Oracle® Database

Client Installation Guide

11*g* Release 1 (11.1) for Linux

B32003-04

October 2007

ORACLE®

Oracle Database Client Installation Guide, 11*g* Release 1 (11.1) for Linux

B32003-04

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Preface

This guide provides instructions about installing and configuring Oracle Database for Linux. This guide also talks about installing and configuring database using response files, globalization support, ports, and troubleshooting.

The preface contains the following topics:

- Audience
- Documentation Accessibility
- Command Syntax
- Accessing Documentation
- Related Documentation
- Typographic Conventions

Audience

Oracle Database Installation Guide for Linux guide is intended for anyone responsible for installing Oracle Database 11*g* Release 1 (11.1) on a single Linux x86system. Additional installation guides for Oracle Database Client, Oracle Real Application Clusters, Oracle Clusterware, Oracle Database Examples, and Oracle Enterprise Manager Grid Control are available on the relevant installation media.

> **See Also:** *Oracle Database Installation Guide for Linux* to install Oracle Database using the default settings

Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at

`http://www.oracle.com/accessibility/`

Accessibility of Code Examples in Documentation

Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

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This documentation may contain links to Web sites of other companies or organizations that Oracle does not own or control. Oracle neither evaluates nor makes any representations regarding the accessibility of these Web sites.

TTY Access to Oracle Support Services

Oracle provides dedicated Text Telephone (TTY) access to Oracle Support Services within the United States of America 24 hours a day, 7 days a week. For TTY support, call 800.446.2398. Outside the United States, call +1.407.458.2479.

Command Syntax

UNIX command syntax appears in `monospace` font. The dollar character ($), number sign (#), or percent character (%) are UNIX command prompts. Do not enter them as part of the command. The following command syntax conventions are used in this guide:

Convention	Description

backslash \	A backslash is the UNIX command continuation character. It is used in command examples that are too long to fit on a single line. Enter the command as displayed (with a backslash) or enter it on a single line without a backslash:
	`dd if=/dev/rdsk/c0t1d0s6 of=/dev/rst0 bs=10b \`
	`count=10000`

braces { }	Braces indicate required items: `.DEFINE {macro1}`
brackets [ ]	Brackets indicate optional items: `cvtcrt` *`termname`* `[`*`outfile`*`]`
ellipses ...	Ellipses indicate an arbitrary number of similar items: `CHKVAL fieldname value1 value2 ... valueN`
italics	Italic type indicates a variable. Substitute a value for the variable: *`library_name`*
vertical line |	A vertical line indicates a choice within braces or brackets: `FILE` *`filesize`* `[K|M]`

Accessing Documentation

The documentation for this release includes platform-specific documentation and generic product documentation.

Platform-Specific Documentation

Platform-specific documentation includes information about installing and using Oracle products on particular platforms.

This guide contains information required to install Oracle Database 11*g* release 1 (11.1) on various platforms of Linux. Ensure that you review information related to the platform on which you intend to install Oracle Database 11*g*.

The platform-specific documentation for this product is available in both Adobe portable document format (PDF) and HTML format on the product media. To access the platform-specific documentation on media:

1. Use a Web browser to open the `welcome.htm` file in the top-level directory of the media.
2. For DVD only, select the appropriate product link.
3. Select the **Documentation** tab.

If you prefer paper documentation, then open and print the PDF files.

Product Documentation

Product documentation includes information about configuring, using, or administering Oracle products on any platform. The product documentation for Oracle Database 11*g* products is available in both HTML and PDF formats in the Oracle Database 11*g* release 1 (11.1) Online Documentation Library. To check for updates to this document and to view other Oracle documentation, select the Documentation link or the Software & Patches link on the Oracle Database 11*g* release 1 Beta Program Web site.

Related Documentation

The platform-specific documentation for Oracle Database 11*g* products includes the following manuals:

- *Oracle Database Release Notes for Linux*
- *Oracle Database Client Installation Guide for Linux*
- *Oracle Database Examples Installation Guide*
- *Oracle Real Application Clusters Installation Guide for Linux and UNIX*
- *Oracle Enterprise Manager Grid Control Installation and Basic Configuration*
- *Oracle Database Administrator's Reference for Linux and UNIX*
- *Oracle Database Storage Administrator's Guide*
- *Oracle Clusterware Installation Guide for Linux*
- *Oracle Database Upgrade Guide*
- *Oracle Database 2 Day DBA*

For information about Oracle error messages, see *Oracle Database Error Messages*. Oracle error message documentation is available only in HTML. If you only have access to the Oracle Database 10g Release 2 (10.2) Online Documentation Library, then you can browse the error messages by range. Once you find the specific range, use your browser's "find in page" feature to locate the specific message. When connected to the Internet, you can search for a specific error message using the error message search feature of the Oracle online documentation.

Many books in the documentation set use the sample schemas of the seed database, which is installed by default when you install Oracle. Refer to *Oracle Database Sample Schemas* for information on how these schemas were created and how you can use them yourself.

Printed documentation is available for sale in the Oracle Store at:

http://oraclestore.oracle.com/

To download free release notes, installation documentation, white papers, or other collateral, please visit the Oracle Technology Network. You must register online before using OTN; registration is free and can be done at:

http://www.oracle.com/technology/membership/

If you already have a user name and password for Oracle Technology Network, then you can go directly to the documentation section of the Oracle Technology Network Web site at:

http://www.oracle.com/technology/documentation/

Refer to *Oracle Database Release Notes for Linux* for important information that was not available when this book was released. The release notes for Oracle Database 11*g* are updated regularly. The most recent version is available on Oracle Technology Network at:

http://www.oracle.com/technology/documentation/index.html

Typographic 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

Overview of Oracle Database Installation

This chapter describes the different installation types of Oracle Database for Linux and issues to consider before you install Oracle Database:

- Planning Your Installation
- New Oracle Product Installed with This Release
- Installation Considerations
- Oracle Client Installation Methods
- Oracle Client Installation Types

Planning Your Installation

The Oracle Database installation process consists of the following phases:

1. **Read the release notes:** Read *Oracle Database Release Notes for Linux* before you begin the installation. The release notes are available with the platform-specific documentation. The latest version of the release notes is available on Oracle Technology Network at:

   `http://www.oracle.com/technology/documentation`

2. **Review the licensing information:** Although the installation media in your media pack contain many Oracle components, you are permitted to use only those components for which you have purchased licenses.

   Oracle Support Services does not provide support for components for which licenses have not been purchased.

   See Also: *Oracle Database Licensing Information*

3. **Plan the installation:** This chapter describes the Oracle products that you can install and issues that you must consider before starting the installation.

   You can also refer to Appendix D which covers frequently asked questions about installing Oracle Database components, such as how to install Oracle Database if the site uses Oracle applications or if you need multiple Oracle Database client connections.

4. **Complete preinstallation tasks:** Chapter 2 describes preinstallation tasks that you must complete before installing the product.

5. **Install the software:** Use the following sections to install Oracle Database:

- Chapter 3 describes how to use Oracle Universal Installer to install Oracle Database and Automatic Storage Management.
- Appendix A provides information on performing noninteractive (silent) installations, which you may want to use if you need to perform multiple installations of Oracle Database.
- Appendix B describes globalization support information.
- Appendix C provides troubleshooting advice in case you encounter problems with the installation.
- Chapter 5 describes how to remove Oracle Database.

6. **Complete postinstallation tasks:** Chapter 4 describes recommended and required postinstallation tasks.

New Oracle Product Installed with This Release

The following product is installed by default during a client installation for 11*g* release 1:

Oracle SQL Developer

Oracle SQL Developer is a graphical version of SQL*Plus that gives database developers a convenient way to perform basic tasks. Following are the functions you can perform with Oracle SQL Developer:

- Browse, create, edit, and delete (drop) database objects
- Run SQL statements and scripts
- Create, edit, compile and debug PL/SQL code
- Create, edit and update data
- Import data, export data and data definition language
- View and create reports
- View metadata and data of Microsoft Access, Microsoft SQL Server, and MySQL databases

Installation Considerations

This section contains information that you should consider before deciding how to install this product. It contains the following sections:

- Hardware and Software Certification
- Multiple Oracle Homes Support

Hardware and Software Certification

The platform-specific hardware and software requirements included in this installation guide were current at the time this guide was published. However, because new platforms and operating system software versions might be certified after this guide is published, review the certification matrix on the Oracle*MetaLink* Web site for the most up-to-date list of certified hardware platforms and operating system versions. The Oracle*MetaLink* Web site is available at the following URL:

`https://metalink.oracle.com`

You must register online before using Oracle*MetaLink*. After logging in, click **Certify** from the top right-hand side of the screen. The Certifications page appears. Other options include Product Availability, Desupport Notices, and Alerts.

Third-Party Database Certification for SQL Developer

SQL Developer can be used to view metadata and data of several non-Oracle databases. The following table lists the third-party database certifications.

Database	Releases	Notes
Microsoft Access	Access 97 Access 2000 Access 2003	For any Access release: no JDBC driver needed, but you must ensure read access to the system tables in the `.mdb` file.
Microsoft SQL Server	SQL Server 7 SQL Server 2000 SQL Server 2005	For any Microsoft SQL Server release: JDBC driver `jtds-1.2.2.jar` required. This is included in the `jtds-1.2-dist.zip` available from `sourceforge.net`.
MySQL	MySQL 3.x MySQL 4.x MySQL 5.x	For any MySQL release: JDBC driver required. For MySQL 5.x: `mysql-connector-java-5.0.4-bin.jar` is required, which is included in `mysql-connector-java-5.0.4.zip`.

Multiple Oracle Homes Support

This product supports multiple Oracle homes. This means that you can install this release or earlier releases of the software more than once on the same system, in different Oracle home directories.

Installing the Software on a System with an Existing Oracle Installation

You must install this product into a new Oracle home directory. You cannot install products from one release of Oracle Database into an Oracle home directory of a different release. For example, you cannot install release 11.1 software into an existing Oracle9*i* Oracle home directory. If you attempt to install this release into an Oracle home directory that contains software from an earlier Oracle release, then the installation fails.

You can install this release more than once on the same system if each installation is installed in a separate Oracle home directory.

Oracle Client Installation Methods

You can choose different installation methods to install Oracle Client, as follows:

- Interactive Installation Methods
- Automated Installation Methods Using Response Files

Interactive Installation Methods

When you use the interactive method to install Oracle Client, Oracle Universal Installer displays a series of screens that enable you to specify all of the required information to install the Oracle Client software.

Automated Installation Methods Using Response Files

By creating a response file and specifying this file when you start Oracle Universal Installer, you can automate some or all of the Oracle Database installation. These automated installation methods are useful if you need to perform multiple installations on similarly configured systems or if the system where you want to install the software does not have X Window system software installed.

When you use a response file, you can run Oracle Universal Installer in the following modes, depending on whether you specify all of the required information or not:

- **Silent Mode:** Oracle Universal Installer runs in silent mode if you use a response file that specifies all required information. None of the Oracle Universal Installer screens are displayed.
- **Suppressed Mode:** Oracle Universal Installer runs in suppressed mode if you do not specify all required information in the response file. Oracle Universal Installer displays only the screens that prompt for the information that you did not specify.

For more information about these modes and about how to complete an installation using response files, refer to Appendix A.

Oracle Client Installation Types

You can choose one of the following installation types when installing Oracle Client:

- **Instant Client:** Enables you to install only the shared libraries required by Oracle Call Interface (OCI), Oracle C++ Call Interface (OCCI), Pro*C, or Java database connectivity (JDBC) OCI applications. This installation type requires much less disk space than the other Oracle Client installation types.

  See Also: *Oracle Call Interface Programmer's Guide* or *Oracle Database JDBC Developer's Guide and Reference* for more information about Instant Client

  Included in the Instant Client installation is Instant Client Light. You may want to use this version of Instant Client if the applications generate error messages in American English only. Instant Client Light is beneficial to application that use one of the supported character sets and can accept error messages in American English. The following are the supported character sets:

  - `US7ASCII`
  - `WE8DEC`
  - `WE8ISO8859P1`
  - `WE8EBCDIC37C` for EBCDIC platform only
  - `WE8EBCDIC1047` for EBCDIC platform only
  - `WE8MSWIN1252`
  - `UTF8`
  - `AL32UTF8`
  - `AL16UTF16`

  The advantage of using Instant Client Light is that it has a smaller footprint than the regular Instant Client. The shared libraries, which an application must load, are only 34 MB as opposed to the 110 MB that regular Instant Client uses. Therefore, the applications use less memory.

- **Administrator:** Enables applications to connect to an Oracle Database instance on the local system or on a remote system. It also provides tools that enable you to administer Oracle Database.
- **Runtime:** Enables applications to connect to an Oracle Database instance on the local system or on a remote system.
- **Custom:** Enables you to select individual components from the list of Administrator and Runtime components.

Caution: AL32UTF8 is the Oracle Database character set that is appropriate for XMLType data. It is equivalent to the IANA registered standard UTF-8 encoding, which supports all valid XML characters.

Do not confuse Oracle Database database character set UTF8 (no hyphen) with database character set AL32UTF8 or with character encoding UTF-8. Database character set UTF8 has been superseded by AL32UTF8. Do not use UTF8 for XML data. UTF8 supports only Unicode version 3.0 and earlier; it does not support all valid XML characters. AL32UTF8 has no such limitation.

Using database character set UTF8 for XML data could potentially cause a fatal error or affect security negatively. If a character that is not supported by the database character set appears in an input-document element name, then a replacement character (usually "?") is substituted for it. This terminates parsing and raises an exception.

Upgrade Considerations

For information about upgrading a earlier release of Oracle Database to Oracle Database 11*g* release 1 (11.1), refer to *Oracle Database Upgrade Guide*. The following sections provide additional platform-specific upgrade information that you should review before upgrading an existing database:

AL24UTFFSS Character Set

Note: The information in this section does *not* apply to an upgrade of a release 1 (9.0.1) or later release of Oracle Database.

Before you upgrade an existing database that uses the AL24UTFFSS character set, you must upgrade the database character set to UTF8. Oracle recommends that you use the Character Set Scanner (`csscan`) utility for data analysis before attempting to upgrade the existing database character set.

The Character Set Scanner utility checks all character data in the database and tests for the effects of, and problems with, changing the character set encoding. Before running the Character Set Scanner utility, set the shared library path environment variable for the platform to include the `$ORACLE_HOME/lib` directory. The shared library path environment path that you need to set is `LD_LIBRARY_PATH`.

Note: AL32UTF8 is the Oracle Database character set that is appropriate for XMLType data. It is equivalent to the IANA registered standard UTF-8 encoding, which supports all valid XML characters.

Do not confuse Oracle Database database character set UTF8 (no hyphen) with database character set AL32UTF8 or with character encoding UTF-8. Database character set UTF8 has been superseded by AL32UTF8. Do not use UTF8 for XML data. UTF8 supports only Unicode version 3.0 and earlier; it does not support all valid XML characters. AL32UTF8 has no such limitation.

Using database character set UTF8 for XML data could potentially cause a fatal error or affect security negatively. If a character that is not supported by the database character set appears in an input-document element name, then a replacement character (usually "?") is substituted for it. This will terminate parsing and raise an exception.

See Also: *Oracle Database Globalization Support Guide* for more information about Character Set Support

2

Preinstallation Tasks

This chapter describes the tasks that you must complete before you start Oracle Universal Installer. It includes information about the following tasks:

> **Note:** This guide contains information required to install Oracle Database 11*g* Release 1 (11.1) on various platforms of Linux. Ensure that you review information related to the platform on which you intend to install Oracle Database 11*g*.

- Logging In to the System as root
- Checking the Hardware Requirements
- Checking the Software Requirements
- Creating Required Operating System Group and User
- Identifying Required Software Directories
- Identifying or Creating an Oracle Base Directory
- Configuring the oracle User's Environment

Logging In to the System as root

Before you install the Oracle software, you must complete several tasks as the `root` user. To log in as the `root` user, complete one of the following procedures:

> **Note:** Unless you intend to complete a silent-mode installation, you must install the software from an X Window System workstation, an X terminal, or a PC or other system with X server software installed.
>
> For more information about silent-mode installations, refer to Appendix A.

- If you are installing the software from an X Window System workstation or X terminal, then:
  1. Start a local terminal session, for example, an X terminal (`xterm`).
  2. If you are not installing the software on the local system, then enter the following command to enable the remote host to display X applications on the local X server:

```
$ xhost fully_qualified_remote_host_name
```

For example:

```
$ xhost somehost.us.example.com
```

3. If you are not installing the software on the local system, then use the `ssh`, `rlogin`, or `telnet` command to connect to the system where you want to install the software:

```
$ telnet fully_qualified_remote_host_name
```

4. If you are not logged in as the `root` user, then enter the following command to switch user to `root`:

```
$ sudo sh
password:
#
```

- If you are installing the software from a PC or other system with X server software installed, then:

> **Note:** If necessary, refer to the X server documentation for more information about completing this procedure. Depending on the X server software that you are using, you may need to complete the tasks in a different order.

