Oracle® Database

Client Installation Guide

11*g* Release 2 (11.2) for Linux

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Oracle Database Client Installation Guide, 11*g* Release 2 (11.2) for Linux

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Preface

This guide provides instructions about installing and configuring Oracle Database Client on 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

This guide is intended for anyone responsible for installing Oracle Database Client 11*g* Release 2 (11.2). Additional installation guides for Oracle Database, 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* to install Oracle Database using the default settings

Documentation Accessibility

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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

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Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit `http://www.oracle.com/support/contact.html` or visit `http://www.oracle.com/accessibility/support.html` if you are hearing impaired.

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 2 (11.2). 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.html` file in the top-level directory of the media.
2. Platform-specific documentation is available in PDF and HTML formats in the Documentation section.

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 following locations:

- On the Oracle Database Documentation Library media

  Use a Web browser to view or open the `index.htm` file in the top-level directory on the media.

- Online on the Oracle Technology Network (OTN) Web site:

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

Related Documentation

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

- *Oracle Database Installation Guide*
- *Oracle Database Release Notes for Linux*
- *Oracle Database Quick Installation Guide for Linux x86*
- *Oracle Database Quick Installation Guide for Linux x86-64*
- *Oracle Database Client Quick Installation Guide for Linux x86*
- *Oracle Database Client Quick Installation Guide for Linux x86-64*
- *Oracle Real Application Clusters Installation Guide*
- *Oracle Grid Infrastructure Installation Guide*

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 11*g* Release 2 (11.2) 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.

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 Client Installation

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

- Planning Your Installation
- Installation Considerations
- Oracle Database Client Installation Methods
- Oracle Database Client Installation Types
- Oracle Database Client and Oracle Database Interoperability
- Simplified Patching of Timestamp with Time Zone Data Type
- Software Updates Option

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 Client 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 Client.
   - Appendix A describes globalization support information.
   - Appendix B provides information on performing silent installations, which you may want to use if you must perform multiple installations of Oracle Database Client.
   - Appendix C provides troubleshooting advice in case you encounter problems with the installation.
6. **Complete postinstallation tasks:** Chapter 4 describes recommended and required postinstallation tasks.

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
- Separate 32-Bit Client Software for 64-Bit Ports

Hardware and Software Certification

The platform-specific hardware and software requirements included in this guide were current when 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 My Oracle Support (formerly Oracle*MetaLink*) Web site for the most up-to-date list of certified hardware platforms and operating system versions. The My Oracle Support Web site is available at the following URL:

`https://support.oracle.com/`

You must register online before using My Oracle Support. After logging in, click **More** and then select **Certifications** from the list. On the Certification Information page, the Certification Options list appears. Other options include **Product Readmit**, **Product Availability**, and **Lifetime Support Policy**.

Multiple Oracle Homes Support

Oracle Database supports multiple Oracle homes. 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 11.2 software into an existing Oracle9*i* Oracle home directory.

Oracle Database Client can be installed in the same Oracle Database home if both products are at the same release level. For example, you can install Oracle Database Client 11*g* Release 2 (11.2) into an existing Oracle Database 11*g* Release 2 (11.2) home. If you apply a patch set before installing the client, then you must apply the patch set again.

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

Updating the Existing Software with the Current Version

Use the In-Place Upgrade feature to upgrade an existing client installation to the latest release by installing the new client software into an existing client home with the same installation type. For example, if release 11.2.0.1 is installed, then use Oracle Universal Installer to upgrade to release 11.2.0.2.

Consider the following before selecting this option:

- This upgrade is only possible in a client home and not in any other Oracle home that contains non-client installations, such as Database installations.
- This upgrade does not delete files in the client home that are commonly updated by other users. For example, configuration data files.
- This upgrade cannot be performed if processes associated with the Oracle Database Client home are running.

This functionality is available starting with Oracle Database 11*g* Release 2 (11.2.0.2).

