Oracle® Communications Data Model

Installation Guide

11*g* Release 2 (11.2)

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Oracle Communications Data Model Installation Guide, 11*g* Release 2 (11.2)

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Preface

The *Oracle Communications Data Model Installation Guide* describes how to install and configure Oracle Communications Data Model.

Audience

This guide is intended for anyone responsible for installing Oracle Communications Data Model on a supported operating system platform.

Installation of Oracle Communications Data Model requires basic knowledge of Oracle Database, Oracle OLAP, Oracle Data Mining, Oracle Warehouse Builder, and Oracle Business Intelligence Suite Enterprise Edition.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc`.

Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info` or visit `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs` if you are hearing impaired.

Related Documents

For more information about Oracle Communications Data Model, see the following documents in the Oracle Communications Data Model documentation se

- *Oracle Communications Data Model Operations Guide*
- *Oracle Communications Data Model Reference*
- *Oracle Communications Data Model Release Notes*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Hardware and Software Requirements

This chapter describes the hardware and software requirements of Oracle Communications Data Model:

- Supported Platforms
- Hardware Requirements
- Software Requirements

Before you install Oracle Communications Data Model, you must verify that all hardware and software requirements are met.

Supported Platforms

Oracle Communications Data Model 11*g* Release 2 (11.2) is supported on the following platforms. For each platform, the given operating system version or later versions are required:

- Linux *x*86
  - Oracle Linux 4 Update 7
  - Oracle Linux 5 Update 2
  - Red Hat Enterprise Linux 4 Update 7
  - Red Hat Enterprise Linux 5 Update 2
- Linux *x*86-64
  - Oracle Linux 4 Update 7
  - Oracle Linux 5 Update 2
  - Red Hat Enterprise Linux 4 Update 7
  - Red Hat Enterprise Linux 5 Update 2
- Solaris SPARC (64-bit)
  - Solaris 10 U6 (5.10-2008.10)
- AIX 5L Based Systems (64-bit)
  - AIX 5L V5.3 TL 09 SP1 ("5300-09-01"), 64 bit kernel
  - AIX 6.1 TL 02 SP1 ("6100-02-01"), 64-bit kernel

Note: There are special considerations when installing Oracle Communications Data Model on AIX, see "AIX Platform: Changing the Database Parameter" on page 3-5,

- HP-UX Itanium
  - HP-UX 11i V3 patch Bundle Sep/ 2008 (B.11.31.0809.326a) or higher

Hardware Requirements

The Oracle Database installation guide for your platform includes procedures for checking that your installation meets the hardware and operating system requirements for Oracle Database.

Additionally, for a complete installation of Oracle Communications Data Model, the minimum hardware requirement is disk space of at least 10 GB.

Software Requirements

The minimum software requirements for Oracle Communications Data Model are as follows:

- Operating System: For details of supported platforms, see "Supported Platforms" on page 1-1.
- Oracle Database 11*g* Release 2 Enterprise Edition, including the options specified in "Oracle Database Requirements" on page 1-3.
- Oracle Warehouse Builder. See "Oracle Warehouse Builder" on page 1-3. (Oracle Warehouse Builder is required to use the ETL supplied with Oracle Communications Data Model.)
- Oracle Business Intelligence Suite Enterprise Edition 11.1.1.5 or higher. See "Oracle Business Intelligence Suite Enterprise Edition" on page 1-3 (this is Optional for Oracle Communications Data Model component installation and required for the sample reports installation).
- Oracle Data Integrator Enterprise Edition 11*g* (11.1.1.5.0 or higher). See "Oracle Data Integrator Enterprise Edition" on page 1-3 (this is optional for Oracle Communications Data Model component installation and required for the Application Adapters installation).
- Oracle GoldenGate 11*g* (11.1.1.1 or higher) See "Oracle GoldenGate" on page 1-4 (this is optional for Oracle Communications Data Model component installation and optional for the NCC Adapters installation, depending on whether you are using real-time feed with the NCC Adapter).

Note: The recommended patches and software versions are accurate as of product release. For latest recommendations for database and Oracle OLAP for supported platforms, see `http://www.oracle.com/technology/products/bi/olap/collateral/olap_certification.html`.

Oracle Database Requirements

Oracle Communications Data Model requires Oracle Database 11*g* Release 2 Enterprise Edition.

> **Tip:** When you install the Database ensure that the database character set is Unicode (AL32UTF8) to support multi-language installations since Oracle Communications Data Model permits the installation of support for English and one other language.

Installation of the Oracle Communications Data Model component requires the following options to the Database:

- Oracle Partitioning
- Oracle Online Analytical Processing (OLAP)
- Oracle Data Mining

> **Tip:** To confirm that you have Oracle Data Mining and OLAP options installed, follow the instructions outlined in "Confirming that Oracle Data Mining and OLAP Options are Installed" on page 3-2.

After you download and install the Database, upgrade to the latest patch. Patches are available from My Oracle Support (`http://metalink.oracle.com`).

Oracle Warehouse Builder

Oracle Communications Data Model requires the version of Oracle Warehouse Builder that comes as with Oracle Database 11*g* Release 2 Enterprise Edition. The ETL provided with Oracle Communications Data Model uses Oracle Warehouse Builder. For instructions on installing and configuring Oracle Warehouse Builder, see *Oracle Warehouse Builder Installation and Administration Guide for Windows and Linux*.

> **Tip:** To confirm that you have Oracle Warehouse Builder installed, follow the instructions outlined in "Confirming that the OWBSYS Schema Exists" on page 3-2.

Oracle Business Intelligence Suite Enterprise Edition

You must have the Oracle Business Intelligence Suite Enterprise Edition installed before you install the Oracle Communications Data Model sample reports. (Oracle Business Intelligence Suite Enterprise Edition is not required for the installation of the Oracle Communications Data Model component.)

Oracle Business Intelligence Suite Enterprise Edition 11.1.1.5 or higher can be downloaded from the "Oracle Business Intelligence 11g downloads" link on Oracle Technology Network at:

`http://www.oracle.com/technetwork/middleware/bi-enterprise-edition/downloads/index.html`

Installation instructions are included in the documentation.

Oracle Data Integrator Enterprise Edition

If you install Application Adapters, you must also install Oracle Data Integrator Enterprise Edition. Oracle Data Integrator Enterprise Edition 11*g* (11.1.1.5.0) can be downloaded from Oracle Technology Network at:

http://www.oracle.com/technetwork/middleware/data-integrator/downloads/index.html

Installation instructions are included in the documentation. For more information, see

http://www.oracle.com/technetwork/middleware/data-integrator/documentation/index.html

For more information on Oracle Communications Data Model Adapters, see *Oracle Communications Data Model Operations Guide*.

Oracle GoldenGate

If you install Application Adapters, using, installing, and configuring Oracle GoldenGate is optional depending on whether you want to use real-time feeds.

Oracle GoldenGate 11*g* (11.1.1.1.0) can be downloaded from Oracle Technology Network at:

http://www.oracle.com/technetwork/middleware/goldengate/downloads/index.html

Installation instructions are included in the documentation. For more information, see

http://www.oracle.com/technetwork/middleware/goldengate/documentation/index.html

For more information on Oracle Communications Data Model Adapters, see *Oracle Communications Data Model Operations Guide*.

2

Introduction to Oracle Communications Data Model Installation

This chapter describes how to install Oracle Communications Data Model and other components you use to create a Oracle Communications Data Model data warehouse:

- Types of Installations Provided for Oracle Communications Data Model
- Overview of the Installation Process

Types of Installations Provided for Oracle Communications Data Model

Using the Oracle Universal Installer you can perform two types of Oracle Communications Data Model installation:

- Installation of the Oracle Communications Data Model component, itself. You *must* install this component to create an Oracle Communications Data Model data warehouse.
- Installation of sample reports (and schemas) that you can use for ideas about how to design your own reports. Installing the sample reports is optional.

> **Note:** The reports and dashboards that are used in examples and delivered with Oracle Communications Data Model are provided only for demonstration purposes. They are not supported by Oracle.

- Installation of the Oracle Communications Data Model Application Adapters.

Different items are installed depending on whether you install the database objects, the sample reports and schemas, or the adapters.

Communications Data Model Installation

When you perform a **Communications Data Model** installation of Oracle Communications Data Model, the Oracle Universal Installer installs the Oracle Communications Data Model component without data. Specifically, the installer creates the following schemas in the target database:

- `ocdm_sys` which is the main schema for Oracle Communications Data Model. This schema contains all the relational and OLAP components of Oracle Communications Data Model, including the Oracle Communications Data Model data mining results tables.

- `ocdm_mining` which is the data mining schema of Oracle Communications Data Model. This schema contains all the mining components of Oracle Communications Data Model *except* the data mining results tables.

  See: For detailed information about all created objects in the OCDM_SYS and OCDM_MINING schemas, see the *Oracle Communications Data Model Reference*.

There is no data in these two schemas. You need to populate data into the schema.

Sample Reports Installation

When you perform a **Sample Reports** installation of the Oracle Communications Data Model, the installer creates the Oracle Communications Data Model sample schema in the target database and copies and configures all the sample reports to your OBIEE server. Specifically, the installer installs:

- The following files that provide the data for the sample reports:
  - `ocdm_sample.dmp.zip` which is a dump file of the schemas that contain the sample data for the relational and data mining components of Oracle Communications Data Model.

    Tip: The default user name for the schema is `ocdm_sample`.

  - `ocdm_sample.eif` which is a dump file containing sample data for the Oracle Communications Data Model analytic workspace (that is, the OLAP cubes).
- The following files that define and create the sample reports:
  - `ocdm.rpd`
  - `ocdmwebcat.zip`

Application Adapters Installation

When you perform an **Application Adapters** installation, the installer creates the adapter schema in the target database and adds the adapter related files to Oracle Communications Data Model home directory.

Note: To complete the installation and configuration with the NCC Adapter and **Application Adapters** type installation, you need to perform additional steps after running the installer, as described in Appendix A, "NCC Adapter Installation and Configuration".

The NCC Adapter that is installed with the Application Adapters type installation feeds pre-paid billing data from the Oracle Communications Network Charging and Control application to the Oracle Communications Data Model. The NCC Adapter includes an option to feed data in real-time using Oracle GoldenGate to the Oracle Communications Data Model staging layer, or to extract, load and transform the data in batch mode.

Specifically, the installer creates and installs:

- `adapters` directory and files which contains the Application Adapters files required for Oracle Communications Network Charging and Control Adapter for Oracle Communications Data Model.

Oracle Communications Data Model Home Directory Structure

The installation image contains the following directories under *ORACLE_HOME*/ocdm:

- adapters: which contains the Application Adapters files required for Oracle Communications Network Charging and Control Adapter for Oracle Communications Data Model installation (placed in the ncc directory).
- report: which contains the sample report files required for Oracle Communications Data Model installation.
- pdm: which contains the physical schema dump, creation script, and lookup value population as listed in the following table.

Subdirectory	Description
relational	Relational schema installation scripts and relational related files
relational/calendar	Calendar data population package
relational/ddl	Relational schema installation scripts
relational/intra_etl	Intra-ETL Oracle Warehouse Builder dump and related files
relational/lookup_value	Lookup data population script
relational/sample_schema	Physical sample schema
mining	Data mining scripts and related files
olap	OLAP scripts and related files

Overview of the Installation Process

Installation of Oracle Communications Data Model requires the following tasks:

1. Read *Oracle Communications Data Model Release Notes* to identify any last minute changes.
2. Verify that your system is one of the supported platforms and that it satisfies the hardware and software requirements as described in Chapter 1, "Hardware and Software Requirements."
3. Identify and perform any necessary pre-installation tasks, as described in "Pre-installation Tasks" on page 3-1.
4. Install the Oracle Communications Data Model component, the Oracle Communications Data Model sample reports, or Application Adapters as described in "Installer Execution" on page 3-5.

   Tip: you can also perform a silent installation, see "Silent Installation" on page 3-9 for more information.

5. Identify and perform any necessary post-installation tasks, as described in "Post-Installation Tasks" on page 3-11.
6. Install the additional components that you need to create an Oracle Communications Data Model data warehouse or run the sample reports, as described in Chapter 4, "Installation of Additional Components."

Note 1: To deinstall Oracle Communications Data Model, you do *not* simply run the Oracle Universal Installer in deinstall mode. To deinstall Oracle Communications Data Model, follow the directions in Chapter 5, "Backup, Recovery, and Deinstallation of Oracle Communications Data Model."

Note 2: You *must* deinstall Oracle Communications Data Model before you re-install it over an existing version of Oracle Communications Data Model.

3

Installation of Oracle Communications Data Model

This chapter describes how to install Oracle Communications Data Model:

- Pre-installation Tasks
- Installer Execution
- Silent Installation
- Post-Installation Tasks

Pre-installation Tasks

Before you install the Oracle Communications Data Model, perform the following tasks:

- Back up the Oracle Database.
- Ensure that the software required for Oracle Communications Data Model is installed, as described in "Ensuring that Required Software is Installed" on page 3-1.
- Set the maximum processes initialization parameter, as described in "Changing the Default Value for the Maximum Processes Initialization Parameter" on page 3-3.
- Increase the maximum number of data files, as described in "Changing the Maximum Data Files Option" on page 3-3.
- If you are using the Database Vault Option, disable the option, as described in"Disabling the Data Vault Option on the Database" on page 3-4.
- If you are installing Oracle Communications Data Model on one of the AIX platforms listed in "Supported Platforms" on page 1-1, change an Oracle Database parameter as described in "AIX Platform: Changing the Database Parameter" on page 3-5.
- Ensure that the tnsnames.ora file includes a value for SERVICE_NAME, as described in "Ensuring That a Value is Set for the Service Name" on page 3-5.

Ensuring that Required Software is Installed

As discussed in "Software Requirements" on page 1-2, you must have certain software installed before you can successfully install the Oracle Communications Data Model component or the Oracle Communications Data Model sample data and reports.

Take the following steps to ensure that for each type of installation, the required software is installed:

- Before you install Oracle Communications Data Model:
  - Confirm that the required Database options are installed by following the steps outlined in "Confirming that Oracle Data Mining and OLAP Options are Installed" on page 3-2.
  - Confirm that Oracle Warehouse Builder is installed by following the steps outlined in "Confirming that the OWBSYS Schema Exists" on page 3-2.
- Before you install the sample data and reports for Oracle Communications Data Model, confirm that Oracle Business Intelligence Suite Enterprise Edition is installed as described in "Confirming that Oracle Business Intelligence Suite Enterprise Edition is Installed" on page 3-2.

Confirming that Oracle Data Mining and OLAP Options are Installed

To check that the Oracle Data Mining and OLAP options are installed, log in as SYS and enter the following SQL queries:

```
SELECT VALUE FROM V$OPTION WHERE PARAMETER ='Data Mining';
SELECT VALUE FROM V$OPTION WHERE PARAMETER ='OLAP';
```

If these queries return `TRUE`, the options are installed.

Confirming that the OWBSYS Schema Exists

To check that OWBSYS schema exists, log in to the Database as DBA and issue the following statements:

```
SELECT COUNT(*) FROM DBA_USERS WHERE USERNAME='OWBSYS';
```

If this query returns a value larger than zero (0), OWBSYS schema exists.

If the OWBSYS schema does not exist, take the following steps:

1. Go to the `$ORACLE_HOME/owb/UnifiedRepos` directory.
2. Login to the Database as SYSDBA.
3. Execute the following SQL statement.

   ```
   @cat_owb.sql
   ```

4. When prompted to enter a tablespace name, input `USERS`

Confirming that Oracle Business Intelligence Suite Enterprise Edition is Installed

To test that Oracle Business Intelligence Suite Enterprise Edition is installed, open the following link in a browser. (Note that the 9704 value in the link is the value of the default Oracle Business Intelligence Suite Enterprise Edition port; if you specified a different port when you installed Oracle Business Intelligence Suite Enterprise Edition, use the value for that port.)

```
http://hostname:9704/analytics
```

The sample Oracle Business Intelligence Suite Enterprise Edition login window is displayed.

If Oracle Business Intelligence Suite Enterprise Edition is not installed, see "Oracle Business Intelligence Suite Enterprise Edition" on page 1-3.

Changing the Default Value for the Maximum Processes Initialization Parameter

Oracle Communications Data Model requires that the initial value for the PROCESSES initialization parameter be set to a value greater than the default database installation value.

How to determine the current value for the PROCESSES parameter

To determine the current value for the maximum processes parameter, log in as DB with DBA account, and then execute the following SQL statement:

```
show parameter processes;
```

How to change the value for the maximum processes

To change the value for the maximum processes, issue the following statements. Depending on your database options, the value specified for processes should be set to a minimum value greater than or equal to 250.

```
alter system set processes=250 scope=spfile;
shutdown immediate
startup
```

Changing the Maximum Data Files Option

Oracle Communications Data Model supports the partition of transaction-related fact tables according to your data volume estimation. You can specify the start year, end year and then the transaction related fact tables are partitioned by the date as one partition for each month.