1. Start the X server software.
2. Configure the security settings of the X server software to permit remote hosts to display X applications on the local system.
3. Connect to the remote system where you want to install the software and start a terminal session on that system, for example, an X terminal (`xterm`).
4. If you are not logged in as the `root` user on the remote system, then enter the following command to switch user to `root`:

```
$ sudo sh
password:
#
```

Checking the Hardware Requirements

The system must meet the following minimum hardware requirements for Oracle Database Client 11*g* Release1:

- Memory Requirements
- Disk Space Requirements
- Recommended Hardware Requirement for SQL Developer

Memory Requirements

The following are the memory requirements for Oracle Database Client 11*g* Release1:

- At least 256 MB of RAM.

  To determine the RAM size, enter the following command:

```
# grep MemTotal /proc/meminfo
```

If the size of the RAM is less than the required size, then you must install more memory before continuing.

- The following table describes the relationship between installed RAM and the configured swap space requirement:

Available RAM	Swap Space Required
Between 257 MB and 512 MB	Double the size of RAM
Between 513 MB and 2048 MB	1.5 times the size of RAM
Between 2049 MB and 8192 MB	Equal to the size of RAM
More than 8192 MB	0.75 times the size of RAM

To determine the size of the configured swap space, enter the following command:

```
# grep SwapTotal /proc/meminfo
```

If necessary, refer to the operating system documentation for information about how to configure additional swap space.

To determine the available RAM and swap space, enter the following command:

```
# free
```

Note: Oracle recommends that you take multiple values for the available RAM and swap space before freezing on a value. This is because the available RAM and swap space keep changing depending on the user interactions with the computer.

System Architecture

To determine whether the system architecture can run the software, enter the following command:

```
# uname -m
```

Note: This command displays the processor type. Verify that the processor architecture matches the Oracle software release that you want to install. If you do not see the expected output, then you cannot install the software on this system.

Disk Space Requirements

The following are the disk space requirements for Oracle Database Client 11*g* Release1:

- The minimum disk space requirement for a client install in the `/tmp` directory is 130 MB.

  To determine the amount of disk space available in the `/tmp` directory, enter the following command:

  ```
  # df -k /tmp
  ```

  If there is less than 400 MB of free disk space available in the `/tmp` directory, then complete one of the following steps:

- Delete unnecessary files from the `/tmp` directory to meet the disk space requirement.
- Set the `TMP` and `TMPDIR` environment variables when setting the `oracle` user's environment (described later).
- Extend the file system that contains the `/tmp` directory. If necessary, contact the system administrator for information about extending file systems.

- Between 34 MB and 820 MB of disk space for the Oracle software, depending on the installation type

  To determine the amount of free disk space available, enter the following command:

  ```
  # df -k
  ```

Installation Type	Requirement for Software Files (MB)
Instant Client	265
Administrator	1.29 (GB)
Runtime	890
Custom (maximum)	1.02 (GB)

Recommended Hardware Requirement for SQL Developer

The following are the recommended CPU, Memory and Display requirements for SQL Developer.

Resource	Recommended
CPU Type and Speed	Pentium IV 2 GHz or faster
Memory	1 GB RAM (recommended), 256 MB RAM (min)
Display	65536 colors, set to at least 1024 X 768 resolution

Checking the Software Requirements

Depending on the products that you intend to install, verify that the following softwares are installed on the system.

Note:

Oracle Universal Installer performs checks on the system to verify that it meets the listed requirements. To ensure that these checks pass, verify the requirements before you start Oracle Universal Installer.

- Operating System Requirements
- Kernel Requirements
- Package Requirements
- Compiler Requirements
- Additional Software Requirements

- Instant Client Light Requirements

Operating System Requirements

The following are the operating sytem requirements for Oracle Database Client 11*g* Release1:

For Linux x86 and Linux x86-64:

- Asianux 2.0
- Asianux 3.0
- Oracle Enterprise Linux 4.0
- Oracle Enterprise Linux 5.0
- Red Hat Enterprise Linux 4.0
- Red Hat Enterprise Linux 5.0
- SUSE Linux Enterprise Server 10.0

To determine the distribution and version of Linux installed, enter the following command:

```
# cat /proc/version
```

Note: Only the distributions and versions listed in the earlier itemized list are supported. Do not install the software on other versions of Linux.

Kernel Requirements

The following are the Kernel requirements for Oracle Database Client 11*g* Release1:

- For Asianux 2, Oracle Enterprise Linux 4.0, and Red Hat Enterprise Linux 4.0:

  2.6.9

- For Asianux 3, Oracle Enterprise Linux 5.0, and Red Hat Enterprise Linux 5.0:

  2.6.18

- For SUSE Linux Enterprise Server 10:

  2.6.16.21

To determine whether the required kernel is installed, enter the following command:

```
# uname -r
```

The following is a sample output displayed by running this command on a Red Hat Enterprise Linux 4.0 system:

```
2.6.9-34.0.1.0.11.ELsmp
```

In this example, the output shows the kernel version (`2.6.9`) and errata level (`34.0.1.0.11`) on the system.

If the kernel version does not meet the requirement specified earlier in this section, then contact the operating system vendor for information about obtaining and installing kernel updates.

Package Requirements

The following are the list of packages requirements for Oracle Database Client 11*g* Release1.

Note:

- Oracle recommends that you install your Linux operating system with the default software packages (RPMs); do not customize the RPMs during installation. This installation includes most required packages, and will help you to limit manual checks of package dependencies.
- If you did not perform a default Linux installation, you intend to use LDAP, and you want to use the scripts `odisrvreg`, `oidca`, or `schemasync`, then install the Korn shell RPM for your Linux distribution

For Linux x86:

Item	Requirement

Packages for Asianux 2, Oracle Enterprise Linux 4.0, and Red Hat Enterprise Linux 4.0	The following packages (or later versions) must be installed:
	`binutils-2.15.92.0.2-18`
	`compat-libstdc++-33.2.3-47.3`
	`elfutils-libelf-0.97-5`
	`elfutils-libelf-devel-0.97-5`
	`gcc-3.4.5-2`
	`gcc-c++-3.4.5-2`
	`glibc-2.3.4-2.19`
	`glibc-common-2.3.4-2.19`
	`glibc-devel-2.3.4-2.19`
	`glibc-headers-2.3.4-2.19`
	`libaio-devel-0.3.105-2`
	`libaio-0.3.105-2`
	`libgcc-3.4.5`
	`libstdc++-3.4.5-2`
	`libstdc++-devel-3.4.5-2`
	`make-3.80-5`
	`sysstat-5.0.5`
	`unixODBC-2.2.11`
	`unixODBC-devel-2.2.11`

Item	Requirement
Packages for Asianux 3, Oracle Enterprise Linux 5.0, and Red Hat Enterprise Linux 5.0	The following packages (or later versions) must be installed: binutils-2.17.50.0.6-2.el5 compat-libstdc++-33-3.2.3-61 elfutils-libelf-0.125-3.el5 elfutils-libelf-devel-0.125 gcc-4.1.1-52 gcc-c++-4.1.1-52 glibc-2.5-12 glibc-common-2.5-12 glibc-devel-2.5-12 glibc-headers-2.5-12 libaio-0.3.106 libaio-devel-0.3.106 libgcc-4.1.1-52 libstdc++-4.1.1 libstdc++-devel-4.1.1-52.e15 make-3.81-1.1 sysstat-7.0.0 unixODBC-2.2.11 unixODBC-devel-2.2.11
SUSE Linux Enterprise Server 10	The following packages (or later versions) must be installed: binutils-2.16.91.0.5 compat-libstdc++-5.0.7 gcc-4.1.0 glibc-2.4-31.2 glibc-devel-2.4-31.2 ksh-93r-12.9 libaio-0.3.104 libaio-devel-0.3.104 libelf-0.8.5 libgcc-4.1.0 libstdc++-4.1.0 libstdc++-devel-4.1.0 make-3.80 sysstat-6.0.2 unixODBC-2.2.11 unixODBC-devel-2.2.11

For Linux x86-64:

Item	Requirement
Packages for Asianux 2.0, Oracle Enterprise Linux 4.0, and Red Hat Enterprise Linux 4.0	The following packages (or later versions) must be installed: binutils-2.15.92.0.2 compat-libstdc++-33-3.2.3 compat-libstdc++-33-3.2.3 (32 bit) elfutils-libelf-0.97 elfutils-libelf-devel-0.97 gcc-3.4.5 gcc-c++-3.4.5 glibc-2.3.4-2.19 glibc-2.3.4-2.19 (32 bit) glibc-common-2.3.4 glibc-devel-2.3.4 glibc-devel-2.3.4 (32-bit) libaio-0.3.105 libaio-0.3.105 (32 bit) libaio-devel-0.3.105 libgcc-3.4.5 libgcc-3.4.5 (32-bit) libstdc++-3.4.5 libstdc++-3.4.5 (32 bit) libstdc++-devel 3.4.5 make-3.80 sysstat-5.0.5
Packages for Asianux 3.0, Oracle Enterprise Linux 5.0, and Red Hat Enterprise Linux 5.0	The following packages (or later versions) must be installed: binutils-2.17.50.0.6 compat-libstdc++-33-3.2.3 compat-libstdc++-33-3.2.3 (32 bit) elfutils-libelf-0.125 elfutils-libelf-devel-0.125 gcc-4.1.1 gcc-c++-4.1.1 glibc-2.5-12 glibc-2.5-12 (32 bit) glibc-common-2.5 glibc-devel-2.5 glibc-devel-2.5-12 (32 bit) libaio-0.3.106 libaio-0.3.106 (32 bit) libaio-devel-0.3.106 libgcc-4.1.1 libgcc-4.1.1 (32 bit) libstdc++-4.1.1 libstdc++-4.1.1 (32 bit) libstdc++-devel 4.1.1 make-3.81 sysstat-7.0.0

Item	Requirement
SUSE Linux Enterprise Server 10	The following packages (or later versions) must be installed: binutils-2.16.91.0.5 compat-libstdc++-5.0.7-22.2 gcc-4.1.0 gcc-c++-4.1.0 glibc-2.4-31.2 glibc-32bit-2.4-31.2 (32 bit) glibc-devel-2.4 glibc-devel-32bit-2.4 (32 bit) libaio-0.3.104 libaio-32bit-0.3.104 (32 bit) libaio-devel-0.3.104 libelf-0.8.5 libgcc-4.1.0 libstdc++-4.1.0 libstdc++-devel-4.1.0 make-3.80 sysstat-6.0.2

To determine whether the required packages are installed, enter commands similar to the following:

```
# rpm -q package_name
```

If a package is not installed, then install it from the Linux distribution media or download the required package version from the Linux vendor's Web site.

Compiler Requirements

The following are the compiler requirements for Pro*C/C++ , Oracle Call Interface, Oracle C++ Call Interface, and Oracle XML Developer's Kit (XDK) with Oracle Database 11*g* Release 1:

Intel C++ Compiler 9.1 or later and the version of GNU C and C++ compilers listed under "Package Requirements" on page 6 are supported with these products.

> **Note:** Intel Compiler v9.1 can be used only with gcc 3.4.5 or gcc 4.0 or gcc 4.1 standard template libraries to build Oracle C++ Call Interface (OCCI) applications.
>
> Oracle XML Developer's Kit is supported with the same compilers as OCCI.

Additional Software Requirements

Depending on the components you want to use, you must ensure that the following software are installed:

- Oracle ODBC Drivers
- Oracle JDBC/OCI Drivers
- Oracle Messaging Gateway
- Browser Requirements

Oracle ODBC Drivers

If you intend to use ODBC, then you should install the most recent ODBC Driver Manager for Linux. You can download and install the Driver Manager from the following URL:

http://www.unixodbc.org

Linux RPMs are available on the site.

You do not require ODBC Driver Manager to install Oracle Database.

To use ODBC, you must also install the following additional 32-bit ODBC RPMs, depending on your operating system.

Asianux 2, Enterprise Linux 4, and Red Hat Enterprise Linux 4:

```
unixODBC-2.2.11 (32 bit) or later
unixODBC-devel-2.2.11 (32 bit) or later
```

Asianux 3, Enterprise Linux 5, and Red Hat Enterprise Linux 5:

```
unixODBC-2.2.11 (32 bit) or later
unixODBC-devel-2.2.11 (32 bit) or later
```

SUSE 10:

```
unixODBC-32bit-2.2.11 (32 bit) or later
unixODBC-devel-32bit-2.2.11 (32 bit) or later
```

Oracle JDBC/OCI Drivers

You can use `Sun JDK 1.5.0-06 with the JNDI extension` JDK versions with the Oracle Java Database Connectivity and Oracle Call Interface drivers. However, these are not mandatory for the installation.

Oracle Messaging Gateway

Oracle Messaging Gateway supports the integration of Oracle Streams Advanced Queuing (AQ) with the following software:

- IBM WebSphere MQ V6.0, client and server, with corrective service diskette 5 (CSD05) or later:

  ```
  MQSeriesClient
  MQSeriesServer
  MQSeriesRuntime
  ```

- TIBCO Rendezvous 7.3

If you require a CSD for WebSphere MQ, then refer to the following Web site for download and installation information:

http://www-306.ibm.com/software/integration/wmq/support

Browser Requirements

Web browsers must support Java Script and the HTML 4.0 and CSS 1.0 standards. The following Web browsers are supported for Oracle Enterprise Manager Database Control:

- Netscape Navigator 7.2
- Netscape Navigator 8.1
- Mozilla version 1.7

- Microsoft Internet Explorer 6.0 SP2
- Microsoft Internet Explorer 7.0
- Firefox 1.0.4
- Firefox 1.5
- Firefox 2.0

Instant Client Light Requirements

In addition to the requirements described in the preceding section, if you plan to use Instant Client Light, then the applications must use the following languages and character sets:

- **Language:** Any language that is supported by Oracle
- **Territory:** Any territory that is supported by Oracle
- **Character sets:**
  - Single byte
    - US7ASCII
    - WE8DEC
    - WE8MSWIN1252
    - WE8ISO8859P1
  - Unicode
    - UTF8
    - AL16UTF16
    - AL32UTF8

    Instant Client Light can connect to databases having one of the following database character sets:
    - US7ASCII
    - WE8DEC
    - WE8MSWIN1252
    - WE8ISO8859P1
    - WE8EBCDIC37C
    - WE8EBCDIC1047
    - UTF8
    - AL32UTF8

The language, territory, and character sets are determined by the `NLS_LANG` environment variable.

Creating Required Operating System Group and User

Depending on whether this is the first time Oracle software is being installed on this system and on the products that you are installing, you may need to create the following operating system group and user:

- The Oracle Inventory group (`oinstall`)

  You must have a group whose members are given access to write to the Oracle Central Inventory (`oraInventory`). The Central Inventory contains the following:

  – A registry of the Oracle home directories (Oracle Clusterware, Oracle Database, and Automatic Storage Management) on the system.

  – Installation logs and trace files from installations of Oracle software. These files are also copied to the respective Oracle homes for future reference.

  Other metadata inventory information regarding Oracle installations are stored in the individual Oracle home inventory directories, and are separate from the Central Inventory.

  For new installations, Oracle recommends that you allow OUI to create the Central Inventory directory. By default, if you create an Oracle path in compliance with OFA structure, such as `/u01/app`, then the Central Inventory is created in the path `u01/app/oraInventory`, using correct permissions to allow all Oracle installation owners to write to this directory.

- The Oracle software owner user (typically, `oracle`)

  You must create this user the first time you install Oracle software on the system. This user owns all of the software installed during the installation. This user must have the Oracle Inventory group as its primary group. It must also have the OSDBA and OSOPER groups as secondary groups.

  Note: IOracle documentation, this user is referred to as the `oracle` user.

A single Oracle Inventory group is required for all installations of Oracle software on the system. After the first installation of Oracle software, you must use the same Oracle Inventory group for all subsequent Oracle software installations on that system. However, you can choose to create different Oracle software owner users for separate installations.

Note: The following sections describe how to create local users and groups. As an alternative to creating local users and groups, you could create the appropriate users and groups in a directory service, for example, Network Information Services (NIS). For information about using directory services, contact the system administrator or refer to the operating system documentation.

The following sections describe how to create the required operating system users and groups:

- Creating the Oracle Inventory Group
- Creating the Oracle Software Owner User

Creating the Oracle Inventory Group

You must create the Oracle Inventory group if it does not already exist. The following subsections describe how to determine the Oracle Inventory group name, if it exists, and how to create it if necessary.

Determining Whether the Oracle Inventory Group Exists

When you install Oracle software on the system for the first time, Oracle Universal Installer creates the `oraInst.loc` file. This file identifies the name of the Oracle Inventory group (typically, `oinstall`), and the path of the Oracle Inventory directory. An `oraInst.loc` file has contents similar to the following:

```
inventory_loc=central_inventory_location
inst_group=group
```

In the preceding example, *central_inventory_location* is the location of the Oracle Central Inventory, and *group* is the name of the group that has permissions to write to the central inventory.

If you have an existing Oracle Inventory, then ensure that you use the same Oracle Inventory for all Oracle software installations, and ensure that all Oracle software users you intend to use for installation have permissions to write to this directory.

