

Installing the Advanced Edition using IBM HTTP Web Server 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
- IBM HTTP Web Server 1.3.12
- 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 [Oracle 8i Release 2 \(8.1.6\)](#) or [Oracle 8i Release 3 \(8.1.7\)](#)

[Installing WebSphere Application Server](#)

[Testing the installation](#)

[Testing with an Enterprise Bean](#) (optional)

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 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 [Oracle 8i Release 2 \(8.1.6\)](#) or [Oracle 8i Release 3 \(8.1.7\)](#).
3. [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
semgni     512
semmap     514
semms      1024
semmsz     1020 (nproc value minus 4)
shmmax     268 435 456 (see below)
shmseg     16
shmmni     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/clt2d0`:

```

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/rdisk/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/c1t2d0 /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 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:

file:///D:/temp/info/docsrc/adv/three_five/hpux_adv_ihs_oracle.html

5/10/2001

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:

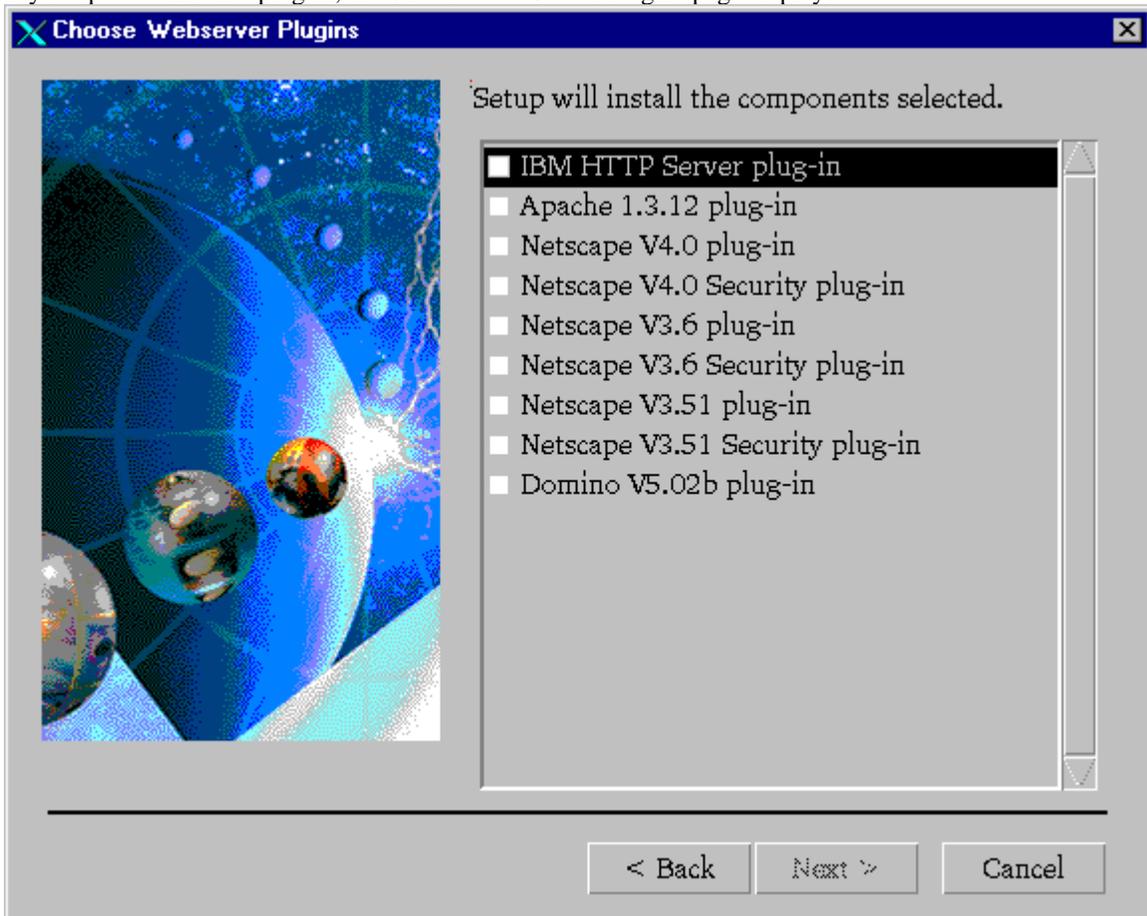
1. Log into your machine with superuser (root) privileges.
2. If IBM HTTP Server or another Web server on your system is running, stop the Web server.
3. If you plan to use a Web server or database at a level that exceeds the current version required by WebSphere Application Server, you must disable 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 **IBM HTTP Server 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. 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 installing Oracle 8i.
 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**.
11. On the Security Options dialog, fill in the user ID, 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.

12. Specify the destination directory(-ies) and click **Next**.
13. Click **Next** again and then **OK** to begin the installation.
14. 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**.

Finishing prerequisite configuration

If you installed IBM HTTP Server as part of the WebSphere Application Server installation (that is, you did not install the prerequisite product before installing Application Server), you may need to configure it. See "[Verifying installation of IBM HTTP Server 1.3.12](#)" for details.

Testing the installation

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

