Installing the Advanced Single Server Edition using Apache HTTP Server on Linux (Intel)

The following articles describe how to install a WebSphere Application Server Advanced Single Server Edition configuration that uses the following--

- One of the following distributions of Linux for Intel processors:
  - Red Hat Linux 7.1, 2.4 kernel
  - SuSE Linux 7.1, 2.4 kernel
- IBM Java 2™ Software Developer's Kit (SDK) 1.3.0
- Apache HTTP Server 1.3.20
- A single node

See the WebSphere Application Server Supported Software and APIs Web site at www.ibm.com/software/webservers/appserv/doc/latest/prereq.html to determine the products and fix levels that are supported for use with your version of WebSphere Application Server.

Note: All installation and configuration procedures for WebSphere Application Server Advanced Edition 4.0 on Linux were created and tested using Red Hat Linux. If you are using a different distribution of Linux, some operating system procedures can be different than what is documented in the InfoCenter. Consult your Linux distribution's documentation as necessary.

Steps for installation

Deciding which steps to follow
Installing Apache HTTP Server 1.3.20
Installing WebSphere Application Server 4.0 -- Advanced Single Server Edition
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, install Apache HTTP Server and then obtain the product CD for WebSphere Application Server or download the product from the WebSphere Application Server Download Web site at www.ibm.com/software/webservers/appserv/download.html. WebSphere Application Server comes with the IBM Java 2™ Software Developer's Kit (SDK). Instructions for installation follow:

1. Installing Apache HTTP Server 1.3.20 describes how to download and install Apache HTTP Server.
2. Installing WebSphere Application Server 4.0 -- Advanced Single Server Edition describes how to install WebSphere Application Server Advanced Single Server Edition by using the **Custom Installation** option.
3. Testing the installation describes how to test the installation and configuration of your WebSphere system.
4. Testing with an enterprise bean describes how to test your WebSphere configuration by using an enterprise bean and the Increment sample.

Installing Apache HTTP Server 1.3.20

This article describes how to do the following:

- Install Apache HTTP Server on a Linux (Intel) machine from files downloaded from the Apache HTTP Server Download Web site at httpd.apache.org/dist.

- Test the installation of Apache HTTP Server.

These instructions assume the following:

- Your machine has enough memory and disk space for the installation. See the Apache HTTP Server documentation Web site at www.apache.org/docs for more information.
- You do not have a previous version of Apache HTTP Server already installed on your machine. If you do have a previous version of Apache HTTP Server installed, you must remove it before installing Apache HTTP Server 1.3.20. See the Apache HTTP Server documentation Web site at www.apache.org/docs for more information.

Note: It is recommended that you install Apache HTTP Server before installing WebSphere Application Server. The WebSphere Application Server installation process changes a Web server's configuration so that the Web server directs certain requests (such as servlet requests) to WebSphere Application Server. If the Web server is not installed before WebSphere Application Server, WebSphere Application Server could function incorrectly.

Installing Apache HTTP Server from downloaded files

You can install Apache HTTP Server from a binary distribution downloaded from the Apache Software Foundation Web site at httpd.apache.org/dist.

Note: Binary distributions of Apache HTTP Server are provided for your convenience; current distributions for specific platforms are not always available. Verify that the binaries you are downloading and installing are for the correct distribution and version of Linux and correct version the kernel.

Perform the following steps to install Apache HTTP Server from a downloaded .tar.gz file:

1. Ensure that you are logged into the machine with superuser (root) privileges.
2. Download the appropriate binary distribution of Apache HTTP Server from the Apache Software Foundation Web site at httpd.apache.org/dist.
3. Uncompress and untar the .tar.gz file you downloaded to extract the Apache HTTP Server packages by using the **tar** command, as follows:

   ```
   # tar -zxvf file_name.tar.gz
   ```

   In this command, *file_name* is the name of the .tar.gz file you downloaded.

4. Ensure that you are in the directory containing the uncompressed and untarred Apache HTTP Server packages.
5. Install the Apache HTTP Server binaries by using the **install-bindist.sh** script, as follows:

   ```
   # ./install-bindist.sh
   ```

   The Apache HTTP Server is installed in the /usr/local/apache directory, by default.

6. To change the default configuration of the Apache HTTP Server, edit the httpd.conf, srm.conf, and access.conf files as necessary. See the Apache Directives Web site at www.apache.org/docs/mod/directives.html for more information about editing these files and using Apache HTTP Server runtime directives.

