Installing the Advanced Edition using IBM HTTP Server and Oracle 8*i* on AIX

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

- AIX 4.3.3
- IBM Developer Kit, Java^{TM} 2 Technology Edition, 1.2.2
- IBM HTTP Server 1.3.12
- Oracle 8*i* (8.1.6)
- 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.htm to learn which products and fix levels are supported for your level of WebSphere Application Server.

Steps for installation

Deciding which steps to follow
Installing Oracle 8*i* Release 2 (8.1.6)
Installing WebSphere Application Server 3.5
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.htm to ensure that you have the correct prerequisites, including operating system patches. If you have not already done so, install Oracle 8*i* and 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 Developer Kit and IBM HTTP Server. Instructions for installation follow:

1. Install Oracle 8*i* 8.1.6
2. Install WebSphere Application Server using the **Custom Install** option

Installing Oracle 8*i* Release 2 (8.1.6) from the product CD

Perform the following steps to install Oracle 8*i* Release 2 (8.1.6) from the product CD:

1. Ensure that you are logged into the machine with superuser (root) privileges.
2. Ensure that the DISPLAY and TERM environment variables are set correctly for your environment.
3. Create a file system, logical volume, or directory to hold the Oracle software. Ensure that the location you choose has approximately 1400 MB of free disk space to accomodate a Typical installation. This file system, logical vlume, or directory represents the the value for the ORACLE_BASE environment varible and the home directory of the user named oracle.
4. If you plan to use Oracle in a production environment, it is recommended that you create a file system on a separate partition to store the database files. Refer to the *Oracle8i Installation Guide* and your AIX documentation for information on creating and mounting a file system.
5. If the groups named *dba* and *oinstall* do not already exist, use the AIX System Management Interface Tool (SMIT) to create them. Perform the following steps once for each group you are creating:
    1. Invoke SMIT for creating a group by entering the following command:

        ```
        # smitty mkgroup
        ```

        The Add a Group screen displays.

2. In the **Group NAME** field, type the name of the group you are creating.
3. In the **USER list** field, type root.
4. In the **ADMINISTRATOR list** field, type root.
5. Press Return to create the group. When the group creation process is complete, press F3 to exit from SMIT.

6. Use SMIT to create the operating system user named oracle:
   1. Invoke SMIT for creating a user by entering the command

      ```
      # smitty mkuser
      ```

      The Add a User screen displays.
   2. In the **User NAME** field, type oracle.
   3. In the **Primary GROUP** field, type oinstall.
   4. In the **Group SET** field, type dba.
   5. In the **HOME directory** field, specify the home directory for the user oracle. The value of this field represents the full path name of the file system, logical vlume, or directory you created to contain the Oracle software.
   6.
   7. In the **Initial PROGRAM** field, specify the initial shell for the user oracle. The steps in this article use the Korn shell (/usr/bin/ksh).
   8. Press Return to create the user. When the user creation process is complete, press F3 to exit from SMIT.

7. Create a .profile file in the home directory of the user named oracle and ensure that the file contains the following information. Note that your Oracle SID may differ. If you are using a different shell, edit the appropriate file accordingly.

   ```
   #---------------------------------
   # Oracle environment setup
   #---------------------------------
   #
   ORACLE_BASE=oracle_home_directory
   export ORACLE_BASE
   ORACLE_SID=ORA816
   export ORACLE_SID
   ORACLE_HOME=$ORACLE_BASE/$ORACLE_SID
   export ORACLE_HOME
   PATH=$PATH:$ORACLE_HOME/bin
   export PATH
   LIBPATH=$LIBPATH:$ORACLE_HOME/lib
   export LIBPATH
   ORA_CLIENT_LIB=shared
   export ORA_CLIENT_LIB
   echo 'The Oracle 8.1.6 environment is set'
   ```

   In the example text above, the variable *oracle_home_directory* represent file system, logical vlume, or directory you created to contain the Oracle software and the home directory for the user oracle.