> **See Also:** "Performing an In-place Oracle Database Client Upgrade" on page 3-9

Separate 32-Bit Client Software for 64-Bit Ports

Refer to "Separate 32-Bit Client Software for 64-Bit Ports" on page 2-13 for more information.

Oracle Database Client Installation Methods

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

- Interactive Installation Methods
- Automated Installation Methods Using Response Files

Interactive Installation Methods

When you use the interactive method to install Oracle Database Client, Oracle Universal Installer displays a series of screens that enable you to specify all of the required information to install the Oracle Database 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 must 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, and specify the `-silent` option when starting Oracle Universal Installer. None of the Oracle Universal Installer screens are displayed.
- **Response File Mode:** Oracle Universal Installer runs in response file mode if you do not specify all required information in the response file.

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

Oracle Database Client Installation Types

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

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

  Instant Client Light is included in the Instant Client installation and you may want to use Instant Client Light if the applications generate error messages in American English only. Instant Client Light is beneficial to applications 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 platforms only
  - `WE8EBCDIC1047` for EBCDIC platforms 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.

Oracle Database Client and Oracle Database Interoperability

For information about interoperability between Oracle Database Client and Oracle Database releases, see Note 207303.1 on the My Oracle Support Web site at the following URL:

https://support.oracle.com/

Simplified Patching of Timestamp with Time Zone Data Type

Starting with Oracle Database 11*g* Release 2 (11.2), the patching process of `TIMESTAMP WITH TIMEZONE` data type values is simplified.

> **See Also:** "Oracle Database 11*g* Release 2 (11.2) New Features in Globalization" and "Clients and Servers Operating with Different Versions of Time Zone Files" in *Oracle Database Globalization Support Guide* for information about simplified patching process and how certain clients work with server with different time zone files

Software Updates Option

Use the Software Updates feature to dynamically download and apply the latest updates released by Oracle; such as, interim patch updates, critical patch updates, Oracle Universal Installer updates, and the latest patch set updates. This functionality is available starting with Oracle Database 11*g* Release 2 (11.2.0.2).

You can choose to download the latest updates by providing My Oracle Support credentials or you can apply previously downloaded updates. You can also download the updates separately using the `-downloadUpdates` option and later apply them during the installation by providing the location where the updates are present.

> **See Also:** "Running Oracle Universal Installer" on page 3-5 for more information on the `-downloadUpdates` option, and dynamically applying software updates during the installation

2

Preinstallation Tasks

This guide contains information required to install Oracle Database Client 11*g* Release 2 (11.2). Ensure that you review information related to the platform on which you intend to install Oracle Database Client.

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

- 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 B.

- 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, or contact your X server vendor or system administrator 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* Release 2:

- Memory Requirements
- System Architecture
- Disk Space Requirements
- Display Requirements
- Recommended Hardware Requirement for SQL Developer

Memory Requirements

The following are the memory requirements for Oracle Database Client 11*g* Release 2 (11.2):

- 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 you continue with the installation.

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

Note: On Linux, the HugePages feature allocates non-swappable memory for large page tables using memory-mapped files. If you enable HugePages, then you should deduct the memory allocated to HugePages from the available RAM before calculating swap space.

RAM	Swap Space
Between 0 MB and 256 MB	3 times the size of RAM
Between 256 MB and 512 MB	2 times the size of RAM
Between 512 MB and 2 GB	1.5 times the size of RAM
Between 2 GB and 16 GB	Equal to the size of RAM
More than 16 GB	16 GB

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 finalizing 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: 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* Release 2 (11.2):

- The minimum disk space requirement for a client install in the `/tmp` directory is 400 MB.

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

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

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

  - Delete unnecessary files from the `/tmp` directory to meet the space requirement.
  - Set the `TMP` and `TMPDIR` environment variables when setting the `oracle` user's environment.

