



Collaborative Portal Implementation Guide

Version 2.2.1

Windows



Note

Before using this information and the product it supports, read the information in [Appendix. Notices](#).

If you are not an IBM Business Partner, you are only authorized to use these materials for your internal use and for the sole purpose of evaluating products and services from IBM and the IBM Business Partner. You may not make the materials available to any third party.

Fourth Edition (April 2007)

Copyright International Business Machines Corporation 2006, 2007. All rights reserved.

US Government Users Restricted Rights -- Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Preface

How to Use Starting Point Assets

This set of solution enablement materials provides a starting point that helps you develop and deploy a solution for a particular type of customer problem. It provides a framework around which you can build similar solutions that meet your customer's unique needs.

Solution Overview

▶ *Helps you understand solution concepts, business value, and system architecture considerations*



Solution concepts and business value



Solution architecture



Recommended software, hardware, tools

Solution Planning Guide

▶ *Helps you plan your customer engagement*

✓ JSP programming
✓ Networking
✓ SQL

Skills required to implement the solution



Spreadsheet of time estimates to plan services engagement



Task descriptions and best practices

Implementation Guide

▶ *Structured learning opportunity that shows you how to set up an instance of the solution and helps you learn important techniques that you can use to develop and deploy a custom solution*

This Document



Implementation checklist



Instructions, tips, techniques for solution installation



Customization information



Use cases that can be used as part of demo or education



Sample code, data, scripts, configurations to get started quickly

Demo Toolkit

▶ *Provides customizable demonstration assets to help you sell the solution*



Customizable presentation: Solution benefits and overview



Video clips of the solution



How-to document to assist with using and customizing the assets

Comments Welcome

Your comments are important to us. Please send your feedback about this and other IBM Solutions Builder starting points directly to us at sbuilder@us.ibm.com

Legend



Used to identify worksheets, sample code, or other reusable files that are provided with this specific solution.



Used to identify areas where there is more than one implementation option for the solution.



Used to identify tasks or places that require special attention.



Used to identify websites referenced in this solution.



Used to identify IBM Redbooks referenced in this solution.

What's New in Version 2.2.1 of this Solution Starting Point

Version 2.2.1 of *Collaborative Portal* refreshes the IBM WebSphere Portal Express software to the latest version, V6.0. The new release of the Portal Express product package contains the IBM WebSphere Portal Express V6.0 server, which is at the same level as IBM WebSphere Portal Server V6.0.0.1. This product package includes:

- IBM WebSphere Portal Express Server V6.0
- IBM WebSphere Application Server Network Deployment V6.0.2.15
- IBM DB2 Express Edition V9.1.0
- IBM Tivoli Directory Server v6.0
- IBM Lotus Component Designer V6.0
- IBM Lotus Sametime Connect V7.5
- IBM Lotus Domino Server V7.0.1

Installation and use of components of IBM WebSphere Portal Express V6.0 is governed by its license. For details and allowable configuration and restrictions, refer to the IBM License Information Document for Program Number 5724-E77 located at: <http://www-03.ibm.com/software/sla/sladb.nsf/lilookup/C782A24DA04F76130025727300574146?opendocument&listelect=C8DC73AEeb7FBD2B0025727300574107>.

Contributors

Collaborative Portal was produced by members of the IBM Solutions Builder Express Portfolio team with the assistance of the following specialists:

Business Partners

Luiz Otavio Schmitt is a senior Technical Architect and helps design IT solutions for Dedalus Systems, a MainLine partner, and IBM Premier Business Partner. He has 7 years of experience in the hardware and software fields mainly providing Sun Microsystems' solutions for small and medium business. Prior to joining Dedalus Systems, Luiz led efforts associated with telecommunication market solutions at Sun Microsystems. He has a Bachelor of Systems Analysis degree and is working towards a Master's degree in e-Learning.

Via Bulatao is a Technical Consultant with Summa Technologies in Pittsburgh, PA. She specializes in J2EE application development and WebSphere products, focusing on WebSphere Portal. Before Summa,

she was with IBM Global Services in the Philippines for four years. There, she worked in the telecommunications and construction industries, serving as technical support for the Customer Care & Billing System and as a technical analyst for Ariba Buyer. She holds a bachelor's degree in Computer Science from the University of the Philippines, as well as a master's degree in Electronic Commerce from Carnegie Mellon University in Pittsburgh.

Jose Carlos Ramos is a Technical Manager in a premier Spanish Business Partner: Aitana SBS (www.aitanasbs.com). He has a Masters degree in Telecommunication Engineering and a Masters degree in Business Administration. Jose Carlos has worked as a project manager on several projects using the Start Now program. He has also trained technical professionals and executives at the university level. He is currently doing research on the impact of Intranets and knowledge management in SMB companies for his PhD.

IBM Services

Shankara Naraynan is a Senior IT Specialist for ibm.com Information Planning and Operations in Atlanta, Georgia. He has over seven years of extensive experience architecting collaborative solutions using Domino, Java, and Web technologies. He holds a Bachelors Degree in Electronics and Communication Engineering and is a Certified Lotus Professional Administrator and Developer, a Sun Certified Java Programmer, and a Sun Certified Web Components Developer for J2EE and MCSE.

Larissa Schoeffing is an IT Specialist at IBM Germany. She has several years of experience at the WebSphere Innovation Center Stuttgart enabling IBM Business Partners for WebSphere Portal projects. She holds a diploma in Information Technology from the University of Cooperative Education Stuttgart.

Prerequisites

There are no prerequisite Solution Starting Points.

However, this Solution Starting Point assumes that the customer already has e-mail and directory systems in their environment.

Related Solutions

The following additional solutions can be used to enhance this solution:

- *Process Integration* - This Solution Starting Point illustrates how to integrate multiple applications using a sample business process. This sample shows a parts requisition process that can be customized for other business processes. The focus is on the approach with the samples provided so a working prototype can be created quickly. Although parts requisition is the process used in the sample, the samples can be used to develop a solution for other business processes.

Contents

Collaborative Portal Implementation Guide	i
Preface	iii
How to Use Starting Point Assets	iii
Legend	iv
What's New in Version 2.2.1 of this Solution Starting Point	iv
Contributors	iv
Prerequisites	v
Related Solutions	v
Chapter 1. Prepare for Implementation.....	1
Development Environment Architecture	2
Development Tools	3
Required Materials Checklist	5
Preparing the Systems	8
Chapter 2. Install and Configure Essential Solution Software	12
Task Summary	12
Install IBM WebSphere Portal Express	13
Set up the Domino Directory Server.....	17
Install the Notes and Administrator Clients	21
Configure the Domino Domain	23
Install the Sametime Connect Server in the Domino Domain	29
Set up the IBM Lotus Sametime Connect	31
Configure Domino Web Access for Instant Messaging	34
Configure IBM WebSphere Portal Express Server to Use Domino Directory.....	36
Enable Collaborative Components	41
Configure Lotus Collaborative Components.....	44
Chapter 3. Create Demo Users	48
Chapter 4. Using the Solution.....	50
Notes for a Customer Demonstration.....	50
Preparing for the Demonstration	50
Entering the Portal	51
Collaboration Scenario	52
Chapter 5. Customize the Solution	54
Creating New Themes	54
Create New Skins	56
Appendix. Notices.....	58
Trademarks.....	59

Chapter 1. Prepare for Implementation

This section helps you understand and execute steps that should be performed prior to starting the implementation.

Specifically, this solution illustrates how to design and implement a collaborative portal solution. Portals are websites targeted at specific audiences and communities, providing content, collaboration, and services, as well as applications access, for target audiences delivered in a customized manner. The implementation steps described in [Chapter 2. Install and Configure Essential Solution Software](#) on page 12 can be used as a starting point for building your own customized portal, or simply as an illustration for demonstration or learning purposes.

The primary focus of this solution is to install IBM WebSphere Portal Express with collaborative components on the Portal Server. [Chapter 2. Install and Configure Essential Solution Software](#) on page 12 outlines other deployment scenarios including installing a base portal without the collaborative components.

The paths for following variations are identified for you throughout.

Understanding the Implementation

The instructions in this Solution Starting Point explain how to set up the complete solution - that is, no assumptions of existing e-mail servers, Web servers, database servers, etc. are made. If you are installing this solution in your customer's environment, you may not need to install all of these items. This Solution Starting Point explains how to perform the following:

- Installing a base IBM WebSphere Portal Express Server, where the portal server, supporting IBM WebSphere Application Server, and HTTP server are combined on one system.
- Installing the two backend application servers that will be used to demonstrate this solution. These include:
 - A Lotus^(R) Domino^(R) server for e-mail and applications, also to be used as the Lightweight Directory Access Protocol (LDAP) directory server in this example. This Domino server also acts as the master server for the secondary Domino servers in the domain. Even though the Domino product is included in IBM WebSphere Portal Express V6.0, using Domino in the way described here requires an additional license. See [What's New in Version 2.2.1 of this Solution Starting Point](#) on page iv for more information.
 - A Lotus Domino server for IBM Lotus Sametime Connect
- Integrating the portal server with the external LDAP directory to enable the collaborative features.
- Configuring the portal interface, and the installation and configuration of portlets. A portlet is the basic building block of a portal. The term refers to an application that provides access to applications, Web-based content or other services. Portlets usually display their contents in a small window-like box within the portal framework. Similar to a window in a PC desktop, each portlet owns a portion of the browser or personal digital assistant (PDA) screen where it displays results.



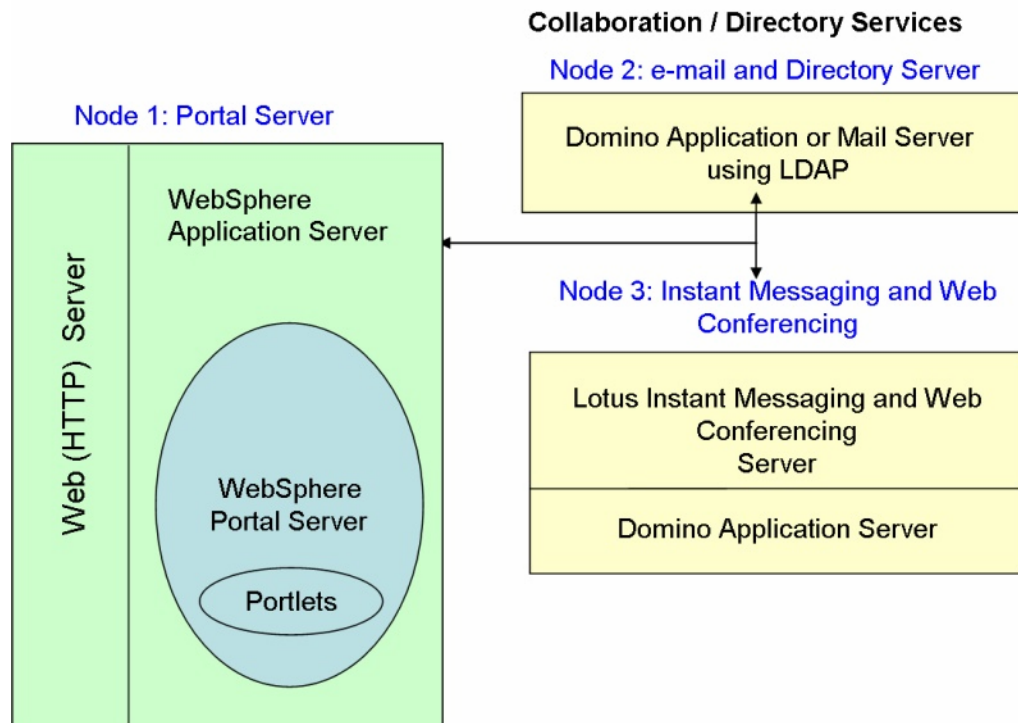
This portal solution does **not** require a database server, but your customer could choose to use one for data storage. IBM DB2 Express Edition is included as part of IBM WebSphere Portal Express V6.0; it is used as the underlying database for the Portal Server and not as a generic relational database.

For more information about integrating Lotus Domino with IBM Lotus Sametime Connect, see the IBM^(R) Redbook *Lotus Domino 6.5.1 and Extended Products Integration Guide*, SG24-6357-00. Redbooks^(TM) are available at:

Development Environment Architecture

The following diagram depicts the systems and applications that are described in this Solution Starting Point.

Figure 1. Development Environment Architecture



Server Naming Conventions

In this Solution Starting Point, servers are referred to by product name, function, DNS host name and Domino domain name, depending on context. In order to avoid confusion and maintain consistency, use [Table 1](#) below to map the nodes (machines) defined above to the following names.

Machine and Server Name	DNS Host Name	Domino Server Name
Portal Server	<code>portal.mynetwork.com</code>	n/a
Directory Server	<code>directory.mynetwork.com</code>	<code>directory/mycompany</code>
Sametime Connect Server	<code>sametime.mynetwork.com</code>	<code>sametime/mycompany</code>

The DNS and Domino domains are samples only. You need to use host names and DNS domain determined by your TCP/IP network. You may choose any Domino domain name you wish when you install the first Domino Server. The Domino Server name consists of the server hostname and the Domino domain name. For example, if your Directory Server is called `svrp01.ca.acme.com` and your Domino domain is `acmedomain`, then the Domino host name would be `svrp01/acmedomain`.

Development Tools

It is recommended to use the IBM Lotus Component Designer V6 (formerly IBM Workplace Designer) or IBM WebSphere Portlet Factory for developing portlets to use with IBM WebSphere Portal Express V6.0. IBM Lotus Component Designer V6 ships with IBM WebSphere Portal Express V6.0 and is an innovative, easy-to-use, standards-based development tool that script developers, Microsoft Visual Basic developers, IBM Lotus Domino application designers, and others can use to create components for IBM WebSphere Portal Express V6.0. Supporting a service-oriented architecture (SOA), Lotus Component Designer is ideal for composite application development and for extending existing applications with collaborative components.

IBM Lotus Component Designer V6 is a software development tool that helps a broad set of developers in small to medium businesses to quickly develop line-of-business applications for IBM WebSphere Portal Express V6.0 without writing code. It is built on the Eclipse 3.2 platform, developers can build applications, integrate new technology and support Web 2.0 concepts more quickly and effectively.

It can be used to:

- Quickly build applications such as expense reports, project management, document approvals or change requests, or collaboration tools such as blogs and discussion boards. An easy-to-use, familiar software development tool for IBM Lotus Domino and Microsoft Visual Basic developers.
- More easily bring together people, applications and business processes to support specific job functions through Composite Application development.
- Quickly create situational applications that serve short-term business needs, or extend existing applications with collaborative components

Lotus Component Designer includes the following features:

- Intuitive design paradigm: A form designer to create the presentation layer of the component. Forms allow entry, display, and processing of information through fields, views, buttons, and other user interface controls.
- Full programming support: Events to support programming capabilities that include button onClick, field onChange, form onSubmit, and other events to support the event-driven programming model.
- Powerful script capabilities: Scripting with JavaScript and JavaScript interfaces to built-in functions. Script editor with syntax coloring and code assist features to speed development. There is also a complete API available that makes it easy to access documents.
- Productivity enhancers: Pre-built actions that can be added to a form for performing specific commands.
- Visual tools palette: Widget palette that allows the developer to drag and drop controls onto the form.
- Quick to get up and running: Easy deployment options are available for component testing and production scenarios.

For more information on Lotus Component Designer V6, visit:

 <http://www.ibm.com/developerworks/workplace/products/designer/>

IBM WebSphere Portlet Factory (separately licensed) features two components:

- IBM WebSphere Portlet Factory Designer (The "Designer" component is an Eclipse-based development tool.)
- CPU-based and licensed WebSphere Portlet Factory (the runtime)

It complements WebSphere Portal with tools and technology to rapidly create, customize, maintain, and deploy portlets. WebSphere Portlet Factory's ease of use and advanced development features dramatically streamline the entire portlet development process. This acts to speed WebSphere Portal deployments and increase ROI. The Portlet Factory runtime component is included with IBM WebSphere Portal Express V6.0; therefore, portlets created with Portal Factory Designer can be deployed without requiring an additional license. IBM PartnerWorld members may have access to WebSphere Portlet Factory Designer free of charge. Logon to IBM PartnerWorld (<http://www.ibm.com/partnerworld>) for more information.

