Lynn Winkelbauer
Tamas Vilaghy

Redbooks

WebSphere Portal installation on Linux for zSeries

Introduction

This Redpaper provides guidelines and recommendations for installing WebSphere® Portal V4.2 software components in a Linux for zSeries® environment with Setup Manager, the software installer provided with WebSphere Portal and supported by IBM®.

The section is organized as follows

- WebSphere Portal installation overview
- Sample single-tier installation with Setup Manager
- Preparation steps for the installation
- LDAP Server installation
- Installing the WebSphere Portal
- Verification of installation

© Copyright IBM Corp. 2003. All rights reserved.

WebSphere Portal installation overview

WebSphere Portal provides multiple software components that you can install, and each component has various requirements and prerequisites. You are strongly urged to use the Setup Manager to install these components. Before you install a WebSphere Portal software component, you should also read the information provided in the planning section of the WebSphere Portal V4.2 InfoCenter. The InfoCenter contains enhanced installation information related to planning, requirements, and security information.

In addition, the release notes document contains information related to workarounds for known defects and supplemental information on topics that might also be covered in the WebSphere Portal InfoCenter.

You can access the release notes at the following URL:

http://publib.boulder.ibm.com/pvc/wp/42/ena/en/InfoCenter/

Lastly, the Hints&Tips and Technotes available in the WebSphere Portal Support contains late-breaking news and information related to workarounds for known defects and supplemental information on topics that might not be covered in the WebSphere Portal InfoCenter.

You can access the release notes at the following URL:

http://www-3.ibm.com/software/webservers/portal/support/

WebSphere Portal contains a number of components, such as Lotus® QuickPlace®, Lotus Sametime®, IBM Content Manager, Tivoli® Access Manager, and so on. However, as a starting point in an initial sample scenario, the basic components such as IBM WebSphere Portal Server, IBM WebSphere Portal Content Publishing (WPCP), IBM WebSphere Application Server, DB2® Universal Database™, and IBM Directory Server in a SuSE Linux environment are installed.

Note: Before you begin the WebSphere Portal installation, it is important to gather enough information about the specific components you want to install. To help you collect this information into a single document, you may want to use the planning worksheet provided in the planning section of the WebSphere Portal InfoCenter. Fill out the table entries with appropriate values for your configuration and keep the worksheet for future reference.

Sample single-tier installation with Setup Manager

Note: The install procedures described in this section are for the WebSphere Portal Enable offering only, since at this time only Enable is supported on Linux for zSeries.

This section provides guidelines to install WebSphere Portal in a single-tier environment. As illustrated in Figure 1, the standard WebSphere Portal components are all installed on the same server. Although this is not a recommended scenario for a production server, this configuration can be very useful for development platforms, testing, and proof of concept scenarios.

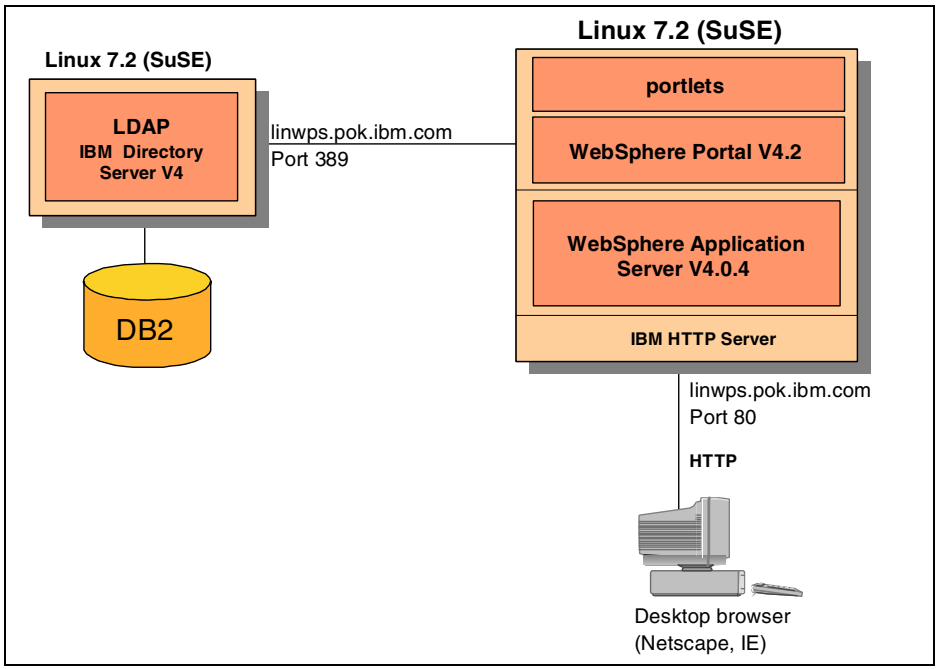

Figure 1 WebSphere Portal sample scenario

Software used in this sample scenario

The following software will be installed:

- 2.4.7 SuSE-SMP Linux
- z/VM® 4.3
- Windows 2000 Server + Service Pack 2
- IBM HTTP Server V1.3.19.3
- IBM DB2 Universal Database V7.2 + Fix Pack 7

- IBM WebSphere Application Server V4.0.4
- IBM WebSphere Portal Enable 4.2
- IBM Directory Server V4.0
- Microsoft® Internet Explorer V5.5 + Service Pack 1
- Hummingbird® Exceed V7.0

Hardware used in this sample scenario

The following hardware is used:

- IBM 2064 model 116. It has 16 CPUs and 64 GB of memory. Approximately 2500 mips (total).
  - Allocations for z/VM are:
    - 6 shared CPUs
    - 6 GB of main memory
    - 2 GB of expanded memory
    - 2 online crypto coprocessors
    - 2 online crypto accelerators
  - Linux for zSeries guest on the z/VM
    - 2 shared CPUs
    - 2 GB of main memory
    - 2276 MB DASD for root
    - 2347 MB DASD for /opt
    - 446 MB Swap
- NFS Server
    - Intellistation Mpro
    - 512 MB Mem
    - 2 x PIII 833 MHz
    - 20 GBHD
    - 100 MB fast Ethernet
- Desktop browser
  - IBM PC 300PL
    - 733 GHZ
    - 512 MB RAM
    - 20 GB DASD
    - 1 IBM Etherjet 100/10

Preparation steps for the installation

The database manager and the LDAP Server must be installed before you start the WebSphere Portal installation. You will use Setup Manager to first install DB2

and LDAP, then use Setup Manager again to install WebSphere Portal Server after you have verified that the LDAP server has been installed correctly. Here are other dependencies that must be met before setup is started.

1. libncurses.so.4

   Setup Manager requires libncurses.so.4 to reside in the /usr/lib directory. Thus, if libncurses.so.4 resides in another directory, a symbolic link must be created. The Linux for zSeries systems programmer needs to create a symbolic link to the directory /usr/lib/ for libncurses.so.4 for Setup Manager to work, as it explicitly uses this directory name.

   ```
   ln –s /lib/libncurses.so.4          /usr/lib/libncurses.so.4
   ```

2. pdksh

   Setup Manager scripts require the Public Domain Korn Shell to execute; thus, pdksh needs to be installed before the install script can run. The Linux for zSeries systems programmer needs to install pdksh so that the install script can run. For SuSE, you can find the package with the following commands and selections:

   ```
   YaST -> Package Management -> Change or create configuration -> ap -> pdksh
   ```

3. Preparing the CDs that come with WebSphere Portal Server (WPS)

   We used eight CDs for WebSphere Portal Server. These CDs should be NFS-mounted and made available to your Linux for zSeries system. Issue the following commands after the CDs have been NFS-mounted somewhere:

   ```
   cd /mnt
   mkdir WPS
   cd WPS
   mkdir cdn
   mkdir setup
   mount nfsserver:/nfslocation/cdn cdn
   ```

   Note: The name of the directory where you mount the CD matters! If the name of the directory is cdn (or cdn-n), where n is the CD number, Setup Manager finds the directory and continues without intervention. However, if you name the directory anything else, Setup Manager takes a while searching for the directory, then prompts you for the directory name.

   This has both positive and negative aspects:

   - If the directories are called cdn (or cdn-n), you cannot intervene with the installation to verify or alter anything between product installs.
   - If the directories are *not* called cdn (or cdn-n), you will be prompted for each CD directory name before each product install. Setup Manager cannot continue until you enter the directory name, and will spin cycles while waiting for input.

The CDs you will require (and the exact naming for the CD, using lowercase) for Linux for zSeries are:

- cd1: HTTP Server
- cd2-10: DB2
- cd2-15: DB2 Fix Pack
- cd3-3: WebSphere Application Server
- cd4: WebSphere Content Publisher
- cd5-2: IBM Directory Server
- cd7: WebSphere Portal Server
- Setup Manager

4. Setup Manager

   Setup Manager requires an X11 window to execute, because it has a GUI interface. For our Linux for zSeries installation, we exported our Linux for zSeries DISPLAY variable to our ThinkPad®'s IP address with the **`export DISPLAY=9.117.77.9:0.0`** command, then started KDE with the **`startkde &`** command from Linux for zSeries. On our ThinkPad, we then started an X11 window software program called Exceed, made by Hummingbird, with the communications setting at PASSIVE. After Exceed started with our Linux for zSeries settings, we opened a terminal window within Exceed and started the Setup Manager installer program.

LDAP Server installation

As mentioned, you install the database manager and LDAP before installing Portal Server. In this section, we describe the recommended steps to install your LDAP Server (and the components it needs).

1. Start the WebSphere Portal installation

   In this step, you invoke the installation shell script from a NFS-mounted Setup Manager CD. You can use the **`cd`** command to get to the Setup Manager directory, then invoke the installation shell script. The tasks performed by the script include a verification process to make sure the installation runs with user root and with the correct JDK and JRE levels.

   ```
   # cd /mnt/WPS/setup
   # ./install.sh
   ```

   This will result in the following output:

   ```
   Collecting installation files....
   Didn't find java of proper version; will install one
   Installing java
   ```

```
Preparing... ##########################################[100%]
1:IBMJava2-SDK ##########################################[100%]
# WebSphere Portal Server 4.2 Setup Manager starting
.....................
Copyright (C) IBM 2001-2002
Unpacking JAR File ......................................
```

The WebSphere Portal installation process installs and configures the JDK and JRE. Then, the welcome window is displayed, as shown in Figure 2. Click **Next**.

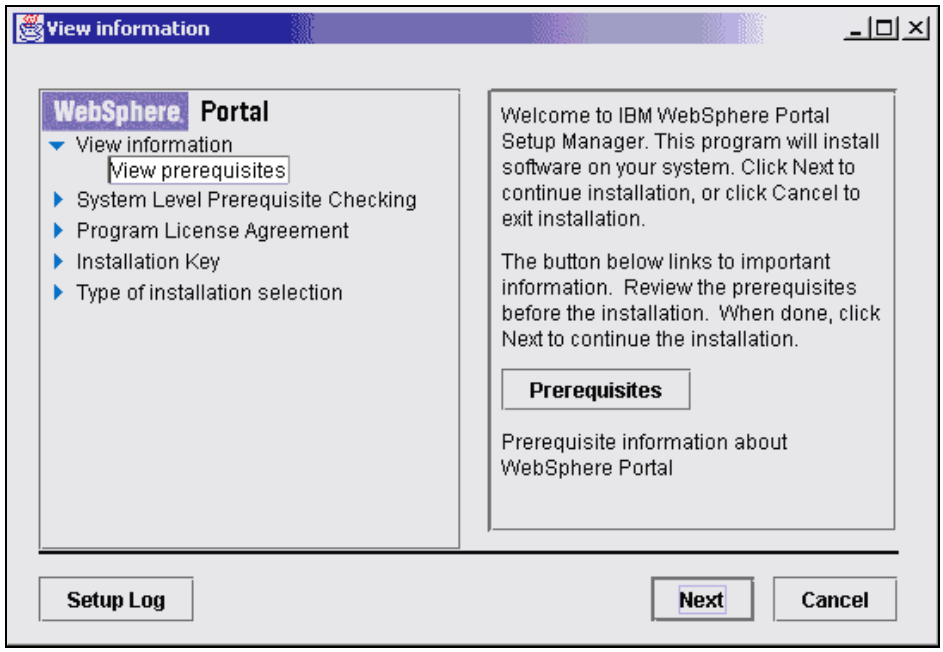

Figure 2 WebSphere Portal installation program welcome window

2. License agreement

   If required, the license agreement window is displayed. Select **Accept** and then click **Next**.

3. License key

   The installer prompts for the license key. Enter your license key number and click **Next**.

Note: There are separate license keys for different WebSphere Portal offerings, and the products that can be installed using the Setup Manager vary according to the key provided. Keep this key handy, as you will be using it again.

4. Selection of installation type

   WebSphere Portal includes three different types of installation procedures as follows:

   – Quick install: the Quick installation uses configuration information stored in a response file to automatically install the WebSphere Portal components. The default response file, wporecord.script, is on CD 1. You must modify the response file and store it on your system before you install WebSphere Portal. This option does not allow you to modify any of the previously entered fields.

   – Standard install: the Standard installation can use configuration information stored in a response file to automatically install the WebSphere Portal components with the ability to override any information previously stored in the response file. This option lets you select the components you want so you do not need to enter much information during the actual installation. This gives you more control over the configuration information that is required for WebSphere Portal and its components.

   – Advanced install: the Advanced installation lets you select the components you want to install. Selected components can be installed on different systems. Setup Manager launches the native installation programs for most of the software components you've selected, providing you with the most control over configuration information.

     Note: If you want to add some components after initial install, Setup Manager will choose Advanced Install.

   Standard install is recommended for most installations, so select **Standard Install** and then click **Next**.

5. Load a response file

   Since this is a first installation, there is no response file at this time and the check box option is left deselected. However, you can install WebSphere Portal using an existing response file. If you already have a response file, browse the file and select it. All components previously selected and saved to the response file will automatically be installed.

   After the installation, all the configuration information that you type during the installation will be stored in the response file,

/opt/IBMWPO/scripts/wpo_response_File.script. This file can be used for future installations, for example when you install again with the same configuration values. You can also use this response file when you perform another installation with the Quick install option.

Click **Next**.

6. Selection of components

   Choose the WebSphere Portal components by selecting the check boxes of the Portal components you wish to install in a specific machine. In this sample installation, you will go through the Setup Manager installation twice.

   The first time you will select the IBM Directory Server only. Setup Manger will automatically select the components that the IBM Directory Server will require (that is, IBM HTTP Server and DB2).

   The second time through, you will select the IBM WebSphere Portal Server only. Setup Manger will then select the components that the Portal Server will require automatically.

   After you click **IBM Directory Server**, the following components will be selected; see Figure 3 on page 10:

   – IBM Directory Server
     - IBM Directory Server
     - IBM Directory Client
   – DB2 Universal Database
     - DB2 Universal Database Server
     - DB2 Universal Database Fix Pack 7
   – IBM HTTP Server

   Then click **Next**.

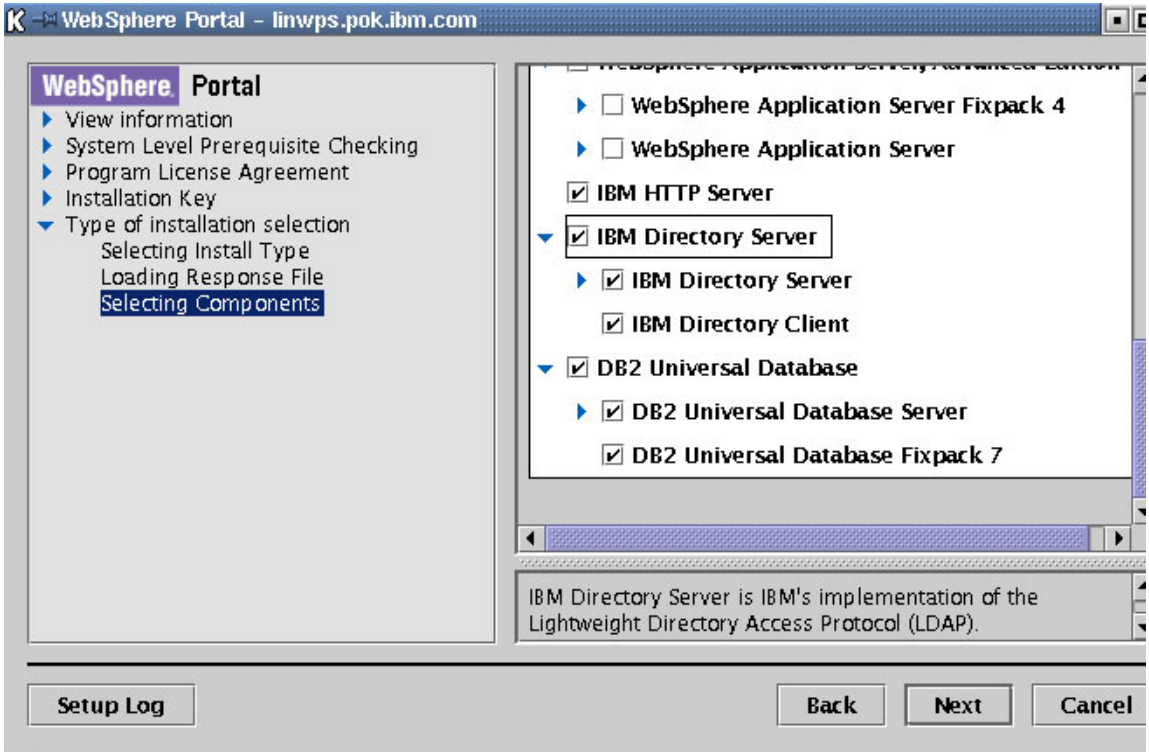

Figure 3 IDS selection

7. Collect the administration user name for IBM HTTP Server

   Enter a user name, group, and password that will be managing IBM HTTP Server on this server. See Figure 4 on page 11. Setup Manager automatically creates the user and group that you specified in this step. For example:

   – User name: http1
   – Group: httpgrp
   – Password: ******* (enter a proper password)
   – Confirm Password: repeat password entry

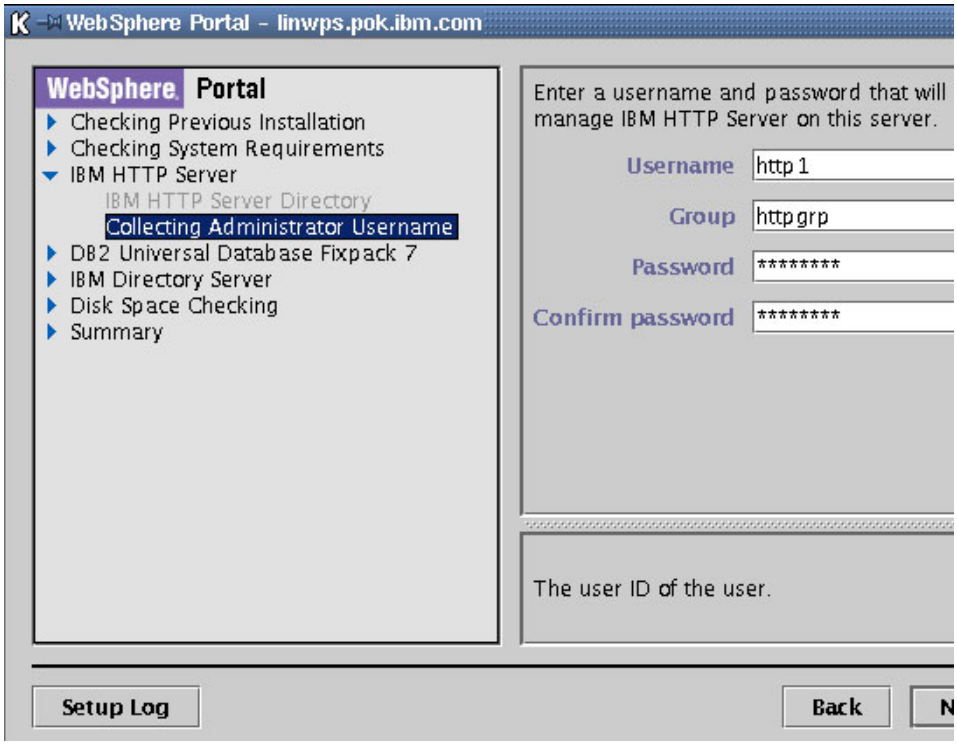

Figure 4 Entering administrator user information

8. Remove the old LDAP

   If you are going to use IBM Directory Server for your LDAP Directory Server, you must remove any non-IBM versions of LDAP that might have been previously installed in your system. We did not delete this as it has too many dependencies and did not have a problem.

