care are done using forms that are easily modified.

Introducing WebSphere Portal 15

WebSphere Portal supports form-based authentication (HTML user prompted form) through WAS or a third-party authentication server such as Tivoli Access Manager or Netegrity Siteminder. Single sign-on is also supported through WAS, and third-party authentication servers are also supported using LTPA tokens. WP also provides a Credential Vault service that allows portlets to store and access securely user IDs and passwords for applications that are accessed on remote systems.

WebSphere Portal gives the administrator the ability to control the portal globally by setting the default language, the cache timeout, handling of new user sessions, taking action when an unauthorized user accesses a portlet, and mapping of URLs.

WP also enables administrators to define new mobile devices and browsers so the portal will know what markup language to use and what the capabilities of the device/browser are.

Of course, WP also provides the standard features that allow users and administrators to easily install, activate, and configure portlets, themes, skins, and pages.

Tools are also provided to ease batch administration, migration, and configuration. Administrators can also enable and control tracing.

WebSphere Portal Architecture

So you now understand what WebSphere Portal does, but you would wonder how it works. WebSphere Portal is basically a suite of J2EE Enterprise Applications running and interacting with each other on the WAS.

In Figure 1-4, you can see the WebSphere Portal Architecture. It consists of three components: the page aggregator, the portlet container and services, and the J2EE engine. It starts with the page aggregator getting an HTTP request from WAS and then performing the following tasks:

1. Determines the device and user information based on the request
2. Collects the pages and portlets requested and then filters them based on the user entitlements
3. The portal dispatches specific Java Server Pages (JSPs), which issue includes for portlet Web modules. These portlet Web modules are invoked as servlets and are then rendered based on their service method (edit vs. view). This process results in the layout of the rows, columns, and graphics of the page.
4. Portlets that perform actions and execute messages such as Click-2-Action are processed first.

16 Chapter 1

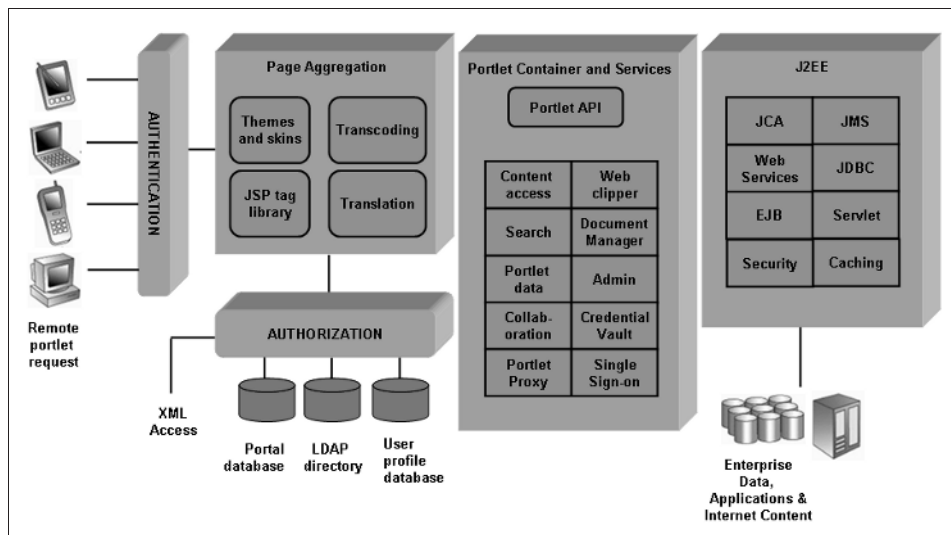


Figure 1-4 The WebSphere Portal Architecture.

5. Portlets that support the target markup are added to the rendering phase.

The second component is the Portlet Container and services. This component controls the portlets and provides services for them to interact with other applications or platforms. Portlets are simple independent HTTP servlets that are reusable and communicate with each other or other resources with well-defined interface. Services, such as Search, collaboration, and Document Manager, extend the functionality of the portlet to support an Enterprise environment.

The standard for the portlet API is JSR 168. JSR 168 is still evolving and as such is still a subset of the functionality of the WP Portlet API. As JSR 168 evolves, the respective WP Portlet API will be deprecated. Presently, both API are very different, have their own containers, and are supported independently.

The last component is the J2EE Engine under which Portal runs. J2EE or Java 2 Platform, Enterprise Edition is an open standard made of components needed to build enterprise applications. J2EE also defines the application and platform model these components run under.

The Java Application Model consists of application components: Java application clients, applets, servlets, JSPs, and Enterprise Java Pages (EJPs). J2EE also defines the Java run-time environment each component runs in. They are called containers and they run on Java 2 Platform, Standard Edition. J2EE also standardizes services which enable applications to integrate with Enterprise Applications. Services comprise JDBC for database

Introducing WebSphere Portal 17

connectivity, JMS for messaging, JavaMail, JAAS for JavaMail, Java API for XML Processing (JAXP), Java IDL, and Java Transaction Architecture for persistent transactions. IBM WebSphere Application Server is fully J2EE certified. Certification is obtained executing successfully the compatibility test suite.

