Installing the Standard Edition using IBM HTTP Web Server and IBM DB2 UDB on HP-UX

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

- HP-UX 11.0
- HP-UX SDK 1.2.2
- IBM HTTP Web Server 1.3.12
- DB2 Universal Database (UDB) 6.1 or DB2 UDB 7.1
- A single node or multiple nodes

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
Installing DB2 UDB 6.1 or DB2 UDB 7.1
Installing WebSphere Application Server
Testing the installation

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, set the kernel parameters, install DB2 UDB, and then obtain the product CD for WebSphere Application Server or download the product from the Web. WebSphere Application Server comes with HP-UX SDK and IBM HTTP Web Server. Instructions for installation follow:

1. Change kernel parameters, as needed.
2. Install DB2 UDB 6.1 or DB2 UDB 7.1. Both sets of instructions describe how to install DB2 UDB and an appropriate fixpack.
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
semmni	512
semmap	514
semmns	1024
semmnu	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/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/rdsk/c0t6d0
    disk  1 8/16/5.2.0    sdisk   CLAIMED    DEVICE    TOSHIBA CD-ROM XM-6201TA
                          /dev/dsk/c1t2d0  /dev/rdsk/c1t2d0
    ```

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 DB2 Universal Database (UDB) 6.1

This document describes the following:

- How to install and configure DB2 on a local HP-UX machine
- How to apply a fixpack to the installation

Installing DB2 UDB 6.1

The DB2 product CD-ROM contains the files necessary to install and configure DB2 on a local HP-UX machine (the machine to which the CD-ROM drive is attached). Perform the following steps to install DB2:

1. Ensure that you are logged into the machine with superuser (root) privileges.
2. Ensure that you have set the necessary UNIX kernel parameters properly by viewing the file "Setting kernel parameters." It is recommended that you review these settings with your system administrator to ensure that they do not conflict with settings necessary for other software programs on your system.
3. Insert the DB2 UDB V6.1 CD-ROM into the CD-ROM drive.
4. Mount the CD-ROM by following the instructions in the file "Mounting a CD-ROM on HP-UX." The following steps assume that the CD-ROM drive is mounted at /cdrom.
5. Navigate to the correct directory on the DB2 UDB 6.1 CD-ROM by entering the following command:

```
# cd /cdrom
```

6. Look in this directory for a README file in your language and read the file.
7. Enter the following command to start the DB2 Installer Program:

```
# ./db2setup
```

8. On the Install DB2 V6.1 screen, select the products that you want to install by performing the steps below. (Press the Tab key to move among and highlight options and press Return to select or deselect options.)
    a. Select **DB2 Administration Client**, **DB2 UDB Enterprise Edition**, **DB2 Connect Enterprise Edition**, and **DB2 Software Developer's Kit** by highliging each option and pressing Return.
    b. Highlight the **Customize** option beside the **DB2 Product Library** option and press Return.
    c. In the **DB2 Product Library (HTML)** section, highlight the option appropriate for your locale (**en_US** in the United States) and press Return.
    d. On the DB2 Product Library screen, highlight **OK** and press Return.
    e. On the Install DB2 V6.1 screen, highlight **OK** and press Return.
9. On the Create DB2 Services screen, accept the default values **Do not create a DB2 Instance** and **Do not create the Administration Server** by ensuring that **OK** is highlighted and pressing Return. (You will create a DB2 Instance and the Administration Server after you install a fixpack. Installation of fixpacks is discussed in the section "Upgrading DB2 UDB 6.1 with a fixpack.")
10. A Warning screen informs you that you are not creating a DB2 Instance. Ensure that **OK** is highlighted and press Return to exit from the Warning screen.
11. A Warning screen informs you that you are not creating an Administration Server. Ensure that **OK** is highlighted and press Return to exit from the Warning screen.
12. The Summary Report screen lists the products that you have elected to install. DB2 software is installed into the directory /opt/IBMdb2/V6.1. Ensure that **Continue** is highlighted and press Return.
13. A Warning screen gives you a final chance to opt out of the installation. Ensure that **OK** is highlighted and press Return to continue with the installation.
14. A Notice screen informs you whether the installation has been successful. Ensure that **OK** is highlighted and press Return to exit from this screen.
15. The Status Report screen verifies which software packages have been installed. Ensure that **OK** is highlighted and press Return.
16. Ensure that **Close** is highlighted and press Return.
17. A Warning screen informs you that you are not creating a DB2 Instance. Ensure that **OK** is highlighted and press Return to exit from the Warning screen.
18. A Warning screen informs you that you are not creating an Administration Server. Ensure that **OK** is highlighted and press Return to exit from the Warning screen.
19. A Notice screen asks if you want to exit from the DB2 Installer. Ensure that **OK** is highlighted and press Return.

