

Installing the Advanced Edition using iPlanet Web Server Enterprise Edition and Oracle 8i on HP-UX

The steps that follow describe how to install a single configuration of WebSphere Application Server Advanced Edition that uses--

- HP-UX 11.0
- HP-UX SDK 1.2.2
- iPlanet Web Server, Enterprise Edition 4.0 or 4.1
- Oracle 8i Release 2 (8.1.6) or Oracle 8i Release 3 (8.1.7)
- A single node

See the WebSphere Application Server Supported Hardware, Software, and APIs Web site at www.ibm.com/software/webservers/appserv/doc/latest/prereq.html to learn which products and fix levels are supported for your level of WebSphere Application Server.

Steps for installation

[Deciding which steps to follow](#)

[Setting kernel parameters](#), as needed

Installing [iPlanet Web Server, Enterprise Edition 4.0](#) or [iPlanet Web Server, Enterprise Edition 4.1](#)

Installing [Oracle 8i Release 2 \(8.1.6\)](#)

Installing [Oracle 8i Release 3 \(8.1.7\)](#)

Installing [WebSphere Application Server](#)

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Deciding which steps to follow

First, check the WebSphere Application Server Supported Hardware, Software, and APIs Web site at www.ibm.com/software/webservers/appserv/doc/latest/prereq.html to ensure that you have the correct prerequisites, including operating system patches. If you have not already done so, change kernel parameters as needed and install the Web server and database. Then, obtain the product CD for WebSphere Application Server or [download](#) the product from the Web. Instructions for installation follow:

1. [Change kernel parameters](#), as needed.
2. Install [iPlanet Web Server, Enterprise Edition 4.0](#) or [iPlanet Web Server, Enterprise Edition 4.1](#).
3. Install [Oracle 8i Release 2 \(8.1.6\)](#) or [Oracle 8i Release 3 \(8.1.7\)](#).
4. [Install WebSphere Application Server](#) by using the **Custom Install** option.

Setting kernel parameters

For WebSphere Application Server to run effectively, you must change some operating system kernel parameters.

The `max_thread_proc` parameter must be set to at least 1024. Change the default value of 64 to 1024 (or higher).

The `maxfiles` and `maxfiles_lim` parameters should be set to at least 4096. The limit for both parameters is 60,000. However, the `sam` (System Administration Manager) program will not allow a value above 2048 without the following changes to the file `/usr/conf/master.d/core-hpux`:

- Change `*range maxfiles<=2048` to `*range maxfiles<=60000`
- Change `*range maxfiles_lim<=2048` to `*range maxfiles_lim<=60000`

Further, ensure that the following parameters are set to values at least as large as the following:

Parameter Value

```

maxuprc  512
nproc    1024
nflocks  8192
ninode   2048
nfile    4 * ninode
msgseg   32767 (or less)
msgmnb   65 535
msgmax   65 535
msgtql   1024
msgmap   258
msgmni   256
msgssz   16
semمني   512
semmap   514
semمns   1024
semمnu   1020 (nproc value minus 4)
shmmax   268 435 456 (see below)
shmseg   16
shmمني   300

```

As to the *shmmax* parameter, ensure that it is set to 134217728 or 90% of the physical memory (in bytes), whichever is higher. For example, if you have 196 MB of physical memory in your system, set *shmmax* to 184 968 806 (196 * .9 * 1024 * 1024). Use SAM to determine your machine's physical memory.

If you will be redirecting displays to non-HP boxes, set LANG to a value shown by `locale -a` output before running applications that have a graphical user interface, such as the WebSphere Application Server applications started with the scripts `install.sh` or `adminclient.sh`. An example setting for LANG is--

```
export LANG=en_US.iso88591
```

Setting parameters using sam

To set the parameters, start `sam`. Select **Kernel Configuration** and then **Configurable Parameters**. Next, double-click on the parameter you want to change and enter the new value in the **Formula/Value** field. When you finish, click **OK**. Repeat these steps for each of the parameters listed above. After all of the parameters are set properly, select **Action** and then **Process New Kernel**. Your system will automatically reboot.

Mounting a CD-ROM on HP-UX

As the user root, perform the following steps one time:

1. Determine the device address for the CD-ROM by entering the following command:

```
# ioscan -C disk -f -n
```

Output similar to the following is displayed. This output example indicates that the CD-ROM device file is `/dev/dsk/c1t2d0`:

```

Class I H/W Path      Driver  S/W State  H/W Type  Description
=====
disk  0 8/0/19/0.6.0    sdisk   CLAIMED   DEVICE    IBM        DDRS-39130WS
                /dev/dsk/c0t6d0    /dev/rdisk/c0t6d0

```

```
disk 1 8/16/5.2.0    sdisk CLAIMED    DEVICE    TOSHIBA CD-ROM XM-6201TA
                /dev/dsk/clt2d0  /dev/rdsk/clt2d0
```

2. Create a new directory called /cdrom at the root of the file system. This directory becomes the CD-ROM mount point; all CD-ROM files appear under this directory.
3. Determine whether the **pfs** daemon is running by entering the following command:

```
# ps -ef | grep pfs
```

If the **pfs** daemon is running, output similar to the following is displayed:

```
root 1681 1651 0 11:39:20 pts/ta    0:00 /usr/sbin/pfs_mountd
root 1682 1681 0 11:39:20 pts/ta    0:00 pfs_mountd.rpc
```

If the **pfs** daemon is running, go to Step 6. If the **pfs** daemon is not running, complete Step 4 and Step 5 before trying to complete Step 6.

4. Edit the file /etc/pfs_fstab by adding a line similar to the following to indicate the hardware path for the CD-ROM:

```
/dev/dsk/clt2d0 /cdrom pfs-rrip xlat=unix 1 0
```

5. Enter the following commands. You must reenter these commands any time that you restart your system.

```
# nohup /usr/sbin/pfs_mountd &
# nohup /usr/sbin/pfsd &
```

6. To physically mount the CD-ROM, place the CD-ROM in the machine and enter the following command:

```
# /usr/sbin/pfs_mount /cdrom
```

Unmounting a CD-ROM

After you finish using the CD-ROM, enter the following command to unmount it:

```
# /usr/sbin/pfs_umount /cdrom
```

You can now eject the CD-ROM.

Installing iPlanet Web Server Enterprise Edition 4.0

This document contains the following:

- How to install iPlanet Web Server Enterprise Edition 4.0
- How to verify the installation
- How to start and stop the server

Installing iPlanet Web Server Enterprise Edition 4.0

To install iPlanet Web Server, which you can obtain from the [iPlanet Web site](#), perform the following steps:

1. If you have not already done so, see the [Software Prerequisites Web site](#) to learn what level of iPlanet you need to download.
2. Download the appropriate version of iPlanet Web Server and any required patches from the iPlanet Web site at www.iplanet.com/downloads/download/. Follow the steps given to download the file.
3. Ensure that you are logged into the host machine with superuser (root) privileges.
4. Move to the directory containing the downloaded file.

