

Oracle9i

Release Notes

Release 2 (9.2.0.1.0) for AIX-Based 5L Systems (64-bit)

May 2002

Part No. A97605-01

This document accompanies Oracle9i release 2 (9.2.0.1.0) for AIX-Based 5L Systems (64-bit). Its contents supplement or supersede information in the installation guide for this release, or in the Oracle9i documentation library.

Topics:

- [System Requirements](#)
- [Documentation](#)
- [Installation Issues](#)
- [Product-Related Issues](#)
- [Post-Installation Issues](#)
- [Known Bugs](#)

System Requirements

Except as noted here, system requirements are in the installation guide for this release, and are current as of the release date.

Hard Disk Space Requirements

The space requirements listed on the Available Products window apply to installations that include a database. If you select the Software Only configuration type, then you will require 3 GB.

Additional Required Patches

This section provides additional required patches, or supplements inaccurate or superseded patch information in the installation guide.

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- Real Application Clusters: If your cluster runs HACMP clusterware (instead of SP), then you must download and install the following patch: IY21047
- JRE/JDK patches: The following information corrects patch labels in the installation guide:
 - 1.1.8: IY30886
 - 1.3.1: IY31033

Download these patches at the following FTP site:

`ftp://service.software.ibm.com/aix/efixes/`

Kernel and Processor Requirements

Both 32-bit and 64-bit kernels are supported, but only 64-bit processors are supported for this release. Also, this release does not use kernel extensions.

Updated Requirements

Oracle Corporation updates these release notes online at the following site:

`http://docs.oracle.com`

If you need assistance with navigating the Oracle documentation site, refer to the following site:

`http://docs.oracle.com/instructions.html`

Refer also to the Certify Web Pages on Oracle*MetaLink*, which provide certified configuration information for Oracle and non-Oracle products. To access Certify:

1. Register or log in to Oracle*MetaLink* at the following Web address:

`http://metalink.oracle.com`

2. Select Product Lifecycle from the Oracle*Metalink* navigation bar.
3. Select Certifications in the Product Lifecycle window navigation bar.

Oracle Universal Installer Version Update

Oracle9i release 2 (9.2.0.1.0), which is provided with the release, uses Oracle Universal Installer 2.2.0.12.0. This version number supersedes the version listed in the installation guide.

Documentation

Additional product README files are located in their respective product directories under the \$ORACLE_HOME directory and in the \$ORACLE_HOME/relnotes directory.

Installation Issues

This section provides information about the following topics:

- [Multiple CD-ROM Installation](#)
- [runInstaller Script](#)
- [Installing Databases with Database Configuration Assistant](#)
- [Database Migration](#)
- [Installing with Response Files](#)
- [Unzip Utility for Downloading and Installing Oracle Patches](#)

Multiple CD-ROM Installation

During installation of Oracle9i release 2 (9.2.0.1.0), you will be prompted to insert additional CD-ROMs from the set that make up Oracle9i release 2 (9.2.0.1.0). After inserting the requested disk, change the path in the *Disk Location* text box to reflect the root directory of the newly-mounted CD-ROM.

For example, when you insert Disk 3 with a directory path of /cdrom/orcl920_3, change the path in the *Disk Location* dialog to /cdrom/orcl920_3.

runInstaller Script

Because it is necessary to insert and eject more than one CD-ROM during installation, you must not launch Oracle Universal Installer by running the runInstaller script from a shell where the current working directory is the CD-ROM mount point, or by clicking on the script in the *File Manager* window. In an X Window environment, it is possible to launch the Installer this way, but then the installation will fail because you will not be able to eject a software CD-ROM until you end the installation session.

Installing Databases with Database Configuration Assistant

Review the following information before running Database Configuration Assistant.

SYS and SYSTEM Password Change Requirement

If you use Database Configuration Assistant to create a database, be aware that you will be required to change the SYS and SYSTEM passwords at the end of the configuration process. This is a new security procedure designed to protect access to your data.

Database Migration

Review the following section if you will migrate a database.

Upgrading to Oracle9i Release 2 (9.2.0.1.0)

Upgrading from 8.1.7 (32-bit) on AIX5L to 9.2.0.1.0 is supported during installation using the Oracle Universal Installer.