In order to support the partition of transaction-related fact tables, you might need a different value for the maximum number of data files that is presently specified for the Database.

How to determine the value for maximum number of data files

Use the following formula to determine the value that you need for the maximum number of data files:

```
Maximum Datafiles = Default Value + 300 + ((End year) - (Start year) + 1) * 12
```

How to determine the current value for the maximum number of data files

To determine the current value for the maximum number of data files, log in as DB with DBA account, and then execute the following SQL statement.

```
show parameter db_files
```

In the results for this statement, the `value` column shows the current maximum number of data files.

How to change the value for the maximum number of data files

To change the value for the maximum number of data files, issue the following statements where *`new_number`* is the new value that you want to specify.

```
alter system set db_files = new_number scope = spfile;
shutdown immediate
startup
```

Disabling the Data Vault Option on the Database

The Oracle Communications Data Model installer requires additional steps on a Vault-enabled database. For an Oracle Database with the Vault option on, take the following steps to disable the Vault option before you install Oracle Communications Data Model.

To find out if the Oracle Database is Vault-enabled, do the following:

```
SELECT * FROM V$OPTION WHERE PARAMETER = 'Oracle Database Vault';
```

If this command returns true, then the Vault option is enabled.

To disable the Vault option, do the following:

1. On Unix systems, ensure that the environment variables, ORACLE_HOME, ORACLE_SID, and PATH are correctly set.
2. Log in to SQL*Plus as user SYS with the SYSOPER privilege.
3. Shut down the Database.
4. From the command line, stop the Database Control console process and the listener. For example:

   ```
   sqlplus sys as sysoper
   Enter password: password
   SQL> SHUTDOWN IMMEDIATE
   SQL> EXIT
   $ emctl stop dbconsole
   $ lsnrctl stop listener_name
   ```

   For Oracle RAC installations, shut down each database instance as follows:

   ```
   $ srvctl stop database -d db_name
   ```

5. Disable the Oracle Database Vault option with the following commands (this is a UNIX system example):

   ```
   cd $ORACLE_HOME/rdbms/lib
   make -f ins_rdbms.mk dv_off
   cd $ORACLE_HOME/bin
   relink all
   ```

   For Oracle RAC installations, run these commands on all nodes.

6. Startup the Database, Database Control console process, and listener. For example, on UNIX, Log in to SQL*Plus as user SYS with the SYSOPER privilege and restart the database. Then from the command line, restart the Database Control console process and listener. For example:

   ```
   sqlplus sys as sysoper
   Enter password: password
   SQL> STARTUP
   SQL> EXIT
   $ emctl start dbconsole
   $ lsnrctl start listener_name
   ```

   For Oracle RAC installations, restart each database instance as follows:

   ```
   $ srvctl start database -d db_name
   ```

Once you have installed Oracle Communications Data Model, you re-enable the Vault, as described in "Re-Enabling the Vault Option on the Database" on page 3-13.

AIX Platform: Changing the Database Parameter

If you are installing Oracle Communications Data Model on AIX, apply the following Oracle Database parameter change:

1. Login to the Database with DBA account.
2. Execute the following statement:

```
alter system set "_olap_parallel_update_small_threshold"=2147483647
scope=spfile;
```

3. Restart the Database.

Ensuring That a Value is Set for the Service Name

Ensure that in tnsname.ora, the service name is provided. To do this, perform the following steps:

1. Go to the directory: `$ORACLE_HOME/network/admin`.
2. Edit tnsnames.ora to make sure the "SERVICE_NAME" value is provided. For example:

```
orcl11g =
(DESCRIPTION =
(ADDRESS = (PROTOCOL = TCP)(HOST = server1.us.oracle.com)(PORT = 1521))
(CONNECT_DATA =
(SERVER = DEDICATED)
(SERVICE_NAME = orcl)
)
)
```

Installer Execution

Before you install Oracle Communications Data Model, perform the necessary pre-installation tasks described in "Pre-installation Tasks" on page 3-1.

Note: You must install Oracle Communications Data Model on the "localhost" where the database server is located. You can determine the value of your "localhost" by issuing the following command where *db-name* is the name of your Oracle database.

```
tnsname db-name
```

Follow these steps to install Oracle Communications Data Model:

1. Log in using the user id that you plan to use to run the installation. You should use the same user id to install Oracle Communications Data Model as used to install the Oracle Database and Oracle Business Intelligence Suite Enterprise Edition.
2. Set the ORACLE_HOME environment variable to the location of the Database on which to install Oracle Communications Data Model.

   For example, suppose that Oracle Home is in the directory `/loc/app/oracle/product/11.2.4/`

   In a Bourne, Bash, or Korn shell, use these commands to set ORACLE_HOME:

```
$ ORACLE_HOME=/loc/app/oracle/product/11.2.4/
```

```
$ export ORACLE_HOME
```

In a C shell, use this command to set ORACLE_HOME

```
% setenv ORACLE_HOME /loc/app/oracle/product/11.2.4/
```

3. Start the installer from the directory that contains the Oracle Communications Data Model installation files:

```
cd directory-containing-OCDM_installation-files
./runInstaller
```

4. The **Welcome** page is displayed. Click **Next**.
5. In the **Select Installation Type** page, select the type of Oracle Communications Data Model installation that you want to perform:
   - If you want to install the Oracle Communications Data Model component, select **Communications Data Model**. Making this selection performs the installation described in "Communications Data Model Installation" on page 2-1.
   - If you want to install the Oracle Communications Data Model sample reports and sample data, select **Sample Reports**. Making this selection performs the installation described in "Sample Reports Installation" on page 2-2.
   - If you want to install the Oracle Communications Data Model Adapters, select **Application Adapters**. Making this selection performs the installation described in "Application Adapters Installation" on page 2-2.

   Oracle Communications Data Model supports English and 9 other languages. To add support for one language in addition to English, click **Product Languages** and select the language.

   Click **Next**.
6. In the **Specify Home Details** page, verify that the **Name** and **Path** correspond to the Database in which you want to install Oracle Communications Data Model. You can click **Browse** to navigate to any valid local data file path.

   Click **Next**.
7. In the **Product-Specific Prerequisite Checks** page, if one or more items are flagged, manually verify that your environment meets the minimum requirements. For details about performing this manual verification, click the flagged item and review the details in the box at the bottom of the page.

   When the status of all items are checked as **Succeeded**, click **Next**.
8. In the **Specify Database Connection Information** page, provide the following information:
   - Select the **Net Service Name** which is the alias used for a connect descriptor to connect to the Oracle Database where Oracle Communications Data Model will be installed.

     Tip: A net service name is a simple name for a service that resolves to a connect descriptor. Net service names are populated from the *OracleHome*`/network/admin/tnsnames.ora` file.

   - Enter the **Password for SYSTEM user** of the Oracle Database where Oracle Communications Data Model will be installed.

Click **Next**.

9. The **Specify Real Time Feed Information** page shows in the **Application Adapters** install type. Use this page to choose whether you want to use a real-time feed with Oracle GoldenGate.

   If you select **Yes**, then you also need to specify the Oracle GoldenGate staging details.

   With **Staging on Other** selected, enter:

   - **Source (Remote) Host Name**: Specify the host name for the source machine where Oracle GoldenGate is installed. This is the remote host name.
   - **Source (Remote) Port Number**: Specify the port number of Oracle GoldenGate manager port (for the source machine), on which Oracle GoldenGate manager is configured and running. This is port number of the remote host.
   - **Other (Remote) Host Name**: Provide the host name for the target machine where Oracle GoldenGate is installed. This is a remote host name other than the system the where Oracle Communications Data Model is installed.
   - **Other (Remote) Port Number**: Provide the port number for the target machine where Oracle GoldenGate is installed. This is a remote port number on a system other than the system the where Oracle Communications Data Model is installed.

   With **Staging on Targe**t selected, enter:

   - **Source (Remote) Host Name**: Specify the host name for the source machine where Oracle GoldenGate is installed. This is the remote host name.
   - **Source (Remote) Port Number**: Specify the port number of Oracle GoldenGate manager port (for the source machine), on which Oracle GoldenGate manager is configured and running. This is port number of the remote host.
   - **Target (Local) Host Name**: This is the local host where Oracle Communications Data Model is being installed. The value is pre-populated and is a non-editable field.
   - **Target (Local) Port Number**: Provide the port number of Oracle GoldenGate manager port, on which Oracle GoldenGate manager is configured and running. This is the port number of the local host where Oracle GoldenGate manager is running and Oracle Communications Data Model is being installed.

   Click **Next**.

10. The **Specify OCDM Schema Information** page shows when you select to install the component, **Communications Data Model**. In this dialog specify where all of the data files that correspond to the Oracle Communications Data Model tablespace should reside:

    - If you do *not* want to use the Automatic Storage Management (ASM) feature in Oracle Database, but instead want to explicitly specify a folder name, select **File System** and enter a folder name. You can click **Browse** to navigate to any valid local data file path.

      Click **Next**.

    - If you have stored your Oracle database files using the Automatic Storage Management (ASM) feature, and you also want store Oracle Communications

Data Model data files using ASM, select **Automatic Storage Management (ASM)**.

Click **Next**.

In the **Select ASM Disk Group** page, select the disk group in which you want to install the Oracle Communications Data Model data files.

Click **Next**.

11. The **Specify OCDM Sample Schema Information** page shows when you select to install the **Sample Reports**. In this dialog you specify where all of the data files that correspond to the Oracle Communications Data Model sample schemas should reside:

    - If you do *not* want to use the Automatic Storage Management (ASM) feature in Oracle Database, but instead want to explicitly specify a folder name, select **File System** and enter a folder name. You can click **Browse** to navigate to any valid local data file path.

      Click **Next**.

    - If you have stored your Oracle database files using the Automatic Storage Management (ASM) feature, and you also want store Oracle Communications Data Model data files using ASM, select **Automatic Storage Management (ASM)**.

      Click **Next**.

      In the **Select ASM Disk Group** page, select the disk group in which you want to install the Oracle Communications Data Model data files.

      Click **Next**. When you install the sample reports, the next page shows the installer Summary that summarizes the information that you specified, as shown in step 15.

12. In the **Specify Calendar Date Range** page, specify the calendar date range by providing values for **Start Date** and **Number of Years**. The installer uses this information to populate the calendar data. A recommended **Number of Years** value is 15 years. Specifying larger **Number of Years** values proportionally increases the time it takes to implement the partitioning portion of Oracle Communications Data Model install activity. The start year specified with **Start Date** should be the lowest possible dates from your historical data load (lowest possible CDR date typically). There is no easy method to incrementally extend the time dimension, so your initial choice for **Number of Years** should be specified to meet your needs for a reasonably long time.

    Start Date must be in the format `YYYY-MM-DD`; for example, 2011-01-01 stands for January 1, 2011. **Number of Years** must be a whole number.

    > **Note:** These calendar dates have nothing to do with the number of years you will effectively keep the data. The calendar as such is totally independent of the Information Lifecycle Management process you may use.

    Click **Next**.

13. In the **Specify Partitions for reference and base tables** page, specify the number of Second Level hash partitions for each entity, Organization, Company, Access Method, Account, and Contract. Specify a value for each field. If you enter an

invalid value the installer shows a dialog displaying the valid values. For each value you specify, you should choose a value that is a power of 2 (for example: 4, 8, 16, 32, 64 and so on).

Click **Next**.

14. In the **Specify Adapter Information** page, which shows in the **Application Adapter** install type, select the application adapter name, either **Billing and Revenue Management System** (**BRM**) or **Network Charging Control** (**NCC**).

    Click **Next**.

15. The installer summarizes the information that you specified. Check that this information is correct. If necessary, click **Back** to return to previous screens and make corrections. When you are satisfied with the information, click **Install**.

16. The Oracle Communications Data Model component or sample reports are installed. If there are any problems, messages are displayed. After the installation finishes, the end of installation screen appears. Click **Exit** to end the installer.

After you exit the installer, perform any necessary post-installation tasks described in "Post-Installation Tasks" on page 3-11. Then install the other components that you need to create an Oracle Communications Data Model warehouse, as described in Chapter 4, "Installation of Additional Components."

Silent Installation

A silent installation has no graphical output and no input by the user. It is accomplished by supplying Oracle Universal Installer with a response file and specifying the `-silent` flag on the command line. Use silent installation when you want the same installation parameter on more than one computer.

Selecting a Response File

Before performing a silent installation, you must provide information specific to your installation in a response file. The installer will fail if you attempt an installation using a response file that is not configured correctly. Response files are text files that you can create or edit in a text editor. The response file (`cdm.rsp`) is located in the `/response` directory in the directory that contains the Oracle Communications Data Model installation files. Edit the response file according to your requirements for silent installation. To use a response file, first copy it to your system.

Note: You must install Oracle Communications Data Model on the "localhost" where the database server is located. You can determine the value of your "localhost" by issuing the following command where *db-name* is the name of your Oracle database.

```
tnsname db-name
```

Editing the Response File

Use any text editor to edit the response file to include information specific to your system. You must specify values for variables in your response file. Each variable listed in the response file is associated with a comment, which identifies the variable type. For example:

```
string = "Sample Value"
Boolean = True or False
```

```
Number = 1000
StringList = {"StringValue 1", "String Value 2"}
```

The values that are given as <*Value* Required> must be specified for silent installation. Remove the comment from the variable values in the response file before starting the Oracle Communications Data Model installation.

Specifying a Response File and Starting the Installation

Before you specify a response file, ensure that all values in the response file are correct. To make Oracle Universal Installer use the response file at installation time, specify the location of the response file as a parameter when starting Oracle Universal Installer. To perform a silent installation, use the `-silent` parameter as follows:

```
./runInstaller -silent -responseFile absolute_path_and_filename
```

Caution: During installation, response files may be copied to subdirectories in the Oracle home. If you have provided passwords or other sensitive information in your response files, then for security purposes you should delete them after completing and verifying the installation.

Silent Installation Log Files

The success or failure of silent installations is logged in the `installActions.log` file. Additionally, the silent installation creates the `silentInstall.log` file. The log files are created in the `/oraInventory/logs` directory. The `silentInstall`*`Date_Time`*`.log` file contains the following line if the installation was successful:

```
The installation of Oracle Communications Data Model was successful.
```

The corresponding `installActions`*`Date_Time`*`.log` file contains specific information regarding installation.

Security Tips for Silent Installations

The response file contains the installation password in clear text. To minimize security issues, follow these guidelines:

- Set the permissions on the response files so that they are readable only by the operating system user performing the silent installation.
- If possible, remove the response files from the system after the silent installation is completed.

Error Handling

Values for variables that are of the wrong context, format, or type are treated as if no value were specified. Variables that are outside any section are ignored. If you attempt a silent installation with an incorrect or incomplete response file, or if Oracle Universal Installer encounters an error, such as insufficient disk space, then the installation will fail.

Post-Installation Tasks

Once you have executed the Installer take the following steps to perform post-installation steps, cleanup, and configuration:

1. After you install Oracle Communications Data Model, obtain the IP Patch. The IP Patch includes additional documentation. To obtain the IP Patch and for the latest information about Oracle Communications Data Model patch sets, go to My Oracle Support at `https://support.oracle.com`.
2. Unlock the OCDM_SYS and OCDM_MINING accounts, as described in "Unlocking the OCDM_SYS and OCDM_MINING Accounts" on page 3-11.
3. If you installed the Oracle Communications Data Model sample reports, unlock the OCDM_SAMPLE account, as described in "Unlocking the OCDM_SAMPLE Account" on page 3-12.
4. If you installed the Oracle Communications Data Model sample reports, then recompile the OLAP Views, as described in "Recompiling OLAP Views" on page 3-12.
5. If you installed the Oracle Communications Data Model sample reports and you do not want users to make changes to the schemas, grant only select privileges to those users as described in "Limiting User Privileges When You have Installed the Sample Reports" on page 3-12.
6. Assign Grants to OCDM_MINING, as described in "Assigning Grants to OCDM_MINING" on page 3-12.
7. Configure the OLAP working environment, as described in "Configuring the Working OLAP Environment" on page 3-13.
8. If you want to use the Database Vault Option and disabled it before installation re-enable the options, as described in "Re-Enabling the Vault Option on the Database" on page 3-13.
9. Ensure that the Oracle Communications Data Model objects are valid, as described in "Ensuring That Oracle Communications Data Model Objects Are Valid" on page 3-14.
10. If necessary, change the values specified for PGA_AGGREGATE_TARGET and WORKAREA_SIZE_POLICY, as described in"Ensuring That PGA_AGGREGATE_TARGET is Set to the Proper Value" on page 3-14.
11. If you installed the Oracle Communications Data Model sample reports, install the BIEE 11g rpd and WebCat, as described in "Installing RPD and WebCat for Business Intelligence Suite Enterprise Edition" on page 3-15.
12. If you installed Application Adapters, perform the additional installation and configuration steps as described in Appendix A, "NCC Adapter Installation and Configuration" to complete the installation and configuration of the NCC Adapter.