If you installed DB2 UDB from the current WebSphere Application Server CD-ROM, any needed DB2 UDB fixpack was installed as well. In this case, proceed to the steps in "Creating and configuring a database for DB2 UDB 6.1."

If you did not install DB2 UDB from the current WebSphere Application Server CD-ROM, see the Software Prerequisites Web site to learn whether you need to install a fixpack for your level of WebSphere Application Server. If you do need to update your DB2 UDB installation with a fixpack, proceed to the steps in "Upgrading DB2 UDB 6.1 with a fixpack."

Upgrading DB2 UDB 6.1 with a fixpack

To upgrade DB2 UDB 6.1 with a fixpack, do the following:

1. If you have not already done so, see the Software Prerequisites Web site to learn whether you need to install a fixpack for your level of WebSphere Application Server. Note the fixpack level needed.
2. Go to http://www-4.ibm.com/cgi-bin/db2www/data/db2/udb/winos2unix/support/download.d2w/report, navigate to the download page for the needed fixpack, and download the appropriate file. Read the accompanying README file for installation tips.
3. Ensure that you are logged into the machine with superuser (root) privileges.
4. Move to the directory containing the downloaded file.
5. Uncompress and untar the file to extract the DB2 files.
6. Ensure that all DB2 processes are stopped.

7. Ensure that the group root exists on the machine. If it does not, add it by entering the following command:

```
# groupadd root
```

8. Use the **swinstall** command to install all fixes from the fixpack.

After you install the fixpack, complete the steps in "[Creating and configuring a database for DB2 UDB 6.1](#)."

Creating and configuring a database for DB2 UDB 6.1

Before you can effectively run WebSphere Application Server, you must create a DB2 UDB instance and the *was* database, which WebSphere Application Server uses.

Creating a database instance

1. Ensure that you are logged into the machine with superuser (root) privileges.
2. Create an administrative group for DB2 and name it, for example, *db2adm*.
3. Create a user ID to be the DB2 instance owner and name it, for example, *db2inst1*. Specify db2adm as the group for *db2inst1*. For the steps in this section, use a password such as *ibmdb2*. Note that DB2 requires a password of 8 or fewer characters.
4. Add *db2inst1* and *root* to the *db2adm* group.
5. Create a database instance by entering the following at a command prompt:

```
# /opt/IBMdb2/V6.1/instance/db2icrt -u db2inst1 db2inst1
```

6. Create symbolic links:

```
# /opt/IBMdb2/V6.1/cfg/db2ln
```

7. Optionally, install the *sample* database. As root, set the environment variable DB2INSTANCE to db2inst1, then run:

```
# /opt/IBMdb2/V6.1/samples/db2sampl
```

8. Configure the instance owner to run db2profile on startup. For ksh, add the line below to the instance owner .profile. Note the space between the period (.) and the first forward slash (/).

```
. /home/db2inst1/sqllib/db2profile
```

For csh, add the following line to the .cshrc of the instance owner:

```
source /home/db2inst1/sqllib/db2cshrc
```

9. Configure root to run the db2profile on startup. This is required to install and run WebSphere Application Server.
10. As user db2inst1, run **db2start** to start DB2.