5. Unzip and extract the files.
6. Launch the installation program by typing the following command:

```
# ./setup
```

A welcome screen appears.

7. Press Enter to exit from the welcome screen and continue installation.
 8. Type *Yes* to accept the software licensing agreement and press Enter.
 9. A warning screen can appear that alerts you to any potential installation problems. If you want to resolve any problems, type *No* and press Enter to exit from the installation program. If you want to proceed with installation, type *Yes* and press Enter to close the warning screen.
 10. Choose the type of installation you require by typing the appropriate number and pressing Enter. For this example, type **2** for **Typical installation**.
 11. Type the directory path for the location where the server files and directory structure are to be installed or accept the default location `/usr/netscape/server4` and press Enter.
 12. Choose the **iPlanet Web Server, Enterprise Edition** option and indicate that you want to select from all of its components by typing **All** and pressing Enter.
 13. Choose the components you want to install by typing the number of each, separating each entry from the next with a comma. Press Enter. To accept the default installation of all components except **WAI Support**, press Enter.
- Note:** See the iPlanet Web Server documentation for descriptions of each component. If you do not install a component and later decide that you need it, you can run the installer again and install just the missing component; however, you cannot uninstall individual components after they are installed.
14. If the default *host_name* shown in brackets ([]) is correct, press Enter. If your *host_name* (the name of your host machine) differs from the one shown in brackets, type the correct *host_name* and press Enter.
 15. Type the UNIX user name to use when running the default instance of iPlanet Web Server. For this example, accept the default user name of *nobody* and press Enter.

Note: If the user *nobody* has a user ID of less than 0 (zero), the setup program issues the following warning:

```
ERROR: The system will not allow you to run the
       iPlanet servers as "nobody". Choose another user.
```

See the Netscape Enterprise Server documentation for setting up a dedicated user account to use with iPlanet Web Server.

16. Type the UNIX group name to use when running the default instance of iPlanet Web Server. For this example, accept the default group name of *nobody* and press Enter.
 17. Type the UNIX user name to use when running the Administration Server. In most cases, this is *root*. Press Enter.
 18. Type the Administration Server user name to use for authentication. For this example, type the default name *admin* and press Enter. (This user is not a UNIX user, but a user name set up in the Netscape environment.)
 19. Type the Administration Server password to use for authentication. For this example, type the default name *admin* and press Enter. (This password is not a UNIX password, but a password set up in the Netscape environment.)
 20. Retype the Administration Server password and press Enter.
 21. Type a number between 1024 and 65535 for the port on which to run the Administration Server, or accept the default of 8888 and press Enter. Note this number for later reference.
- Note:** If you want to use a port number lower than 1024, you must be logged in as *root* to start the server.
22. Type a number for the port on which to run the iPlanet Web Server and press Enter. For this example, accept the default of 80. Note this number for later reference.
- Note:** If you want to use a port number lower than 1024, you must be logged in as *root* to start the server. If you choose a port number other than 80, the Uniform Resource Locator (URL) used to gain access to your home page changes. For instance, if your host is called `www.host_name.com` and you choose port 9753, your server's URL becomes `http://www.host_name.com:9753/`.
23. Specify whether or not you are using a Lightweight Directory Access Protocol (LDAP)-based directory server. For this example, accept the default *No* and press Enter.
 24. Type the path for the root directory where your server's content files are to reside or accept the default of `server_root/docs`, where *server_root* refers to the directory path to the location of the server files that you specified in Step [11](#). Press Enter.

25. Type **Yes** to indicate that you want to use your own Java 2 Software Development Kit (SDK) and press **Enter**.
26. Type the absolute path to the directory on your system where the SDK is installed and press **Enter**.
27. A screen can appear that lets you specify a path name to your SDK libraries if they are not found in the `/jre/lib` subdirectory of the SDK directory. For this example, press **Enter**.
28. A screen can appear that lets you specify a path name to your SDK library classes if they are not found in the `/lib` subdirectory of the SDK directory. For this example, press **Enter**.
29. After the installation program extracts and installs the iPlanet Web Server components, a message is displayed, indicating that installation is complete. Press **Enter**.

Verifying installation of iPlanet Web Server Enterprise Edition 4.0 and starting the server

To demonstrate that iPlanet Web Server is operating correctly, perform the following steps:

1. Go to the directory that stores the server files (the directory that you specified in Step [11](#) in the section Installing iPlanet Web Server Enterprise Edition 4.0). In this example, the directory is `/usr/netscape/server4`.
2. Start iPlanet Web Server Enterprise Edition 4.0 by typing the following command:

```
# ./startconsole
```

The **startconsole** command starts the iPlanet Web Server processes and launches a Netscape Navigator session to the Enterprise Administration Server administration page.

Note: The **startconsole** command requires that Netscape Navigator is installed on the host machine and that the **netscape** executable file is accessible via the **PATH** environment variable. For Netscape Navigator to run, the **TERM** and **DISPLAY** environment variables must be set to the correct values for your terminal type and display name, respectively.

3. In the Netscape:Password screen, type the Administration Server user name and password that you specified in Step [18](#) and Step [19](#) in the section Installing iPlanet Web Server Enterprise Edition 4.0, in this example, `admin`). Click **OK**.
4. On the iPlanet Web Server Administration Server screen, select the server by clicking the server name button beside the field **Select a Server**.
5. Click **Manage** beside the server name button.
6. On the iPlanet Web Server 4.0 Server Manager screen, click **Server On**.
7. The Netscape:Question screen confirms that the server has started successfully. Click **OK**.
8. Open a browser window and type the Web address `http://host_name/`, where `host_name` is the host name you specified in Step [14](#) in the section Installing iPlanet Web Server Enterprise Edition 4.0. A default page provided by the Netscape installation is displayed.
9. Type the Web address `http://host_name:administration_port_number/`, where `administration_port_number` is the port number that you defined in Step [21](#) in the section Installing iPlanet Web Server Enterprise Edition 4.0. You can be prompted for the Administration Server user name and password.

When these steps are complete, iPlanet Web Server is installed and operating correctly. If you are going to install WebSphere Application Server, you must stop your iPlanet Web Server.

Stopping the iPlanet Web Server Enterprise Edition 4.0

Before you install WebSphere Application Server, stop the Web Server by performing the following steps:

1. On the iPlanet Web Server 4.0 Server Manager screen, click **Server Off**.
2. The Netscape:Question screen confirms that the server has stopped successfully. Click **OK**.