Some benefits are:

- Speeds IBM WebSphere Portal deployments by automating portlet development for faster time-to-value
- Enables developers of any skill level to construct, change, deploy, and maintain custom portlets
- Creates a SOA entry point for companies by delivering SOA-based portal applications
- Provides pre-built integrations for existing applications such as Lotus Notes and Domino, SAP, PeopleSoft, Siebel, Databases, and Web Services
- Acts as a foundation for IBM Lotus ActiveInsight

IBM WebSphere Portlet Factory includes the following features:

- Builders provide reusable components in the IBM WebSphere Portlet Factory Designer that developers employ to automate and speed portlet development and deployment
- Dynamic Profiling enables on demand delivery of portlet variations without writing additional custom code


For more information on WebSphere Portlet Factory, visit:

 <http://www.ibm.com/software/genservers/portletfactory/>

Important Note Regarding Terms and Conditions of IBM WebSphere Portal Express V6.0 License

IBM WebSphere Portal Express V6.0 is available in two licensing options: Authorized User License Option and Processor Value Unit License Option. Each Authorized User License Option entitles the customer to install a single copy of IBM WebSphere Portal Express for use by twenty (20) authorized portal users. The customer must acquire a sufficient number of User License Option licenses to provide an entitlement for use for each Portal authorized user who accesses IBM WebSphere Portal Express. For example, if you wish to provide fifty (50) individuals with access to IBM WebSphere Portal Express, you must acquire three (3) User License Option licenses which provide portal use for up to sixty (60) individuals. You may not install copies of the program representing more than 50 Authorized User License Options on one server. This means there cannot be more than 1000 authorized users on one server. The Processor License Option entitles you to install and use one (1) copy of the program on one (1) server. You must acquire a Processor License for all the processor cores on a server on which you have installed a copy of the program.

The IBM WebSphere Portal Express V6.0 program is licensed as a multi-package and includes other products distributed with the Program. You are authorized to install and use such other IBM Programs only in association with Your licensed use of the Program. Consult the License Information Document for IBM WebSphere Portal Express for additional restrictions and the official terms and conditions of the license. It can be found at:

 <http://www.ibm.com/software/sla>, then searching on program/part number 5724-E77.

Required Materials Checklist

The following is a list of the items you need to gather to complete the task of installing and configuring the solution:


Table 2. Required Materials Checklist		
Category	✓	Item
Hardware		
		Server machines: <ul style="list-style-type: none"> • Portal Server • Domino Mail and Directory Server • Sametime Connect Server Note: For more information about these servers, refer to the <i>Solution Architecture</i> section of the <i>Overview Guide</i> .
		Development client machine (optional)
Software		
		Operating system software (see the <i>Product Recommendations</i> section of the <i>Overview Guide</i>)
		IBM WebSphere Portal Express V6.0
		Adobe Acrobat Reader, to view online publications (www.adobe.com)
		An application to unzip files (for example, WinZip located at www.winzip.com) that provides the facility to unzip a .war file
Other		
		Product-related documentation that you need to refer to during installation and configuration includes the following: <ul style="list-style-type: none"> • IBM WebSphere Portal Express Information Center for V6.05.0.2, Release Notes, Hardware and Software Requirements and Installation Readmes for V6.0 (available from http://www.software.ibm.com/wsdd/zones/portal/proddoc.html)
		All required licenses for the products you are installing
		All required IP addresses

Download IBM WebSphere Portal Express Software

Space Requirements

- 3.1 GB of disk space is needed to store the full set of required downloadable parts, plus 1 GB of disk space to unpack the images
- 4 GB of disk space is needed to install the product and 1.5 GB (minimum) of disk space in the `tmp` directory to run the installation program

To download the files from the PartnerWorld for Software site, you can perform the following steps to get the required software.:

1. Log into  <http://www.ibm.com/partnerworld> with your user name and password.
2. Navigate to the Software Download site and accept the license agreement.
3. Use the **Find by Search Text** options to find IBM WebSphere Portal Express V6.0.

4. Download the following required files, and the applicable optional files:

<i>Table 3. Required files for IBM WebSphere Portal Express</i>	
Product Name and description	Filename
IBM WebSphere Portal Express V6.0 Quick Start Guide	C97Q2ML
IBM WebSphere Portal Express Quick Start and Server Install, V6.0 (W, IL, I - Setup)	C97Q3ML
IBM WebSphere Application Server Network Deployment for Windows, V6.0.2.15 (W-1)	C97Q4ML
IBM DB2 UDB, Express Edition for Windows, V9.1.0 (W-2)	C97Q5ML
IBM WebSphere Portal Express (Disc 1 of 2), V6.0 (W-3, IL-3, I-3)	C97Q6ML
IBM WebSphere Portal Express (Disc 2 of 2), V6.0 (W-4, IL-4, I-4)	C97Q7ML
IBM WebSphere Portal Express (Disc 2 of 2), V6.0 (W-4, IL-4, I-4)	C97Q7ML
IBM WebSphere Portal Express, V6.0 (W-5, IL-5, I-5)	C97Q8ML
IBM Lotus Sametime 7.5 Windows Server Multilingual	C90MQML
IBM Lotus Sametime 7.5 Server Cumulative Fix Pack 1 for Windows Multilingual	C96M1ML
IBM Lotus Domino Server 7.0.1 for Windows 2000, 2003 English	C88R6NA
IBM Lotus Notes, Designer, Admin Clients 7.0.1 for Windows 2000 and XP Professional English Note: The Admin Client is required. If you require a language other than English, see Table 4 below.	C88RDNA

You may also need the following optional files (several languages listed below):

<i>Table 4. Optional files</i>	
Product Name and description	Filename
IBM Lotus Component Designer V6.0 for Windows Multilingual Quick Start Guide	C96YUML
IBM Lotus Component Designer V6.0 Runtime for Windows Multilingual	C97N5ML
IBM Lotus Component Designer V6.0 Tool for Windows Multilingual	C97N6ML
WebSphere Portal V6.0 and Workplace Web Content Management V6.0 - IBM Tivoli Directory Server for Windows Multilingual	C93LXML
WebSphere Portal V6.0 and Workplace Web Content Management V6.0 - IBM Tivoli Directory Server Fixpack for Windows Multilingual	C93LYML
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Brazilian Portuguese	C8990BP
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS German	C8990DE


Table 4. Optional files

Product Name and description	Filename
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Spanish	C8990ES
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS French	C8990FR
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Italian	C8990IT
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Danish	C89UVDA
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Finnish	C89UVFI
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Dutch	C89UVNL
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Norwegian	C89UVNO
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Swedish	C89UVSV
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Czech	C89V6CS
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Greek	C89V6EL
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Hungarian	C89V6HU
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Polish	C89V6PL
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Portuguese	C89V6PT
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Russian	C89V6RU
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Turkish	C89V6TR
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Japanese	C90TJJA
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Korean	C8990KO
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Simplified Chinese	C8990SC
IBM Lotus Domino 7.0.1 Language Pack for Windows 2000/2003 and i5/OS Traditional Chinese	C8990TC

For details on choosing and setting up the installation source, review the information in the product Information Center here:

 http://publib.boulder.ibm.com/infocenter/wpdoc/v6r0/topic/com.ibm.wp.exp.doc/wpf/inst_source.html

For additional information on the installation process, review the information on the product Information Center here:

 http://publib.boulder.ibm.com/infocenter/wpdoc/v6r0/topic/com.ibm.wp.exp.doc/wpf/inst_exp_prod.html



If you choose to install a non-collaborative portal without the instant messaging or other IBM Lotus Domino based products, you may choose to use IBM WebSphere Portal Express by itself. The solution example and solution use cases provided in this Solution Starting Point and additional Industry Supplements require a collaborative portal and do not work in a portal-only environment.

Software Topology

IBM WebSphere Portal Express installs and runs as an application server on the WebSphere Application Server platform. For each installation of portal, an installation of IBM WebSphere Application Server is required, and both the portal and WebSphere Application Server installations must reside on the same machine. Installing multiple portals on a single WebSphere Application Server profile is not supported. Hypertext Transfer Protocol (HTTP) is used as the transport protocol for portal requests. By default, IBM WebSphere Portal Express uses the internal HTTP transport within WebSphere Application Server to handle these requests. You can optionally configure an external Web server, such as IBM HTTP Server, to work with IBM WebSphere Portal Express.

Because portal administration and configuration are dependent on IBM WebSphere Application Server, you might have to use the administrative tools that are provided with IBM WebSphere Application Server to monitor or control activities that are related to the portal. Additionally, if you configure an external Web server for use with the portal, you might need to use the Web server interface to administer portal-related activities. A database subsystem is required for IBM WebSphere Portal Express. DB2 is the default database provided with the product to store information about configuration, access control, user identities, credentials, and permissions for accessing portal resources and user data.

Additionally, IBM WebSphere Portal Express and IBM WebSphere Application Server require access to a user registry. The following list provides different sources that the portal can use to access a user registry:

- Lightweight Directory Access Protocol (LDAP) directory, such as IBM Tivoli Directory Server or Domino Directory
- Database user registry
- Customer supplied custom user registry

IBM WebSphere Portal Express uses a database as the default user registry for authentication. You can configure IBM WebSphere Portal Express to use an LDAP directory to store user information and to authenticate users.

Portlets are key to the portal experience, and IBM WebSphere Portal Express has built-in portlets that interface with tooling that extends portal functionality. The Lotus Domino and Extended Products servers - IBM Lotus Domino and IBM Lotus Sametime Connect - are used with IBM WebSphere Portal Express to support collaborative features in the provided Domino and Extended Products Portlets (formerly Lotus Collaboration Center portlets). Portlets are also provided to integrate with extended search capabilities.

For each installation of IBM Lotus Sametime Connect or Lotus Domino Document Manager, an underlying installation of Lotus Domino is required on the same machine.

Preparing the Systems

Preparing the systems for this Solution Starting Point involves:

- Installing and configuring the operating system
- Establishing system IDs

Server Information Worksheet



Install the operating systems on all the required servers. Use the following table to record your values. A separate spreadsheet of this table is packaged with this Solution Starting Point.

Table 5. Server Information Worksheet

System Parameter	Portal Server	Directory Server	Sametime Connect Server
Administrator-level ID 1	<your choice>	<your choice>	<your choice>
Administrator-level ID password	<your choice>	<your choice>	<your choice>
Hardware Model			
Hardware Serial Number			
Contact name and organization of the owner of this server			
Microsoft network computer name			
Microsoft windows workgroup/domain name			
Primary & secondary DNS			
TCP/IP Address			
Numerical IP address of the default gateway / router for this machine			
TCP/IP fully Qualified Host Name			
TCP/IP sub-net mask of the network of which this server is a member			

Note:

- System user with administrative rights, usually other than "Administrator" and commonly referred to as a "superuser". Often configured with special user rights for the purpose of executing specific server tasks.

Installing the Operating System

This section describes the components that should be configured before you begin the solution installation and the key installation parameters for the server. The detailed installation steps are not described here, but you can follow the configuration information below as a guide during installation.



IMPORTANT: The portal collaborative functions only work properly if the time differentials (date, time and time zone) between the IBM Lotus Sametime Connect system are within the session timeout value specified in the Directory Server (the Domino LDAP server). For testing or demonstration

purposes, you may want to set all servers to the same time zone, and the same time and date. You need to adjust the session timeout value for the Domino directory server to accommodate requirements from your customer.

A Domino directory is a collection of user and resource information, such as user names, user IDs, passwords, server names and information used by software programs for lookup and authentication. Each domain has a Domino Directory that is the control and administration center for the Domino Servers in the domain. Also called the Public Address Book (**names.nsf**), the Domino Directory contains both a Server document for each server and a Person document for each user. Additionally, you can create Group documents to establish relationships among servers and users for mailing and security purposes, and create Connection documents to schedule replication and mail routing among servers.

For additional details on how to set up the server on which you install IBM WebSphere Portal Express Server, refer to the *Preparing your Operating System* section of the IBM WebSphere^(R) Portal - Express Information Center and follow the documentation provided under the respective operating system header (Windows^(R) or Linux^(R)). In the Information Center, from the left frame select **Installing -> WebSphere Portal -> Preparing your operating system** to navigate to this section.

If you want to establish a portal on a platform that is not described in this Solution Starting Point, refer to the Information Center for details.

Windows Installation Parameters

When you install Windows, you should follow these recommendations:

<i>Table 6. Windows Installation Parameters</i>		
Item	Portal Server Configuration Values	Domino Server Configuration Values
Server type	Standalone	Standalone
File system	NTFS	NTFS
Protocols	TCP/IP	TCP/IP
SMTP mail	Do not install	Do not install
Network configuration	Static IP address Fully qualified hostname	Static IP address Fully-qualified hostname
Web browser	Microsoft Internet Explorer 6.0 with Service Pack 1	

Note:

Ensure that the first eight characters of all computer names and database names are unique on the network. Ensure the user IDs are unique in each domain.

Create User IDs

The following operating system User IDs need to be created.

<i>Table 7. User IDs</i>		
Parameter	Suggested Value	Your Value
Portal Express Server Administrator	ID: wpsadmin	

Portal Express Server Administrator ID

To install IBM WebSphere Portal Express, you must log on to Windows with a locally defined user ID that has administrative access to the system. In this solution, the user ID **wpsadmin** is used for this purpose.

1. On the system that will be used as the portal server, create a Windows user ID and make this user a member of the Administrators group to provide it with administrative rights.
2. Assign the following user rights to the user account:
 - Act as part of the operating system
 - Log on as a service

User rights are maintained with the Local Security Policy tool. To view or modify the user rights:

1. Navigate through the **Start** menu to the **Administrator tools** menu, and then to the local security policy option.
2. Double-click on the local policies and then double-click the user rights assignment.
3. Double-click on the user right you are interested in. The **Local Security Policy Setting** window for the user right is displayed, listing the users who have been granted the user right.

During the Portal installation, you can select to run IBM WebSphere Application Server and IBM HTTP Server as services, and then you must provide the system logon user ID and password. This user ID must have the rights noted above.

Note the following if you intend to run IBM WebSphere Application Server and IBM HTTP Server as services:

- The user ID you provide must already exist prior to the portal installation.
- If the user ID does not have the required privileges, then a reboot is required during the installation to update the ID with the required privileges.
- Because a single user ID and password is used, the portal installation does not allow you to create separate user accounts for these services.

Chapter 2. Install and Configure Essential Solution Software

This section describes how to install and configure the products required to implement this solution.

Task Summary



Perform the tasks as listed in the table below in the order listed and on the machine identified. A separate spreadsheet of this table is packaged with this Solution Starting Point for your use. To ensure each task is completed, you may want to print out this table and use it as a checklist.

Table 8. Task Checklist

Machine Name	✓	Task
Portal Server		Install IBM WebSphere Portal Express on page 13
Directory Server		Set up the Domino Directory Server on page 17
Sametime Connect Server		Install the Notes and Administrator Clients on page 21
Directory Server		Configure the Domino Domain on page 23
Sametime Connect Server		Install the Sametime Connect Server in the Domino Domain on page 29
		Set up the IBM Lotus Sametime Connect on page 31
Directory Server		Configure Domino Web Access for Instant Messaging on page 34
Directory Server Portal Server		Configure IBM WebSphere Portal Express Server to Use Domino Directory on page 36
Portal Server		Enable Collaborative Components on page 41
		Configure Lotus Collaborative Components on page 44

If you are interested in installing just IBM WebSphere Portal Express without the collaborative functions of portal, the install procedure can be simplified to the below tasks.

Table 9. Task Checklist

Machine Name	✓	Task
Portal Server		Install IBM WebSphere Portal Express on page 13

The solution example and solution use cases provided in this Solution Starting Point require a collaborative portal and do not work in a portal-only environment.

The next topics provide details about the activities you will need to perform to implement the solution. It is recommended that you look ahead at the installation and configuration tasks to identify any information you may need to ask the customer prior to starting the implementation.

Install IBM WebSphere Portal Express



Perform this task on the Portal Server.

This section is a guide for the installation of IBM WebSphere Portal Express. Detailed installation steps are located in the Information Center provided on the setup CD. IBM WebSphere Portal Express is installed on the Portal Server.