Upgrading from 8.0.6 (32-bit and 64-bit), 8.1.7 (32-bit and 64-bit) and 9.0.1 (64-bit) on AIX 4.3.3 directly to 9.2.0.1.0 on AIX5L is not supported. You must first upgrade to 9.2.0.1.0 on AIX 4.3.3. Use the 4.3.3 documentation to complete this upgrade. When you have completed this task, then use the following procedure to upgrade to 9.2.0.1.0 on AIX5L:

1. Perform complete backups of the existing 9.2.0.x.x database on AIX 4.3.3 to protect against any failures in the upgrade.
2. To assist with creating the control file after the upgrade, enter the following SQL command:

```
SQL> ALTER DATABASE BACKUP CONTROLFILE TO TRACE;
```

Entering the preceding command saves control file information to a trace file under the UDUMP directory, which should appear similar to the following syntax example. Database names, paths, and parameter values will vary, depending on your system values:

```
CREATE CONTROLFILE REUSE DATABASE "SAMPLE" NORESETLOGS
NOARCHIVELOG
  MAXLOGFILES 32
  MAXLOGMEMBERS 2
  MAXDATAFILES 32
  MAXINSTANCES 1
  MAXLOGHISTORY 112
LOGFILE
  GROUP1 '/aix433_path/oracle/dbs/t_log1.f' SIZE 25M,
  GROUP2 '/aix433_path/oracle/dbs/t_log2.f' SIZE 25M
DATAFILE
  '/aix433_path/oracle/dbs/t_DB1.F'
CHARACTER SET WE8DEC;
```

3. Perform a clean Oracle database shutdown.

4. Upgrade the AIX 4.3.3 operating system to AIX 5L, using the instructions in *AIX 5L Version 5.1 Installation Guide*.

Note: Do not attempt to use Oracle9i for AIX 4.3.3 after booting the system with AIX 5.1. Database files created with Oracle9i release 2 (9.2.0.1.0) on AIX 4.3.3 are compatible with Oracle9i release 2 (9.2.0.1.0) databases on AIX 5L.

If you need to transfer data from raw devices on 4.3.3 to 5L, then refer to the section following this one, "Moving Database Files on Raw Devices from AIX 4.3.3 to AIX 5L Systems with the Offset Utility."

5. Install in a new ORACLE_HOME the Oracle9i release 2 (9.2.0.1.0) software for AIX 5L.
6. Copy your existing `init.ora` file to the new ORACLE_HOME. Change any AIX 4.3.3 ORACLE_HOME path references to use the new AIX 5L ORACLE_HOME path.
7. Start up the database, using SQL commands similar to the following syntax example. Database names, paths, and parameter values will vary, depending on your system values:

```
STARTUP NOMOUNT;
CREATE CONTROLFILE REUSE DATABASE "SAMPLE" NORESETLOGS
    MAXLOGFILES 32
    MAXLOGMEMBERS 2
    MAXDATAFILES 32
    MAXINSTANCES 1
    MAXLOGHISTORY 112
LOGFILE
    GROUP 1 '/aix5l_path/oracle/dbs/t_log1.f' size 25M
    GROUP 2 '/aix5l_path/oracle/dbs/t_log2.f' size 25M
DATAFILE
    'aix5l_path/oracle/dbs/t_dbl.f
CHARACTER SET WE8DEC;
ALTER DATABASE OPEN
```

Note: At this point, the NComp objects in the migrated database are invalid. Refer to the section "Steps to Update NComp Java Objects in the Database" for the procedure to revalidate these objects.

8. Perform a clean shutdown of the database.

9. Perform complete backups of the Oracle9i release 2 (9.2.0.1.0) for AIX 5L database.

Moving Database Files on Raw Devices from AIX 4.3.3 to AIX 5L Systems with the Offset Utility

To move database files from an AIX 4.3.3 raw device, you must find the control block size of the device, and you must locate "offset" bytes, which indicate where Oracle data is located on the device. Oracle Corporation ships the offset utility with Oracle9i release 2 (9.2.0.1.0) to assist in this task.

Using offset, complete the following steps:

1. Run `$ORACLE_HOME/bin/offset` on the AIX 4.3.3 database file (the "source" file).
2. Copy the database data on the source file to a temporary location, such as an NFS filesystem, which is accessible to the AIX 5L systems or cluster nodes, using the following command syntax:

```
dd if=source_file of=temp_path bs=value skip=offset_value_source
```

where:

- *source_file* represents the full path of the database source file
- *temp_path* represents the full path to the temporary location where the source file is placed
- *value* is the block size value
- *offset_value_source* represents the value returned by the offset program for the database source file, divided by the bs value.

