APPENDIX A

Installing and Patching Oracle 10g

This section provides supporting information to assist you with the Oracle 10g installation.

Note
- Oracle 10g is available only for a 64-bit architecture.
- Use the information in this section in conjunction with the Oracle documentation available on the Oracle website.

A.1 Prerequisites

Before you install Oracle 10g, verify that:

- Oracle is not running
- The oracle UNIX user exists and is configured correctly
- The CTM Server Disk 1 installation CD is in the disk drive

A.2 Installing the Oracle 10g Software with the Response File (*.rsp) Provided by Cisco

Step 1 Enter the following command to copy the default profile to the Oracle home directory:

```
cp /cdrom/cdrom0/Disk1/InstData/Solaris/VM/cfg/{small | medium | large | highend}/.cshrc
/oracle/.cshrc
```

For example, to copy the default profile for a small network, enter:

```
cp /cdrom/cdrom0/Disk1/InstData/Solaris/VM/cfg/small/.cshrc /oracle/.cshrc
```

Note If you installed Oracle Standard Edition, you must copy the default profile for a small network.

Step 2 Complete one of the following options, depending on your Oracle version:

- Enter the following commands if you are installing 64-bit Oracle Enterprise Edition and Oracle patch 10.2.0.4:

```
cp /cdrom/cdrom0/Disk1/oracle10_enterp.rsp /oracle
cp /cdrom/cdrom0/Disk1/patchset_64bit_10204.rsp /oracle
```

- Enter the following commands if you are installing 64-bit Oracle Standard Edition and Oracle patch 10.2.0.4:

```
cp /cdrom/cdrom0/Disk1/oracle10_std.rsp /oracle
cp /cdrom/cdrom0/Disk1/patchset_64bit_10204.rsp /oracle
```

Step 3   Enter the following commands to change ownership of the Oracle software directories:

```
/usr/bin/chown -R oracle:dba /oracle
/usr/bin/chown -R oracle:dba /db01
/usr/bin/chown -R oracle:dba /db02
/usr/bin/chown -R oracle:dba /db03
/usr/bin/chown -R oracle:dba /db04
/usr/bin/chown -R oracle:dba /db05
/usr/bin/chown -R oracle:dba /ctm_backup
```

Step 4   If you are using db01_rd or db02_rd, enter the following commands to change ownership of the Oracle software directories:

```
/usr/bin/chown -R oracle:dba /db01_rd
/usr/bin/chown -R oracle:dba /db02_rd
```

Step 5   Enter the following command to add read-write permissions:

```
/usr/bin/chmod +rw /oracle/.cshrc
```

Step 6   Enter the following commands to create the /temp directory if it does not already exist, and set its permissions:

```
mkdir /temp
chmod 777 /temp
```

Step 7   Using Table A-1 as a reference, complete the following substeps to set the kernel parameters:

   a.   Enter the following command:

```
cd /cdrom/cdrom0/Disk1
```

   b.   Depending on your network size, enter one of the following commands to run the ./pre_oracle_install.sh script under Disk1:

   – For a small CTM R9.2 installation, enter:

```
./pre_oracle_install.sh small
```

   – For a medium CTM R9.2 installation, enter:

```
./pre_oracle_install.sh medium
```

   – For a large CTM R9.2 installation, enter:

```
./pre_oracle_install.sh large
```

   – For a high-end CTM R9.2 installation, enter:

```
./pre_oracle_install.sh highend
```

   The following message appears after the script completes:

```
Kernel Parameters are updated. Please reboot the server.
```

   c.   Enter the following command to reboot the system so the changes take effect:

```
init 6
```

Table A-1 lists the recommended values to set for resource control. The values are different for each network configuration installed on CTM R9.2.

Table A-1   Recommended Resource Control Values

Network Size	Project Default Values	Projects Associated with user.oracle			
		max-shm-memory	max-shm-ids	max-sem-nsems	max-sem-ids
Small	1 GB	1073741824[1]	<default value>[2]	<default value>[2]	1000
Medium	4 GB	4294967296[3]	<default value>[2]	<default value>[2]	1000
Large	8 GB	8589934592[4]	<default value>[2]	<default value>[2]	2000
High end	16 GB	15032385536[5]	<default value>[2]	<default value>[2]	2000

1. This value is equivalent to 1 GB.

2. This value is kept unchanged.

3. This value is equivalent to 4 GB.

4. This value is equivalent to 8 GB.

5. This value is equivalent to 14 GB.

Step 8   Log in as the root user. If you are installing on separate workstations, log in on the Oracle workstation. The C shell (csh) is recommended. To start the C shell, enter the following command:

`/bin/csh`

Step 9   Enter the following command to verify that the changes to the kernel parameters took effect:

`grep user.oracle /etc/project`

In the command output, you should see information similar to the following examples based on the network configuration you chose in Step 7 substep b, where the parameters associated to user.oracle are reported in a single line separated by semicolons:

- Small network configuration:

```
user.oracle:100:OracleDB:::project.max-sem-ids=(privileged,1000,deny);project.max-shm-
memory=(privileged,1073741824,deny)
```

- Medium network configuration:

```
user.oracle:100:OracleDB:::project.max-sem-ids=(privileged,1000,deny);project.max-shm-
memory=(privileged,4294967296,deny)
```

- Large network configuration:

```
user.oracle:100:OracleDB:::project.max-sem-ids=(privileged,2000,deny);project.max-shm-
memory=(privileged,8589934592,deny)
```

- High-end network configuration:

```
user.oracle:100:OracleDB:::project.max-sem-ids=(privileged,2000,deny);project.max-shm-
memory=(privileged,15032385536,deny)
```

Verify that the parameters shown in the output are set to the same value that they were set to in Step 7.

Step 10   Enter the following command to log in as the oracle user:

`su - oracle`

Step 11   Depending on the distribution media of the Oracle software, change to the directory where the runInstaller application is located. For example, if you are using a DVD, enter:

```
cd /dvd/dvd0
```

Step 12   Complete one of the following options to start the Oracle installer, depending on your Oracle version.

- If you are installing 64-bit Oracle Enterprise Edition, enter:

    ```
    ./runInstaller -silent -responseFile /oracle/oracle10_enterp.rsp &
    ```

- If you are installing 64-bit Oracle Standard Edition, enter:

    ```
    ./runInstaller -silent -responseFile /oracle/oracle10_std.rsp &
    ```

When this step is complete, you will be prompted to run several shell scripts as root. Instead, press the **Enter** key to return to the prompt.

> **Note**
> - If you do not have a DVD, see your Oracle documentation for instructions on how to download and extract the correct software for the installation.
> - When carrying out the steps in this section, see the official *Oracle Content Database Installation Guide* at http://download.oracle.com/docs/cd/B32119_01/doc/contentdb.1012/b31415/toc.htm.

Step 13   Enter the following commands to create the local/bin directory:

```
cd /oracle/product/10.2.0
mkdir -p local/bin
```

Step 14   If you were prompted to run the /oracle/oraInventory/orainstRoot.sh script with root privileges in Step 12, log into another terminal window as the root user and enter the following command:

```
/oracle/oraInventory/orainstRoot.sh
```

Step 15   If you were prompted to run the /oracle/product/10.2.0/root.sh script in Step 12, log into another terminal window as the root user and complete the following substeps:

  a.   Enter the following command:

```
cd /oracle/product/10.2.0
```

  b.   Enter the following command to run the root.sh script:

```
./root.sh
```

  c.   At the prompt for the local bin directory, enter the following path in the root.sh script:

```
/oracle/product/10.2.0/local/bin
```

Step 16   Because the client static library (libclntst10.a) is not generated during installation, you must complete the following substeps to generate and link your applications to the client static library:

  a.   Enter the following command to log into the Oracle workstation as the oracle user:

```
su - oracle
```

  b.   Enter the following command to generate the client static library:

```
$ORACLE_HOME/bin/genclntst
```

A.3 Downloading and Installing the Oracle 10g 10.2.0.4 Patch for Solaris (Patch Number 6810189)

CTM R9.2 requires that the Oracle 10g 10.2.0.4 patch be installed.

✎

Note   You must create a MetaLink account to download the 10.2.0.4 patch from the Oracle website.

Step 1   Go to http://metalink.oracle.com and click **Login to MetaLink**. Enter your Oracle MetaLink username and password.

Step 2   Extract the 316900.1 document.

Step 3   Click **Advanced** at the top of the Oracle MetaLink page.

Step 4   Enter **316900.1** in the Document ID field; then, click **Submit**. The 316900.1 document provides the following information:

- System requirements
- Lists of resolved bugs
- List of known issues

Step 5   Click **Patches**.

Step 6   Click **Simple Search**.

Step 7   Enter **6810189** in the Search by Patch Number(s) field.

Step 8   Choose **Solaris Operating System (SPARC 64-bit)** from the Platform or Language list box.

Step 9   Click **Go**.

Step 10   Click **Download** to download the p6810189_10204_Solaris-64.zip file.

Step 11   Enter the following command to log into the Oracle workstation as the oracle user:

```
su - oracle
```

Step 12   Save the patch to the /oracle directory.

Step 13   As the oracle user, copy the response file in the /oracle directory. (For the location of the response file, see A.2 Installing the Oracle 10g Software with the Response File (*.rsp) Provided by Cisco, page A-1, Step 2.)