Installing iPlanet Web Server Enterprise Edition 4.1

This document contains the following:

- How to install iPlanet Web Server Enterprise Edition 4.1
- How to verify the installation
- How to start and stop the server

Installing iPlanet Web Server Enterprise Edition 4.1

To install iPlanet Web Server, which you can obtain from the [iPlanet Web site](#), perform the following steps:

1. If you have not already done so, see the [Software Prerequisites Web site](#) to learn what level of iPlanet you need to download.
2. Download the appropriate version of iPlanet Web Server and any required patches from the iPlanet Web site at www.iplanet.com/downloads/download/. Follow the steps given to download the file.
3. Ensure that you are logged into the host machine with superuser (root) privileges.
4. Move to the directory containing the downloaded file.
5. Unzip and extract the files.
6. Launch the installation program by typing the following command:

```
# ./setup
```

A welcome screen appears.

7. Press Enter to exit from the welcome screen and continue installation.
 8. Type *Yes* to accept the software licensing agreement and press Enter.
 9. A warning screen can appear that alerts you to any potential installation problems. If you want to resolve any problems, type *No* and press Enter to exit from the installation program. If you want to proceed with the installation, type *Yes* and press Enter to close the warning screen.
 10. Choose the type of installation you require by typing the appropriate number and pressing Enter. For this example, type 2 for **Typical installation**.
 11. Type the directory path for the location where the server files and directory structure are to be installed or accept the default location `/usr/netscape/server4` and press Enter.
 12. Choose the **iPlanet Web Server, Enterprise Edition** option and indicate that you want to select from all of its components by typing *All* and pressing Enter.
 13. Choose the components you want to install by typing the number of each, separating each entry from the next with a comma. Press Enter. To accept the default installation of all components except **WAI Support**, press Enter.
- Note:** See the iPlanet Web Server documentation for descriptions of each component. If you do not install a component and later decide that you need it, you can run the installer again and install just the missing component; however, you cannot uninstall individual components after they are installed.
14. If the default *host_name* shown in brackets ([]) is correct, press Enter. If your *host_name* (the name of your host machine) differs from the one shown in brackets, type the correct *host_name* and press Enter.
 15. Type the UNIX user name to use when running the default instance of iPlanet Web Server. For this example, accept the default user name of *nobody* and press Enter.

Note: If the user *nobody* has a user ID of less than 0 (zero), the setup program issues the following warning:

```
ERROR: The system will not allow you to run the
       iPlanet servers as "nobody". Choose another user.
```

See the Netscape Enterprise Server documentation for setting up a dedicated user account to use with iPlanet Web Server.

16. Type the UNIX group name to use when running the default instance of iPlanet Web Server. For this example, accept the default group name of *nobody* and press Enter.
17. Type the UNIX user name to use when running the Administration Server. In most cases, this is *root*. Press Enter.
18. Type the Administration Server user name to use for authentication. For this example, type the default name *admin* and press Enter. (This user is not a UNIX user, but a user name set up in the Netscape environment.)
19. Type the Administration Server password to use for authentication. For this example, type the default name *admin* and press Enter. (This password is not a UNIX password, but a password set up in the Netscape environment.)
20. Retype the Administration Server password and press Enter.
21. Type a number between 1024 and 65535 for the port on which to run the Administration Server, or accept the default of 8888 and press Enter. Note this number for later reference.

Note: If you want to use a port number lower than 1024, you must be logged in as root to start the server.

22. Type a number for the port on which to run the iPlanet Web Server and press Enter. For this example, accept the

default of 80. Note this number for later reference.

Note: If you want to use a port number lower than 1024, you must be logged in as root to start the server. If you choose a port number other than 80, the Uniform Resource Locator (URL) used to gain access to your home page changes. For instance, if your host is called `www.host_name.com` and you choose port 9753, your server's URL becomes `http://www.host_name.com:9753/`.

23. Specify whether or not you are using a Lightweight Directory Access Protocol (LDAP)-based directory server. For this example, accept the default `No` and press Enter.
24. Type the path for the root directory where your server's content files are to reside or accept the default of `server_root/docs`, where `server_root` refers to the directory path to the location of the server files that you specified in Step 11. Press Enter.
25. Type `Yes` to indicate that you want to use your own Java 2 Software Development Kit (SDK) and press Enter.
26. Type the absolute path to the directory on your system where the SDK is installed and press Enter.
27. A screen can appear that lets you specify a path name to your SDK libraries if they are not found in the `/jre/lib` subdirectory of the SDK directory. For this example, press Enter.
28. A screen can appear that lets you specify a path name to your SDK library classes if they are not found in the `/lib` subdirectory of the SDK directory. For this example, press Enter.
29. After the installation program extracts and installs the iPlanet Web Server components, a message is displayed, indicating that installation is complete. Press Enter.

Verifying installation of iPlanet Web Server Enterprise Edition 4.1 and starting the server

To demonstrate that iPlanet Web Server is operating correctly, perform the following steps:

1. Go to the directory that stores the server files (the directory that you specified in Step 11 in the section Installing iPlanet Web Server Enterprise Edition 4.1). In this example, the directory is `/usr/netscape/server4`.
2. Start iPlanet Web Server Enterprise Edition 4.1 by typing the following command:

```
# ./startconsole
```

The **startconsole** command starts the iPlanet Web Server processes and launches a Netscape Navigator session to the Enterprise Administration Server administration page.

Note: The **startconsole** command requires that Netscape Navigator is installed on the host machine and that the **netscape** executable file is accessible via the PATH environment variable. For Netscape Navigator to run, the TERM and DISPLAY environment variables must be set to the correct values for your terminal type and display name, respectively.

3. In the Netscape:Password screen, type the Administration Server user name and password that you specified in Step 18 and Step 19 in the section Installing iPlanet Web Server Enterprise Edition 4.1 (in this example, `admin`). Click **OK**.
4. On the iPlanet Web Server Administration Server screen, select the server by clicking the server name button beside the field **Select a Server**.
5. Click **Manage** beside the server name button.
6. On the iPlanet Web Server 4.1 Server Manager screen, click **Server On**.
7. The Netscape:Security Warning screen informs you that the information you are about to submit is insecure and could be observed by a third party while in transit. For this example, click **Continue Submission**.
8. The Netscape:Question screen confirms that the server has started successfully. Click **OK**.
9. Open a browser window and type the Web address `http://host_name/`, where `host_name` is the host name you specified in Step 14 in the section Installing iPlanet Web Server Enterprise Edition 4.1. A default page provided by the Netscape installation is displayed.
10. Type the Web address `http://host_name:administration_port_number/`, where `administration_port_number` is the port number that you defined in Step 21 in the section Installing iPlanet Web Server Enterprise Edition 4.1. You can be prompted for the Administration Server user name and password.

When these steps are complete, iPlanet Web Server is installed and operating correctly. If you are going to install WebSphere Application Server, you must stop your iPlanet Web Server.