Testing installation of Apache HTTP Server

Perform the following steps to verify that Apache HTTP Server is installed correctly:

1. Start the server by entering the **httpd** command, as follows:

   ```
   # /usr/local/apache/bin/httpd
   ```

   The httpd command attempts to locate the httpd.conf file in the default directory, /usr/local/apache. If the httpd.conf

file is located in a different directory, you can specify the full pathname of the httpd.conf file by using the -f option.

2. Start a Web browser and enter the name of the host machine as the URL (http://*host_machine_name*). If you see a Web site that contains links to the Apache Software Foundation Web site and the Powered by Apache logo, the Apache HTTP Server is running properly. Note that you possibly need to adjust the server's configuration for it to run optimally on your machine. For more information, see the Apache HTTP Server documentation Web site at www.apache.org/docs.

Installing WebSphere Application Server 4.0 -- Advanced Single Server Edition

This article describes how to install WebSphere Application Server Advanced Single Server Edition on a Linux (Intel) machine by using the Custom Installation option.

These instructions assume the following:

- The machine has enough memory and disk space for your installation. See the WebSphere Application Server Supported Hardware, Software, and APIs Web site at www.ibm.com/software/webservers/appserv/doc/latest/prereq.html for the requirements.
- If you plan to use IBM HTTP Server, you will select it for installation during the WebSphere Application Server installation process. If you plan to use a different supported Web server with WebSphere, you have already installed it on the same machine that will contain WebSphere Application Server.
- You do not have a previous version of WebSphere Application Server already installed on this machine. If you do have a previous version of WebSphere Application Server already installed, do not follow these instructions. Instead, see the article Migration overview.

 Note: IBM HTTP Server is provided with WebSphere Application Server. If you want to install and use a different supported Web server, you must purchase and install it separately.

Perform the following steps to install WebSphere Application Server:

1. Ensure that you are logged into the machine with superuser (root) privileges.
2. If IBM HTTP Server or another Web server is running on your system, stop the Web server.
3. If you have a version of IBM HTTP Server older than version 1.3.19 installed on your machine, you must uninstall it before using the WebSphere Application Server installation program to install IBM HTTP Server 1.3.19.
4. Insert the WebSphere Application Server CD-ROM into the CD-ROM drive.
5. If necessary, use the **mkdir** command to create a mount point for the CD-ROM. The following command creates a mount point at the directory /cdrom; you can mount the CD-ROM at any location on the machine's local file system.

   ```
   # mkdir /cdrom
   ```

   The commands in these steps assume the CD-ROM is mounted at /cdrom. If you mount the CD-ROM at a different location, use that location when issuing commands.

6. Mount the CD-ROM drive by entering the following command:

   ```
   # mount -t isso9660 -r /dev/cdrom /cdrom
   ```

    Note: Some window managers automatically mount a CD-ROM for you. Consult your operating system documentation for more information.
7. Ensure that your DISPLAY and TERM environment variables are set properly.
8. If the supported Web server or database you plan to use with WebSphere is newer than the version currently required by WebSphere Application Server, you must update the prereq.properties file or disable the prerequisite checking functionality before installing WebSphere Application Server.

   To obtain an updated prereq.properties file, download the latest version from the WebSphere Application Server Tools Web site at www.ibm.com/software/webservers/appserv/tools.html. Ensure that the updated prereq.properties

file is downloaded or copied into the local /tmp directory.

To disable prerequisite checking functionality, perform the following steps:
   a. Copy the prereq.properties file from the /cdrom directory to the /tmp directory on the machine on which you plan to install WebSphere Application Server.
   b. Open the prereq.properties file in a text editor and disable prerequisite checking for an individual component by changing the value of the specific key from 1 to 0.
   c. Save the edited prereq.properties file.