For more information, see the main product website at:

 <http://www.ibm.com/software/genservers/portalexpress>

Information Center Prerequisites

The Information Center requires a browser that supports the following:

- HTML 4
- Cascading style sheets
- JavaScript^(TM)
- Java^(TM) applets

Examples of such browsers are Microsoft^(R) Internet Explorer 6 or higher.

It is recommended that JavaScript be enabled in the browser. If you use a different or earlier version of a browser, your pages may format differently and some functions may not work correctly. Also, the Information Center uses Java applets for search and the collapsible table of contents. Not all browsers support these applets. Therefore, there is an alternate HTML-based table of contents that you can use if you have trouble with the Java-based table of contents.

Some browsers that do not provide a Java Virtual Machine (JVM) by default may require that you install a JVM to use any Java based code such as JavaScript or Java applets. Refer to support for your browser for more information.

Before You Begin

Prerequisites

The following prerequisites must be satisfied prior to installing the Portal Server:

- Install the appropriate operating system.
See the section **Installing -> Supported hardware and software -> Software requirements -> Required on the portal machine: a supported operating system** in the WebSphere Portal Information Center (available on the IBM WebSphere Portal Express setup CD) to see which operating systems are supported.
- The WebSphere Portal Information Center also provides a set of tasks that must be performed to ensure that your machine is ready for installation. To see this list, navigate to **Installing -> WebSphere Portal -> Preparing your operating system -> Linux/Windows**.

Special Considerations

Consider the following before installing IBM WebSphere Portal Express:

- View the section of the Information Center under **Planning for Deployment -> Supported hardware and software for WebSphere Portal Express v6.0**, for details on which operating systems and fix pack levels are supported.

- IBM WebSphere Portal Express requires IBM WebSphere Application Server in order to function. In this Solution Starting Point, it is assumed that IBM WebSphere Application Server is not already present in the network, and therefore it is installed with the portal software.

For more information, in the Information Center for IBM WebSphere Portal Express, navigate to **Installing** -> **Installing on Windows and Linux** and read the sections on the various installation choices for the IBM WebSphere Application Server for more special considerations.

Installation Options



Both a silent installation and a manual installation are documented here; you can choose which type of installation you want to follow. A silent installation is when a product is installed using a response file. The response file is a text file that can be customized with setup and configuration data that will automate the software installations. The setup and configuration data normally have to be entered during a manual installation, but with a response file, the installation can proceed without any intervention.

IBM WebSphere Portal Express supports a silent installation procedure. If you would prefer the manual installation, proceed to [Manual Installation](#) below. If you would like to perform a silent installation, proceed to the [Silent Installation](#) on page 15.

Manual Installation

In this section you are installing IBM WebSphere Portal Express with a new instance of IBM WebSphere Application Server. This installation also includes IBM HTTP Server and uses the graphical installation program. For more information, detailed installation steps are located in the documentation that is provided with the IBM WebSphere Portal Express product.

1. Log on with an administrative ID such as the IBM WebSphere Application Server Administrator.
2. Insert the IBM WebSphere Portal Express setup CD into the CD drive, or open the root directory of the downloaded CD image. The installation program should start automatically. If it does not, then from the root directory of the CD, run the `setup.exe` file from a Windows command prompt.
3. The Welcome window opens.

For additional information, visit the IBM WebSphere Portal Express website. Select **Quick Start** from the left navigation pane and then select **IBM WebSphere Portal Express product information** on the right pane to open the **WebSphere Portal and Workplace Web Content Management** web page. From the **Use and Maintain** tab, select **Product documentation** and from under the **Version 6.0** tab, Information Center section, select **view** to launch the product Information Center.

Use the Information Center instructions for reference as necessary during the installation procedure.

4. Select **Install** and then **Start Installation** to launch the installation wizard for Windows.
5. Select the language.
6. On the **WebSphere Portal Express Version 6.0 Installation** window, read and accept the license agreement.
7. Use [Table 10](#) below as you proceed through the installation to input data during the process.



If desired, use this table to record information you provide during the installation for later reference. A separate spreadsheet of this table is packaged with this Solution Starting Point.

<i>Table 10. IBM WebSphere Portal Express Installation Parameters</i>		
System Parameter	Suggested Value	Your Value

Setup type	Typical	
Installation Directory ¹	C:\IBM\PE	
<ul style="list-style-type: none"> Run WebSphere Application Server as a service System Logon User ID Password 	Values: <ul style="list-style-type: none"> Selected wpsadmin N/A 	
Node Name (of Portal Server machine)	<portal>	
Host Name (fully-qualified hostname of Portal Server machine)	<portal.mynetwork.com>	
Properties for this instance of the WebSphere Application Server: ² Cell name Node name Host name		
Portal Express Server Administrator ID	<wpsadmin>	
Portal Express Server Administrator Password	N/A	

Note:

1. The IBM WebSphere Portal Express code is installed in a subfolder, **PortalServer**, under this directory. This **PortalServer** folder (for example, C:\IBM\PE\PortalServer) is referred to as the <wp_root> directory in this Solution Starting Point. The WebSphere profile code is installed to the C:\IBM\WebSphere\profiles\wp_profile directory; this directory is referred to as <was_profile_root> in this Solution Starting Point.

2. These values are derived from the hostname of this server established during the operating system installation.

- When the installation completes, an "Installation was successful" message appears. Check the option to launch **First Steps** and click **Finish**. Do not launch the **Advanced Configuration Wizard** at this time. You will use it to configure Lotus Domino as LDAP later in [Configure IBM WebSphere Portal Express Server to Use Domino Directory](#) on page 36.

Note:

A DB2 administrator ID **wpdb2ins** is created during the installation process for accessing DB2. This DB2 administrator ID uses the same password that you have specified for the IBM WebSphere Portal Express and WebSphere Application Server administrator ID.

Proceed to [Verification Procedure](#) on page 17 to continue.

Silent Installation

This section describes the silent installation procedure and how to edit certain values to meet your customer's unique requirements.

Preparing the Silent Installation

Copy the files on the WebSphere Portal CDs to the local hard drive, or a network share. Use a directory structure similar to `c:\cdimg\w-setup`, `c:\cdimg\w-1`, etc.

Copy the `installresponse.txt` file to a temporary location such as `c:\temp`, and then using a text editor, modify the following key values.

[Table 11](#) below identifies the installation value and options chosen for this response file.

Key Parameters



This table contains some of the values used in the silent installation response file that you can change to meet your customer requirements. If desired, you can also use this table to record the values you changed. A separate spreadsheet of this table is packaged with this Solution Starting Point.

Response File Attribute	Suggested Value	Your Value
licenseAccepted	true	
express.location	C:\IBM\PE	
portal.location	C:\IBM\PE\PortalServer	
db2express.location	C:\IBM\PE\db2	
was.location	C:\IBM\PE\AppServer	
nodeCellHost.cellName	PEV6H	
nodeCellHost.nodeName	PEV6H	
nodeCellHost.hostName	<portal.mynetwork.com>	
wasAdmin.user ¹	wpsadmin	
wasAdmin.password		
portalAdmin.user	wpsadmin	
portalAdmin.password		
db2Admin.user	wpdb2ins	
db2Admin.password		
wasService.was	true	
wasService.wps	true	
cdSetup.cdPath	c:\cdimg\w-setup	
userInputCDLocWas.cdPath	c:\cdimg\w-1	
userInputCDLocDb2.cdPath	c:\cdimg\w-2	
archiveMediaPanel1.cdPath	c:\cdimg\w-3	
archiveMediaPanel2.cdPath	c:\cdimg\w-4	
userInputCDLocProfile.cdPath	c:\cdimg\w-5	

Note:


1. This user should have logon as a service, act as part of the operating system, and belong to the Administrators group. It was created in [Create User IDs](#) on page 10.

Starting the Silent Installation

Execute the following command to perform the installation silently using the response file:

```
c:\w-Setup\cdSetup\install.bat-options c:\temp\installresponse.txt
```

Verification Procedure

After you have completed installing IBM WebSphere Portal Express, verify that the installation was successful by logging in to the portal using the  Portal Express Server Administrator (`wpsadmin`) and password. Launch IBM WebSphere Portal Express by selecting **Launch WebSphere Portal Express** from the IBM WebSphere Portal Express version 6 launch window.

To launch IBM WebSphere Portal Express again in the future, select **Start -> Programs -> IBM WebSphere -> Portal**.

Troubleshooting

Open the Information Center for IBM WebSphere Portal Express and navigate to **Troubleshooting -> Search the product documentation for a solution -> Troubleshooting WebSphere Portal Express Installation** and review the detailed list of solutions to installation problems.

Starting and Stopping the Portal Server

Even though the default installation procedure installs the IBM WebSphere Portal Express Server as a Windows service, the service is set to be started manually (it is recommended that you keep this setting). Starting and stopping the portal server can be done either from the Windows **Start** menu or by command line.

- From the **Start** menu: **Start -> Programs -> IBM WebSphere -> Portal Server v5.0 -> Start the Server** (and **Stop the Server**)
- By command line, open a command window to `<WAS_root>\bin` (where `<WAS_root>` is `c:\ibm\pe\websphere`) and issue the `startServer` or `stopServer` command. See the following example:

```
startServer WebSphere_Portal
```

or

```
stopServer WebSphere_Portal
```

In addition to the `websphere_Portal` server, the IBM WebSphere Application Server named `server1` must be running to perform certain configuration tasks, as you see below. Immediately following successful WebSphere Portal installation (and before rebooting the server), both servers should be running. You can verify this by using the `serverStatus` command with the `-all` option. The command (in the `<WAS_root>/bin` directory) displays all the defined application servers and their current status.

Set up the Domino Directory Server

This task needs to be performed on the following systems:



Directory Server



Sametime Connect Server

This section describes how to set up the IBM Lotus Domino Server for Directory and Web mail services.

Before You Begin



IMPORTANT: It is critical that all servers are set up for the same time and date in order for single-sign on to work.

IBM Lotus Domino Server installation must be completed as a prerequisite for setting up Web mail, Domino applications, the LDAP directory services, instant messaging, and e-meetings. IBM Lotus Domino Server is installed on two machines in this solution implementation:

- Directory Server (**directory**)
- Sametime Connect Server (**sametime**)

Note:

To facilitate later integration with IBM WebSphere Portal Express Server through the Collaborative Component portlets, these instructions are written with suggested values for use with WebSphere. However, the resulting installations work without being integrated into WebSphere.

Prerequisites

The following prerequisites must be satisfied prior to installing the IBM Lotus Domino Server:

<i>Table 12. Prerequisites</i>	
✓	Prerequisite
	Obtain an IP address for the server
	Obtain a fully-qualified DNS name
	Obtain the installation code
	Understand hardware requirements
	Understand software requirements

Installation Procedure

The following are general steps for installing IBM Lotus Domino Server. Perform these steps on each of the servers: Directory Server and Sametime Connect Server.

1. Use the Domino CD or expand the downloaded file (**C88R6NA.EXE**) and run **setup.exe** to install Domino code.
2. Read and accept the License Agreement statement.
3. Accept the defaults until you are prompted to select the destination folders. It is recommended that you keep the defaults, changing only the installation drive if necessary.
 - a. Program Folder: **C:\Lotus\Domino**
 - b. Data Folder: **C:\Lotus\Domino\Data**
4. Choose **Domino Enterprise Server** as the server type.
5. Accept the defaults for the rest of the options until the server begins installing and then wait while the server copies all the files to the appropriate directories.
6. Finish the installation.

Configure the Directory Server

For this installation, you configure the Directory Server as the first Domino server in the Domino domain.

Key Parameters



If desired, use this table to record information you provide during the configuration for later reference. A separate spreadsheet of this table is packaged with this Solution Starting Point.

System Parameter	Suggested Value	Your Value
Fonts		
"Set up the first server or stand-alone server" or "Add a server to a domain"?	Set up the first server or stand-alone server	
Server Name ¹	directory	
Server Title		
Organization Name ²	mycompany	
Organization Certifier Password ³		
Domain Name ⁴	mycompany	
Portal Express Server Administrator ID ⁵	wpsadmin	
Administrator Password		
Internet Services ⁶	Select HTTP and LDAP only	
Server Hostname ⁷	directory.mynetwork.com	

Note:

1. Specify the server name of the primary Domino Directory server. Be aware that the name of the Domino server might be different than the machine name. Use the name you have chosen when installing the Domino Directory server, not the host name.
2. Used for security and authentication, the Organization Name is a meaningful identifier of your company. It is appended to every user and server name that is created in your domain.
3. The password for the Certifier ID is used when certifying new users into the domain. The minimum password length is eight characters. It is recommended you use a password of at least 13 characters. A phrase is more secure than a password and may be easier to remember. For the first server you need to create a Certifier ID file. It should be called **cert.id** and the configuration program saves it to your Domino **data** directory.


Each grouping of Domino servers, known as a domain or an organization, has a certifier ID that automatically certifies, or authorizes, the IDs of the administrator and first server. This certifier ID is sometimes referred to as the certifier name. When you register new users or servers, you must use the certifier ID to give them access to the organization's resources. You also need the organization certifier name to create organizational unit certifiers for a hierarchical naming scheme. Domino creates the certifier ID automatically during the first server configuration by using the organization name you specify and an optional password.

4. Domino Servers and Lotus Notes^(R) clients are grouped into domains, which are the basis for the design of a Lotus Notes environment. A domain is a group of servers that use the same Domino Directory. Specify the domain name that you want to use. This domain name is not the same as the DNS suffix of the server's hostname.

5. The **wpsadmin** ID and password are used to administer two servers in the Domino domain: the Directory Server and IBM Lotus Sametime Connect.
6. This option enables Web Browsers (HTTP services), Internet Mail Clients (SMTP, POP3, and IMAP services), and Directory Services (LDAP services) on the server.
7. The server's TCP/IP host name. It is recommended that you use the following convention: **servername.your_organization_domain_name**. If you choose to use a different name, you may need to update your Domain Name Server (DNS) definitions with the new Domino Server host name.

Configuration Procedure

The Domino software provides a wizard to help you set up the server. Refer to the [Table 13](#) on page 19 for help in choosing the values. To set up Domino, follow these general steps:

1. Use the **Start** menu to start the Lotus Domino Server program (**Start -> Programs -> Lotus Applications -> Lotus Domino Server**).
2. Select **Start Domino as a Windows service**, make sure that **Always start Domino as a service at system startup** and **Don't ask me again** are checked, and click **OK**.
3. Accept the default fonts.
4. Since this is the first server in the domain, select the option to **Set up the first server or stand-alone server** (all future servers will select the option to **Set up an additional server**).
5. When prompted for the server name and title:
 - a. Enter a name for the Domino server (server host name recommended).
 - b. If you prefer, you can enter a short title/description for the Domino server (this is an optional value and has no other effect on the server).
 - c. Leave **I want to use an existing server ID file** unselected.
6. When prompted for the organization name:
 - a. Enter the organization name for this infrastructure.
 - b. Enter a password for the certifier file (twice for confirmation).
 - c. Leave **I want to use an existing server ID file** unselected.
7. When prompted for the Domino domain name:
 - a. Enter the Domino domain name for this installation.
8. When prompted for an Administrator name and password:
 - a. Enter the name of the first Domino Administrator ( Portal Express Server Administrator). If you are using a generic account name such as **wpsadmin**, fill in only the **Last name** field.
 - b. Enter a password for this account (twice for confirmation).
 - c. Select the box to save a local copy of the ID file and change the location for saving it, if desired.
9. When prompted to specify Internet services:
 - a. Select **HTTP** and **LDAP**.
 - b. Do not select IMAP, POP3, and/or SMTP (they can be enabled later on specific servers, if needed).
10. On the Domino network settings page, click the **Customize** button to configure the port drivers and host name:
 - a. Deselect NetBIOS ports.

- b. In the TCP/IP line, verify that the **Host Name** field shows the fully qualified host name for the server.
 - c. If needed, modify the fully qualified internet host name for this Domino server in the box below the port settings (should match the entry in step b above).
 - d. After you click **OK**, you are taken back to the Domino network settings page where you can click **Next**.
11. Keep the default security settings.
 12. Verify the settings summary and click **Setup**.
 13. Click **Finish** to exit the configuration wizard.