Stopping the iPlanet Web Server Enterprise Edition 4.1

Before installing WebSphere Application Server, close the Web Server by performing the following steps:

file://D:\temp\info\docs\adv\three_five\hpux_adv_ipplanet_oracle.html

5/10/2001

1. On the iPlanet Web Server 4.1 Server Manager screen, click **Server Off**.
2. The Netscape:Security Warning screen informs you that the information you are about to submit is insecure and could be observed by a third party while in transit. For this example, click **Continue Submission**.
3. The Netscape:Question screen confirms that the server has stopped successfully. Click **OK**.

Installing Oracle 8i Release 2 (8.1.6)

Complete the steps below to install Oracle 8i Enterprise Edition from the Oracle product CD. For the latest and most complete installation instructions, refer to the Oracle 8i *Installation Guide* at http://docs.oracle.com/database_mp.html under **Version 4** documentation for HP 9000 servers and workstations.

1. These instructions install Oracle 8i into the ORACLE_HOME directory. If you have a version of Oracle earlier than 8.1.5 in the ORACLE_HOME directory, then delete it. If you have the 8.1.5 version, the Oracle installation program will remove most of it before installing version 8.1.6.
2. Log in as the user *root* and do the following:
 1. Create two mount points, one for Oracle 8i and one for the database files. The mount points can be directories in existing volumes or you can use the System Administration Manager (SAM) utility to set up new logical volumes. (If you are doing an OFA-compliant installation, then create four mount points -- one for Oracle 8i and three for the database files.) Name the mount points, for example, */u01* for Oracle 8i (requires 1 GB) and */u02* for the database files (requires 500 MB).
 2. Create one or more groups for the SYSDBA and SYSOPER Oracle roles, which are created when you install Oracle. The Oracle installation program gives Oracle SYSDBA and SYSOPER privileges to members of the UNIX group *dba* by default. Thus, consider using the System Administration Manager (SAM) utility to create a group named *dba*.
 3. Use the System Administration Manager (SAM) utility to create a group named *oinstall*. The *oinstall* group will be the primary group for the *oracle* user account that will run the Oracle installation program.
 4. Use the System Administration Manager (SAM) utility to create a user named *oracle*. For **Login Name**, provide any name for the account. For **Primary GID**, specify *oinstall*. For **Home Directory**, specify any home directory; it does not have to be the same as the ORACLE_HOME directory. For **Login Shell**, specify a default shell of */usr/bin/sh* (Posix shell), */usr/bin/csh* (C shell), or */usr/bin/ksh* (Korn shell). Note that you must only use the *oracle* account for installing and maintaining Oracle software; do not log into a database when using the *oracle* account.
 5. [Mount the Oracle 8i CD](#) that holds the Enterprise Edition.
3. Log in as the user *oracle* then set permissions and environment variables:
 1. Set *umask* to 022 for the *oracle* account. If entering the command *umask* does not return 22, set *umask* in the *.profile* or *.login* file of the *oracle* account and then run the following command:

```
$ umask 022
```

2. On the system that you will run the Oracle installation program, set the DISPLAY environment variable to the system name or IP address, X server, and screen used by your workstation. Do not use the hostname or IP address of the system onto which Oracle 8i will be installed unless you will be installing from that system's X-windows console. Use the machine name or IP address of your own workstation if you will be installing from a remote system. If you are unsure what to set the X server and screen to, set both to 0 (zero).

Thus, for the Bourne or Korn shells, enter the following on the server where the Oracle database will be installed:

```
$ DISPLAY=<workstation_name>:0.0
```

```
$ export DISPLAY
```

In the session on your workstation, enter:

```
$ xhost +<server_name>
```

For the C shell, enter the following on the server where the Oracle database will be installed:

```
$ setenv DISPLAY <workstation_name>:0.0
```

In the session on your workstation, enter:

```
$ xhost +<server_name>
```

3. Create a .profile file in the home directory of the user named *oracle*. Ensure that the file contains the information below. Your Oracle SID may differ.

```
#-----
# Oracle environment setup
#-----
#
ORACLE_BASE=<oracle_home_directory>
export ORACLE_BASE
ORACLE_SID=orcl
export ORACLE_SID
ORACLE_HOME=$ORACLE_BASE/product/8.1.6
export ORACLE_HOME
PATH=$PATH:$ORACLE_HOME/bin
export PATH
echo 'The Oracle 8.1.6 environment is set'
```

In the example file above, the variable *<oracle_home_directory>* specifies the home directory for the *oracle* user.

Refer to the *Installation Guide* for Oracle 8i on HP-UX 11.0 at http://docs.oracle.com/database_mp.html for information on the ORACLE_BASE, ORACLE_HOME, ORACLE_SID, and other variables.

4. Update the environment for the current session using one of the following commands:
 - o For the Bourne, Korn, or Posix shell, enter: `$. ./profile`
 - o For the C shell, enter: `% source .login`
5. Enter the following command from your CD-ROM directory: `./runInstaller`
6. On the Welcome panel of the Oracle Universal Installer, click **Next**.
7. On the File Locations panel, for **Destination** specify the ORACLE_HOME directory path onto which Oracle 8i should install and click **Next**.
8. If you have no other versions of Oracle on your system, the UNIX Group Name panel displays. In the **UNIX Group Name** field, specify `oinstall` or whatever group has permission to install Oracle products on your system, then click **Next**.
9. If `/var/opt/oracle/` does not exist or is not writable by the *oracle* user, run `/tmp/OraInstall/orainstRoot.sh` in another terminal window as the user *root* as described by the panel that displays. Then, click **Retry**.
10. On the Available Products panel, select the Enterprise Edition, which provides both the Oracle client and server, and click **Next**.
11. Select the **Typical** or **Minimal** installation. If you want the **Custom** installation, refer to information in the Oracle 8i *Installation Guide* at http://docs.oracle.com/database_mp.html under **Version 4** documentation for HP 9000 servers and workstations.
12. If Oracle 8.1.5 is on your system, select **Upgrade or Migrate an Existing Database** when prompted, and click **Next**.
13. If you selected **Minimal**, on the Select Starter Database panel select **Yes** to to install an Oracle 8i database. (Selecting **No** installs the server software without creating a database.) Then, click **Next**.
14. On the Database Identification panel, for **Global Database Name**, specify a unique database name such as `orcl.<machine_name>`, where `orcl` is the name of the database and `<machine_name>` is the network domain where the database is located. For **SID**, or System Identifier, specify a unique database instance name that is fewer than 8 characters. The default is the database name specified under **Global Database Name** (`orcl` for the above example). Then, click **Next**.
15. On the Database File Location panel, for **Directory for Database Files**, specify the path of the database file mount point. Then, click **Next**.
16. On the summary panel, ensure that your system has enough disk space to install Oracle 8i and click **Install**.
17. After the software installs, log in as the user *root* and run the `root.sh` script in the ORACLE_HOME directory:

```
cd $ORACLE_HOME
```

```
./root.sh
```

When prompted, specify the local bin directory.