After performing these tasks, install the other components that you need to create an Oracle Communications Data Model warehouse, as described in Chapter 4, "Installation of Additional Components."

Unlocking the OCDM_SYS and OCDM_MINING Accounts

At the end of the installation, the OCDM_SYS and OCDM_MINING accounts are locked. To unlock these accounts:

1. Log in the Database with a DBA id and password.

Note: The password is case sensitive.

2. Unlock the accounts by issuing the following SQL statements.

```
alter user ocdm_sys account unlock;
alter user ocdm_mining account unlock;
```

Unlocking the OCDM_SAMPLE Account

At the end of the installation of the Oracle Communications Data Model sample reports, the OCDM_SAMPLE account is locked. To unlock this account:

1. Log in the Database with a DBA id and password.

Note: The password is case sensitive.

2. Unlock the account by issuing the following SQL statement.

```
alter user ocdm_sample account unlock identified by <password>;
```

Recompiling OLAP Views

After you unlock the ocdm_sample account, login with this account and execute the following statements to recompile the OLAP views in the sample schema:

```
ALTER VIEW CUST_RVN_VIEW_OLAPC COMPILE;
ALTER VIEW CUST_RVN_VIEW_FIN COMPILE;
```

Limiting User Privileges When You have Installed the Sample Reports

By default, when you perform a Sample Reports type of Oracle Communications Data Model installation, the sample reports connect to OCDM_SYS schema directly. For security reason, you may want to grant only select privileges to users who will be working with these reports. To grant only select privileges, take the following steps:

1. Create a dedicated reporting user (for example, OCDM_Report).
2. Grant select privilege for all Oracle Communications Data Model tables required for reporting to the user you created in Step 1. The easy way is to grant the select privilege for all Oracle Communications Data Model tables, which start with one of the following prefixes: DWA, DWB, DWD, DWR, DWL.
3. Create a view (or synonym) in OCDM_Report schema, pointing to the OCDM_ SYS tables.
4. In the Oracle Business Intelligence Suite Enterprise Edition repository, change the connection information to point to the new schema.

Assigning Grants to OCDM_MINING

Log in to the database using an ID that has been granted the system privilege with the ADMIN OPTION or that has been granted the GRANT ANY PRIVILEGE system privilege.

Configuring the Working OLAP Environment

To set up a working OLAP environment for an Oracle Communications Data Model warehouse, configure the database with the following parameter and configuration settings:

- Set `sga_target` to 35% of available memory.
- Set `pga_aggregate_target` to `35%` of available memory
- Set `olap_page_pool_size=0`. (This specifies dynamic page pool.)
- Set `_olap_page_pool_hi=30` (that is, lower than default of `50`).
- Set `_olap_parallel_update_threshold` and `_olap_parallel_update_small_threshold` to a high value (for example, `~2Gb.. 2147483647`). These settings turn off parallel update for the analytic workspace.
- Set `memory_max_target` to value greater than SGA and PGA settings. This is maximum amount of memory used for both SGA and PGA. The SGA and PGA settings specified are the minimum settings. (Note that failure to set `memory_max_target` leads to failure of instance startup (the next time these settings are validated which occurs if spfile had an older and distinct setting for `memory_max_target`).

The following statements illustrate changing these settings.

```
alter system set sga_target=1365M scope=spfile;
alter system set pga_aggregate_target=1365M scope=spfile;
alter system set memory_max_target=3030M scope=spfile;
alter system set olap_page_pool_size=0 scope=spfile;
alter system set "_olap_parallel_update_small_threshold"=2147483647 scope=spfile;
alter system set "_olap_page_pool_hi"=30 scope=spfile;
alter system set job_queue_processes=5 scope=spfile;
shutdown immediate;
startup;
```

Re-Enabling the Vault Option on the Database

If you are using the Database Vault Option and disabled it before installation as described in "Disabling the Data Vault Option on the Database" on page 3-4, re-enable the Vault option by taking the following steps:

1. Shutdown the Database, Database Control console process, and listener. For example on UNIX, ensure that the environment variables, ORACLE_HOME, ORACLE_SID, and PATH are correctly set. Log in to SQL*Plus as user SYS with the SYSOPER privilege and shut down the database. Then from the command line, stop the Database Control console process and listener. For example:

   ```
   sqlplus sys as sysoper
   Enter password: password
   SQL> SHUTDOWN IMMEDIATE
   SQL> EXIT
   $ emctl stop dbconsole
   $ lsnrctl stop listener_name
   ```

   For Oracle RAC installations, shut down each database instance as follows:

   ```
   $ srvctl stop database -d db_name
   ```

2. Enable the Oracle Database Vault option.

   ```
   cd $ORACLE_HOME/rdbms/lib
   ```

```
make -f ins_rdbms.mk dv_on
make -f ins_rdbms.mk ioracle
```

3. Startup the Database, Database Control console process, and listener. For example, on UNIX, Log in to SQL*Plus as user SYS with the SYSOPER privilege and restart the database. Then from the command line, restart the Database Control console process and listener. For example:

   ```
   sqlplus sys as sysoper
   Enter password: password
   SQL> STARTUP
   SQL> EXIT
   $ emctl start dbconsole
   $ lsnrctl start listener_name
   ```

   For Oracle RAC installations, restart each database instance as follows:

   ```
   $ srvctl start database -d db_name
   ```

4. For Oracle RAC installations, repeat these steps for each node on which the database is installed.

Ensuring That Oracle Communications Data Model Objects Are Valid

To ensure that all Oracle Communications Data Model objects are valid, log in to the database with a DBA id and password and recompile all objects in OCDM_SYS and OCDM_MINING by issuing the following SQL statements:

```
exec utl_recomp.recomp_serial('OCDM_SYS');
exec utl_recomp.recomp_serial('OCDM_MINING');
```

Ensuring That PGA_AGGREGATE_TARGET is Set to the Proper Value

For good performance, you need to ensure that the PGA_AGGREGATE_TARGET is set to the proper value which depends on the physical RAM of your Database Server. You also need to ensure that the WORKAREA_SIZE_POLICY parameter is set to AUTO.

> **See:** For information on tuning the PGA_AGGREGATE_TARGET initialization parameter, see *Oracle Database Performance Tuning Guide*.

> **Note:** Setting PGA_AGGREGATE_TARGET to a nonzero value has the effect of automatically setting the WORKAREA_SIZE_POLICY parameter to AUTO.

Installing Oracle Business Intelligence Suite Enterprise Edition Catalog for Oracle Communications Data Model

Once Oracle Business Intelligence Suite Enterprise Edition is installed, follow these steps to install an Oracle Business Intelligence Suite Enterprise Edition catalog for Oracle Communications Data Model:

> **Tip:** In these directions, replace *BIEE_HOME* with the name of the directory where Oracle Business Intelligence Suite Enterprise Edition is installed, and replace B*IEE_DATA_HOME* with the name of the directory where Oracle Business Intelligence Suite Enterprise Edition data is stored.

1. Add a definition for `ocdm_db` for the Oracle Communications Data Model repository to use when connecting to the database. Add this definition to the file `$ORACLE_HOME/network/admin/tnsnames.ora`:

```
ocdm_db =
(DESCRIPTION =
(ADDRESS = (PROTOCOL = TCP)(HOST = hostname.domain)(PORT = port-number))
(CONNECT_DATA =
(SERVER = DEDICATED)
(SERVICE_NAME = SID) # Change your SID, Hostname, and Listener PortNumber
)
)
```

Tip: Be careful to split these commands properly when you add them to the file; for example, do not add them as one long concatenated line of code.

Note: If you want to use another database name, you must change the `tnsname` in the Oracle Business Intelligence Suite Enterprise Edition repository. See the Oracle Business Intelligence Suite Enterprise Edition documentation for directions for defining a database connection in repository.

Installing RPD and WebCat for Business Intelligence Suite Enterprise Edition

If you installed the Oracle Communications Data Model Oracle sample reports, you need to deploy the Oracle Communications Data Model RPD and webcat on the Business Intelligence Suite Enterprise Edition 11*g* instance. For more information on deploying RPD and webcat in BIEE, see the *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*.

After you use the installer to install the sample reports you can find the rpd file and the webcat file in the directory $ORACLE_HOME/ocdm/report, in the following files:

ocdm.rpd

ocdmwebcat.zip

Before you deploy the webcat, you need to unzip ocdmwebcat.zip.

Perform the following steps to deploy the Oracle Communications Data Model rpd and webcat.

1. Use your browser to open the weblogic Enterprise Manager portal:

   `http://`*`SERVERNAME`*`:7001/em`

   Login with the weblogic admin ID and password.

   Go to Business Intelligence --> coreapplication --> Deployment--> Repository

   and then deploy the rpd and webcat.

   Notice that when you deploy the rpd you need to provide the rpd password, you can find Oracle Communications Data Model rpd password in IP patch. For information on obtaining the IP Patch, see the *Oracle Communications Data Model Release Notes*.

2. Use your browser to open the weblogic console portal:

   `http://SERVERNAME:7001/console/login/LoginForm.jsp`

   Login with your weblogic admin ID and password. Go to your security realm and create a user named "ocdm" and set a password for this user.

3. Following the instructions to "Refresh the User GUIDs" to update the GUIDs. For more information, see *Oracle Fusion Middleware Administrator's Guide*.

4

Installation of Additional Components

This chapter describes how to install Oracle components that you did not need to install before you installed the Oracle Communications Data Model component or sample reports, but that you will use when you are creating an Oracle Communications Data Model data warehouse:

- Installing and Configuring Workflow
- Creating an Oracle Business Intelligence Suite Enterprise Edition Catalog
- Installing Analytic Workspace Manager

Installing and Configuring Workflow

There are two ways to execute the Oracle Communications Data Model intra-ETL:

- Without using Oracle Warehouse Builder Workflow. In this case, you execute the following file:

  ```
  $Oracle_Home/ocdm/pdm/relational/intra_etl/owb_exec/ocdm_execute_wf.sh
  ```

  In this case, you do *not* need to install and configure Workflow as explained in this topic.

- Using Oracle Warehouse Builder Workflow. The Intra-ETL provided in Oracle Communications Data Model that populates your Oracle Communications Data Model data warehouse uses a process flow designed using the Oracle Warehouse Builder Workflow component.

  In this case, before you can execute that intra-ETL you must perform the following tasks:

  1. Install Oracle Warehouse Builder Workflow, as described in "Installing Oracle Warehouse Builder Workflow" on page 4-1.
  2. Import the Oracle Communications Data Model intra-ETL into Workflow, as described in "Importing Oracle Communications Data Model Intra-ETL into Workflow" on page 4-2.
  3. Configure Oracle Warehouse Builder Workflow to work with Oracle Communications Data Model, as described in "Configuring Oracle Warehouse Builder Workflow" on page 4-2.

Installing Oracle Warehouse Builder Workflow

To install Oracle Warehouse Builder workflow, take the following steps:

1. Go to `$ORACLE_HOME/owb/wf/install`

2. Execute `wfinstall.csh`

   The Oracle Workflow Configuration Assistant opens.

3. Enter values for the Workflow account, Workflow, SYS password, and TNS Connect Descriptor.

   For TNS Connect Descriptor, use the following syntax where you replace *local-host*, *port-number*, and *service-name* with the appropriate values.

   ```
   (DESCRIPTION =(ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCP)(HOST=local-host)(PORT
   = port-number))) (CONNECT_DATA = (SERVICE_NAME = service-name))
   ```

   Click **Submit**.

Importing Oracle Communications Data Model Intra-ETL into Workflow

To import the Oracle Communications Data Model intra-ETL into Workflow, take the following steps:

1. Log into the Design Center of Oracle Warehouse Builder.
2. Select **File**, then **Import,** and then **Warehouse Builder Metadata**.
3. For file, specify the following value:

   ```
   $ORACLE_HOME/ocdm/pdm/relational/intra_etl/owb/OCDM_Intra_ETL.mdl
   ```

4. Select **Import selected objects from file**, then click **Select Object**.
5. Select **OLAP _PFLW**, then click **>** (Continue).
6. Click **OK**.
7. Click **Import**.
8. After the import, you can see OLAP_PFLW under OCDM_INTRA_ETL project of Oracle Workflow.

Configuring Oracle Warehouse Builder Workflow

To configure Oracle Warehouse Builder workflow to work with Oracle Communications Data Model, take the following steps:

1. In the Design Center of Oracle Warehouse Builder, select **View**, and then **Location Navigator**.
2. Expand **Locations**, then **Process Flow and Schedules**, then **Oracle Workflow**.
3. Right click **OWF_LOCATION**, select **Open**.
4. Edit the connection information.
5. Click **Test Connection** to test the connection; if successful, click **OK**.

Creating an Oracle Business Intelligence Suite Enterprise Edition Catalog

The sample reports provided with Oracle Communications Data Model are created using the Oracle Business Intelligence Suite Enterprise Edition. In order to modify these reports or to use them as the basis for creating new reports you must have installed Oracle Business Intelligence Suite Enterprise Edition and have created an Oracle Business Intelligence Suite Enterprise Edition catalog for Oracle Communications Data Model.

Installing Oracle Business Intelligence Suite Enterprise Edition

If you installed Oracle Communications Data Model sample reports, you installed Oracle Business Intelligence Suite Enterprise Edition as a pre-installation step before you ran the installer. If you installed the Oracle Communications Data Model component rather than the sample reports, then install Oracle Business Intelligence Suite Enterprise Edition at this time by following the instructions given in "Oracle Business Intelligence Suite Enterprise Edition" on page 1-3.

You also need to create a catalog. For more information, see "Installing Oracle Business Intelligence Suite Enterprise Edition Catalog for Oracle Communications Data Model" on page 3-14.

> **Tip:** To check that Oracle Business Intelligence Suite Enterprise Edition is installed, follow the instructions in "Confirming that Oracle Business Intelligence Suite Enterprise Edition is Installed" on page 3-2.

Installing Analytic Workspace Manager

Although not required before you install Oracle Communications Data Model, you need to install the Analytic Workspace Manager in order to view and modify Oracle Communications Data Model OLAP cubes. Analytic Workspace Manager 11*g* is installed as a standalone product. The latest version of Analytic Workspace Manager is available at the Oracle OLAP home page at `http://www.oracle.com/technology/products/bi/olap/olap.html`. Installation instructions are included in the documentation.

5

Backup, Recovery, and Deinstallation of Oracle Communications Data Model

This chapter explains how to deinstall Oracle Communications Data Model:

- Backing Up and Recovering Oracle Communications Data Model
- Pre-Deinstallation Tasks
- Deinstallation Script Execution
- Post-Deinstallation Tasks

Backing Up and Recovering Oracle Communications Data Model

Backing up and recovering Oracle Communications Data Model involves a two-step process to 1) backup or recover the relational objects, and 2) backup or recover the analytic workspace that is part of Oracle Communications Data Model. These steps are outlined in the following topics:

- Exporting Oracle Communications Data Model
- Importing Oracle Communications Data Model

Exporting Oracle Communications Data Model

Take the following steps to backup Oracle Communications Data Model:

1. Backup the `OCDM_SYS` and `OCDM_MINING` schemas by executing the `expdp` utility.

   This utility exports all physical tables containing the data and trained mining models. For more information, see *Oracle Database Utilities*.

2. Backup the analytic workspace that is part of the Oracle Communications Data Model. The analytic workspace is backed up as an EIF file, named `OCDM_BAK.EIF`, which is generated under the *`ORACLE_HOME`*`/ocdm/pdm/olap` directory.

   a. Connect to the Database with `ocdm_sys`.

   b. Issue the following SQL statements.

```
exec dbms_aw.execute('AW ATTACH OCDM');
exec dbms_aw.execute('CDA OCDM_OLAP_DIR');
exec dbms_aw.execute('EXPORT ALL TO EIF FILE ', 'OCDM_BAK.EIF', '
NOTEMPDATA');
exec dbms_aw.execute('AW DETACH OCDM');
```

Importing Oracle Communications Data Model

Take the following steps to restore Oracle Communications Data Model from the backup files:

1. Restore the `OCDM_SYS` and `OCDM_MINING` schemas by executing the `impdp` utility.

   This utility imports all physical tables containing the data and trained mining models. For more information, see *Oracle Database Utilities*.

2. Connect to the Database with `ocdm_sys`, and import the analytic workspace that was saved as an EIF file, named `OCDM_BAK.EIF`, under the *`ORACLE_HOME`*`/ocdm/pdm/olap` directory.

   ```
   exec dbms_aw.execute('IMPORT ALL TO EIF FILE ','OCDM_BAK.EIF');
   ```

Overview: Deinstalling Oracle Communications Data Model

To deinstall Oracle Communications Data Model, you do *not* simply run Oracle Universal Installer in deinstall mode. Instead, you perform the following tasks:

1. Backup Oracle Communications Data Model, as described in "Exporting Oracle Communications Data Model" on page 5-1.
2. Stop any sessions that use the Oracle Communications Data Model schemas, as described in "Pre-Deinstallation Tasks" on page 5-2.
3. Execute the deinstallation script, as described in "Deinstallation Script Execution" on page 5-3.
4. If you are deinstalling the sample reports, perform the tasks described in "Post-Deinstallation Tasks" on page 5-3.