3. Run `$ORACLE_HOME/bin/offset` on the destination database file, using the following command syntax:

```
offset dest_file
```

where *dest_file* represents the full path of the destination file on the AIX 5L node (the "target" file)

4. Copy the database data from the source file on the temporary location to the target file, using the following command syntax:

```
dd if=temp_path of=dest_file bs=value seek=offset_value_target
```

where:

- *temp_path* represents the full path to the temporary location where the source file is placed
- *dest_file* represents the full path to the target file

- *value* is the block size value
- *offset_value_target* represents the value returned by the offset program for the database target file.

Steps to Update NComp Java Objects in the Database

To be able to use natively compiled Java objects for AIX5L, use the following procedure to update NComp Java objects in the database:

1. Connect to the database as the user SYSTEM
2. Run the following command

```
SQL> create or replace java system;
```

Migrating Agent Repository Files from AIX 4.3.3 to AIX 5L

Migrating agent files from AIX 4.3.3 (32-bit) to AIX 5L (64-bit) is not supported using the nmumigr8 utility. Oracle Corporation has assigned Oracle Bug identification number 2237433 to track this problem.

Installing with Response Files

For installation with a response file, the path to the response file must be the full path on the system. The Oracle Universal Installer does not handle relative paths properly.

Unzip Utility for Downloading and Installing Oracle Patches

An unzip utility is provided with Oracle9i release 2 (9.2.0.1.0) for uncompressing Oracle patches downloaded from Oracle *MetaLink*. The utility is located in the following directory:

```
$ORACLE_HOME/bin/
```

Platform-Specific Product Information

The following product information in this section supersedes the information in the installation guide or the administrator's reference for Oracle9i release 2 (9.2.0.1.0) on AIX 5L.

- Oracle Advanced Security:
 - Radius challenge response authentication is not supported.
 - CyberSafe is not supported.
 - Entrust is not supported.
 - DCE integration is not supported.

- JDBC/OCI Interfaces:
 - Oracle JDBC Thin Driver for JDK 1.4 is not supported.
 - Oracle JDBC/OCI Driver for JDK 1.4 is not supported.
- File Systems
 - Veritas File System (VxFS) is not supported.
 - Legato NetWorker Single Server is not supported.

Product-Related Issues

This section provides information on the following topics:

- [Character Sets](#)
- [Demo Schema](#)
- [Oracle Advanced Security](#)
- [Oracle Internet Directory \(OID\)](#)
- [Oracle Real Application Clusters](#)

Character Sets

The following section provides information on restrictions and updates to character sets.

Oracle9i NCHAR Datatypes

In Oracle9i release 2 (9.2.0.1.0), the SQL NCHAR datatypes are limited to the Unicode character set encoding (UTF8 and AL16UTF16). Alternative character sets such as the fixed-width Asian character set JA16SJISFIXED in Oracle8i are no longer supported.

To migrate existing NCHAR, NVARCHAR, and NCLOB columns, export and import NCHAR columns, complete the following steps:

1. Export all SQL NCHAR columns from Oracle8i.
2. Drop the SQL NCHAR columns.
3. Migrate the database to Oracle9i.
4. Import the SQL NCHAR columns in to Oracle9i.

AL24UTFFSS Character Set

Oracle9i release 2 (9.2.0.1.0) does not support the Unicode character set AL24UTFFSS introduced in Oracle7. This character set was based on the Unicode standard 1.1, which is now obsolete.

Oracle9i release 2 (9.2.0.1.0) supports the Unicode database character sets AL32UTF8 and UTF8. These database character sets include the Unicode enhancements based on the Unicode standard 3.0.

To migrate the existing AL24UTFFSS database, upgrade your database character set to UTF8 before upgrading to Oracle9i. Oracle Corporation recommends that you use the Character Set Scanner for data analysis before attempting to migrate your existing database character set.

Character Set Scanner

Set the LIBPATH variable to include the `$ORACLE_HOME/lib` directory before running the Character Set Scanner (csscan) from the `$ORACLE_HOME` directory. If you do not correctly set the LIBPATH variable, then the csscan utility will fail.

Demo Schema

If you select a multibyte character set or UTF as the national character set in Oracle9i release 2 (9.2.0.1.0), then you must recreate the demo schema and the database installation.