8. Ensure that the /tmp directory has at least 200 MB of free disk space.
9. Ensure that the Oracle directory structure you created has the correct permissions. If necessary, change to the directory structure you plan to use for Oracle installation and enter the following **chmod** command:

   ```
   # chmod 777 .
   ```

10. Insert the Oracle 8i CD and mount it using the steps below. Note that the steps assume that you have already created and properly configured a CD-ROM mount point (for example, /cdrom). If you have not already done so, refer to your AIX operating system documentation for more information.
    1. Invoke SMIT for mounting a file system:

       ```
       # smitty mountfs
       ```

    2. With the cursor in the **FILE SYSTEM name** field, press F4, and then choose the appropriate CD-ROM file system that you want to mount.
    3. In the **DIRECTORY over which to mount** field, type the name of the mount point for the CD-ROM. (These

steps assume you are using the /cdrom mount point.)

4. With the cursor in the **TYPE of file system** field, press F4, and then choose the **cdrfs** option.
5. Verify or change the entries in the remaining fields, depending on how you want to mount the CD, and then press Return. SMIT mounts the CD as a file system. When the process is complete, exit from SMIT by pressing F3.

11. Run the **rootpre.sh** script to install the Oracle post-wait kernel extension:

```
# cd /cdrom
# ./rootpre.sh
```

12. Log in as the user oracle:

```
# su - oracle
```

13. Ensure that the TERM and DISPLAY environment variables are still set correctly.
14. Enter the following command to launch the Oracle Universal Installer:

```
$ ./runInstaller
```

When you are asked if you have run the **rootpre.sh** script, press y. The Oracle Universal Installer opens, displaying the Welcome screen.

15. Click **Next**. The File Locations screen displays.
16. Verify the values in the **Source** and **Destination** fields. The value of the **Source** field must be **/cdrom/stage/products.jar**, and the value of the **Destination** field must be the same as the value you set for the ORACLE_HOME environment variable.
17. Click **Next**. If this is the first Oracle installation on the machine, the Inventory Location screen is displayed, prompting you to specify the base directory for installation files.
18. Accept the default value ($ORACLE_BASE/oraInventory) or specify a different base directory, and then click **OK**. The UNIX Group Name screen displays.
19. Type 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 **/tmp/OraInstRoot.sh** script. Open another terminal, log in as root, and run the script. After the script runs, return to the Oracle Universal Installer to continue the installation process.

20. In the Available Products screen, verify that the **Oracle8i Enterprise Edition 8.1.6.0.0** option is selected, and then click **Next**.
21. In the Installation Types screen, choose the **Typical** option and then click **Next**.
22. In the Database Identification screen, type a global database name in the **Global Database Name** field (for example, ORA816.<*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. Then, click **Next**.
23. In the Database File Location screen, specify the installation location for the Oracle database files in the **Directory for Database Files** field, and then click **Next**. The Summary screen displays, summarizing the installation choices you have made so far.
24. Verify the information on the Summary screen. After you determine that it is correct, click **Install**. The Install screen is displayed; it tracks the status of the Oracle installation.
25. When prompted to run the **root.sh** configuration script to set necessary file permissions for Oracle products, switch to another terminal, log in as root, and run the script. After the script runs, return to the Oracle Universal Installer to finish the installation process.
26. After the installation and linking processes finish, the Configuration Tools screen displays. The Net8 Configuration Assistant and Oracle Database Configuration Assistant are automatically configured, along with an Oracle database.

After the configuration process is complete, click **Next**. The End of Install screen displays, enabling you to exit from the Oracle Universal Installer.

At this point, proceed to "Configuring Oracle8i Release 2 (8.1.6) for use with WebSphere Application Server."