 9. Navigate to the /cdrom directory.
10. If you have not downloaded an updated prereq.properties file or disabled the prerequisite checking functionality, start the WebSphere Application Server installation program by using the **install.sh** command, as follows:

```
# ./install.sh
```

If you have downloaded an updated prereq.properties file or disabled the prerequisite checking functionality as detailed in Step 8, start the WebSphere Application Server installation program by using the **install.sh** command, as follows:

```
# ./install.sh -prereqfile /tmp/prereq.properties
```

11. The Welcome to the IBM WebSphere Application Server Setup program dialog box opens. Click **Next** to continue.
12. The Install Options dialog box opens. Select **Custom Installation**, and click **Next**.
13. The Choose Application Server Components dialog box opens. Select the components you want to install and deselect the components you do not want to install. Note the following information:
     o The Java 2 Software Developer's Kit (SDK) is installed by default.
     o The **Server**, **Samples**, **Application Assembly and Deployment Tools**, **IBM HTTP Server 1.3.19**, and **WebServer Plugins** components are selected for installation by default.
     o If you plan to use WebSphere Application Server with IBM HTTP Server, ensure that the **IBM HTTP Server 1.3.19** and **Web Server Plugins** options are selected.
     o If you plan to use WebSphere Application Server with a different supported Web server, ensure that the **Web Server Plugins** option is selected.

       Note: No plug-ins are required to launch the Application Server or the administrative console. However, for production applications, you will not be able to serve servlets without having installed a supported Web server and corresponding Web server plug-in.

       For non-production applications, you can use the internal HTTP transport system to serve servlets without installing a Web server plug-in by using the internal HTTP transport port 9080. For example, to serve the sample snoop servlet by using the internal HTTP transport, enter the URL `http://local_host:9080/servlet/snoop`. The internal HTTP transport mechanism is not designed for use in a production environment.

     o If you plan to install the Web server plug-in for IBM HTTP Server, you must select the **IBM HTTP Server 1.3.19** option, or have it already installed on the machine.
     o These instructions assume that you are installing all of the components.

     Click **Next** to continue.

14. If you selected the **Web Server Plugins** option, the Choose Application Server Components dialog box opens. Select the appropriate plug-in for your Web server, and click **Next**.
15. The Select Destination Directory dialog opens. Specify the directory in which you want to install WebSphere Application Server. You can either accept the default destination directory or specify a different one by typing the full pathname or by clicking **Browse**. Note that if you've selected IBM HTTP Server for installation, you cannot modify the destination directory. Click **Next** to continue.
16. The Install Options Selected dialog box opens. Verify that the information is correct and click **Install** to complete the installation.
17. Depending on the machine's configuration, the Location of Configuration files dialog box can open. It prompts you to

enter the full pathname of the directory in which you want to store the specified Web server configuration file. Specify the full pathname of the file by typing it in the field or by clicking **Browse**.

18. The Setup Complete dialog box opens. To view the ReadMe file, ensure that **Yes, I want to view the ReadMe File** is selected and click **Finish**; the ReadMe file is displayed in a default browser window. To view the ReadMe file at a later time, deselect **Yes, I want to view the ReadMe File** and click **Finish** to exit from the WebSphere Application Server installation program.

19. The WebSphere Application Server - First Steps dialog box opens. You can use this GUI to access product information in the InfoCenter, start and stop the application server, run the WebSphere samples, launch the administrative console, or launch the application assembly tool. Because you must first start and possibly configure the Web server before using WebSphere, close this dialog for now. You can launch the First Steps GUI at a later time by running the **firststeps.sh** script located in the /opt/WebSphere/AppServer/bin directory.

20. Unmount the CD-ROM before removing it from the CD-ROM drive by using the **umount** command, as follows:

```
# umount /cdrom
```

21. If you are using a Web server other than IBM HTTP Server, start the server. If you are using IBM HTTP Server and have installed it during the WebSphere Application Server installation, you may need to configure the Web Server to run it successfully.

    Perform the following steps to verify that IBM HTTP Server is installed and configured correctly:
    a. Ensure that the Web server is running. If not, start it by entering the following command:

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

    b. Start a browser and enter the name of the local machine as the URL. If you see the IBM HTTP Server Web page, the server is installed and configured correctly.

    See the IBM HTTP Server documentation Web site at www.ibm.com/software/webservers/httpservers/library.html for more information about configuring IBM HTTP Server.

    To enable the Secure Sockets Layer (SSL) for IBM HTTP Server, see the IBM HTTP Server documentation Web site at www.ibm.com/software/webservers/httpservers/doc/v1319/index.html for more information.

22. Proceed to the article Testing the installation.

Testing the installation

This article describes how to test the installation and configuration of your WebSphere Application Server system. These instructions assume that you have installed a supported Web server and the WebSphere Application Server component.