9. Collect the LDAP suffix

   Enter the configuration for the LDAP Server, as illustrated in Figure 5 on page 12.

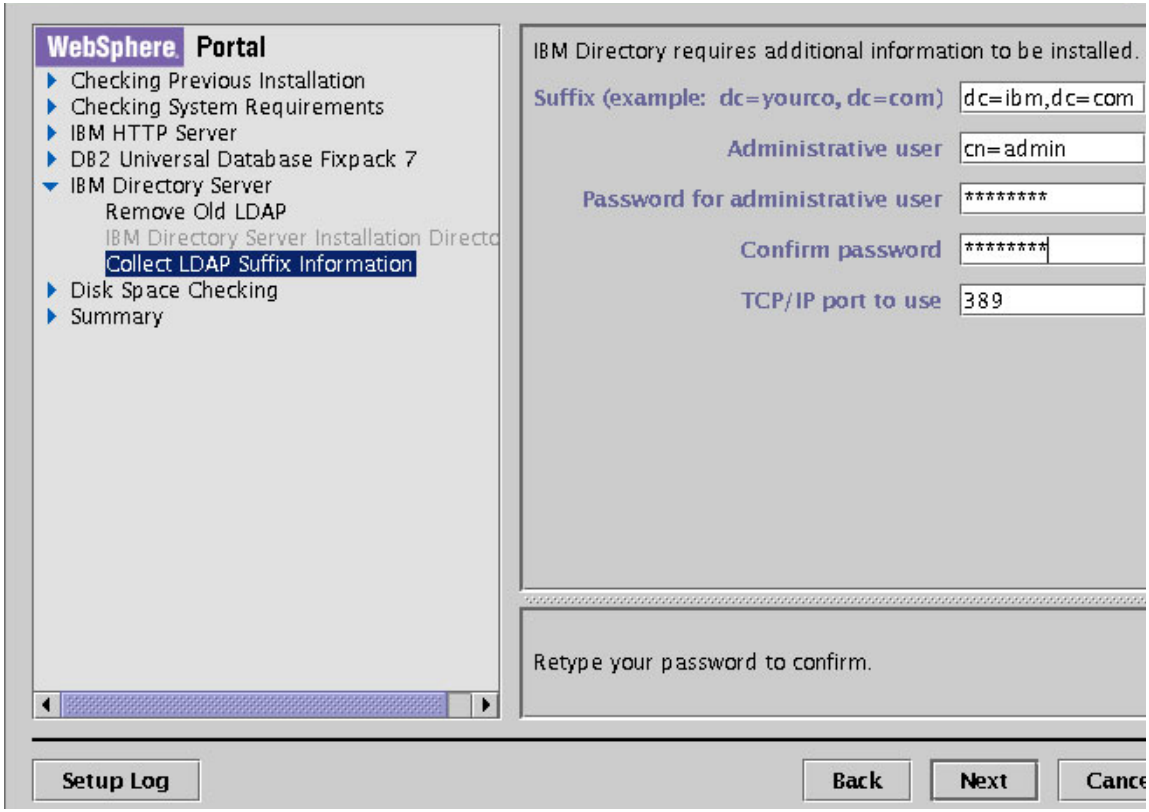

Figure 5 Collect LDAP suffix information

In this sample scenario, the following values are used:

- Suffix: `dc=ibm,dc=com`
- Administrative user: `cn=admin`
- Administrative password: `*****` (enter a proper password)
- TCP/IP port to use: `389`

Then, click **Next**.

Note: User DN must be specified in the following format: `cn= xxx`. The user DN is used to bind the LDAP Server. The default LDAP port number is 389.

Note: When you specify the LDAP suffix (such as `dc=xx`, `cn=yy`), be sure to enter it in lowercase. Uppercase or mixed cases can cause problems with WebSphere Member Services.

10. Save Response File

    The configuration information that you entered can now be saved to a response file for later use. Save the responses by clicking **Save Response File** → **OK** → **Next**.

11. Display the summary

    Setup Manager displays a summary list with all the components to be installed; see Figure 6. Click **Next**.

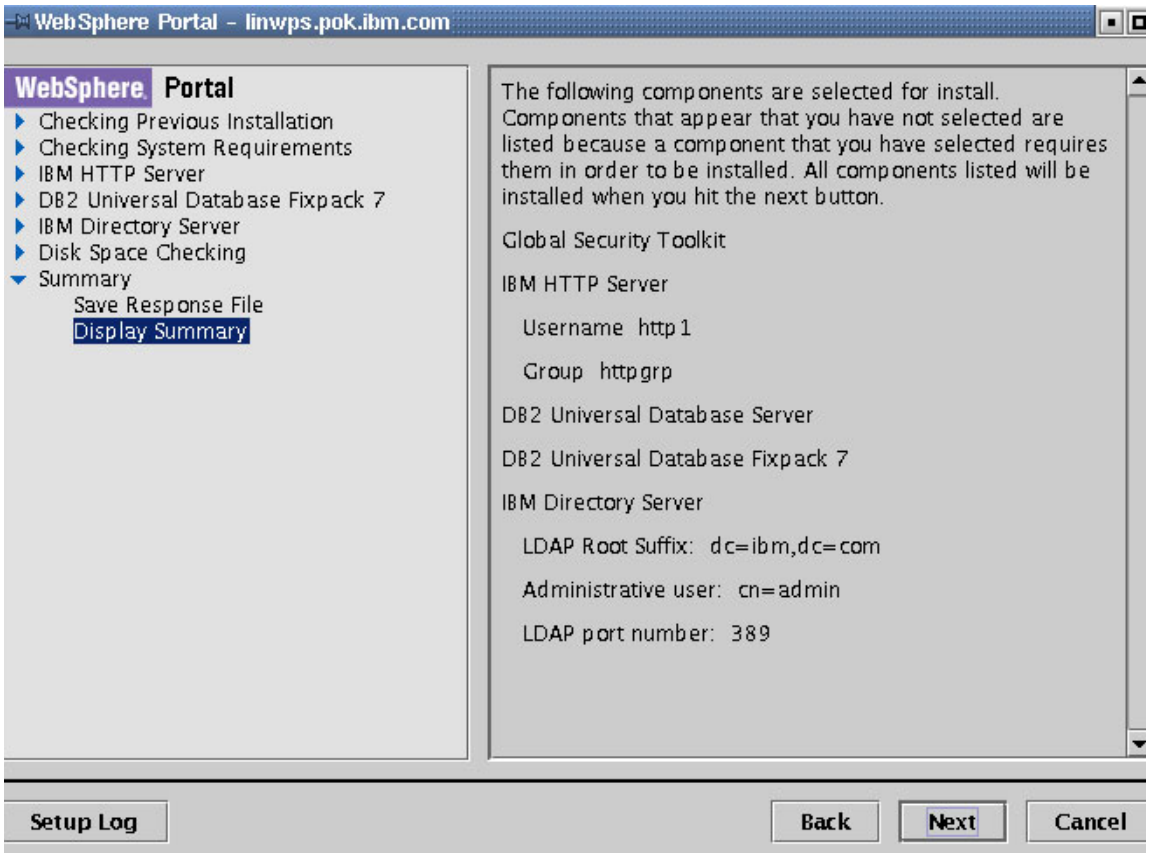

Figure 6 IDS summary information

12. Status

    Setup Manager displays a summary list with the status of each component while the install is taking place. A status meter is displayed to indicate how far into the installation you are for each component. While this is occurring, you may click **Setup Log** to see what is happening realtime. Setup Manager issues **df –k** for all directories, checks the HTTP userid, installs the global security kit, then installs the IBM HTTP Server, followed by the IBM Directory Server.

13. Prompt to load the next CD

    If you did not call the cds cdx, as recommended previously, Setup Manager prompts you to unmount, remove, mount, and insert the CDs of the components to install. Click **Unmount**, change the disc, click **Mount** and then click **OK** as shown in Figure 7.

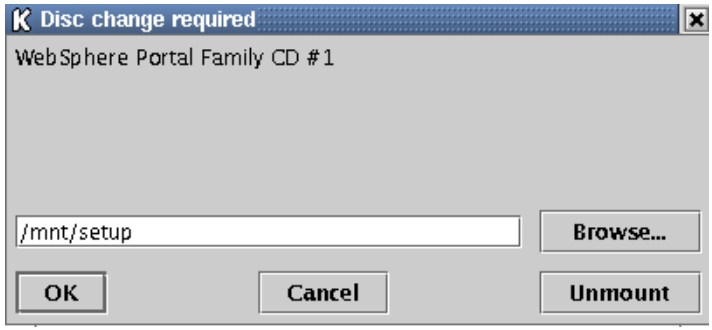

Figure 7 Remove CD

Tip: If for any reason you are not be able to unmount the CD, issue the **`unmount`** command from a terminal session and then continue to install.

14. Exit install

    When you see the message `Installation Complete...`, click **Finish**.

15. Verify the LDAP installation

    The following is a recommended procedure to verify the LDAP installation:

    a. Log in as root on the system where LDAP server is installed, and start a terminal session.

    b. Check the process by entering the command:

```
# ps -ef |grep slapd
I
```

c. If there are no slapd processes shown, start LDAP and check the process again. For example, use the following command to start LDAP:

```
# slapd
```

d. On the X11 terminal, type **dmt** to invoke the Directory Management Tool to verify the ldap contents, as shown in Figure 8.

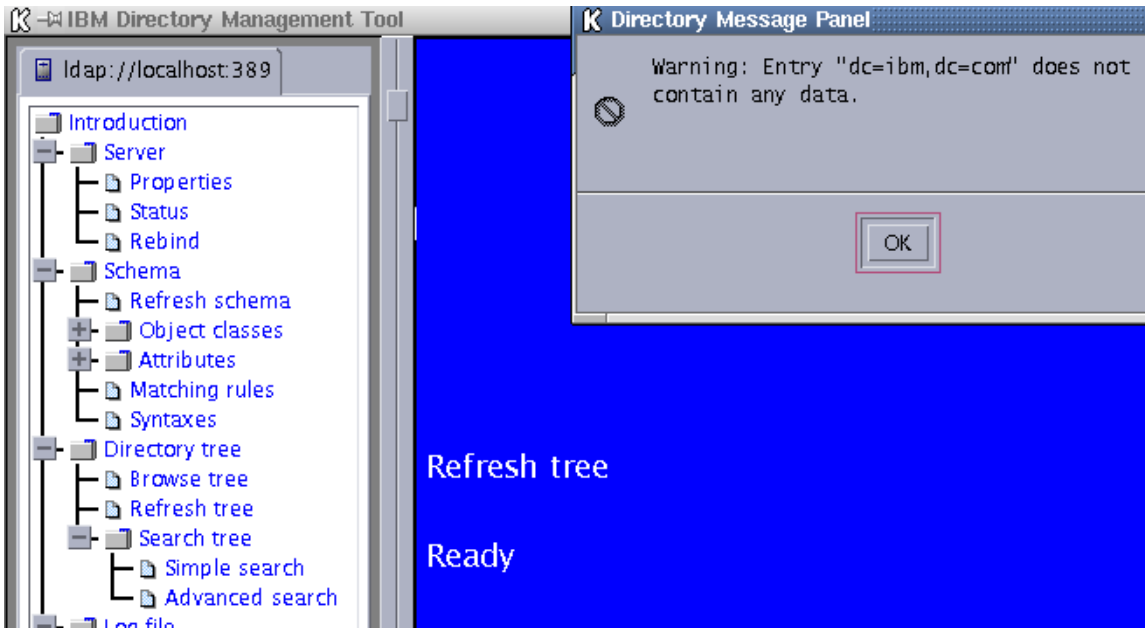

Figure 8 Directory Management Tool

Note: You can also use the IDS line commands to verify the LDAP installation. Once the dmt has started, browse the directory tree by selecting Browse Tree. There should be nothing under your cn=localhost at this time. You will get the warning message `Entry "dc=ibm,dc=com" does not contain any data.` This is acceptable at this time.

WebSphere Portal installation

Now that the LDAP installation has been verified, you are ready to go back into the Setup Manager to complete the installation of the WebSphere Portal Server.

1. Starting the WebSphere Portal Server installation

   Start the Setup Manager by issuing the following commands:

```
# cd /mnt/WPS/setup/
# ./install.sh
```

2. Welcome window

   The welcome window is displayed. Click **Next**.

3. License agreement

   If required, the license agreement window is displayed. Click **Next**.

4. License key

   Enter your license key number into the box and click **Next**.

5. Selection of installation type

   Select **Standard installation** and click **Next**.

6. Load the response file

   There is no existing response file in this sample installation. Click **Next**.

7. Selection of components

   Choose the WebSphere Portal components by selecting the check boxes of the Portal components you wish to install. In this sample installation, select the WebSphere Portal only. Setup Manger will automatically select the other components that the Portal Server will require. After you select WebSphere Portal, the following components will be automatically selected.

   – WebSphere Portal
     - Portal Server
     - Portal Content organizer support
     - Pinnacor Portlets
     - Financial Times Portlets
     - Click-To-Action

   – WebSphere Portal content publishing (WPCP)
     - Product Personalization

   – WebSphere Application Server Advanced Edition
     - WebSphere Application Server Fix Pack 4
     - WebSphere Application Server

   See Figure 9 on page 17.

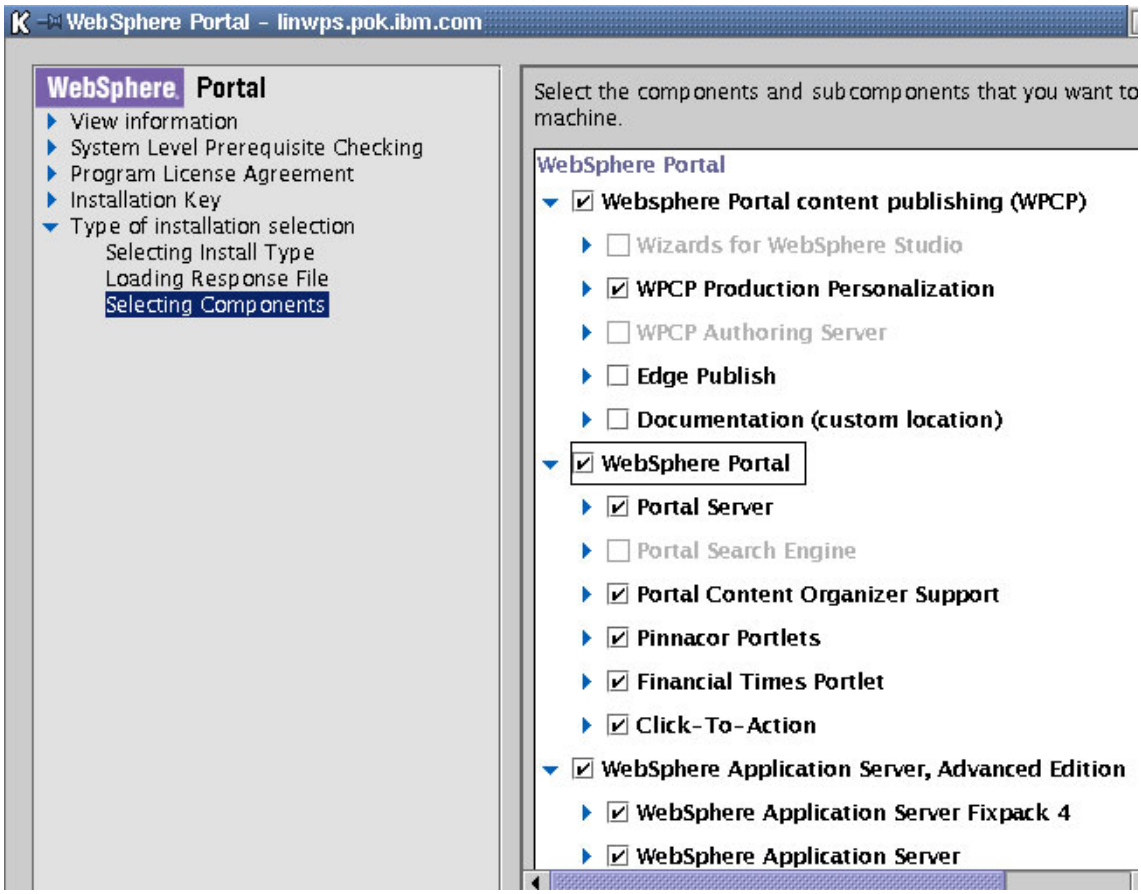

Figure 9 Components and subcomponents selection

8. Installation directory

   Enter the location where you want to install WebSphere Application Server, as shown in Figure 10 on page 18.

