Oracle 11g Release 2 Support on HPOM 8.35.020

About this White Paper

This white paper is a supplement to the *HPOM Installation Guide for the Management Server* (software version: A.08.20). Because of the Oracle 11g Release 2 support introduced with HPOM for UNIX 08.35.020 patch, several changes are required in the *HPOM Installation Guide for the Management Server*. These changes are described in detail in this white paper.

Important:
You must install HPOM for UNIX 08.35.020 patch to use the Oracle 11g Release 2 functionality.

The changes that are a direct result of the Oracle 11g Release 2 support and are not documented in the *HPOM Installation Guide for the Management Server* are related to the following topics:

- software requirements for the management server
- installing the Oracle Database server 11g Release 2
- setting up an independent database server system
- configuring HP BTO software products to use the new Oracle version
- upgrading an existing installation to Oracle 11g Release 2
- installing the Oracle Database server for HPOM in a cluster environment

Note:
Although HPOM for UNIX supports Oracle 10g and Oracle 11g Release 1 and 2, HPOM does not take advantage of the new features provided by these versions. HPOM uses the same approach to create the database for Oracle 9, Oracle 10, and Oracle 11 Release 1 and 2. Thus HPOM may use some settings that are different from those recommended by Oracle for newer versions, but are still fully supported by Oracle.

Software Requirements for the Management Server

The software requirements for the management server listed in the *HPOM Installation Guide for the Management Server* must include the latest version of Oracle (that is, Oracle 11g Release 2) whenever the older versions of Oracle are mentioned. The latest requirements are as follows:

For a stand-alone database server (Oracle database is on the same system as HPOM):

- Oracle Database 11g Release 2 Standard or Enterprise Edition 11.2.0.1.0
- Oracle 32-bit Client 11.2.0.1.0

  Make sure to choose the Instant Client installation type.

For a remote database server:

- Oracle Database 11g Release 2 Standard or Enterprise Edition 11.2.0.1.0

For a database client (used to connect to a remote database):

- Oracle 32-bit Client:

Choose the Runtime or Administrator installation type, which ensures that you have the following required components installed:

- Oracle Client 11.2.0.1.0

- Oracle Net 11.2.0.1.0

- Oracle Net Listener 11.2.0.1.0

- Oracle Netca Client 11.2.0.1.0

- SQL * Plus 11.2.0.1.0

Note:

If you use the 32-bit Runtime Client, there is no need for the Instant Client, but a symbolic link from `lib` to `lib32` is needed. For example:
```
cd $ORACLE_HOME
ln -s lib lib32
```

HPOM is certified to work with Oracle Database 11g Release 2 Enterprise or Standard Edition for the Oracle Database server on the following platforms:

- HP-UX 11i v3 on HP Integrity

- HP-UX 11i v3 on HP 9000

- Solaris 10 (upgrade 6 or higher)

Important:

Starting with version 11g R2, Oracle no longer provides the `libclntsh.so` and `libnnz11.so` (on HP-UX on HP Integrity and Solaris) or the `libclntsh.sl` and `libnnz11.sl` (on HP-UX on HP 9000) 32-bit client libraries together with the 64-bit versions of the Oracle Database server or Oracle client products.

HPOM is built as a 32-bit application, so these libraries are needed for the proper operation. For detailed information about installing these libraries, see "Installing the Oracle 11g Release 2 32-bit Instant Client" on page 7.

Performing a New Stand-alone Oracle Database Server 11g Release 2 Installation

This section describes how to install the Oracle Database server 11g Release 2.

Checking the System Requirements

Make sure that your system meets the hardware and software requirements listed in the *HPOM Installation Guide for the Management Server.*

Several prerequisite patches and kernel parameters must be applied for the Oracle Database. These are available at the following locations:

For HP-UX on HP Integrity:

http://download.oracle.com/docs/cd/E11882_01/install.112/e10869/toc.htm#insertedID4

http://download.oracle.com/docs/cd/E11882_01/install.112/e10869/toc.htm#insertedID6

Installing Oracle Database 11g Release 2

To install Oracle Database 11g Release 2, follow these steps:

1. Run SMH (on HP-UX) or smc (on Solaris) as the root user, and create the oracle user with the following attributes:

   a. Create a UNIX group named dba. The group ID should be greater than 100.

   b. Create a UNIX group named oinstall. The group ID should be greater than 100.

   c. Create a UNIX user named oracle. The user ID should be greater than 100.

   d. Make the oracle user a member of the oinstall group as the primary group and dba as the secondary group.

   e. As the home directory of the oracle user, use the following:

      On HP-UX: **/home/oracle**

      On Solaris: **/export/home/oracle**

   f. The required shell for the oracle user is POSIX shell – sh (on HP-UX) or Korn shell – ksh (on Solaris).