    See Also: ""Configuring the oracle User's Environment" on page 2-22 for more information about setting `TMP` and `TMPDIR`

  - Extend the file system that contains the `/tmp` directory. If necessary, contact the system administrator for information about extending file systems.

- Between 146 MB and 1.38 GB of disk space for the Oracle software, depending on the installation type:

Installation Type	Requirement for Software Files
Instant Client	146 MB
Administrator	1.38 GB
Runtime	1.10 GB
Custom (maximum)	1.38 GB

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

  ```
  # df -k
  ```

Display Requirements

The minimum display requirement for Oracle Database 11*g* Release 2 (11.2) is a resolution of 1024 x 768 or higher.

Recommended Hardware Requirement for SQL Developer

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

Resource	Recommended
Memory	1 GB RAM (recommended), 256 MB RAM (min)

Resource	Recommended
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 or later versions of the operating system are required for Oracle Database Client 11*g* Release 2 (11.2):

- On Linux x86:
  - Asianux Server 3 SP2
  - Oracle Linux 4 Update 7
  - Oracle Linux 5 Update 2
  - Red Hat Enterprise Linux 4 Update 7
  - Red Hat Enterprise Linux 5 Update 2
  - SUSE Linux Enterprise Server 10 SP2
  - SUSE Linux Enterprise Server 11
- On Linux x86-64
  - Asianux Server 3 SP2
  - Oracle Linux 4 Update 7
  - Oracle Linux 5 Update 2
  - Red Hat Enterprise Linux 4 Update 7
  - Red Hat Enterprise Linux 5 Update 2
  - SUSE Linux Enterprise Server 10 SP2
  - SUSE Linux Enterprise Server 11

Starting with Oracle Database 11*g* Release 2 (11.2), the Security Enhanced Linux (SE Linux) feature is supported for Oracle Linux 4, Red Hat Enterprise Linux 4, Oracle Linux 5, and Red Hat Enterprise Linux 5.

> **Note:** Only the distributions and versions listed in this section are supported. Do not install the software on other versions.
>
> Oracle Universal Installer performs checks to verify that the system meets the listed requirements. To ensure that these checks pass, verify the requirements before you start Oracle Universal Installer.

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

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

Alternatively, on some distributions of Linux, you can also enter the following command:

```
# lsb_release -id
```

> **Note:** For Asianux Server, Oracle Linux, and Red Hat Enterprise Linux, system requirements are identical by kernel version. Specifically:
>
> Oracle Linux 4 and Red Hat Enterprise Linux 4 requirements are the same.
>
> Asianux Server 3, Oracle Linux 5, and Red Hat Enterprise Linux 5 requirements are the same.

Kernel Requirements

The following are the Kernel requirements for Oracle Database Client 11*g* Release 2.

- For Oracle Linux 4 and Red Hat Enterprise Linux 4:

  2.6.9 or later
- For Asianux Server 3, Oracle Linux 5, and Red Hat Enterprise Linux 5:

  2.6.18 or later
- For SUSE Linux Enterprise Server 10:

  2.6.16.21 or later
- For SUSE Linux Enterprise Server 11:

  2.6.27.19 or later

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 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 required for Oracle Database Client 11*g* Release 2 (11.2).

Note:

- Oracle recommends that you install your Linux operating system with the default software packages (RPMs), unless you specifically intend to perform a minimal installation, and follow the directions for performing such an installation to ensure that you have all required packages for Oracle software.
- Oracle recommends that you do not customize RPMs during a default operating system installation. A default installation includes most required packages, and helps 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 the Linux distribution.
- You must install the packages (or later versions) listed in the following table. Also, ensure that the list of RPMs and all of the prerequisites for these RPMs are installed.