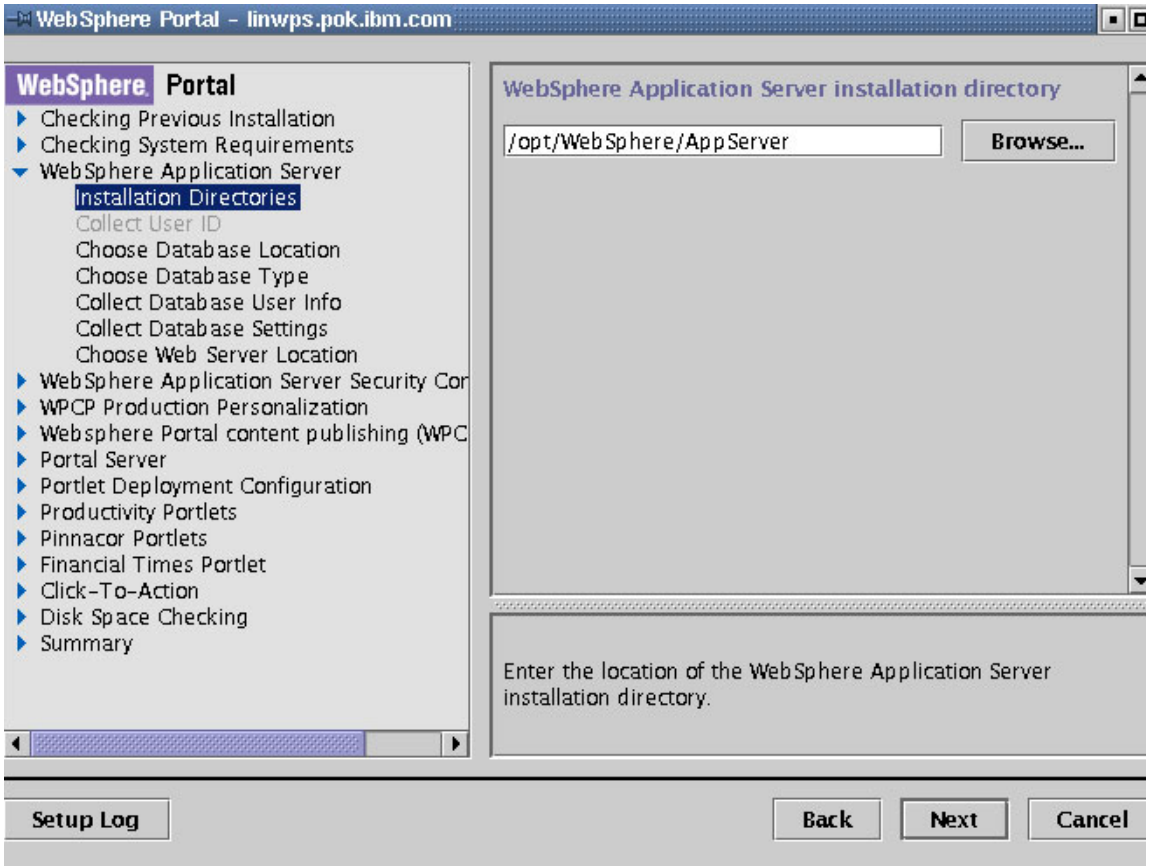

Figure 10 Specifying the directory for WebSphere Application Server

9. Remote Database

   You will be asked if you are using a remote database. Take the default of **no**.

10. Choose a database type

    Choose a database type. In this scenario, DB2 will be used. Although not shipped with WebSphere Portal, you can also use Oracle as the database software for Portal Server. If you want to use an Oracle database, the installation instructions are included in the InfoCenter.

11. Collect database User Information

    Enter the DB2 database userid and password that will be used for WebSphere Application Server. The information we used was:

    – Database User ID: `wasinst`

– Group: wasgrp

– Password: ******

Note that wasinst, wasgrp will be shown as the default. Click **Next**; see Figure 11.

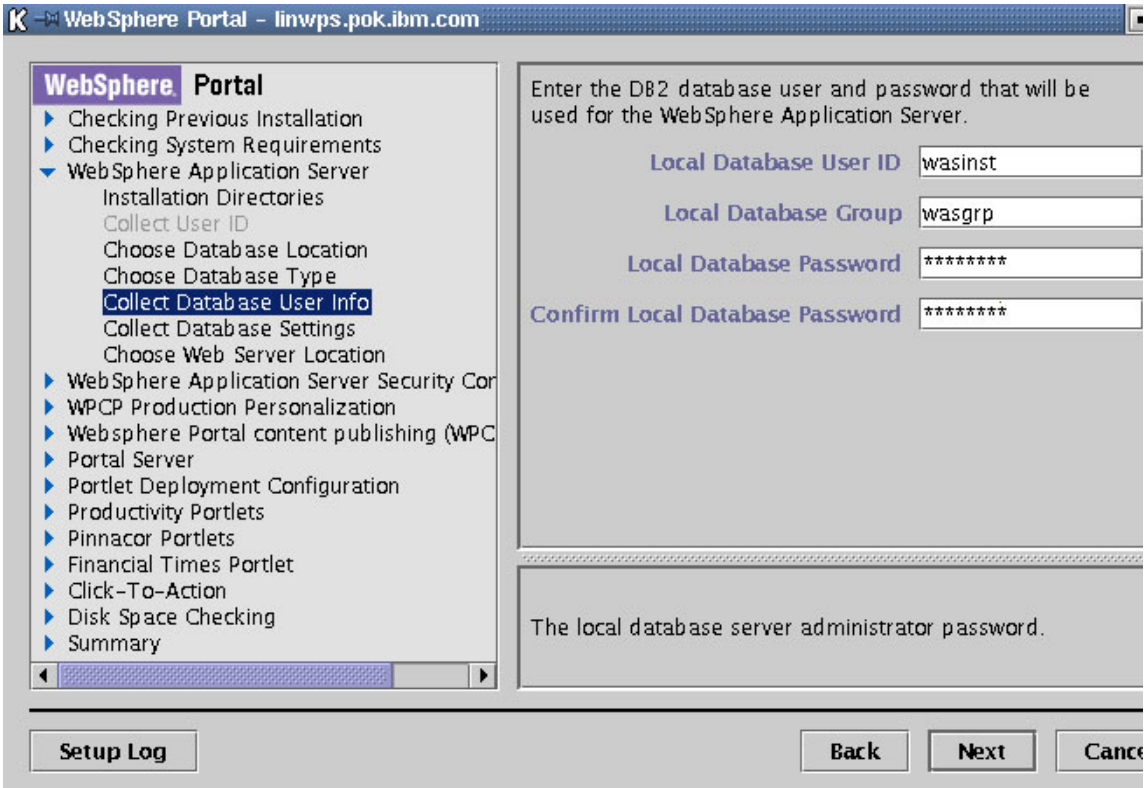

Figure 11 Database access information

12. Collect database setting information

    Enter the database information for WebSphere Application Server.

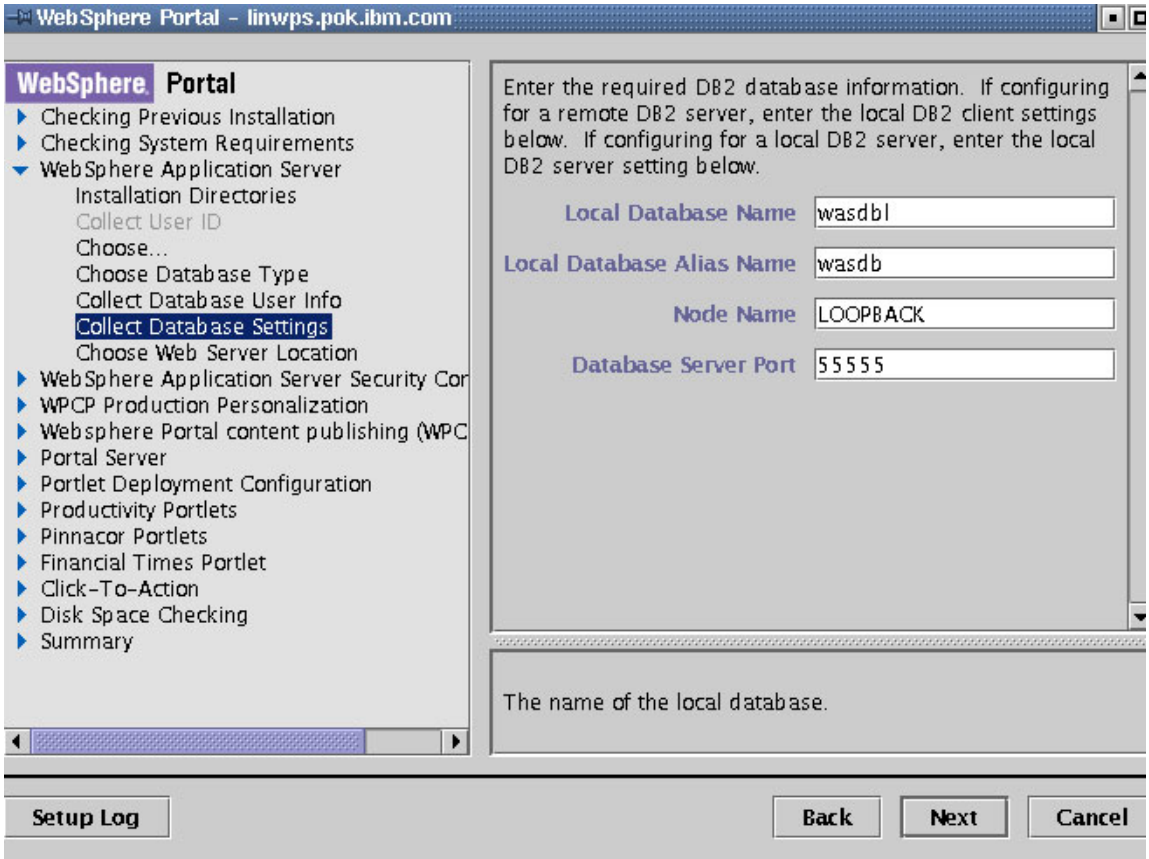

Figure 12 Collect database information

In this sample installation, as shown in Figure 12, the following values are used:

- Local Database Name: `wasdbl`
- Local Database Alias Name: `wasdb`
- Node Name: `LOOPBACK`
- Database Server Port: `55555`

> **Note:** To verify that the database server port is not in use by another process, issue the following command:
>
> ```
> #netstat -a |grep 55555
> ```

13. Specify a database location

    Select the database location. In this scenario a local database is used. Therefore, select **No** to a remote database in this scenario.

    Note: If you will be using a remote database, you are prompted for local client settings and remote server settings. For further information, refer to the InfoCenter, DB configuration and tips in the Requirements section.

14. Check for previous installation

    The WebSphere Portal install process performs a check for any previously installed WebSPhere Portal components on the machine (for DB2 and DB2 fixpack).

15. Select a Web Server

    You will be asked whether you want to use IBM HTTP Server or the Apache Web Server.

16. Configure Plug-in

    Choose the HTTP directory and the location of the httpd.conf file.

17. Check for previous installation

    The WebSphere Portal install process performs a check for any previously installed WebSphere Portal components on the machine (for Global Security Toolkit and the IBM HTTP server).

18. Choose an application server for RunTime Server

    Choose a WebSphere Application Server to install the Personalization component. This should be WebSPhere Portal and default host. Keep the default of **No** for the Application Server Group.

19. Runtime Server Information

    Select DB2 (local) for the database type, as shown in Figure 13 on page 22. Fill in the database User ID and password as wasinst/password.

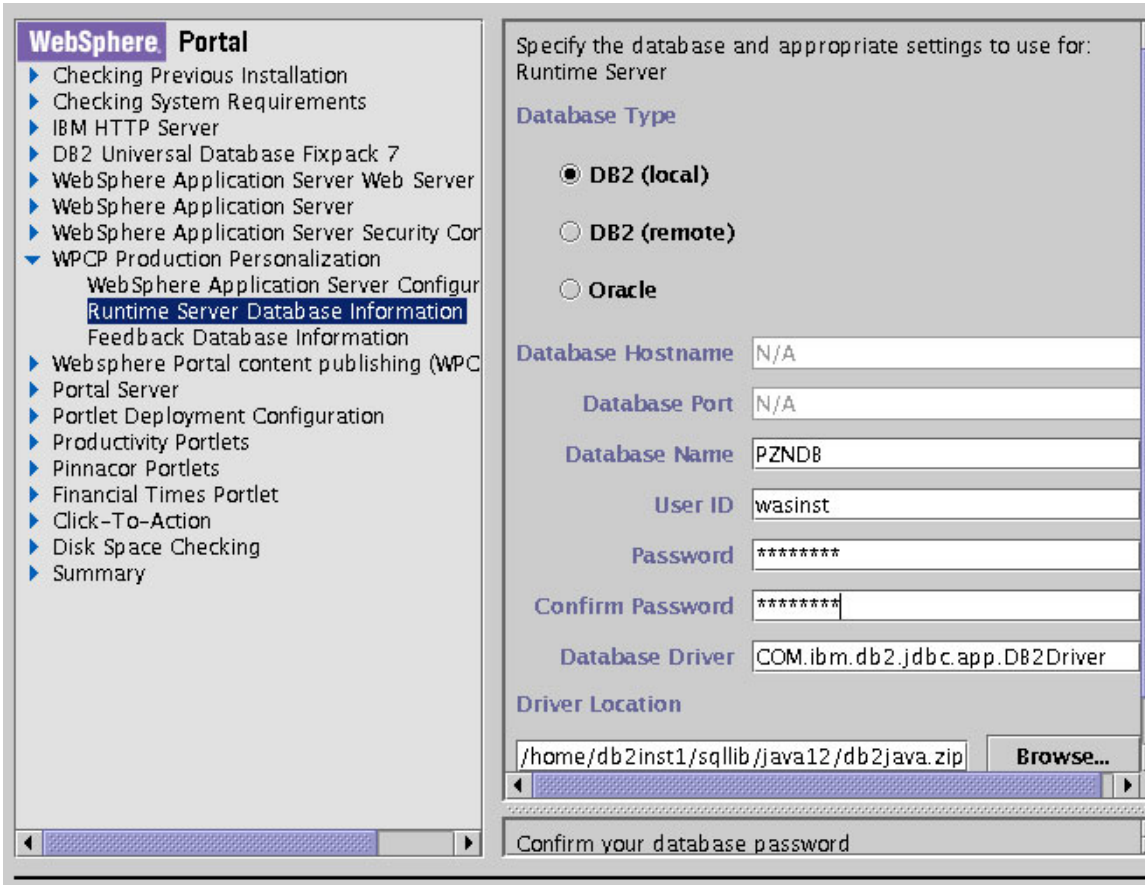

Figure 13 Runtime server database information

20. FeedBack Database

    DB2 (local) should be selected. The User ID and password should be the same as the RunTime Server; see Figure 14 on page 23.