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

This article describes how to create the Oracle user or 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 8*i* 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 as follows:
   - Add the line `open_cursors = 200`.
   - Ensure that the default value of `50` for the `processes` parameter is sufficient for your database by reading the information in your init*your_SID*.ora file. To increase the value of this parameter, add and remove comment markers to specific lines related to processes.
3. Restart your Oracle database. Start the database by entering the following commands:

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

   You can need to stop the database before restarting 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 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 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 WebSphere Application Server Version 3.5

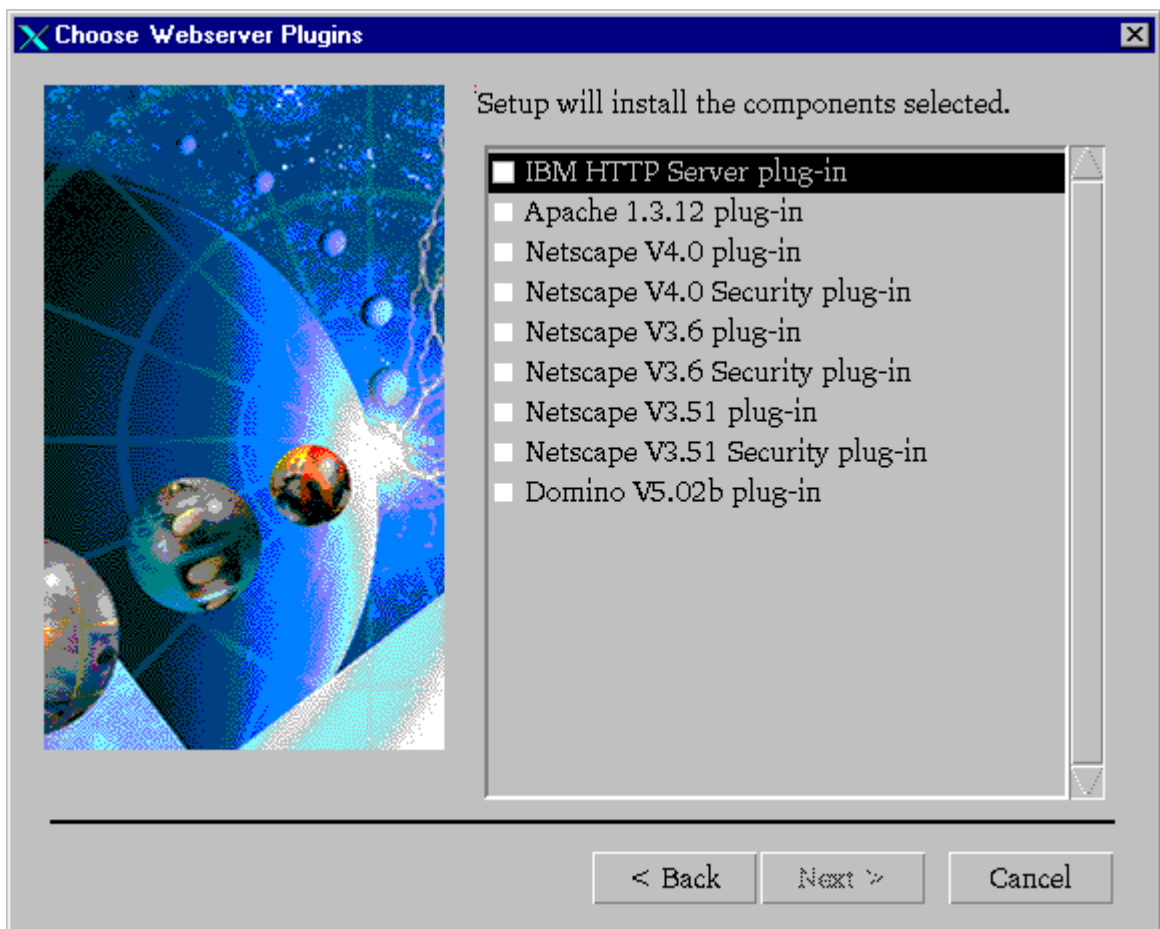To install WebSphere Application Server using the GUI installer, do the following:

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. Also, if a version of WebSphere Application Server Version is already installed on your system and running, stop all Application Server processes.
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/aix 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/aix/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/aix/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 Webserver 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 **Oracle**.
    2. For **Name**, give the name of the database to use. The default is **orcl**.
    3. For **DB Home**, specify the path for the database program.
    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 8*i*, ensure that you specify the Username specified when configuring Oracle 8*i* for use with WebSphere Application Server (for example, EJSADMIN).
    6. For **Database Password** and **Confirm Password**, enter your password. If you have already installed Oracle 8*i*, ensure that you specify the Password specified when installing Oracle 8*i*.
    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 directories 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**.