      On HP-UX:

      Add the following line to the /home/oracle/.profile file:

      SHELL=/sbin/sh

      On Solaris:

      Add the following line to the /export/home/oracle/.profile file:

      SHELL=/bin/ksh

2. Set umask to allow users to access the Oracle binaries:

   umask 022

3. Create the directories required by the Oracle installation:

   a. Create the Oracle home directory ORACLE_HOME:

      mkdir -p /opt/oracle/product/<version>

      In this instance, *<version>* is the Oracle Database version, 11.2.0. You can also choose a different directory for ORACLE_HOME, but you must use it consistently in all subsequent steps.

   b. Create a base directory for the Oracle installation files:

      mkdir -p /opt/oracle/oraInventory

      You can also choose a different directory. If you do so, use the new directory consistently in all subsequent steps.

c. Change the ownership and set correct permissions by entering the following commands:

```
chown -R oracle:oinstall /opt/oracle/oraInventory
chmod -R 770 /opt/oracle/oraInventory
```

4. Change the ownership of the directories to `oracle:oinstall` by entering:

```
chown -R oracle:oinstall /opt/oracle \
/opt/oracle/product /opt/oracle/product/<version>
```

In this instance, *<version>* is the Oracle Database version, 11.2.0.

5. Set the following Oracle environment variables in `/home/oracle/.profile` (on HP-UX) or `/export/home/oracle/.profile` (on Solaris) of the `oracle` user:

- `export ORACLE_BASE=/opt/oracle`

  This variable determines the location of the Oracle installation. The `/opt` subdirectory prefix is just an example. Replace it with the installation path you used for Oracle.

- `export ORACLE_HOME=$ORACLE_BASE/product/<version>`

  In this instance, `<version>` is the Oracle Database version, 11.2.0.

  This variable determines the location and the version of the Oracle installation. This is the recommended setting. You can choose a different setting, if needed.

- `export ORACLE_SID=openview`

  This variable defines the name of the database you will create.

  The default setting is `openview`, but you can use a different setting if required.

- `export ORACLE_TERM=hp`

  This variable specifies the terminal definition resource file for an `hpterm` (on HP-UX) or an `xterm` (on Solaris) terminal setting to be used with the Oracle installer and other Oracle tools.

  If you normally use `dtterm`, change the setting to `ORACLE_TERM=ansi`.

- `export PATH=$PATH:$ORACLE_HOME/bin`

  This variable sets the directories through which the system searches to find and execute commands.

6. During the Oracle installation, you must perform some steps as the `root` user and some as the `oracle` user. Open two terminal windows:

a. Log on as the `root` user in the first terminal window and as the `oracle` user in the second.

b. Make sure that the `ORACLE_TERM` environment variable is set correctly. If you use `hpterm`, use `hp` (on HP-UX). If you use `xterm`, use `xsun` (on Solaris). If you use `dtterm`, use `ansi`. To check the setting, enter:

```
echo $ORACLE_TERM
```

c. Verify, and if necessary, set the `ORACLE_HOME` variable. For example:

```
ORACLE_HOME=/opt/oracle/product/<version>
```

In this instance, `<version>` is the Oracle Database version, 11.2.0.

```
export ORACLE_HOME
```

d. Set the `DISPLAY` environment variable:

export DISPLAY=<*nodename*>:0.0

In this instance, *<nodename>* is the name of your system.

Note:
On most systems, the disk is mounted automatically when you insert it into the disk drive. If the disk is not mounted automatically, follow step 7 to mount it.

---

7. As the `root` user, insert the appropriate disk into the disk drive, and enter the following command to mount the disk:

    On HP-UX:

    /usr/sbin/mount -F cdfs -o rr </dev/dsk/cxtydz> </SD_DVD>

    In this instance, *</SD_DVD>* is the disk mount-point directory, and *</dev/dsk/cxtydz>* is the device name for the disk device, for example, /dev/dsk/c0t2d0.