For more information on creating schemas, schema dependencies and requirements, refer to the `readme.txt` file in the `$ORACLE_HOME/demo/schema` directory.

Oracle Advanced Security

If you install `jsse.jar` and `jcert.jar` as extensions (located in `$JAVA_HOME/jre/lib/ext`), then you must also install `jssl-1_1.jar` in the same directory.

Oracle Internet Directory (OID)

Review the following information if you intend to install Oracle Internet Directory (OID).

Starting Up OID Server

By default, the OID server is started on port 389. If this port is unavailable, then OID server is started on a different port, which is logged in the following file:

`$ORACLE_HOME/ldap/install/oidca.out`

Custom Installation and Global Database Name

When performing a custom Oracle Internet Directory installation, do not change the global database name or the Oracle SID.

Upgrade from Enterprise Edition Oracle9i or Oracle8i

If you have installed in the same ORACLE_HOME either Oracle Internet Directory release 3.0.1.x and the complete release of Oracle9i (9.0.1) Enterprise Edition, or Oracle Internet Directory 2.1.1.x and the complete release of Oracle8i (8.1.7) Enterprise Edition, then you must first upgrade Oracle Internet Directory to the release 9.2.0.x.x version, and then upgrade as a separate step either Oracle9i Enterprise Edition release 1 (9.0.1) or Oracle8i release 3 (8.1.7) to Oracle9i Enterprise Edition release 2 (9.2.0.x.x).

See Also: *Oracle Internet Directory README* for more information on Oracle Internet Directory utilities, and necessary pre-upgrade and post-upgrade tasks.

Oracle Real Application Clusters

Review the following section if you will install Oracle Real Application Clusters.

Restrictions for Installing Real Application Clusters

If you are installing Oracle9i release 2 (9.2.0.1.0) Real Applications Clusters on a cluster that already contains an ORACLE_HOME for a previous release of Real Application Clusters, then you must run the Oracle Universal Installer from the cluster node with the oraInventory installation registry. Doing this ensures that product installation inventories are synchronized on the nodes with information about existing ORACLE_HOME directories.

Additional Preinstallation Requirements for Real Application Clusters

The following requirements are in addition to those documented in the installation guide.

- The user id (UID) of the oracle user needs to be less than 65536 for Real Application Cluster installs.
- You need to create the directory `/var/opt/oracle`. This directory path is required for the `srvConfig.loc` file, which the Installer creates during Real Application Clusters installation and configuration.

Real Application Clusters Custom Installation Requirements

Complete the following tasks if you install Oracle Real Application Clusters:

DRSYS Tablespace and Oracle Enterprise Manager If you plan to create an Oracle Enterprise Manager repository in an existing database, and you plan to use the DRSYS tablespace for the repository, then ensure that the DRSYS tablespace raw device data file has an additional 50 MB of free space. This is in addition to the 250 MB size documented for this raw device.

Real Application Clusters and Database Upgrade Assistant

If you use Database Upgrade Assistant to upgrade an earlier Oracle database version (the "source" database) to Oracle9i release 2 (9.2.0.1.0) (the "target" database), then the upgraded database will always use the server parameter file SPFILE by default to store `init.ora` file parameters. If the source database also uses SPFILE (either a cluster filesystem file or a shared raw device), then the upgraded target database also uses the same SPFILE.

If the source database does not use an SPFILE, then the target database uses a default server parameter file, `spfile.ora`, which is located in the `$ORACLE_HOME/dbs/` directory.

If your platform does not support a cluster file system, then you must move the SPFILE to a shared raw device, using the following procedure:

1. Create an SPFILE with the following commands:

```
$ sqlplus "/ as sysdba"
SQL> create pfile='?/dbs/initdbname.ora' from
spfile='?/dbs/spfile.ora';
SQL> create spfile='/dev/oracle_dg/dbname_spfile' from
pfile='?/dbs/initdbname.ora';
SQL> exit;
```

where `dbname` is the name of your cluster database.

2. Go to the `$ORACLE_HOME/dbs` directory using the following command:

```
$ cd $ORACLE_HOME/dbs
```

3. Create an `$ORACLE_HOME/dbs/initsid.ora` file, where `sid` is the system identifier of the instance on the node. The `initsid.ora` file must contain the following line:

```
SPFILE='/dev/oracle_dg/dbname_spfile'
```

4. Copy the `initsid.ora` file to the remote nodes on which the cluster database has an instance with the following commands:

```
$ rcp initsid.ora nodex:$ORACLE_HOME/dbs/initsidx.ora
```

where *sid*x is the system identifier of the instance on node x. Repeat the preceding `rcp` command for each member node of the cluster database.