To determine whether the Oracle Inventory group exists, enter the following command:

```
# more /etc/oraInst.loc
```

If the `oraInst.loc` file exists, then the output from this command is similar to the following:

```
inventory_loc=/u01/app/oraInventory
inst_group=oinstall
```

In the previous output example:

- The `inventory_loc` group shows the location of the Oracle Inventory
- The `inst_group` parameter shows the name of the Oracle Inventory group (in this example, `oinstall`).

Creating the Oracle Inventory Group

If the `oraInst.loc` file does not exist, then enter the following command to create the Oracle Inventory group:

```
# /usr/sbin/groupadd oinstall
```

Creating the Oracle Software Owner User

You must create an Oracle software owner user in the following circumstances:

- If an Oracle software owner user does not exist, for example, if this is the first installation of Oracle software on the system
- If an Oracle software owner user exists, but you want to use a different operating system user

Determining Whether an Oracle Software Owner User Exists

To determine whether an Oracle software owner user named `oracle` exists, enter the following command:

```
# id oracle
```

If the `oracle` user exists, then the output from this command is similar to the following:

```
uid=440(oracle) gid=200(oinstall) groups=201(dba),202(oper)
```

If the user exists, then determine whether you want to use the existing user or create another `oracle` user. If you want to use the existing user, then ensure that the user's primary group is the Oracle Inventory group. Refer to one of the following sections for more information:

> **Note:** If necessary, contact the system administrator before using or modifying an existing user.

- If you want to use the existing Oracle software owner user, and the user's primary group is the Oracle Inventory group, then refer to the "Identifying Required Software Directories" section on page 2-14.
- To modify an existing user, refer to the "Modifying an Oracle Software Owner User" section on page 2-14.
- To create a user, refer to the following section.

Creating an Oracle Software Owner User

If the Oracle software owner user does not exist or if you require a new Oracle software owner user, then create it as follows. In the following procedure, use the user name `oracle` unless a user with that name already exists.

1. To create the `oracle` user, enter a command similar to the following:

   ```
   # /usr/sbin/useradd -g oinstall[ -G dba]oracle
   ```

   In this command:

   - The `-g` option specifies the primary group, which must be the Oracle Inventory group, for example `oinstall`
   - The `-G` option specifies optional secondary groups, the OSOPER group.For example `dba` .

2. Set the password of the `oracle` user:

   ```
   # passwd oracle
   ```

Refer to the "Identifying Required Software Directories" section on page 2-14 to continue.

Modifying an Oracle Software Owner User

If the `oracle` user exists, but its primary group is not `oinstall`, then enter a command similar to the following to modify it. Specify the primary group using the `-g` option and any required secondary group using the `-G` option.

Identifying Required Software Directories

You must identify or create the following directories for the Oracle software:

- Oracle Base Directory
- Oracle Inventory Directory
- Oracle Home Directory

Oracle Base Directory

The Oracle base directory is a top-level directory for Oracle software installations. It is analogous to the `C:\Oracle` directory used for Oracle software installations on Microsoft Windows systems. On Linux systems, the Optimal Flexible Architecture (OFA) guidelines recommend that you use a path similar to the following for the Oracle base directory:

/mount_point/app/*oracle_sw_owner*

In this example:

- *mount_point* is the mount point directory for the file system that will contain the Oracle software.

  The examples in this guide use `/u01` for the mount point directory. However, you could choose another mount point directory, such as `/oracle` or `/opt/oracle`.

- *oracle_sw_owner* is the operating system user name of the Oracle software owner, for example `oracle`.

You need to specify the `ORACLE_BASE` folder that contains all Oracle products.

> **Note:** If you have an existing Oracle base, then you can select it from the Use existing drop down box. By default, the drop down box contains the existing value for Oracle base selected.
>
> If you do not have an Oracle base, then you can create a new one by editing the text in the list box.

You can use the same Oracle base directory for more than one installation or you can create separate Oracle base directories for different installations. If different operating system users install Oracle software on the same system, then each user must create a separate Oracle base directory. The following example Oracle base directories could all exist on the same system:

```
/u01/app/oracle
/u01/app/orauser
/opt/oracle/app/oracle
```

The following sections describe how to identify existing Oracle base directories that may be suitable for the installation and how to create an Oracle base directory if necessary.

Regardless of whether you create an Oracle base directory or decide to use an existing one, you must set the `ORACLE_BASE` environment variable to specify the full path to this directory.

Oracle Inventory Directory

The Oracle Inventory directory (`oraInventory`) stores an inventory of all software installed on the system. It is required by, and shared by, all Oracle software installations on a single system. If you have an existing Oracle Inventory path, then Oracle Universal Installer continues to use that Oracle Inventory.

The first time you install Oracle software on a system, Oracle Universal Installer checks to see if you have created an OFA-compliant path in the format `u[01-09]/app`, such as `/u01/app`, and that the user running the installation has permissions to write to that path. If this is true, then Oracle Universal Installer creates

the Oracle Inventory directory in the path `/u[01-09]/app/oraInventory`. For example:

```
/u01/app/oraInventory
```

If you have set the environment variable `$ORACLE_BASE` for the `oracle` user, then Oracle Universal Installer creates the Oracle Inventory directory in the path `$ORACLE_BASE/../oraInventory`. For example, if `$ORACLE_BASE` is set to `/opt/oracle/11`, then the Oracle Inventory directory is created in the path `/opt/oracle/oraInventory`.

If you have created neither an OFA-compliant path nor set `$ORACLE_BASE`, then the Oracle Inventory directory is placed in the home directory of the user that is performing the installation. For example:

```
/home/oracle/oraInventory
```

Oracle Universal Installer creates the directory that you specify and sets the correct owner, group, and permissions for it. You do not need to create it.

Note: All Oracle software installations rely on this directory. Ensure that you back it up regularly.

Do not delete this directory unless you have completely removed all Oracle software from the system.

Oracle Home Directory

The Oracle home directory is the directory where you choose to install the software for a particular Oracle product. You must install different Oracle products, or different releases of the same Oracle product, in separate Oracle home directories. When you run Oracle Universal Installer, it prompts you to specify the path to this directory, as well as a name that identifies it. The directory that you specify must be a subdirectory of the Oracle base directory. Oracle recommends that you specify a path similar to the following for the Oracle home directory:

```
$ORACLE_BASE/product/11.1.0/client_1
```

Oracle Universal Installer creates the directory path that you specify under the Oracle base directory. It also sets the correct owner, group, and permissions on it. You do not need to create this directory.

Caution: During installation, you must not specify an existing directory that has predefined permissions applied to it as the Oracle home directory. If you do, then you may experience installation failure due to file and group ownership permission errors.

Identifying or Creating an Oracle Base Directory

Before starting the installation, you must either identify an existing Oracle base directory or if required, create one. This section contains information about the following:

- Identifying an Existing Oracle Base Directory
- Creating an Oracle Base Directory

Note: You can choose to create an Oracle base directory, even if other Oracle base directories exist on the system.

Identifying an Existing Oracle Base Directory

Existing Oracle base directories may not have paths that comply with OFA guidelines. However, if you identify an existing Oracle Inventory directory or existing Oracle home directories, then you can usually identify the Oracle base directories, as follows:

- Identifying an existing Oracle Inventory directory

  Enter the following command to view the contents of the `oraInst.loc` file:

  ```
  # more /etc/oraInst.loc
  ```

  If the `oraInst.loc` file exists, then the output from this command is similar to the following:

  ```
  inventory_loc=/u01/app/oraInventory
  inst_group=oinstall
  ```

  The `inventory_loc` parameter identifies the Oracle Inventory directory (`oraInventory`). The parent directory of the `oraInventory` directory is typically an Oracle base directory. In the previous example, `/u01/app/oracle` is an Oracle base directory.

- Identifying existing Oracle home directories

  Enter the following command to view the contents of the `oratab` file:

  ```
  # more /etc/oratab
  ```

  If the `oratab` file exists, then it contains lines similar to the following:

  ```
  *:/u03/app/oracle/product/11.1.0/db_1:N
  *:/opt/orauser/infra_904:N
  *:/oracle/9.2.0:N
  ```

  The directory paths specified on each line identify Oracle home directories. Directory paths that end with the user name of the Oracle software owner that you want to use are valid choices for an Oracle base directory. If you intend to use the `oracle` user to install the software, then you could choose one of the following directories from the previous example:

  ```
  /u03/app/oracle
  /oracle
  ```

  Note: If possible, choose a directory path similar to the first (`/u03/app/oracle`). This path complies with the OFA guidelines.

- Identifying existing Oracle base directories

  After you have located the Oracle home directory you can issue the following command to confirm the location of Oracle base:

  ```
  cat inventory/ContentsXML/oraclehomeproperties.xml
  ```

To continue:

- If an Oracle base directory exists and you want to use it, then refer to the "Configuring the oracle User's Environment" section on page 2-18.

  When you configure the `oracle` user's environment later in this chapter, set the `ORACLE_BASE` environment variable to specify the directory you chose.

- If an Oracle base directory does not exist on the system or if you want to create an Oracle base directory, then refer to the following section.

Creating an Oracle Base Directory

Before you create an Oracle base directory, you must identify an appropriate file system with disk space.

To identify an appropriate file system:

1. To determine the free disk space on each mounted file system use the following command:

   ```
   # df -k
   ```

2. From the display, identify a file system that has appropriate free space.
3. Note the name of the mount point directory for the file system that you identified.

To create the Oracle base directory and specify the correct owner, group, and permissions for it:

1. Enter commands similar to the following to create the recommended subdirectories in the mount point directory that you identified and set the appropriate owner, group, and permissions on them:

   ```
   # mkdir -p /mount_point/app
   # chown -R oracle:oinstall /mount_point/app
   # chmod -R 775 /mount_point/app/
   ```

   For example:

   ```
   # mkdir -p /u01/app
   # chown -R oracle:oinstall /u01/app
   # chmod -R 775 /u01/app/
   ```

2. When you configure the `oracle` user's environment later in this chapter, set the `ORACLE_BASE` environment variable to specify the Oracle base directory that you have created.

Configuring the oracle User's Environment

You run Oracle Universal Installer from the `oracle` account. However, before you start Oracle Universal Installer you must configure the environment of the `oracle` user. To configure the environment, you must:

- Set the default file mode creation mask (umask) to 022 in the shell startup file.
- Set the `DISPLAY` environment variable.

> **Note:** Ensure that the `PATH` variable contains `$ORACLE_HOME/bin` before `/usr/X11R6/bin`.

To set the `oracle` user's environment:

1. Start a new terminal session, for example, an X terminal (`xterm`).
2. Enter the following command to ensure that X Window applications can display on this system:

   ```
   $ xhost fully_qualified_remote_host_name
   ```

   For example:

   ```
   $ xhost somehost.us.example.com
   ```

3. If you are not already logged in to the system where you want to install the software, then log in to that system as the `oracle` user.
4. If you are not logged in as the `oracle` user, then switch user to `oracle`:

   ```
   $ su - oracle
   ```

5. To determine the default shell for the `oracle` user, enter the following command:

   ```
   $ echo $SHELL
   ```

6. Open the `oracle` user's shell startup file in any text editor:
   - Bash shell (`bash`) on SUSE Linux Enterprise Server:

     ```
     $ vi .profile
     ```

   - Bourne shell (`sh`), Bash shell on Red Hat (`bash`), or Korn shell (`ksh`):

     ```
     $ vi .bash_profile
     ```

   - C shell (`csh` or `tcsh`):

     ```
     % vi .login
     ```

7. Enter or edit the following line, specifying a value of 022 for the default file mode creation mask:

   ```
   umask 022
   ```

8. If the `ORACLE_SID`, `ORACLE_HOME`, or `ORACLE_BASE` environment variable is set in the file, then remove the appropriate lines from the file.
9. Save the file, and exit from the editor.
10. To run the shell startup script, enter one of the following commands:
    - Bash shell:

      ```
      $ . ./.bash_profile
      ```

    - Bourne or Korn shell:

      ```
      $ . ./.profile
      ```

    - C shell:

      ```
      % source ./.login
      ```

11. If you are not installing the software on the local system, then enter a command similar to the following to direct X applications to display on the local system:
    - Bourne, Bash, or Korn shell:

      ```
      $ DISPLAY=local_host:0.0 ; export DISPLAY
      ```

- C shell:

```
% setenv DISPLAY local_host:0.0
```

In this example, *local_host* is the host name or IP address of the system that you want to use to display Oracle Universal Installer (your workstation or PC).

12. If you determined that the `/tmp` directory has less than 400 MB of free disk space, then identify a file system with at least 400 MB of free space and set the `TMP` and `TMPDIR` environment variables to specify a temporary directory on this file system:

    a. To determine the free disk space on each mounted file system, use the following command:

```
# df -k
```

    b. If necessary, enter commands similar to the following to create a temporary directory on the file system that you identified, and set the appropriate permissions on the directory:

```
$ sudo mkdir /mount_point/tmp
$ sudo chmod a+wr /mount_point/tmp
# exit
```

    c. Enter commands similar to the following to set the `TMP` and `TMPDIR` environment variables:

    * Bourne, Bash, or Korn shell:

```
$ TMP=/mount_point/tmp
$ TMPDIR=/mount_point/tmp
$ export TMP TMPDIR
```

    * C shell:

```
% setenv TMP /mount_point/tmp
% setenv TMPDIR /mount_point/tmp
```

13. Enter the following commands to ensure that the `ORACLE_HOME` and `TNS_ADMIN` environment variables are not set:

- Bourne, Bash, or Korn shell:

```
$ unset ORACLE_HOME
$ unset TNS_ADMIN
```

- C shell:

```
% unsetenv ORACLE_HOME
% unsetenv TNS_ADMIN
```

> **Note:** If the `ORACLE_HOME` environment variable is set, then Oracle Universal Installer uses the value that it specifies as the default path for the Oracle home directory. However, if you set the `ORACLE_BASE` environment variable, then Oracle recommends that you unset the `ORACLE_HOME` environment variable and choose the default path suggested by Oracle Universal Installer.

14. To verify that the environment has been set correctly, enter the following commands:

```
$ umask
$ env | more
```

Verify that the `umask` command displays a value of `22`, `022`, or `0022` and the environment variables that you set in this section have the correct values.

3

Installing Oracle Database

The Oracle Client software is available on DVD or you can download it from the Oracle Technology Network Web site. In most cases, you use the graphical user interface (GUI) provided by Oracle Universal Installer to install the software. However, you can also use Oracle Universal Installer to complete silent-mode installations, without using the GUI.

- Reviewing Installation Guidelines
- Accessing the Installation Software
- Installing the Oracle Client Software

> **See Also:** Appendix A for information about silent-mode installations

Reviewing Installation Guidelines

Review the following guidelines before starting Oracle Universal Installer:

- Oracle Universal Installer

  Do not use Oracle Universal Installer from an earlier Oracle release to install components from this release.

- Installations on a Cluster

  If Oracle Clusterware and Oracle RAC are already installed on the system, Oracle Universal Installer displays the Specify Hardware Cluster Installation Mode screen. You must select **Local Installation** on this screen, unless you want to install Oracle RAC.

  > **See Also:** *Oracle Real Application Clusters Installation Guide for Linux and UNIX* for information on installing Oracle RAC

- Reinstalling Oracle Software

  If you reinstall Oracle software into an Oracle home directory where Oracle Database is already installed, you must also reinstall any components, such as Oracle Partitioning, that were installed before you begin the reinstallation.

Accessing the Installation Software

The Oracle Client software is available on DVD or you can download it from the Oracle Technology Network Web site. To install the software from the hard disk, you

must either download it from Oracle Technology Network and unpack it, or copy it from the DVD, if you have it.

You can access and install Oracle Database by using one of the following methods:

- To install the software from a DVD or from an existing hard disk location, refer to "Installing the Oracle Client Software" on page 3-5
- To copy the software to a hard disk, refer to "Copying the Software to the Hard Disk" on page 3-3
- To download the software from Oracle Technology Network, refer to "Downloading Oracle Software from the Oracle Technology Network Web Site" on page 3-2

Downloading Oracle Software from the Oracle Technology Network Web Site

This section describes how to download the installation archive files and extract them on to the hard disk. It contains the following topics:

- Downloading the Installation Archive Files
- Extracting the Installation Files

Downloading the Installation Archive Files

To download the installation archive files from Oracle Technology Network:

1. Use any browser to access the software download page from Oracle Technology Network:

   `http://www.oracle.com/technology/software/`

2. Navigate to the download page for the product that you want to install.
3. On the download page, identify the required disk space by adding the file sizes for each required file.

   The file sizes are listed next to the file names.
4. Select a file system with enough free space to store and expand the archive files.

   In most cases, the available disk space must be at least twice the size of all of the archive files.
5. On the file system that you selected in step 4, create a parent directory for each product, for example `OraDB11g`, to hold the installation directories.
6. Download all of the installation archive files to the directory that you created in step 5.
7. Verify that the files you downloaded are the same size as the corresponding files on Oracle Technology Network.