    On Solaris:

    /usr/sbin/mount -r -F hsfs </dev/dsk/cxtydzs2> </dvd>

    In this instance, *</dvd>* is the disk mount point directory, and *</dev/dsk/cxtydzs2>* is the device name for the disk device, for example, /dev/dsk/c0t2d0s2.

Note:
It is recommended that you copy the contents of installation media to a hard disk.

---

8. As the `oracle` user, start the Oracle Universal Installer by entering the full path of the database directory on the installation media, which must be followed by the command:

    <*mount-path*>/runInstaller

    When the Oracle Universal Installer is started, the Select Installation Method window opens.

    Select the **Advanced Installation** check box, and then click **Next**. The Specify Inventory directory and credentials window opens.

Note:
If an error message appears indicating that the inventory location could not be created, you can safely ignore it.

---

9. Make sure that the `/opt/oracle/oraInventory` path is given in the Specify Inventory directory and credentials window, then click **Next**. The Select Installation Type window appears.

10. In the Select Installation Type window, select **Enterprise Edition** or **Standard Edition** check box according to your needs or your Oracle license agreement, and click **Next**. The Install Location window opens.

> **Note:**
> If you will be running a non-English HP Operations management server,
> you can add languages by clicking the **Product Languages...** button, and
> selecting languages from the list. The default language is English.

11. If you set all Oracle variables properly, click **Next** in the Install Location window. The Product-Specific Prerequisite Checks window appears.

12. In the Product-Specific Prerequisite Checks window, the result of checking requirements appears. If there were no problems reported, click **Next**.

    If a problem report message appears, check all the requirements and set them accordingly.

13. In the Select Configuration Option window, select the **Install Software Only** check box, and then click **Next**. The Privileged Operating System Groups window appears.

14. In the Privileged Operating System Groups window, click **Next**. The Summary window opens.

15. In the Summary window, click **Install** to start the installation.

16. When the Execute Configuration scripts window appears, follow these steps:

    a. Open a terminal window.

    b. Log on as the `root` user.

    c. Run the following two scripts:

       ${*ORACLE_HOME*}/root.sh

       /opt/oracle/oraInventory/orainstRoot.sh

       The following should be displayed for ${*ORACLE_HOME*}/root.sh:

       ```
       The following environment variables are set as:

       ORACLE_OWNER=oracle

       ORACLE_HOME=/opt/oracle/product/<version>
       ```

       In this instance, *<version>* is the Oracle Database version, 11.2.0.

       Use the default values.

       The following should be displayed for
       /opt/oracle/oraInventory/orainstRoot.sh:

       ```
       Changing permissions of /opt/oracle/oraInventory to 770.

       Changing groupname of /opt/oracle/oraInventory to oinstall.

       The execution of the script is complete.
       ```

    d. Return to the Execute Configuration scripts window, and click **OK** to continue.

    The End of Installation window opens.

17. In the End of Installation window, you can verify installed Oracle products. Click **Exit** when you finish the verification.

Installing the Oracle 11g Release 2 32-bit Instant Client

Starting with version 11g R2, Oracle no longer provides the `libclntsh.so` and `libnnz11.so` (on HP -UX on HP Integrity and Solaris) or the `libclntsh.sl` and `libnnz11.sl` (on HP-UX on HP 9000) 32-bit client libraries together with the 64-bit versions of the Oracle Database server or Oracle

client products. HPOM is built as 32-bit applications, so these libraries are needed for the proper operation of the management server.

To obtain these libraries, follow these steps:

1. Download the Oracle 11g R2 32-bit database client from the Oracle download page, and then uncompress it.

2. Set umask to allow users to access the Oracle binaries:

    umask 022

3. Create the `lib32` subdirectory in the `ORACLE_HOME` directory by running the following command:

    mkdir -p /opt/oracle/product/11.2.0/lib32

4. Assign permissions to the `lib32/` subdirectory by running the following commands:

    chown oracle:oinstall /opt/oracle/product/11.2.0/lib32

    chmod 755 /opt/oracle/product/11.2.0/lib32

5. Create a new Oracle home directory, for example:

    mkdir -p /opt/oracle/product/11.2.0-32

6. Assign permissions to the new Oracle home directory by running the following commands:

    chown oracle:oinstall /opt/oracle/product/11.2.0-32

    chmod 755 /opt/oracle/product/11.2.0-32

7. As the `oracle` user, export `ORACLE_HOME=<new_oracle_home>`, and then run the Oracle Universal Installer. During the Oracle client installation, in the Select Installation Type window, select **Instant Client**.