```
./startupServer.sh
```

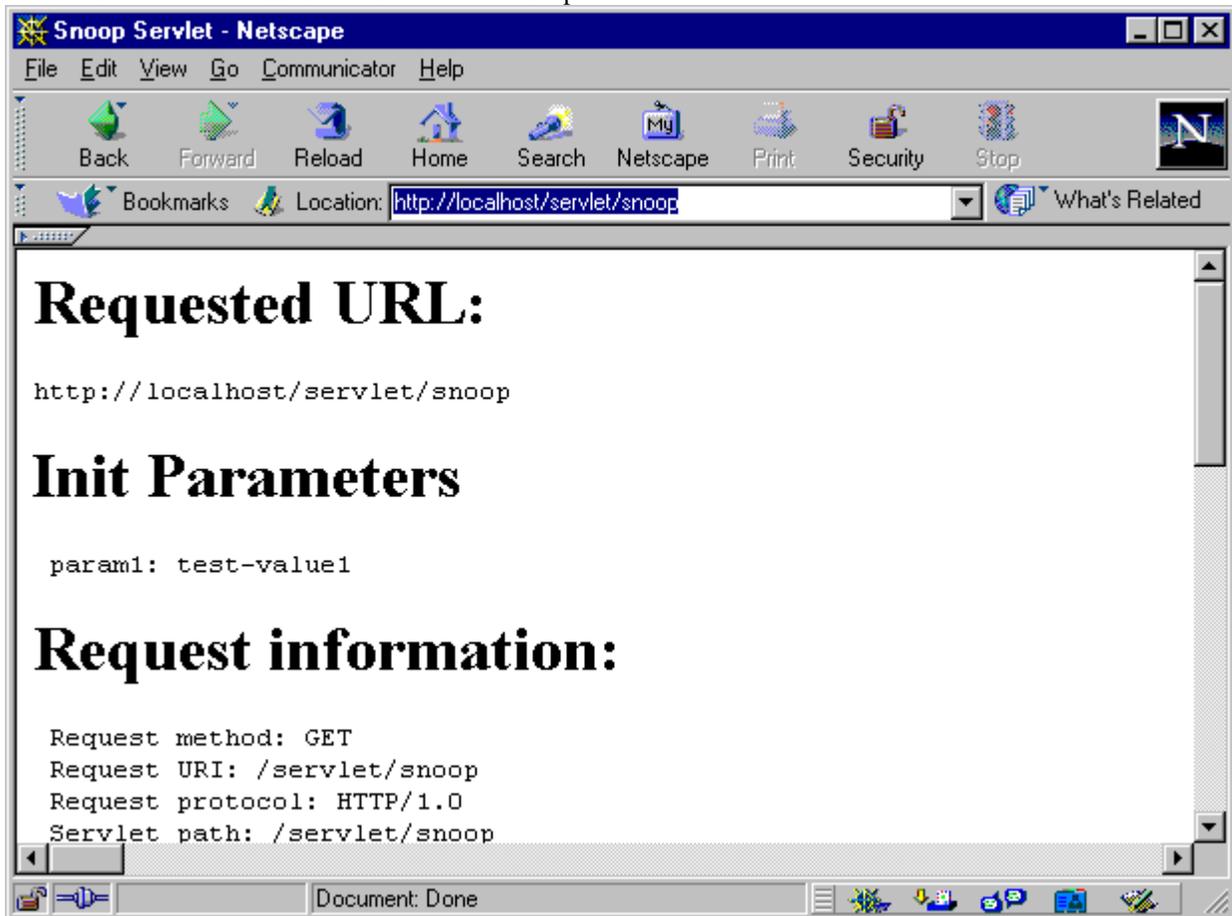
2. Wait patiently. If the server is slow to start or does not start successfully, look at the tracefile log in the /opt/WebSphere/AppServer/logs directory. If the trace file says *server is open for e-business*, the server has started.
3. Start the administrative console by running the adminclient script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

Installing IBM HTTP Server 1.3.12

You will likely want to install IBM HTTP Server as part of the WebSphere Application Server and then follow the steps in "[Verifying installation of IBM HTTP Server 1.3.12](#)" to test the installation. However, you can install IBM HTTP Server separately from the WebSphere Application Server installation. To install IBM HTTP Server, which you can obtain from the product CD or [an IBM Web site](#), complete either set of installation steps below. Then verify your installation by completing

the verification steps below. If you will be acting as administrator, also complete the steps in "[Administering IBM HTTP Server](#)."

Installing IBM HTTP Server 1.3.12 from the product CD

1. Become Superuser (root).
2. [Mount the WebSphere CD](#).
3. Change directory to the IBM HTTP Server subdirectory.
4. Run the installer script as