Configuring a database for the administrative configuration

Because this is the first installation, create a database to store the configuration. The *was* database will be defined by its JDBC URL as jdbc:db2:was. Create the *was* database and set its DB2 application heap size by entering the command:

```
$ db2 create database was
```

Wait a while, then enter the command below to set the application heap size:

```
$ db2 update db config for WAS using applheapsz 256
```

Restart the machine. If an application heap size of 256 doesn't work for your system, increase the size to, for example, 512.

To verify the connection to the *was* database, log in as *db2inst1* and then enter the command:

```
$ db2 connect to was
```

Installing DB2 Universal Database (UDB) 7.1

This document describes the following:

- How to install and configure DB2 on a local HP-UX machine
- How to apply a fixpack to the installation

Installing DB2 UDB 7.1

The DB2 product CD-ROM contains the files necessary to install and configure DB2 on a local HP-UX machine (the machine to which the CD-ROM drive is attached). Perform the following steps to install DB2:

1. Ensure that you are logged into the machine with superuser (root) privileges.
2. Ensure that you have set the necessary UNIX kernel parameters properly by viewing the file "Setting kernel parameters." It is recommended that you review these settings with your system administrator to ensure that they do not conflict with settings necessary for other software programs on your system.
3. Insert the DB2 UDB V7.1 CD-ROM into the CD-ROM drive.
4. Mount the CD-ROM by following the instructions in the file "Mounting a CD-ROM on HP-UX." The following steps assume that the CD-ROM drive is mounted at /cdrom.
5. Navigate to the correct directory on the DB2 UDB 7.1 CD-ROM by entering the following command:

   ```
   # cd /cdrom
   ```

6. Look in this directory for a README file in your language and read the file.
7. Enter the following command to start the DB2 Installer Program:

   ```
   # ./db2setup
   ```

8. On the Install DB2 V7 screen, select the products that you want to install by performing the following steps. (Press the Tab key to move among and highlight options and press the Enter key to select or deselect options.)
   a. Select **DB2 Administration Client**, **DB2 UDB Enterprise Edition**, **DB2 Connect Enterprise Edition**, and **DB2 Application Development Client** by highlighing each option and pressing Enter.
   b. Highlight the **Customize** option beside the **DB2 Product Library** option and press Enter.
   c. In the **DB2 Product Library (HTML)** section, highlight the option appropriate for your locale (**en_US** in the United States) and press Enter.
   d. On the DB2 Product Library screen, highlight **OK** and press Enter.
   e. On the Install DB2 V7 screen, highlight **OK** and press Enter.
9. On the Create DB2 Services screen, take the default selections and select **OK** three times to initiate the installation. (You will create a DB2 Instance and the Administration Server after the installation of a fixpack, which is described in the section "Upgrading DB2 UDB V7.1 with a fixpack.")

Upgrading DB2 UDB V7.1 with a fixpack

To upgrade DB2 UDB 7.1 with a fixpack, do the following:

1. If you have not already done so, see the Software Prerequisites Web site to learn whether you need to install a fixpack for your level of WebSphere Application Server. Note the fixpack level needed.
2. Go to http://www-4.ibm.com/cgi-bin/db2www/data/db2/udb/winos2unix/support/download.d2w/report, navigate to the download page for the needed fixpack, and download the appropriate file. Read the accompanying README file

for installation tips.

3. Ensure that you are logged into the machine with superuser (root) privileges.
4. Move to the directory containing the downloaded file.
5. Uncompress and untar the file to extract the DB2 files.
6. Ensure that all DB2 processes are stopped.
7. Ensure that the group root exists on the machine. If it does not, add it by entering the following command:

```
# groupadd root
```

8. Use the **swinstall** command to install all fixes from the fixpack.

After you install the fixpack, complete the steps in "[Creating and configuring a database for DB2 UDB 7.1](#)."