18. In the Net8 Configuration Assistant, configure the Net8 server environment by specifying a listener for the server, a net service name for the client, and static service information for your Oracle 8i database. Then, click **Next**. The Assistant configures the files listener.ora, sqlnet.ora and tnsnames.ora, setting the values you specify.
19. In the Configuration Tools window, click **Next** to have the tools create a database and, if necessary, migrate or upgrade Oracle 8.1.5 databases to version 8.1.6.
20. You might see a dialog that tells you the default passwords for the SYS and SYSTEM Oracle roles. The passwords should be *change_on_install* for SYS and *manager* for SYSTEM. Write down their actual values and click **Ok**.
21. Click **Exit**.

After you install Oracle 8i, apply any needed patches. Look in the /patch directory of the Oracle CD for the patches and follow the instructions in the README accompanying each patch.

Finally, proceed to "[Configuring Oracle8i Release 2 \(8.1.6\) for use with WebSphere Application Server](#)."

Configuring Oracle 8i Release 2 (8.1.6) for use with WebSphere Application Server

Perform the following steps to configure Oracle 8i for use with WebSphere Application Server:

1. Ensure that you are logged in as the user *oracle*.
2. Edit the initialization file \$ORACLE_HOME/dbs/init<your_SID>.ora so it includes the following line:

```
open_cursors = 220
```

You might also need to set processes to more than the default (50), for example:

```
processes = 100
```

3. Restart your Oracle database. You can start the database by entering the commands:

```
$ svrmgrl
SVRMGR> connect internal
SVRMGR> startup
```

If you need to stop the database, use the commands:

```
$ svrmgrl
SVRMGR> connect internal
SVRMGR> shutdown
```

4. Start the Oracle listener. At a command line, enter the following commands:

```
$ lsnrct
LSNRCTL> start
```

5. You must create the *EJSADMIN* Oracle user required by WebSphere Application Server. You might or might not want to grant this user *dba* authority. You must also create an *EJB* Oracle user and grant this user authority.

If you **do** want to grant *dba* authority to the user *EJSADMIN*, enter the following set of commands using these values: the *system* variable is the user ID; the *manager* variable is the default password; and the *EJSADMIN_password* is the password you assign to user *EJSADMIN*.

```

$ sqlplus system/manager
SQL> create user EJSADMIN identified by EJSADMIN_password;
SQL> grant connect, resource, dba to EJSADMIN;
SQL> create user EJB identified by EJB;
SQL> grant connect, resource to EJB;
SQL> quit

```

If you do **not** want to grant *dba* authority to the user *EJSADMIN*, perform the following two steps:

- a. Enter the following set of commands using these values: the *system* variable is the user ID; the *manager* variable is the default password; and the *EJSADMIN_password* is the password you assign to user *EJSADMIN*.

```

$ sqlplus system/manager
SQL> create user EJSADMIN identified by EJSADMIN_password quota 100M \
on SYSTEM;
SQL> create user EJB identified by EJB quota 100M on USERS;
SQL> grant connect, resource to EJSADMIN;
SQL> grant connect, resource to EJB;
SQL> quit

```

- b. When you later start the WebSphere Administrative Console, you must edit the data source for the HitCount bean. Do this by selecting **Default Server**, **Default Container**, **HitCount Bean**, and **DataSource** so the **User ID** and **Password** are set to EJB. Then click **Apply**.
6. Test access to the new database with the *EJSADMIN* user ID by doing the following:
 - a. Enter the command `$ sqlplus ejsadmin/EJSADMIN_password`. A message is displayed indicating a successful connection.
 - b. Enter the command `$ exit` to log out as the *EJSADMIN* user.

Installing Oracle 8i Release 3 (8.1.7)

This document describes how to install and configure Oracle on a local HP 9000 Series machine. The instructions assume the following:

- You do not have a previous version of Oracle already installed on your machine. If you have a previous version of Oracle installed, you might need to migrate databases, depending on the version installed. In this case, do not follow these instructions. Instead, refer to Oracle product documentation on the Oracle Web site at docs.oracle.com/database_mp_8i.html.
- Your Oracle database server will be located on the same machine as WebSphere Application Server. This configuration and the use of default settings documented in these instructions are appropriate only for development and very small production system environments.
- You have checked the Oracle product documentation on the Oracle Web site at docs.oracle.com/database_mp_8i.html to verify that you have enough memory and disk space for your installation.

Note: Install Oracle before installing WebSphere Application Server.

Perform the following steps to install Oracle 8i from the product CD-ROM:

1. Ensure that you are logged into the machine with superuser (root) privileges.
2. Ensure that you have set the following UNIX kernel, shared memory, and semaphore parameters properly:
 - SHMMAX
 - SHMMIN
 - SHMMNI
 - SHMSEG
 - SEMMNI
 - SEMMNS

For more information on the proper values for these parameters, refer to the *Oracle 8i Installation Guide*.

3. Ensure that the DISPLAY and TERM environment variables are set correctly for your environment.

4. Create a mount point for Oracle 8i. The mount point can be a directory in an existing volume, or you can set up a new logical volume by using the HP-UX System Administration Manager (SAM) utility.

Note: If you plan to use Oracle in a production environment, it is recommended that you create a file system on a separate logical volume to store the database files. (If you are performing an Optimal Flexible Architecture (OFA)-compliant installation, you must create four mount points, one for Oracle 8i and three for the database files.) Refer to the *Oracle 8i Installation Guide* and your HP-UX system documentation for more information on creating and mounting file systems. Also, Oracle software is supplied on two CD-ROMs. Review the Oracle documentation for suggestions on how best to set up the software for installation.

5. Use the SAM utility to create the following groups for database administrators: dba, osdba, osoper, and oinstall.
6. Use the SAM utility to create the user oracle, who owns the Oracle software after installation. Use the following entries:
 - a. In the **Login Name** field, enter `oracle`.
 - b. In the **User ID (UID)** field, accept the automatically generated ID.
 - c. In the **Home Directory** field, enter the desired home directory for the user `oracle`. For instance, enter `/home/oracle`; it does not need to be the same as the `ORACLE_HOME` directory.
 - d. In the **Primary Group Name** field, enter `oinstall`.
 - e. In the **Start-Up Program** field, enter the default shell. For example, to use the Bourne shell, enter `/usr/bin/sh`.
 - f. Accept the default values for the other fields and click **OK**.
 - g. Exit from the SAM utility.

Note: Use the oracle account only for installing and maintaining Oracle software; do not log into a database as the user oracle.