The setup program creates the ID files and databases needed for the server to run. Once this has finished, start the server from the **Start** menu or from the **Windows Services** panel. When the server launches for the first time, the remaining system databases are created.

Starting and Stopping Lotus Domino Server

Start the Domino server program by using the Windows **Start** menu.

Stop the Domino server by typing **quit** in the Domino console.

When the Lotus Domino server starts, a Domino console opens. Leave this console running in the background at all times until you shut down the server. It is recommended that this console window be set to a larger size, and that the Domino Server console window's page buffer be raised to 200 or more lines. You can set these by opening the window's properties and modifying the settings.

Install the Notes and Administrator Clients

This task needs to be performed on the following systems:



Directory Server



Sametime Connect Server

Before you can install and configure the remaining base Domino servers for the extended products, you must install the Notes^(R) and Administrator clients.

This section is an overview of the installation for the Lotus Notes clients: Lotus Notes and Domino Administrator. Detailed installation steps are located in the documentation that is provided with the Lotus client products.

Lotus Notes and Domino Administrator allow administrators and developers to manage and monitor their entire Lotus Domino infrastructure, including Sametime Connect Server. They also have the ability to manage databases on each server, including access control lists (ACLs). An access control list is a list associated with a file that identifies users who can access the file and identifies their access rights to that file.

Before You Begin

Prerequisites

The following prerequisites must be satisfied prior to installing the clients:

- IBM Lotus Domino Server must be installed in the network
- Obtain the server name or the IP address of the Directory Server
- Start the IBM Lotus Domino Server program on the Directory Server

Special Considerations

For demonstration, evaluation, or development purposes, it is easiest to install the clients on one of the Domino-based servers if you have a Windows environment. In a production environment, however, you should install the Domino Administrator client along with Lotus Notes on a machine other than the server.

If you are installing a client on a system that has a Domino server installed on it, make absolutely certain that the client is installed into the Notes client directory, not into the Domino (server) directory.

Installation Procedure

Key Parameters



If desired, use this table to record information you provide during the installation for later reference. A separate spreadsheet of this table is packaged with this Solution Starting Point.

System Parameter	Suggested Value	Your Value
Domino Server Name ¹	<code>directory/mycompany</code>	
User ID (Portal Express Server Administrator) ²	<code>wpsadmin</code>	
Password ³		

Note:

1. The name of the Domino server that will provide services for the client.

Note: The server's full name is a combination of the Server Name and the Organization Name separated by a slash. For example, `directory/mycompany` is a full server name where `directory` is the Server Name and `mycompany` is the Organization Name.

2. Specify the administrator's first and last name as it appears in the Domino Directory. For demonstrating and using the solution, it is easiest to browse to the administrator's ID file that you created when installing the IBM Lotus Domino Server.
3. The administrator's password.

Procedure

To install the client, perform the following:

1. Use the Domino CD or expand the downloaded file (`C88RND.A.EXE`) and run `setup.exe` to install the Notes code.
2. Accept the License Agreement and click **Next**.
3. Fill in the **User Name** and **Organization** fields with the administrator name and organization specified for the server configuration. (e.g., `wpsadmin` and `mycompany`). Click **Next**.
4. Change the installation path for program files and data to `<drive>:\Lotus\notes` and `<drive>:\Lotus\notes\data`, respectively. Click **Next**.
5. Select the following program features to be installed to the hard drive, and click **Next**.
 - Notes Client (with Help Files and Spell checker)
 - Domino Administrator (with Help Files and Migration Tools)
 - Symbol Files
6. Click **Install** and when the installation completes, click **Finish**.

7. Start the Domino Administrator client (there is an icon on the desktop, or use the **Start** menu). The Notes client configuration wizard appears.
8. On the **Welcome** screen, click **Next**.
9. On the **User Information** screen, enter the administrator's name (for example, **wpsadmin**) and the master domino server name (for example, **directory/mycompany**). Check the box to indicate that you want to connect to a Domino server. Click **Next**.
10. Respond to the password prompt with the administrator's password.
11. On the **Instant Messaging Setup** screen, uncheck the box to setup instant messaging and click **Next**.
12. On the **Additional Services** screen, leave all the services unchecked (you configure services later) and click **Next**. You should see a popup message indicating that setup is complete.
13. Once Notes has finished configuring itself, you are brought to the default Welcome page.

Configure the Domino Domain



Perform this task on the Directory Server.

In this section, you configure the Domino domain on the Directory Server.

Before You Begin

The following actions must be performed prior to configuring the Domino domain:

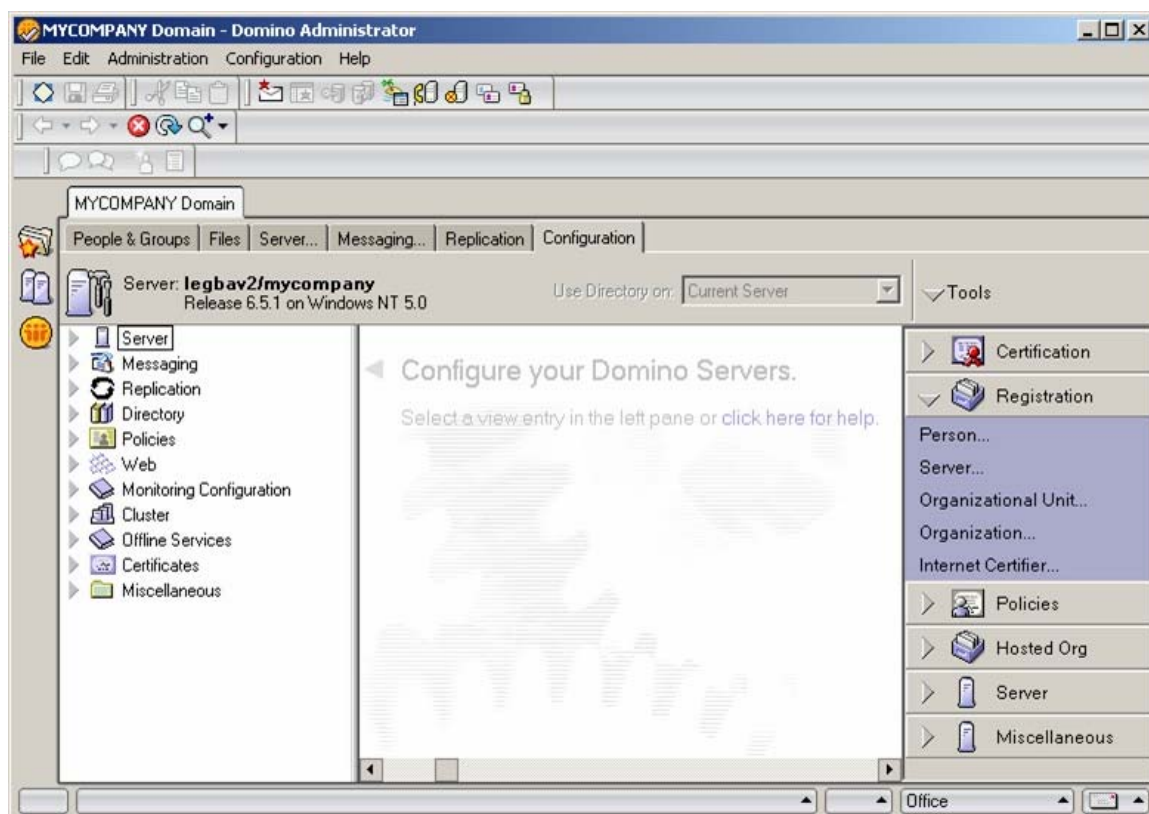
- IBM Lotus Domino Server must be installed in the network
- Start the IBM Lotus Domino Server program on the Directory Server
- Choose the name of the Sametime Connect Server (see [Table 15](#) on page 24)
- Domino Administrator client is installed

All of the configuration tasks in this section are performed from the Domino Administrator client. There is no need to close the client between tasks.

Register the Other Domino Servers


1. Start the Domino Administrator client. Click **Do not show again** on the **Welcome** page and close it. You should now be on the **MYCOMPANY** domain tab showing **Server: directory/mycompany**.
2. Click the **Configuration** tab and then open the **Registration** section in the **Tools** bar on the right side of the menu.

Figure 2. Registration Screen in Domino Administrator



3. Click **Server...** to open the Server registration tool.
4. On the **Choose a Certifier** panel, click **Server...** and select the directory server.
 - a. Select **Supply certifier ID and password** and click **Certifier ID...**
 - b. Navigate to `c:\Lotus\Domino\data` and select the certifier ID (`cert.id`).
 - c. Click **OK** and enter the certifier password when prompted.
 - d. On the **Certifier Recovery Information Warning**, check the box to not show future warnings and click **OK**.

Note: In a production environment you would normally enable password recovery. See the Domino Administrator help for details.
 - e. Verify that the registration server, certifier and the certification expiration date are correct (you may want to change the certification expiration date if your organization's security policies require it).

 If desired, use this table to record information you provide for later reference. A separate spreadsheet of this table is packaged with this Solution Starting Point.

System Parameter	Suggested Value	Your Value
Sametime Connect Server Name	<code>sametime/mycompany</code>	
Sametime Connect Server Hostname	<code>sametime.mynetwork.com</code>	

5. Click **Continue**.
6. Fill in the registration details for each new server:
 - a. Server name (for example, **sametime**)
 - b. Verify that the server administrator is correct.

Tip: You can select the LocalDomainAdmins group for the Server Administrator name field. This allows everyone who is in the LocalDomainAdmins group to administer the server. Once you have created new users, you can add the appropriate names to this group to grant them administrator rights to the server. This saves you from having to edit every server document in order to add administrators. (Click the person icon next to the Administrator name field, switch to the "mycompany's Directory" address book and select **LocalDomainAdmins**.)
 - c. Uncheck the option to store the server ID in Domino Directory

Note: Each Domino Server has a unique name that is maintained in its own ID file. If you are creating the first server in a new domain, Domino creates the server ID automatically during the server configuration program. If you are creating an additional server in an existing domain, then a unique ID file is created for the new server as part of the configuration process.
 - d. Check the option to save the server ID to a file and make note of the name and location. (for example, **c:\Lotus\Domino\data\sametime.id**) You need this file when installing the other Domino servers.
 - e. Click the green checkmark to add the server to the Registration queue.
 - f. Repeat these steps for each of the other server(s) to be registered, if there is additional server planned (see [Table 15](#) on page 24).
7. Once you have created entries for all of the servers, select **Register All**. The ID files are saved to the location you specified. These files need to be copied to their respective servers.
8. Click **Done** to close the Registration tool.

Create the Replication Topology

Setting up replication of databases between the master Domino server (**directory**) and the other Domino servers (for example, **sametime**) involves defining a server group and creating a connection document.

In the Domino Administrator client:

1. Go to the **People and Groups** tab and select **Groups** in the navigation tree (on the left).
2. Click **Add Group**.
3. Fill in the following fields:
 - Group name: name (for example, **MyCompanyServers** - no blanks in name)
 - Group type: select **Servers only**
 - Members: enter or select the servers added in the previous section (for example, **sametime/mycompany**)
4. Click **Save & Close**.
5. Go to the **Configuration** tab and select **Server -> Connections** in the navigation tree (on the left).
6. Click **Add Connection**.

7. On the **Basics** tab, set or verify the following values:
 - Connection type: Local Area Network
 - Source server: master server (for example, `directory/mycompany`)
 - Destination Server: name of server group (for example, `MyCompanyServers`)
8. Click **Save & Close**.

Update Server Configurations

In the Domino Administrator client:

1. Go to the **Configuration** tab and select **Server -> All Server Documents** in the navigation tree.
2. For the two servers listed (`directory` and `sametime`):
 - a. Select the document and click **Edit Server**.
 - b. On the **Basics** tab, set **Fully qualified Internet host name**: *<fully-qualified host name>*
 - c. On the **Internet Protocols** tab, **HTTP** subtab, set **Hostname(s)**: *<fully-qualified host name>*
 - d. On the **Security** tab, scroll down to the **Internet Access** section. Set **Internet Authentication to More variations with lower security** (this allows the use of user shortnames).
 - e. Click **Save & Close**.

Configure LDAP

In the Domino Administrator client:

1. Go to the **Configuration** tab and select **Directory -> LDAP -> Settings**.
2. Click **Yes** at the prompt to create a new document.
3. Go to the **LDAP** tab and click the **Select Attribute Types** button.
 - a. Select **dominoServerResource** in the **Object Classes** drop-down list and click **Display Attributes**.
 - b. Select **MailFile**, **MailServer** and **SametimeServer** from the attribute list and click **Add**.
 - c. Select **dominoServer** in the **Object Classes** drop-down list and click **Display Attributes**.
 - d. Select **NetAddresses** from the attribute list and click **Add**.
 - e. Click **OK** when done to close the dialog.
4. Back on the **LDAP** tab, select **Yes** for **Allow LDAP users write access**.
5. Click **Save & Close**.

Configure Single Sign-On

Single Sign-On (SSO) allows users to log into one server and switch to another one without presenting authentication credentials again.

In the Domino Administrator client:

1. Go to the **Configuration** tab and select **Server -> All server documents**.
2. Click the **Web...** button and select **Create Web SSO Configuration**.

3. In the SSO configuration document make the following entries:
 - a. Configuration name: **LtpaToken** (default)
 - b. Organization: Leave this blank.
 - c. DNS Domain: Enter the Internet domain that all of your servers share.
 - d. Domino Server Names: Select and add all of the servers (**directory** and **sametime**) from the directory (this uses the proper hierarchical name for each server).
 - e. Click **Keys...** on the action bar and select **Create a Domino SSO key**; you receive a confirmation when it has been successfully created.
 - f. Save and close the Web SSO document.



Important: The Web SSO document is encrypted with the ID of the user who created it. If another administrator subsequently needs to edit the document, that administrator receives a warning about the document being encrypted and is not able to edit it.

You may encounter this if you install Sametime^(R) before creating the Web SSO document. Sametime creates a Web SSO document if it does not find one with itself listed in the Domino Servers Names field. If this happens, delete the document and create a new one so you can add all the servers to the document.

4. Open (edit) each server document and make the following changes on the **Internet Protocols / Domino Web Engine** tab:
 - a. Session Authentication: **Multiple Servers (SSO)**
 - b. Web SSO Configuration: **LtpaToken**
 - c. Click **Save & Close**.

This completes the Domino Domain configuration. Close the Domino Administrator client and restart the Domino server.