8. When the installation is finished, copy `libclntsh.so` and `libnnz11.so` (on HP -UX on HP Integrity and Solaris) or `libclntsh.sl` and `libnnz11.sl` (on HP-UX on HP 9000) from the newly created `ORACLE_HOME` directory to the `lib32` subdirectory in the old `ORACLE_HOME` directory. Run the following commands:

    ### On HP -UX on HP Integrity and Solaris:

    ```
    cp /opt/oracle/product/11.2.0-32/libclntsh.so.11.1 \
    /opt/oracle/product/11.2.0/lib32/
    cp /opt/oracle/product/11.2.0-32/libnnz11.so \
    /opt/oracle/product/11.2.0/lib32/
    ```
    ### On HP -UX on HP 9000:

    ```
    cp /opt/oracle/product/11.2.0-32/libclntsh.sl.11.1 \
    /opt/oracle/product/11.2.0/lib32/
    cp /opt/oracle/product/11.2.0-32/libnnz11.sl \
    /opt/oracle/product/11.2.0/lib32/
    ```
9. Navigate to the old `ORACLE_HOME` directory by running the following command:

    cd /opt/oracle/product/11.2.0/lib32/

10. In the old `ORACLE_HOME` directory, create the following links:

    ### On HP -UX on HP Integrity and Solaris:

    Type the following:

    ln -s libclntsh.so.11.1 libclntsh.so

    A new file structure of the old `ORACLE_HOME` directory must be the following:

    ```
    lrwxr-xr-x libclntsh.so -> libclntsh.so.11.1
    ```

```
-rwxr-xr-x libclntsh.so.11.1

-rwxr-xr-x libnnz11.so
```

On HP-UX on HP 9000:

Type the following:

`ln -s libclntsh.sl.11.1 libclntsh.sl`

A new file structure of the old ORACLE_HOME directory must be the following:

```
lrwxr-xr-x libclntsh.sl -> libclntsh.sl.11.1

-rwxr-xr-x libclntsh.sl.11.1

-rwxr-xr-x libnnz11.sl
```

11. *On HP-UX on HP Integrity:*

Set the LD_LIBRARY_PATH variable system-wide to /opt/oracle/product/11.2.0/lib32. You must also set the same setting at the beginning of the /sbin/init.d/ov500 script.

Note:

Bear in mind that the /sbin/init.d/ov500 script can be overwritten when you upgrade to the next release of HPOM.

---

12. *On HP-UX on HP Integrity and Solaris:*

Setting only LD_LIBRARY_PATH or SHLIB_PATH is not enough because some binaries are setuid applications (for more information, see the *dld.so* manual page for HP-UX on HP integrity or the *ld.so.1* manual page for Solaris).

For example, for HPOM binaries to find the libraries, run the following commands:

On HP-UX on HP Integrity:

`echo /opt/oracle/product/11.2.0/lib32 >> /etc/dld.sl.conf`

`chmod 644 /etc/dld.sl.conf`

`chown root:sys /etc/dld.sl.conf`

On Solaris:

`crle -v -E LD_LIBRARY_PATH=/opt/oracle/product/11.2.0/lib32`

13. Set LD_LIBRARY_PATH in the current shell and restart swagentd, which is needed for the HP Operations agent and server patch installation during ovoinstall, by running the following command:

`export LD_LIBRARY_PATH=/opt/oracle/product/11.2.0/lib32`

`/sbin/init.d/swagentd stop`

`/sbin/init.d/swagentd start`

14. Install and configure the HPOM software on the management server system as described in the *HPOM Installation Guide for the Management Server*.

Setting Up an Independent Database Server System

Before setting up an independent database server system, you must choose the type of the database server system configuration. Depending on the type, choose one of the following scenarios:

- Scenario 1:

  You can set up an independent database server system and use Oracle Net to link the HPOM system and the database server system. An independent database server system is supported only on a system running the same operating system and the same operating system version as used by the system hosting the HPOM management server. This procedure is described in the *HPOM Installation Guide for the Management Server*.

- Scenario 2:

  HPOM can be set up with an independent Oracle Database so that the HP Operations management server and the independent Oracle Database server systems can run on different operating systems, as long as the Oracle Database version and the database server operating system are supported also by the HP Operations management server. This procedure is described in the *HPOM with an Independent Database Server White Paper*.

Make sure to also check the software requirements for the management server described in "Software Requirements for the Management Server" on page 2.