7. Use the HP-UX command `newgrp` to enter dba as the Secondary Group Name for the user oracle. See HP-UX documentation for information on using this command.
8. Ensure that the home directory for the user oracle is owned by the user oracle and group oinstall.
9. Log in as the user oracle, as follows:

```
# su - oracle
```

10. Ensure that the `DISPLAY` and `TERM` environment variables are still set properly.
11. Ensure that the user mask value is set to 022 by entering the following command:

```
$ umask
```

If the command does not return a value of 022, set the value as follows:

- a. Edit the `.profile` file in the home directory of the user oracle by adding the line `umask 022` to this file and then saving and closing it.
- b. Enter the following command:

```
$ umask 022
```

12. Add the following information to the `.profile` file in the home directory for the user oracle. Your Oracle System Identifier (SID) can differ from the example shown, but it must be fewer than eight characters in length.

```
#-----
# Oracle environment setup
#-----
#
ORACLE_BASE=oracle_home_directory
export ORACLE_BASE
ORACLE_SID=orcl
export ORACLE_SID
ORACLE_HOME=$ORACLE_BASE/product/8.1.7
```

```
export ORACLE_HOME
PATH=$PATH:$ORACLE_HOME/bin
export PATH
ORACLE_DOC=$LD_LIBRARY_PATH:$ORACLE_HOME/lib
export ORACLE_DOC
echo 'The Oracle 8.1.7 environment is set'
```

In the example file above, the variable *oracle_home_directory* specifies the home directory for the user oracle.

See HP-UX documentation for information on these and other environment variables.

13. Log out and log back in for your changes to take effect.
14. Insert the Oracle 8i CD-ROM and, if necessary, mount it following the instructions in the article [Mounting a CD-ROM on HP-UX](#).

The following steps assume that the CD-ROM is mounted at /cdrom.

15. Enter the following commands to begin the Oracle installation process:

```
$ cd /cdrom/oracle8i
$ ./runInstaller
```

The Oracle Universal Installer opens, displaying the Welcome window.

16. Click **Next**. The File Locations window opens.
17. Verify that the values in the **Source** and **Destination** fields are as follows:
 - o The value of the **Source** field must be **/cdrom/oracle8i/stage/products.jar**. Do not change this field; it is the location of files for installation.
 - o The value of the **Destination** field must be the same as the value you set for the ORACLE_HOME environment variable.
18. Click **Next**. The UNIX Group Name window opens.
19. Enter `oinstall` in the **UNIX Group Name** field, and then click **Next**.

Note: If the /var/opt/oracle directory does not exist or cannot be written to by the user oracle, you are prompted to run the */oracle_home_directory/product/8.1.7/oraInstRoot.sh* script at this point in the installation process. Switch to another terminal, log in as the user root, and execute the script. After the script has been executed, return to the Oracle Universal Installer to continue the installation process.

20. In the Available Products window, verify that the **Oracle8i Enterprise Edition 8.1.7.0.0** option is selected, and then click **Next**.
21. In the Installation Types window, choose the **Typical** option, and then click **Next**.

Note: As part of a **Typical** installation, an Apache-based Web server is installed and started by default. If you plan to use another Web server as part of your WebSphere Application Server environment, you might need to perform a **Custom** installation or perform a **Typical** installation and uninstall the Web server after installation. See the Oracle product documentation on the Oracle Web site at docs.oracle.com/database/mp_8i.html for instructions on performing **Custom** installations or uninstalling parts of the Oracle product.

22. In the Database Identification window, enter a global database name in the **Global Database Name** field (for example, **orcl.machine_name**), and verify that the value in the **SID** field is the same as the value you set for the ORACLE_SID environment variable. Click **Next**.
23. In the Database File Location window, specify the installation location for the Oracle database files in the **Directory for Database Files** field and then click **Next**.
24. Verify the information in the Summary window, which summarizes all of the installation choices that you have made so far. When you determine that the information is correct, click **Install**. The Install window opens; it tracks the status of the Oracle installation.

Note: At this point in the installation, you are prompted to run the **root.sh** configuration script to set necessary file

permissions for Oracle products. Switch to another terminal, log in as the user root, and execute the script. After the script runs, return to the Oracle Universal Installer to finish the installation process.

After the installation and linking processes finish, the Configuration Tools window opens. The Net8 Configuration Assistant and Oracle Database Configuration Assistant are automatically configured, along with an Oracle database.

25. After the configuration process is complete, click **Next**. The End of Installation window opens.
26. Click **Exit** to close the Oracle Universal Installer. Click **Yes** to confirm the action.
27. Apply to the product any Oracle-supplied patches located in the `cdrom_mount_point/patch` or `cdrom_mount_point/opspatch` directories. Review the README included with each patch for installation instructions.
28. At this point, check the Oracle product documentation on the Oracle Web site at docs.oracle.com/database/mp/8i.html to verify that your environment variables are set to optimize your particular installation.
29. Unmount the CD-ROM before removing it from the CD-ROM drive by entering the following command:

```
# /usr/sbin/pfs_umount
```

30. Proceed to the article "[Configuring Oracle 8i Release 3 \(8.1.7\) for use with WebSphere Application Server](#)" to configure Oracle for use with WebSphere Application Server.

Configuring Oracle 8i Release 3 (8.1.7) for use with WebSphere Application Server

This article describes how to create the Oracle users required by WebSphere Application Server. The procedures in this article assume that you have installed Oracle 8i.

Perform the following steps to configure Oracle 8i for use with WebSphere Application Server:

1. Ensure that you are logged in as the user oracle.
2. Edit the initialization file `$ORACLE_HOME/dbs/inityour_SID.ora` as follows:
 - o Add the line `open_cursors = 220`.
 - o Ensure that the default value of 50 for the `processes` parameter is sufficient for your database by reading the information within the `inityour_SID.ora` file. To increase the value of this parameter, add comment markers to or remove comment markers from the specific lines related to `processes` within the file.
3. Restart your Oracle database by entering the following commands:

```
$ svrmgrl
SVRMGR> connect internal
SVRMGR> startup
```

Note: You might need to stop the database before you are able to restart it. To stop the database, enter the following commands:

```
$ svrmgrl
SVRMGR> connect internal
SVRMGR> shutdown
```

4. Ensure that the Oracle listener is started or start it by entering the following commands:

```
$ lsnrctl
LSNRCTL> start
```

5. You must create the Oracle user EJSADMIN required by WebSphere Application Server. You might or might not want to grant this user `dba` authority. You must also create an Oracle user EJB and grant this user authority.