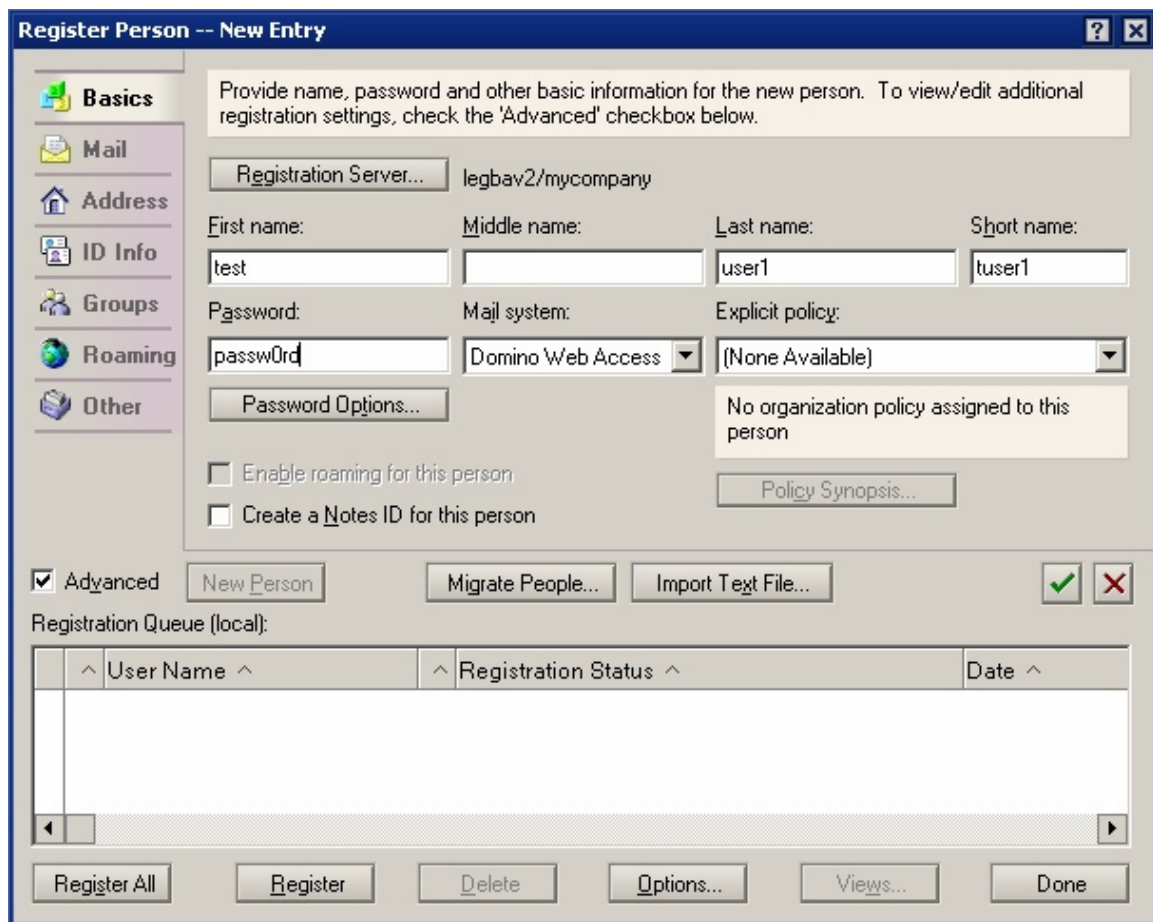
Verification

Add Test Users

For verification you need to add test users, tuser1 and tuser2, to the LDAP directory to ensure that the LDAP and Web-based mail components of the Domino Web Access server are working correctly.

1. Start the Domino Administrator client.
2. Select the **People and Groups** tab, and then the **People** view in the navigation area on the left.
3. In the Tools menu (on the right side of the screen), expand the **People** menu and select **Register...**
4. Enter the certifier password.
5. Select the **Registration Server** to be the Directory server (for example, **directory/mycompany**).
6. Click the **Advanced** checkbox to show additional tabs below the **Basics** tab.

Figure 3. Register Person Screen in Domino Administrator Client



7. Enter the **First Name** (`test`) and **Last Name** (`user1`) of the user. Note that the short name defaults to `tuser1`.
8. Under **Mail System** select **Domino Web Access**. Click **Yes** to accept the registration settings changes.
9. Enter the **Password**.
10. Click the **ID Info** tab and select a certifier (`/mycompany`) in the **Certifier Name list**.
11. Click the green checkmark button to add `test user1` to the registration queue.
12. Return to the **Basics** tab and to create a second user (`test user2`). You only need to enter the **First name**, **Last Name** and **Password**. The previous settings for **Mail System**, password synchronization and **Certifier name** are preserved.
13. Click the green checkmark button to add `test user2` to the registration queue.
14. Click the **Register All** button. After the users are successfully registered, click **Done**.
15. Refresh the view under **People** (press F9) to see the new users listed.

Verify Domino Mail

1. Open a Web browser and enter `http://directory.mynetwork.com/mail/tuser1.nsf` to access the iNotes^(TM) Web Access mailbox of `test user1`. Enter the user name (or short name) and password to log on.

2. Go to the **Mail** tab and click **New**. Click **Yes** to the security warnings to download and run Domino Web Access Control.
3. Select **new message** from the **Mail** tab to open the e-mail editor window. In the e-mail editor, click the **To:** button to bring up the **Select Addresses** dialog. Select **mycompany's Directory** in the **Search** dropdown list. Select **user2, test** and click the **To:** button. Click **OK** to close the Select Addresses dialog.
4. Enter a subject and some text. Click **Send and File...** and save the e-mail to the Inbox.
5. Click **Logout**.
6. Open a Web browser, enter `http://directory.mynetwork.com/mail/tuser2.nsf` and log in as **tuser2**. Click the **Mail** tab to see the e-mail from **test user1**.
7. Click **Logout**.
8. Choose the appropriate security setting for shared PC or Kiosk user and then close the window.


Install the Sametime Connect Server in the Domino Domain



Perform this task on the Sametime Connect Server.

This section describes the base Domino server installation and configuration of the Sametime Connect Server in the domain.

Before You Begin

-  Make sure that the date and time of all the servers match as closely as possible. Some administrators find that it is helpful to install software that checks the GMT and adjusts the time of the server on a regular basis.

One option is to create a batch file containing the line:
`net time /setsntp:ncnoc.ncron.net`
and add it to the Startup folder of the server, so synchronization occurs whenever the server is started or re-booted.
- The master Domino Domain server must be running and available on the network.
- You must have access to (or copies of) the server ID files (located in the `c:\Lotus\Notes\Data\ids\servers` folder if you used the sample installation folder choices) created when the servers were registered on the master Domino Domain server.

Installation and Configuration

To install the Domino server code, follow the steps in [Installation Procedure](#) on page 18.


For more detailed information on the installation of Lotus Domino servers, refer to the product documentation.

To configure the servers, perform the following steps:

1. Use the **Start** menu to start the Lotus Domino Server program.
2. Select **Start Domino as a Windows service**, make sure that **Always start Domino as a service at system startup** and **Don't ask me again** are checked, and click **OK**.
3. Accept the default fonts.
4. Since this is NOT the first server in the domain, select the option to **Set up an additional server**.

5. Select **The server ID file is stored on a floppy disk, CD or network drive** and browse to the ID file created when the server was registered on the master Domino server.
6. The server name is determined from the ID file.
7. When prompted to specify Internet services, select *only* **Web Browsers (HTTP services)**.
8. On the Domino network settings page, click the **Customize** button to configure the port drivers and host name:
 - a. Deselect NetBIOS ports.
 - b. In the TCP/IP line, verify that the **Host Name** field shows the fully qualified host name for the server.
 - c. If needed, modify the fully qualified internet host name for this Domino server in the box below the port settings (should match the entry in step b above).
 - d. After you click **OK**, you are taken back to the Domino network settings page where you can click **Next**.
9. On the system databases page, set the **Other Domino server name** to the master server name (for example, `directory/mycompany`) and the **Optional network address** to the master server's fully-qualified host name (for example, `directory.mynetwork.com`).
10. On the type of Domino Directory page, select **Set up as a primary Domino Directory**.
11. Keep the default security settings.
12. Verify the settings summary and click **Setup**.
13. Click **Finish** to exit the configuration wizard.
14. Start the Domino server. The configuration completes and at some point (within 15 minutes) the server replicates with the master server. To force replication, issue the `replicate` command in the Domino server window on the master server (for example, `replicate sametime`).

Verification

1. Go to the master server and examine the Domino server window. You should see messages indicating of successful replication with the new server. (for example, "Finished replication with server sametime/mycompany") If replication has not yet occurred, issue the `replicate` command.
2. To verify single sign-on:
 - a. Point a browser to the URL `http://<master_server>/webadmin.nsf` (for example, `http://directory.mynetwork.com/webadmin.nsf`). This is the Domino Administrator Web interface.
 - b. Log on as the  Portal Express Server Administrator (`wpsadmin`).
 - c. Without closing the browser, point to the same URL on the new server (for example, `http://sametime.mynetwork.com/webadmin.nsf`). You should be seamlessly connected to the new server without a challenge for a user ID and password.

Set up the IBM Lotus Sametime Connect



Perform this task on the Sametime Connect Server.

This section describes how to set up the IBM Lotus Sametime Connect. As with the Directory Server, installation of a standard IBM Lotus Sametime Connect (Sametime) server is straightforward. The procedure for installing a Sametime server into a Domino infrastructure is provided below.



IMPORTANT: Sametime requires that the Domino executables and data files reside on the same drive. If you did not configure the underlying Domino server this way you need to reinstall it so it can host the Sametime server.

Before You Begin



IMPORTANT: It is critical that all servers are set up for the same time and date in order for Single Sign-On to work.

Installation Procedure

Perform the following steps:

1. Stop the Domino server on which Sametime will be installed.
2. Use the Sametime 7.5 CD or expand the downloaded file (**C90MQML.EXE**) and run **demo32.exe** to install the Sametime code.
3. Select your language.
4. Click **Install the Sametime Server**.
5. Accept the license agreement.
6. Select the directory to use for collaboration by placing a check mark next to Domino Directory (not LDAP Directory).
7. Select to allow HTTP tunneling on a Sametime server with a single IP address: place check mark on the **Enable** line.
8. Verify that the installation directories match the Domino server directories and allow the installation to continue; when prompted, click **Finish**.
9. Obtain the Sametime 7.5 Server Cumulative Fix Pack 1 (CF1) for Windows Multilingual file (**C96M1ML.ZIP**) and expand it to a temporary folder location. Then expand the **win_bin.zip** file and copy the content into the Domino Program Directory (**c:\Lotus\Domino**), and expand the **win_data.zip** file and copy the content into the Domino server data directory (**c:\Lotus\Domino\Data**).
10. Update the configuration:
 - a. Update the **serlets.properties** file so **UserInfoServlet** is initialized when the HTTP services loads. The file is located at **c:\Lotus\Domino\Data\serlets.properties**.
 - b. Locate the line in the file that begins with **serlets.startup=**.

- c. Add `UserInfoServlet` to the list of servlets on this line and separate it from the other servlet names with a blank space.
- d. Restart the Domino and Sametime servers.

Note:

Even after the console says, "*Sametime Server: Running*", some services are still being loaded in the background. Use the Windows Services applet to monitor the status of all the Sametime services (prefixed by "ST").

Update `stpolicy.nsf` for New File Transfer Policy

If you want to allow file transfer between clients that do not involve the server, you must manually update `stpolicy.nsf` and add the new policy. If you take no action, peer-to-peer transfer will no longer be permitted after CF1 is installed. Review and follow the instructions given in the `readme.txt` file accompanying this fix pack for details.

Background Sametime Configuration

Sametime automatically configures the server for multi-server Single Sign-On:

- If not already configured, Sametime sets the server for multi-server single sign-on authentication and create a Web SSO document. If it detects that this has already been done, it leaves the existing settings unchanged.
- If not already created, Sametime creates the Domino Web Configuration database
- Sametime creates and configures a Sign-In Form Mapping document in the Domino Web Configuration database to support SSO

Post Installation Configuration

This section shows you how to configure the default HTTP home page and access the administration features of the Sametime server.

Configure the Default HTTP Home Page

From the Domino Administrator client (on the master server):

1. On the **Configuration** tab, select **Servers -> All Server Documents** in the navigation pane.
2. Open the Sametime server's server document for editing and go to the **Internet Protocols / HTTP** tab.
3. In the **Mapping** section, change **Home URL** to `/stcenter.nsf?Open`
4. Save and close the document.
5. Replicate with the Sametime server.
 - In the **Configuration** tab, make sure **sametime/mycompany** is selected.
 - As an alternative to the replicate command, go to the Admin client's **File** menu and select **Replication -> Replicate...**
 - In the **Replicate with** drop-down list, select **Other** and then choose the Sametime server (for example, **sametime/mycompany**). Click **OK**.
 - Leave **Send documents to server** and **Receive documents from server** selected.
6. Return to the Sametime server and restart its Domino server. The Sametime server does not support the `restart server` command, so you must enter `quit` in the Domino server window. Restart the Domino server from the **Start** menu. Be sure to wait for all the Sametime services to

start before attempting verification. Check Windows Services to make sure all the Sametime services (prefaced with "ST") have started.

Verification

When you enter the URL for the Sametime server, for example:


`http://sametime.mynetwork.com`

you should see the **Welcome to Sametime** screen.

When you attempt to do something that requires authentication (for example, administer the server) you should see the **Log On to Sametime** SSO login screen.

Administer the Server



This section does not show you all of the administration features of the Sametime server. It introduces you to configuring the server. For more information about all of the configuration options, see the Sametime Administration guide.

1. In a Web browser, enter the URL for the Sametime server:
`http://sametime.mynetwork.com`
This opens the home URL for the Sametime server as defined above.
2. On the left navigation pane, click the **Administer the Server** link.
3. When prompted, enter the Domino administrator's ID (Portal Express Server Administrator-**wpsadmin**) and password.
4. Browse through the Configuration options, but do not change anything at this point (notice that the Directory is configured for Domino and not LDAP)

Verification Procedure

Once the server is set up, use the following procedures to ensure that Sametime is functioning properly. It is important that you verify that both anonymous and registered users can logon on to the server.

Verify Sametime Chat

1. Use a browser to navigate to the Sametime server (for example, `http://sametime.mynetwork.com`).
2. From the **Welcome to IBM Lotus Sametime** window, click **Download** for Lotus Sametime Connect 7.5 Client and follow the on screen instructions to install the Sametime client.
3. When the installation is completed, launch Sametime 7.5.
4. Enter a user's name and password (Test User 1: **test user1, passw0rd**) and click **login**. Upon successful login you will see "*connected*" on the status bar on the bottom of the window.
5. Log in from another machine using a different account (Test User 2:**test user2, passw0rd**) and repeat the download and installation of the client.
6. When the installation is completed, launch Sametime 7.5. Select **File -> Add -> Contact** and enter an user name (**test user1**). You will receive a pop-up message telling that name has been added, and you should see the name appear on the Sametime window contact list.
7. Double-click **test user1** and send a message. Verify that **test user1** sees the new message.

Verify Sametime Meetings

Note:

You need to have Java Virtual Machine (JVM) enabled for the selected browser for the Sametime Meetings to work. Ensure your browser meets this requirement or go to <http://www.java.sun.com> to download and install the Sun JVM. During our testing of this solution, both versions 1.4 and 1.5 were used and they functioned. Go to:



<http://java.sun.com/j2se/1.4.2/download.html>

or <http://java.sun.com/j2se/1.5.0/download.html> to download the Java Runtime Environment (JRE) before continuing with the instructions below.

1. Use a browser to navigate to the Sametime server.
2. Click the **Schedule a Meeting** link.
3. If prompted, enter a username and password for someone authorized to create meetings (the default setup allows anonymous users to create meetings).
4. Enter a meeting name; select **Start Now** and click **Save** to launch the meeting.
5. The meeting should open in a new window.

Note: It may take a few minutes to completely load the meeting applets. If your workstation has a significantly different time than the server, you may need to get them in sync to get the meeting to start. You may also be prompted to trust IBM to download some software. Click **Yes**, or the applets do not load and you do not get into the meeting.

Specify a guest name when prompted. Click **Share my entire screen**.

6. Log in from another browser as another user and join the meeting (use **Attend a Meeting** from the Sametime server home page).
7. Test the tools in the meeting (whiteboard, screen sharing, etc.).

Configure Domino Web Access for Instant Messaging



Perform this task on the Directory Server.

There are several post-installation configuration tasks to be completed before Domino Web Access acts as expected. There are also some optional configuration tasks. Both are addressed below.

Define the Sametime Server for Users

In this section, you set the same Sametime server for all users on the Directory Server.

In an environment where there is only one Sametime server, or where all users on a given Directory Server always use the same Sametime server, you can use a `Notes.ini` variable on the Directory Server to refer all Sametime connections to a specific server. Perform the following steps:

1. Add the following line to the Directory Server `Notes.ini` file (in `c:\Lotus\Domino`):
`iNotes_WA_SametimeServer=sametime.mynetwork.com`
2. Note that the name of the Sametime server in this setting must be the fully qualified host name of the server.
3. Continue to the next section before restarting the Directory server.

Turn Off Secrets and Tokens Database for Domino

By default, Domino tries to use the Sametime Secrets and Tokens authentication. If you want to enable Domino to use SSO, you must turn this off. Although not technically required, it is strongly recommend that you do this because SSO is a critical new support feature across all of the products starting in version 6.5, including the Notes client. To convert to SSO:

1. Add the following line to the Directory Server `Notes.ini` file:

```
iNotes_WA_SametimeToken=0
```

2. Save the `notes.ini` file.
3. Continue to the next section before restarting the Directory Server.

Copy Key Files Between the Directory and Sametime Servers

Certain files must be copied between the Directory Server and Sametime Connect Server in order for presence awareness to work.