Required Changes for Scenario 1:

To set up an independent database server system, follow the steps described in the *HPOM Installation Guide for the Management Server* and make sure to take into account the following changes:

- You *must* install the 32-bit version of the Oracle client on the HP Operations management server (the 64-bit version is not supported).

  Note:
  Bear in mind that the client installation can store the 32-bit libraries in the *<ORACLE_HOME>*/lib directory, and not in the *<ORACLE_HOME>*/lib32 directory. In this case, create the following link:
  ```
  cd $ORACLE_HOME
  ln -s lib lib32
  ```

- Add the following statement to steps 10 and 11 (in the *HP-UX Installation Guides*) or to steps 9 and 10 (in the *Sun Solaris Installation Guide*):
  Where *<version>* is the Oracle Database version, 11.2.0.

- In step 16 (in the *HP-UX Installation Guides*) or step 15 (in the *Sun Solaris Installation Guide*), type the following for Oracle 11g:

  On HP-UX on HP Integrity:

  ```
  ln -s <ORACLE_HOME>/lib32/libclntsh.so \
  /opt/OV/lib/hpux32/libclntsh.so.10.1

  ln -s <ORACLE_HOME>/lib32/libclntsh.so \
  /opt/OV/lib/hpux32/libclntsh.so.11.1
  ln -s <ORACLE_HOME>/lib32/libnnz11.so \
  /opt/OV/lib/hpux32/libnnz11.so
  ```
  On Solaris:

  ```
  ln -s <ORACLE_HOME>/lib32/libclntsh.so \
  /opt/OV/lib/libclntsh.so.10.1
  ln -s <ORACLE_HOME>/lib32/libclntsh.so \
  /opt/OV/lib/libclntsh.so.11.1
  ln -s <ORACLE_HOME>/lib32/libnnz11.so \
  ```

```
/opt/OV/lib/libnnz11.so
```
On HP-UX on HP 9000:
```
ln -s <ORACLE_HOME>/lib32/libclntsh.sl \
/opt/OV/lib/libclntsh.sl.10.1
ln -s <ORACLE_HOME>/lib32/libclntsh.sl \
/opt/OV/lib/libclntsh.sl.11.1
ln -s <ORACLE_HOME>/lib32/libnnz11.sl \
/opt/OV/lib/libnnz11.sl
```

- HP-UX on HP Integrity libraries must always be linked to the `/opt/OV/lib/hpux32` directory. Therefore, link the libraries to `/opt/OV/lib/hpux32` instead of `/opt/OV/lib`.

Required Changes for Scenario 2:

To set HPOM with an independent Oracle Database, follow the steps described in the *HPOM with an Independent Database Server White Paper*.

Installing the Oracle Database Server for HPOM in a Cluster Environment

Before installing the Oracle Database server for HPOM in a cluster environment, make sure to check the procedures described in "Performing a New Stand-alone Oracle Database Server 11g Release 2 Installation" on page 3.

To install the Oracle Database server for HPOM in a cluster environment, follow the steps described in the *HPOM Installation Guide for the Management Server* and make sure to type the following links to Oracle client libraries for the decoupled HP Operations management server database installation (step 4):

On HP-UX on HP Integrity:

```
rm -f /opt/OV/lib/hpux32/libclntsh.so.10.1

ln -s <ORACLE_HOME>/lib32/libclntsh.so \

/opt/OV/lib/hpux32/libclntsh.so.10.1

rm -f /opt/OV/lib/hpux32/libclntsh.so.11.1

ln -s <ORACLE_HOME>/lib32/libclntsh.so \

/opt/OV/lib/hpux32/libclntsh.so.11.1

rm -f /opt/OV/lib/hpux32/libnnz11.so

ln -s <ORACLE_HOME>/lib32/libnnz11.so \

/opt/OV/lib/hpux32/libnnz11.so
```