If you **do** want to grant `dba` authority to the user EJSADMIN, enter the following commands using these values: the `system` variable is the user ID; the `manager` variable is the default password; and the `EJSADMIN_password` is the

password you assign to the user EJSADMIN.

```
$ sqlplus system/manager
SQL> create user EJSADMIN identified by EJSADMIN_password;
SQL> grant connect, resource, dba to EJSADMIN;
SQL> create user EJB identified by EJB;
SQL> grant connect, resource to EJB;
SQL> quit
```

If you do **not** want to grant *dba* authority to the user EJSADMIN, perform the following two steps:

- a. Enter the following commands using these values: the *system* variable is the user ID; the *manager* variable is the default password; and the *EJSADMIN_password* is the password you assign to the user EJSADMIN.

```
$ sqlplus system/manager
SQL> create user EJSADMIN identified by EJSADMIN_password quota 100M \
on SYSTEM;
SQL> create user EJB identified by EJB quota 100M on USERS;
SQL> grant connect, resource to EJSADMIN;
SQL> grant connect, resource to EJB;
SQL> quit
```

- b. When you later start the WebSphere Administrative Console, you must edit the data source for the HitCount bean. Do this by selecting **Default Server**, **Default Container**, **HitCount Bean**, and **DataSource** so the **User ID** and **Password** are set to EJB. Then click **Apply**.
6. Test access to the new database with the user ID EJSADMIN by doing the following:
 - a. Enter the command `$ sqlplus ejsadmin/EJSADMIN_password`. A message is displayed indicating a successful connection.
 - b. Enter the command `$ exit` to log out as the user EJSADMIN.

Installing WebSphere Application Server

To install WebSphere Application Server using the GUI installer, do the following:

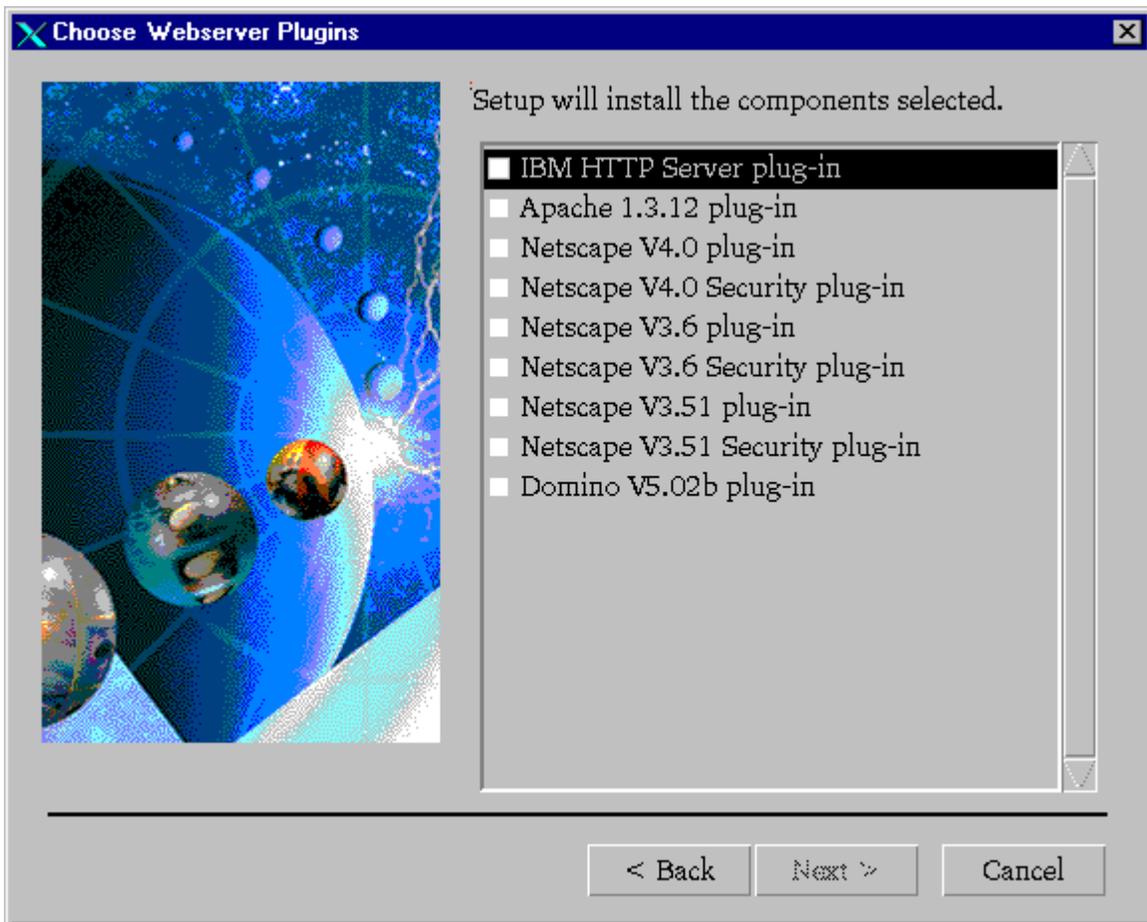
1. Log into your machine with superuser (root) privileges.
2. If iPlanet Web Server or another Web server on your system is running, stop the Web server.
3. If you plan to use a Web server or database at a level that exceeds the current version required by WebSphere Application Server, you must disable the WebSphere Prerequisite Checker before installing WebSphere Application Server. To do this, perform the following steps:
 - a. Copy the `prereq.properties` file from the `/cdrom/hp` directory to the `/tmp` directory on the machine on which you will install WebSphere Application Server.
 - b. Edit this file by finding the line `prereq_checker=1` and changing it to `prereq_checker=0`.
4. If you have not disabled the Prerequisite Checker as detailed in Step 3, run the installation script file by entering the following command:

```
# /cdrom/hp/install.sh
```

If you have disabled the Prerequisite Checker as detailed in Step 3, run the installation script file by entering the following command:

```
# /cdrom/hp/install.sh /prereqfile /tmp/prereq.properties
```

5. Click **Next** to pass the introductory page.
6. In the Install Options dialog, select **Custom Installation**; then click **Next**.
7. In the Choose Application Server Components dialog, select those components you want and deselect those components you do not want. You will likely want to include the default options. Ensure that **Configure Default Server and Application** is selected. If you plan on running WebSphere Application Server with a supported Web server, then also select **Web Server Plugins**.
8. Click **Next**. If necessary, shut down all Web servers you plan to run with WebSphere Application Server and proceed.
9. If you opted to install a plug-in, the Choose Web Server Plugins page displays.



Select **Netscape V4.0 plug-in**. Only IBM HTTP Server 1.3.12 is provided with WebSphere Application Server. You must separately purchase and install the other supported Web servers.