Extracting the Installation Files

To extract the installation archive files, perform the following steps:

1. If necessary, change directory to the directory that contains the downloaded installation archive files.
2. If the downloaded file has the `zip` extension, use the following command to extract the content:

   `unzip` *`file_name`*`.zip`

If the downloaded file has the `cpio.gz` extension, use the following command:

```
$ gunzip filename.cpio.gz
```

This command creates files with names similar to the following:

```
filename.cpio
```

To extract the installation files, enter a command similar to the following:

```
$ cpio -idcmv < filename.cpio
```

Note: Refer to the download page for information about the correct options to use with the `cpio` command.

Some browsers uncompress files while downloading them, but leave the `.gz` file extension.

For each file, this command creates a subdirectory named `Diskn`, where *n* is either 1 or the disk number identified in the file name.

When you have extracted all of the required installation files, refer to "Installing the Oracle Client Software" on page 3-5.

Copying the Software to the Hard Disk

Before installing Oracle Database, you might want to copy the software to the hard disk. This enables the installation process to run a bit faster. Before copying the DVD content to the hard disk, you must mount the disk. The following sections describe to mount disk and copy its content to the hard disk.

Mounting Disks

On most Linux systems, the disk mounts automatically when you insert it into the DVD drive. If the disk does not mount automatically, then follow these steps to mount it:

1. If necessary, enter a command similar to one of the following to eject the currently mounted disk, then remove it from the drive:
   - Asianux, Oracle Enterprise Linux, and Red Hat Enterprise Linux:

     ```
     $ sudo eject /mnt/dvd
     ```

   - SUSE Linux Enterprise Server:

     ```
     # eject /media/dvd
     ```

   In these examples, `/mnt/dvd` and `/media/dvd` are the mount point directories for the DVD drive.
2. Insert the appropriate DVD into the disk drive.
3. To verify if the disk is mounted automatically, enter one of the following commands depending on the platform:
   - Asianux, Oracle Enterprise Linux, and Red Hat Enterprise Linux:

     ```
     # ls /mnt/dvd
     ```

- SUSE Linux Enterprise Server:

```
# ls /media/dvd
```

4. If this command fails to display the contents of the DVD, enter a command similar to the following to mount it, depending on the platform:

> **Note:** Before running the following command, ensure that the `/mnt/dvd` directory exists on Red Hat Enterprise Linux. If not, create the `/mnt/dvd` as required, to mount the DVD.

- Asianux, Oracle Enterprise Linux, and Red Hat Enterprise Linux:

```
# mount -t iso9660 /dev/dvd /mnt/dvd
```

- SUSE Linux Enterprise Server:

```
# mount -t iso9660 /dev/dvd /media/dvd
```

In these examples, `/mnt/dvd` and `/media/dvd` are the mount point directories for the DVD drive.

5. If Oracle Universal Installer is displaying the Disk Location dialog box, enter the disk mount point directory path, for example:

```
/mnt/dvd
```

To continue, go to one of the following sections:

- If you want to copy software to a hard disk, refer to "Copying the Oracle Client Software to a Hard Disk" on page 3-4.
- If you want to install the software from the DVD, refer to "Installing the Oracle Client Software" on page 3-5.

Copying the Oracle Client Software to a Hard Disk

If the system does not have a DVD drive, you can copy the software from the DVD to a file system on another system, then either mount that file system using NFS, or use FTP to copy the files to the system where you want to install the software.

To copy the contents of the DVD to a hard disk:

1. Create a directory on the hard disk to hold the Oracle software:

```
$ mkdir OraCl11g
```

2. Change directory to the directory you created in step 1:

```
$ cd OraCl11g
```

3. Mount the disk, if it is not already mounted.

   Some platforms automatically mount the disk when you insert it into the drive. If the disk does not mount automatically, refer to the "Mounting Disks" section on page 3-3 for platform-specific information about mounting it.

4. Copy the contents of the mounted disk to the corresponding new subdirectory as follows:

```
$ cp -R /directory_path OraCl11g
```

In this example, */directory_path* is the disk mount point directory, for example `/mnt/dvd` on Red Hat Enterprise Linux systems, or the path of the client directory on the DVD. The mount point directory is `/dvd`.

5. If necessary, mount the next disk and repeat step 5.

Installing the Oracle Client Software

Use OUI to install the Oracle Database software.The following section describes how to install the Oracle software:

Running Oracle Universal Installer

This section describes the Basic Installation as a default setting. For any type of installation process, start Oracle Universal Installer and install the software, as follows:

1. Log on as a member of the Administrators group to the computer on which to install Oracle components.
2. If you are installing the software from DVD, mount the disk if it is not already mounted.

   If the disk does not mount automatically, refer to the "Mounting Disks" section on page 3-3 for platform-specific information about mounting it.

   Some platforms automatically mount the disk when you insert the DVD into the drive.
3. To start Oracle Universal Installer, complete one of the following steps depending on the location of the installation files:

   Note: Start Oracle Universal Installer from the terminal session where you logged in as the `oracle` user and set the user's environment (described in) Chapter 2.

   - If the installation files are on disk, enter commands similar to the following, where */directory_path* is the path of the `client` directory on the DVD:

     ```
     $ /directory_path/runInstaller
     ```

   - If the installation files are on the hard disk, change directory to the `client` directory and enter the following command:

     ```
     $ ./runInstaller
     ```

   If Oracle Universal Installer is not displayed, refer to the "X Window Display Errors" on page C-1 for information about troubleshooting.
4. In the Select a Product to Install screen, select the product that you want to install: **Oracle Database 11*g***, **Oracle Client**, or **Oracle Clusterware** and click **Next**.
5. In the Select Installation Type screen, select the type of installation that you want: **Instant Client**, **Administrator**, **Runtime**, or **Custom** and click **Next**.

   See Also: "Oracle Client Installation Types" for more information on these installation types.
6. In the Install Location screen, enter the following details:

- Oracle base path: Enter the directory location for Oracle base. Do not include spaces in the path name.
- Name: Enter the name of the Oracle home.

  Install Oracle Database Client into a new Oracle home, even if you are installing onto a computer that has existing Oracle components installed.

  6/28/05: Updated the following per Matt McKerley.

  Do not install Oracle Database Client 11*g* release 1 (11.1) software into an existing Oracle home that contains Oracle Database 10*g* or earlier software. You can install Oracle Database Client into an existing Oracle home that contains Oracle Database Client 10*g* release 1 (10.1) or later software, so long as Oracle Database is not installed in the same home.
- Oracle home path: This field is populated by default in concurrence with Oracle base location.

7. Click **Next**.
8. If you selected Custom in Step 5, in the Available Product Components screen, select the components you want to install and click **Next** or **Install**.
9. In the Product-specific Prerequisite Checks screen, correct any errors that Oracle Universal Installer may have found, and then click **Next**.
10. In the Summary screen, check the installed components listing and click **Install**.
11. If you have selected Custom installation types, follow steps 12 to 20 to complete the Oracle Net Configuration Assistant procedure.

    If you have selected the Administrator or Runtime installation type, then Net Configuration Assistant is invoked as a part of the installation. Click **Next** to complete the installation You should then start the Net Configuration Assistant and follow steps 12 to 20 to complete configuration process.

    If you selected the Instant Client installation type, go to Step 21. After you complete the installation, you can follow the steps under "Connecting Instant Client or Instant Client Light to an Oracle Database" on page 4-3 to configure the database connection.
12. In the Oracle Net Configuration Assistant: Welcome screen, either select **Perform typical configuration** to use a default configuration, or select the **Naming Methods** configuration option. Then click **Next**. (The remaining steps in this procedure assume you are using Naming Methods.)
13. In the Naming Methods Configuration, Select Naming Methods screen, select the naming method you want and then click **Next**.

    In most cases, Local Naming is sufficient.
14. In the Net Service Name Configuration, Service Name screen, enter the name of the database service to which you want to connect. Click **Next**.

    For example, to connect to a database named `sales`, enter `sales`.
15. In the Net Service Name Configuration, Select Protocol screen, depending on the protocol you selected, enter the appropriate information and click **Next**.
16. In the Net Service Name Configuration, TCP/IP Protocol screen, enter the host name of the computer where the Oracle database is installed. Specify the port number, then click **Next**.

    For example, to connect to the computer `shobeen`, you would enter `shobeen`.

17. In the Net Service Name Configuration, Test screen, click **Yes** to perform a test of the connection. Then click **Next**.

    In most cases, the test fails only because the default user name and password Oracle Universal Installer supplies in the dialog box do not match the user name and password for the target database. Click **Change Login**, re-enter the user name and password, and then click **OK**.

18. In the Connecting screen, click **Next**.

19. In the Net Service Name screen, enter the name of the net service name to use.

20. Answer the remaining prompts to complete the configuration.

21. In the End of Installation screen, click **Exit**, then click **Yes** to exit from Oracle Universal Installer.

22. Go to Chapter 4, "Oracle Database Postinstallation Tasks" to complete the postinstallation tasks.

4

Oracle Database Postinstallation Tasks

This chapter describes how to complete postinstallation tasks after you have installed the software. It includes information about the following sections:

- Required Postinstallation Tasks
- Recommended Postinstallation Tasks
- Required Product-Specific Postinstallation Tasks
- Postinstallation tasks for SQL Developer

You must perform the tasks listed in the "Required Postinstallation Tasks" section. Oracle recommends that you perform the tasks listed in the "Recommended Postinstallation Tasks" section after all installations.

If you installed and intend to use any of the products listed in the "Required Product-Specific Postinstallation Tasks" section, then you must perform the tasks listed in the product-specific subsections.

> **Note:** This chapter describes basic configuration only. Refer to *Oracle Database Administrator's Reference for Linux and UNIX* and product-specific administration and tuning guides for more detailed configuration and tuning information.

Required Postinstallation Tasks

You must perform the tasks described in the following sections after completing an installation:

- Downloading and Installing Patches
- Updating Instant Client
- Connecting with Instant Client

Downloading and Installing Patches

Check the Oracle*MetaLink* Web site for required patches for the installation.

> **Note:** You cannot update Instant Client by downloading a patch. Use the procedure under "Updating Instant Client" on page 4-2 to update Instant Client.

To download required patches:

1. Use a Web browser to view the Oracle*MetaLink* Web site:

   `https://metalink.oracle.com`

2. Log in to Oracle*MetaLink*.

   Note: If you are not an Oracle*MetaLink* registered user, click **Register for MetaLink!** and follow the registration instructions.

3. On the main Oracle*MetaLink* page, click **Patches and Updates**.
4. Select **Simple Search**.
5. Specify the following information, then click **Go**:
   - In the **Search By** field, choose Product or Family, then specify RDBMS Server.
   - In the **Release** field, specify the current release number.
   - In the **Patch Type** field, specify Patchset/Minipack.
   - In the **Platform or Language** field, select your platform.

Updating Instant Client

To update Instant Client:

1. Download Instant Client from Oracle Technology Network `http://www.oracle.com/technology/index.html`.
2. If you want to place the files in the existing directory, then ensure that the directory is empty.

   If you want to place the files into a different directory (and remove the previous files), ensure that you update the `PATH` environment variable setting to reflect the new location.

   Caution: A restriction on using Instant Client or Instant Client Light is that you cannot perform patch upgrades on it using the `opatch` utility. The reason is that the Instant Client installation does not create an inventory, which the patch upgrade process needs in order to perform. The absence of an inventory also means that installed intern patch reporting and conflict detection before a patch attempt are not possible.

Connecting with Instant Client

If you installed the Instant Client installation type, you can configure users' environments to enable dynamically linked client applications to connect to a database as follows:

1. Set the appropriate shared library path environment variable for the platform to specify the directory that contains the Instant Client libraries. For the Instant Client installation type, this directory is the Oracle home directory that you specified during the installation, for example:

   ```
   /u01/app/oracle/product/11.1.0/client_1
   ```

2. Use one of the following methods to specify database connection information for the client application:

- Specify a SQL connect URL string using the following format:

  `//host:port/service_name`

- Set the `TNS_ADMIN` environment variable to specify the location of the `tnsnames.ora` file and specify a service name from that file.
- Set the `TNS_ADMIN` environment variable and set the `TWO_TASK` environment variable to specify a service name from the `tnsnames.ora` file.

Note: You do *not* have to specify the `ORACLE_HOME` environment variable.

Recommended Postinstallation Tasks

Oracle recommends that you perform the tasks described in the following section after completing an installation:

- Configuring Instant Client Light
- Creating a Backup of the `root.sh` Script
- Connecting Instant Client or Instant Client Light to an Oracle Database
- Setting Up User Accounts
- Setting the NLS_LANG Environment Variable
- Generating the Client Static Library

Configuring Instant Client Light

When you install Instant Client, the Instant Client libraries are installed under the `ORACLE_HOME` directory and the Instant Client Light specific library is installed under the `ORACLE_HOME/light` directory. To configure Instant Client Light, you must replace the `ORACLE_HOME/libociei.so` file with the `ORACLE_HOME/light/libociicus.so` file.

After replacing the library file, you must set the `LD_LIBRARY_PATH` environment variable to point to the location of the Instant Client shared library files.

Creating a Backup of the `root.sh` Script

Oracle recommends that you back up the `root.sh` script after you complete an installation. If you install other products in the same Oracle home directory, then Oracle Universal Installer updates the contents of the existing `root.sh` script during the installation. If you require information contained in the original `root.sh` script, then you can recover it from the backed up `root.sh` file.

Connecting Instant Client or Instant Client Light to an Oracle Database

Before you can connect Instant Client (including Instant Client Light) to an Oracle database, make sure that the `LD_LIBRARY_PATH` environment variable specifies the directory that contains the Instant Client libraries. This directory is the `ORACLE_HOME` directory that you specified during installation.

For example, the shared libraries for Instant Client or Instant Client Light (if you have configured Instant Client Light), are in:

```
/u01/app/oracle/product/11.1.0/client_1
```

After you have checked the LD_LIBRARY_PATH environment variable, you can use any of the following methods to specify Oracle Database connection information for client applications:

- Specifying a Connection by Using the Easy Connect Naming Method
- Specifying a Connection by Configuring a tnsnames.ora File
- Specifying a Connection by Using an Empty Connect String and the TWO_TASK Environment Variable

Specifying a Connection by Using the Easy Connect Naming Method

You can specify a connection address to an Oracle Database directly from a client application, without having to configure a tnsnames setting for the Instant Client. This method is convenient in that you do not have to create and manage a tnsnames.ora file. However, the application users will need to specify the host name and port number when they want to log in to the application.

For example, suppose you are running SQL*Plus on the client computer and want to connect to the sales_us database, which is located on a server whose host name is shobeen and port number is 1521, then you can log in as follows:

```
Enter user-name: system@admin@//shobeen:1521/sales_us
```

Similarly, in the application code, you can use Oracle Call Interface net naming methods to create the Instant Client-to-Oracle Database connection. For example, the following formats in the OCIServerAttach() call specify the connection information:

- Specify a SQL connect URL string using the following format:

  ```
  //host[:port][/service_name]
  ```

  For example:

  ```
  //shobeen:1521/sales_us
  ```

- Alternatively, you can specify the SQL connect information as an Oracle Net keyword-value pair. For example:

  ```
  "(DESCRIPTION=(ADDRESS=(PROTOCOL=tcp) (HOST=shobeen) (PORT=1521))
  (CONNECT_DATA=(SERVICE_NAME=sales_us)))"
  ```

> **See Also:** *Oracle Call Interface Programmer's Guide* for more information on using Oracle Call Interface Instant Client

Specifying a Connection by Configuring a tnsnames.ora File

By default, when you install Instant Client, Oracle Universal Installer does not include a sample tnsnames.ora file nor the Oracle Net Configuration Assistant utility normally used to create it. However, if you want to shield users from having to specify actual host names and port numbers, you may want to consider using a tnsnames.ora file to set the Client-to-Oracle Database connection.

You can create the tnsnames.ora file manually by copying and modifying a version of this file from another Oracle installation, or you can use Oracle Net Configuration Assistant to create and manage it for you.

To install Oracle Net Configuration Assistant:

1. Run Oracle Universal Installer.

2. Select the **Custom** installation type.
3. In the Summary screen, click **Install**, then click **Exit** and **Yes** to exit Oracle Universal Installer.

On each client computer, configure either of the following settings:

- Set the `TNS_ADMIN` environment variable to specify the location of the `tnsnames.ora` file and specify a service name from that file.
- Place the `tnsnames.ora` file in the `$ORACLE_HOME/network/admin` directory, and make sure that the `ORACLE_HOME` environment has been set to this Oracle home.

> **See Also:** *Oracle Call Interface Programmer's Guide* for more information on Oracle Call Interface Instant Client connection strings

Specifying a Connection by Using an Empty Connect String and the TWO_TASK Environment Variable

You can set the connect string to an empty connect string (""), and then set the `TWO_TASK` environment variable to one of the following values:

- A direct address, as described under "Specifying a Connection by Using the Easy Connect Naming Method" on page 4-4
- Oracle Net keyword-value pair
- A `tnsnames.ora` entry and `TNS_ADMIN` is set to the location of `tnsnames.ora`
- A `tnsnames.ora` entry and the following:
  - `tnsnames.ora` file located in `$ORACLE_HOME/network/admin`
  - The `ORACLE_HOME` environment variable set to this Oracle home

This method allows the applications to specify internally a connection string if the application code itself uses an empty connection string. The benefit of an empty connect string is that the application itself does not need to specify the `tnsnames.ora` entry. Instead, when a user invokes the application, the location of the database is determined by a script or the environment, depending on where you have set the `TWO_TASK` environment variable. The disadvantage of using empty strings is that you need to configure this additional information in order for the application to connect to the database.