Note: To deinstall Oracle Communications Data Model, you do *not* simply run the Oracle Universal Installer in deinstall mode.

Pre-Deinstallation Tasks

The deinstallation script removes the `ocdm_sys` and `ocdm_mining` schemas. Consequently, before you run the deinstallation script, ensure that there are no active sessions that connect to either the `ocdm_sys` schema or the `ocdm_mining` schema.

Identifying if the ocdm_sys or ocdm_mining schemas are active

To identify if there are active sessions connecting to these schemas take the following steps:

1. Sign in as DBA.
2. Execute the following SQL statements:

   ```
   select SID,SERIAL# from v$session where USERNAME='OCDM_SYS';
   select SID,SERIAL# from v$session where USERNAME='OCDM_MINING';
   ```

If either of these queries returns a session ID, then there is an active session.

Ending an active ocdm_sys or ocdm_mining schema session

To end an active session, execute the following statements in which you replace *`sid`* and *`serial`* are the session ID and serial number returned by the earlier queries.

```
alter system kill session 'sid,serial' ;
```

Deinstallation Script Execution

To execute the Oracle Communications Data Model deinstallation script:

1. Set the ORACLE_HOME to the location of the Database on which to deinstall Oracle Communications Data Model.

   For example, suppose that Oracle Home is in the directory `/loc/app/oracle/product/11.2.4/`

   In a Bourne, Bash, or Korn shell, use these commands to set ORACLE_HOME:

   ```
   $ ORACLE_HOME=/loc/app/oracle/product/11.2.4/
   $ export ORACLE_HOME
   ```

   In a C shell, use this command to set ORACLE_HOME

   ```
   % setenv ORACLE_HOME /loc/app/oracle/product/11.2.4/
   ```

2. Execute the Oracle Communications Data Model deinstallation script:

   `$ORACLE_HOME/ocdm/ocdm_deinstall.sh`

3. When prompted, enter the SYSTEM password.

   The script de-configures Oracle Communications Data Model and executes the Oracle Universal Installer in deinstall silent mode.

If you are deinstalling the sample reports, after the deinstallation script runs, perform the tasks described in "Post-Deinstallation Tasks" on page 5-3.

Post-Deinstallation Tasks

If you are deinstalling the Oracle Communications Data Model sample reports, follow these steps to perform additional cleanup:

1. Delete `ocdm.rpd` in the directory *`BIHome`*`/Server/Repository`.
2. Delete the `ocdmwebcat` folder in *`BIDataHome`*`/web/catalog`.
3. Delete the following line from *`BIHome`*`/Server/Config/NQSConfig.INI`:

   ```
   Star    =    ocdm.rpd, DEFAULT
   ```

A

NCC Adapter Installation and Configuration

This appendix shows how to install and set up the following:

- Oracle Communications Network Charging and Control Adapter for Oracle Communications Data Model (NCC Adapter)
- Oracle Data Integrator components to create an operational E-LT environment
- Oracle GoldenGate Extract & Replicat processes

This appendix includes the following sections:

- Prerequisites for NCC Adapter Configuration
- Oracle Communications Data Model NCC Adapter Installation Overview
- Setting Up Staging Schema for Oracle Communications Data Model NCC Adapter
- Configuring Oracle Data Integrator for Oracle Communications Data Model NCC Adapter
- Setting Up Oracle GoldenGate for Oracle Communications Data Model NCC Adapter

> **Note:** The steps in this section can take a significant amount of time to complete.

The NCC Adapter that is installed with the Application Adapters type installation feeds pre-paid billing data from the Oracle Communications Network Charging and Control application to the Oracle Communications Data Model. The NCC Adapter includes an option to feed data in real-time using Oracle GoldenGate to the Oracle Communications Data Model staging layer, or to extract, load and transform the data in batch mode using Oracle Data Integrator.

Prerequisites for NCC Adapter Configuration

The following are prerequisites for installing the Oracle Communications Network Charging and Control Adapter for Oracle Communications Data Model (NCC Adapter):

- Before following the steps in this appendix you need to perform an Application Adapters installation, as described in "Types of Installations Provided for Oracle Communications Data Model" on page 2-1 and in "Installer Execution" on page 3-5.

- Before following the steps in this appendix, you need to install Oracle Data Integrator software. For more information, see "Confirming that Oracle Data Integrator Enterprise Edition is Installed" on page A-2.
- Before following the steps in this appendix, if select to use real-time feeds with Oracle GoldenGate, then you need to download the Goldengate software according to the NCC Adapter source database version and Oracle Communications Data Model target database version before starting this adapter installation. For more information, see "Installing Oracle GoldenGate" on page A-24.
- The installation and set up steps assume the following recommended Oracle Data Integrator configuration:
  - The Data Warehouse database schema is hosted on the same database instance as the ODI Repository.

Confirming that Oracle Data Integrator Enterprise Edition is Installed

To verify your Oracle Data Integrator Enterprise Edition installation, launch ODI Studio:

1. Select **Start Menu** > **All Programs** > **Oracle** > **Oracle Data Integrator** > **ODI Studio**.
2. In Designer Navigator, click **Connect To Repository...**.

If Oracle Data Integrator Enterprise Edition is not installed, see "Oracle Data Integrator Enterprise Edition" on page 1-3.

Confirming that Oracle GoldenGate is Installed

If you install the Oracle Communications Network Charging and Control Adapter for Oracle Communications Data Model (NCC Adapter), using, installing, and configuring Oracle GoldenGate is optional depending on whether you want to use Real-time staging with the NCC Adapter.

If Oracle GoldenGate is not installed, see "Oracle GoldenGate" on page 1-4.

Oracle Communications Data Model NCC Adapter Installation Overview

This appendix includes instructions for setting up the staging database for data loading, transformation, and validation of source data. To begin working you need to set up ODI Master Repository and Work Repository and use Oracle Data Integrator (ODI) and optionally if you are using Oracle GoldenGate, you need to install and configure Oracle GoldenGate to perform real-time ETL.

- Setting Up Staging Schema for Oracle Communications Data Model NCC Adapter
- Configuring Oracle Data Integrator for Oracle Communications Data Model NCC Adapter
- Setting Up Oracle GoldenGate for Oracle Communications Data Model NCC Adapter

Setting Up Staging Schema for Oracle Communications Data Model NCC Adapter

The following describes the NCC Adapter staging schema:

- Staging Schema Creation (for example: ncc_stg)

  Create staging schema (ncc_stg) by executing the following create_ncc_stg.sql file from sqlplus by connecting sys/system users:

  Script Location: "$NCC_OCDM_HOME/staging_install_ddl/create_ncc_stg.sql"

```
SQL> @./create_ncc_stg.sql
Creating Relational Schema and Granting required previlages
Enter value for user_name:ncc_stg
Enter value for password:ncc_stg
```

- Staging Schema (ncc_stg) Objects

  The create_ncc_stg.sql file executes the following files and creates the following objects in the ncc_stg schema:

  Staging Schema (ncc_stg) Objects:

```
Normal Staging Tables (Table name is same as source table name)
Previous Day Tables (**_LD)
Delta Tables (**_DELTA)
Delta History Tables (**_DELTA_H)
Event Detail Record (EDR) Functions
Event Detail Record (EDR) Types
Event Detail Record (EDR) Views
Staging load Procedures (post_staging_load, pre_ocdm_load & pre_staging_load)
Update Churn Date (update_churn_date) in OCDM_SYS schema
```

- Staging Schema (ncc_stg) Files

  Staging Schema (ncc_stg) Objects Creation Files:

  Scripts Location:

```
"$NCC_OCDM_HOME/staging_install_ddl/ddl_rqd_tables_stg_delta.sql"
"$NCC_OCDM_HOME/staging_install_ddl/ddl_rqd_tables_stg_delta_h.sql"
"$NCC_OCDM_HOME/staging_install_ddl/ddl_rqd_tables_stg_ld.sql"
"$NCC_OCDM_HOME/staging_install_ddl/ddl_rqd_tables_stg_normal.sql"
"$NCC_OCDM_HOME/staging_install_ddl/edr_package.sql"
"$NCC_OCDM_HOME/staging_install_ddl/edr_types.sql"
"$NCC_OCDM_HOME/staging_install_ddl/edr_views.sql"
"$NCC_OCDM_HOME/staging_install_ddl/procedure_rqd_stg.sql"
"$NCC_OCDM_HOME/staging_install_ddl/procedure_rqd_trg.sql"
```

Configuring Oracle Data Integrator for Oracle Communications Data Model NCC Adapter

Configuring Oracle Data Integrator for Oracle Communications Data Model includes the following steps:

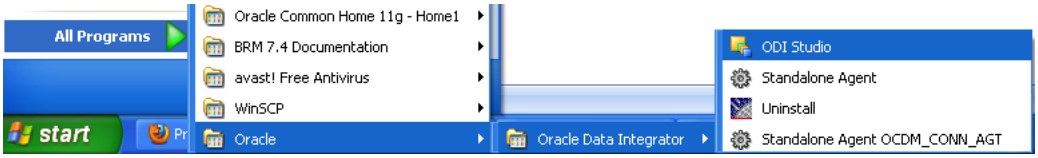
- Creating and Connecting to ODI Master Repository
- Creating and Connecting to ODI Work Repository
- Importing the ODI Master Repository
- Importing the ODI Work Repository
- Setting up the ODI Topology
- Configure Change Capture using a Data Pump

Creating and Connecting to ODI Master Repository

1. Open ODI Studio:

   Start > **Programs** > **Oracle** > **Oracle Data Integrator** > **ODI Studio**

Figure A–1 Opening ODI Studio



2. Open the New Gallery:

   File > **New**

   In the New Gallery, in the **Categories** tree, select **ODI**.

   Select from the **Items** list the **Master Repository Creation Wizard**.

   Click **OK**.

   The Master Repository Creation Wizard appears.

Figure A–2 ODI Studio New Gallery

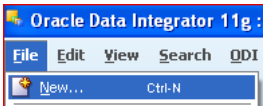
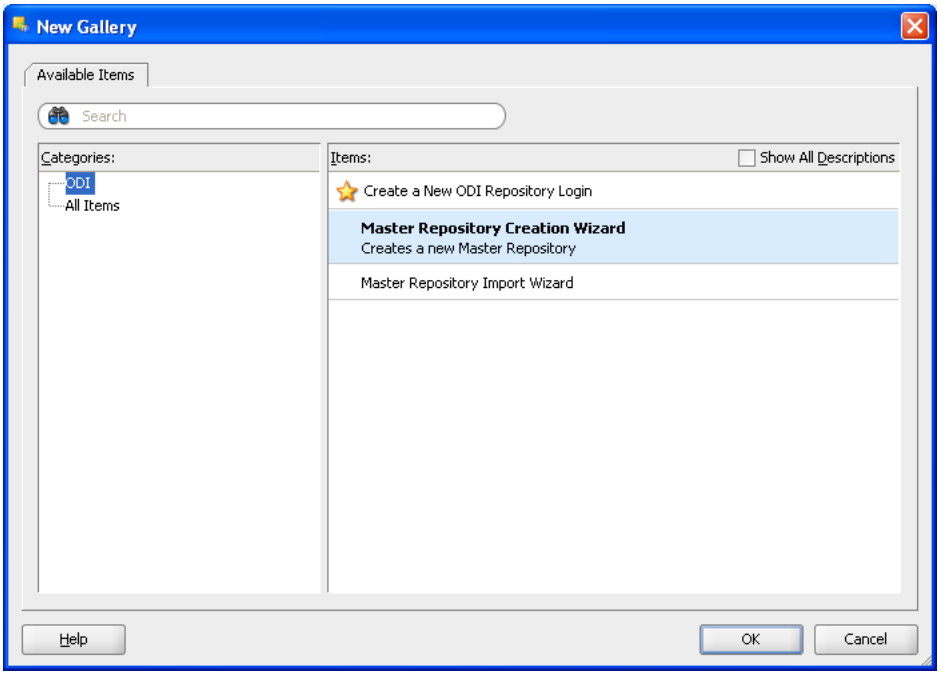


Figure A–3 ODI Studio New Gallery Create Master Repository



3. In the Master Repository Creation Wizard, select the browse icon of the JDBC Driver and then select Oracle JDBC Driver. Click **OK**.

   Edit the JDBC URL to read: jdbc:oracle:thin: @localhost:1521:orcl

   Enter the User as repo and the Password as *password*.

   Click **Test Connection** and verify successful connection.

   Click **OK**.

   On the Master Repository Creation Wizard screen, Click **Next**.

Figure A–4 ODI Studio Master Repository Creation Wizard

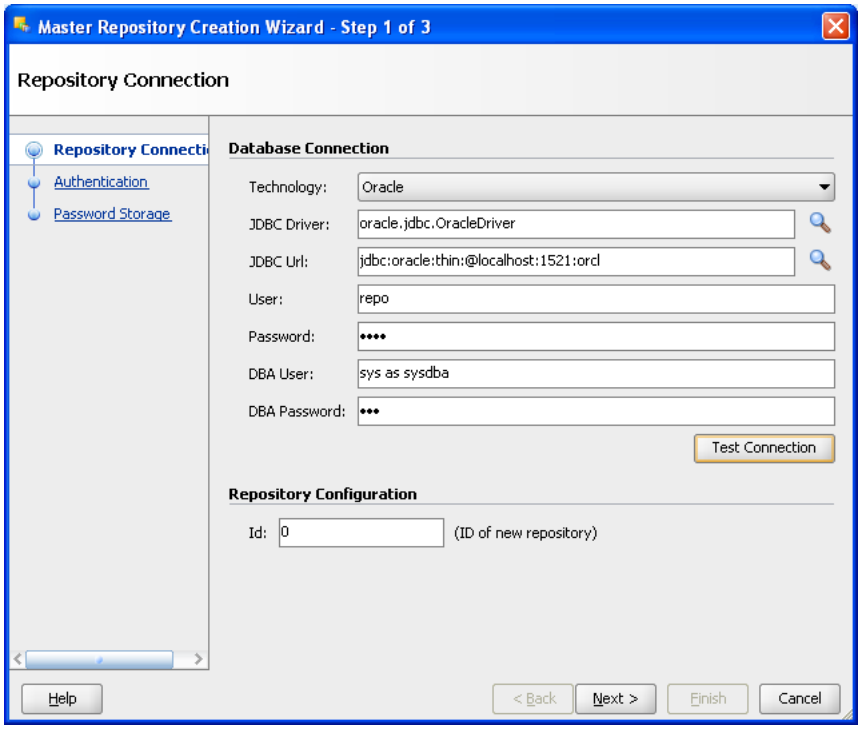
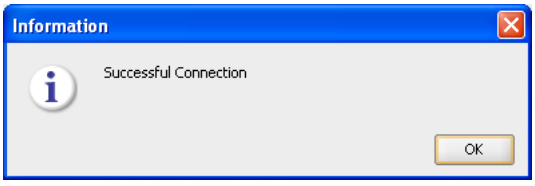


Figure A–5 ODI Studio Master Repository Successful Creation



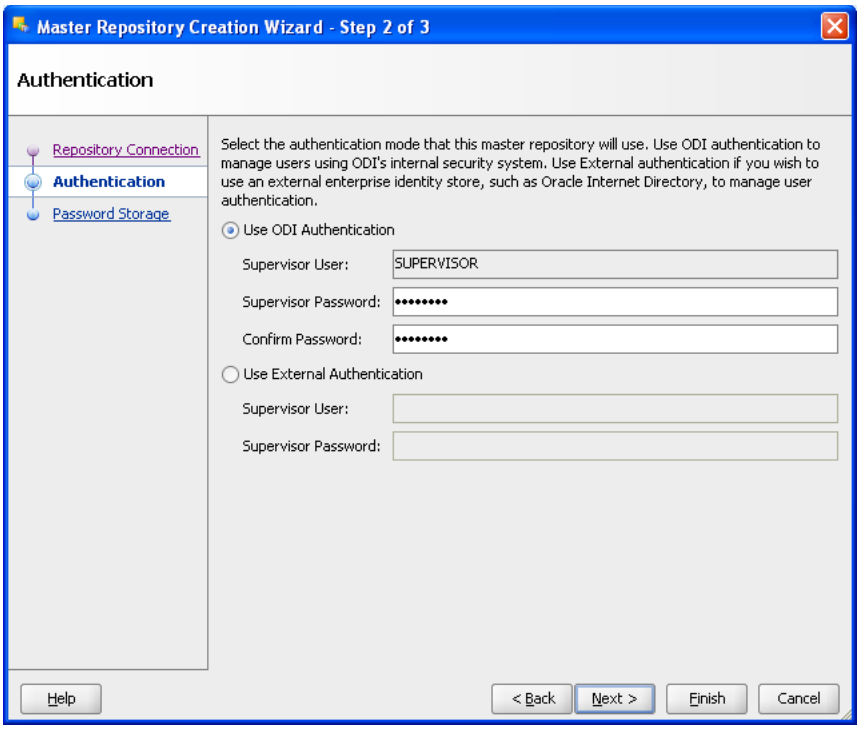
4. In the Authentication window, enter Supervisor Password as *password*.