- When installing the Oracle server, the response file is patchset_64bit_10204.rsp.
- When installing the Oracle client, the response file is clientpatchset_64bit_10204.rsp.

Step 14   Enter the following command to extract the patch files:

```
unzip p6810189_10204_Solaris-64.zip
```

A directory named Disk1 is created automatically.

Step 15   Remove the p6810189_10204_Solaris-64.zip file from the /oracle directory.

Step 16   Enter the following commands to install the patch:

```
cd Disk1
./runInstaller -silent -responseFile /oracle/patchset_64bit_10204.rsp
```

Step 17   At the prompt to run the root.sh script, log into another terminal window as the root user and enter the following command:

```
/oracle/product/10.2.0/root.sh
```

Step 18 At the prompt for the local bin directory, enter the following path in the root.sh script:

```
/oracle/product/10.2.0/local/bin
```

Note You are prompted to overwrite some files. Reply **yes** to all of the prompts.

Step 19 Enter the following commands to remove the patch installation files:

```
cd /oracle
rm -rf /oracle/Disk1
```

A.4 Downloading and Installing the OPatch Patch (Patch Number 6880880)

You must download and install patch 6880880 for Oracle 10.2.0.4 and Solaris 64-bit.

Step 1 Go to http://metalink.oracle.com and click **Login to MetaLink**. Enter your Oracle MetaLink username and password.

Step 2 Select **Patch** from the menu and search for the 6880880 patch.

Step 3 Choose **Solaris Operating System (SPARC 64-bit)** from the Platform or Language list box.

Step 4 Click **Go**.

Step 5 Click **Download** to download the p6880880_112000_SOLARIS64.zip file to your local workstation.

Step 6 Enter the following command to log into the Oracle workstation as the oracle user:

```
su - oracle
```

Step 7 Save the patch to the $ORACLE_HOME directory.

Step 8 Enter the following commands to unzip p6880880_112000_SOLARIS64.zip to your Oracle home directory:

```
cd $ORACLE_HOME
unzip p6880880_112000_SOLARIS64.zip
```

Step 9 At the prompt asking if you want to replace all files, choose **Replace All**.

Patch 6880880 is now installed.

Step 10 To verify that you have the Opatch utility installed, enter the following command as the oracle user:

```
$ORACLE_HOME/OPatch/opatch version
```

The following messages appear:

```
Invoking OPatch 11.2.0.1.0
OPatch version: 11.2.0.1.0
OPatch succeeded.
```

> **Note**   The OPatch version (11.2.0.1.0 or later) is different from the Oracle software version (10.2.0.4), because they are separate products.

Step 11   Enter the following command to remove the temporary .zip file:

```
rm $ORACLE_HOME/p6880880_112000_SOLARIS64.zip
```

A.5 (Oracle Server) Downloading and Installing the Additional Oracle Patch (Patch Number 8833280)

You must download and install patch 8833280 for Oracle 10.2.0.4 and Solaris 64-bit.

> **Caution**   Install patch 6880880—which you did in A.4 Downloading and Installing the OPatch Patch (Patch Number 6880880)—before installing patch 8833280. For the latest information about this critical patch update, see the official installation guide included with the patch itself.

Step 1   Go to http://metalink.oracle.com and click **Login to MetaLink**. Enter your Oracle MetaLink username and password.

Step 2   Select **Patch** from the menu and search for the 8833280 patch.

Step 3   Choose **Solaris Operating System (SPARC 64-bit)** from the Platform or Language list box.

Step 4   Click **Go**.

Step 5   Click **Download** to download the p8833280_10204_Solaris-64.zip file to your local workstation.

Step 6   Enter the following command to log into the Oracle workstation as the oracle user:

```
su - oracle
```

Step 7   Save the patch to the $ORACLE_HOME directory.

Step 8   Enter the following commands to unzip p8833280_10204_Solaris-64.zip to your Oracle home directory:

```
cd $ORACLE_HOME
unzip p8833280_10204_Solaris-64.zip
```

A new 8833280 folder is created.

Step 9   Enter the following command to check if any conflicts exist:

```
./OPatch/opatch prereq CheckConflictAgainstOHWithDetail -phBaseDir ./8833280
```

If any conflicts exist, fix them before proceeding.

Step 10   Enter the following command to change to the 8833280 folder:

```
cd 8833280
```

Step 11   Enter the following command to apply the patch:

```
../OPatch/opatch apply
```

Note You might be prompted for an optional e-mail address for notification of security issues. At the prompt asking if the system is ready for patching, enter **yes**.

Step 12 Enter the following command to verify that the 8833280 patch is installed:

`$ORACLE_HOME/OPatch/opatch lsinventory | grep 8833280`

The output should show the 8833280 patch number as one of any installed patches.