```
# ./install_ihs_128.sh
```

This runs the HP-UX swinstall program in an automated session. The IBM HTTP Server code will reside under /opt/HTTPServer. The program will require several minutes to complete.

If you want to specify a different target location for IBM HTTP Server, run

```
# swinstall -s ${PWD}/IHS_128_DEPOT
```

and change the target location under the **Action** menu.

5. There is an omission in the current script which leaves the depot registered. After the script finishes, enter the command

```
# swreg -l depot -u ${PWD}/IHS_128_DEPOT
```

Installing IBM HTTP Server 1.3.12 from a downloaded tar file

Perform the following steps to install IBM HTTP Server 1.3.12 from .tar or .tar.Z files that you have downloaded:

1. Ensure that you are logged into the host machine with superuser (root) privileges.
2. Uncompress and untar any .tar or .tar.Z files to extract the IBM HTTP Server bundles.
3. Ensure that the TERM and DISPLAY environment variables are set correctly.
4. Start the HP-UX System Administration Manager (SAM) by entering the following command:

```
# sam
```

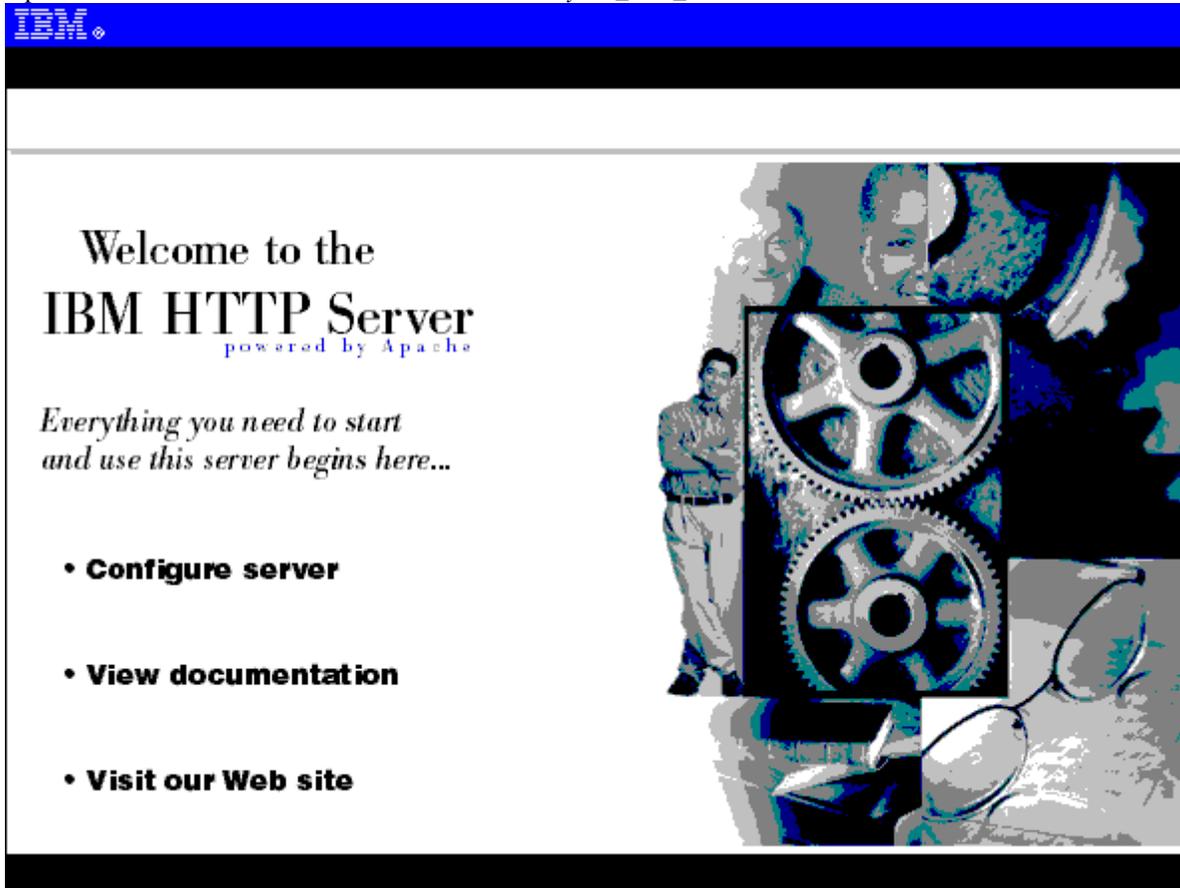
5. Click **Software Management**. The Software Management screen is displayed.
6. Click **Install Software to Local Host**. The Specify Source screen is displayed.
7. From the **Source Depot Type** field, select **Local Directory**.
8. Ensure that the name of the local machine is displayed in the **Source Host Name** field.
9. In the **Source Depot Path** field, enter the path name for the directory that contains the untarred IBM HTTP Server bundles.
10. Ensure that the **Software Filter** field is set to **None**, and then click **OK**. The Software Selection screen is displayed.
11. From the list of bundles and products, select the bundles that you want to install, then click **Actions > Install (analysis)**. The Install Analysis screen is displayed.
12. When the analysis completes successfully, click **OK**.
13. The Confirmation screen is displayed. Click **Yes** to begin the installation. The Install Window screen displays information about the progress of the installation.
14. After the installation is complete, click **Done** and exit from SAM.

Verifying installation of IBM HTTP Server 1.3.12

1. If needed, start IBM HTTP Server 1.3.12 by navigating to the directory /opt/HTTPServer/bin and entering:

```
./apachectl start
```

- Open a browser and enter the Web address `http://your_host_name/` or `localhost`.



If you see the *Welcome to the IBM HTTP Server* page, IBM HTTP Server is installed correctly.

To stop the Web server, enter at a prompt for `/opt/HTTPServer/bin`:

```
./apachectl stop
```

Administering IBM HTTP Server

If you will be administering IBM HTTP Server, complete the steps given below as needed.

To change the language observed by the Web server:

- As user *root*, enter the command


```
# /opt/HTTPServer/bin/setuplang
```
- When prompted, set the desired language.

To set the user and password for the administrative server:

- Go to a command prompt for `/opt/HTTPServer/bin` and enter the command


```
# ./htpasswd -m ../conf/admin.passwd <user_name>
```
- When prompted, enter and verify the password.

The configuration files are owned by *root* after install. If you have created a separate user for administration of IBM HTTP Server, you must give write permission to the user designated for Web administration:

1. Become user *root* in the `/opt/HTTPServer/conf` directory.
2. Change ownership of the configuration files to the user designated for administration of IBM HTTP Server:

```
# chown <IHS_admin_user_name>:<IHS_admin_group_name> admin.conf httpd.conf admin.passwd  
# chmod 640 admin.conf httpd.conf admin.passwd
```

3. Open an editor on the files `admin.conf` and `httpd.conf`. Change the **User** so it specifies the user designated for administration of IBM HTTP Server. Similarly, change the **Group** so it specifies the group designated for administration of IBM HTTP Server.

For more information on administration of the Web server, look at files in the `/opt/HTTPServer/readme` directory. Also, because IBM HTTP Server is modified version of Apache HTTP Server, you might look at information on administering an Apache server.

Starting the IHS administrative server

To start the administrative server, as user *root* or as the user designated for the administrative server, run

```
/opt/HTTPServer/bin/adminctl start
```

After the server starts, point a browser at `http://wasmachine:8008`, supply the user name and password, and administer the server.

Stopping the IHS administrative server

To stop the administrative server, as user *root* or as the user designated for the administrative server, run

```
/opt/HTTPServer/bin/adminctl stop
```