For Linux x86:

Item	Requirement

Packages for Oracle Linux 4 and Red Hat Enterprise Linux 4	The following packages (or later versions) must be installed:
	`binutils-2.15.92.0.2`
	`compat-libstdc++-33-3.2.3`
	`elfutils-libelf-0.97`
	`elfutils-libelf-devel-0.97`
	`gcc-3.4.6`
	`gcc-c++-3.4.6`
	`glibc-2.3.4-2.41`
	`glibc-common-2.3.4`
	`glibc-devel-2.3.4`
	`libaio-devel-0.3.105`
	`libaio-0.3.105`
	`libgcc-3.4.6`
	`libstdc++-3.4.6`
	`libstdc++-devel-3.4.6`
	`make-3.80`
	`pdksh-5.2.14`
	`sysstat-5.0.5`

Item	Requirement

Packages for Asianux Server 3, Oracle Linux 5, and Red Hat Enterprise Linux 5	The following packages (or later versions) must be installed:
	`binutils-2.17.50.0.6`
	`compat-libstdc++-33-3.2.3`
	`elfutils-libelf-0.125`
	`elfutils-libelf-devel-0.125`
	`elfutils-libelf-devel-static-0.125`
	`gcc-4.1.2`
	`gcc-c++-4.1.2`
	`glibc-2.5-24`
	`glibc-common-2.5`
	`glibc-devel-2.5`
	`ksh-20060214`
	`libaio-0.3.106`
	`libaio-devel-0.3.106`
	`libgcc-4.1.2`
	`libgomp-4.1.2`
	`libstdc++-4.1.2`
	`libstdc++-devel-4.1.2`
	`make-3.81`
	`sysstat-7.0.2`

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-4.1.2`
	`gcc-c++-4.1.2`
	`glibc-2.4-31.63`
	`glibc-devel-2.4-31.63`
	`libaio-0.3.104`
	`libaio-devel-0.3.104`
	`libelf-0.8.5`
	`libgcc-4.1.2`
	`libstdc++-4.1.2`
	`libstdc++-devel-4.1.2`
	`make-3.80`
	`sysstat-8.0.4`

SUSE Linux Enterprise Server 11	The following packages (or later versions) must be installed:
	`binutils-2.19`
	`gcc-4.3`
	`gcc-c++-4.3`
	`glibc-2.9`
	`glibc-devel-2.9`
	`libstdc++33-3.3.3`
	`libstdc++43-4.3.3_20081022`
	`libstdc++43-devel-4.3.3_20081022`
	`libaio-0.3.104`
	`libaio-devel-0.3.104`
	`libgcc43-4.3.3_20081022`
	`libstdc++-devel-4.3`
	`make-3.81`
	`sysstat-8.1.5`

For Linux x86-64:

IMPORTANT: Starting with Oracle Database 11*g* Release 2 (11.2.0.2), all 32-bit packages, except for `gcc-32bit-4.3`, listed in the following table are not required for installing a database on Linux x86-64. Only the 64-bit packages are required. However, for any Oracle Database 11*g* release prior to 11.2.0.2, both the 32-bit and 64-bit packages listed in the following table are required.

However, when you install the 32-bit client binaries on 64-bit ports, the installer checks for the existence of 32-bit packages.

Item	Requirement

Packages for Oracle Linux 4 and Red Hat Enterprise Linux 4	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`
	`expat-1.95.7`
	`gcc-3.4.6`
	`gcc-c++-3.4.6`
	`glibc-2.3.4-2.41`
	`glibc-2.3.4-2.41 (32 bit)`
	`glibc-common-2.3.4`
	`glibc-devel-2.3.4`
	`libaio-0.3.105`
	`libaio-0.3.105 (32 bit)`
	`libaio-devel-0.3.105`
	`libaio-devel-0.3.105 (32 bit)`
	`libgcc-3.4.6`
	`libgcc-3.4.6 (32-bit)`
	`libstdc++-3.4.6`
	`libstdc++-3.4.6 (32 bit)`
	`libstdc++-devel 3.4.6`
	`make-3.80`
	`sysstat-5.0.5`