Setting Up User Accounts

For information about setting up additional user accounts, refer to *Oracle Database Administrator's Reference for Linux and UNIX*.

Setting the NLS_LANG Environment Variable

`NLS_LANG` is an environment variable that specifies the locale behavior for Oracle software. This variable sets the language and territory used by the client application and the database server. It also declares the character set of the client, which is the character set of data entered or displayed by an Oracle client program, such as SQL*Plus.

> **See Also:** Appendix B, "Configuring Oracle Database Globalization Support" for more information about the `NLS_LANG` environment variable

Note: The character set of the data displayed is determined by the environment of the operating system, such as keyboard driver and fonts in use. The NLS_LANG character set should match the operating system.

Generating the Client Static Library

The client static library (libclntst11.a) is not generated during installation. If you want to link the applications to the client static library, you must first generate it as follows:

1. Switch user to oracle.
2. Set the ORACLE_HOME environment variable to specify the Oracle home directory used by the Oracle Database installation. For example:
   - Bourne, Bash, or Korn shell:

     ```
     $ ORACLE_HOME=/u01/app/oracle/product/11.1.0/db_1
     $ export ORACLE_HOME
     ```

   - C shell:

     ```
     % setenv ORACLE_HOME /u01/app/oracle/product/11.1.0/db_1
     ```

3. Enter the following command:

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

Required Product-Specific Postinstallation Tasks

The following sections describe platform-specific postinstallation tasks that you must perform if you install and intend to use the products mentioned:

- Configuring Oracle Net Services
- Configuring Oracle Precompilers

Note: You need only perform postinstallation tasks for products that you intend to use.

Configuring Oracle Net Services

If you have an earlier release of Oracle software installed on this system, you might want to copy information from the Oracle Net tnsnames.ora and listener.ora configuration files from the earlier release to the corresponding files for the new release.

Note: The default location for the tnsnames.ora and listener.ora files is the $ORACLE_HOME/network/admin/ directory. However, you can also use a central location for these files.

If necessary, you can also add connection information for additional database instances to the new file.

Configuring Oracle Precompilers

This section describes postinstallation tasks for Oracle precompilers:

- Configuring Pro*C/C++
- Configuring Pro*FORTRAN

> **Note:** All precompiler configuration files are located in the `$ORACLE_HOME/precomp/admin` directory.

Configuring Pro*C/C++

Verify that the `PATH` environment variable setting includes the directory that contains the C compiler executable.

Table 4–1 shows the default directories and the appropriate command to verify the path setting of the compiler.

Table 4–1 C/C++ Compiler Directory

Path	Command
`/usr/bin`	`$ which gcc`
`/opt/intel_cce_80/bin/icc`	`$ which icc`

Configuring Pro*FORTRAN

Verify that the PATH environment variable setting includes the directory that contains the FORTRAN compiler executable. You can verify the path setting by using the which `xlf` command.

Postinstallation tasks for SQL Developer

This section describes tasks that you need to complete after you install the software:

- Migrating User Settings from Release 1.0
- Migrating Information from Previous Releases
- Location of User-Related Information

Migrating User Settings from Release 1.0

The first time you start SQL Developer after installing it or after adding any extensions, you are asked if you want to migrate your user settings from a previous release. (This occurs regardless of whether there was a previous release on your system.)

> **Note:** Migration of user settings is supported only from SQL Developer release 1.0 to release 1.1. It is *not* supported for migration from a pre-release version of 1.1 to release 1.1.

These settings refer to database connections, reports, and certain SQL Developer user preferences that you set in a previous version by clicking **Tools** and then **Preferences**. However, some user preferences are not saved, and you must re-specify these using the new release.

To migrate user settings from SQL Developer release 1.0:

1. Unzip the release 1.1 kit into an empty directory (folder). Do not delete or overwrite the directory into which you unzipped the release 1.0 kit.
2. When you start SQL Developer release 1.1, click **Yes** when asked if you want to migrate settings from a previous release.
3. In the dialog box that is displayed, do *not* accept the default location for the settings. Instead, specify the location of your release 1.0 settings, which might be a folder whose path ends with `sqldeveloper/jdev/system`.

See Also: "Migrating Information from Previous Releases" on page 4-8 for more information

Migrating Information from Previous Releases

If you have used a previous release of SQL Developer or a pre-release version of the current release, you may want to preserve database connections that you have been using. To preserve database connections, save your existing database connections in an XML file. To save the connections, right-click the Connections node in the Connections Navigator and select **Export Connections**. After you complete the installation described in this guide, you can use those connections by right-clicking the Connections node in the Connections Navigator and selecting **Import Connections**

If you want to use any user-defined reports or the SQL history from a previous version, see "Location of User-Related Information" on page 4-8 for information about where these are located. If you want to use any user-defined reports or the SQL history from release 1.0 with both releases 1.0 and 1.1, you must save them before using release 1.1, because release 1.1 modifies the files to a format that is incompatible with release 1.0.

SQL Developer preferences (specified by clicking Tools and then Preferences) from a pre-release version of the current release cannot currently be saved and reused; you must re-specify any desired preferences.

Location of User-Related Information

SQL Developer stores user-related information in several places, with the specific location depending on the operating system and certain environment specifications. User-related information includes user-defined reports, user-defined snippets, SQL Worksheet history, and SQL Developer user preferences.

The user-related information is stored outside the SQL Developer installation directory hierarchy, so that it is preserved if you delete that directory and install a new version. This information is stored in or under the `SQLDEVELOPER_USER_DIR` location, if defined; otherwise as indicated in the following table.

The table shows the typical default locations (under a directory or in a file) for specific types of resources on different operating systems. (Note the period in the name of any directory or folder named `.sqldeveloper`.)

Table 4–2 Default Locations for User-Related Information

Resource Type	Linux
User-defined reports	~/.sqldeveloper/UserReports.xml
User-defined snippets	~/.sqldeveloper/UserSnippets.xml
SQL history	~/.sqldeveloper/system/

Table 4–2 (Cont.) Default Locations for User-Related Information

Resource Type	Linux
SQL Worksheet archive files	~/.sqldeveloper/tmp/
SQL Developer user preferences	~/.sqldeveloper/system/

SQL Worksheet archive files contain SQL statements that you have entered. These files begin with sqldev and then have a random number (for example, `sqldev14356.sql`). If you close SQL Developer with a SQL Worksheet open that contains statements, then you will be prompted to save these files.

To specify a nondefault `SQLDEVELOPER_USER_DIR` location, do either of the following:

- Set the `SQLDEVELOPER_USER_DIR` environment variable to specify another directory path.
- Edit the *`sqldeveloper_install`*`\sqldeveloper\sqldeveloper\bin\sqldeveloper.conf` file and substitute the desired directory path for `SQLDEVELOPER_USER_DIR` in the following line:

  ```
  SetUserHomeVariable SQLDEVELOPER_USER_DIR
  ```

If you want to prevent other users from accessing your user-specific SQL Developer information, you must ensure that the appropriate permissions are set on the directory where that information is stored or on a directory preceding it in the path hierarchy. For example, you may want to ensure that the `~/.sqldeveloper` directory is not world-readable.

()

5

Removing Oracle Software

This chapter describes how to completely remove all Oracle software from an Oracle home directory.

Removing Oracle Software

The following steps describe how to use Oracle Universal Installer to remove Oracle software from an Oracle home:

> **Note:** Always use Oracle Universal Installer to remove Oracle software. Do not delete any Oracle home directories without first using Oracle Universal Installer to remove the software.

1. If necessary, log in as the `oracle` user:

   ```
   $ sudo - oracle
   ```

2. Set the `ORACLE_HOME` environment variable to specify the path of the Oracle home directory that you want to remove:

   - Bourne, Bash, or Korn shell:

     ```
     $ ORACLE_HOME=/u01/app/oracle/product/11.1.0/db_1
     $ export ORACLE_HOME
     ```

   - C shell:

     ```
     $ setenv ORACLE_HOME /u01/app/oracle/product/11.1.0/db_1
     ```

3. Start Oracle Universal Installer as follows:

   ```
   $ $ORACLE_HOME/oui/bin/runInstaller
   ```

4. In the Welcome window, click **Deinstall Products**.

   The Inventory screen appears, listing all of the Oracle homes on the system.

5. In the Inventory screen, select the Oracle home and the products that you want to remove, then click **Remove**.

> **Note:** If you choose to remove Oracle JVM, Oracle Universal Installer removes all installed products that depend on Oracle JVM, including Oracle Database 11*g*.

Oracle Universal Installer displays a confirmation window asking you to confirm that you want to deinstall the products and their dependent components.

6. Click **Yes**.

   Oracle Universal Installer displays a progress indicator as it removes the software.

7. Click **Close** on the Inventory screen.

8. When the products have been deleted, click **Cancel** to exit from Oracle Universal Installer, and then click **Yes**.

A

Installing and Configuring Oracle Database Using Response Files

This appendix describes how to install and configure Oracle products using response files. It includes information about the following topics:

- How Response Files Work?
- Preparing a Response File
- Running Oracle Universal Installer Using a Response File

How Response Files Work?

You can automate the installation and configuration of Oracle software, either fully or partially, by specifying a response file when you start Oracle Universal Installer. Oracle Universal Installer uses the values contained in the response file to provide answers to some or all of Oracle Universal Installer prompt. It includes information about the following topics:

- Reasons for Using Silent Mode or Noninteractive Mode
- General Procedure for Using Response Files

Typically, Oracle Universal Installer runs in interactive mode, which means that it prompts you to provide information in graphical user interface (GUI) screens. When you use response files to provide this information, you run Oracle Universal Installer at a command prompt using either of the following modes:

- Silent mode

  If you include responses for all of the prompts in the response file and specify the `-silent` option when starting Oracle Universal Installer, then Oracle Universal Installer runs in silent mode. During a silent-mode installation, Oracle Universal Installer does not display any screens. Instead, it displays progress information in the terminal that you used to start it.

- Noninteractive (or suppressed) mode

  If you include responses for some or all of the prompts in the response file and omit the `-silent` option, then Oracle Universal Installer runs in suppressed mode. During a suppressed-mode installation, Oracle Universal Installer displays only the screens for which you did not specify all required information. You can also use variables in the response file or command-line options to suppress other installer screens, such as the Welcome screen or Summary screen, that do not prompt for information.

You define the settings for a silent or noninteractive installation by entering values for the variables listed in the response file. For instance, to specify the Oracle home name, you would supply the appropriate value for the `ORACLE_HOME_NAME` variable, as in the following example:

```
ORACLE_HOME_NAME="OraDBHome1"
```

Another way of specifying the response file's variable settings is to pass them as command line arguments when you run Oracle Universal Installer. For example:

```
-silent "ORACLE_HOME_NAME=OraDBHome1" ...
```

In this command, *`directory_path`* is the path of the `database` directory on the DVD or the path of the `Disk1` directory on the hard drive.

This method is particularly useful if you do not want to embed sensitive information, such as passwords, in the response file. For example:

```
-silent "s_dlgRBOPassword=binks342" ...
```

Ensure that you enclose the variable and its setting in quotes.

> **See Also:** *Oracle Universal Installer and OPatch User's Guide* for more information about response file formats.

Reasons for Using Silent Mode or Noninteractive Mode

The following table describes several reasons why you might want to run Oracle Universal Installer in silent mode or suppressed mode.

Mode	Uses
Silent	Use silent mode if you want to: ■ Complete an unattended installation, which you might schedule using operating system utilities such as `at` ■ Complete several similar installations on multiple systems without user interaction ■ Install the software on a system that does not have X Window System software installed on it Oracle Universal Installer displays progress information in the terminal that you used to start it, but it does not display any of Oracle Universal Installer screens.
Suppressed (noninteractive)	Use suppressed mode if you want to complete similar Oracle software installations on more than one system, providing default answers to some, but not all of Oracle Universal Installer prompts. If you do not specify information required for a particular Installer screen in the response file, then Oracle Universal Installer displays that screen. It suppresses screens for which you have provided all of the required information.

General Procedure for Using Response Files

The following are the general steps to install and configure Oracle products using Oracle Universal Installer in silent or suppressed mode:

Note: You must complete all required preinstallation tasks on a system before running Oracle Universal Installer in silent or suppressed mode.

1. Create the `oraInst.loc` file.
2. Prepare a response file.
3. Run Oracle Universal Installer in silent or suppressed mode.
4. If you completed a software-only installation, then run Net Configuration Assistant and Database Configuration Assistant in silent or noninteractive mode if required.

These steps are described in the following sections.

Preparing a Response File

This section describes the following methods to prepare a response file for use during silent-mode or suppressed-mode installations:

- Editing a Response File Template
- Recording a Response File

Editing a Response File Template

This method is most useful for the Enterprise Edition or Standard Edition installation types.

Oracle provides response file templates for each product and installation type, and for each configuration tool. These files are located at `database/response` directory on the installation media.

Note: If you copied the software to a hard disk, the response files are located in the `database/response` directory.

Table A–1 lists the response files provided with Oracle Database.

Table A–1 Response Files

Response File	Description
`instantClient.rsp`	Instant Client installation of Oracle Client
`clientadmin.rsp`	Administrator installation of Oracle Client
`clientruntime.rsp`	Runtime installation of Oracle Client
`clientcustom.rsp`	Custom installation of Oracle Client

To copy and modify a response file:

1. Copy the response file from the response file directory to a directory on your system:

```
$ cp /directory_path/response/response_file.rsp local_directory
```

In this example, *directory_path* is the path to the `database` directory on the installation media. If you have copied the software to a hard drive, then you can edit the file in the `response` directory if you prefer.

2. Open the response file in a text editor:

```
$ vi /local_dir/response_file.rsp
```

In addition to editing settings specific to the Oracle Database installation, check that the `FROM_LOCATION` path is correct and points to the `products.xml` file in the `stage` directory in the installation media. You may want to set this variable to point to an absolute path, for example:

```
FROM_LOCATION="/directory_path/stage/products.xml"
```

Remember that you can specify sensitive information, such as passwords, at the command line rather than within the response file. "How Response Files Work?" on page A-1 explains this method.

> **See Also:** *Oracle Universal Installer and OPatch User's Guide* for detailed information on creating response files

3. Follow the instructions in the file to edit it.

> **Note:** Oracle Universal Installer or configuration assistant fails if you do not correctly configure the response file. Refer to "Silent-Mode Response File Error Handling" section on page C-4 for more information about troubleshooting a failed silent-mode installation.

Recording a Response File

You can use Oracle Universal Installer in interactive mode to record a response file, which you can edit and then use to complete silent-mode or suppressed-mode installations. This method is useful for custom or software-only installations.

When you record the response file, you can either complete the installation, or you can exit from Oracle Universal Installer on the Summary page, before it starts to copy the software to the system.

If you use record mode during a noninteractive mode installation, then Oracle Universal Installer records the variable values that were specified in the original source response file into the new response file.

> **Note:** You cannot use record mode to create a response file during an installation that uses the Basic installation method.

To record a response file:

1. Complete the preinstallation tasks listed in Chapter 2.

When you run Oracle Universal Installer to record a response file, it checks the system to verify that it meets the requirements to install the software. For this reason, Oracle recommends that you complete all of the required preinstallation tasks and record the response file while completing an installation.

2. If you have not installed Oracle software on this system previously, create the `oraInst.loc` file, as described in the previous section.
3. Ensure that the Oracle software owner user (typically `oracle`) has permissions to create or write to the Oracle home path that you will specify when you run Oracle Universal Installer.
4. To record a response file, enter a command similar to the following to start Oracle Universal Installer:

   Note: Do not specify a relative path to the response file. If you specify a relative path, then Oracle Universal Installer fails.

   ```
   $ /directory_path/runInstaller -record -destinationFile response_filename
   ```

   In this command:

   - *`directory_path`* is the path of the `database` directory on the DVD or the path of the `Disk1` directory on the hard drive
   - The `-record` parameter specifies that you want to record the responses that you enter in a response file
   - *`response_filename`* is the full path and file name of the response file that you want to record
5. On each Oracle Universal Installer screen, specify the required information.
6. When Oracle Universal Installer displays the Summary screen, perform one of the following actions:
   - Click **Install** to create the response file, then continue with the installation.
   - Click **Cancel** and then **Yes** to create the response file but exit from Oracle Universal Installer without installing the software.

   The response file is saved in the location that you specified using the `-destinationFile` option.
7. If you do not complete the installation, then delete the Oracle home directory that Oracle Universal Installer created using the path you specified on the Specify File Locations screen.
8. Before using the recorded response file on another system, edit the file and make any required changes.