On Solaris:

```
rm -f /opt/OV/lib/libclntsh.so.10.1

ln -s <ORACLE_HOME>/lib32/libclntsh.so \

/opt/OV/lib/libclntsh.so.10.1

rm -f /opt/OV/lib/libclntsh.so.11.1

ln -s <ORACLE_HOME>/lib32/libclntsh.so \

/opt/OV/lib/libclntsh.so.11.1

rm -f /opt/OV/lib/libnnz11.so

ln -s <ORACLE_HOME>/lib32/libnnz11.so \
```

```
/opt/OV/lib/libnnz11.so
```

```
rm -f /opt/OV/lib/libclntsh.sl.10.1

ln -s <ORACLE_HOME>/lib32/libclntsh.sl \

/opt/OV/lib/libclntsh.sl.10.1

rm -f /opt/OV/lib/libclntsh.sl.11.1

ln -s <ORACLE_HOME>/lib32/libclntsh.sl \

/opt/OV/lib/libclntsh.sl.11.1

rm -f /opt/OV/lib/libnnz11.sl
ln -s <ORACLE_HOME>/lib32/libnnz11.sl \
/opt/OV/lib/libnnz11.sl
```

Upgrading an Existing Installation to Oracle 11g Release 2

You can directly upgrade the following Oracle versions to version 11g Release 2 (11.2.0.1):

- Oracle 9.2.0.8 or higher

- Oracle 10.1.0.5 or higher

- Oracle 10.2.0.2 or higher

- Oracle 11.1.0.6 or higher

For more detailed information, see the Oracle documentation.

Important:
After you start up your database with ORACLE_HOME containing the new
Oracle software, do not attempt to go back to the old version, because this
could result in database files corruption.

Checking the System Requirements

Make sure that your system meets the requirements listed in the Oracle documentation. You should also bear in mind that there might be a difference in required operating system versions, patches, and kernel parameters for different Oracle versions (Oracle 9i, Oracle 10g Release 1, Oracle 10g Release 2, Oracle 11g Release 1, and Oracle 11g Release 2).

Because different Oracle patch levels can be required, you must also check the requirements listed in the Oracle documentation.

Preparing for the Database Upgrade

Before upgrading the Oracle software, follow these steps:

1. Perform a full offline backup of the Oracle Database or the complete system.

   Note:
   The full backup ensures that you can recover from errors
   encountered during the upgrade process. When the
   opc_backup script finishes, the Oracle Database and

12

HP Operations management server processes are started automatically.

2. Stop the HP Operations server and agent processes by using `ovstop -c` and `ovc -kill`.

Installing Oracle Database 11g Release 2

To install the Oracle Database 11g Release 2 software, follow these steps:

1. Depending on the version from which you perform the upgrade, choose one of the following:

    - *If you are upgrading from Oracle 10g Release 1 or Release 2, or Oracle 11g Release 1:*

      Because the `oracle` user as well as the `oinstall` (primary) and `dba` (secondary) groups were already created as prerequisites for the Oracle 10g Release 1 or Release 2, or Oracle 11g Release 1 installation, you do not have to create them again.

    - *If you are upgrading from Oracle 9:*

      Modify the `oracle` user with the following attributes:

      a. Create a UNIX group named `oinstall`. The group ID should be greater than 100.

      b. Make the `oracle` user a member of the `oinstall` group as the primary group and the `dba` group as the secondary group.

      c. Set `umask` to allow users to access the Oracle binaries:
          umask 022

2. Create the Oracle home directory `ORACLE_HOME`:

    mkdir /opt/oracle/product/11.2.0

    Note:
    You can also choose a different directory for ORACLE_HOME, but you must use it consistently in all subsequent steps.

3. Change the ownership of the directories to `oracle:oinstall` by typing the following command:

    chown -R oracle:oinstall /opt/oracle/product/11.2.0

4. Change the following Oracle environment variable in `/home/oracle/.profile` (on HP -UX on HP Integrity and HP-UX on HP 9000) or `/export/home/oracle/.profile` (on Solaris) of the `oracle` user:

    On HP -UX on HP Integrity and HP-UX on HP 9000:

    export ORACLE_HOME=$ORACLE_BASE/product/11.2.0

    On Solaris:

    ORACLE_HOME=$ORACLE_BASE/product/11.2.0

    export ORACLE_HOME

    This variable determines the location and the version of the Oracle installation. This is the recommended setting. You can choose a different setting, if needed.

5. Log on as the `oracle` user again, and then start the Oracle Universal Installer.

6. After the Oracle Universal Installer is started, follow the instructions for installing the Oracle Database software provided by Oracle.

7. When you exit the Oracle Universal Installer, run the `utlu112i.sql` script as described in the Oracle documentation, and resolve all warnings.