Creating and configuring a database for DB2 UDB 7.1

Before you can effectively run WebSphere Application Server, you must create a DB2 UDB instance and the *was* database, which WebSphere Application Server uses.

Creating a database instance

1. Ensure that you are logged into the machine with superuser (root) privileges.
2. Use SAM (System Administration Manager) to create an administrative group for DB2 and name it, for example, *db2adm*.
3. Create a user ID to be the DB2 instance owner and name it, for example, *db2inst1*. Specify db2adm as the group for *db2inst1*. For the steps in this section, use a password such as *ibmdb2*. Note that DB2 requires a password of 8 or fewer characters. Specify a home directory of, for example, */home/db2inst1*.
4. Add *db2inst1* and *root* to the *db2adm* group.
5. Create a database instance by entering the following at a command prompt:

```
# /opt/IBMdb2/V7.1/instance/db2icrt -u db2inst1 db2inst1
```

6. Create symbolic links:

```
# /opt/IBMdb2/V7.1/cfg/db2ln
```

7. Optionally, install the *sample* database. As root, set the environment variable DB2INSTANCE to db2inst1, then run:

```
# /opt/IBMdb2/V7.1/samples/db2sampl
```

8. Configure the db2inst1 account to run db2profile on startup. For ksh, add the line below to the instance owner .profile. Note the space between the period (.) and the first forward slash (/).

```
. /opt/IBMdb2/V7.1/sqllib/db2profile
```

For csh, add the following line to the .cshrc of the instance owner:

```
source /opt/IBMdb2/V7.1/sqllib/db2cshrc
```

9. Configure root to run the db2profile on startup. This is required to install and run WebSphere Application Server. For sh or ksh, add the following line to the .profile or .dtprofile file for *root*:

```
. /opt/IBMdb2/V7.1/sqllib/db2profile
```

10. As user db2inst1, run **db2start** to start DB2.

Configuring a database for the administrative configuration

Because this is the first installation, create a database to store the configuration. The *was* database will be defined by its JDBC URL as `jdbc:db2:was`. Create the *was* database and set its DB2 application heap size by entering the command:

```
$ db2 create database was
```

Wait a while, then enter the command below to set the application heap size:

```
$ db2 update db config for WAS using applheapsz 256
```

If an application heap size of 256 doesn't work for your system, increase the size to, for example, 512.

To verify the connection to the *was* database, log in as *db2inst1*. If DB2 is not already running, enter the command `db2start`. Then, once DB2 is running, enter the command:

```
$ db2 connect to was
```