   Use the instructions in the file as a guide when editing it.

Running Oracle Universal Installer Using a Response File

Now, you are ready to run Oracle Universal Installer at the command line, specifying the response file you created, to perform the installation. The Oracle Universal Installer executable, `runInstaller`, provides several options. For help information on the full set of these options, run the `runInstaller` command with the `-help` option, for example:

```
$ directory_path/runInstaller -help
```

The help information appears in a window after some time.

To run Oracle Universal using a response file:

1. Complete the preinstallation tasks listed in Chapter 2.
2. Log in as the Oracle software owner user (typically `oracle`).
3. If you are completing a suppressed-mode installation, set the `DISPLAY` environment variable.

   Note: You do not have to set the `DISPLAY` environment variable if you are completing a silent-mode installation.

4. To start Oracle Universal Installer in silent or suppressed mode, enter a command similar to the following:

   ```
   $ /directory_path/runInstaller [-silent] [-noconfig] \
    -responseFile responsefilename
   ```

   Note: Do not specify a relative path to the response file. If you specify a relative path, then Oracle Universal Installer fails.

   In this example:

   - *`directory_path`* is the path of the `database` directory on the DVD or the path of the `Disk1` directory on the hard drive.
   - `-silent` indicates that you want to run Oracle Universal Installer in silent mode.
   - `-noconfig` suppresses running the configuration assistants during installation, and a software-only installation is performed instead.
   - *`responsefilename`* is the full path and file name of the installation response file that you configured.

   Note: For more information about other options for the `runInstaller` command, enter the following command:

   ```
   $ /directory_path/runInstaller -help
   ```

5. When the installation completes, log in as the `root` user and run the `root.sh` script:

   ```
   $ sudo sh
   password:
   # /oracle_home_path/root.sh
   ```

B

Configuring Oracle Database Globalization Support

This appendix describes the following Globalization Support topics:

- Installing and Using Oracle Components in Different Languages
- Running Oracle Universal Installer in Different Languages

Installing and Using Oracle Components in Different Languages

This section describes the following procedures:

- Configuring Oracle Components to Run in Different Languages
- Installing Translation Resources

Configuring Oracle Components to Run in Different Languages

You can specify the language and the territory, or locale, in which you want to use Oracle components. The locale setting of a component determines the language of the user interface of the component and the globalization behavior, such as date and number formatting. Depending on the Oracle component, the locale of the component is either inherited from the operating system session that started the component, or is defined by the `NLS_LANG` environment variable.

The operating system locale usually influences Oracle components that are based on Java technology. The `NLS_LANG` environment variable usually influences Oracle components that use Oracle Client libraries such as OCI.

Note: The user interface of an Oracle component will be displayed in a selected language only if the appropriate translation is available and has been installed. Otherwise, the user interface will be displayed in English.

This section describes the following procedures:

- Determining the Operating System Locale by Using the LANG Environment Variable
- Configuring Locale and Character Sets by Using the NLS_LANG Environment Variable

Determining the Operating System Locale by Using the LANG Environment Variable

The locale setting of your operating system session determines the language of the user interface and the globalization behavior for components such as Oracle Universal Installer, Oracle Net Configuration Assistant, and Oracle Database Configuration Assistant. It also determines the globalization behavior of Oracle Database sessions created by a user application through Oracle JDBC driver, unless overridden by the application.

The operating system locale on Linux is determined by the value of the `LANG` environment variable. Depending on your desktop environment, such as KDE, GNOME, or telnet, you can select a default session locale on a login screen, in a configuration panel, or in a configuration file.

> **Note:** Refer to the operating system documentation on how to select a locale for the operating system session in your desktop environment.

You can modify the `LANG` variable in the environment of your shell to start an Oracle component in a selected language. For example, to start Oracle Database Configuration Assistant in German, enter one of the following commands:

- Bourne shell (sh), or Korn shell (ksh), or Bash shell (bash):

```
$ LANG=de_DE.iso88591 dbca
```

- C shell (csh):

```
$ (setenv LANG de_DE.iso88591; dbca)
```

> **Note:** The `LC_ALL` environment variable overrides the value of the LANG environment variable. For the commands listed in the following section to work, either ensure that the `LC_ALL` environment variable is not set in the environment, or substitute `LC_ALL` for `LANG`.

To modify the operating system locale for all Oracle components started from now on by the given shell, modify the `LANG` variable using one of the following commands:

- Bourne shell (sh), or Korn shell (ksh), or Bash shell (bash):

```
$ LANG=de_DE.iso88591; export LANG
$ ...
```

- C shell (csh):

```
$ setenv LANG de_DE.iso88591
$ ...
```

The value of the `LANG` environment variable must be a valid operating system locale. To see the list of valid locales, enter the following command:

```
$ locale -a
```

> **Note:** Refer to the operating system documentation for a mapping between values of the `LANG` environment variable and the languages and territories that they represent.

Configuring Locale and Character Sets by Using the NLS_LANG Environment Variable

The NLS_LANG environment variable determines the language of the user interface and the globalization behavior for components such as SQL*Plus, exp, and imp. It sets the language and territory used by the client application and the database. It also declares the character set for entering and displaying data by the client application.

The NLS_LANG environment variable uses the following format:

```
NLS_LANG=language_territory.characterset
```

In this format:

- *language* specifies the language used for displaying Oracle messages, sorting, day names, and month names
- *territory* specifies the conventions for default date, monetary and numeric formats
- *characterset* specifies the encoding used by the client application

  In most cases, this is the Oracle character set that corresponds to the character set of the user terminal or the operating system.

The NLS_LANG environment variable is set as a local environment variable for the shell on all UNIX-based platforms. For example, if the operating system locale setting is en_US.UTF-8, then the corresponding value of NLS_LANG environment variable is AMERICAN_AMERICA.AL32UTF8.

> **See Also:** *Oracle Database Globalization Support Guide* for information about the NLS_LANG parameter and Globalization Support initialization parameters

The following examples illustrate some of the valid values for the NLS_LANG environment variable.

> **Note:** Refer to the operating system documentation on how to determine the operating system locale environment setting.

Operating System Locale	NLS_LANG Values
French (France)	FRENCH_FRANCE.WE8ISO8859P15 FRENCH_FRANCE.WE8ISO8859P1 FRENCH_FRANCE.WE8MSWIN1252 FRENCH_FRANCE.AL32UTF8
Japanese (Japan)	JAPANESE_JAPAN.JA16EUC JAPANESE_JAPAN.JA16SJIS JAPANESE_JAPAN.AL32UTF8

Installing Translation Resources

To view the user interface of Oracle components in different languages, you must install the appropriate language translations along with the component.

> **Note:** Part of Oracle Database Vault user interface text is stored in database tables in the DVSYS schema. By default, only the English language is loaded into these tables. You can use Oracle Database Vault Configuration Assistant to add more languages to Oracle Database Vault. For the necessary steps, refer to Appendix C in *Oracle Database Vault Administrator's Guide*.

To select the translation resources that you want to install:

1. Start Oracle Universal Installer.
2. On the Select Installation Type screen, click **Product Languages**.
3. On the Language Selection screen, select the language in which you want to use Oracle components from the Available Languages field.

> **Note:** The Available Languages field lists all languages supported by Oracle globalization libraries. The set of languages for which a translation is actually available is usually smaller and depends on a particular component. The scope of translation for a given component may differ between languages. For example, some translations may include all user interface text, while others may include only error messages and no help files.

4. Use the **>** arrow to move the selected language to the Selected Languages field, and then click **OK**.

> **Note:** Oracle Universal Installer will ignore languages in the Selected Languages field for which no translation is available.

5. Select the installation type you want, and then click **Next**.

> **Note:** To install additional languages for a component, you will have to reinstall this component.

Running Oracle Universal Installer in Different Languages

Your operating system locale determines the language in which Oracle Universal Installer runs. Oracle Universal Installer may run in one of the following languages:

- Brazilian Portuguese (pt_BR)
- French (fr)
- German (de)
- Italian (it)
- Japanese (ja)
- Korean (ko)
- Simplified Chinese (zh_CN)
- Spanish (es)

- Traditional Chinese (zh_TW)

To run Oracle Universal Installer in one of the available languages, change the locale in which your operating system session is running before you start Oracle Universal Installer with the `./runInstaller` command. If the selected language is not one of them listed earlier, Oracle Universal Installer runs in English.

You need to ensure that the selected value for the `LANG` environment variable starts with the appropriate language abbreviation. In the aforementioned list of languages, in which Oracle Universal Installer can run, the required abbreviation appears in parentheses beside the language name. For example, fr_FR and fr_CA are valid values to run the Oracle Universal Installer in French.

C

Troubleshooting

This appendix contains information about troubleshooting. It includes information about the following topics:

- Verify Requirements
- X Window Display Errors
- What to Do If an Installation Error Occurs?
- Reviewing the Log of an Installation Session
- Troubleshooting Configuration Assistants
- Silent-Mode Response File Error Handling
- Cleaning Up After a Failed Installation

Verify Requirements

Before performing any of the troubleshooting steps in this appendix, ensure that the system meets the requirements and that you have completed all of the preinstallation tasks specified in Chapter 2.

Read the Release Notes

Read the release notes for the product before installing it. The release notes are available on the Oracle Database 11*g* DVD. The latest version of the release notes is also available on the Oracle Technology Network Web site:

`http://www.oracle.com/technology/documentation/`

X Window Display Errors

If you are running Oracle Universal Installer on a remote system and you want to display Oracle Universal Installer's user interface on your local system, you might see error messages similar to the following:

```
"Failed to connect to server"
"Connection refused by server"
"Can't open display"
```

If you see one of these error messages, follow these steps:

> **Note:** This procedure applies only to users of UNIX workstations. If you are using a PC or other system with X server software installed, refer to the X server documentation for information about how to permit remote systems to display X applications on the local system.

1. In a local terminal window, log in as the user that started the X Window session.
2. Enter the following command:

   ```
   $ xhost fully_qualified_remote_host_name
   ```

   For example:

   ```
   $ xhost somehost.us.example.com
   ```

3. Enter the following commands, where *workstation_name* is the host name or IP address of your workstation:
   - Bourne, Bash, or Korn shell:

     ```
     $ DISPLAY=workstation_name:0.0
     $ export DISPLAY
     ```

   - C shell:

     ```
     % setenv DISPLAY workstation_name:0.0
     ```

4. To determine whether X Window applications display correctly on the local system, enter the following command:

   ```
   $ xclock
   ```

   The X clock should appear on your monitor.
5. If the X clock appears, close the X clock and start Oracle Universal Installer again.

What to Do If an Installation Error Occurs?

If you encounter an error during installation:

- Do not exit Oracle Universal Installer.
- If you clicked **Next** after you entered incorrect information on one of the installation screens, click **Back** to return to the screen and correct the information.
- If you encounter an error while Oracle Universal Installer is copying or linking files, refer to "Reviewing the Log of an Installation Session" section on page C-2.
- If you encounter an error while a configuration assistant is running, refer to "Troubleshooting Configuration Assistants" section on page C-3.
- If you cannot resolve the problem, remove the failed installation by following the steps listed in the "Cleaning Up After a Failed Installation" section on page C-4.

Reviewing the Log of an Installation Session

During an installation, Oracle Universal Installer records all of the actions that it performs in a log file. If you encounter problems during the installation, review the log file for information about possible causes of the problem.

To view the log file, follow these steps:

1. If necessary, enter the following command to determine the location of the `oraInventory` directory:

   ```
   $ cat /etc/oraInst.loc
   ```

   The `inventory_loc` parameter in this file specifies the location of the `oraInventory` directory.

2. Enter the following command to change directory to Oracle Universal Installer log file directory, where *`orainventory_location`* is the location of the `oraInventory` directory:

   ```
   $ cd /orainventory_location/logs
   ```

3. Enter the following command to determine the name of the log file:

   ```
   $ ls -ltr
   ```

   This command lists the files in the order of creation, with the most recent file shown last. Installer log files have names similar to the following, where *`date_time`* indicates the date and time that the installation started:

   ```
   installActionsdate_time.log
   ```

4. To view the most recent entries in the log file, where information about a problem is most likely to appear, enter a command similar to the following:

   ```
   $ tail -50 installActionsdate_time.log | more
   ```

   This command displays the last 50 lines in the log file.

5. If the error displayed by Oracle Universal Installer or listed in the log file indicates a relinking problem, refer to the following file for more information:

   ```
   $ORACLE_HOME/install/make.log
   ```

Troubleshooting Configuration Assistants

To troubleshoot an installation error that occurs when a configuration assistant is running:

- Review the installation log files listed in the "Reviewing the Log of an Installation Session" section on page C-2.
- Review the specific configuration assistant log file located in the `$ORACLE_HOME/cfgtoollogs` directory. Try to fix the issue that caused the error.
- If you see the "Fatal Error. Reinstall" message, look for the cause of the problem by reviewing the log files. Refer to "Fatal Errors" on page C-4 for further instructions.

Configuration Assistant Failure

Oracle configuration assistant failures are noted at the bottom of the installation screen. The configuration assistant interface displays additional information, if available. The configuration assistant execution status is stored in the following file:

```
oraInventory_location/logs/installActionsdate_time.log
```

The execution status codes are listed in the following table:

Status	Result Code
Configuration assistant succeeded	0
Configuration assistant failed	1
Configuration assistant cancelled	-1

Fatal Errors

If you receive a fatal error while a configuration assistant is running, you must remove the current installation and reinstall the Oracle software, as follows:

1. Remove the failed installation as described in the "Cleaning Up After a Failed Installation" section on page C-4.
2. Correct the cause of the fatal error.
3. Reinstall the Oracle software.

Silent-Mode Response File Error Handling

To determine whether a silent-mode installation succeeds or fails, refer to the following log file:

`/`*`oraInventory_location`*`/logs/silentInstall`*`date_time`*`.log`

If necessary, refer to the previous section for information about determining the location of the `oraInventory` directory.

A silent installation fails if:

- You do not specify a response file
- You specify an incorrect or incomplete response file

  For example, a common problem is that while all the product-specific data is filled out correctly, the staging area location may be incorrect. If this is the case, check the `FROM_LOCATION` variable and make sure that it points to the `products.xml` file in the installation media. In the installation media, this `products.xml` is in `response/stage`.
- Oracle Universal Installer encounters an error, such as insufficient disk space

Oracle Universal Installer or configuration assistant validates the response file at run time. If the validation fails, the silent-mode installation or configuration process ends. Oracle Universal Installer treats values for parameters that are of the wrong context, format, or type as if no value was specified in the file.

Cleaning Up After a Failed Installation

If an installation fails, you must remove files that Oracle Universal Installer created during the attempted installation and remove the Oracle home directory. Perform the following steps to remove the files:

1. Start Oracle Universal Installer as described in "Installing the Oracle Client Software" on page 3-5.
2. Click **Deinstall Products** on the Welcome window or click **Installed Products** on any Installer window.

   The Inventory window appears, listing installed products.

3. Select the Oracle home that contains the products that you want to remove, then click **Remove**.
4. Manually remove the Oracle home directory created during the failed installation.
5. Reinstall the Oracle software.

To reinstall, you need to drop either one or two database schemas, depending upon the installation type.

D

Frequently Asked Questions About Installation

Use the following guidelines to decide how to install Oracle Database components:

- Installing Oracle Database or Oracle Database Client
- Installing Oracle Database Tools
- Installing Oracle Database with Oracle Applications
- Installing Oracle Database Heterogeneous Connectivity Tools (Gateways)

Installing Oracle Database or Oracle Database Client

The following are frequently asked questions with respect to installing Oracle database:

- I only need one instance of Oracle Database or I just want to install a test database to get familiar with the product. How do I install Oracle Database for these situations?
- How can I create an Oracle database that can handle transaction-heavy or data warehousing applications?
- What's the best way to install multiple Oracle databases?
- How do I configure client connections to an Oracle database?
- What is the best way to install Oracle Database Client if my client nodes have limited disk space?
- How do I upgrade Oracle Database?
- The computers at my site have been configured to run as a cluster. How should I install Oracle Database?
- How do I migrate my non-Oracle databases to Oracle Database?

I only need one instance of Oracle Database or I just want to install a test database to get familiar with the product. How do I install Oracle Database for these situations?

- If you want a quick installation using the default installation settings, then refer to the platform-specific *Oracle Database Quick Installation Guide*.
- If your site has special requirements, then refer to platform-specific *Oracle Database Installation Guide* for more information.

How can I create an Oracle database that can handle transaction-heavy or data warehousing applications?

If you want to create a starter database designed for transaction-heavy or data warehousing applications, then refer to platform-specific *Oracle Database Installation Guide* for more details. Select the **Advanced Installation** method, and then select the database type you want on the Select Database Configuration screen.

See Also: *Oracle Database Data Warehousing Guide* after installation

Alternatively, you can install Oracle OLAP during the Oracle Database installation. Oracle OLAP provides optimal support for database environments that must meet OLAP requirements. To do so, select **Advanced Installation**, then **Custom**, and on the Available Product Components screen, select **Oracle OLAP**.