Item	Requirement

Packages for Asianux Server 3, Oracle Linux 5, and Red Hat Enterprise Linux 5	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-4.1.2`
	`gcc-c++-4.1.2`
	`glibc-2.5-24`
	`glibc-2.5-24 (32 bit)`
	`glibc-common-2.5`
	`glibc-devel-2.5`
	`glibc-devel-2.5 (32 bit)`
	`libaio-0.3.106`
	`libaio-0.3.106 (32 bit)`
	`libaio-devel-0.3.106`
	`libaio-devel-0.3.106 (32 bit)`
	`libgcc-4.1.2`
	`libgcc-4.1.2 (32 bit)`
	`libstdc++-4.1.2`
	`libstdc++-4.1.2 (32 bit)`
	`libstdc++-devel 4.1.2`
	`make-3.81`
	`sysstat-7.0.2`

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`
	`gcc-c++-4.1.2`
	`glibc-2.4-31.63`
	`glibc-devel-2.4-31.63`
	`glibc-devel-32bit-2.4-31.63`
	`libaio-0.3.104`
	`libaio-32bit-0.3.104`
	`libaio-devel-0.3.104`
	`libaio-devel-32bit-0.3.104`
	`libelf-0.8.5`
	`libgcc-4.1.2`
	`libstdc++-4.1.2`
	`libstdc++-devel-4.1.2`
	`make-3.80`
	`sysstat-8.0.4`

Item	Requirement

SUSE Linux Enterprise Server 11	The following packages (or later versions) must be installed:
	`binutils-2.19`
	`gcc-4.3`
	`gcc-c++-4.3`
	`glibc-2.9`
	`glibc-32bit-2.9`
	`glibc-devel-2.9`
	`glibc-devel-32bit-2.9`
	`libaio-0.3.104`
	`libaio-32bit-0.3.104`
	`libaio-devel-0.3.104`
	`libaio-devel-32bit-0.3.104`
	`libstdc++33-3.3.3`
	`libstdc++33-32bit-3.3.3`
	`libstdc++43-4.3.3_20081022`
	`libstdc++43-32bit-4.3.3_20081022`
	`libstdc++43-devel-4.3.3_20081022`
	`libstdc++43-devel-32bit-4.3.3_20081022`
	`libgcc43-4.3.3_20081022`
	`libstdc++-devel-4.3`
	`make-3.81`
	`sysstat-8.1.5`

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

Intel C++ Compiler 10.1 or later and the version of GNU C and C++ compilers listed under "Package Requirements" on page 2-7 are supported with Pro*C/C++, Oracle Call Interface, Oracle C++ Call Interface, and Oracle XML Developer's Kit (XDK) for Oracle Database 11*g* Release 2.

> **Note:** Intel Compiler v10.1 can be used only with the standard template libraries of the gcc versions mentioned in the "Package Requirements" on page 2-7 section, 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 JDBC/OCI Drivers
- Oracle ODBC Drivers
- Linux-PAM Library

- Separate 32-Bit Client Software for 64-Bit Ports
- Browser Requirements

Oracle JDBC/OCI Drivers

Use JDK 6 (Java SE Development Kit `1.6.0_21`) or JDK 5 (`1.5.0_24`) with the JNDI extension with the Oracle Java Database Connectivity and Oracle Call Interface drivers. However, these are not mandatory for the database installation. Please note that JDK 1.5 is installed with this release.

Oracle ODBC Drivers

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

`http://www.unixodbc.org`

Linux RPMs are available on the site.