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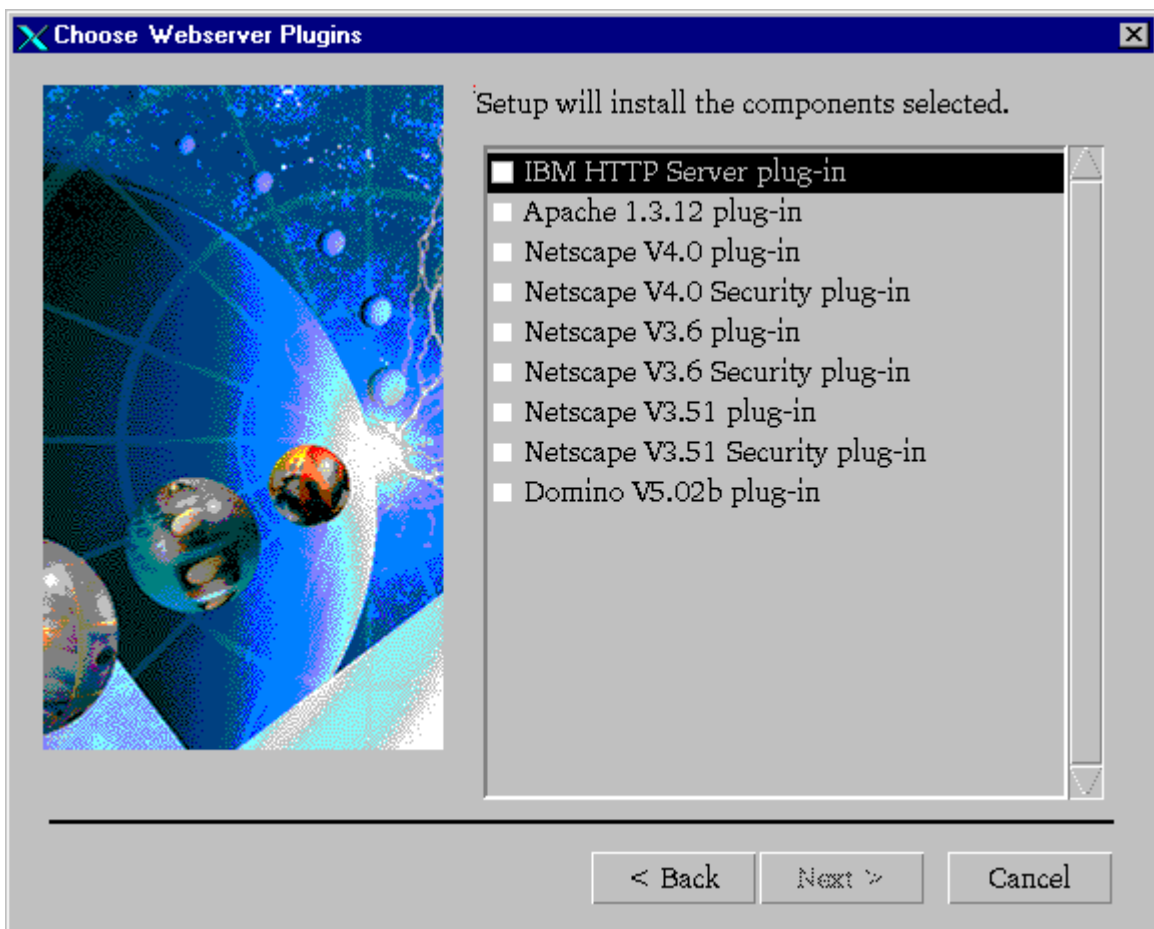
Select **IBM HTTP Server plug-in**. Only IBM HTTP Server 1.3.12 is provided with WebSphere Application Server. You must separately purchase and install the other supported Web servers.

10. On the Database Options dialog, do the following:
    1. For **Database Type**, select **DB2**.
    2. For **Database Name**, give the name of the database to use. The default is **was**.
    3. For **DB Home**, specify the path for the database instance. It is /home/db2inst1.
    4. For **DB URL**, specify the URL for accessing the database. You will likely want to take the default, `jdbc:db2:was`.
    5. For **Database User ID**, specify your user name. If you have already installed DB2 UDB, ensure that you specify the database instance owner (`db2inst1`).
    6. For **Database Password** and **Confirm Password**, enter your password. If you have already installed DB2 UDB, ensure that you specify the password for the database instance owner. Note that DB2 UDB requires a password of 8 or fewer characters.
    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. If you do not have IBM HTTP Server already installed on your system, then a fixed destination directory (/opt/HTTPServer) for IBM HTTP Server will be shown. 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.

Further, to ensure that DB2 installed properly and that the WAS database has been created, see "Creating and configuring a database for DB2 UDB 6.1" or "Creating and configuring a database for DB2 UDB 7.1" if you have not done so already.