Step 13 Enter the following command to remove the temporary .zip file:

`rm $ORACLE_HOME/p8833280_10204_Solaris-64.zip`

A.6 Postinstallation Steps

After you install Oracle patches 6810189, 6880880, and 8833280, complete the following steps on every database associated with the upgraded Oracle home as recommended by the official Oracle patch README.html file.

Note This section includes only the required postinstallation steps. See the README.html document that accompanies the Oracle patch for the complete postinstallation steps.

Step 1 Enter the following command to move to the home directory of the oracle user:

`cd`

Step 2 By default, all new files and directories are created with restricted access during the patch set installation. Users or third-party applications with a group identifier that is different from the database will see permission errors when they try to access client utilities or libraries in the database home. Enter the following command to run the changePerm.sh script:

`$ORACLE_HOME/install/changePerm.sh`

Choose "y" when prompted to continue.

Note This process might take up to 15 minutes to complete.

Step 3 Because the client static library (libclntst10.a) is not generated during installation, enter the following command to generate and link your applications to the client static library:

`$ORACLE_HOME/bin/genclntst`

A.7 Recompiling Database Views After Installing the Oracle 10g 10.2.0.4 Patch for Solaris (Patch Number 6810189)

The CTM server must be installed before you complete the following steps.

Step 1   Enter the following commands to verify that the view recompilation has been performed:

```
su - oracle
sqlplus /nolog
SQL> CONNECT / AS SYSDBA
SQL> SELECT * FROM registry$history WHERE ID='6452863';
SQL> QUIT
```

If the view recompilation has been performed, the preceding commands return one or more rows. If the view recompilation has not been performed, the commands return no rows.

Step 2   Complete the following substeps to recompile the views in the database, if necessary:

a. Enter the following commands to run the precheck script, which reports the maximum number of views and objects that can be recompiled:

```
cd $ORACLE_HOME/cpu/view_recompile
sqlplus /nolog
SQL> CONNECT / AS SYSDBA
SQL> @recompile_precheck_jan2008cpu.sql
SQL> QUIT
```

b. As the oracle user, enter the following commands to run the view recompilation script. Note that this script is run with the database in upgrade mode, which restricts connections as SYSDBA:

```
cd $ORACLE_HOME/cpu/view_recompile
sqlplus /nolog
SQL> CONNECT / AS SYSDBA
SQL> SHUTDOWN IMMEDIATE
SQL> STARTUP UPGRADE
SQL> @view_recompile_jan2008cpu.sql
SQL> SHUTDOWN;
SQL> STARTUP;
SQL> QUIT
```

c. Check for any errors in the vcomp_*SID_timestamp*.log file in the current directory.

d. If any invalid objects were reported, enter the following commands to run the utlrp.sql script:

```
cd $ORACLE_HOME/rdbms/admin
sqlplus /nolog
SQL> CONNECT / AS SYSDBA
SQL> @utlrp.sql
SQL> QUIT
```

e. Manually recompile any invalid objects. For example:

```
SQL> alter package schemaname.packagename compile;
```

A.8 Postinstallation Steps for the Oracle 10g 10.2.0.4 Patch for Solaris (Patch Number 6810189)

Complete the following steps only when you are upgrading to CTM R9.2 from an earlier release. These steps do not apply to a new installation of CTM R9.2.

Step 1   Enter the following command to log into the database workstation as the oracle user:

```
su - oracle
```

Step 2   Enter the following command to start the Oracle listener:

```
lsnrctl start
```

Step 3   For single-instance installations, enter the following commands to use SQL*Plus to log into the database as the SYS user with SYSDBA privileges:

```
$ sqlplus /nolog
SQL> CONNECT / AS SYSDBA
```

Step 4   Enter the following commands to start the upgrade procedure:

```
SQL> STARTUP UPGRADE
SQL> SPOOL /temp/patch.log
SQL> @?/rdbms/admin/catupgrd.sql
SQL> SPOOL OFF
```

This step might take several minutes to complete.

Step 5   Using another terminal window, check whether the /temp/patch.log report contains any errors. If errors exist, correct them; then, rerun the catupgrd.sql script.

Step 6   Enter the following commands to restart the database:

```
SQL> SHUTDOWN IMMEDIATE
SQL> STARTUP
```

Step 7   Enter the following command to run the utlrp.sql script and recompile all invalid PL/SQL packages now instead of when the packages are accessed for the first time. This step is optional but recommended.

```
SQL> @?/rdbms/admin/utlrp.sql
```

Step 8   Enter the following command to check the status of all components after the upgrade:

```
SQL> SELECT COMP_NAME, VERSION, STATUS FROM SYS.DBA_REGISTRY;
```

In the command output, all components should have a status of VALID for a successful upgrade.