See Also:

- *Oracle OLAP User's Guide*
- *Oracle OLAP DML Reference*
- *Oracle OLAP Java API Reference*

What's the best way to install multiple Oracle databases?

Use platform-specific *Oracle Database Installation Guide* to install Oracle Database using either of the following methods:

- **Installing with response files**: This method lets you run Oracle Universal Installer at a command line using a response file that contains settings specific to each computer.
- **Cloning an existing Oracle home**: Install Oracle Database in one computer using interactive mode. Afterwards, you can clone its existing Oracle home in each location and then create a new database from there. You can also clone databases, which is described in *Oracle Database Administrator's Guide*.

How do I configure client connections to an Oracle database?

1. Install Oracle Database on a server by using platform-specific *Oracle Database Installation Guide* for more information.
2. Use this guide to install Oracle Database Client on each client node, and select the Instant Client installation type.

   If you have many client nodes, consider staging the software centrally, mapping the drive, and running Oracle Universal Installer in the noninteractive mode.

   If the client nodes only require a default installation into a new Oracle home directory, consider using platform-specific *Oracle Database Installation Guide* for more information.

What is the best way to install Oracle Database Client if my client nodes have limited disk space?

1. Install Oracle Database onto a server by using platform-specific *Oracle Database Installation Guide* for more details.
2. Use this guide to install Oracle Database Client on each client node, and select the Instant Client installation type.

   If you have many client nodes, then consider running Oracle Universal Installer in noninteractive mode.

How do I upgrade Oracle Database?

Refer to *Oracle Database Upgrade Guide*.

> **See Also:** *Oracle Database Administrator's Guide* if you want to use software cloning to upgrade Oracle Database

The computers at my site have been configured to run as a cluster. How should I install Oracle Database?

Use any of the following installation scenarios:

- If you want to run a single-instance Oracle Database in a clustered environment, then install Oracle Clusterware either before or after you install Oracle Database.
- If you want a consolidated pool of storage for all databases in a cluster, then install Oracle Clusterware first and use Automatic Storage Management to manage this storage. Afterwards, install Oracle Database (which can be either single instance or Real Application Clusters).
- If you plan to use Oracle Real Application Clusters, first install Oracle Clusterware, and then install Oracle Real Application Clusters.

Refer to platform-specific *Oracle Clusterware Installation Guide* and *Oracle Real Application Clusters Installation Guide for Linux and UNIX* for the platform to install Oracle Clusterware or Oracle Real Application Clusters. Oracle Clusterware is available on the Oracle Clusterware installation media. Refer to platform-specific *Oracle Database Installation Guide* which explains how to install Automatic Storage Management as well as Oracle Database.

Oracle Clusterware is a key component required by Oracle Real Application Clusters installations. Oracle Clusterware is an integrated cluster management solution that can bind multiple servers together to act as a single system. This is referred to as a cluster. It performs workload management and component restart. For example, when an instance supporting a particular service fails, Oracle Clusterware restarts the service on the next available instance that you have configured for that service. Oracle Clusterware can monitor non-Oracle programs, as long as they are defined within the Oracle Clusterware environment using the High Availability API.

How do I migrate my non-Oracle databases to Oracle Database?

Use Oracle Migration Workbench to migrate your non-Oracle databases and applications to Oracle. Oracle Migration Workbench software and documentation are available at:

`http://www.oracle.com/technology/tech/migration/index.html`

Installing Oracle Database Tools

The following are frequently asked questions with respect to installing Oracle database tools:

- How do I install Oracle Application Server?
- How can I administer and monitor my Oracle Database products?
- How do I manage security for my Oracle Database products?
- How do I use Oracle Database to manage my XML data?
- Does Oracle Database provide OLAP tools so that I can analyze data such as trends and time series in my database?

- Does Oracle Database provide data mining tools that I can use to discover hidden meaning in my data and predict likely outcomes based on my data?
- How do I perform backup and recovery operations for Oracle Database?
- Is Oracle Workflow included with Oracle Database 11g?
- Is there a migration plan for customers that have built solutions using Oracle Workflow?

How do I install Oracle Application Server?

Refer to *Oracle Application Server Installation Guide*. How you install Application Server depends on whether you already have Oracle Database installed:

- If you do not have Oracle Database installed or you do not want Oracle Application Server to use any of your existing Oracle Databases, then Oracle Universal Installer lets you install a separate Oracle Application Server instance. This database is populated with the metadata that Oracle Application Server needs to run.
- If you want Oracle Application Server to use an existing Oracle Database, then do the following:

  1. From the Oracle Application Server installation media, run Oracle Application Server Repository Creation Assistant to populate your database with the metadata that Application Server needs.
  2. Install the remaining Oracle Application Server components by following the instructions in the *Oracle Application Server Installation Guide*.

How can I administer and monitor my Oracle Database products?

To perform regular administrative functions such as creating, configuring, or deleting databases, or managing database templates, use one of the following methods:

To manage only the single database and listener that you are installing:

1. Use platform-specific *Oracle Database Installation Guide* to install Oracle Database.
2. From Oracle Database, use Database Configuration Assistant to manage your databases.

   You can also administer and monitor the database with Oracle Enterprise Manager Grid Control, which is installed by default with Oracle Database. Oracle Enterprise Manager Grid Control includes the Oracle Management Agent, Oracle Management Service, and Oracle Management Repository, as well as Grid Control, a browser-based central console through which administrators can perform all monitoring, administration, and configuration tasks for the enterprise.

   See Also: *Oracle Enterprise Manager Grid Control Installation and Basic Configuration* available on the Enterprise Manager Grid Control installation media

To perform advanced administration tasks, such as monitoring Oracle Database and managing multiple hosts, application servers, and databases including the one that you are installing, install Oracle Enterprise Manager as follows:

1. Use platform-specific *Oracle Database Installation Guide* to install Oracle Database.

   If you plan to use Oracle Real Application Clusters, then install Oracle Database by using platform-specific *Oracle Clusterware Installation Guide* and *Oracle Real Application Clusters Installation Guide for Linux and UNIX*.

2. Use *Oracle Enterprise Manager Grid Control Installation and Basic Configuration* to install and configure Oracle Enterprise Manager. For postconfiguration tasks, use *Oracle Enterprise Manager Advanced Configuration*.

How do I manage security for my Oracle Database products?

Oracle provides a wide range of security solutions for your enterprise environment, including centralized administration and security features integrated with Oracle Internet Directory. The set of Oracle security services called Oracle Platform Security integrates the security features built into Oracle Database, Oracle Application Server, and the Oracle Identity Management infrastructure. Combined, these features enable the development and deployment of secure e-business applications.

Oracle Identity Management includes Oracle Internet Directory, a centralized repository that simplifies administration of users and applications in the Oracle environment by means of the following components:

- Oracle Internet Directory client tools, including LDAP command-line tools, the Oracle Internet Directory SDK, and Oracle Directory Manager.
- Oracle Internet Directory server components, including the directory server, the directory replication server, the directory integration server, and various tools for starting and stopping them.

Oracle Database includes the Oracle Internet Directory client tools, but not the Oracle Internet Directory server components. To install the Oracle Internet Directory server components, run Oracle Universal Installer from an Oracle 10*g* Application Server installation.

See Also:

- *Oracle Application Server Installation Guide* (to install Oracle Identity Management)
- *Oracle Database Security Guide*
- *Oracle Database Advanced Security Administrator's Guide*
- *Oracle Database Enterprise User Security Administrator's Guide*
- *Oracle Label Security Administrator's Guide*
- *Oracle Application Server Security Guide*
- Oracle Technology Network topics on database security (`http://www.oracle.com/technology/deploy/security/index.html`)

How do I use Oracle Database to manage my XML data?

Use Oracle XML DB, which is installed as part of Oracle Database. Oracle XML DB enables you to efficiently store, generate, retrieve, query, and manage XML data on your site. Oracle XML DB provides all the advantages of a relational database, for example, allowing you to control the referential integrity of XML data with constraints and triggers. It works well with large amounts of XML data by storing it in a parsed, relational form, which improves access performance.

Oracle XML DB supports XML Type, which is a native data type for XML data, for which you can choose various storage options depending on your needs. In addition, Oracle XML DB supports XML Schema processing, structured and unstructured storage, a content repository that you can access by using common protocols (FTP, HTTP(S), and WebDAV), and SQL/XML, which is a standard for SQL with XML. For Oracle Database 11*g* Release 1 (11.1), Oracle XML DB introduced support for the

XQuery language for querying, transforming, and constructing XML; the ability for users to define their own metadata for schema-based XML; a set of new SQL functions for DML operations on XML data; and more.

You can use Oracle XML DB in conjunction with Oracle XML Developer's Kit (XDK) to build applications that run on either Oracle Database or Oracle Application Server.

See Also:

- *Oracle XML DB Developer's Guide*
- *Oracle XML Developer's Kit Programmer's Guide*

Does Oracle Database provide OLAP tools so that I can analyze data such as trends and time series in my database?

Yes, install Oracle OLAP, which is provided in the Oracle Database installation. Oracle OLAP provides optimal support for database environments that must meet OLAP requirements.

Use either of the following methods in *Oracle Database Installation Guide* to install Oracle OLAP:

- When you run Oracle Universal Installer, select the **Custom** installation type, and in the Available Product Components screen, select **Oracle OLAP**.

  See Also:

  - *Oracle OLAP User's Guide*
  - *Oracle OLAP DML Reference*
  - *Oracle OLAP Java API Reference*

- Select the **Enterprise Edition** installation type, and then on the Select Database Configuration screen, select the **Data Warehouse** configuration.

  See Also: *Oracle Database Data Warehousing Guide* after installation

Does Oracle Database provide data mining tools that I can use to discover hidden meaning in my data and predict likely outcomes based on my data?

Yes. Install Oracle Data Mining, which is provided in the Oracle Database installation. With the Oracle Data Mining option, you can create and execute predictive and descriptive data mining models that use a variety of algorithms.

Use the following method in platform-specific *Oracle Database Installation Guide* to install Oracle Data Mining:

1. When you run Oracle Universal Installer, select the **Enterprise Edition** installation type.
2. In the Select Database Configuration screen, select the **General Purpose/Transaction Processing** configuration.

See Also: The following manuals after you have installed Oracle Data Mining:

- *Oracle Data Mining Concepts*
- *Oracle Data Mining Administrator's Guide*
- *Oracle Data Mining Application Developer's Guide*
- *Oracle Data Mining Java API Reference*
- *Oracle Database PL/SQL Packages and Types Reference* (search for Data Mining)

How do I perform backup and recovery operations for Oracle Database?

Use Oracle Database Recovery Manager (RMAN), which is a backup and recovery tool integrated into Oracle Database. This tool satisfies the pressing demands of high-performance, manageable backup, and recovery. Recovery Manager is native to the database server, automatically tracks database structure changes, and optimizes operations accordingly. In addition, Recovery Manager is integrated with leading tape media management products, so that Oracle database backups can be integrated with your existing networked data protection infrastructure.

See Also:

- *Oracle Database Backup and Recovery User's Guide*
- *Oracle Database Backup and Recovery Reference*

Is Oracle Workflow included with Oracle Database 11*g*?

Starting with Oracle Database 11*g*, Oracle Workflow is no longer released with the database. Oracle Workflow will be available with the Oracle E-Business Suite releases.

See Also: Oracle Workflow statement of direction (`http://www.oracle.com/technology/products/ias/workflow/workflow_sod.html`)

Is there a migration plan for customers that have built solutions using Oracle Workflow?

Starting January 2006, customers are encouraged to re-create and implement workflows using Oracle BPEL Process Manager. Oracle is in the process of creating a technical migration guide that will provide detailed recommendations for migrating Oracle Workflow processes to Oracle BPEL Process Manager.

See Also: Oracle Workflow statement of direction (`http://www.oracle.com/technology/products/ias/workflow/workflow_sod.html`)

Installing Oracle Database with Oracle Applications

The following are frequently asked questions with respect to installing Oracle database with Oracle applications:

- How do I install my Oracle applications with Oracle Database?
- How can I create Web applications that communicate with Oracle Database?
- Which Web server can my Oracle applications use?
- How can I migrate my non-Oracle applications to Oracle?

How do I install my Oracle applications with Oracle Database?

In most cases, install Oracle Database itself, then install the Oracle application. The Oracle Universal Installer for that application prompts you for the connection information. Check the application documentation requirements.

If you need to implement your applications with Oracle Real Applications Clusters databases, refer to *Oracle Real Application Clusters Installation Guide for Linux and UNIX* and platform-specific *Oracle Clusterware Installation Guide*.

How can I create Web applications that communicate with Oracle Database?

Install Oracle Application Express and a web server:

Use platform-specific *Oracle Database Installation Guide* to install Oracle Database. Oracle Application Express is automatically installed, when you install Oracle database.

Which Web server can my Oracle applications use?

Install Oracle HTTP Server:

Use platform-specific *Oracle Database Installation Guide* to install Oracle Database.

How can I migrate my non-Oracle applications to Oracle?

Use Oracle Migration Workbench to migrate your non-Oracle applications to Oracle. Oracle Migration Workbench software and documentation are available at:

`http://www.oracle.com/technology/tech/migration/index.html`

Installing Oracle Database Heterogeneous Connectivity Tools (Gateways)

The following section discusses about Gateway products:

How can my Oracle applications access data in a non-Oracle database system?

How can my Oracle applications access data in a non-Oracle database system?

You can use Oracle Database Gateway as the connectivity tool to enable Oracle applications to access data in non-Oracle databases. The following are the functions of Oracle Database Gateway:

- Integrates a non-Oracle database into your Oracle Database environment.
- Enables Oracle PL/SQL applications to integrate with APPC-enabled transactions, or access messages in IBM Websphere MQ.

You can install the Gateway product on a computer independent of the Oracle application, Oracle database, and non-Oracle database.

For example, suppose you have the following scenario:

- Oracle Database is installed on a UNIX computer.
- The Oracle application is installed on a Microsoft Windows computer and accesses data from the Oracle database on the UNIX computer.
- The Oracle application needs to join data in a DB2 database on Solaris Operating System and an Oracle Database on UNIX.

You have the option of installing the Database Gateway for DRDA on the Solaris computer where DB2 is running, on UNIX where Oracle is running, or on a third computer.

Table D–1 lists the non-Oracle database systems that you can access from Oracle applications, and the Gateways products that are available for those systems.

Table D–1 Oracle Gateway Products

Non-Oracle Database	Oracle Gateway Products and Documentation
IBM DB2 Universal Database (UDB)	Oracle Database Gateway for DRDA. Use *Oracle Database Gateway Installation and Configuration Guide for AIX 5L Based Systems (64-Bit), HP-UX PA-RISC (64-Bit), Solaris Operating System (SPARC 64-Bit), Linux x86, and Linux x86-64* and *Oracle Database Gateway for DRDA User's Guide*.
IBM DB2 z/OS	Oracle Database Gateway for DRDA. Use *Oracle Database Gateway Installation and Configuration Guide for AIX 5L Based Systems (64-Bit), HP-UX PA-RISC (64-Bit), Solaris Operating System (SPARC 64-Bit), Linux x86, and Linux x86-64* and *Oracle Database Gateway for DRDA User's Guide*.
IBM DB2/400	Oracle Database Gateway for DRDA. Use *Oracle Database Gateway Installation and Configuration Guide for AIX 5L Based Systems (64-Bit), HP-UX PA-RISC (64-Bit), Solaris Operating System (SPARC 64-Bit), Linux x86, and Linux x86-64* and *Oracle Database Gateway for DRDA User's Guide*.
WebSphere MQ	Oracle Database Gateway for WebSphere MQ. *Oracle Database Gateway for WebSphere MQ Installation and User's Guide*.
CICS/TS IMSTM	Oracle Database Gateway for APPC. Use *Oracle Database Gateway for APPC Installation and Configuration Guide for AIX 5L Based Systems (64-Bit), HP-UX PA-RISC (64-Bit), Solaris Operating System (SPARC 64-Bit), and Linux x86*.
SQL Server	Oracle Database Gateway for SQL Server. Use *Oracle Database Gateway Installation and Configuration Guide for AIX 5L Based Systems (64-Bit), HP-UX PA-RISC (64-Bit), Solaris Operating System (SPARC 64-Bit), Linux x86, and Linux x86-64* and *Oracle Database Gateway for SQL Server User's Guide*.
Sybase Adaptive Server	Oracle Database Gateway for Sybase. Use *Oracle Database Gateway Installation and Configuration Guide for AIX 5L Based Systems (64-Bit), HP-UX PA-RISC (64-Bit), Solaris Operating System (SPARC 64-Bit), Linux x86, and Linux x86-64* and *Oracle Database Gateway for Sybase User's Guide*.
Teradata	Oracle Database Gateway for Teradata. Use *Oracle Database Gateway Installation and Configuration Guide for AIX 5L Based Systems (64-Bit), HP-UX PA-RISC (64-Bit), Solaris Operating System (SPARC 64-Bit), Linux x86, and Linux x86-64* and *Oracle Database Gateway for Teradata User's Guide*.
Informix Server	Oracle Database Gateway for Informix. Use *Oracle Database Gateway Installation and Configuration Guide for AIX 5L Based Systems (64-Bit), HP-UX PA-RISC (64-Bit), Solaris Operating System (SPARC 64-Bit), Linux x86, and Linux x86-64* and *Oracle Database Gateway for Informix User's Guide*.