10. When prompted, specify the directory and file name for the Netscape Enterprise Server configuration file.
11. On the Database Options page, do the following:
 1. For **Database Type**, select **Oracle**.
 2. For **Database Name**, give the name of the database to use. The default is **orcl**.
 3. For **DB Home**, specify the path for the database home (the value of ORACLE_HOME).
 4. For **DB URL**, specify the URL for accessing the database. You will likely want to take the default.
 5. For **Database User ID**, specify your user name. If you have already installed Oracle 8i, ensure that you specify the Username specified when configuring Oracle 8i for use with WebSphere Application Server (for example, EJSADMIN).
 6. For **Database Password** and **Confirm Password**, enter your password. If you have already installed Oracle 8i, ensure that you specify the Password specified when installing Oracle 8i.
 7. Click **Next**.
12. On the Security Options dialog, fill in the user ID (`root`), security password, and confirming password to use for the application server. If you do not need special key ring files, click **Next** to take the default key ring files and to move to the Product Directory dialog.

If you need special key ring files, move to the key ring section, designate client and server files and passwords, and then click **Next** until you are at the Product Directory dialog.

13. Specify the destination directory and click **Next**.
14. Click **Next** again and then **OK** to begin the installation.
15. The next page points you to the README. If you select to view the README and a Netscape browser does not open on the README, look in the `<main_Application_Server_directory>/web/InfoCenter/was` directory for the `readme.html` file. For the most recent version of the README or release notes, go to **Library** section of the product

Web site at <http://www.ibm.com/software/webservers/appserv/>.

Click **Finish**.

Testing the installation

1. Start the WebSphere Administrative Server by running the startupServer script in the /opt/WebSphere/AppServer/bin directory:

```
./startupServer.sh
```

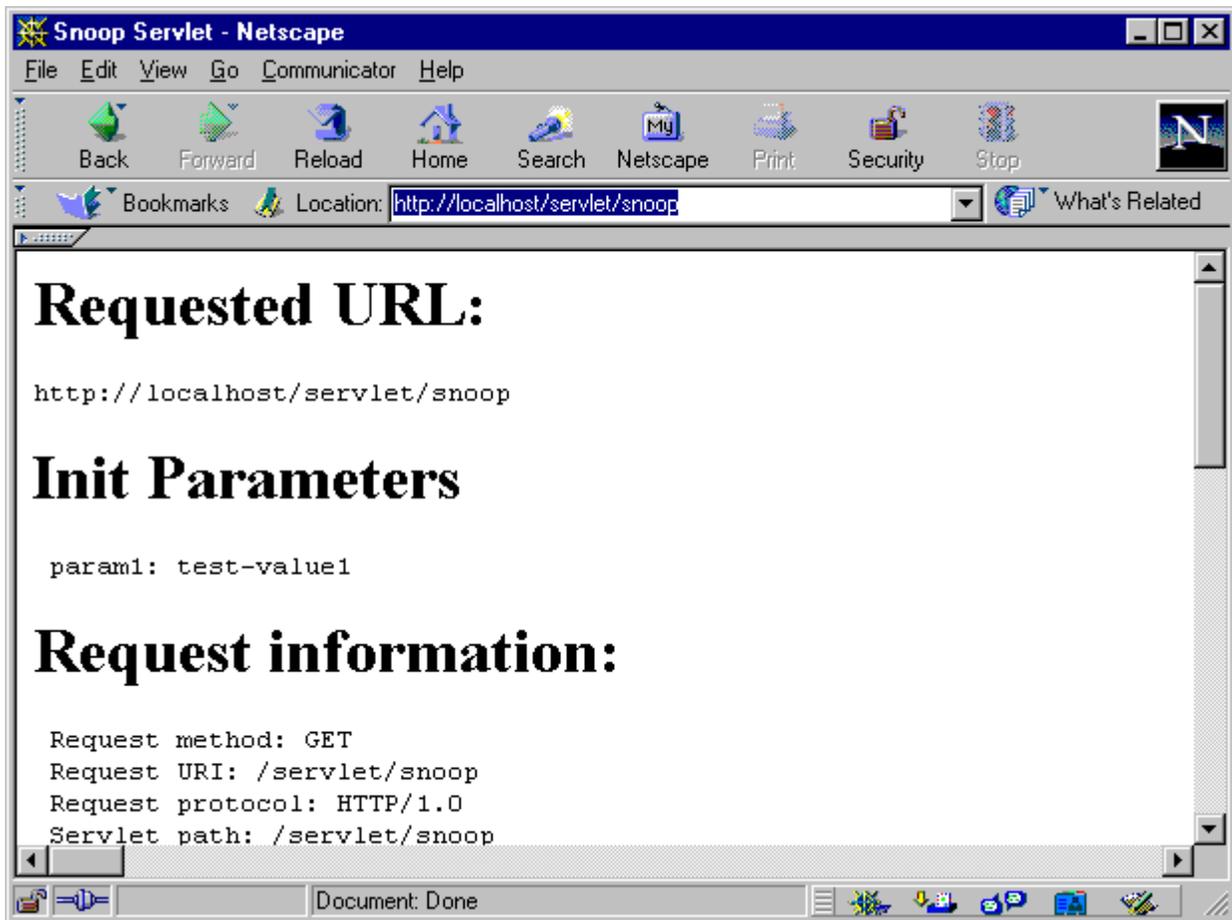
2. Wait patiently. If the server is slow to start or does not start successfully, look at the tracefile log in the /opt/WebSphere/AppServer/logs directory. If the trace file says *server is open for e-business*, the server has started.
3. Start the administrative console by running the adminclient script in the /opt/WebSphere/AppServer/bin directory:

```
./adminclient.sh
```

4. Wait until you see the console message *Console Ready*. Then administer the server:
 1. When the Administrative Console opens, the **Topology** tree view is shown. Click on the + sign next to **WebSphere Administrative Domain** to expand the view.
 2. Your host name should be listed. Expand the view of that node, and you should see an entry called **Default Server**. Expand that and you will see the default container and servletEngine.
 3. Select **Default Server**. If the **Current State** of DefaultServer is *Stopped*, click the **Start** icon on the tool bar. After an information dialog displays, stating that the server is running, click **OK**. Note that the current state changes from *Stopped* to *Running*.

Once the server starts, it is marked in the configuration database that it should be running. If it stops, or if you reboot the machine, the administrative server will automatically restart it. Even if the administrative server fails, it will continue to run.

5. Test the server. Ensure that the iPlanet Web Server is running. If the Web server is not running, [start the server](#). Then, open a browser and go to http://<your_server_name>/servlet/snoop, which is a standard sample servlet installed by default. You should see information on /servlet/snoop.



Testing with an Enterprise Bean

After you install WebSphere Application Server, you can test an enterprise bean using the Inc sample:

1. Go to the administrative console.
2. Ensure that default server and the Inc bean are already started.
3. Start your Web browser and specify for the URL address: `http://your_host/webapp/examples/HitCount`. You should see a Web page with selection options.
4. From the list **Generate hit count using**, select **Enterprise JavaBean**. From the list **Transaction Type**, select **None**.
5. Click on **Increment**.

The number of hits should display.