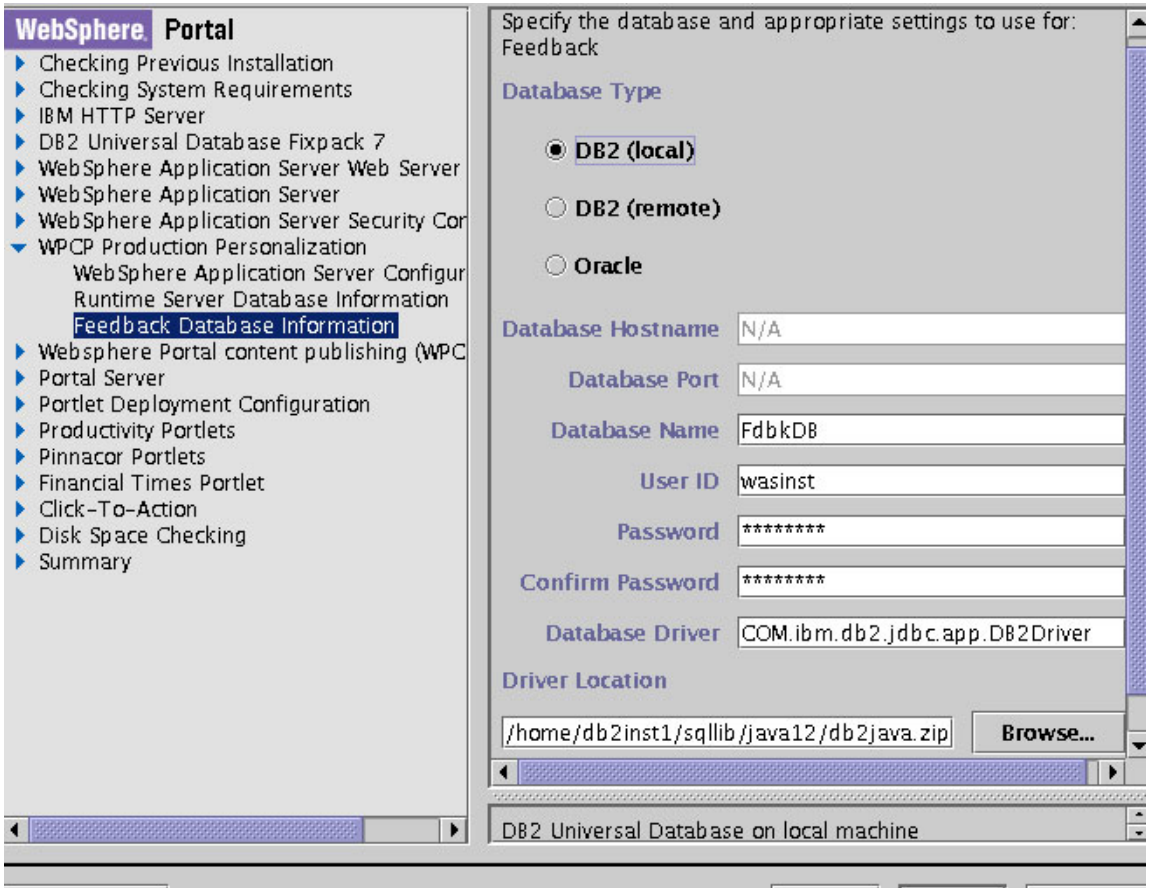

Figure 14 Feedback database information

21. Precompile JSPs

    The WPCP installer can precompile the WPCP JSPs deployed into WebSphere Application Server. Select **Yes** so that although precompiling JSPs will take longer to install, the WPCP will run more quickly the first time it is launched.

22. Authentication mode

    Select the authentication mode for Portal member services. Authentication for the Portal member services function is done by selecting **Database and LDAP Directory mode**, as shown in Figure 15 on page 24.

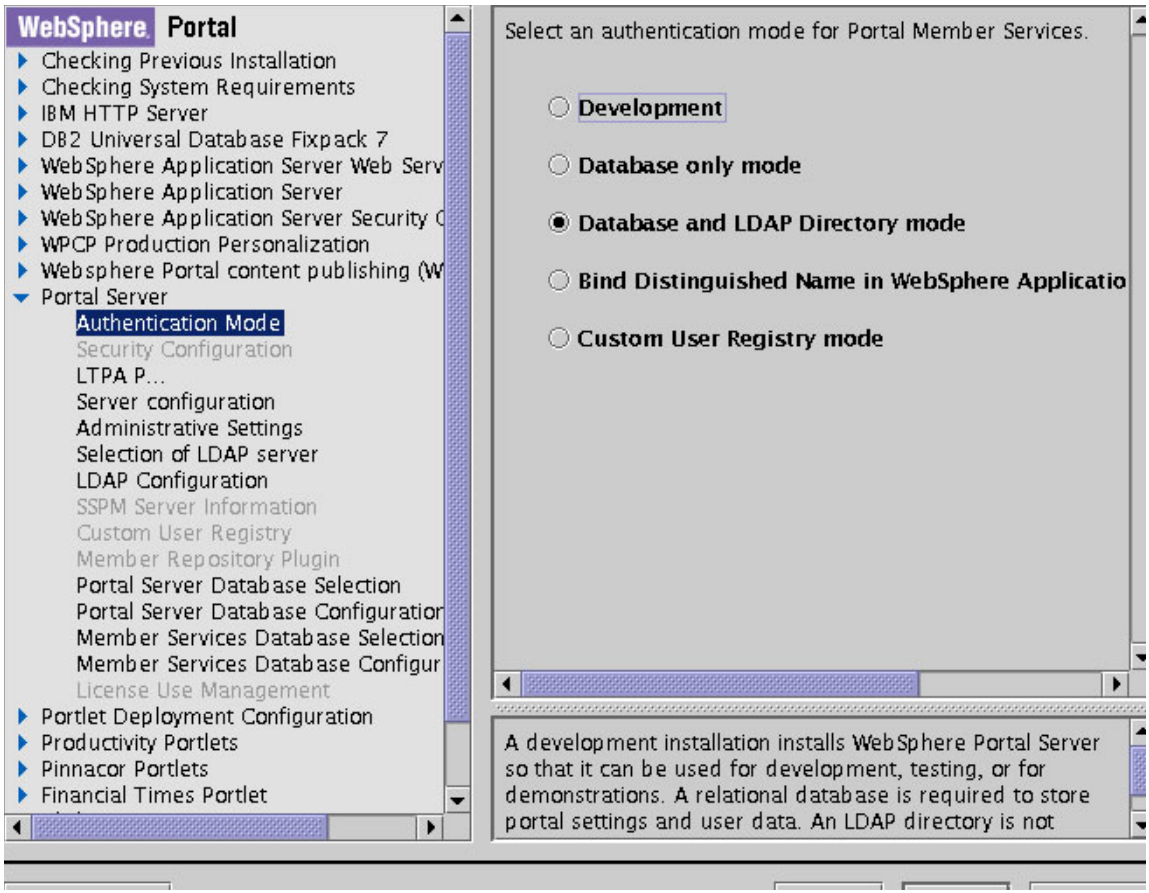

Figure 15 Authentication mode

23. Security configuration

    If this is a first WebSphere Application Server install on your system, or global security is not enabled, select **Now**.

24. LTPA password

    Enter the LTPA password for WebSphere Application Server security. If you have just installed WebSphere Application Server, or if you have not enabled security, you can enter a valid password.

Important: If global security has already been configured, you must provide *exactly* the same LTPA password that you entered before, even if security is disabled. Otherwise, you will not be able to start WebSphere Application Server and it will cause an install failure.

25. Server configuration

Figure 16 illustrates where to specify your server configuration values.

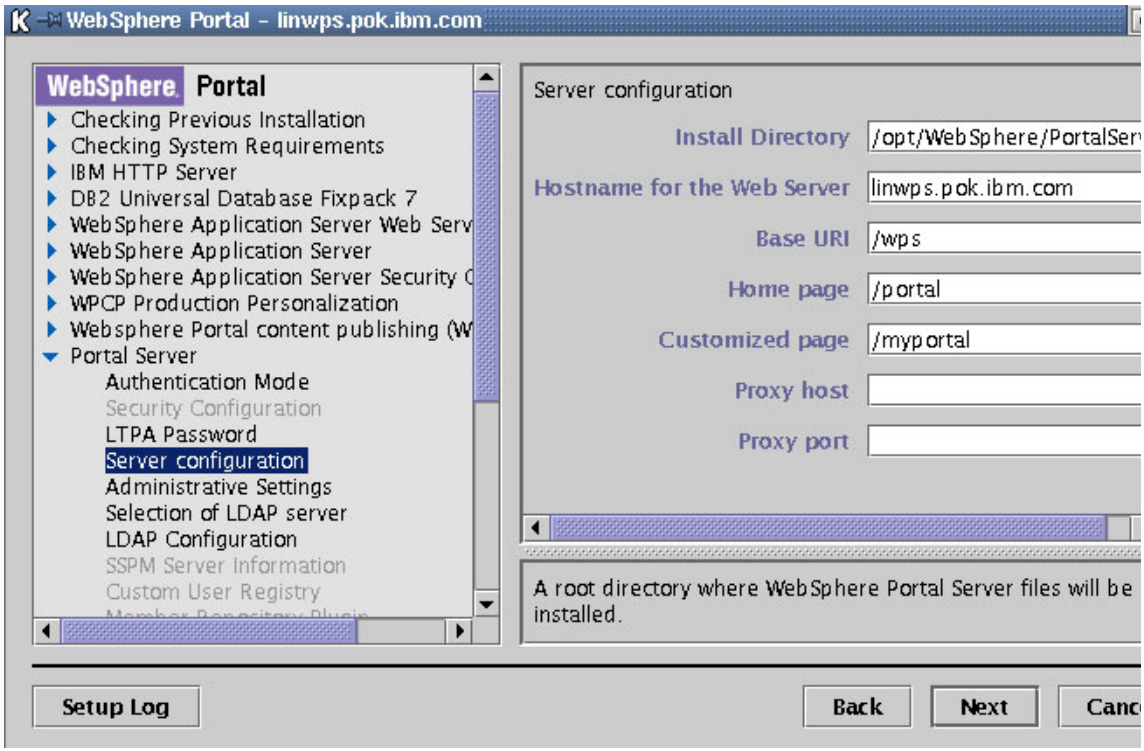

Figure 16 Server configuration

Enter the following WebSphere Portal configuration values:

- Install directory: Default value is `/opt/WebSphere/PortalServer`.
- Hostname: Portal server's fully-qualified host name.
- Base URI: Default value is `/wps`.
- Home page: Default value is `/portal`.
- Customized page: Default value is `/myportal`.
- For a connection through a proxy, enter the proxy information.

Note: Setup Manager sets these values based on your previous input. Also, if your network configuration is correct, the host name value will automatically appear in the box. In addition, the host name should be a fully-qualified host name (case sensitive).

26. Specify WebSphere Portal Administrator Settings

Enter the Portal Administrative User ID and Password as shown in Figure 17.

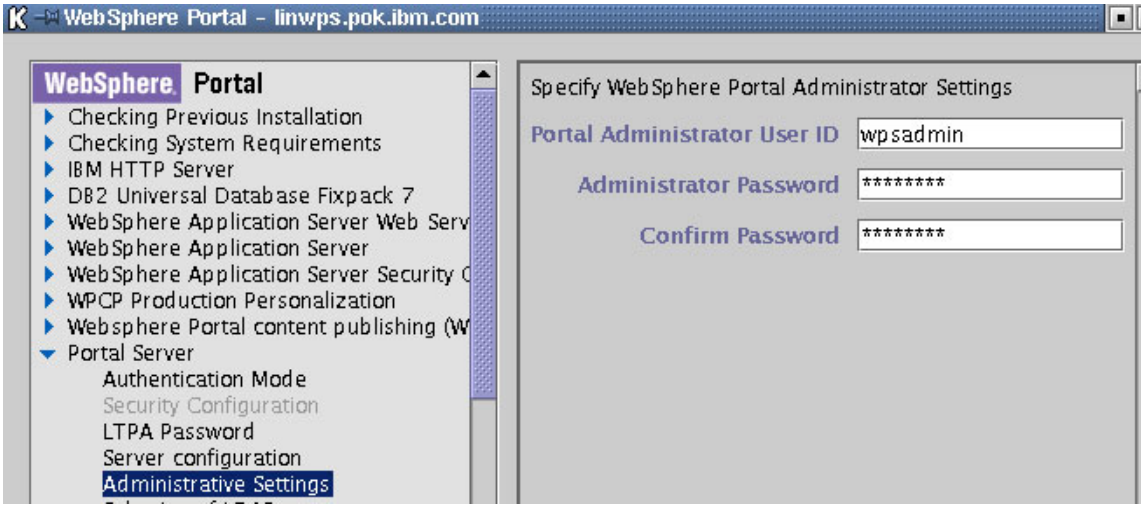

Figure 17 Specifying Portal administrator information

27. Selection of LDAP server

Next, as shown in Figure 18 on page 27, the WebSphere Portal installation process prompts you to enter which LDAP server you want to use for WebSphere Portal. IBM Directory Server is the recommended LDAP server, but the following servers are also supported:

- IBM Directory Server
- Lotus Domino™ Application Server
- iPlanet
- Microsoft Active Directory

Select your LDAP server type and fill in the boxes with the name of the LDAP Server, user DN, password, suffix, and LDAP port. You should be aware of the following considerations:

- The user DN must be specified in the following format: `cn= xxx`. The user DN is used to bind the LDAP Server.
- The default LDAP port number is 389.

When you enter the LDAP suffix (for example `dc=xx`, `cn=yy`), be sure to use lowercase. Using uppercase or mixed case can cause problems with WebSphere Member Services.

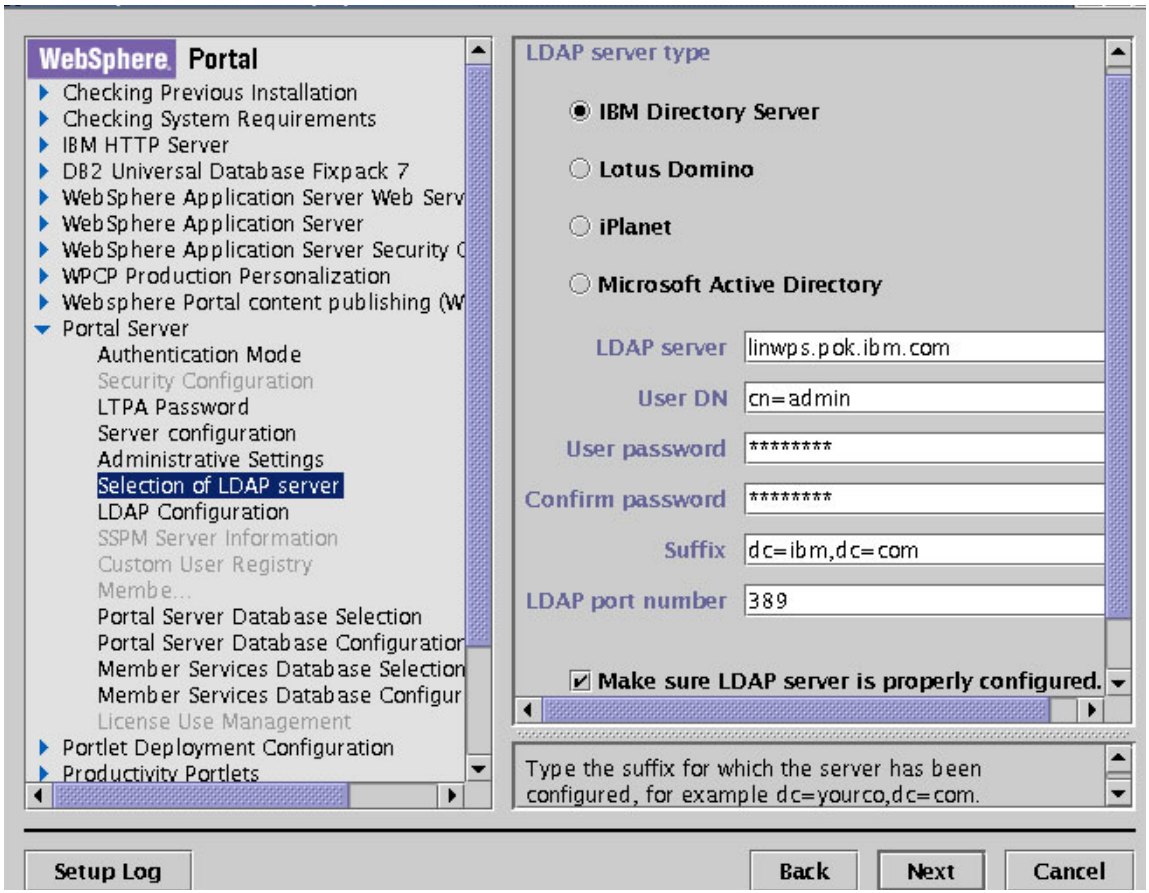

Figure 18 Selection of LDAP Server

Note: If you want to use other LDAP servers for WebSphere Portal, there are known defects described in the Release notes. If you need a workaround, refer to the Release notes in *IBM WebSphere Portal InfoCenter.*

28. LDAP configuration

    Figure 19 on page 28 shows the window where you will enter the LDAP configuration. Setup Manager sets the default values based on your previous input. Therefore, in most cases you can use those values.

    In this installation, the following values are used:

    – User Object Class: `inetOrgPerson`

    – User DN prefix: `uid`

- User DN suffix: `cn=users,dc=ibm,dc=com`
- Group Object Class: `groupOfUniqueNames`
- Group of Member: `uniqueMember`
- Group DN prefix: `cn`
- Group DN suffix: `cn=groups,dc=ibm,dc=com`
- Administration DN: `uid=wpsadmin,cn=user,dc=ibm,dc=com`
- Administrative group DN: `cn=wpsadmins,cn=groups,dc=ibm,dc=com`

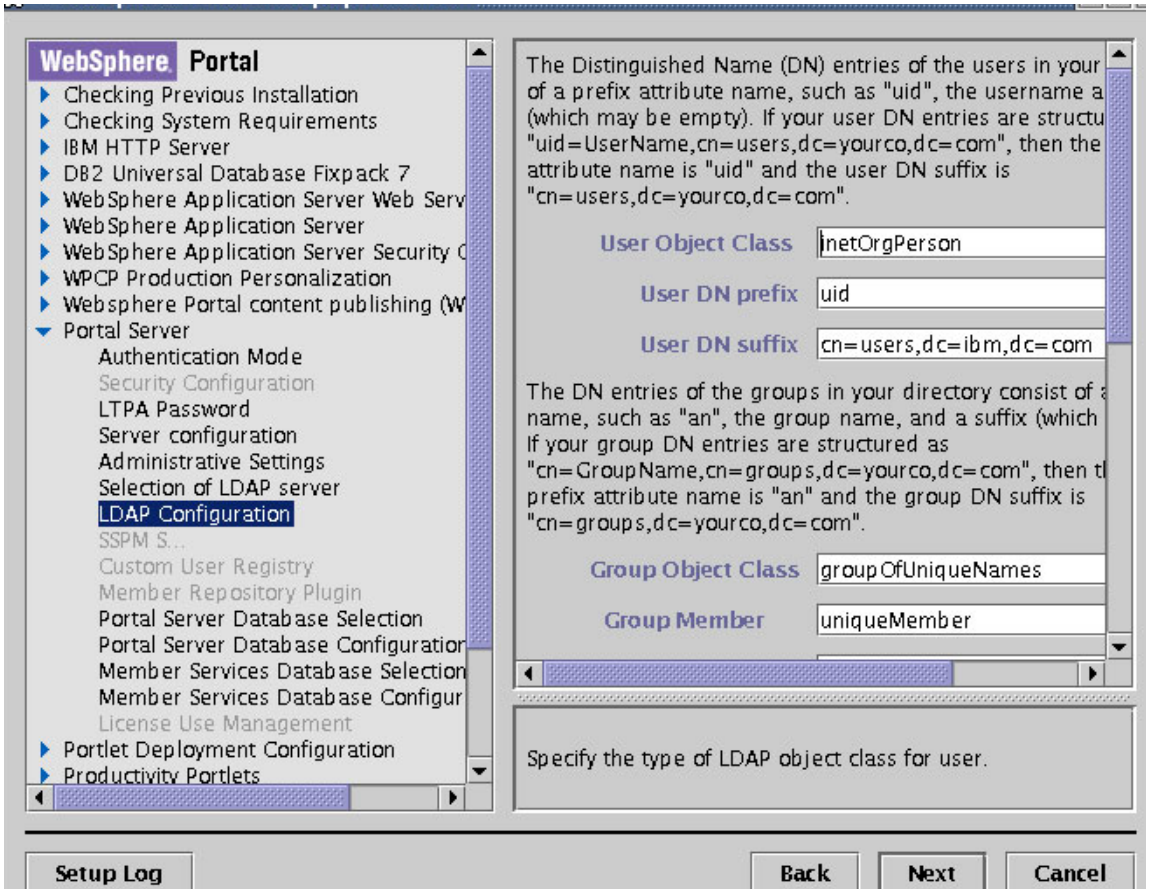

Figure 19 LDAP configuration

29. Portal database selection

    Select the database type and option for creating the WebSphere Portal database. For a new installation, choose the **Create and Initialize a new database (DB2 Only)** option, as shown in Figure 20 on page 29.