In the WebSphere Portal architecture, you can see that security through authorization and authentication is supported by both the portlet container and services component and the J2EE engine.

WebSphere Portal Packaging

IBM WebSphere Portal V5.0 has two types of packages for the enterprise and two additional packages for small business. Table 1-1 describes the packages for the enterprise. IBM WebSphere Portal Enable for Multiplatforms, version 5.0 is the basic package, while IBM WebSphere Portal Extend for Multiplatforms version 5.0 is the full package.

Table 1-1 Packaging for WebSphere Portal Enable and Extend for Multiplatforms, Version 5.0

COMPONENT	DESCRIPTION	ENABLE	EXT-END
Portal server	J2EE application running in WAS. Provides portal framework consisting of presentation, user management, security, connectivity, and other services. Also includes IBM Cloudscape, version 5.1; a Java-based database.	X	X
WebSphere Application Server Enterprise 5.0 Fix Pack 1	Provides J2EE services for WebSphere Portal. Includes IBM HTTP Server and deployment manager	X	X
IBM Directory Server version 5.1	LDAP Directory Server for storing and retrieving user data required for authentication	X	X
IBM DB2 Universal Database Enterprise Server Edition, version 8.1 with Fix Pack 1	Relational database required to store portal data	X	X

(continued)

18 Chapter 1

Table 1-1 (continued)

COMPONENT	DESCRIPTION	ENABLE	EXT-END
Portal toolkit 5.0	WebSphere Studio plug-in that aids in the development, testing, and debugging of portlets	X	X
WebSphere Studio Site Developer version 5.0 with Fix Pack 1	Integrating development environment for building, debugging, testing, and deploying J2EE applications with HTML pages, servlets, and JSPs	X	X
Web Content Management	Provides complete Web content management system, document management, and personalization server	X	X
IBM Tivoli Web Site Analyzer, version 4.5	Provides information on site availability and performance		X
IBM WebSphere Translation server 5.0	Translates Web pages, e-mail messages, and chat conversations into multiple languages	X	X
IBM Lotus Collaborative Components	A suite of APIs and JSP tags that enables integration of Domino, Sametime, QuickPlace, and Discovery Server into your portlet	X	X
IBM Lotus Collaboration Center	Framework that integrates People Finder, the Web Conference Center, QuickPlace and Sametime		X
IBM Lotus Extended Search version 4.0	Enables searches across distributed structured and unstructured data through a single point of access		X
Sametime	Instant messaging and online awareness		X
QuickPlace	Virtual teamrooms		X

Table 1-2 describes the packages for the small business. IBM WebSphere Portal-Express for Multiplatforms, version 5.0 is the basic package while IBM WebSphere Portal-Express Plus for Multiplatforms version 5.0 has some additional features. IBM WebSphere Portal-Express packages come with a simpler installation and the option for user or processor-based licensing.

Introducing WebSphere Portal 19**Table 1-2** Packaging for WebSphere Portal—Express and Express Plus for Multiplatforms, Version 5.0

COMPONENT	DESCRIPTION	EXPRESS	EXPRESS PLUS
Portal server	J2EE application running in WAS. Provides Portal framework consisting of presentation, user management, security, connectivity, and other services. Also includes IBM Cloudscape, version 5.1; a Java-based database	X	X
WebSphere Application Server-Express 5.0 Fix Pack 1	Provides J2EE services for WebSphere Portal. Includes IBM HTTP Server and deployment manager	X	X
IBM Directory Server Express version 5.1	LDAP Directory Server for storing and retrieving user data required for authentication	X	X
Portal toolkit 5.0	WebSphere studio plug-in that aids in the development, testing, and debugging of portlets.	X	X
WebSphere Studio Site Developer version 5.0 with Fix Pack 1	Integrating development environment for building, debugging, testing, and deploying J2EE applications with HTML pages, servlets, and JSPs	X	X
Web Content Management	Provides complete Web content management system, document management, and personalization server	X	X
IBM Lotus Collaborative Components	A suite of APIs and JSP tags that enables integration of Domino, Sametime, QuickPlace, and Discovery Server into your portlet	X	X
IBM Lotus Collaboration Center	Framework that integrates People Finder, the Web Conference Center, QuickPlace and Sametime.		X
Sametime	Instant messaging and online awareness		X
QuickPlace	Virtual teamrooms		X

WebSphere Portal Platforms

WebSphere Portal V5.0 supports the platforms shown in Table 1-3.