Copy the `stlinks` folder (and all its contents) from the Sametime Connect Server to a folder with the same name and the same relative location on the Directory Server; see the following example:

```
\Lotus\Domino\Data\domino\html\sametime\stlinks
```

This folder name is not case-sensitive. Because there are so many files in this folder, it is easiest to select the folder and copy it and its contents all at once.

Note:

The `stlinks` folder may already exist on the Directory Server. However, its content may be different from that of the Sametime Connect Server. Therefore, it's important to perform this step.

IMPORTANT: Restart the Directory Server to activate these changes.

Client Configuration

Each user must enable instant messaging when they access their mail on the Directory Server:

1. Access the e-mail file on the Directory Server with a browser. Use one of the test users defined previously, see the following example:

```
http://directory.mynetwork.com/mail/tuser1.nsf
```

On the upper left corner of the screen, you should see a blue bar with two messages, "Welcome, Logged in as tuser1" followed by an x symbol with "IM Disconnected."

2. In the upper right-hand corner of the screen, click the **Preferences** link.
3. Click the **Basics** tab in the navigation panel and then select **Enable Instant Messaging** in the **Instant Messaging** section.
4. Click **OK**.

Now you should see on the upper left corner of the screen the x symbol with the text "IM Disconnected" to a circle before the text "IM Disconnected."

Configure IBM WebSphere Portal Express Server to Use Domino Directory

This task needs to be performed on the following systems:



The next sections take you through the various steps necessary to connect Secure Portal to the Domino Collaborative Servers using the Lotus Collaborative Components to enable users to experience single sign-on (SSO) between the Portal Server and Domino E-mail and Sametime Connect Server (Sametime).

Create WebSphere User and Group in Domino Directory

IBM WebSphere Portal Express Server and IBM WebSphere Application Server need a **wpsadmins** group containing the **wpsadmin** and **wpsbind** user IDs and the following groups:

- wpsContentAdministrators
- wpsDocReviewer
- wcmadmins

The **wpsadmin** ID already exists. The new user and group are created in the Domino Directory using the Domino Administrator client.

1. Log on to the Domino Admin client as **wpsadmin** ( Portal Express Server Administrator).




IMPORTANT: Be sure that you are connected to the master Directory server (**directory/mycompany**). The current server is displayed just above the navigation pane on the left of the window.

If you need to change servers, go to **File -> Open Server...** to switch to the Directory Server.

2. Click the **People and Groups** tab and then click **People** in the navigation pane.
3. Click **Add Person** and create a person document for the IBM WebSphere Application Server user ID (**wpsbind**), filling in the fields in [Table 16](#) below.



If desired, use this table to record information you provide for later reference. A separate spreadsheet of this table is packaged with this Solution Starting Point.

System Parameter	Suggested Value	Your Value
Last name	wpsbind	
User name ¹	wpsbind/mycompany	
Short name/  IBM WebSphere Application Server User ID	wpsbind	
Internet password		
Mail system	None	

Note:

1. Enter each value on a separate line in the entry field.
4. Click **Save & Close**.
5. Click **Groups** in the navigation pane and click **Add Group**.
6. Enter `wpsadmins` as the group name and add `wpsadmin` and `wpsbind` as members.
7. Click **Save & Close**.
8. Repeat steps 5 to 7 to add the three groups and do not add any new users in them at this time.

You must ensure that the administrator group, `wpsadmins`, has the proper permissions and roles in the Domino Directory.

1. Go to the **Files** tab and right-click the file for mycompany's directory (`names.nsf`). **Hint:** Click the title bar on the **filename** column to sort the list for finding `names.nsf` file easier.
2. Select **Access Control -> Manage...**
3. Click **Add** and select the `wpsadmins` group.
4. Under **Access Control**, set the following:
 - User type: Person Group
 - Access: Editor
 - Roles: GroupCreator, GroupModifier, UserCreator, UserModifier
5. Click **OK**.
6. Exit the Domino Administrator client.

Configure Trusted IP Addresses for Sametime

For security reasons, a Sametime server only allows connections from other server applications if the IP address is known by Sametime. These trusted IP addresses are defined in the Community Connectivity document on the Sametime server.

1. Log onto the Domino Administrator client and use **File -> Open Server...** to switch to the Sametime server.
2. Click the **Files** tab and open the Sametime Configuration document (`stconfig.nsf`).
3. Open the document under **Community Connectivity** (double-click the row immediately below with the date/timestamp).
4. Double-click inside the document (Untitled) to switch to Edit mode.
5. Enter the IP address of the Portal server in the **Community Trusted IPs** field.
6. Close the document and click **Yes** to save the changes.
7. Restart the Sametime server.

Enable Picker on the Domino Server

Domino Internet Inter-ORB Protocol (DIIOP) must also be running on the Domino server. If DIIOP is running, the picker feature in a portlets' edit mode is enabled. The picker feature enables browsing of Domino databases on a given server.

1. In the Domino Administrator client, go to the **Configuration** tab and navigate to **Server -> All Server Documents**. (Be sure to switch back to the Directory server using **File -> Open Server...**)
2. Edit the configuration document for the Directory server (**directory/mycompany**).
3. On the **Internet Protocols** tab, select the **HTTP** tab, and ensure that the following settings are specified:
 - a. Host Name - The fully-qualified host name of the server; for example, **directory.mynetwork.com**.
4. On the **Basics** tab, set **Allow HTTP clients to browse databases** to **Yes**. This enables the server and database selection lists that appear when users edit the properties of Lotus collaborative portlets.
5. Save and close the document.
6. To enable DIIOP on the server, edit the `C:\Lotus\Domino\notes.ini` file, locate the line starting with `serverTasks=`, and append `,DIIOP`. See the following example:


```
ServerTasks=Update,Replica,Router,AMgr,AdminP,CalConn,Sched,HTTP,LDAP,DIIOP
```
7. Save the file and restart the Domino server.

Note:

After all portlet development, deployment and configuration is complete, including WPAI portlets, a common security practice is to set the **Allow HTTP clients to browse databases** value to **No**.

Perform Configuration Tasks

Some configuration steps are required to get IBM WebSphere Portal Express Server to work with the Domino LDAP. Use [Table 17](#) below for reference to specify the parameter values for your specific configuration and launch the Advanced Configuration Wizard to perform this task.

1. Go to the `<wp_root>\config\wizard` directory.
2. Run the `configwizard.bat` batch file.
3. Select a language from the pop-up window and you will see the **Portal Express Configuration Wizard** window opened.
4. Using [Table 17](#) below as a reference, enter the requested information in the Wizard to perform the configuration task.

Property	Example Value	Description
WasUserid	<code>cn=wpsbind,o=mycompany</code>	The user ID for IBM WebSphere Application Server security authentication. This ID is needed to stop and start IBM WebSphere Application Server from now on. This has to be the fully-qualified distinguished name.
WasPassword	<i>Password for wpsbind</i>	The password for IBM WebSphere Application Server security authentication. This ID is needed to stop and start IBM WebSphere Application Server from now on.
PortalAdminId	<code>cn=wpsadmin,o=mycompany</code>	The user ID for the IBM WebSphere Portal Express Server administrator. This has to be the fully-qualified distinguished name.

Table 17. Configure IBM WebSphere Portal Express Server to Use Domino Directory LDAP

PortalAdminIdShort	wpsadmin	The short name for the IBM WebSphere Portal Express Server administrator.
PortalAdminPwd	<i>Password for wpsadmin</i>	The password for the IBM WebSphere Portal Express Server administration.
PortalAdminGroupId	cn=wpsadmins	The group ID for the group to which the IBM WebSphere Portal Express Server administrator belongs
PortalAdminGroupIdShort	wpsadmins	The short name of the group ID for the group to which the IBM WebSphere Portal Express Server administrator belongs
LTPA	<i>Password for wpsadmin</i>	The password for the LTPA bind
LTPA timeout	120	Timeout for the LTPA bind
SSOEnabled	true	Specifies that the SSO function has to be enabled
SSODomainName	mynetwork.com	Single Sign On domain
LDAPHostName	directory.mynetwork.com	The host for the LDAP server which IBM WebSphere Portal Express Server uses
LDAPPort	389	The port number for the LDAP server which IBM WebSphere Portal Express Server uses
LDAPAdminUid	cn=wpsadmin,o=mycompany	The LDAP administrator ID
LDAPAdminPwd	<i>Password for wpsadmin</i>	The LDAP administrator password
LDAPServerType	DOMINO502	Type of LDAP Server to be used
LDAPBindID	cn=wpsbind,o=mycompany	User ID for LDAP Bind authentication
LDAPBindPassword	<i>Password for wpsbind</i>	Password for LDAP Bind authentication
LDAPSuffix	<i>(be sure this is blank)</i>	LDAP Suffix, for Domino LDAP leave this entry blank
LDAPUserPrefix	cn	Distinguished name prefix attribute name for user entries
LDAPUserSuffix	o=mycompany	Distinguished name suffix attribute name for user entries
LDAPGroupPrefix	cn	Distinguished name prefix attribute name for group entries
LDAPGroupSuffix	<i>(be sure this is blank)</i>	Distinguished name suffix attribute name for group entries, for Domino LDAP leave this entry blank
LDAPUserObjectClass	dominoPerson	User object class corresponding to LDAP directory
LDAPGroupObjectClass	dominoGroup	Group object class corresponding to LDAP directory
LDAPGroupMember	member	The attribute name of the membership attribute of your group objectclass
LDAPsslEnabled	false	Specifies if SSL

Detailed Steps for the Advanced Configuration Wizard

1. Select the task you want to perform. Choose the **Enable LDAP security** radio button.
2. Specify the **Portal Express Server Administrator** user ID and password used during the IBM WebSphere Portal Express installation. Enter as **cn=user_id,o=organization_name**.
3. You should see the message, "*Before continuing, the WebSphere Application Server must be stopped. To stop the server and start the configuration task, click Next. To exit and run the at a later time, click Cancel.*" Click **Next** to continue.
4. Enter the LDAP server connection information:
 - The LDAP server hostname (for example, **directory.mynetwork.com**)
 - LDAP server port number (for example, **389**)
5. Specify the user ID and password to be used to connect to the LDAP server:
 - LDAP administrator ID (for example, **wpsadmin**)
 - LDAP administrator password
6. Specify the LDAP object classes configured for Lotus Domino Enterprise Server for the **LDAP server hostname entered in step 4 above**. For object class of Portal users in LDAP directory (**LDAPUserObjectClass**), enter **dominoPerson**. For object class of portal groups in LDAP directory (**LDAPGroupObjectClass**), enter **dominoGroup**.
7. Specify prefixes and suffixes configured for Lotus Domino Enterprise Server for the **LDAP server hostname entered in step 4 above**.
 - LDAPSuffix = leave blank
 - LDAPUserPrefix = cn
 - LDAPUserSuffix = o=organization_name
 - LDAPGroupPrefix = cn
 - LDAPGroupSuffix = leave blank
8. Specify the LDAP administration account user ID and password that works with IBM WebSphere Portal Express:
 - Portal Administrator user ID (**PortalAdminId**); enter as **cn=user_id,o=organization_name**
 - Portal Administrator password (**PortalAdminPwd**)
 - Portal Administrator group ID (**PortalAdminGroupId**); enter as **cn=wpsadmins**
9. Specify the LDAP group names for Web Content management (WCM):
 - Web Content Management Administrator Group (**wcmAdminGroupId**); enter as **cn=wcwadmins**
 - WebSphere Content Administrator Group (**wpsContentAdministrators**); enter as **cn=WpsContentAdministrators**
 - WebSphere Document Reviewer Group (**wpsDocReviewer**); enter as **cn=WpsDocReview**
10. Enter the Member Manager user ID and password:
 - User name: **wpdb2ins**

- Password: enter the same password used for ID used to install IBM WebSphere Portal Express
11. You will see message, "*Validating input, please wait.*" Go back to correct any input not validated; otherwise, you will see message, "*IBM Portal Express is ready to run the following configuration, and the list of values you have entered.*" Review the list and ensure all values are correct, then click **Next** to proceed.

Note:

From this point on, WebSphere Global security is turned on and **wpsadmin** (IBM WebSphere Application Server User ID) has been set as the administrative ID if you want to sign on and manage the server using the administrative console. The same is true if you want to start or stop WebSphere or WebSphere Portal Servers.

Verification

1. Log on to the Portal as the Portal Express Server Administrator, **wpsadmin** (`http://<fully-qualified_portal_server_hostname>:10038/wps/portal`).
2. Self-register a new user (click **Sign up**) and log in to the portal.
3. Log on to the Domino Administrator Client and verify the new user under **People and Groups**.

Note:

Users created through the portal are **not** automatically given Domino iNotes e-mail accounts. Only users registered through Domino have e-mail access.

Enable Collaborative Components



Perform this task on the Portal Server.

In this section, you configure collaborative components on the Portal Server and enable SSO in the WebSphere - Domino environment.

Configure Collaborative Components on the Portal Server

This task enables the portal with the Lotus Collaborative Components. You install all components *except* the Discovery Server.

On the Portal Server:

1. Open a command window to `<WAS_root>/bin`.
2. Use the `serverstatus` command to see which WebSphere servers are running:
`serverstatus -all -user wpsbind -password <wpsbind password>`
3. Use the `stopserver` command:
`stopserver.bat WebSphere_Portal -user admin_userid -password admin_password`
4. Stop any running servers as indicated by the list.
5. Locate the `<wp_root>/config/wpconfig.properties` file and create a back up copy before changing any values.
6. Use a text editor to open the `<wp_root>/config/wpconfig.properties` file. Scroll down to the Lotus Collaborative Components Properties and enter the values appropriate for your environment.

Table 18. Values for Collaborative Components Properties

Property	Example Value	Description
LCC.Sametime.Enabled	true	Is Lotus Sametime enabled in the environment?
LCC.Sametime.Server	sametime.mynetwork.com	The Lotus Sametime server name.
LCC.Sametime.Protocol	http	The protocol used to connect to the Lotus Sametime server.
LCC.Sametime.Port	80	The port number for the Lotus Sametime server.
LCC.DominoDirectory.Enabled	true	Is Lotus Domino Directory enabled in the environment?
LCC.DominoDirectory.Server	directory.mynetwork.com	The Lotus Domino Directory server name.
LCC.DominoDirectory.Port	389	The port number for the Lotus Domino Directory server.
LCC.DominoDirectory.SSL	false	Is SSL used to connect to the Lotus Domino Directory Server?

7. Save the file.
8. At a command line, change to the directory `<wp_root>/config`
9. Type the following command to run the configuration task:

```
WPSconfig.bat lcc-configure-all
```
10. At a command line, change to the directory `<WAS_root>/bin`.
11. Type the following at the command line to start IBM WebSphere Portal Express Server.

```
startServer WebSphere_Portal -user wpsbind -password  
<yourWpsBindPassword>
```

Enable SSO between WebSphere and Domino

To provide SSO in the WebSphere - Domino environment, you need to generate authentication keys on IBM WebSphere Application Server and then import them into the Domino servers.

To generate and extract SSO configuration keys from IBM WebSphere Application Server, follow these steps:

1. If the IBM WebSphere Application Server instance `server1` is not running, start it.
2. Log into the IBM WebSphere Application Server administration console (go to **Start -> All programs -> IBM WebSphere -> Application Server Network Deployment v6 -> Profiles -> wp_profile -> Administrative console** or launch a browser window to `https://portal.mynetwork.com:10003/ibm/console/logon.jsp`) and log in as the IBM WebSphere Application Server User ID (`wpsbind` with password `<yourWpsBindPassword>`)
3. Expand the **Security** section.
4. Select **Global security**.

5. Expand the **Authentication mechanisms** section.
6. Click **Single Sign on (SSO)** in the **Additional Properties** section.
7. Make sure you check the boxes for **Enabled** and **Interoperability Mode**, and fill in the **Domain name** (for example, **mynetwork.com**).
Note: Make sure there is no leading dot (.) in the domain name.
Click **OK**.
8. Select the **LTPA** link.
9. Within the **Key File Name** field, provide a file name in which to save the SSO key (for example, **portalssso.key**).
10. Select to **Export the Keys**.
11. Select the **Save** link in the message box at the top of the screen, and then select the **Save** option again in the following page to save the master configuration.