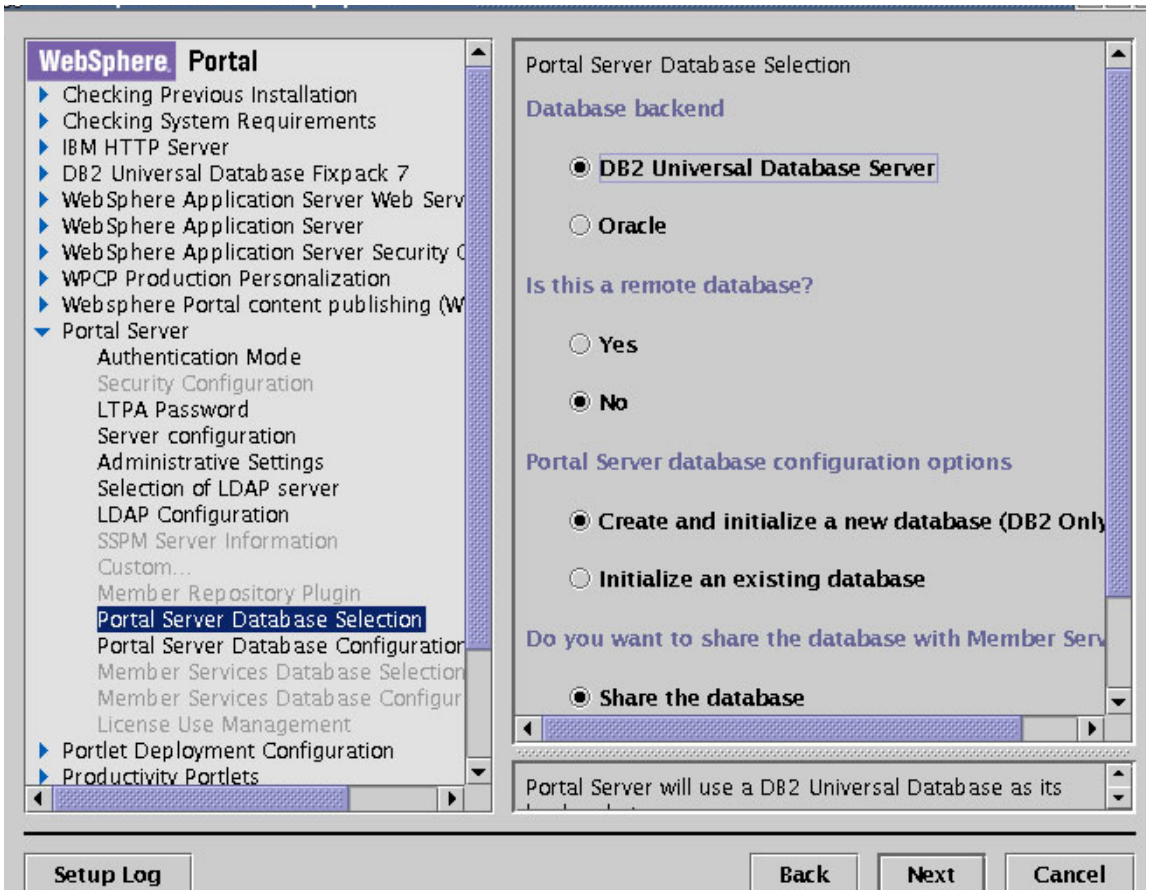

Figure 20 WebSphere Portal database selection

Figure 21 on page 30 shows the panel where you will enter any additional database configuration. You will need to specify an existing database user ID and password. Other related information has been set by Setup Manager.

In this sample installation, the following values are used:

- Local Database Instance: wasinst
- Database name: `wpsdb`
- User password: a proper password
- JDBC database driver: `COM.ibm.db2.jdbc.DB2ConnectionPoolDataSource`
- JDBC URL prefix: `jdbc:db2`
- JDBC driver library: `/home/db2inst1/sqllib/java12/db2java.zip`

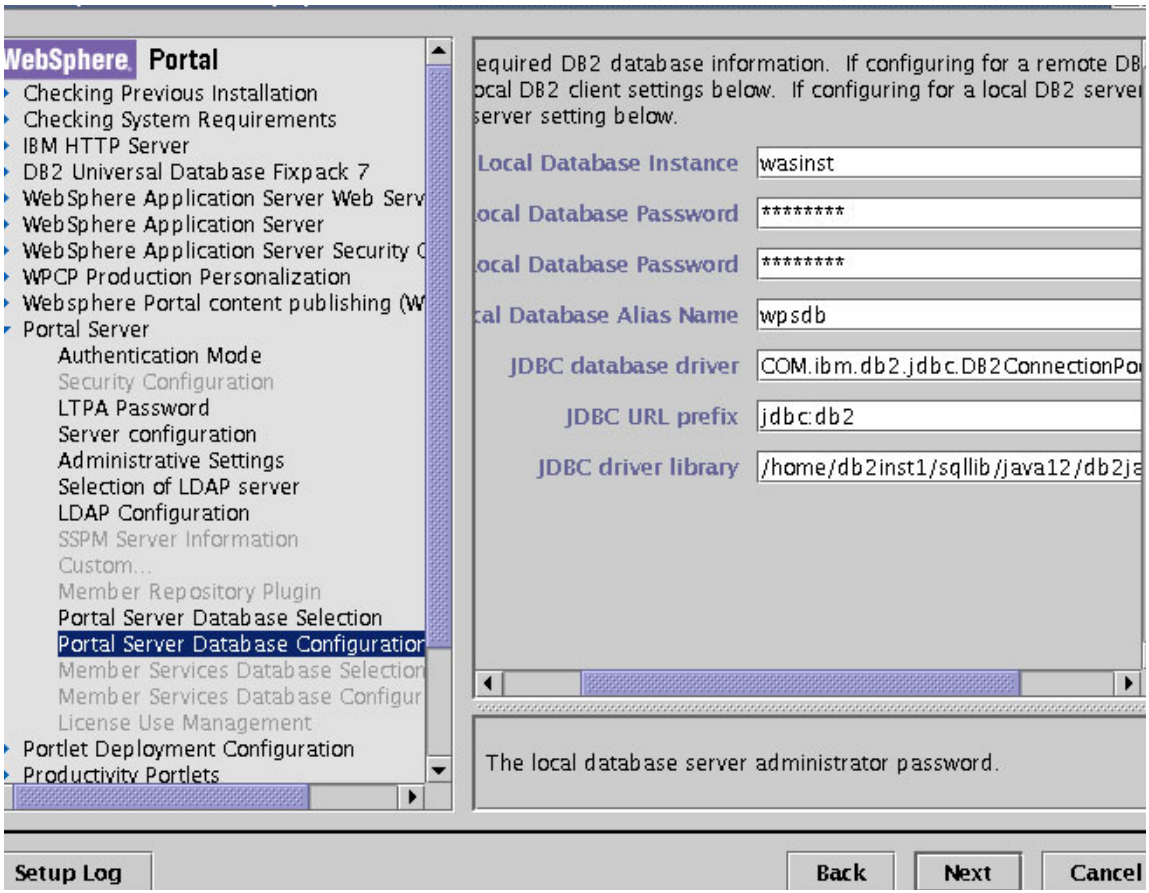

Figure 21 Additional database information

30. License Use Management (LUM)

    Select the **License Use Management** install type and fill in the name of the local LUM server.

    Licence Use Management (LUM) is an IBM tool for managing and extending software licenses. If you choose to install LUM locally, the LUM installation program installs and configures LUM as a network license server, enrolls the WebSphere Portal product in the LUM database, and checks out the number of licenses corresponding to the number of processors you have online on the local server machine.

For example, as illustrated in Figure 22 on page 31, the Local License Server is used for this sample installation.

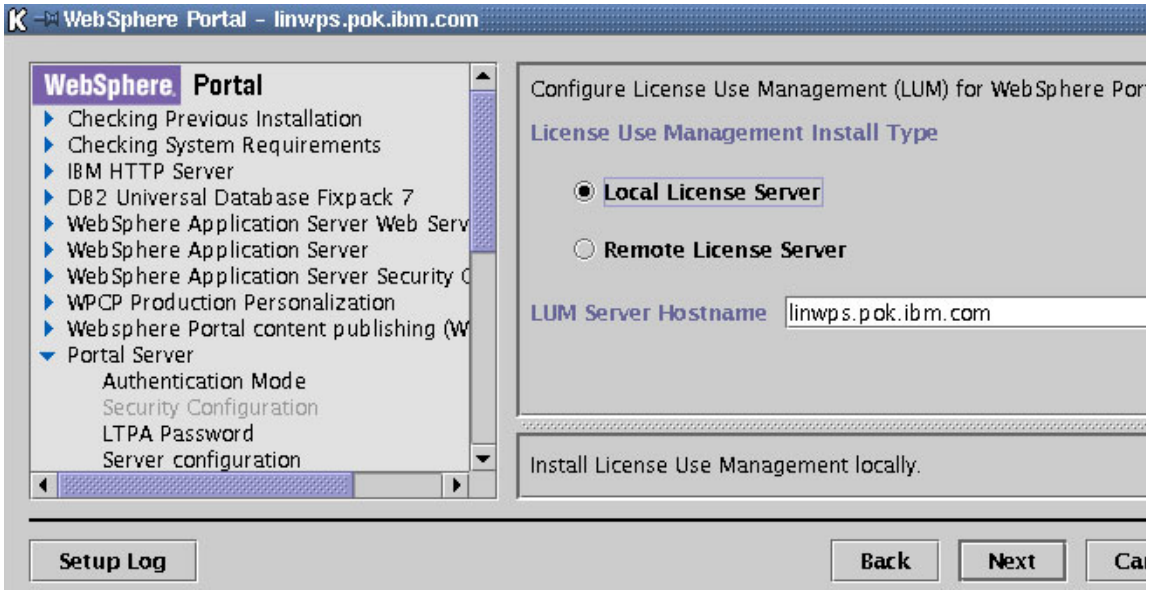

Figure 22 License Use Management (LUM)

31. Check for previous installation

    The WebSphere Portal install process performs a check for any previously installed WebSPhere Portal components on the machine (for IBM Directory Server).

32. Pinnacor Portlets License Agreement

    Click **Accept** → **Next**.

33. Financial Times Portlet License Agreement

    Click **Accept** → **Next**.

34. Click-To-Action(C2A) Install Properties

    Accept the WebSphere Application Server Install Directory and Portal Server Install Directory. Click **Next**, as illustrated in Figure 23 on page 32.

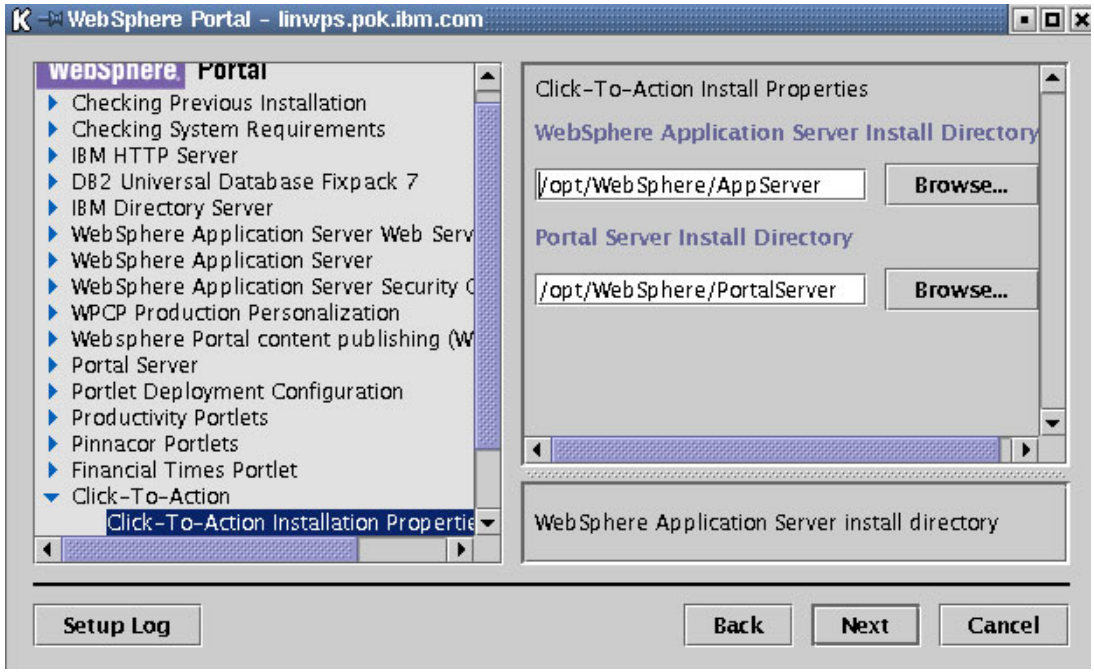

Figure 23 C2A portlet properties

35. Save Response File

    You can save all of your entries in a response file at this time. You can use the default name or chose another. Remember to copy this file to another directory for safekeeping.

36. Display summary

    In this step, Setup Manager displays a summary list with all the components to be installed. All the selected components and subcomponents, as well as the configuration information, are displayed as illustrated in Figure 24 on page 33, Figure 25 on page 34, and Figure 26 on page 35.