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:

   ```
   tail -f opt/logs/tracefile
   ```

   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 us 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 IBM HTTP Server is running. If the IBM HTTP Server is not running, start the server by entering the following in the /opt/HTTPServer/bin directory:

   ```
   ./apachectl start
   ```

   Then, open a browser and go to http://localhost/servlet/snoop, which is a standard sample servlet installed by default. You should see information on /servlet/snoop.
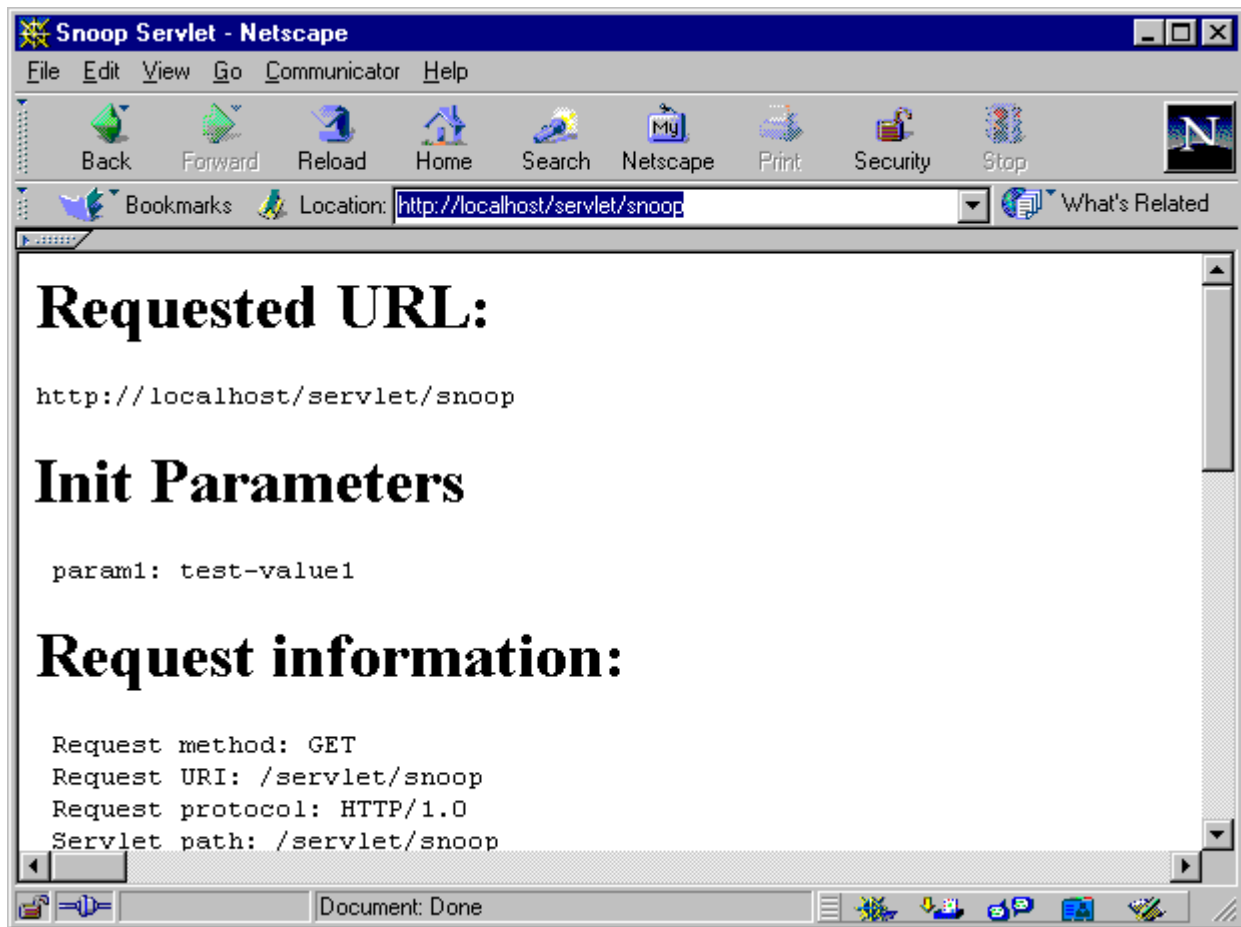
Installing IBM HTTP Server 1.3.12