Testing the installation

1. Start the WebSphere Administrative Server by running the startupServer script in the /usr/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. 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 /usr/WebSphere/AppServer/bin directory:
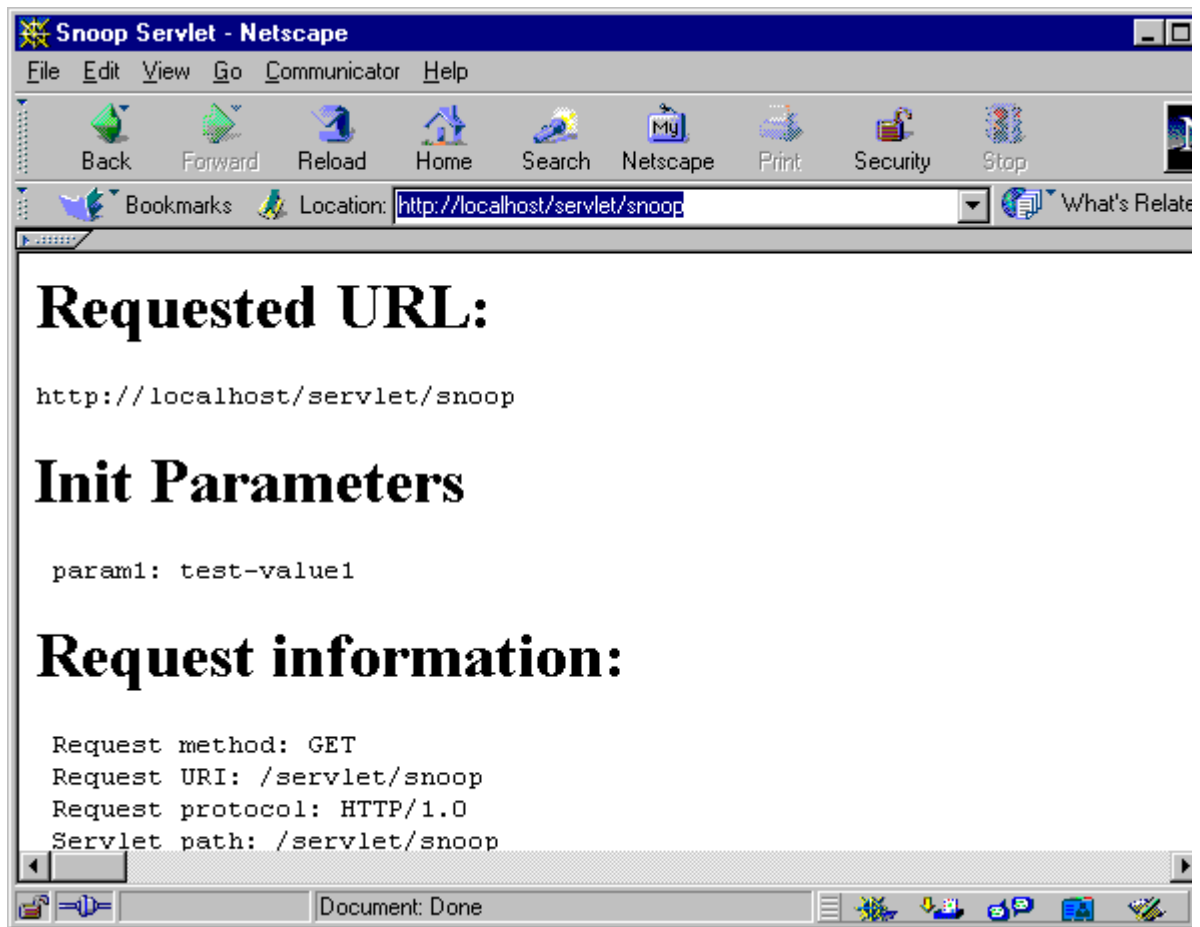
   ```
   ./adminclient.sh
   ```

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 /usr/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.

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.