   Enter *password* again to confirm the password.

   Click **Next**.

   Note: ODI User names and passwords are case-sensitive.

Figure A–6 ODI Studio Master Repository Creation Password



5. In the Password Storage window, select **Internal password Storage**, and then click **Finish**. When Master Repository is successfully created, you will see the Oracle Data Integrator Information message.

   Click **OK**. The ODI Master repository is now created.

Figure A–7 ODI Studio Master Repository Creation Finish

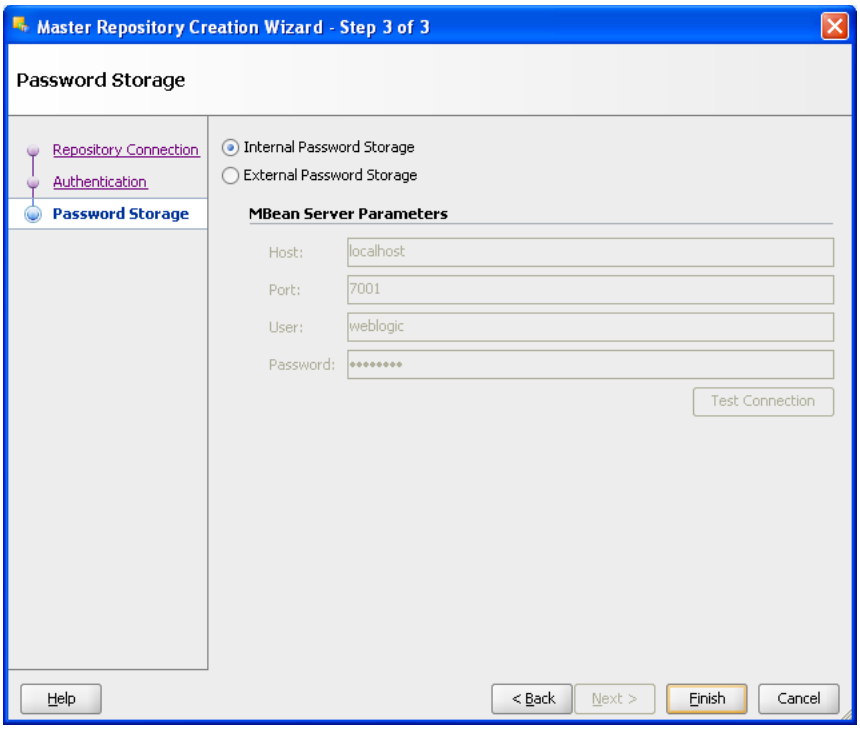
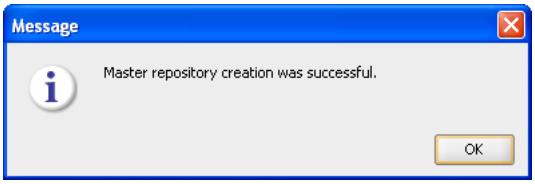
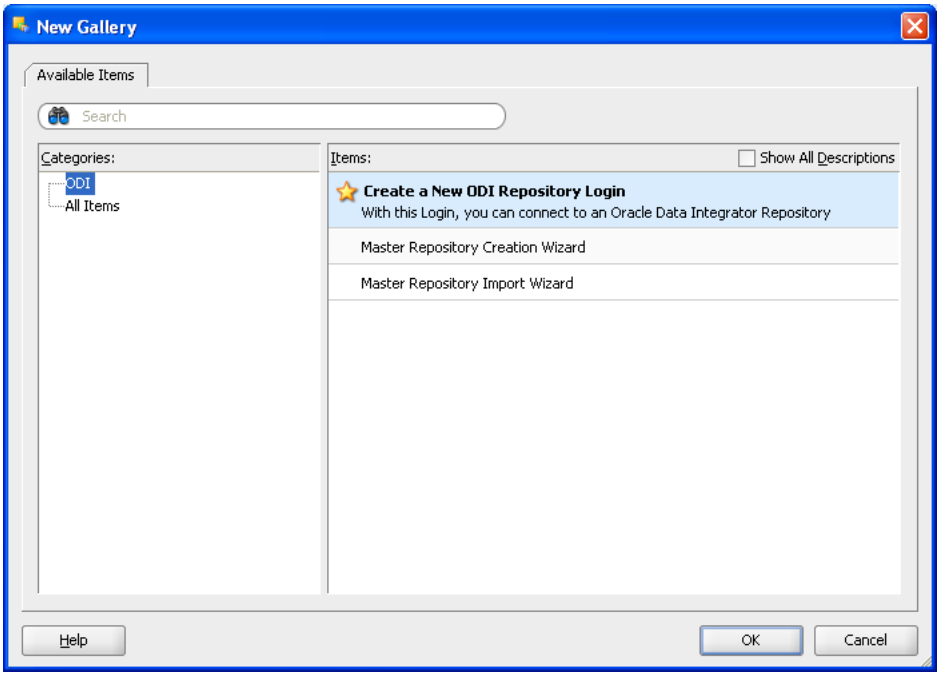


Figure A–8 ODI Studio Master Repository Creation Complete



6. You connect to the ODI Master repository by creating a new ODI Master Login. Open the New Gallery by choosing **File** > **New**. In the New Gallery, in the Categories tree, select **ODI**. From the Items list select **Create a New ODI Repository Login**.

Figure A–9 ODI Studio New Gallery ODI Repository Login



7. Configure Repository Connections with the parameters from the tables provided below. To enter the JDBC URL, click the button next to JDBC URL field and select jdbc:oracle:thin:@<*host*>:<*port*>:<*sid*> as shown in the screenshot, then edit the URL. Select Master Repository only button.

   Click **Test**.

   Verify successful connection and click **OK**.

   Click **OK** to save the connection.

Table A–1 Oracle Data Integrator Connection

Parameter	Value
Login Name	NCC Master Repository
User	SUPERVISOR
Password	*password*

Table A–2 Database Connection (Master Repository)

Parameter	Value
User	repo
Password	*password*
Driver List	Oracle JDBC Driver
Driver Name	oracle.jdbc.OracleDriver

Table A–2 (Cont.) Database Connection (Master Repository)

Parameter	Value
Url	jdbc:oracle:thin:@<*system_name*>:<*listener port*>:<*SID*> For example: `jdbc:oracle:thin:@localhost:1521:orcl`

Note: Do not copy and paste in the JDBC URL field. This may cause problems with entering a valid URL string. Instead, open the drop-down menu and select the correct driver from the list. Type the correct URL in the URL field.

Figure A–10 ODI Studio Repository Connection Information

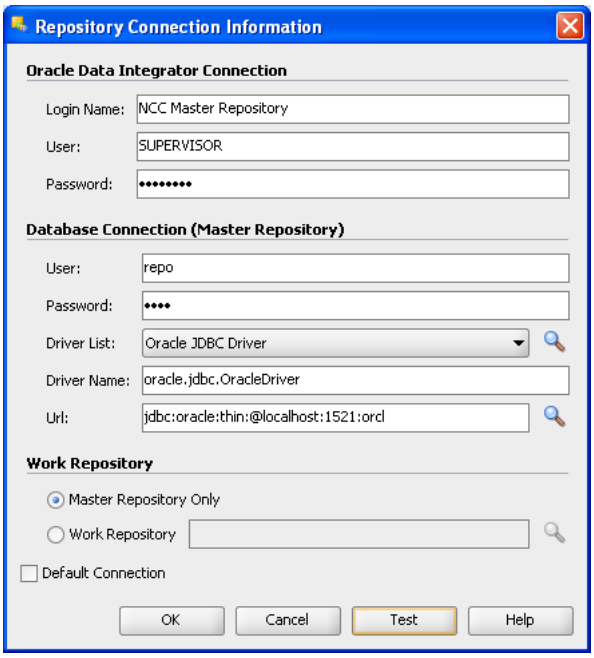
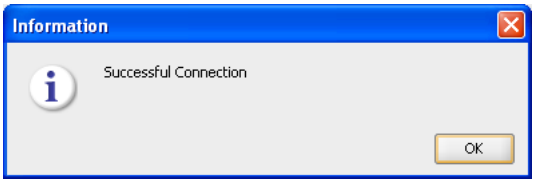


Figure A–11 ODI Studio Repository Connection Successful



8. Click Connect to Repository. Select the newly created repository connection Master Repository from the drop-down list. Click OK. The ODI Topology Manager starts. You are now successfully logged in to the ODI Topology Manager.

Figure A–12 ODI Studio Connect to Repository

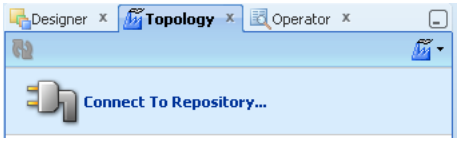


Figure A–13 Oracle Data Integrator Login

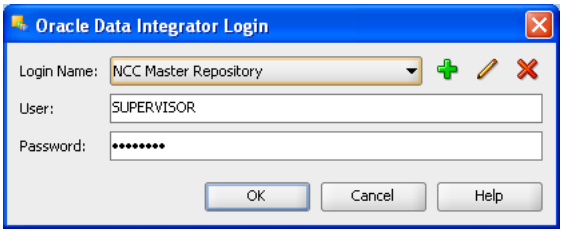
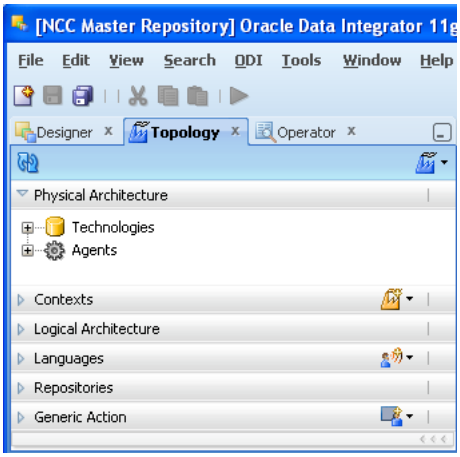


Figure A–14 Oracle Data Integrator NCC Master Repository Topology



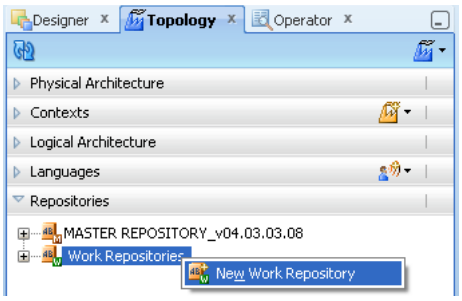
Creating and Connecting to ODI Work Repository

1. After you create the Oracle Database schema and user, use ODI Topology Navigator to create the ODI Work repository.

   In ODI, click the **Topology Navigator** tab and then click **Repositories** panel. Right-click the **Work Repositories** node and select **New Work Repository**.

   The Create Work Repository Wizard opens.

Figure A–15 ODI Topology Navigator New Work Repository



2. In the screen that follows, enter the parameters shown in Table A–3.

   Click **Test** to verify a successful connection and click **OK**.

   Click **Next**.

Table A–3 New Work Repository Parameters

Parameter	Value
Technology	Oracle
Driver Name	oracle.jdbc.driver.OracleDriver
JDBC Url	jdbc:oracle:thin:@<*system_name*>:<*listener port*>:<*SID*> For example: jdbc:oracle:thin:@localhost:1521:orcl
User	wrep
Password	*password*

Figure A–16 ODI Studio Create Work Repository Test Connection

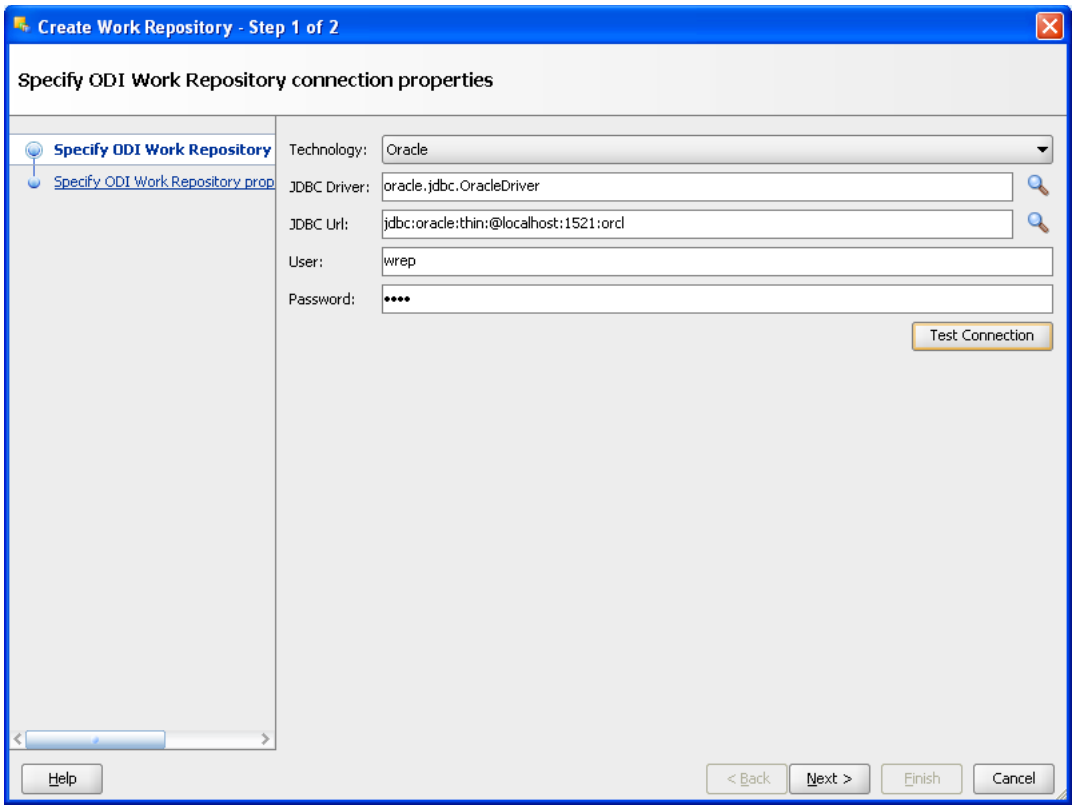
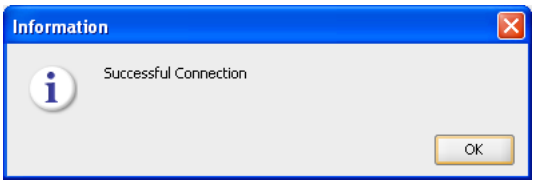


Figure A–17 ODI Repository Create Work Repository Successful Connection



3. In the Specify ODI Work Repository properties page, set the following values:

   Set **Id** to: 1.

   Set **Name** to: WORKREP_NCC.

   Enter **Password**: *password*.

   In the **Work Repository Type** list, select **Development**.

   Click **Finish**.