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
```

2. Open a browser and enter the Web address `http://`*your_host_name*`/` or `localhost`.
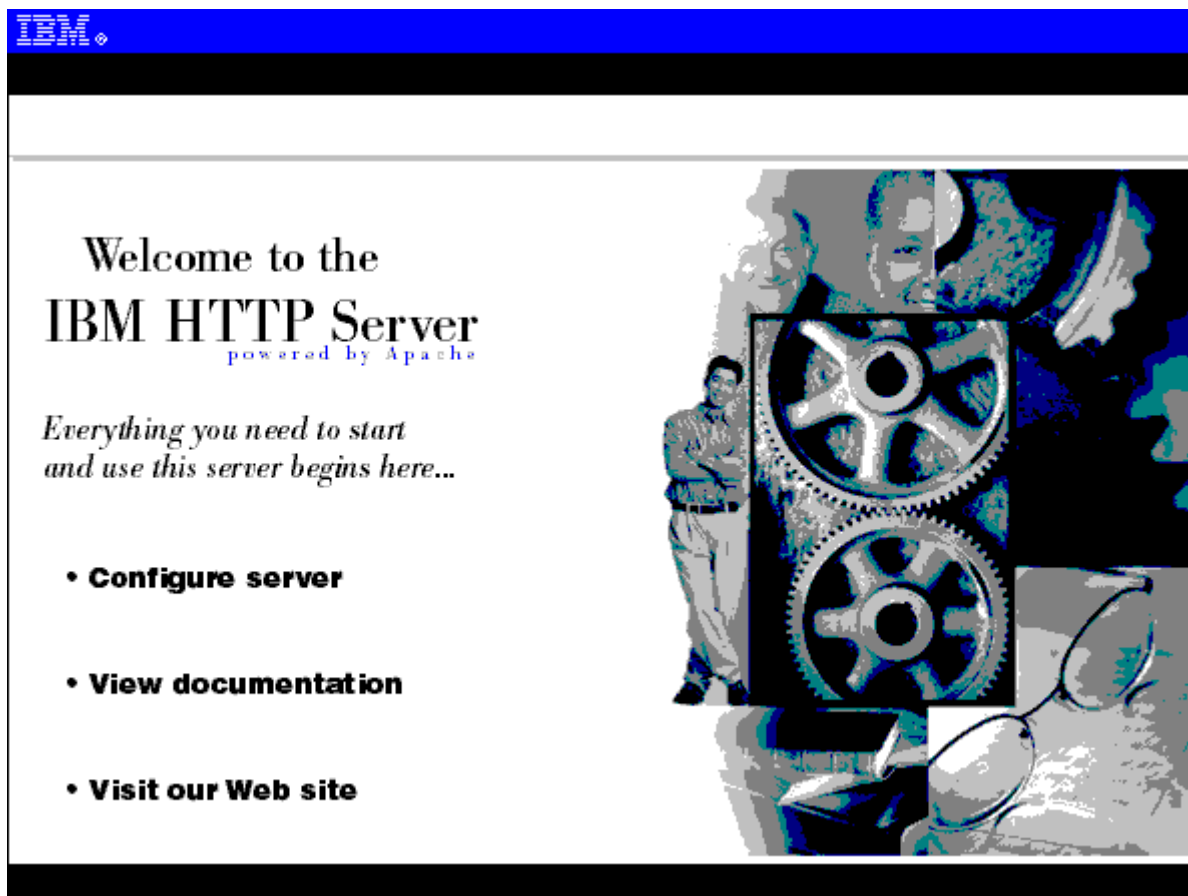
If you see the *Welcome to the IBM HTTP Server* page, IBM HTTP Server is installed correctly.

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:

1. As user *root*, enter the command

    ```
    # /opt/HTTPServer/bin/setuplang
    ```

2. When prompted, set the desired language.

To set the user and password for the admininstrative server:

1. Go to a command prompt for /opt/HTTPServer/bin and enter the command

    ```
    # ./htpasswd -m ../conf/admin.passwd <user_name>
    ```

2. 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 admininstration 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
```