- On Linux x86

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

  – On Oracle 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
  ```

  – On Asianux Server 3, Oracle 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
  ```

  – On SUSE 10:

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

  – On SUSE 11:

  ```
  unixODBC-32bit-2.2.12 (32-bit) or later
  unixODBC-devel-32bit-2.2.12 (32 bit) or later
  ```

- On Linux x86-64

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

  – On Oracle Linux 4 and Red Hat Enterprise Linux 4:

  ```
  unixODBC-2.2.11 (32 bit) or later
  unixODBC-devel-2.2.11 (64 bit) or later
  unixODBC-2.2.11 (64 bit) or later
  ```

  – On Asianux Server 3, Oracle Linux 5, and Red Hat Enterprise Linux 5:

  ```
  unixODBC-2.2.11 (32 bit) or later
  unixODBC-devel-2.2.11 (64 bit) or later
  unixODBC-2.2.11 (64 bit) or later
  ```

  – On SUSE 10:

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

```
unixODBC-2.2.11 (64 bit) or later
unixODBC-devel-2.2.11 (64 bit) or later
```

– On SUSE 11

```
unixODBC-2.2.12 or later
unixODBC-devel-2.2.12 or later
unixODBC-32bit-2.2.12 (32 bit) or later
```

Linux-PAM Library

Install the latest Linux-PAM (Pluggable Authentication Modules for Linux) library to enable the system administrator to choose how applications authenticate users.

Separate 32-Bit Client Software for 64-Bit Ports

Starting with Oracle Database 11*g* Release 2 (11.2), the 64-bit client software does not contain any 32-bit client binaries. If you require 32-bit client binaries on 64-bit ports, then install the 32-bit binaries from the respective 32-bit client software.

However, when you install the 32-bit client binaries on 64-bit ports, the installer checks for the existence of 32-bit software such as the packages.

See Also:

- "Package Requirements" on page 2-7 for Linux x86 package requirements
- "Bit-Length Support for Client Applications" in *Oracle Database Administrator's Reference for Linux and UNIX-Based Operating Systems*

Browser Requirements

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

- Netscape Navigator 8.1
- Netscape Navigator 9.0
- Microsoft Internet Explorer 6.0 SP2
- Microsoft Internet Explorer 7.0 SP1
- Microsoft Internet Explorer 8.0
- Firefox 2.0
- Firefox 3.0.7
- Firefox 3.5
- Firefox 3.6
- Safari 3.1
- Safari 3.2
- Safari 4.0.x
- Google Chrome 3.0
- Google Chrome 4.0

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 (typically, `oinstall`)

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

  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 Oracle Universal Installer 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:

  - In Oracle documentation, the user created to own the Oracle Database installations is referred to as the `oracle` user.
  - An Oracle Database installation must be owned by the Oracle software owner user (`oracle`) and belong to the Oracle Inventory group (`oinstall`).

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 exist. The following sections 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
- Creating the Oracle Inventory Group

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 in the `/etc` or `/var/opt/oracle` directory 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` parameter 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 create the Oracle Inventory group as follows:

```
# /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 2-17.
- To modify an existing user, refer to the "Modifying an Oracle Software Owner User" section on page 2-17.
- 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 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 2-17 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:

```
# /usr/sbin/usermod -g oinstall -G dba oracle
```

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

> **Note:** Ensure that the paths you select for Oracle software, such as the Oracle home path and the Oracle base path, use only ASCII characters. Because installation owner names are used by default for some paths, this ASCII character restriction applies to user names, file names, and directory names.

Oracle Base Directory

The Oracle base directory is a top-level directory for Oracle software installations. On UNIX 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/software_owner
```

In this example:

- *mount_point* is the mount point directory for the file system that contains 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`.

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

You must 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. Refer to "Installing the Oracle Database Client Software" on page 2-5 for information.
>
> 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, 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 provides an OFA-compliant path in the format `u[01-09]/app`, such as `/u01/app`. 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 `ORACLE_BASE` for the `oracle` user during installation, 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 have 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.
- By default, the Oracle Inventory directory is not installed under the Oracle Base directory. This is because all Oracle software installations share a common Oracle Inventory, so there is only one Oracle Inventory for all users. Whereas, there is a separate Oracle Base for each user.