5. Restart the cluster database with the following command syntax:

```
$ srvctl stop database -d dbname
$ srvctl start database -d dbname
```

Real Application Clusters and Database Configuration Assistant

The following section provides information on using Database Configuration Assistant (DBCA) to create a Real Application Clusters database.

Placing Datafiles On a Shared Non-OFA Cluster Configuration

If your `ORACLE_HOME` directory is not on a shared cluster filesystem partition, but you want to place datafiles, controlfiles, redo log files, or other database files on a shared cluster filesystem partition, then invoke DBCA using the following syntax to create the cluster database:

```
$ dbca -datafileDestination pathname
```

where *pathname* is the location where you want files to be placed.

For example, to place datafiles in the path `/ora/oradata`, give the following command:

```
$ dbca -datafileDestination /ora/oradata
```

Note: For optimal performance and data security, Oracle Corporation recommends that you configure your database in accordance with the Optimal Flexible Architecture (OFA) standard. For more information on OFA, refer to *Oracle9i Administrator's Reference for UNIX Systems*.

Real Application Clusters Instance Management

After you have created a cluster database using DBCA, SYSDBA privileges are revoked for all users. As SYSDBA, you must grant SYSDBA privileges explicitly to the database user account that you plan to use for adding or deleting an instance to or from the cluster database.

For example, to grant SYSDBA privileges to the administrative user SYS, issue the following commands:

```
$ sqlplus "/ as sysdba"
SQL> grant sysdba to sys;
SQL> exit;
```

Oracle Real Application Clusters and the IBM SP System

To ensure optimal performance of Oracle Real Application Clusters on an RS/6000 node cluster using IBM's SP (Scalable POWERparallel) System, follow IBM's tuning instructions, which are available at the following Web sites:

```
http://www.rs6000.ibm.com/support/sp/perf
http://www.ibm.com/servers/eserver/pseries/library/wp_clustering.html
```

Additional Parameter Configuration for Real Application Clusters

To run Oracle Real Application Clusters, you must increase the UDP send buffer size to at least 32k (32768 bytes). To do this, become root and enter the following command:

```
$ /etc no -udp_sendspace=32768
```

You must run this command after every system reboot. Review the current setting of the UDP send buffer size with the following command:

```
$ /etc/no -a|grep udp_sendspace
```

Post-Installation Issues

The following is a list of issues that can occur during post-installation:

Control File Size Limits

In addition to the database, a number of other Oracle features use control files to record metadata. The maximum size of control files is limited by the size of the minimum data block size that your operating system permits. On AIX, the minimum data block size is 2048 bytes, and the maximum size of control files is 10000 database blocks.

How to Determine Whether Segments or Tablespaces are Using Compression

The following section provides additional information about database management.

Segments and Compression Settings

To find out which database segments are using compression, log in to the database as the user SYS, and create the view `all_segs` with the following create or replace view statement:

```
SQL> create or replace view all_segs
      (owner, segment_name,
       partition_name, spare1
      as
select u.name, o.name, o.subname, s.spare1
from sys.user$ u, sys.obj$ o, sys.ts$ ts, sys.sys_objects so,
      sys.seg$ s, sys.file$ f
where s.file# = so.header_file
      and s.block# = so.header_block
      and s.ts# = so.ts_number
      and s.ts# = ts.ts#
      and s.ts# = so.object_id
      and o.owner# = u.user#
      and s.type# = so.object_type_id
      and s.ts# = f.ts#
      and s.file# = f.relfile#
union all
select u.name, un.name, NULLL, NULL
from sys.user$ u, sys.ts$ ts, sys.undo $ un, sys.seg$ s,
      sys.file$ f
where s.file# = un.file#
      and s.block# = un.block
      and s.ts# = un.ts#
      and s.ts# = ts.ts#
      and s.user# = u.user#
      and s.type# in (1, 10)
      and un.status$ != 1
      and un.ts# = f.ts#
      and un.file# = f.relfile#
union all
select u.name, to_char(f.file#)|| '.' || to_char(s.block#), NULL, NULL
from sys.user$ u, sys.ts$ ts, sys.seg$ s, sys.file$ f
where s.ts# = ts.ts#
      and s.user# = u.user#
      and s.type# not in (1, 5, 6, 8, 10)
      and s.ts# = f.ts#
      and s.file# = f.relfile#
/
```