> **Note:**
> The script will also show the value of the compatible parameter, no matter whether you have it set or not in `PFILE` (usually `initopenview.ora`) or `SPFILE`. If the parameter is not set in `PFILE` or `SPFILE`, the upgrade can fail. Make sure to set the `COMPATIBLE` parameter to the value retrieved with the script, either in `PFILE` or `SPFILE`. For example:
> **compatible=10.2.0**

8. Run the Oracle Database Upgrade Assistant to upgrade the database software.

> **Important:**
> You must carefully follow the instructions written in the Oracle documentation. When asked whether to use the Automatic Storage Management option, select **Do Not Move Database Files as Part of Upgrade**.

9. Starting with version 11g R2, Oracle no longer provides the `libclntsh.so` and `libnnz11.so` (on HP -UX on HP Integrity and Solaris) or the `libclntsh.sl` and `libnnz11.sl` (on HP-UX on HP 9000) 32-bit client libraries together with the 64-bit versions of the Oracle Database server or Oracle client products. HPOM is built as a 32-bit application, so these libraries are needed for the proper operation. For detailed information about installing these libraries, see "Installing the Oracle 11g Release 2 32-bit Instant Client" on page 7.

Configuring HP BTO Software Products to Use the New Oracle Version

To configure HP BTO software products to use the new Oracle version, as the `oracle` user, perform the following steps:

1. Because the Oracle Database Upgrade Assistant moved the parameter file of the `ORACLE_SID` database, follow these steps:

   a. Back up the old initialization file:

      **mv /opt/oracle/admin/openview/pfile/initopenview.ora **

      /opt/oracle/admin/openview/pfile/initopenview.ora.orig

   b. Move the new initialization file:

      **mv /opt/oracle/product/11.2.0/dbs/initopenview.ora **

      /opt/oracle/admin/openview/pfile/initopenview.ora

   c. Create a link to the new initialization file at the other location:

      **ln -s /opt/oracle/admin/openview/pfile/initopenview.ora **

      /opt/oracle/product/11.2.0/dbs/initopenview.ora

d. Assign permissions to the new initialization file:

```
chmod 644 /opt/oracle/admin/openview/pfile/initopenview.ora
chown oracle:oinstall \
/opt/oracle/admin/openview/pfile/initopenview.ora
```

2. Copy the SQL*Net files from the old ORACLE_HOME value to the new location, for example:

```
cd /opt/oracle/product/<old_version>/network/admin/
cp listener.ora \
opt/oracle/product/11.2.0/network/admin/listener.ora
cp tnsnames.ora \
/opt/oracle/product/11.2.0/network/admin/tnsnames.ora
cp sqlnet.ora /opt/oracle/product/11.2.0/network/admin/sqlnet.ora
cp tnsnav.ora /opt/oracle/product/11.2.0/network/admin/tnsnav.ora
```

3. As the root user, replace all occurrences of the old values with the new values (make sure to change variable assignments and directory names containing these values) in the following files:

   ORACLE_HOME in /etc/opt/OV/share/conf/ovdbconf

   DB_RELEASE in /etc/opt/OV/share/conf/ovdbconf

   ORACLE_BASE_REV to value 11 in /etc/opt/OV/share/conf/ovdbconf

   ORACLE_SECOND_REV to value 2 in /etc/opt/OV/share/conf/ovdbconf

   ORACLE_HOME in /opt/oracle/product/11.2.0/network/admin/listener.ora

   LOG_DIRECTORY_LISTENER in
   /opt/oracle/product/11.2.0/network/admin/listener.ora

   TRACE_DIRECTORY_CLIENT in
   /opt/oracle/product/11.2.0/network/admin/sqlnet.ora

   LOG_DIRECTORY_CLIENT in
   /opt/oracle/product/11.2.0/network/admin/sqlnet.ora

   ORA_CRS_HOME in /sbin/init.d/init.cssd (if it exists)

4. Change the symbolic links that point to the Oracle shared libraries and are used by the HP Operations Manager:

   On HP -UX on HP Integrity and Solaris:

   libclntsh.so, libclntsh.so.1.0, libclntsh.so.8.0, libclntsh.so.9.0, libclntsh.so.10.1, libclntsh.so.11.1, libnnz11.so, and libopcora.so.

   On HP-UX on HP 9000:

   libclntsh.sl, libclntsh.sl.1.0, libclntsh.sl.8.0, libclntsh.sl.9.0, libclntsh.sl.10.1, libclntsh.sl.11.1, libnnz11.sl, and libopcora.sl.