20 Chapter 1

Table 1-3 WebSphere Portal Platforms

PLATFORM	NAME
Hardware	■ IBM-compatible PC with Windows 2000 Server with Service Pack 2 or Service Pack 3, Windows 2000 Advanced Server with Service Pack 2 or Service Pack 3, Red Hat or SuSE operating environment ■ IBM pSeries with AIX, version 5.1 ML3 or version 5.2 operating environment ■ Sun processor with Solaris operating environment, version 8 ■ IBM zSeries or IBM S/390® Parallel Enterprise Server™ capable of running SuSE Linux Enterprise Server, version 7 (31-bit) operating environment
Software	■ AIX V5.1, 5.2, 5.3 ■ RedHat Enterprise Linux AS for Intel ■ RedHat Linux for Intel (x86) 8.0 2.4 ■ RedHat Linux for zSeries 7.2 2.4 ■ Solaris 9 (Fix level: 9 12/2002) ■ Solaris 8 (July 29, 2002 or later) ■ SuSE Linux for Intel (x86) 7.3 2.4 ■ SuSE SLES for Intel (x86) 7 2.4 ■ SuSE SLES for Intel (x86) 8 2.4 ■ SuSE SLES for S/390 8 2.4 ■ SuSE SLES for S/390 7 2.4 ■ Windows 2003 Standard ■ Windows 2003 Enterprise ■ Windows 2000 Advanced Server SP2+ ■ Windows 2000 Server SP2+
Databases	■ IBM Informix, version 9.3 or version 9.4 ■ Cloudscape, version 5.1 with Fix Pack 13 ■ Microsoft SQL Server Enterprise 2000 Service Pack 3 ■ DB2 Universal Database for z/OS and OS/390, version 7.1 ■ DB2 Universal Database Enterprise Server Edition, version 8 with Fix Pack 1 ■ DB2 Universal Database, version 7.2 with Fix Pack 7 and Fix Pack 8

Introducing WebSphere Portal 21

Table 1-3 (continued)

PLATFORM	NAME
	■ Oracle 8i, version 8.1.7 ■ Oracle 9i, version 9.2.0.1
LDAP Servers	■ IBM Directory Server, version 4.1 and version 5.1 ■ Lotus Domino Enterprise Server, version 5.0.12 ■ Lous Domino, Release 6.0 ■ Sun ONE (formerly iPlanet) Directory Server 5.0 ■ Microsoft Active Directory (as included with Windows 2000 Server) ■ Novell eDirectory 8.6
Web Browsers	Windows platform: ■ Internet Explorer 5.5 and 6.0 ■ Opera 6.0, 6.1, and 7.0 Windows, Linux, AIX, Solaris operating environment: ■ Netscape 6.2 or 7.0 ■ Mozilla 1.0.2, 1.2.1, and 1.3

What's New in WebSphere 5.0 (including 5.0.2)

WebSphere Portal version 5.0 offers significant improvements over WebSphere Portal version 4.2.1, among which are the following:

- Installation is now simpler and more reliable.
- Cloudscape, a Java database, is installed automatically. Cloudscape requires no configuration and is maintenance free.
- Configuration utility is provided to easily customize WebSphere Porter to use other databases, LDAP Servers, or Web servers.
- Improved database and LDAP server support
- Basic support for WSRP 1.0
- Basic support for JSR 168
- Web Clipping Portlet has been updated to make clipping portlets simpler to create and perform better.
- Search has been greatly enhanced that enables you to find, index, categorize, summarize, and support more than 200 documents. Search will enable you to define your our own category tree or it will automatically categorize using 2,400 predefined categories.

22 Chapter 1

- Cooperative portlets that enable dynamic portlet interaction on a page
- Portal pages can be arranged in a tree hierarchy. Administration is much easier because the child pages can inherit the parent's permissions.
- Application Portlet builders enable you to rapidly create portlets to access and manipulate data from an enterprise application.
- Improved navigation through Portlet menus. Portlet menus can be created using static XML or dynamically generated.
- Ability to map user-friendly URLs to pages so you don't have to use cryptic portal URLs
- A new document repository and management system called PDM. PDM also provides the ability to author documents such as text, word, spreadsheet, and presentations in the portal.
- The administrative interface has been enhanced with new administrative portlets, improvements in the Navigation, new and improved themes and skins, and context-sensitive links.
- Lotus Collaboration Center has been enhanced with portlets for People Finder, support for QuickPlace in My Lotus Team workplaces, support for Sametime in Lotus Web Conferences, and more.
- The business portlets have been enhanced by adding an Internet Mail Box, single Notes and iNotes portlet, a Newsgroup portlet, and Mylist portlet (simple check-off list).
- XML access, which is the batch processing interface for the portal, has been enhanced in function and documentation.
- Improved handling of error messages by enabling error messages to be localized
- Transcoding can now be used at the portlet level by administrators.
- Portal Toolkit has been updated for version 5 and includes new and improved Wizards.
- Improve performance through WAS cluster support, performance instrumentation, reduced session data, unified caching architecture based on Dynacache, smarter invalidation, and faster login times

Summary

In this chapter we introduced you to portals, which is the WebSphere product family, and more importantly to WebSphere Portal. We gave you

Introducing WebSphere Portal 23

grounding on the WP architecture, its packaging, and supported platforms. We showed some great features introduced in this version. Now that we wetted your appetite by telling you at a high level all the great things about the WebSphere Portal, let's we give you some substance. The rest of the book will show you how to install and use the product for an Enterprise environment. We will start with the first steps so you can install the product in various environments and program a simple portlet. After each chapter we will build upon the topic so that by the time you complete reading the book you will be able to deploy WebSphere Portal in an enterprise environment.

In the next chapter we will introduce step 1 to deploying WebSphere Portal: installing a simple portal.