Table D–1 (Cont.) Oracle Gateway Products

Non-Oracle Database	Oracle Gateway Products and Documentation
IMS	Oracle Database Gateway for IMS. Use *Oracle Database Gateway for IMS, VSAM, and Adabas Installation and Configuration Guide for AIX 5L Based Systems (64-Bit), HP-UX PA-RISC (64-Bit), Solaris Operating System (SPARC 64-Bit), Linux x86, and Linux x86-64*, *Oracle Database Gateway for IMS User's Guide* and *Oracle Connect for IMS, VSAM, and Adabas Gateways Installation and Configuration Guide for IBM z/OS*
VSAM	Oracle Database Gateway for VSAM. Use *Oracle Database Gateway for IMS, VSAM, and Adabas Installation and Configuration Guide for AIX 5L Based Systems (64-Bit), HP-UX PA-RISC (64-Bit), Solaris Operating System (SPARC 64-Bit), Linux x86, and Linux x86-64*, *Oracle Database Gateway for VSAM User's Guide* and *Oracle Connect for IMS, VSAM, and Adabas Gateways Installation and Configuration Guide for IBM z/OS*.
Adabas	Oracle Database Gateway for Adabas. Use *Oracle Database Gateway for IMS, VSAM, and Adabas Installation and Configuration Guide for AIX 5L Based Systems (64-Bit), HP-UX PA-RISC (64-Bit), Solaris Operating System (SPARC 64-Bit), Linux x86, and Linux x86-64*, *Oracle Database Gateway for Adabas User's Guide* and *Oracle Connect for IMS, VSAM, and Adabas Gateways Installation and Configuration Guide for IBM z/OS*.

E

Country Codes

This appendix contains a list of valid country codes that can be used while installing Oracle Configuration Manager.

Valid Country Codes

Table E–1 contains a list of countries and their short names (codes.)

Table E–1 Country Codes

Country	Short Name (Code)
African Other	AA
Andorra	AD
United Arab Emirates	AE
Afghanistan	AS
Antigua and Barbuda	AM
Anguilla	AI
Albania	AL
Armenia	AM
Netherlands Antilles	AN
Angola	AO
Antarctica	AQ
Argentina	AR
American Samoa	AS
Austria	AT
Australia	AU
Aruba	AW
Azerbaijan	AZ
Bosnia-Herzegovina	BA
Barbados	BB
Bangladesh	BD
Belgium	BE
Burkina Faso	BF

Table E–1 (Cont.) Country Codes

Country	Short Name (Code)
Bulgaria	BG
Bahrain	BH
Burundi	BI
Benin	BJ
Bermuda	BM
Brunei Darussalam	BN
Bolivia	BO
Brazil	BR
Bahamas	BS
Bhutan	BT
Bouvet Island	BV
Botswana	BW
Belarus	BY
Belize	BZ
Canada	CA
Cocos (Keeling) Islands	CC
Central African Republic	CF
Congo	CG
Switzerland	CH
Cote D'Ivoire	CI
Cook Islands	CK
Chile	CL
Cameroon	CM
China	CN
Columbia	CO
Costa Rica	CR
Cuba	CU
Cape Verde	CV
Christmas Island	CX
Cyprus	CY
Czech Republic	CZ
Germany	DE
Djibouti	DJ
Denmark and Iceland	DK
Dominica	DM
Dominican Republic	DO
Algeria	DZ

Table E–1 (Cont.) Country Codes

Country	Short Name (Code)
Ecuador	EC
Estonia	EE
Egypt	EG
Western Sahara	EH
Eritrea	ER
Spain	ES
Ethiopia	ET
Finland	FI
Fiji	FJ
Falkland Islands (Malvinas)	FK
Micronesia (Federated States Of)	FM
Faroe Islands	FO
France	FR
France - Overseas Territories	FX
Gabon	GA
United Kingdom	GB
Grenada	GD
Georgia	GE
French Guiana	GF
Ghana	GH
Gibraltar	GI
Greenland	GL
Gambia	GM
Guinea	GN
Guadeloupe	GP
Equatorial Guinea	GQ
Greece	GR
South Georgia and South Sandwich Island	GS
Guatemala	GT
Guam	GU
Guinea - Bissau	GW
Guyana	GY
Hong Kong	HK
Heard Island and McDonald Islands	HM
Honduras	HN
Croatia	HR
Haiti	HT

Table E–1 (Cont.) Country Codes

Country	Short Name (Code)
Hungary	HU
Indonesia	ID
Ireland	IE
Israel	IL
India	IN
British Indian Ocean Territory	IO
Iraq	IQ
Iran (Islamic Republic of)	IR
Iceland	IS
Italy	IT
Jamaica	JM
Jordan	JO
Japan	JP
Kenya	KE
Kyrgyzstan	KG
Cambodia	KH
Kiribati	KI
Comoros	KM
Saint Kitts and Nevis	KN
Democratic People's Republic of Korea	KP
Republic of Korea	KR
Kuwait	KW
Cayman Islands	KY
Kazakhstan	KZ
Lao People's Democratic Republic	LA
Lebanon	LB
Saint Lucia	LC
Liechtenstein	LI
Sri Lanka	LK
Liberia	LR
Lesotho	LS
Lithuania	LT
Luxembourg	LU
Latvia	LV
Libyan Arab Jamahiriya	LY
Morocco	MA
Monaco	MC

Table E–1 (Cont.) Country Codes

Country	Short Name (Code)
Republic of Moldova	MD
Madagascar	MG
Marshall Islands	MH
Macedonia	MK
Mali	ML
Myanmar	MM
Mongolia	MM
Macau	MO
Northern Mariana Islands	MP
Martinique	MQ
Mauritania	MR
Montserrat	MS
Malta	MT
Mauritius	MU
Malawi	MW
Mexico	MX
Malyasia	MY
Mozambique	MZ
Namibia	NA
New Caledonia	NC
Niger	NE
Norfolk Island	NF
Nigeria	NG
Nicaragua	NI
Netherlands	NL
Norway	NO
Nepal	NP
Narau	NR
Niue	NU
New Zealand	NZ
Oman	OM
Panama	PA
Peru	PE
French Polynesia	PF
Papua New Guinea	PG
Philippines	PH
Pakistan	PK

Table E–1 (Cont.) Country Codes

Country	Short Name (Code)
Poland	PL
Saint Pierre and Miquelon	PM
Pitcairn	PN
Puerto Rico	PR
Portugal	PT
Palau	PW
Paraguay	PY
Qatar	QA
Reunion	RE
Romania	RO
CIS-Comm. of Indep. States	RU
Rwanda	RW
Saudi Arabia	SA
Solomon Islands	SB
Seychelles	SC
Sudan	SD
Sweden	SE
Singapore	SG
Saint Helena	SH
Slovenia	SI
Svalbard and Jan Mayen Islands	SJ
Slovakia	SK
Sierra Leone	SL
San Marino	SM
Senegal	SN
Somalia	SO
Suriname	SR
Sao Tome and Principe	ST
El Salvador	SV
South Asia Growth Economies	SX
Syrian Arab Republic	SY
Swaziland	SZ
Turks and Caicos Islands	TC
Chad	TD
French Southern Territories	TF
Togo	TG
Thailand	TH

Table E–1 (Cont.) Country Codes

Country	Short Name (Code)
Tajikistan	TJ
Tokelau	TK
Turkmenistan	TM
Tunisia	TN
Tonga	TO
East Timor	TP
Turkey	TR
Trinidad and Tobago	TT
Tuvalu	TV
Taiwan - Republic of China	TW
United Republic of Tanzania	TZ
Ukraine	UA
Uganda	UG
United States Minor Outlying Islands	UM
United States	US
Uruguay	UY
Uzbekistan	UZ
Vatican City State (Holy See)	VA
Saint Vincent and the Grenadines	VC
Venezuala	VE
Virgin Islands (British)	VI
Vietnam	VN
Vanuatu	VU
Wallis and Futuna Islands	WF
Samoa	WS
Yemen	YE
Mayotte	YT
Serbia and Montenegro	YU
South Africa	ZA
Zambia	ZM
Zaire	ZR
Zimbabwe	ZW

Glossary

connect descriptor

A specially formatted description of the destination for a network connection. A connect descriptor contains destination service and network route information.

The destination service is indicated by using its service name for the Oracle Database or its Oracle system identifier (**SID**) for Oracle release 11.1 databases. The network route provides, at a minimum, the location of the **listener** through use of a network address.

connect identifier

A name, net service name, or service name that resolves to a connect descriptor. Users initiate a connect request by passing a user name and password along with a connect identifier in a connect string for the service to which they want to connect, for example:

```
SQL> CONNECT user_name@connect_identifier
Enter password: password
```

default domain

The network domain within which most client requests take place. It can be the domain where the client resides, or a domain from which the client often requests network services. The default domain is also the client configuration parameter that determines what domain to append to unqualified network name requests. A name request is unqualified if it does not have a "." character within it.

easy connect naming

A **naming method** that allows clients to connect to a database server without any configuration. Clients use a simple TCP/IP address, which consists of a host name and optional port number, service name, and instance name:

```
SQL>CONNECT user_name@host[:port][/service_name][/instance_name]
Enter password: password
```

external procedures

Procedure or function written in the C programming language and stored in a shared library. An Oracle server can call external procedures or functions using PL/SQL routines. For Oracle Database to connect to external procedures, the server must be configured with a net service name and the **listener** must be configured with protocol address and service information.

global database name

The full database name that uniquely distinguishes it from any other database in your network domain.

For example:

`sales.us.mycompany.com`

where `sales` is the name you want to call your database and `us.mycompany.com` is the network domain in which the database is located.

installation type

A predefined component set that automatically selects which components to install. See "Oracle Client Installation Types" on page 1-4 for a list of installation types available with each top-level component.

Interprocess Communication (IPC)

A protocol that client applications use that resides on the same node as the **listener** to communicate with the database. IPC can provide a faster local connection than TCP/IP.

ldap.ora file

A file created by the Oracle Net Configuration Assistant that contains the following directory access information:

- Type of directory
- Location of directory
- Default administrative context the client or server uses to look up or configure connect identifiers for connections to database services

The `ldap.ora` file resides in `$ORACLE_BASE/network/admin`.

listener

A process that resides on the server and whose responsibility is to listen for incoming client connection requests and manage the traffic to the server.

When a client requests a network session with a database server, a listener receives the actual request. If the client information matches the listener information, then the listener grants a connection to the database server.

listener.ora file

A configuration file for the listener that identifies the:

- Listener name
- Protocol addresses on which it is accepting connection requests
- Services for which it is listening

The `listener.ora` file resides in the `$ORACLE_HOME/network/admin` directory.

An Oracle Database 11*g* release 1 (11.1) does not require identification of the database service because of service registration. However, static service configuration is required for an Oracle Database 11*g* release 1 (11.1) if you plan to use Oracle Enterprise Manager.

local naming

A **naming method** that resolves a net service name into a connect descriptor. This name is configured and stored in the **tnsnames.ora file** on each individual client.

manual undo management mode

A mode of the database in which undo blocks are stored in user-managed rollback segments.

naming method

A resolution method used by a client application to resolve a connect identifier to a network address when attempting to connect to a database service. Oracle Net Services supports the following naming methods:

- Local naming
- Directory naming
- Host naming
- External naming

net service name

A simple name for a service that resolves to a connect descriptor. Users initiate a connect request by passing a user name and password along with a net service name in a connect string for the service to which they want to connect:

```
SQL> CONNECT user_name@net_service_name
Enter password: password
```

Depending on your needs, net service names can be stored in a variety of places, including:

- Local configuration file, `tnsnames.ora`, on each client
- Directory server
- External naming service, such as Network Information Service (NIS) or Cell Directory Service (CDS)

OPS$

Acronym for operating system specific. The initialization file parameter `OS_AUTHENT_PREFIX` enables users to specify a prefix that Oracle uses to authenticate users attempting to connect to the database. Oracle concatenates the value of this parameter to the beginning of the user's operating system account name and password. When a connection request is attempted, Oracle compares the prefixed user name with Oracle user names in the database.

The default value of this parameter is `""` (a null string), thereby eliminating the addition of any prefix to operating system account names. In earlier releases, `OPS$` was the default setting.

Oracle Context

The root of a directory subtree with a relative distinguished name of `cn=OracleContext`, under which all Oracle software information is kept. There may be one (or more than one) Oracle Context in a directory. An Oracle Context can be associated with a directory naming context.

The Oracle Context can contain the following Oracle entries:

- Connect identifiers for use with Oracle Net Services directory naming to make database connections
- Enterprise user security for use with Oracle Advanced Security

ORACLE_BASE

`ORACLE_BASE` is the root of the Oracle Database directory tree. The Oracle Base directory is the top level directory that you can use to install the various oracle software products. You can use the same Oracle base directory for more than one installation. For example, `/u01/app/oracle` is an Oracle base directory created by the oracle user.

ORACLE_HOME

Corresponds to the environment in which Oracle Database products run. If you install an OFA-compliant database, using Oracle Universal Installer defaults, Oracle home (known as `$ORACLE_HOME` in this guide) is located beneath `$ORACLE_BASE`. The default Oracle home is `db_`*`n`* where *`n`* is the Oracle home number. It contains subdirectories for Oracle Database software executables and network files. See also **Oracle home**.

Oracle home

The directory path in which to install Oracle components (for example, `/u01/app/oracle/product/11.1.0/db_`*`n`*). You are prompted to enter an Oracle home in the Path field of the Specify File Locations window. See also **ORACLE_HOME**, **Oracle home name**.

Oracle home name

The name of the current Oracle home, for example, `Db_1`. Each Oracle home has a home name that distinguishes it from all other Oracle homes on your computer. During installation, you are prompted to enter an Oracle home name in the Name field on the Specify File Locations window.

Oracle schema

A set of rules that determine what can be stored in an LDAP-compliant directory server. Oracle has its own schema that is applied to many types of Oracle entries, including Oracle Net Services entries. The Oracle schema for Oracle Net Services entries includes the attributes the entries may contain.

Oracle Net foundation layer

A networking communication layer that establishes and maintains the connection between the client application and server, as well as exchanging messages between them.

protocol address

An address that identifies the network address of a network object.

When a connection is made, the client and the receiver of the request, such as the **listener**, or Oracle Connection Manager, are configured with identical protocol addresses. The client uses this address to send the connection request to a particular network object location, and the recipient "listens" for requests on this address. It is important to install the same protocols for the client and the connection recipient, and to configure the same addresses.

raw partitions

Portions of a physical disk that are accessed at the lowest possible disk (block) level.

redo log files

Files that contain a record of all changes made to data in the database buffer cache. If an instance failure occurs, then an administrator can use the redo log files to recover the modified data that was in memory.

repository

A set of tables located in any Oracle database accessible to the Oracle Management Server. Oracle Management Server uses a repository to store all system data and application data, information about the state of managed nodes distributed throughout the environment, as well as information about the separately licensable management packs.

service registration

A feature by which the PMON process (an instance background process) automatically registers information with a **listener**. Because this information is registered with the listener, the **listener.ora file** does not need to be configured with this static information.

Service registration provides the listener with the following information:

- Service name(s) for each running instance of the database
- Instance name(s) of the database
- Service handlers (dispatchers and dedicated servers) available for each instance

  This allows the listener to direct a client's request appropriately.
- Dispatcher, instance, and node load information

  This allows the listener to determine which dispatcher can best handle a client connection's request. If all dispatchers are blocked, the listener can spawn a dedicated server for the connection.

This information allows the listener to determine how best to service a client connection request.

SID

The Oracle system identifier that distinguishes the database from all other databases on your computer. The SID automatically defaults to the database name portion of the global database name (`sales` in the example `sales.us.mycompany.com`) until you reach eight characters or enter a period. You can accept or change the default value.

sqlnet.ora file

A configuration file for the client or server that specifies the:

- Client domain to append to unqualified service names or net service names
- Order of naming methods for the client to use when resolving a name
- Logging and tracing features to use
- Route of connections
- External naming parameters
- Oracle Advanced Security parameters

The `sqlnet.ora` file resides in *`ORACLE_BASE`*`\`*`ORACLE_HOME`*`\network\admin`.

system identifier

See **SID**.

tnsnames.ora file

A configuration file that contains net service names mapped to connect descriptors. This file is used for the local naming method. The `tnsnames.ora` file resides in `$ORACLE_BASE/network/admin`.

typical configuration

Oracle Universal Installer option that performs a default configuration of a connection between Oracle Database Client and Oracle Database. It configures the following:

- One net service name in the **tnsnames.ora file**, which is established for connections to **external procedures**.
- **local naming** and **easy connect naming** methods in the **sqlnet.ora file**.

When Oracle Database Client attempts to connect, it tries local naming first, followed by easy connect naming.

unqualified name

A net service name that does not contain a network domain.

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