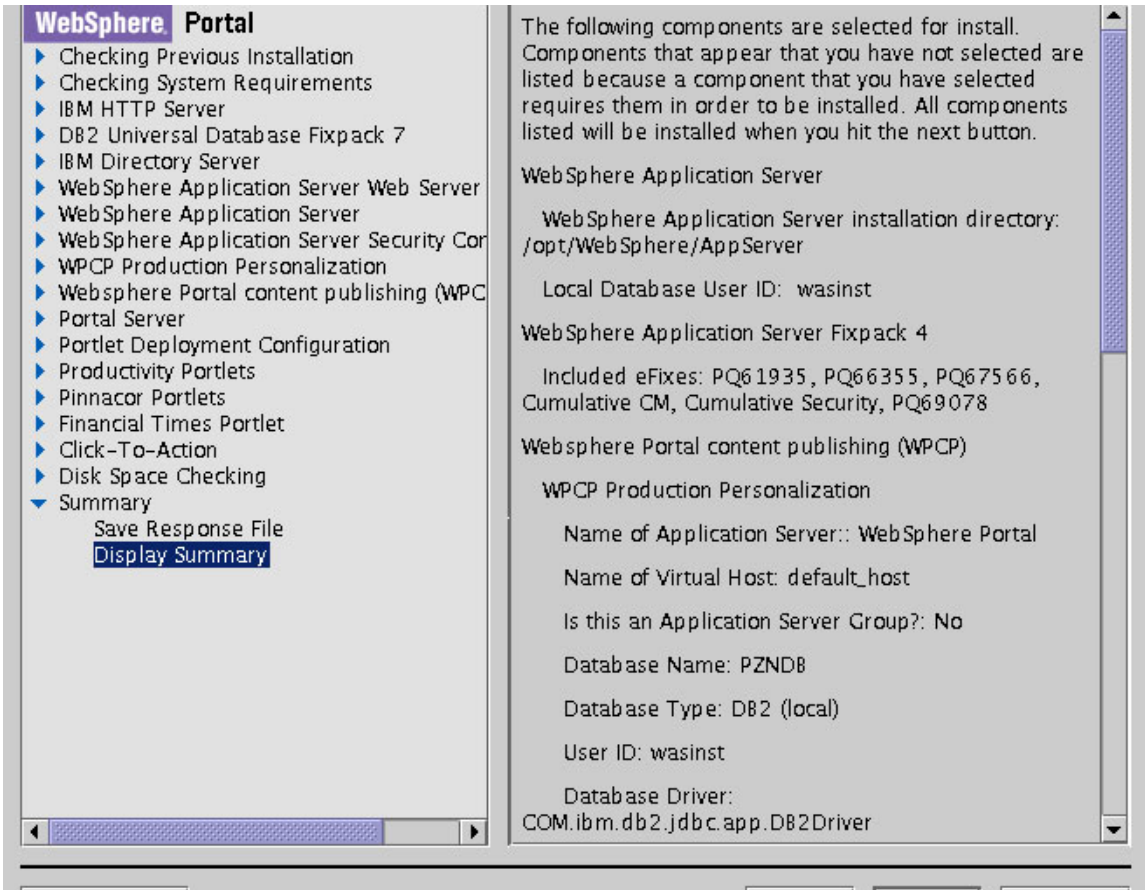

Figure 24 Setup Manager information screen - 1

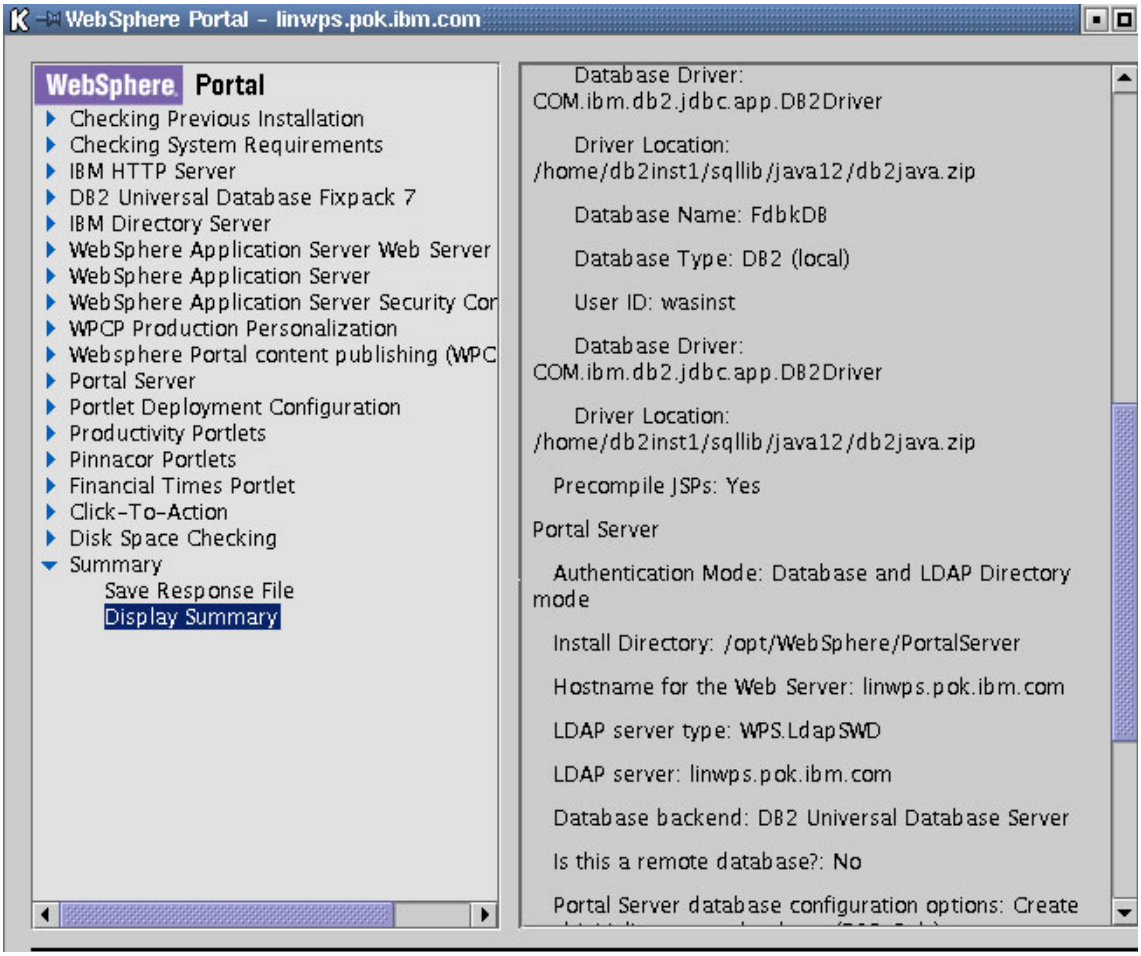

Figure 25 Setup Manager information screen - 2

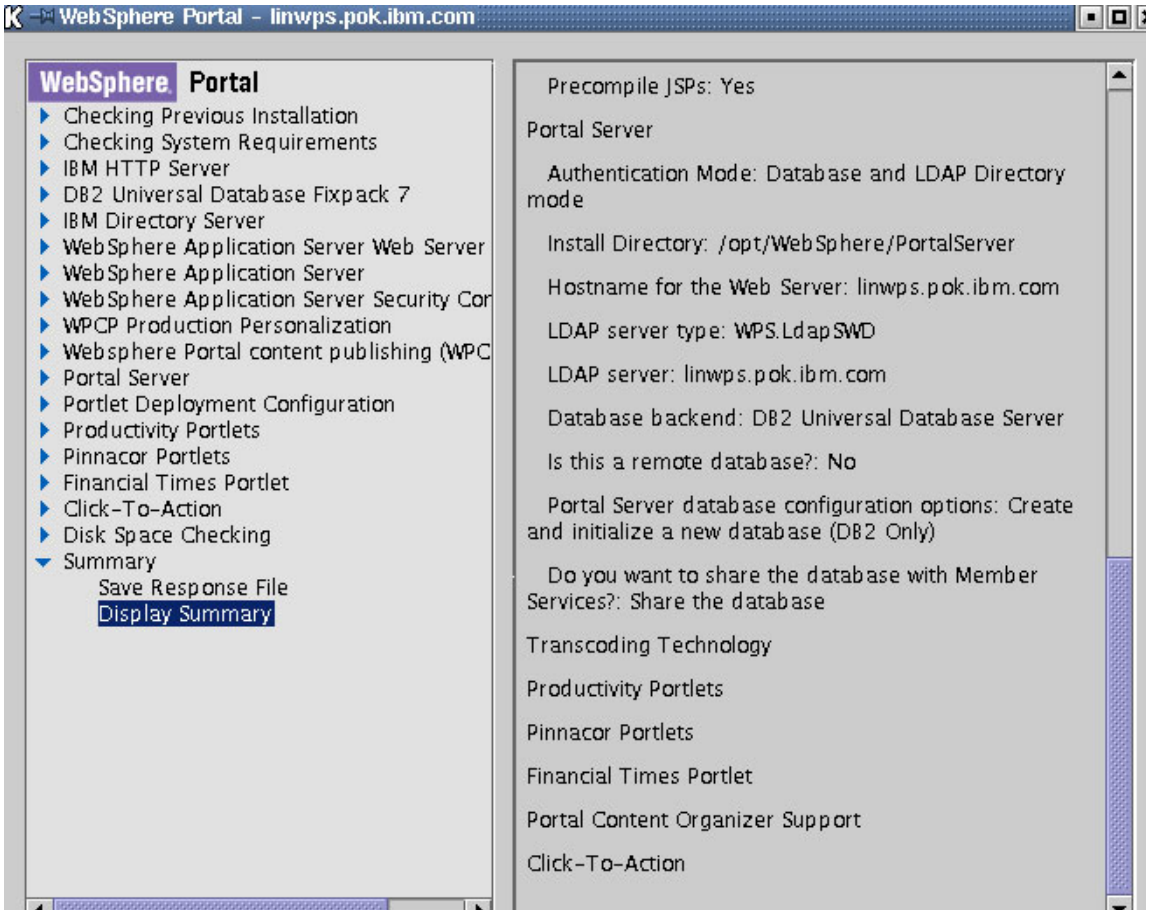

Figure 26 Setup Manager information screen - 3

In addition, the following actions can be executed:

- Click the **Back** button to go back to the component selection window to add or remove components from the list, or to change other configuration information.
- When the **Next** button is clicked, the installation process starts.

37. Installation progress

As the installation process starts, a progress indicator is displayed that shows the status of the install; see Figure 27 on page 36.

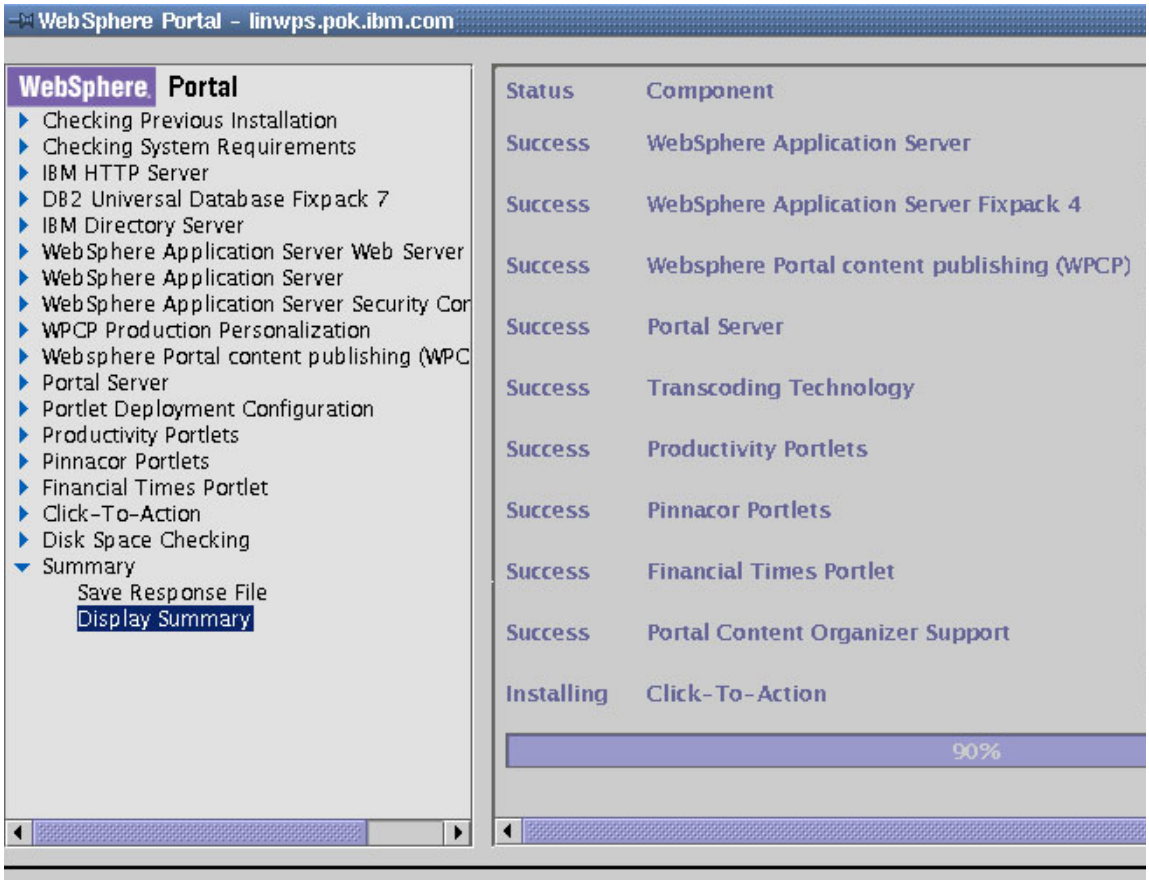

Figure 27 Installation progress

Any errors or problems that occur during the install process are displayed here. They are logged in the path <wp_root>/install.

38. Enable WebSphere Application Server security

Important: During the Setup Manager install of the Portal Server installation, when the status bar is around the 73% complete point, a window will pop up titled **Configuring for AdminRole**.

In this small window, the informational comment shows `Restart your Web Server`. However, if you scroll down, you will see that you have to also set the AdminRole at this time, as well! See Figure 28 on page 37.

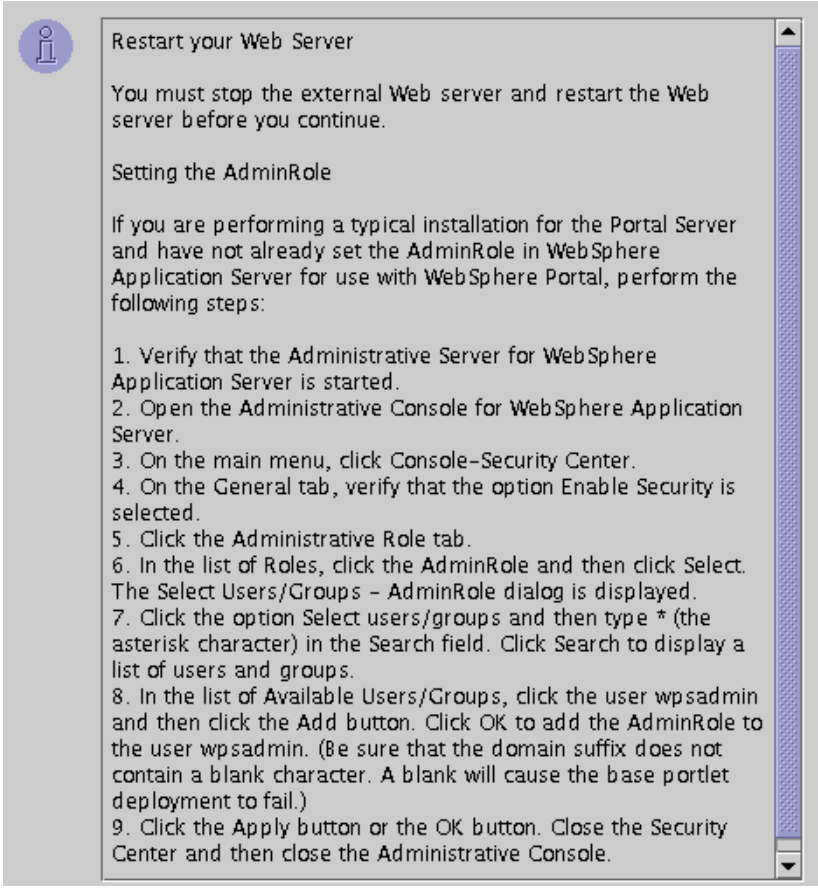

Figure 28 Information to set the admin role

During the installation of CD #7, Setup Manager prompts you to Restart the Web Server and configure the Administrative Role for WebSphere Application Server. The Administrative Role includes stopping and restarting the Web Server that the portal will use.

At this time, do not close the install window but instead, execute the following suggested steps.

Note: This configuration step is critical. IBM WebSphere AdminService has been stopped and restarted by Setup Manager. Then, you must wait and ensure that the IBM WebSphere AdminService has restarted completely before continuing.

To verify that IBM WebSphere AdminService has been started, perform the following steps:

a. Log in as root.

b. Start the terminal session.

c. Stop IBM HTTP Server by using the following command:

```
# cd <http_server_install_path>/bin/
# ./apachectl stop
```

d. Check that the HTTP Server process is stopped by issuing the following command:

```
# ps -ef |grep httpd
```

e. Start IBM HTTP Server by entering the following command:

```
# cd <http_server_install_path>/bin/ <http_server_install_path>
# ./apachectl start
```

f. Check that the HTTP Server process is stopped by entering the following command:

```
# ps -ef |grep httpd
```

The output of this command should list several processes.

g. Check that the IBM WebSphere AdminService has been started by executing the following command:

```
# ps -ef |grep java
```

The output of this command should list several processes.

h. If IBM WebSphere AdminService has not been started, issue the following commands:

```
# cd <WAS_HOME>/bin
# ./startupServer.sh &
```

Note: The administrative server is up and running when you can see the following statement in the <WAS_HOME>/logs/tracefile:

```
A WSVR0023I: Server _adminServer open for e-business
```

Tip: To check the output sent to tracefile, use the following commands:

```
# cd <WAS_HOME>/logs
# tail -f tracefile
```

39. Set Admin Role

Once you have checked that the IBM WebSphere AdminService has been restarted, perform the following steps:

a. Start IBM WebSphere Administrative Console by entering the following commands:

```
# cd <WAS_HOME>/bin
# ./adminclient.sh &
```

b. From the WebSphere Administrative Console main menu, start the Security Center by selecting **Console -> Security Center**.

c. When the Security Center starts, check that the **Enable Security** option is selected on the General tab, as shown in Figure 29.

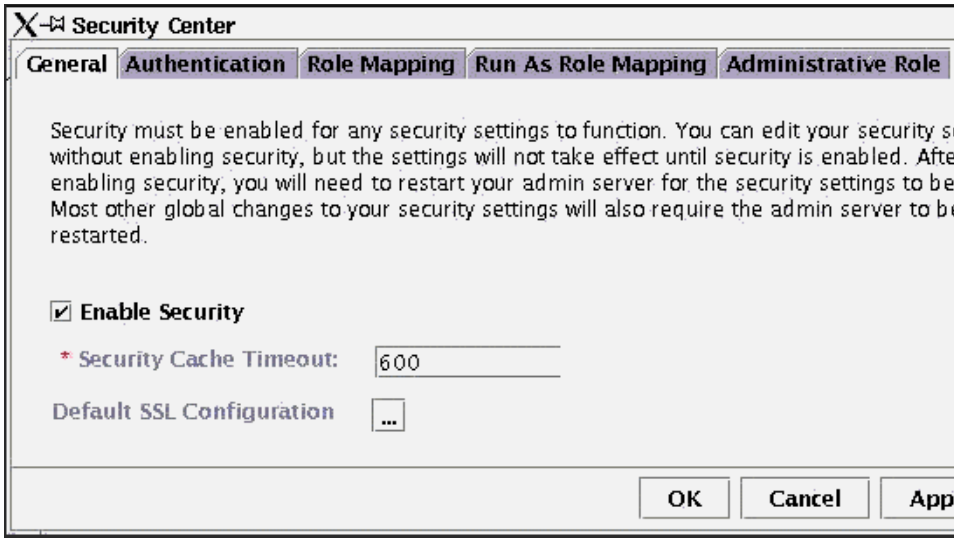

Figure 29 Enable security

d. Go to the Authentication tab, and make sure that **Enable Single Sign On (SSO)** is selected, as illustrated in Figure 30 on page 40.