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, and 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/11.2.0/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/11.2.0/dbhome_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, run a similar command to confirm the location of Oracle base:

  ```
  cat /u01/app/oraInventory/ContentsXML/inventory.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 2-22.

  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 to create an Oracle base directory, 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 -h
   ```

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`.

> **Caution:** Use shell programs supported by your operating system vendor. If you use a shell program that is not supported by your operating system, then you can encounter errors during installation.

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. 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
     ```

7. 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).

8. 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
   ```

9. 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.

---

10. 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 Client

The Oracle Database Client software is available on installation media 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 Database Client Software

> **See Also:** Appendix B 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.

- 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 Database Client software is available on installation media or you can download it from the Oracle Technology Network Web site, or Oracle E-Delivery Web site. To install the software from the hard disk, you must either download it and unpack it, or copy it from the installation media.

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

- To install the software from a installation media or from an existing hard disk location, refer to "Installing the Oracle Database 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" on page 3-2

Downloading Oracle Software

You can download the trial version of the installation files from the Oracle Technology Network (OTN) or Oracle E-Delivery Web site and extract them on your hard disk. Make sure that you completely review and understand the terms of the license. Most downloads include the development license. This section contains the following topics:

- Downloading the Installation Archive Files from OTN
- Downloading the Software from Oracle E-Delivery
- Extracting the Installation Files

Downloading the Installation Archive Files from OTN

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.

Downloading the Software from Oracle E-Delivery

You can download the software from Oracle E-Delivery as Media Packs. A Media Pack is an electronic version of the software that is also available to Oracle customers on CD-ROM or DVD. To download the Media Pack:

1. Use any browser to access the Oracle E-Delivery Web site:

   `http://edelivery.oracle.com/`

2. Complete the Export Validation process by entering information (name, company, e-mail address, and country) in the online form.
3. In the Media Pack Search page, specify the Product Pack and Platform to identify the Media Pack you want to download. If you do not know the name of the Product Pack, you can search for it using the License List.

4. In the search results page, click **Readme** to download and review the Readme file for download instructions and product information.
5. After you review the Readme, choose the appropriate Media Pack from the search results to download the individual zip files. Follow the Download Notes instructions in this page. Once you download and extract the contents of the required zip files, proceed with the installation of the software.

> **Note:** Print the page with the list of downloadable files. It contains a list of part numbers and their corresponding descriptions that you may need to reference during the installation process.

> **See Also:** *Frequently Asked Questions* section on the Oracle E-Delivery Web site for more information about Media Packs

Extracting the Installation Files

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

1. If necessary, change 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 `Disk`*n*, where *n* is the disk number identified in the file name.

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

Copying the Software to the Hard Disk

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

- Mounting Disks
- Copying the Oracle Database Client Software to a Hard Disk

Mounting Disks

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

1. If necessary, log in as the `root` user and enter a command similar to one of the following to eject the currently mounted disk, then remove it from the drive:
   - Asianux, Oracle 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 installation media.
2. Insert the appropriate installation media 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 Linux, and Red Hat Enterprise Linux:

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

   - SUSE Linux Enterprise Server:

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

4. 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 installation media.

   If this command fails to display the contents of the installation media, enter a command similar to the following to mount it, depending on the platform:
   - Asianux, Oracle 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 installation media.
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 Database Client Software to a Hard Disk" on page 3-5.
- If you want to install the software from the installation media, refer to "Installing the Oracle Database Client Software" on page 3-5.