After creating this view, you can issue queries against the view to find out whether a segment currently is compressed, as illustrated in the following examples:

- To determine if a segment is currently compressed, apply the following predicate in a query to the column `spare1`:

```
bitand(spare1, 2048) > 0
```

For example, to see if segments currently are compressed, issue a statement similar to the following:

```
SQL> select * from all_segs where bitand(spare1,2048) > 0;
```

- To determine if a segment contains any compressed blocks, apply the following predicate in a query:

```
bitand(spare1, 4096) > 0
```

For example, to see which segments contain any compressed blocks, issue a statement similar to the following:

```
SQL> select * from all_segs where bitand(spare1, 4096) > 0;
```

Tablespaces and Compression Settings

When you want to determine compression settings on a table space, log in as SYS, and create the view `compression_ts` with the following create or replace view statement:

```
SQL> create or replace view compression_ts (tablespace_name, flags) as
select ts.name, ts.flags from
sys.ts$ ts where ts.online$ !=3;
```

After creating this view, you can issue queries against it to find out the compression state of tablespaces, such as determining if a tablespace is currently set as `DEFAULT COMPRESS`, or `DEFAULT NOCOMPRESS`, as illustrated in the following examples:

- To determine if a tablespace is currently set as `DEFAULT COMPRESS`, use the following predicate:

```
bitand(flags, 64) > 0
```

For example, to see which tablespaces are currently `DEFAULT COMPRESS`, issue a statement similar to the following:

```
SQL> select * from compression_ts where bitand(flags, 64) > 0
```

- To determine if a tablespace is currently set as `DEFAULT NOCOMPRESS`, use the following predicate:

```
bitand(flags, 64) == 0
```

For example, to see which tablespaces are currently DEFAULT NOCOMPRESS, issue a statement similar to the following:

```
select * from compression_ts where bitand(flags, 64) == 0;
```

Known Bugs

The following is a list of known bugs that affect Oracle9i release 2 (9.2.0.1.0):

Network Failover for Real Application Clusters

Due to a problem with the IBM clustering software (IBM tracking number PMR 23819, 550), network failover is not supported for this release with Real Application Clusters using HACMP/ES CRM.

Error Installing OLAP CWMLITE Tablespace

During installation, if you select Online Analytic Processing (OLAP) services, perform multiple installations on the same system, and create new databases during these installations, then CWMLite may have an invalid OLAP CWMLITE tablespace registry. Oracle Corporation has assigned bug identification number 2359208 to track this problem.

To work around this problem, use the following procedure after you have completed installation:

1. Ensure that the database and the listener are running.
2. Using the following command, start SQL*Plus as the administrative user SYS:

```
sqlplus "/ as sysdba"
```

3. Using the following command, enable the display of text within the PL/SQL block:

```
SQL> set serveroutput on;
```

4. Using the following command, verify whether the OLAP CWMLITE tablespace is valid:

```
SQL> execute  
dbms_output.put_line(sys.dbms_registry.is_valid('AMD'));
```

If the preceding command returns 0, then the OLAP CWMLITE tablespace is invalid. Go to step 5.

If the preceding command returns 1, then the OLAP CWMLITE tablespace is valid, and no further testing needs to be done.

5. If the OLAP CWMLITE tablespace is invalid, turn on echoing with the following command:

```
SQL> execute cwm2_olap_manager.Set_Echo_on;
```

6. Validate the OLAP CWMLITE tablespace with the following command:

```
SQL> execute cwm2_olap_installer.Validate_CWM2_Install;
```

After entering the preceding command, the OLAP CWMLITE registry is validated. During this process, screen messages list database objects such as Dimension, Dimension Attribute, and Level, and where these objects are created.

7. When the output stops, enter the following command to verify that the OLAP CWMLITE registry is now valid:

```
SQL> execute  
dbms_output.put_line(sys.dbms_registry.is_valid('AMD'));
```

If the preceding command returns 0, then the OLAP CWMLITE registry is still invalid. Review your installation logs for other errors.

If the preceding command returns 1, then the OLAP CWMLITE tablespace is valid, and no further testing needs to be done.