Perform the following steps to test your WebSphere installation:

1. Ensure that you are logged into the machine with superuser (root) privileges.
2. Start the server by executing the **startServer** script, as follows:

```
# cd /opt/WebSphere/AppServer/bin
# ./startServer.sh
```

   Ensure that the server has started successfully by checking the file named Default_Server_stdout.log located in the /opt/WebSphere/AppServer/logs directory. The message `Server open for e-business` appears in this file when the server has started successfully.
3. Start a Web browser and enter the following URL:

```
http://machine_name:9090/admin
```

   In this command, *machine_name* represents the name of the machine on which WebSphere is running.
4. The Login dialog opens, and prompts you to enter a user ID to which your configuraton changes will be saved. Enter a user ID and click **Submit**. If you do not care to save changes using your user ID, click **Submit** without entering a

user ID and your changes will be saved using the default user ID User.

If the user ID you have entered is already in use and in session, you are prompted to do one of the following:
- o Force the existing user ID out of session. The configuration file that was being used by the existing user ID will be saved in a temporary storage area. You will be prompted to load the saved file; choosing not to do so will delete it from the temporary storage area.
- o Wait for the existing user ID to log out or time out of the session.
- o Select a different user ID.

5. Administer the application server by performing the following steps:
   a. When the console opens, a tree view is displayed. Click the plus sign (+) next to **Nodes** entry to expand the view.
   b. Identify the name of your host machine and expand the view of that entry.
   c. Expand the view of the **Application Servers** entry.
   d. Select the **Default Server** entry. If the value of the **Execution State** field is STOP, click the dropdown menu and select START.

      After the default server is started initially, it will start automatically if it stops or if you restart the machine.

   e. Click **OK**.
6. Ensure that the Web server is running. If the Web server is not running, start it.
7. Start a Web browser and enter the URL for the snoop servlet, which is a sample servlet that is installed by default, as follows:

   ```
   http://machine_name/servlet/snoop
   ```

   In this command, *machine_name* represents the name of the machine on which WebSphere is running. Information about /servlet/snoop is displayed.
8. Ensure that you save any changes you want to keep. If you do not save the changes, they will be lost when you close the Web browser.
9. To stop the console, close the Web browser.
10. Proceed to the article Testing with an enterprise bean.

Testing with an enterprise bean

This article describes how to test your WebSphere configuration by using an enterprise bean and the Increment sample. These instructions assume that you have installed your WebSphere Application Server system and have tested the installation by using the instructions in the article Testing the installation.

Perform the following steps to test your WebSphere configuration using an enterprise bean:

1. Ensure that you are logged into the machine with superuser (root) privileges.
2. Ensure that the administrative console is running.
3. Ensure that the default server (located under **WebSphere Administrative Domain > Nodes >** *node_name* **> Application Servers**) is running.
4. Start a Web browser and specify the following URL:

   ```
   http://machine_name/webapp/examples/HitCount
   ```

   In this command, *machine_name* represents the name of the machine on which WebSphere is running. When the Web page opens, several selection options are displayed.
5. Under the heading **Generate hit count using**, click the radio button for the **Enterprise Java Bean** option.
6. Under the heading **Transaction Type**, click the radio button for the **None** option.
7. Click **Increment**.

   If the number of hits is displayed, WebSphere is functioning properly.

Uninstalling WebSphere Application Server

Perform the following steps to uninstall WebSphere Application Server from a UNIX machine:

1. Ensure that you are logged into the machine with superuser (root) privileges.
2. If IBM HTTP Server or another Web server is running on your system, stop the Web server.

   Note: Although IBM HTTP Server can be installed using the WebSphere Application Server installation program, it is not uninstalled when you uninstall WebSphere Application Server. It must be uninstalled separately. See the IBM HTTP Server Library Web site at www.ibm.com/software/webservers/httpservers/library.html for more information.

3. Ensure that your DISPLAY and TERM environment variables are set properly.
4. Navigate to the root installation directory (/opt/WebSphere/AppServer on HP-UX, Linux, and Solaris; /usr/WebSphere/AppServer on AIX) and execute the **uninstall.sh** script as follows:

   ```
   # ./uninstall.sh
   ```

5. The uninstallation program starts and the Uninstall dialog box opens. Click **Uninstall** to remove WebSphere Application Server from the machine.
6. To ensure that subsequent installations of WebSphere Application Server do not conflict with files left on the machine from a previous installation, use the **rm -r** command to remove the WebSphere directory structure. Use caution when executing this command to prevent the unintentional removal of portions of the file system.