Figure A–18 ODI Studio Create ODI Work Repository Properties

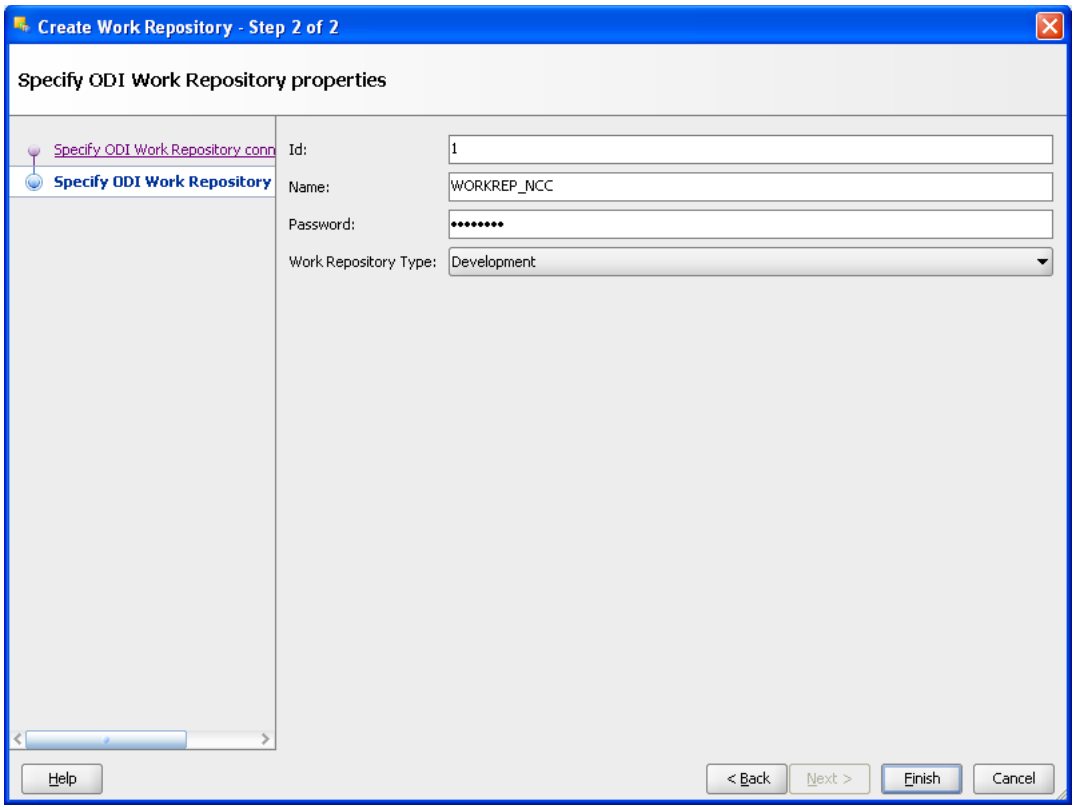
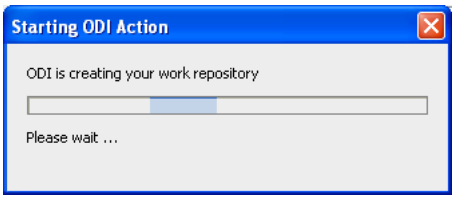


Figure A–19 ODI Studio Create ODI Work Repository Starting ODI Action



4. In the Create Work Repository Login window, click **Yes**.

   Enter the Login name: NCC Work Repository.

   Click **OK**.

   Verify that the newly created work repository is now in the work repositories tree view.

Figure A–20 ODI Studio Create ODI Work Repository Create Login

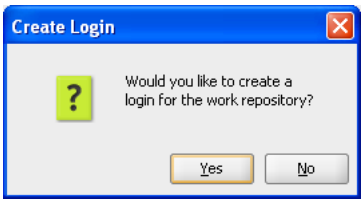


Figure A–21 ODI Studio ODI Work Repository Enter Login Name

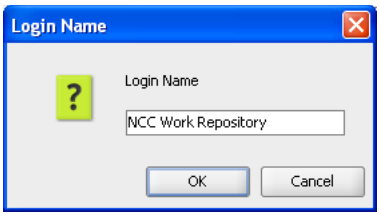
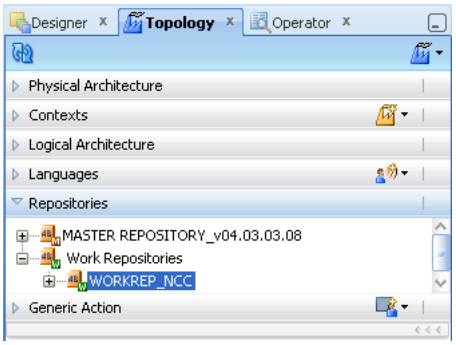


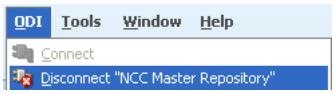
Figure A–22 ODI Studio ODI Work Repository Topology



5. Now you disconnect from the Master repository and connect to the Work repository.

   Click **ODI** and select **Disconnect "NCC Master Repository"**.

Figure A–23 ODI Studio Disconnect from Master Repository



6. Click **Connect to Repository**.

   From the Login Name drop-down list, select "NCC Work Repository".

   Enter Password: *password*.

   Click **OK**.

   Click the Designer tab.

   The ODI Designer screen appears as shown in Figure A–24.

Figure A–24 ODI Studio Connect to Repository NCC Work Repository

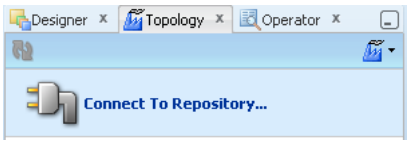
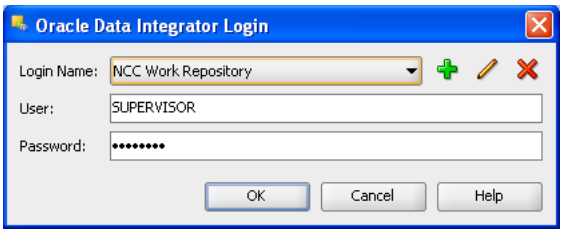


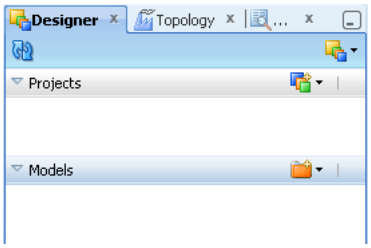
Figure A–25 ODI Studio Oracle Data Integrator Login



You have now successfully created and connected to the ODI Work repository.

7. If you check Designer tab no Projects and Models have existed in this work repository.

Figure A–26 ODI Studio Designer Tab



Importing the ODI Master Repository

The Master Repository Import and Export procedure allows you to transfer the whole repository, Topology and Security domains included, from one repository to another.

To import a master repository in an existing master repository:

1. From the Topology Navigator toolbar menu select **Import** > **Master Repository...**
2. Select the Import Mode and the import Folder or Zip File.
3. Click **OK**.

The specified file(s) are imported into the current master repository.

Figure A–27 ODI Studio Import Master Repository

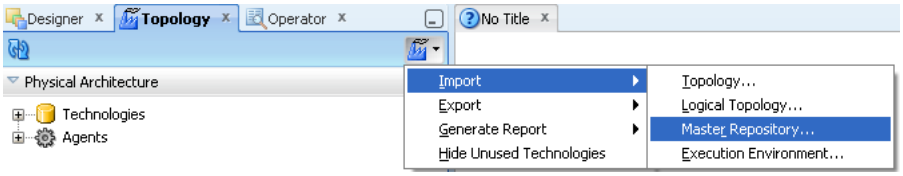
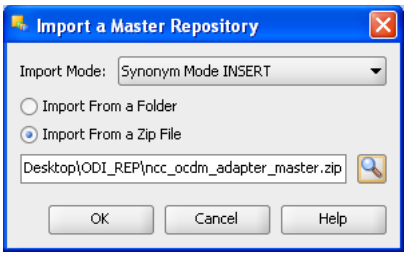


Figure A–28 ODI Studio Import Master Repository Mode and Options



Browse Master Repository from below specified location

Repository Location:

"$NCC_OCDM_HOME/odi_repository/ncc_ocdm_adapter_master.zip"

Figure A–29 ODI Studio Open and Import Master Repository

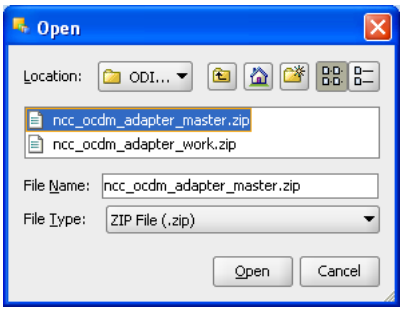
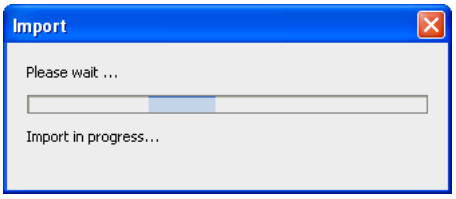
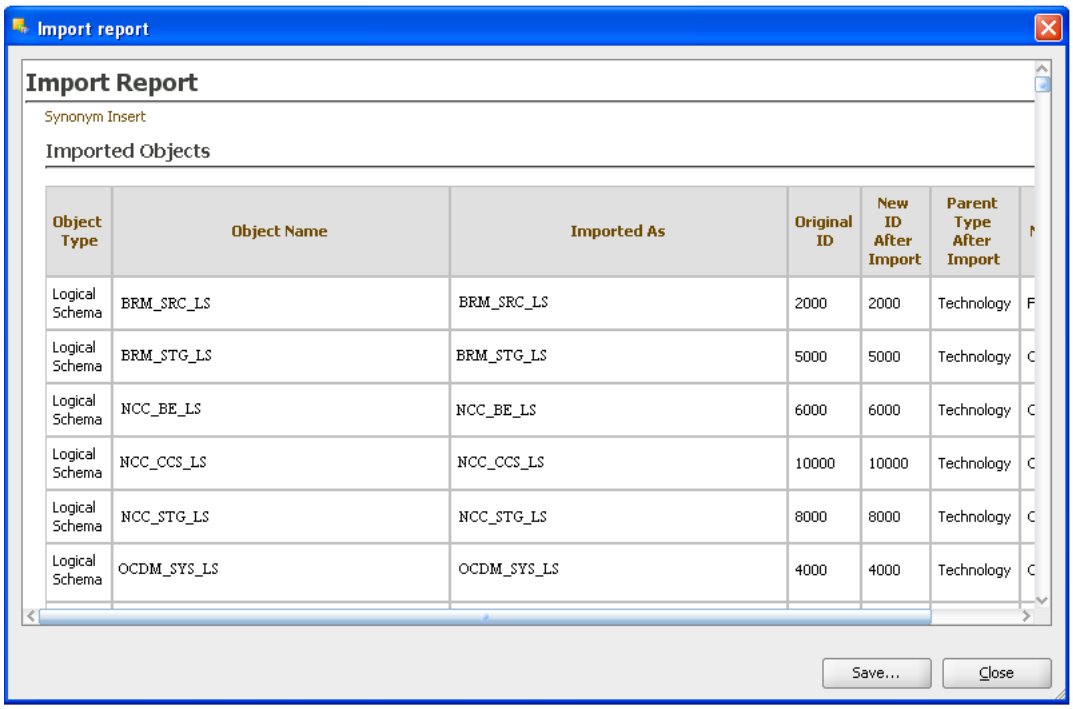


Figure A–30 ODI Studio Import Master Repository Progress



Check the Import Report and save this report by clicking **Save**.

Figure A–31 ODI Studio Import Master Repository Report



Importing the ODI Work Repository

Importing or exporting a work repository allows you to transfer all work repository objects from one repository to another.

To import a work repository:

1. From the Designer Navigator toolbar menu select **Import** > **Work Repository...**
2. Select the Import Mode and the import Folder or Zip File.
3. Click **OK**.

The specified file(s) are imported into the work repository.

Figure A–32 ODI Studio Import Work Repository

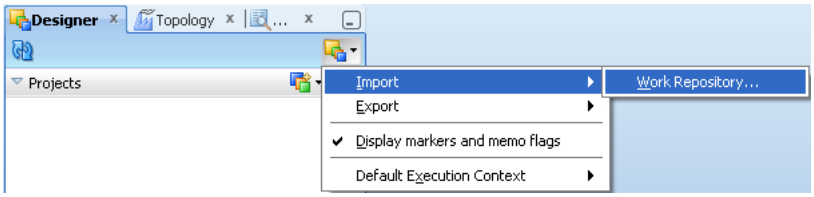
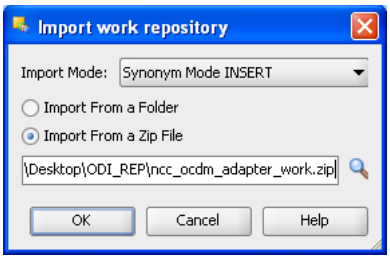


Figure A–33 ODI Studio Import Work Repository from Zip File



Browse Work Repository from the specified location:
$NCC_OCDM_HOME/odi_repository/ncc_ocdm_adapter_work.zip

Figure A–34 ODI Studio Open Work Repository

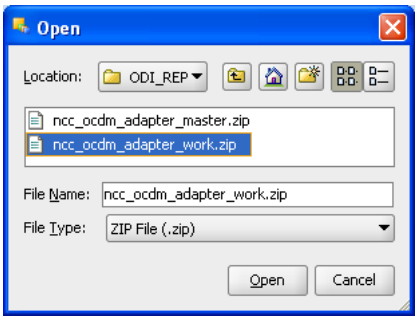


Figure A–35 ODI Studio Open and Import Work Repository Progress

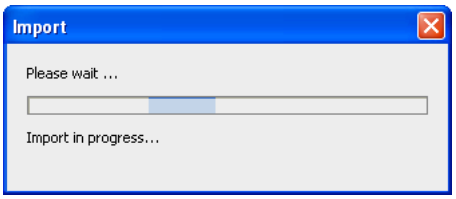
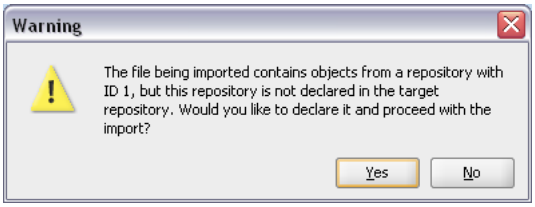
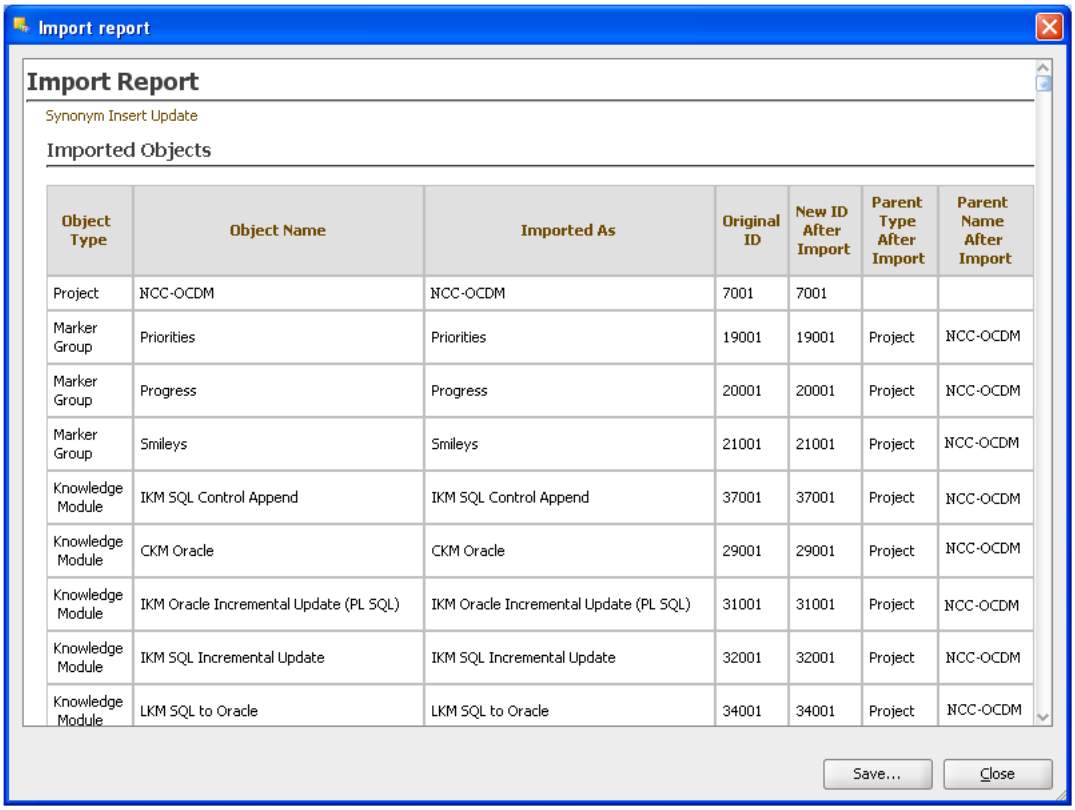


Figure A–36 ODI Studio Import Work Repository Warning



You can check the Import Report and you can save the report by clicking **Save**.

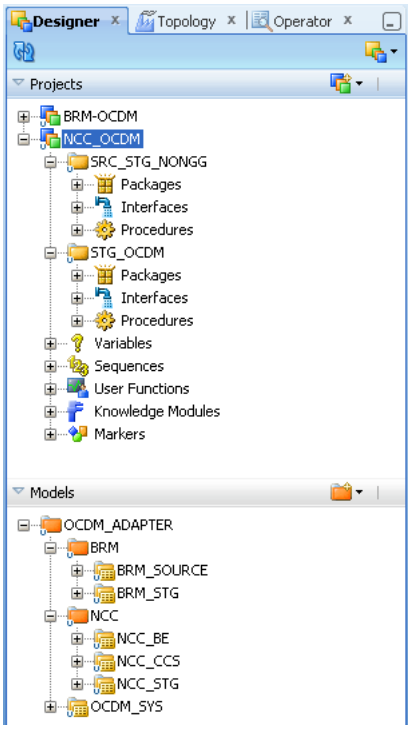
Figure A–37 ODI Studio Import Work Repository Report



Object Type	Object Name	Imported As	Original ID	New ID After Import	Parent Type After Import	Parent Name After Import
Project	NCC-OCDM	NCC-OCDM	7001	7001		
Marker Group	Priorities	Priorities	19001	19001	Project	NCC-OCDM
Marker Group	Progress	Progress	20001	20001	Project	NCC-OCDM
Marker Group	Smileys	Smileys	21001	21001	Project	NCC-OCDM
Knowledge Module	IKM SQL Control Append	IKM SQL Control Append	37001	37001	Project	NCC-OCDM
Knowledge Module	CKM Oracle	CKM Oracle	29001	29001	Project	NCC-OCDM
Knowledge Module	IKM Oracle Incremental Update (PL SQL)	IKM Oracle Incremental Update (PL SQL)	31001	31001	Project	NCC-OCDM
Knowledge Module	IKM SQL Incremental Update	IKM SQL Incremental Update	32001	32001	Project	NCC-OCDM
Knowledge Module	LKM SQL to Oracle	LKM SQL to Oracle	34001	34001	Project	NCC-OCDM

If you use the Designer tab Projects and Models you can view the projects and models that are in the work repository.