   Remove these links and recreate new links that point to the Oracle shared libraries in the new ORACLE_HOME value as described in the following examples:

   Example for HP-UX on HP Integrity:

```
rm -f /opt/OV/lib/hpux32/libclntsh.so
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/hpux32/libclntsh.so
```

15

```
rm -f /opt/OV/lib/hpux32/libclntsh.so.1.0
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/hpux32/libclntsh.so.1.0
rm -f /opt/OV/lib/hpux32/libclntsh.so.8.0
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/hpux32/libclntsh.so.8.0
rm -f /opt/OV/lib/hpux32/libclntsh.so.9.0
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/hpux32/libclntsh.so.9.0
rm -f /opt/OV/lib/hpux32/libclntsh.so.10.1
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/hpux32/libclntsh.so.10.1
rm -f /opt/OV/lib/hpux32/libclntsh.so.11.1
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/hpux32/libclntsh.so.11.1
rm -f /opt/OV/lib/hpux32/libnnz11.so
ln -s /opt/oracle/product/11.2.0/lib32/libnnz11.so \
/opt/OV/lib/hpux32/libnnz11.so
rm -f /opt/OV/lib/hpux32/libopcora.so
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/hpux32/libopcora.so
```

Example for Solaris:

```
rm -f /opt/OV/lib/libclntsh.so
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/libclntsh.so
rm -f /opt/OV/lib/libclntsh.so.1.0
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/libclntsh.so.1.0
rm -f /opt/OV/lib/libclntsh.so.8.0
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/libclntsh.so.8.0
rm -f /opt/OV/lib/libclntsh.so.9.0
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/libclntsh.so.9.0
rm -f /opt/OV/lib/libclntsh.so.10.1
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/libclntsh.so.10.1
rm -f /opt/OV/lib/libclntsh.so.11.1
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/libclntsh.so.11.1
```

```
rm -f /opt/OV/lib/libnnz11.so
ln -s /opt/oracle/product/11.2.0/lib32/libnnz11.so \
/opt/OV/lib/libnnz11.so
rm -f /opt/OV/lib/libopcora.so
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.so \
/opt/OV/lib/libopcora.so
```

Example for HP-UX on HP 9000:

```
rm -f /opt/OV/lib/libclntsh.sl
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.sl \
/opt/OV/lib/libclntsh.sl
rm -f /opt/OV/lib/libclntsh.sl.1.0
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.sl \
/opt/OV/lib/libclntsh.sl.1.0
rm -f /opt/OV/lib/libclntsh.sl.8.0
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.sl \
/opt/OV/lib/libclntsh.sl.8.0
rm -f /opt/OV/lib/libclntsh.sl.9.0
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.sl \
/opt/OV/lib/libclntsh.sl.9.0
rm -f /opt/OV/lib/libclntsh.sl.10.1
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.sl \
/opt/OV/lib/libclntsh.sl.10.1
rm -f /opt/OV/lib/libclntsh.sl.11.1
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.sl \
/opt/OV/lib/libclntsh.sl.11.1
rm -f /opt/OV/lib/libnnz11.sl
ln -s /opt/oracle/product/11.2.0/lib32/libnnz11.sl \
/opt/OV/lib/libnnz11.sl
rm -f /opt/OV/lib/libopcora.sl
ln -s /opt/oracle/product/11.2.0/lib32/libclntsh.sl \
/opt/OV/lib/libopcora.sl
```

5. *Recommended:* Rename the old ORACLE_HOME directory to find the missing files and to avoid starting the database with the wrong ORACLE_HOME value.

6. Start the database and the SQL*Net listener (if not already started), and then disable the password expiration. Follow these steps:

   a. Log on as the oracle user, or switch to the oracle user:

   ```
   su - oracle
   ```

   b. If you are using SQL*Net, start the SQL*Net listener by using the following command:

   ```
   $ORACLE_HOME/bin/lsnrctl start
   ```

c. Start the Oracle SQL*Plus tool, and then start the database. Type the following:

$ORACLE_HOME/bin/sqlplus /nolog

SQL> connect / as SYSDBA

SQL> startup

d. *If you are upgrading from the Oracle version that is older than Oracle 10g Release 2, type the following:*

SQL> grant create table, create view to opc_op;

e. To prevent the opc_op password from expiring, type the following:

SQL> alter profile default limit password_life_time unlimited;

SQL> exit

7. If you no longer need the old Oracle version and after you verified that the new Oracle version works, remove the old Oracle version to extend the disk space.

8. Start the HP Operations management server and other HP component processes.