The key file is now available in the directory `<WAS_root>`.

Follow these steps to import the keys to the Domino server:

1. Copy the key file to the file system of the Domino server (for example, `<installation_drive>:\portalssso.key`).
2. Start the Lotus Notes and Domino Administrator Client.
3. Ensure that the Directory Server is indicated as the current server.
4. Select the **Configuration** tab and navigate to **Server -> All Server Documents**.
5. On the tool bar click **Web... View Current Configurations**.
6. Edit the document **Web SSO Configuration for LtpaToken**.
7. Select **Keys -> Import WebSphere LTPA Keys** from the pull-down menu. Click **OK** to continue.
8. Enter the full path to the key file that you copied to the Domino server in step 1; for example, `<installation_drive>:\portalssso.key`.
9. Enter the LTPA password (specified in the `wpconfig.properties` file above) and then select **OK**.
10. Select **OK** on the **Success** panel.
11. Check that the **LDAP Realm** is set to `<directory.mynetwork.com>:389`.
12. Select to save and close the document.
13. Replicate the new SSO document to the Sametime server:
 - a. Select **File -> Replication -> Replicate**.
 - b. Replicate with the Sametime server name.
 - c. Select **OK**.
14. Restart all servers (enter the command `restart server` in each console window) in the following sequence:

Note: "Restart" does not mean reboot. It means shutting down and restarting the Domino application server process on the machine.

 - a. Domino e-mail/LDAP server
 - b. Sametime Server (The `restart server` command does not work with Sametime. You must issue the command `quit`.)

Verification Procedure

You can validate the SSO function with these steps:

1. Open a browser to <http://portal.mynetwork.com:10038/wps/portal>. Log in to the portal as the one of the test users (☛ Test User 1 - `test user1`). Verify that the upper right displays "*Log Out: tuser1.*" (Do not click on it.)
2. To verify SSO with both Domino servers, keep the browser window open and switch to the Directory Server: <http://directory.mynetwork.com/mail/tuser1.nsf>
Verify the upper left displays "*Welcome tuser1.*"
3. Switch to the Sametime Connect Server: <http://sametime.mynetwork.com>
Verify the upper right corner of the screen displays "*Logged in as tuser1.*"

In both cases you should be logged in without being challenged for credentials.

Note:

The SSO token which is created by IBM WebSphere Application Server and then distributed to the Domino servers has a specific expiration time. Therefore, for SSO to work, all machines that belong to the domain should have the same system time and date relative to GMT. Otherwise, the token that is generated on one machine could be considered as expired on the other machine.

Configure Lotus Collaborative Components



Perform this task on the Portal Server.

A default portal is installed as part of the IBM WebSphere Portal Express installation process, with a set of Lotus collaborative components. However, to enable some of these components (i.e., portlets) some configuration tasks are required.

This section covers the following:

- An overview of the default portal
- Configuration tasks to enable the Mail portlet in Messaging
- Configuration tasks to enable the Mail portlet in Domino Web Integration
- Configuration task to enable Lotus Web Conferencing portlet in Domino Integration
- Configuration task to enable Lotus Sametime in Domino Integration

Default Portal Overview

From any workstation or server in the network, open a browser and logon to the portal server. For example, go to <http://portal.mynetwork.com:10038/wps/myportal> and log in using one of the established user IDs (for example, `tuser1`). You will see the portal home page and the user ID you used to log in on the top right corner (**LogOut:<userid>**). Note that on the top left it displays **Intranet Jumpstart > Home >**. This page is organized with 3 tabs: **Home**, **Work**, and **Collaboration**.

From the bottom of this page, click the **Messaging** icon. This brings up the **Messaging Welcome** page. The **Messaging** page is organized with 3 tabs: **Welcome**, **Mail**, and **Calendar**. From the bottom of the **Welcome** page, click on **To learn more about Domino Integration, go to the Domino Integration page** to bring up the **Domino Integration** page. The **Domino Integration** page is organized with 4 tabs: **Welcome**, **My Work**, **My Team**, and **My Database**.

Enable the Mail Portlet in Messaging

Perform the following steps to enable the Mail portlet in Messaging:

1. Login to the portal using a Portal Administrator ID (for example, **wpsadmin**) and password.
2. Go to the **Messaging Welcome** page.
3. Click the **Mail** tab.
4. Move the mouse pointer to the top of the **Mail portal** window and you will see a downward pointing triangle on the right corner. Click on the triangle to see a down-drop list and select **configure** from the list.
5. In the **Mail Configuration** portal window, select the **IBM Lotus Notes** radio button to select Notes as the default Server Type/Protocol.
6. On the **IBM Lotus Notes** line, click the **configure** icon.
7. In the **Mail portal** window, enter the mail server name. For this Solution Starting Point, this is the same as your directory server (for example, **directory.mynetwork.com**) and the port number (for example, 80).
8. Click **OK**.
9. When it returns to the **Mail configuration** portal window, click **Done**.
10. Logout from the portal and login again using a non-administrator ID and password. Go to the **Messaging Welcome** page and select the **Mail** tab to verify Lotus mail is available in the **Mail portal** window.

Enable the Mail Portlet in Domino Web Integration

Perform the following steps to enable the Mail portlet in Domino Web Access:

1. Stop the IBM WebSphere Portal Express by going to the `<was_profile_root>\bin` directory and enter the following command in a command prompt window:

```
stopserver.bat WebSphere_Portal -user <admin_userid> -password <admin_password>
```
2. Go to the `<WP_root>\shared\app\config` directory and locate the `CSEnvironment.properties` file.
3. Make a backup copy of this file before editing it.
4. Open this file in a text editor.
5. Locate the following section in the file:

```
# Add default IIOP/ SSL port
```
6. Under the heading in the previous step, remove the comment tag (#) from the beginning of the line that contains `CS_SERVER_DOMINO_DIRECTORY_1.userid=`
7. At the end of the line, add a user ID that has appropriate access in the LDAP directory that supports Collaborative Services. Type the Lotus Domino LDAP fully-qualified name (for example, `cn=wpsadmin,o=organization_name`) for the user.
8. Go to the line that contains `CS_SERVER_DOMINO_DIRECTORY_1.encryptedpwd=`
9. Remove the comment tag (#) from the beginning of the line.
10. Copy the line that contains `CS_SERVER_DOMINO_DIRECTORY_1.encryptedpwd=` and paste it into a new file.

11. In the new file, at the end of the line, add the internet password for the user ID (that was entered for `CS_SERVER_DOMINO_DIRECTORY_1.userid`).
12. Save and close the new file as `dominobind.txt` in the `<was_profile_root>` directory.
13. Open a command prompt to the `<was_profile_root>\bin` directory.
14. In the same directory, run the following command (type as one line with a space character separating it):


```
PropFilePasswordEncoder dominobind.txt
CS_SERVER_DOMINO_DIRECTORY_1.encryptedpwd
```
15. In the same directory, open the `dominobind.txt` file, and copy the encrypted password after `CS_SERVER_DOMINO_DIRECTORY_1.encryptedpwd=`
16. Go back to the `CSEnvironment.properties` file.
17. Paste the encrypted password after `CS_SERVER_DOMINO_DIRECTORY_1.encryptedpwd=`
18. Save and close the `CSEnvironment.properties` file.
19. Close and delete the `dominobind.txt` file (and `dominobind.bak` file if it exists).
20. Use the following command to start the IBM WebSphere Portal Express server:
 - a. Open a command prompt and change to the directory: `<was_profile_root>\bin`
 - b. Enter the following command: `startserver.bat WebSphere_Portal`

Note: This command is case sensitive.
21. After the Portal Server is started, login to the portal as a user (for example, `tuser1`) and go to the **Domino Web Access Welcome** page. (From the Portal home page, click **Launch** and then **Domino Integration** to go to the **Domino Integration Welcome** page.)
22. Click the **My Work** tab, and you should see your Lotus mail in the Domino Web Access portal window.

Enable Web Conferencing

Perform the following steps to enable Web conferencing:

1. Login to the portal using a Portal administrator ID (for example, `wpsadmin`) and password.
2. Open the Administration page by clicking **Launch** and then **Administration**.
3. Select **Portlets** from **Portlet Management**.
4. In the search box, enter **Lotus Web Conferencing** and then click **Search**.
5. Click the **Configure Portlet** icon on the line where it displays **Lotus Web Conferencing**.
6. Click the **edit parameters** icon on the line that displays **SametimeServer1** and enter the hostname of your Sametime server (for example, `sametime.mynetwork.com`).
7. Click **OK**.
8. Repeat steps 6 and 7 to enter the **SametimeUserName1** and **SametimePassword1** fields (for example, `wpsadmin` and your password).
9. Logout and login again using a non-administrator ID and password (for example, `tuser2`).
10. Click **Launch** and then **Domino Integration** to go the **Domino Integration** page.
11. Click the **My Team** tab and you should see the **Lotus Web Conferencing** portal window where you can start or find a meeting to attend.

Enable Lotus Sametime in Domino Integration

Perform the following steps to enable Lotus Sametime in Domino integration:

1. Stop the IBM WebSphere Portal Express server by going to the `<was_profile_root>\bin` directory and enter the following command in a command prompt window:

```
stopserver.bat WebSphere_Portal -user <admin_userid> -password <admin_password>
```
2. Go to the `<WP_root>\shared\app\config` directory and locate the `CSEnvironment.properties` file.
3. Make a backup copy of this file before editing it.
4. Open this file in a text editor.
5. Locate the line `#CS_SERVER_SAMETIME_1.dnNameSeparator=,`
6. Remove the comment tag (#) from the beginning of the line.
7. Change the character after the '=' sign to be '/'. For example:

```
#CS_SERVER_SAMETIME_1.dnNameSeparator=/
```
8. Save and close the file.
9. Use the following command to start the IBM WebSphere Portal Express server:
 - a. Open a command prompt and change to the directory: `<was_profile_root>\bin`
 - b. Enter the following command: `startserver.bat WebSphere_Portal`

Important: You have completed the installation and configuration tasks for the solution. If you would like to use the sample included with this Solution Starting Point, continue to [Chapter 3. Create Demo Users](#) on page 48.

Chapter 3. Create Demo Users



Perform this task on the Directory Server.

You need to create the following users for the demo use cases.

Table 19. Users for Demo Use Cases

User Name	User ID	Group Membership (Role)
Mike Rotz	mrotz	Executives
Vic Sargent	vsargent	Managers
Betsy Parker	bparker	Managers, HR
Kristen Baker	kbaker	Employees, HR
Lisa Bello	lbello	Employees, HR
Michael Davis	mdavis	Employees, HR
Gary Spurr	gspur	Employees, Marketing
Elizabeth Flur	eflur	Employees, Sales
William Woolf	wwoolf	Employees

You could create the users manually as described in [Add Test Users](#) on page 27, but you can automate this process by importing a Lightweight Directory Interchange Format (LDIF) file to Domino.

Before continuing, you must first copy `people.ldif` from the solution samples to the temp directory on the Domino Directory server.



IMPORTANT: This file contains the sample values "mynetwork.com" and "mycompany". You **must** edit this file to change the sample values to match your environment.

Perform the following steps:

1. Log on to the Domino Administrator Client as `wpsadmin`.
2. Click the **People and Groups** tab.
3. From the **Tools** pane, click **People - Register**.
4. When prompted, enter the certifier ID password and click **OK**.
5. On the **Register Person** dialog window, check the **Advanced** box to show the advanced settings tabs.
6. On the **Basics** tab, select **Domino Web Access** in the **Mail System** field. Click **Yes** on the prompt to change user registration settings.
7. On the **ID Info** tab, check to make sure **Certifier ID** has the correct name (for example, `<mycompany>`).
8. Click **Migrate People**.
9. From the **People and Group Migration** dialog box, select **LDIF Entries** from the **Foreign Directory Source List**.
10. In the **Select LDIF File** dialog box, specify the `people.ldif` file and click **OK**.

11. Click **Migrate** and click **OK** to close the message that indicates the number and status of the users queued for registration. (There should be 9.)
12. Click **Done**.
13. The people queued for registration now appear in the **Registration** status box. Click **Register All**. A status bar appears showing the progress, which may take from 10 to 30 seconds per user depending on processor speed.
14. After the process completes, a message appears informing you of the registration status. Users who could not be imported continue to be listed in the Registration status box with a status message indicating the reason for the failure. Correct the information in the registration profile and attempt to import the user again.
15. Click **Done** to dismiss the registration dialog. Refresh the **People and Groups** view to see the new users.
16. Log on to the portal as one of the registered users listed and verify that the Notes and Sametime portlets function normally.

Note:

The demo users are created with the password set to **passw0rd**.

Chapter 4. Using the Solution

This section contains a set of use cases that can be followed to ensure the solution is installed and configured correctly. They can also be used as the basis for a demonstration to customers.

These use cases help you to understand how to use the portal that you have implemented from the point of view of the end users. You can follow the navigation as it is laid out in this section to become familiar with the portal. You can then adapt this to use with your customers and to provide a live demonstration.

The use cases focus on navigating through the sample portal in order to help you become familiar with the features of such a solution. Before you prepare for your own customer demonstration, you probably want to customize the portal solution to reflect user roles, applications and industry aspects of your prospective or existing customer.

Notes for a Customer Demonstration

In a customer demonstration, you should always emphasize the business value of the portal solution. As you show the functions available to users through the portal, focus your customer's attention on how these relate to the following:

- How your customer can save money - for example, no updates to client machines are required, since all applications are accessed through browsers
- How your customer can save time and money implementing the portal solution, since many components required to access applications and collaborative features are already available - the applications just need to be customized
- How employees can find information faster - for example, everything is customized to an employee's role
- How employees can be more productive - they can collaborate faster, do not need to start several applications, and can log in to different sources
- How time can be saved when an employee moves from one department to another, because access rights can be managed from one single point

Preparing for the Demonstration

Demonstrating a portal can be challenging. It is easy to divert from an organized navigation path and confuse your audience by focusing too much on details of a specific page or portlet. The following approach to showing the portal is suggested:

- Because a portal is an integration platform, begin by explaining to your customer which applications the portal integrates (or can integrate) into a single user interface. This shows the customer how to have a single point of access to all business applications or databases.
- The second step is to explain to the customer which roles the portal supports. Explain that the portal's capability to provide customized access to applications and information helps employees find information more quickly and access applications they need in their daily business.

Provide one or more diagrams showing the layout of the portal to give your customer a visual guide.

- The third step is to show the customer several applications supported by the portal solution. Concentrate on the collaborative features and explain how employees can be more productive using these features. Also mention other applications that were previously accessible through

specific clients and now can be accessed using a single browser access point. Explain that employees can use their customized environment with all required applications, from everywhere, when they can access the portal.

The easiest way to do this is to center your navigation on what each user role can see. For each one, describe the available features for a normal end user and for a content manager user and how they can access and use the portal.

Demo Roles and User IDs

Several different user IDs are used, one for each role. These users and groups, listed in [Table 20](#) below, should have been created in [Chapter 3. Create Demo Users](#) on page 48.

Table 20. Demo Users and Groups

User Name	User ID	Group Membership (Role)
Mike Rotz	mrotz	Executives
Vic Sargent	vsargent	Managers
Betsy Parker	bparker	Managers, HR
Kristen Baker	kbaker	Employees, HR
Lisa Bello	lbello	Employees, HR
Michael Davis	mdavis	Employees, HR
Gary Spurr	gspur	Employees, Marketing
Elizabeth Flur	eflur	Employees, Sales
William Woolf	wwoolf	Employees

Use the administrative ID (`wpsadmin`) if you want to show administrative tasks to your audience.

Enable Sametime Awareness

Remember, each user must enable instant messaging when they access their mail on the Directory Server. At a minimum, do this for Kristen Baker and Vic Sargent for the use case, [Instant Messaging for Immediate Help](#) on page 52.

1. Log onto the portal and navigate to **Intranet Jump Start -> Home -> Collaboration**.
2. In the **Sametime Contact List** portal window, click **Options** and then select **Change online status**.
3. Check the **I am active** radio button and click **OK**.
4. Click **Save & Close**.
5. You should now see the user name turn green indicating that you are active in Sametime.