Figure A–38 ODI Studio Designer Tab Viewing Projects and Models



Setting up the ODI Topology

To set up the ODI Topology, do the following:

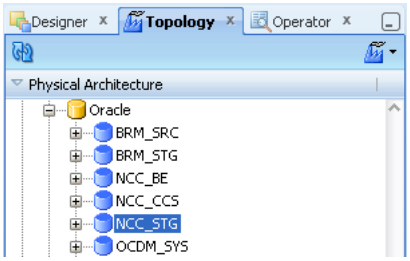
- Setting up the Physical Data Servers
- Setting up the Physical Schema
- Setting up the Logical Data Servers

Setting up the Physical Data Servers

To set up the Physical Data Servers:

1. From the Topology Navigator Display the Physical Architecture tab.
2. Expand the Technologies node.
3. Expand the Oracle node to display the Physical Data Servers.

Figure A–39 ODI Studio Physical Data Servers



4. Double-click the NCC_STG node to display the Data Server: <*Name*> dialog.

5. Display the Definition tab and enter the appropriate information, as described in Table A–4.

Figure A–40 ODI Studio Data Server Definition Dialog

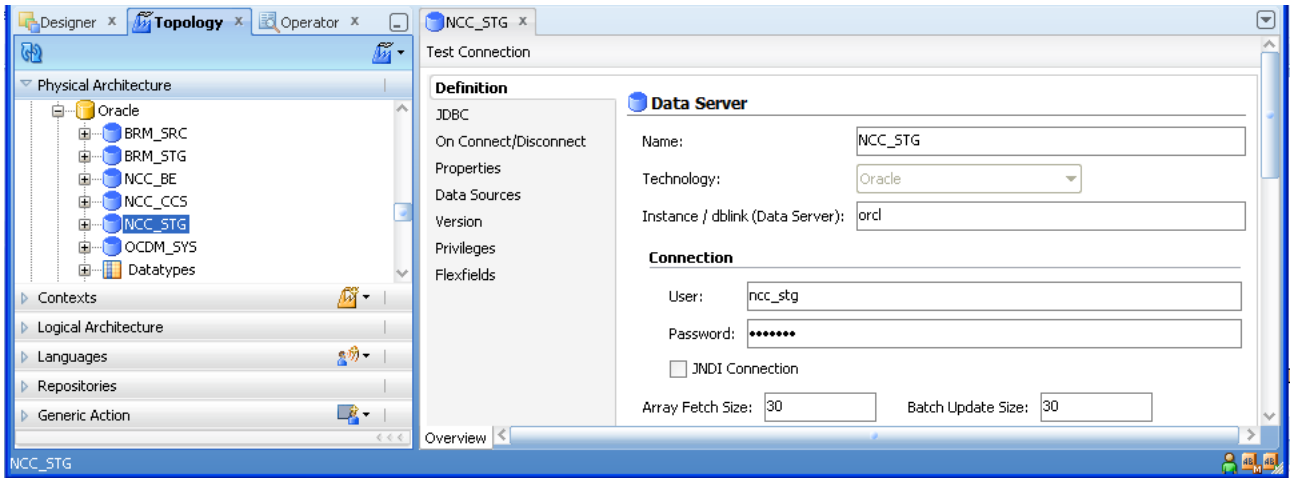


Table A–4 ODI Studio Data Server Definition Fields and Values

Field	Description
Name	Do not change name of the Data Server.
Technology	Do not change the default value Oracle.
Instance/dblink (Data Server)	Specify a database instance name. Use the Oracle SID name. For example, ORCL
User	Specify <*User Name*>. For example, ncc_stg This is the warehouse database user name.
Password	Specify <*Password*>. For example, ncc_stg This is default password for the warehouse database user name.
Array Fetch Size	Specify a value suitable to your environment (Do not change the default value).
Batch Update Size	Specify a value suitable to your environment (Do not change the default value).

6. Display the JDBC tab and enter the appropriate information, as described in Table A–5.

Figure A–41 ODI Studio Data Server JDBC Tab

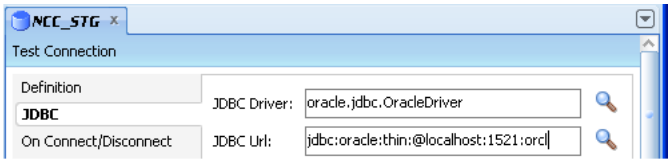
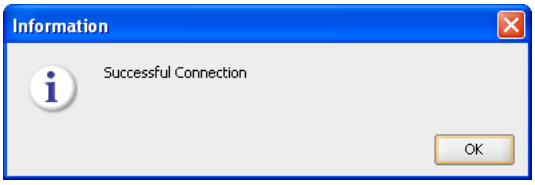


Table A–5 ODI Studio Data Server JDBC Tab Fields and Values

Field	Description
JDBC Driver	Specify oracle.jdbc.driver.OracleDriver.
JDBC Url	Specify in the format jdbc:oracle:thin:@<*host*>:<*port*>:<*sid*>. Replace <*host*>, <*port*> and <*sid*> with the values for the database hosting the ODI Repositories. For example, 'jdbc:oracle:thin:@localhost:1521:orcl'.

7. Click Test to display the Test Connection for: <*Connection*> dialog.

Figure A–42 ODI Studio Data Server Test Connection



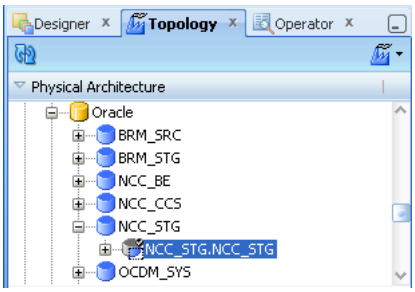
8. Click the **Save** icon to save the details.

Setting up the Physical Schema

To set up the Physical Schema for a Data Server:

1. From the Topology Navigator Display the Physical Architecture tab.
2. Expand the Technologies node.
3. Expand the Oracle node to display the Physical Data Servers.
4. Expand the Data Server node.

Figure A–43 ODI Studio Physical Architecture Data Server Node



5. Double-click NCC_STG.NCC_STG to display the Physical Schema: <*Name*> dialog.
6. Display the Definition tab and enter the appropriate information, as described in Table A–6.

Figure A–44 ODI Studio Physical Schema Definition Tab

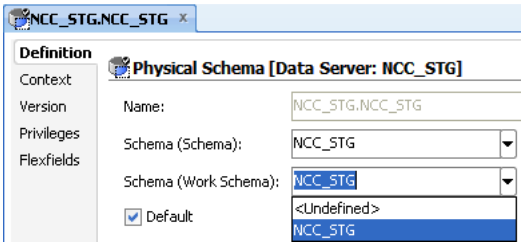


Table A–6 ODI Studio Physical Schema Definition Tab Properties and Values

Field	Description
Schema (Schema)	Make sure that <*Physical Schema*> is selected from the drop down list.(For example: NCC_STG)
Schema (Work Schema)	Make sure that <*Physical Schema*> is selected from the drop down list.(For example: NCC_STG)

Note: Do not change the other field values.

7. Click to save the details.

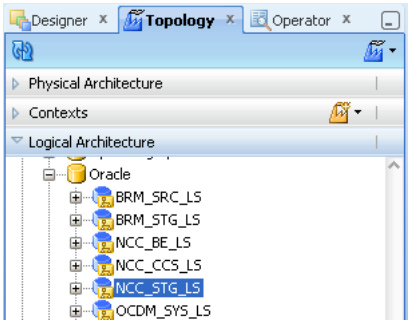
Note: After setting up the Logical Data Server, display the Context tab and verify Context & Logical Schema values are set properly.

Setting up the Logical Data Servers

To set up the Logical Data Servers:

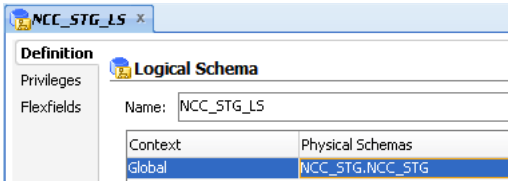
1. From the Topology Navigator Display the Logical Architecture tab.
2. Expand the Technologies node.
3. Expand the Oracle node to display the Logical Data Servers.

Figure A–45 ODI Studio Logical Architecture for Logical Data Server



4. Double-click the NCC_STG_LS node to display the Logical Data Server: <*Name*> dialog.
5. Display the Definition tab.
6. Edit the NCC_STG_LS Logical Data Server and make sure that for the appropriate Context (for example, Global, Development...), the value in the Physical Schemas column is set to NCC_STG.NCC_STG'(Physical Schema created in Physical Data Server).

Figure A–46 ODI Studio Logical Data Server Definition Tab for Logical Schema



7. Click the **Save** icon to save the details.

   Note: After setting up the Logical Data Server, display the Context tab of Physical Schema, and verify Context & Logical Schema values are set properly.

Setting Up Oracle GoldenGate for Oracle Communications Data Model NCC Adapter

To set up Oracle GoldenGate for Oracle Communications Data Model, you perform the following steps:

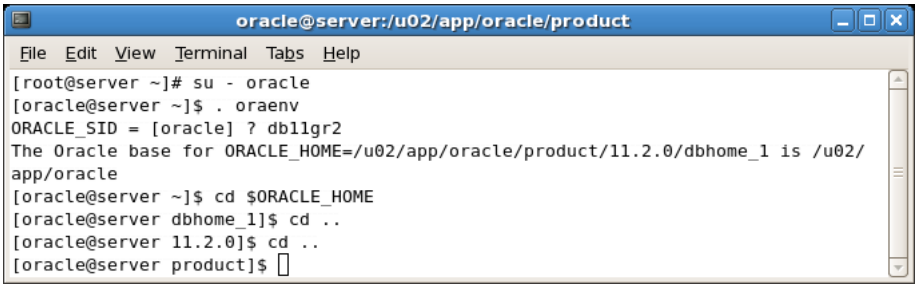
- Installing Oracle GoldenGate
- Configuring Oracle GoldenGate

Installing Oracle GoldenGate

To install Oracle GoldenGate, do the following:

1. Change directory to the database installation path (For example: /u02/app/oracle/product).

Figure A–47 Changing Directory to the Oracle GoldenGate Installation Path



2. Create a directory named (gg) for installing Oracle GoldenGate under the product folder:

   ```
   [oracle@server product]$ mkdir /u02/app/oracle/product/gg
   ```

   Or manually create the folder (gg) by going directly in the product folder:

   ```
   [oracle@server product]$ export GGATE= /u02/app/oracle/product/gg
   [oracle@server product]$ cd $GGATE
   [oracle@server gg]$
   ```

3. Copy the downloaded Oracle GoldenGate (for example: V22228-01.zip) into gg folder (for information on dowloading Oracle GoldenGate, see "Oracle GoldenGate" on page 1-4).

4. Unzip the software in the folder using following command:

```
[oracle@server gg]$ unzip V22228-01.zip
```

5. After you unzip the file, use the .tar extension file to extract Oracle GoldenGate.
6. Tar the Oracle GoldenGate .tar file using the following command:

```
[oracle@server gg] tar -xf <filename>.tar
```

7. Now export the path to GG libraries to `LD_LIBRARY_PATH` using the command:

```
export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/u02/app/oracle/product/gg
```

8. Now start the GG command line utility (ggsci):

```
[oracle@server gg]$. /ggsci
```

   This command connects you to the Oracle GoldenGate server.

   For example:

```
Oracle GoldenGate Command Interpreter for Oracle Version 11.1.1.0.0 Build 078
Linux, x86, 32bit (optimized), Oracle 11 on Jul 28 2010 13:22:25 Copyright (C)
1995, 2010, Oracle and/or its affiliates. All rights reserved.

GGSCI (server.oracle.com) 1>
```

9. Create the necessary working directories for gg:

```
GGSCI (server.oracle.com) 1>create subdirs
GGSCI (server.oracle.com) 2>exit
[oracle@server gg]$ mkdir $GGATE/diroby
[oracle@server gg]$ mkdir $GGATE/discard
```

10. After these steps Oracle GoldenGate is installed.

    After Oracle GoldenGate is installed you prepare and configure the source and target database for Oracle GoldenGate Replication.

Configuring Oracle GoldenGate

To set up the Oracle GoldenGate Schema:

1. Switch the database server to archive log mode.

> **Note:** Setting the database server to archivelog mode is recommended on a production system. This mode is not required for testing or for use on a development system.

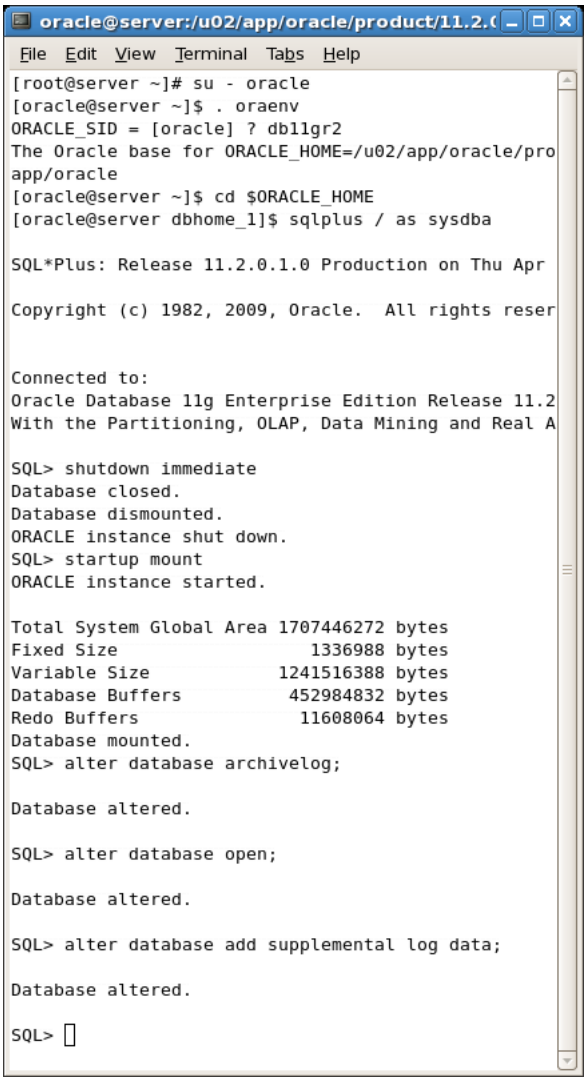
   Connect to sqlplus from oracle user:

```
[oracle@server dbhome_1]$ sqlplus / as sysdba
SQL>shutdown immediate
SQL>startup mount
SQL>alter database archivelog;
SQL>alter database open;
```

2. Enable minimal supplemental logging:

```
SQL>alter database add supplemental log data;
```

Figure A–48 Commands to Set Database Options for Oracle GoldenGate Configuration



Switch log to start supplemental logging:

```
SQL> ALTER SYSTEM SWITCH LOGFILE;
SQL> ALTER SYSTEM SWITCH LOGFILE;
```

Verify supplemental logging is enabled (with the following command showing a result: 'YES').

```
SQL> SELECT SUPPLEMENTAL_LOG_DATA_MIN FROM V$DATABASE;
```

3. Prepare the database to support database replication. Turn off recyclebin for the database:

```
SQL>alter system set recyclebin=off scope=spfile;
```