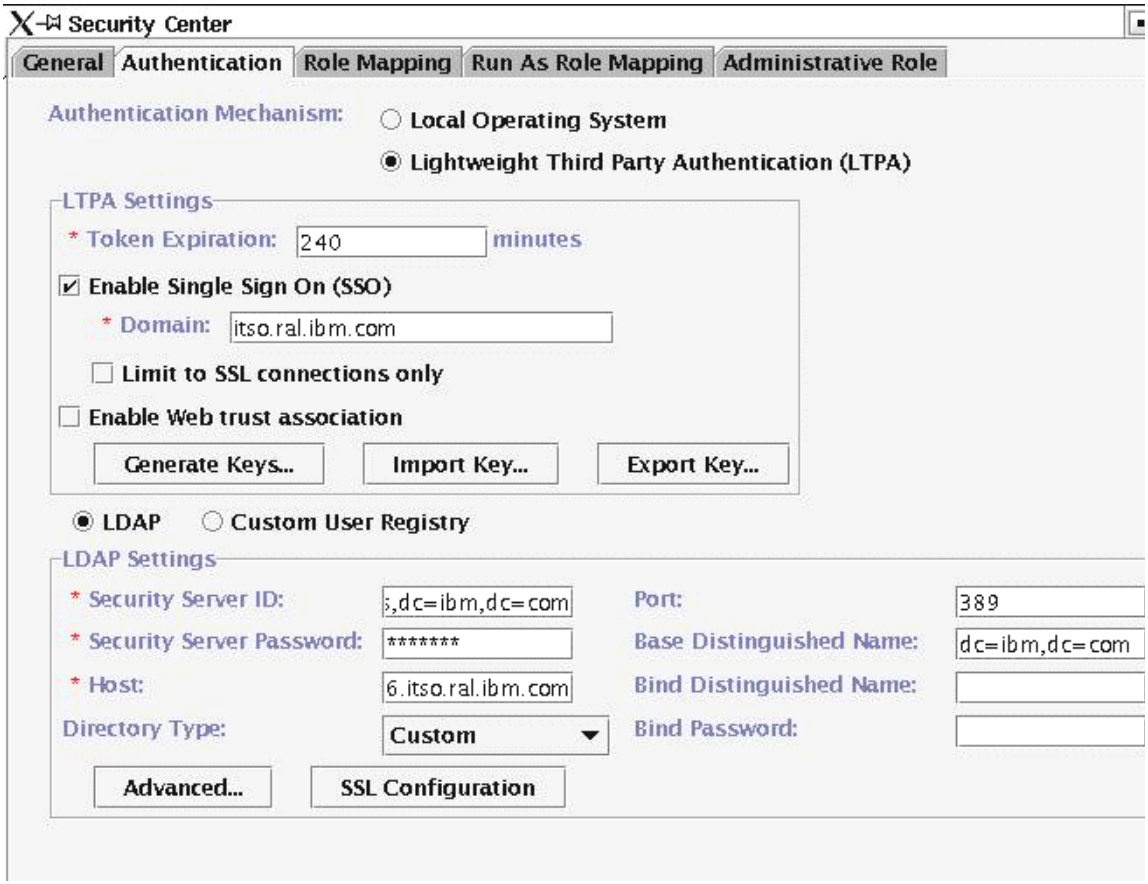

Figure 30 Authentication

e. Next, go to the Administrative Role tab. In the Role, click **Admin Role** → **Select**.

f. Check the option **Select users/groups** and then type `w*` (the asterisk character) in the box and click **Search**.

g. In the list of available users and groups, click the users **wpsadmin** and **wpsbind**, and then click **Add**. See Figure 31 on page 41. Then click the group **wpsadmins** and click **Add**.

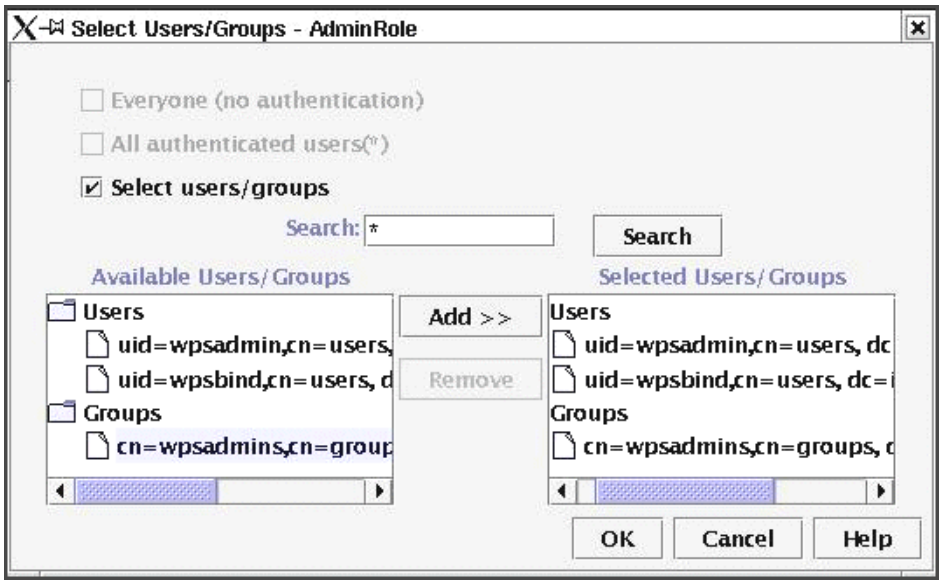

Figure 31 Select Users/Groups

h. Click **OK** to apply the changes on the Administrative tab.

i. Close the Security Center and IBM WebSphere Administrative Console.

j. Stop and start IBM WebSphere AdminService as follows:

```
# cd <WAS_HOME>/bin
# wscp.sh
wscp> Node list
wscp> <node_name>
wscp> Node stop /Node:<node_name>/
wscp> exit
```

It may take a while for the process to be stopped. You will need to wait until the IBM WebSphere AdminService has been stopped.

Tip: In order to verify that IBM WebSphere AdminService has properly stopped, you can check that the IP listening port is not in use by entering the following command:

```
# netstat -a |grep 9000
```

There will be no output generated when the IBM WebSphere AdminService has really stopped. In some cases, this process may take some time.

k. Once you have checked that the IBM WebSphere AdminService has stopped, start the IBM WebSphere AdminService by entering the following commands:

```
# cd <WAS_HOME>/bin
# ./startupServer.sh &
```

l. Check that the IBM WebSphere AdminService has been started by entering the following command:

```
# ps -ef |grep java
```

The output of this command should list a number of processes.

m. When the administrative server is up and running, you will see the following statement in the <WAS_HOME>/logs/tracefile:

```
A WSVR0023I: Server _adminServer open for e-business
```

Tip: To see any output sent to the trace file, issue the following commands:

```
# cd <WAS_HOME>/logs
# tail -f tracefile
```

n. Start IBM WebSphere Administrative Console by entering the following commands:

```
# cd <WAS_HOME>/bin
# ./adminclient.sh &
```

o. As shown in Figure 32 on page 43, from the left pane of the WebSphere Administrative Console, click **WebSphere Administrative Domain -> Nodes -> <node_name>** and start WebSphere Portal.

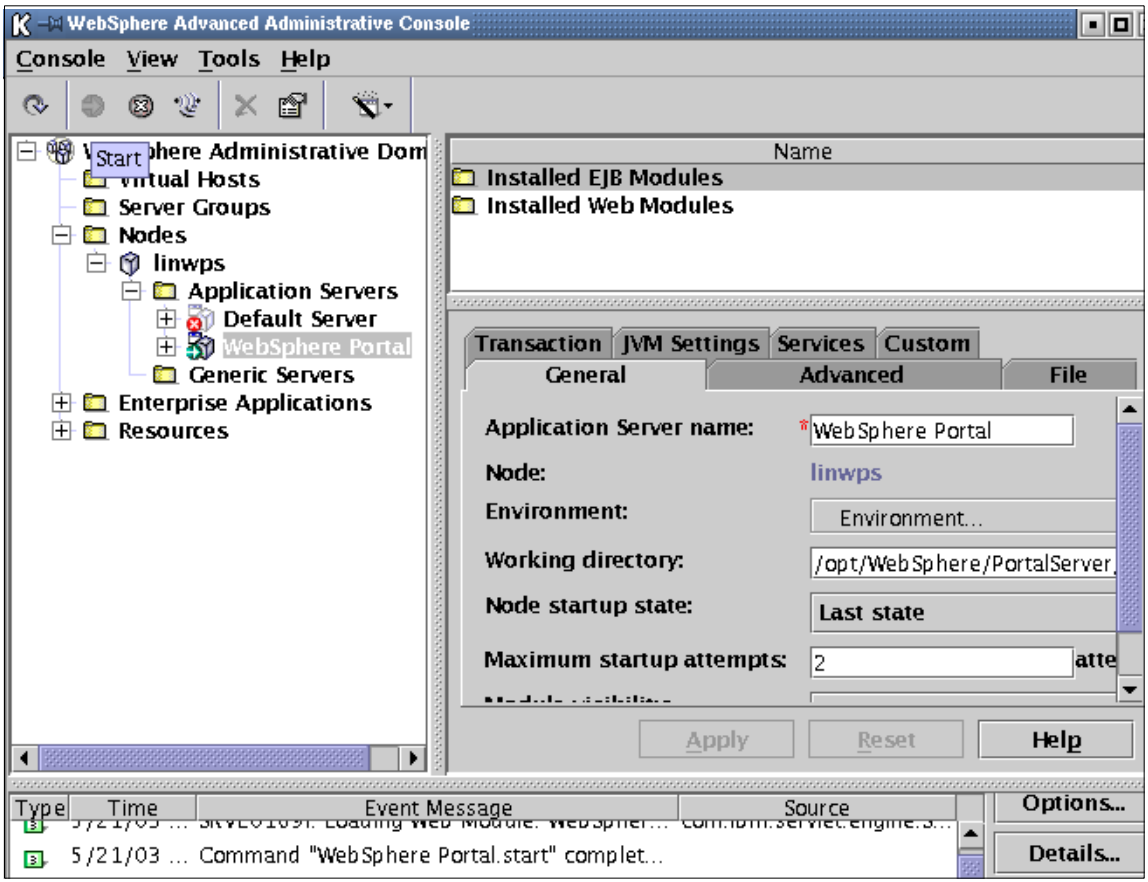

Figure 32 WebSphere Administrative Console

p. After you get the message that the Portal Server has been started, click **OK** and close the IBM WebSphere Administrative Console.

40. Deploying portlets

Click **OK** in the pop-up window to continue the Setup Manager installation. This step will take a long time to complete since all portlets will be deployed at this time.

41. Exit install

When you se the message `Installation is complete...`, click **OK.** You can view the logs of any of the products, view the Setup Log, or click **Finish**.

Note: It is easier to view the logs here for each product, as they are all consolidated into one view. If you want to view the logs later, the logs go into numerous logging data sets under the /opt/IBMWPO/RunCommand_mm.dd.hh.ss/********.log, where it may be more difficult to locate the right one.

Verification of installation

This section describes how to validate your WebSphere Portal installation. It is important that all components be verified in order to make sure that all components are working correctly.

Check each process by using the **ps** command. The output may list a number of processes depending on the component. For example:

1. Verify the DB2 process by entering the following command:

   ```
   # ps -ef |grep db2
   ```

2. Verify the IBM Directory Server LDAP Server process:

   ```
   # ps -ef |grep slapd
   ```

3. Verify the IBM HTTP Server process:

   ```
   # ps -ef |grep httpd
   ```

4. Verify the IBM WebSphere Application process:

   ```
   # ps -ef |grep java
   ```

If any of these processes are not started, perform the verification procedure listed in this section.

DB2 verification

Follow this procedure to verify your DB2 installation.

1. Log in as root, and start a terminal session.
2. Change to user <db2_instance _owner>:

   ```
   # su - <db2_instance_owner>
   ```

   For example:

   ```
   # su - wasinst
   ```

3. Check the process:

   ```
   # ps -ef |grep db2
   ```

4. If no DB2 process is shown, start DB2 and check the process again:

   # db2start

5. List all DB2 databases for the DB2 instance:

   # db2 list db directory

   This command should give you the following output:

```
Database 1 entry:

 Database alias                 = FDBKDB
 Database name                  = FDBKDB
 Local database directory       = /home/wasinst
 Database release level         = 9.00
 Comment                        =
 Directory entry type           = Indirect
 Catalog node number            = 0

Database 2 entry:

 Database alias                 = PZNDB
 Database name                  = PZNDB
 Local database directory       = /home/wasinst
 Database release level         = 9.00
 Comment                        =
 Directory entry type           = Indirect
 Catalog node number            = 0

Database 3 entry:

 Database alias                 = WPSDB
 Database name                  = XWPSDB
 Node name                      = XWPSNODE
 Database release level         = 9.00
 Comment                        =
 Directory entry type           = Remote
 Catalog node number            = -1

Database 4 entry:

 Database alias                 = XWPSDB
 Database name                  = XWPSDB
 Local database directory       = /home/wasinst
 Database release level         = 9.00
 Comment                        =
 Directory entry type           = Indirect
 Catalog node number            = 0

Database 5 entry:
```

```
 Database alias                 = WASDB
 Database name                  = WASDBL
 Node name                      = LOOPBACK
 Database release level         = 9.00
 Comment                        =
 Directory entry type           = Remote
 Catalog node number            = -1

Database 6 entry:

 Database alias                 = WASDBL
 Database name                  = WASDBL
 Local database directory       = /home/wasinst
 Database release level         = 9.00
 Comment                        =
 Directory entry type           = Indirect
 Catalog node number            = 0
```

6. List all DB2 nodes for the DB2 instance:

   # db2 list node directory

   This command should give you the following output:

```
 Node Directory

 Number of entries in the directory = 2
Node 1 entry:
 Node name                      = LOOPBACK
 Comment                        =
 Protocol                       = TCPIP
 Hostname                       = 127.0.0.1
 Service name                   = 55555

Node 2 entry:
 Node name                      = XWPSNODE
 Comment                        =
 Protocol                       = TCPIP
 Hostname                       = linwps
 Service name                   = 55555
```

7. Test the connectivity to the database:

   # db2 connect to <wps_db> user <db2_instance_owner> using <password>

   For example:

   # db2 connect to wpsdb user wasinst using password

IBM Directory Server LDAP server verification

Follow this procedure to verify your LDAP installation:

1. Log in as root on the system where the LDAP server is installed, and start a terminal session.
2. Check the process:

   ```
   # ps -ef |grep slapd
   ```

3. If no slapd process is shown, start LDAP and check the process again:

   ```
   # slapd
   ```

4. Start the Directory Management Tool (DMT) by entering the command **dmt**. As shown in Figure 33, a DMT window will appear.
5. Click **Rebind** and type in the user DN and password that you configured during the installation (as seen in Figure 17 on page 26).
6. Click **Directory tree -> Browse tree**. You can browse *wpsadmin* and *wpsbind*.

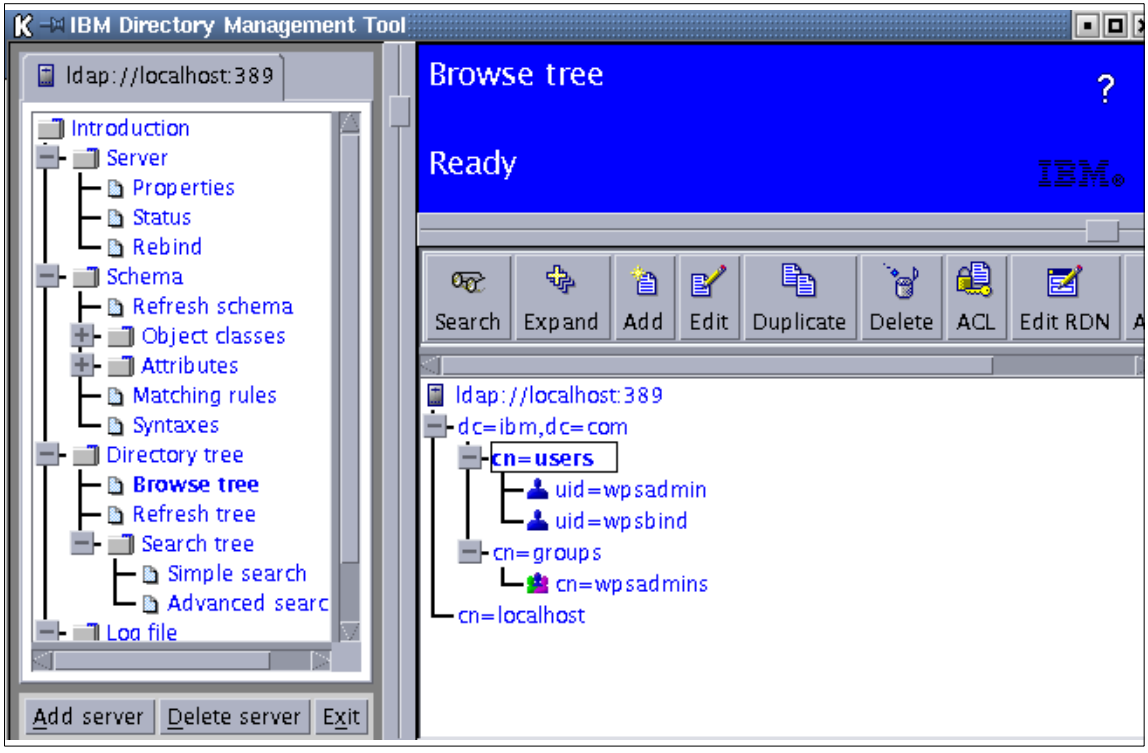

Figure 33 Directory Management Tool (DMT) window

Verify the IBM HTTP Server

Follow this procedure to verify your IBM HTTP server installation:

1. Log in as root, and start a terminal session.
2. Check the process:

   ```
   # ps -ef |grep httpd
   ```

3. If no httpd process is shown, start IBM HTTP Server and check the process again:

   ```
   # cd <http_server_install_path>/bin/
   ```

   For example:

   ```
   # cd /opt/IBMHTTPServer/bin
   # ./apachectl start
   ```

4. Check that the HTTP Server processes are stopped:

   ```
   # ps -ef |grep httpd
   ```

   The output should list a number of processes.