Entering the Portal

To enter the intranet portal, a user should open a browser and type the following URL:

`http://portal_server_name.com:10038/wps/portal`

where `portal_server_name.com` is the hostname of the Portal Server.

The first page that appears contains general news and information and can be accessed by all non-authorized users.

The rest of these examples present the different views in the portal that the employees have, depending on their role.

Collaboration Scenario

Collaboration addresses many aspects of communication within the business environment including e-mail, instant messaging, and online e-meetings. Collaboration enables virtual teams to form and dissolve as needed to tackle business problems and effectively manage projects.

Online e-meetings are especially useful for participants in different locations. Using e-meetings replaces the need for costly travel and face-to-face meetings. E-meetings improve communications among offices that are often spread across a wide area. A regional manager, for example, can save time by running weekly status updates through an e-meeting, saving significant commute time and having to repeat the same information at each location.

This demonstration illustrates instant messaging and online e-meetings.

Instant Messaging for Immediate Help

This part shows someone who needs help using PeopleFinder to locate a specific person or a person with a specific skill. As part of locating that person, they look at the organization structure (to ensure they have the right person) and then use the context-sensitive menu to ping that person. Kristen's next task is to communicate the new vacation policy to the store managers. She sets up an e-meeting to do this, but she needs to contact a regional director to determine a good time to do this. She can't remember the name of the regional director she needs to contact, so she searches on job title.

This section demonstrates the following:

- How to search the employee profiles for a specific person
- How to contact a person using instant messenger

Search the Employees Directory for a Specific Person

The following steps demonstrate how you can search the employee directory for a specific person.

1. Log in to the portal as Vic Sargent.
2. On another client, log in to the portal as HR Advisor, Kristen Baker.
3. The People Finder portlet appears on all the Collaboration pages. Change the drop-down menu to **Job Title** and enter **Operations Analyst** in the **Search for** field. Then click the **Search** (magnifying glass) icon.
4. The search returns William Woolf. Click William's name and select **Show** in **Organization View** to show his management chain.

Contact an Employee using IBM Lotus Sametime Connect (Sametime)

The following steps demonstrate how you can contact another employee using IBM Lotus Sametime Connect (Sametime).

1. When Kristen sees that Vic Sargent manages Williams's department, she is sure that Vic is the right person. Do a search by name for **Sargent**. In the results, click on **Vic Sargent**'s name and select **Add to Sametime list**. In the pop-up window, enter a new group if desired or select an existing group and click **OK**. Refresh the page so Vic's name shows up in the Sametime Contact list. Vic is active in Sametime, so Kristen decides to send him an instant message. Click Vic's name to open a **Chat** window.
2. Type **When would be a good time to set up the e-meeting about the new vacation policy?**

3. Click **Send**.
4. On Vic's client machine, respond **Tomorrow from 3-4 would be perfect.** and click **Send**.

HR Policy Education Using e-meetings

This section demonstrates how an e-meeting is used to educate store managers on updated HR policies.

Create an e-meeting

The following steps demonstrate how team members can create an e-meeting and hold a discussion.

1. Log in to the portal as HR Advisor, Kristen Baker.
2. Select **Launch** -> **Domino Integration**. Select the **My Team** tab.
3. In the Web Conferences portlet, click **New Meeting**.
4. Enter the following information and click **Save**.
 - Meeting name: **vacation Policy**
 - When: **Start now**
 - Password: <meeting password>
 - Leave defaults for the rest
5. Click **Save**.
6. Click the link in the **Locations** section to open the meeting.
7. Click **Attending Meeting**.
8. Click **Yes** to any security warnings.
9. On a different client, log on as Vic Sargent as well. Go to **Web Conferences** and search for all meetings in progress. Sign on to the Vacation Policy meeting.
10. On Kristen Baker's client, open the sample file **vacation Policy.ppt**.
11. Click **Sharing** in the meeting window and then select **Start Sharing**. Select the **vacation Policy.ppt** from the **Currently running applications** list and click **OK**.
12. The program should appear on Vic Sargent's client.
13. On Kristen Baker's screen, cycle through the slides in slideshow mode.
14. After reviewing the slides, click **Stop Sharing**. Select **File** -> **End meeting** to close the meeting window.

Important: This concludes the description of the use cases for this solution. Proceed to [Chapter 5. Customize the Solution](#) on page 54 to learn how you can adjust this solution to meet the specific needs of your customer.

Chapter 5. Customize the Solution

When you are developing a solution to satisfy the customer requirements some form of customization is usually involved. This section helps you understand and implement common customizations for this solution and how to create a unique theme and skin for your portal.

Creating New Themes



Perform this task on the Development Client.

To customize the look and feel of the portal, for example to give it the corporate identity of your customer, you can modify the theme and skin that is used on the pages. This includes changing colors, banners, styles, fonts, layout, and other items that can make the portal look unique.

Defining your own theme involves creating a subdirectory using the theme name in the following directory:

```
<was_profile_root>/installedApps/cellname/wps.ear/wps.war/themes/markup
```

You must also create the supporting resources within that directory. HTML is the only markup language that is provided by IBM WebSphere Portal Express that supports more than one theme. The following steps provide one way of creating your own HTML-based theme using an existing theme.

1. Create a new directory using the new theme name; for example:

```
<was_profile_root>/installedApps/cellname/wps.ear/wps.war/themes/html/MyTheme
```

Note: To avoid problems with the directory name, do not use DBCS characters.

2. Copy all of the files and subdirectories from another theme directory into the new directory. For example, you could copy the files from the **/Express** theme.
3. Make updates to the following files according to the requirements of your portal site.

JSPs

Default.jsp and its included JSPs are used to provide the appearance and layout and determine where the screen element goes.

Images

Images are used for icons and tools within the theme pages. They are typically located in an **images** directory. You can modify these images or create your own and add them to the JSPs.

Style sheets

In order to handle the different locales and browsers supported by a theme, the style sheets are actually JSPs. The `<portal-theme:cacheProxyUrl />` tag and servlet, which is used to make sure the output of CSS JSPs is cacheable, makes sure that the JSP is aware of the current browser and locale.

Note: For security reasons, the cache proxy servlet will only serve URLs pointing to resources located in the themes, skins, and screens directories. This makes all resources underneath these directories public. Also, any URLs containing the `..` characters will not be served.

All style sheets reside in the **css** directory in the **/MyTheme** directory. The main style sheet is **styles.jsp**. **styles.jsp** contains only statically included JSP fragments (JSPFs - .jspx file extension). The easiest way to add your own styles is to create your own JSP fragment file and

add it to `styles.jsp`. You can change the style definitions. However, make sure that you do not delete any style sheets or remove any style classes.

4. To add the theme, use the **Themes and Skins** portlet under **Administration -> Portal User Interface**.

5. Edit the properties of a test page and set the page to use the new theme that you created.

Note: Be sure to use a test page for the new theme to work out any problems before setting the default page to the new theme. Setting the portal default to use a theme with errors can cause problems accessing the portal site.

6. When you are ready to offer the theme for general use, create a preview that users and administrators can see from the page properties:

- a. Create a screen capture of the theme.
- b. Reduce the screen capture to fit in the preview box. The recommended size is 300 x 225 pixels.
- c. Name the image `preview.gif`. GIF files are limited to 256 colors.
- d. Copy the image to:

```
<was_profile_root>/installedApps/cellname/wps.ear/wps.war/themes/html/<theme_name>
```

For example:

```
<was_profile_root>/installedApps/cellname/wps.ear/wps.war/themes/html/MyTheme/preview.gif
```

7. After the theme is fully developed and tested, update and redeploy the IBM WebSphere Portal Express `.EAR` file with the new theme.

Note:

If the IBM theme directory is either deleted or renamed, the portal resource loader uses the `themes/html/Default.jsp`. In this case, you should also use the fallback skin. To do this, rename the skins directory. For example, the `skins/html/IBM` directory should be renamed `skins/html/IBM1`. If you have a broken theme, you can rename the theme and skin directories which are causing the problem to get to a working minimal theme.

Enable Organize Favorites Function in Custom Themes

The **My Favorites** feature in IBM WebSphere Portal Express lets you bookmark a page in the portal so you can return to it at a later time. The page is then added to your **My Favorites** list which is maintained by means of the **Organize Favorites** feature. **Organize Favorites**, a page containing the Organize Favorites portlet, lets you create, edit, activate, order, and delete labels and URLs in the **My Favorites** list.

In a default installation of IBM WebSphere Portal Express V6.0, you cannot directly access the Organize Favorites function. The following tasks, however, can be done to access the Organize Favorites function in your newly created theme by doing the following:

1. Use the `<portal-navigation:navigation>` tag with the `scopeUniqueName` attribute as `wps.p.Favorites` to create the links to the Favorites in the theme. This replaces the `<portal:favoritesLoop/>` tag for enabling the Organize Favorites function.
2. Create a URL to Organize Favorites in the theme using the `<portal-navigation:urlGeneration>` tag to `wps.OrganizeFavorites`.
3. Create a **My Favorites** label to store the favorites by doing the following:
 - a. Click **Administration -> Portal User Interface -> Manage Pages**.

- b. Select the **Content Root** page title to select the **Content Root** page.
- c. At the **Content Root** page, click **New Label**.
- d. Create a label called **My Favorites**.
- e. Assign privileged user access to all authenticated users.
- f. Click **OK** when you have finished.
- g. Click **Portal Settings -> Custom Unique Names**.
- h. Assign `wps.My Favorites` as a unique name to the **My Favorites** label you just created.
- i. Click **OK** when you have finished.
- j. Click **Administration -> Portal User Interface -> Manage Pages**.
- k. Add a page parameter key of `Favorites` with a value of **Yes**.
- l. Add `<portal-logic:if/>` tags with the `pageBookmarkable` attribute set to true to pages that you want to be able to bookmark.

Enable Dynamic Theme Reloading

Since you are changing the portal themes and skins, it is helpful to have these changes enabled without restarting the portal. To do this, follow these steps:

1. Stop the Portal Server.
2. Locate and edit the following file:


```
<WAS_root>\config\cells\<node_name>\applications\wps.ear\deployments\wps\wps.war\WEB-INF\ibm-web-ext.xml
```
3. Search the file for the parameter named `reloadingEnabled` and change the setting from **false** to **true**.

Note: The file also contains a parameter with a similar name, `reloadEnable`, which is already set to true. Ensure that you change the `reloadingEnabled` parameter, which is located in the header portion of the file.
4. Save the file and restart the Portal Server.

Note: There is a significant performance impact when running the server with the `reloadingEnabled` parameter set to true. Only change this setting while developing a new theme or skin. When you are finished developing the theme or skin, change the setting back to **false**, and then stop and restart the server.

Create New Skins



Perform this task on the Development Client.

Defining your own skins involves creating a subdirectory using the skin name in the following directory:

```
<was_profile_root>/installedApps/cellname/wps.ear/wps.war/skins/<markup_type>/
```

You must also create the supporting resources within that directory. The following steps describe one way to create your own HTML-based skin using an existing skin.

1. Create a new directory using the new skin name; for example:

```
<was_profile_root>/installedApps/cellname/wps.ear/wps.war/skins/markup_
type/MySkin
```

Note: To avoid problems with the directory name, do not use DBCS characters.

2. Copy all of the files and subdirectories from another skin directory into the new directory. For example, you could copy the files from the `/IBM` skin.

Note: If you are using the portlet context menus then the `portletContextMenu.jsp` file from `/themes/html/IBM` should also be copied into the `themes/html/<your_theme>` directory for any themes you wish your skin to work with.

3. Make updates to the following files according to the requirements of your portal site.

JSPs

Edit `Control.jsp` to create the title bar and border around individual portlets. The other JSPs, such as `UnlayeredContainer-H.jsp` and `UnlayeredContainer-V.jsp`, are used by the portal customization to arrange portlets within the page.

Images

These are images that are used to create the portlet title bar or background images. You can modify these images or create your own and add them to the JSPs.

4. To add the skin, use the **Themes and Skins** portlet under **Administration, Portal User Interface**. The skin name that you add must be the same as the subdirectory name that you used for the skins.
5. Use the **Appearance** portlet to test and make changes to the new skins as you are working on them.
6. When you are ready to provide the skin for general use, create a preview that users and administrators can see from the page properties:
 - a. Create a screen capture of the skin.
 - b. Reduce the screen capture image to fit in the preview box. The recommended size is 307 x 159 pixels.
 - c. Name the image `preview.gif`. GIF files are limited to 256 colors.
 - d. Copy the image to:

```
<was_profile_root>/installedApps/cellname/wps.ear/wps.war/skins/html
/<skin_name>
```

For example:

```
<was_profile_root>/installedApps/cellname/wps.ear/wps.war/skins/html
/MySkin/preview.gif
```

7. After the skin is fully developed and tested, update and redeploy the IBM WebSphere Portal Express `.EAR` file with the new skin.

Note:

If the IBM theme directory is either deleted or renamed, the portal resource loader uses the `themes/html/Default.jsp`. In this case, you should also use the fallback skin. To do this, rename the skins directory. For example, the `skins/html/IBM` directory should be renamed `skins/html/IBM1`. If you have a broken theme, you can rename the theme and skin directories which are causing the problem to get to a working minimal theme.

Important: You have completed the installation and configuration tasks for the solution.

Appendix. Notices

This information was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

IBM World Trade Asia Corporation
Licensing
2-31 Roppongi 3-chome, Minato-ku
Tokyo 106-0032, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Corporation
TL3B/503
3039 Cornwallis Road
Research Triangle Park, NC 27709
U.S.A.

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this information and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement, or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Any IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information may contain examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

COPYRIGHT LICENSE:

This information may contain sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs.

Trademarks

The following terms are trademarks of International Business Machines Corporation in the United States, other countries, or both:

AIX ^(R)	Domino Designer ^(R)	ibm.com ^(R)	QMF
alphaWorks ^(R)	Domino.Doc ^(R)	i5/OS ^(R)	Rational ^(R)
BladeCenter ^(R)	e-business on	iSeries	Redbooks
Cloudscape	demand	Lotus	RS/6000 ^(R)
DB2 ^(R)	e (logo) server	Lotus Notes	Sametime
DB2 Extenders	e (logo) business	Lotus Workflow	Tivoli ^(R)
DB2 OLAP Server	eServer	MQSeries ^(R)	WebSphere
DB2 Universal	Express Middleware	OS/400 ^(R)	Workplace
Database	Express Portfolio	PartnerWorld ^(R)	xSeries ^(R)
developerWorks ^(R)	Express Servers	pSeries ^(R)	
Domino	IBM		

Intel^(R), Celeron^(R), Intel Xeon^(TM), Intel Inside^(R) (logos), and Pentium^(R) are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Microsoft, Windows, Windows Server, the Windows logo, PowerPoint, Excel, and Microsoft Internet Explorer 6 are trademarks of Microsoft Corporation in the United States and/or other countries.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Linux is a trademark of Linus Torvalds in the United States, other countries, or both.

UNIX^(R) is a registered trademark of The Open Group in the United States and other countries.

Adobe and Adobe Acrobat are trademarks of Adobe Systems Incorporated.

Bowstreet is a trademark of Bowstreet, Inc.

The IBM logo is a registered trademark of IBM Corporation.

The e-business logo is a trademark of IBM Corporation.

Netscape is a registered trademark of Netscape Communications Corporation in the United States and other countries.

Oracle is a registered trademark of Oracle Corporation.

PeopleSoft is a registered trademark of PeopleSoft, Inc.

Red Hat is a registered trademark of Red Hat, Inc.

SAP is the trademark or registered trademark of SAP AG in Germany and in several other countries.

Siebel is a trademark of Siebel Systems, Inc.

SUSE is a trademark of SUSE LINUX Products GmbH, a Novell business.

Other company, product, or service names may be trademarks or service marks of others.

Free Manuals Download Website

<http://myh66.com>

<http://usermanuals.us>

<http://www.somanuals.com>

<http://www.4manuals.cc>

<http://www.manual-lib.com>

<http://www.404manual.com>

<http://www.luxmanual.com>

<http://aubethermostatmanual.com>

Golf course search by state

<http://golfingnear.com>

Email search by domain

<http://emailbydomain.com>

Auto manuals search

<http://auto.somanuals.com>

TV manuals search

<http://tv.somanuals.com>