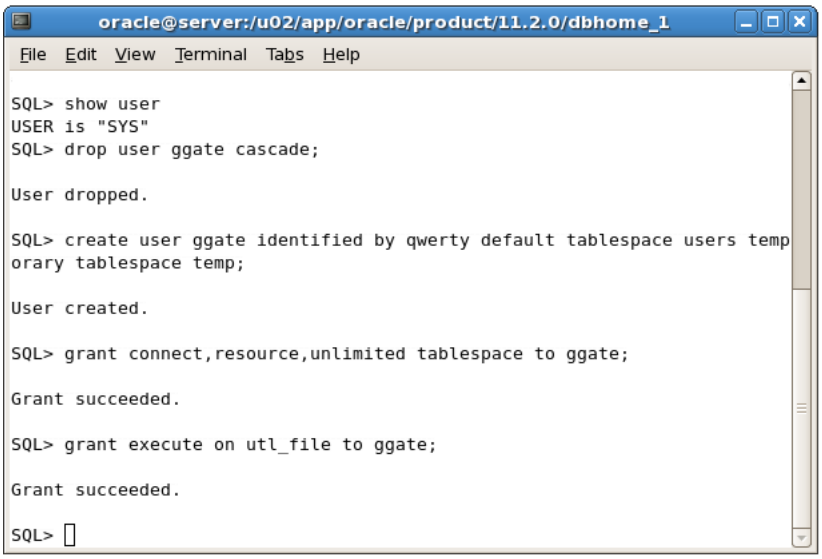
4. Create the schema for ddl replication:

```
SQL>create user ggate identified by qwerty default tablespace users temporary
tablespace temp;
```

5. Grant necessary privileges to the new user:

```
SQL> grant connect, resource, unlimited tablespace to ggate;
SQL> grant execute on utl_file to ggate;
```

Figure A–49 Sample Oracle Database Commands to Configure Oracle Golden Gate



6. Exit SQL:

   ```
   SQL>exit
   ```

   Go to the following path and issue the following commands:

   ```
   [oracle@server product]$ export GGATE= /u02/app/oracle/product/gg
   [oracle@server product]$ cd $GGATE
   ```

   These commands change the prompt to:

   ```
   [oracle@server gg]$
   ```

   Start sqlplus:

   ```
   [oracle@server gg]$sqlplus '\ as sysdba'
   ```

7. Now run the supplied scripts and verify the creation of the necessary objects to support ddl replication:

   a. Run the script:

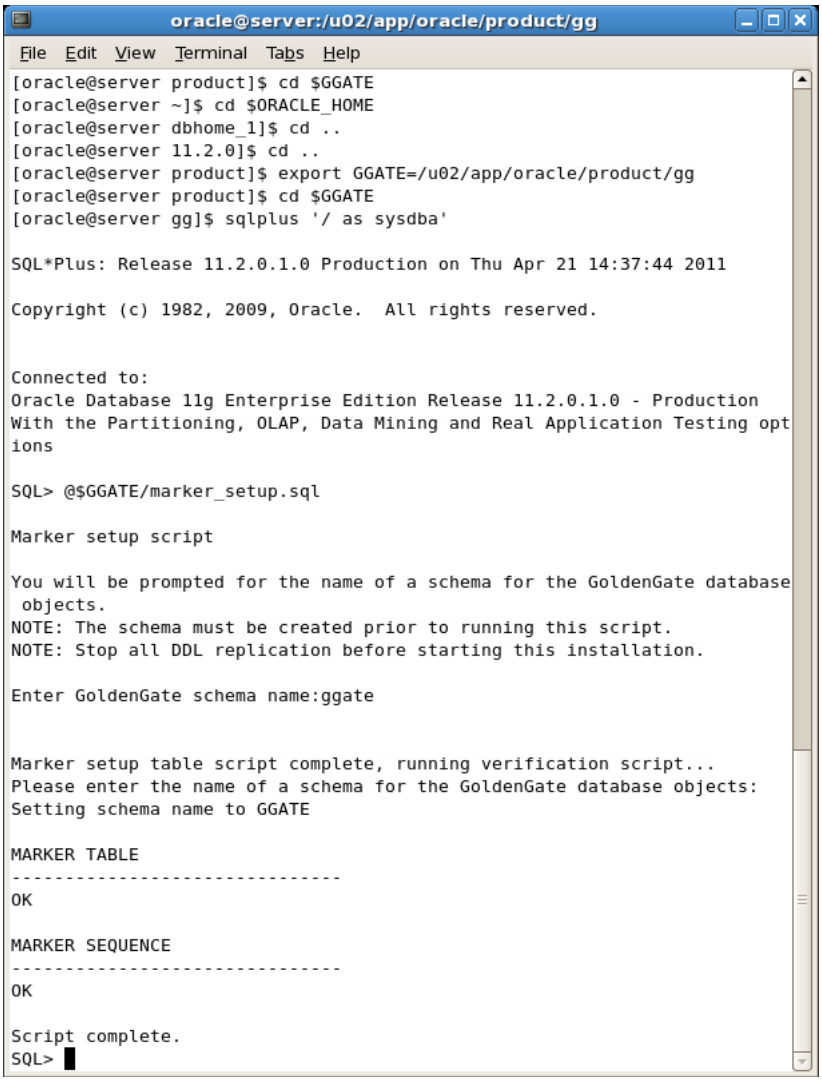
      ```
      SQL> @$GGATE/marker_setup.sql
      ```

      With this command you will be prompted for the name of the schema:

      Enter the schema as: **ggate**

      Figure A–50 shows the screenshot for these steps.

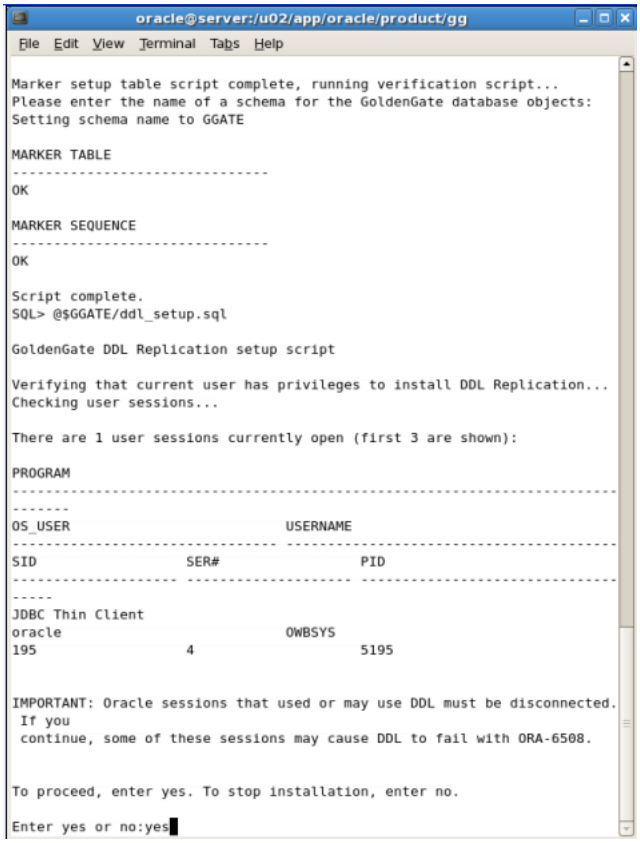
Figure A–50 Configuring Oracle GoldenGate



b. Execute the script:

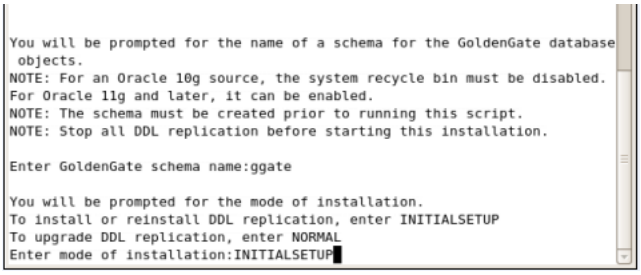
```
SQL> @$GGATE/ddl_setup.sql
```

Figure A–51 Oracle GoldenGate Configuration Running ddl_setup Script



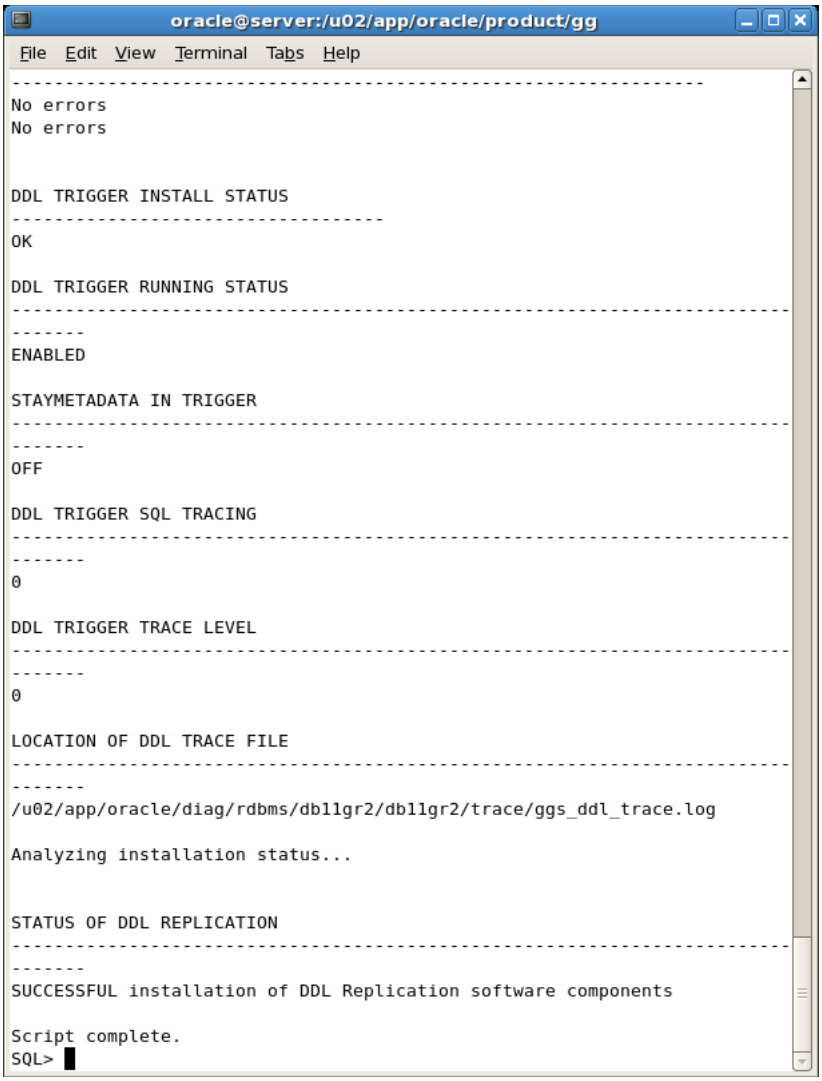
After entering the value: **Yes** you should see the values shown in Figure A–52.

Figure A–52 Oracle GoldenGate Configuration Values from ddl_setup Script



After entering **INITIALSETUP** you see the result as shown in Figure A–53.

Figure A–53 Oracle GoldenGate Configuration with Script Complete ddl_setup Screen



c. Enter the command to run the role_setup.sql script:

```
SQL> @$GGATE/role_setup.sql
```

d. Enter the command to grant access to the `GGS_GGUSER_ROLE`:

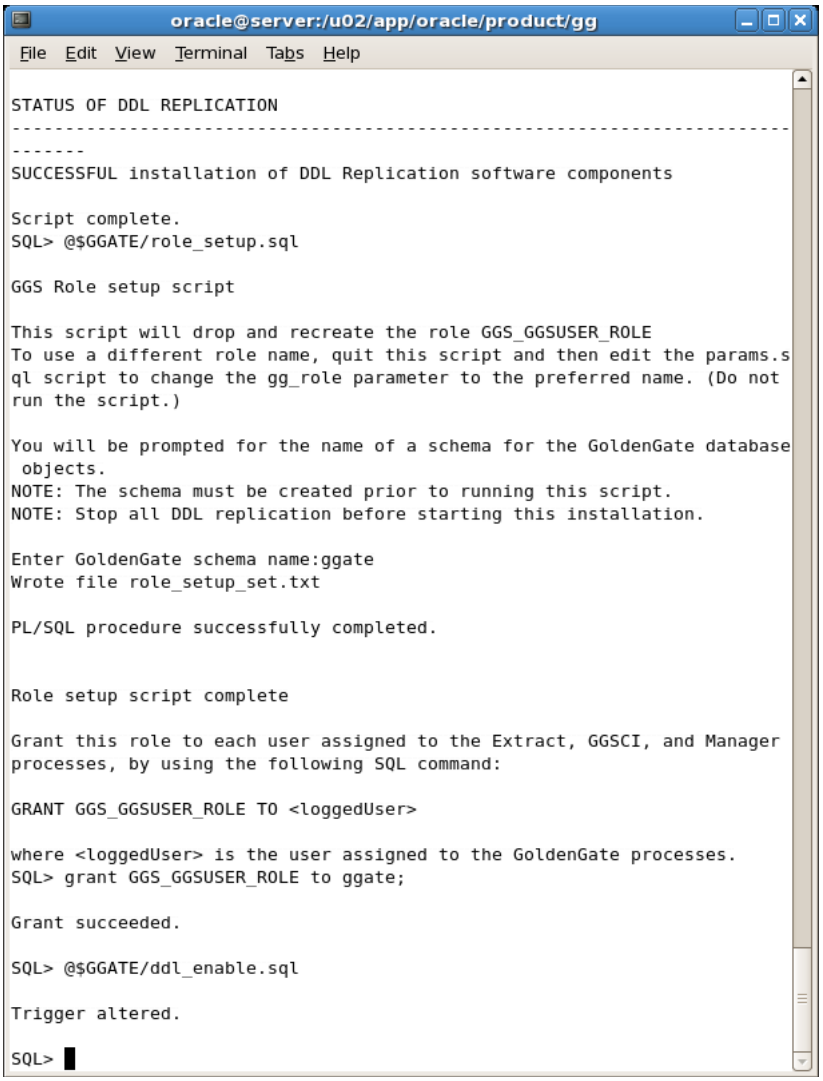
```
SQL> grant GGS_GGSUSER_ROLE to ggate;
```

e. Enter the command to run the ddl_enable.sql script:

```
SQL> @$GGATE/ddl_enable.sql
```

Follow the prompts as shown in Figure A–54.

Figure A–54 Oracle GoldenGate Configuration for Scripts: role_setup.sql,



f. Connect to ggate user and check that the following 13 tables were created:

GGS_BF_CACHE
GGS_DDL_COLUMNS
GGS_DDL_HIST
GGS_DDL_HIST_ALT
GGS_DDL_LOG_GROUPS
GGS_DDL_OBJECTS
GGS_DDL_PARTITIONS
GGS_DDL_PRIMARY_KEYS
GGS_MARKER
GGS_SETUP
GGS_STICK
GGS_TEMP_COLS
GGS_TEMP_UK

Oracle GoldenGate Process Checking Command Reference

Table A–7 provides a summary of Oracle GoldenGate process commands. Note: Run these commands from GGSCI.

Table A–7 Oracle GoldenGate Process Commands Summary

Process Area	Commands
To Start All Services	Manager: `Start Manager`
	Extract: `Start Extract` <*Extract Group*>
	Replicate: `Start Replicat` <*Replicat Group*>
	Extract & Replicat: `Start ER *`
To Stop All Services	Manager: `Stop Manager`
	Extract: `Stop Extract` <*Extract Group*>
	Replicate: `Stop Replicat` <*Replicat Group*>
	Extract & Replicat: `Stop ER *`
To Check Services Status	All Services: `Info All`
	Manager: `Info Mgr`
	Extract: `Info Extract` <*Extract Group*>
	Replicate: `Info Replicat` <*Replicat Group*>
To View Report	Extract: `View Report` <*Extract Group*>
	Replicate: `View Report` <*Replicat Group*>

Configure Change Capture using a Data Pump

The goals of this method are to:

- Configure and add the Extract process that will capture changes
- Add the local trail that will store these changes
- Configure and add a data pump Extract to read the local trail and create a remote trail on the target
- Add the remote trail
- Start the two Extract processes

Configure the primary Extract and data pump

Add the Extract group and data pump Extract group

Execute the following command on the <*source*> system to define an Extract group named extncc and to define a data pump Extract named extpncc to pull data from the local Oracle GoldenGate trail and route these changes to Oracle GoldenGate on the target:

```
[oracle@server gg]$ $GGATE/./ggsci paramfile $GGATE/diroby/ncc_ogg_src_cdc_cmd.oby
```

Note: In a non Oracle RAC environment, the THREADS parameter can be omitted or the THREADS <*instances*> can be set to 1.

Configure Change Delivery

Add the Replicat group

Execute the following command on the <*staging*> system to add a delivery group named repncc:

```
[oracle@server gg]$ $GGATE/./ggsci paramfile $GGATE/diroby/ncc_ogg_stg_cdc_cmd.oby
```

Note: Refer to your Extract set up for the correct two-character <*trail id*>.

Start the Extract processes

Start the primary Extract process and data pump Extract process

Execute the following command on the <*source*> system:

```
[oracle@server gg]$ $GGATE/./ggsci paramfile $GGATE/diroby/ncc_ogg_src_cdc_start_cmd.oby
```

Start the Replicat Process

Execute the following command on the <*staging*> system:

```
[oracle@server gg]$ $GGATE/./ggsci paramfile $GGATE/diroby/ncc_ogg_stg_cdc_start_cmd.oby
```

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