5. Check request handling:

   Using a Web browser, request the following URL:

   ```
   http://<http_server_hostname>/
   ```

   This represents the IBM HTTP Server Web root for the home page, as shown in Figure 34 on page 49.

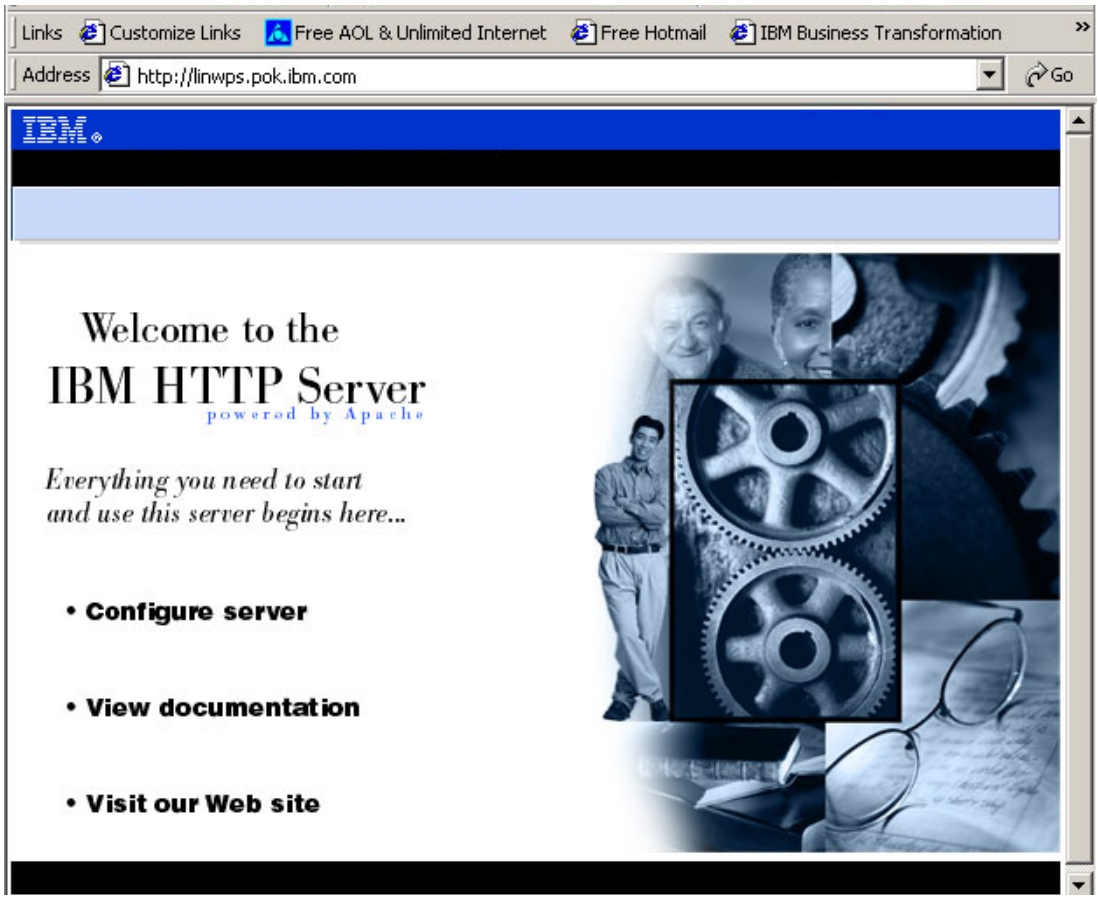

Figure 34 HTTP Server welcome page

IBM WebSphere Application Server verification

Follow this procedure to verify your WebSphere Application Server installation:

1. Log in as root, and start a terminal session.
2. Check the process:

   ```
   # ps -ef |grep java
   ```

   This output should list a number of processes with the name starting with `/opt/WebSphere/AppServer/java.....`
3. If no Java™ process is shown, start IBM WebSphere AdminService and check the process again:

   ```
   # cd <WAS_HOME>/bin
   ```

```
# ./startupServer.sh &
```

4. Check the output sent to tracefile, using the following commands:

   ```
   # cd <WAS_HOME>/logs
   # tail -f tracefile
   ```

   When the administrative server is up and running, you will see the following line in the <WAS_HOME>/logs/tracefile:

   ```
   A WSVR0023I: Server _adminServer open for e-business
   ```

5. The WebSphere Application Server installation sets up a default application server (Default Server) in the administrative domain. This application server and its servlet are used to check that the WebSphere Application Server is working correctly.

   – Start the WebSphere Administrative Console by issuing the following commands:

     ```
     # cd <WAS_HOME>/bin
     # ./adminclient.sh &
     ```

     You will be asked to enter the user identity and password to log in to WebSphere Administrative Console. We used *wpsbind* as the userid.

     When global security is not enabled, you will not be asked to enter the user name and password to log in to WebSphere Administrative Console. In order to log in to WebSphere Portal, it is necessary that global security be enabled.

     Note: Be sure the global security is enabled before WebSphere Portal is started.

   – Click and expand **WebSphere Administrative Domain -> Nodes -> <hostname> -> Application Server**.

   – Select **Default Host**, and right-click **Start**, if it is not already started.

   – Run the snoop servlet by entering the following URL from a Web browser:

     ```
     http://<hostname>/servlet/snoop
     ```

     A page as shown in Figure 35 on page 51 should be displayed after the login prompt.

     You enter the same user name and password with the WebSphere Administrative Control login.

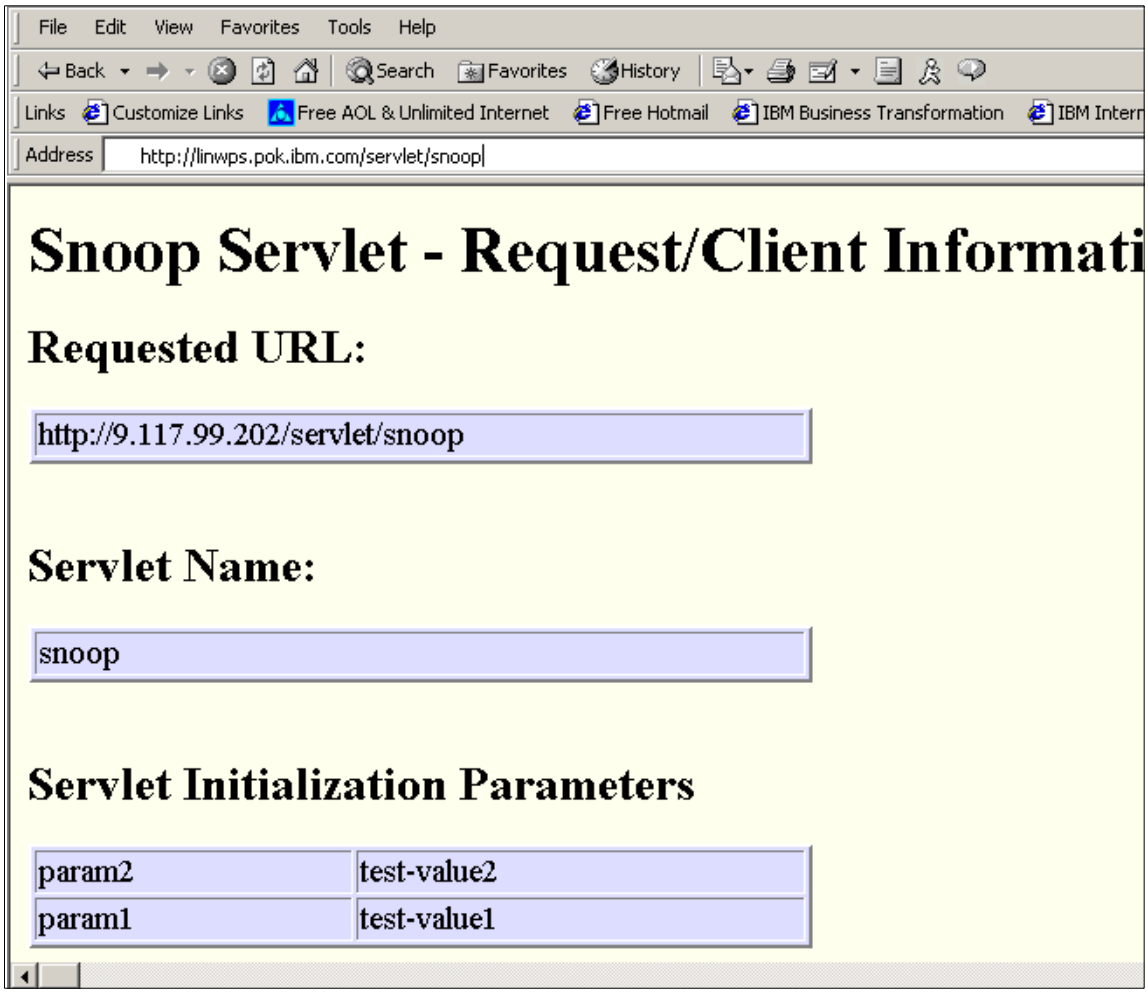

Figure 35 Snoop window

IBM WebSphere portal verification

Finally, you can have your portal welcome window by going to:

```
http://<fully_qualified_host_name>/wps/portal
```

Click **Log-in** (located at the top right corner of the window, as shown in Figure 36 on page 52) and the login window appears.

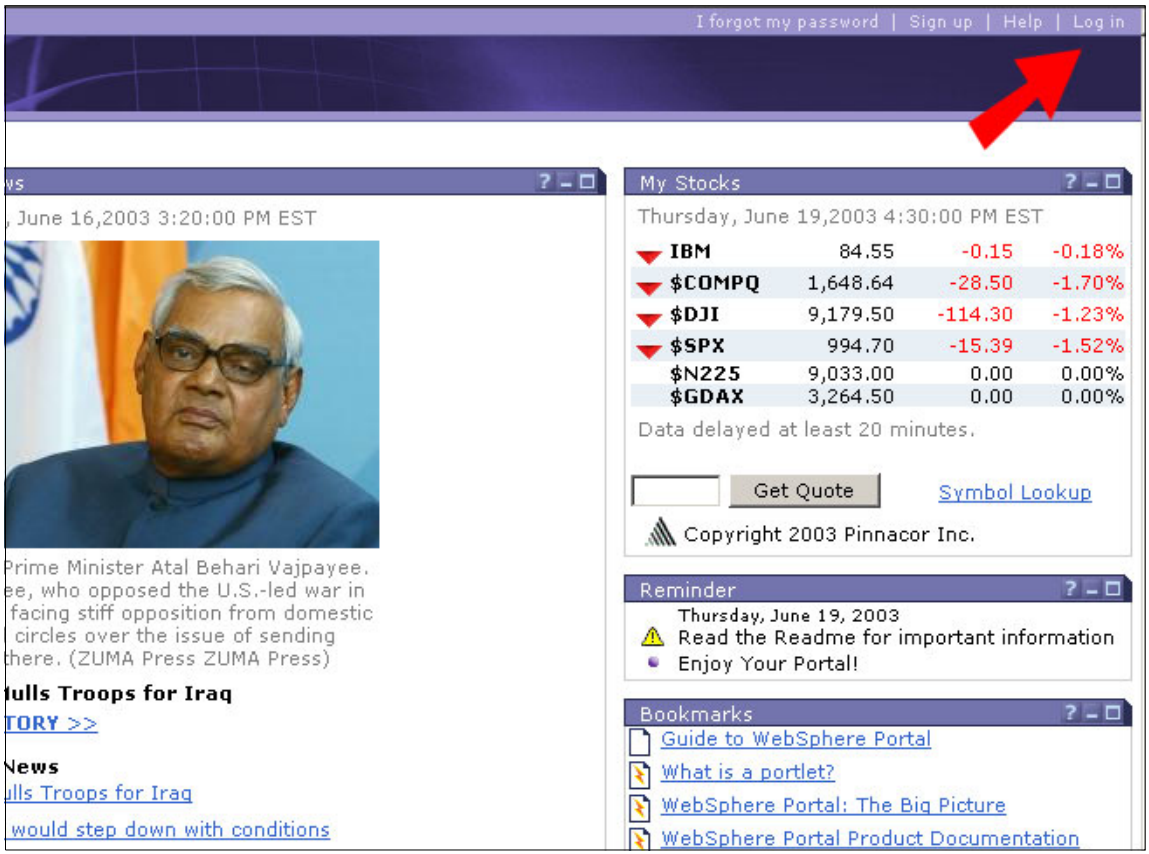

Figure 36 IBM WebSphere Portal Welcome page

Enter a user ID (wpsadmin) and password to log in to WebSphere Portal.

Checking the installation log file

During the installation, all actions and outcomes are logged to install the log files in <wps_home>/install/ listed in Table 1 on page 53. These files contain information that can assist you in identifying and analyzing problems.

Table 1 Installation log files

Log file name	Description	Problem symptoms
ConfigureAppServer.log	Contains messages that were generated when the installer attempts to configure the Portal Server Application Server under WebSphere Application Server.	Check this log if the portal installation stops before successful completion.
DbCreate.log DbInit.log WmsDbCreate.log WmsDbInit.log WmsDbInit2.log WmsDbPopulate.log	Contains messages that were generated by the scripts used to create and initialize the Portal Server and WebSphere Member Service database instances.	Check these logs for error messages if you have problems logging in as the portal administrator after the portal is installed.
DeployAdminPortlets.log	Contains a message that indicates whether the base administration and customization portlets were successfully deployed. This file is updated whenever you install the portal using the automated installer. The log is also updated whenever you use the portal configuration interface to manually configure a portal.	If you need to determine whether the portal installation was successful, view this file to determine the status of the installation.
RegenerateHTTPServerPlugin.log	During portal installation, if the WebSphere Application Server plug-in cannot be regenerated, an entry is made in this log.	Check this log if problems occur during the portal installation or if you have portal problems after installation.

StartWPS.log	Contains messages generated when the portal installer attempts to start the Portal Server Application Server running under WebSphere Application Server.	Check this log if you cannot open the portal after a successful installation.

Note: After the installation process, it is recommended that you reboot the WebSphere Portal machine after you verify the product installation. After you reboot, verify the product installation again!

Final verification of the installation

Now that you have verified that all of the components have been installed successfully and are up and running on your Linux for zSeries, you will want to make sure that you can reboot your Linux for zSeries and have everything come up successfully. So let's do your final verification and updates:

1. Verify automatic startup of newly installed components

   From a terminal line command, use **`runlevel`** to determine the runlevel that you are running with.

2. Autostartup

   Edit /etc/inittab and go to the last line. The last two lines have entries to automatically start DB2 and ldap. Verify that the runlevels that are listed include the one that you are running with, otherwise, insert the runlevel number.

   If you want WebSphere Application Server to automatically start up when you reboot, make sure you make the appropriate entries in /etc/init.d/rc3.d or your other favorite autostartup place.

3. Autostarting database managers

   To make sure that the database managers automatically startup at reboot time, switch to each DB2 instance and issue the **`db2set -all`** command. You will notice that DB2AUTOSTART is not set (there is no entry). Set it via **`db2iauto -on db2instancex`**, where db2instancex is the LDAP and WAS DB2 instance name (in our case, these names were ldapdb2 and wasinst) to turn AUTOSTART on for each instance. Then put DB2AUTOSTART=YES in /var/db2/v71/default.env to set it in the defaults.

4. Reboot

   After Linux for zSeries has rebooted, perform the verification steps again to make sure that everything has been restarted correctly. If everything is up and running, you are now ready to go to the following URL and start performing administration on your portal!

   ```
   http://<fully_qualified_host_name>/wps/portal
   ```

The team that wrote this Redpaper

This IBM Redpaper was produced by a team of specialists from around the world working at the International Technical Support Organization, Raleigh Center.

Lynn Winkelbauer began her career in the Microcode Build and Release group. In 1984, she changed to the MVS™ Systems Assurance Group, responsible for the quality and schedules of MVS products. In 1988 she transferred to the Large Systems Performance Group, specializing in CICS® and APPC. In 1993, she began working on S/390® Parallel Sysplex® in a joint project with Allstate Insurance Company. In 1994, she moved on to the S/390 Parallel Competency Center, providing technical support to marketing and customers migrating to S/390 Parallel Sysplex. In July 1999, she became a member of the newly formed Design Center for e-Business On Demand, helping customers architect, prototype and validate first-of-a-kind e-transaction processing solutions.

Tamas Vilaghy is a project leader at the International Technical Support Organization, Poughkeepsie Center. He leads redbook projects dealing with e-business on zSeries servers. Before joining the ITSO, he worked in System Sales Unit and Global Services departments of IBM Hungary. Tamas spent two years in Poughkeepsie from 1998 to 2000 dealing with zSeries marketing and competitive analysis. From 1991 to 1998 he held technical, marketing and sales positions dealing with zSeries. From 1979 to 1991 he dealt with system software installation, development and education.

Thanks to the following people for their contributions to this project:

Rufus Credle
International Technical Support Organization, Raleigh Center, who is the project leader of the IBM Redbook SG24-6883, which this Redpaper is based on.

Faheem Altaf
IBM Linux Integration Center, Austin

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 give 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.

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.

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.

This information contains 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 contains sample application programs in source language, which illustrates 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. 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 IBM's application programming interfaces.

© Copyright IBM Corp. 2003. All rights reserved.

Trademarks

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

CICS®	MVS™	Tivoli®
Domino™	Parallel Sysplex®	WebSphere®
DB2 Universal Database™	QuickPlace®	z/VM®
DB2®	Redbooks (logo) ™	zSeries®
Hummingbird®	S/390®	
IBM®	Sametime®	
Lotus®	ThinkPad®	

The following terms are trademarks of other companies:

Intel, Intel Inside (logos), MMX, and Pentium are trademarks of Intel Corporation in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

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

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

SET, SET Secure Electronic Transaction, and the SET Logo are trademarks owned by SET Secure Electronic Transaction LLC.

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