Copying the Oracle Database Client Software to a Hard Disk

If the system does not have a installation media, you can copy the software from the installation media 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 installation media 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 "Mounting Disks" on page 3-4 for 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 installation media. The mount point directory is `/dvd`.

5. If necessary, mount the next disk and repeat Step 4.

Installing the Oracle Database Client Software

Use Oracle Universal Installer to install the Oracle Database Client software. The following sections describes how to install the Oracle software:

- Running Oracle Universal Installer
- Performing an In-place Oracle Database Client Upgrade

> **See Also:** "Installation Considerations" on page 1-2 for information you should consider before deciding how to install the client

Running Oracle Universal Installer

For any type of installation process, start Oracle Universal Installer and install the software, as follows:

1. Log on as the Oracle software owner user (typically, `oracle`) to the computer on which to install Oracle components.

2. If you are installing the software from installation media, mount the disk if it is not already mounted.

   If the disk does not mount automatically, refer to "Mounting Disks" on page 3-4 for information about mounting it.

   Some platforms automatically mount the disk when you insert the installation media 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.

   See Also: "Configuring the oracle User's Environment" on page 2-22 for information about setting the `oracle` user's environment

   - If the installation files are on disk, enter a command similar to the following, where *`directory_path`* is the path of the `client` directory on the installation media:

     ```
     $ /directory_path/runInstaller
     ```

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

     ```
     $ ./runInstaller
     ```

   - Starting with Oracle Database 11*g* Release 2 (11.2.0.2), if you plan to run the installation in a secured data center, then you can download updates before starting the installation by starting Oracle Universal Installer on a system that has Internet access in update download mode. To start Oracle Universal Installer to download updates, enter the following command:

     ```
     $ ./runInstaller -downloadUpdates
     ```

     Provide the My Oracle Support (formerly Oracle*MetaLink*) user name and password, and provide proxy settings if needed. After you download updates, transfer the update file to a directory on the server where you plan to run the installation.

     See Also:

     - *Oracle Universal Installer and OPatch User's Guide for Windows and UNIX* for information about response file formats
     - "Software Updates Option" on page 1-5

   If Oracle Universal Installer is not displayed, refer to the "X Window Display Errors" on page C-1 for information about troubleshooting.

4. If you have an existing Oracle Database Client 11*g* Release 2 (11.2) installed on your system, the Select Installation Mode screen is displayed. Select **New Install** to install Oracle Database Client software in to a new location.

   Starting with Oracle Database 11g Release 2 (11.2.0.2), if you want to upgrade an earlier release of Oracle Database Client, then select **Upgrade** and follow the instructions in "Performing an In-place Oracle Database Client Upgrade" on page 3-9.

5. In the Select Installation Type screen, select the type of installation that you want: Instant Client, Administrator, Runtime, or Custom and click **Next.**

6. Starting with Oracle Database 11*g* Release 2 (11.2.0.2), you can use the Software Updates feature to dynamically download and apply latest updates. In the

Download Software Updates screen, select one of the following options, and click **Next:**

- Use My Oracle Support credentials for download to download and apply the latest software updates.

  Click Proxy Settings to configure a proxy for Oracle Universal Installer to use to connect to the Internet. Provide the proxy server information for your site, along with a user account that has access to the local area network through which the server is connecting.

  Click Test Connection to ensure that your proxy settings are correctly entered, and the installer can download the updates.

- Use pre-downloaded software updates to apply previously downloaded software updates.
- Skip Software Updates if you do not want to apply any updates.

  See Also: "Software Updates Option" on page 1-5

7. The Apply Software Updates screen is displayed if you select to download the software updates or provide the pre-downloaded software downloads location. If you selected Use My Oracle Support credentials for download in the previous screen, then select **Download and apply all updates**, and click **Next**. If you selected Use pre-downloaded software updates, then select **Apply all updates**, and click **Next.**
8. The Select Product Languages screen enables you to select the language in which you want to run the product.

   Select the product language from the Available Languages list, transfer it to the Selected Languages list. Click **Next.**

   This screen is not displayed if you select Instant Client as the type of installation in Step 5.
9. In the Specify Installation Location screen, enter the following details:

   Oracle Base: This path appears by default. You can change the path based on your requirement. The Oracle Base section is not displayed if you select Instant Client as the type of installation in Step 5.

   In the **Software Location** section, accept the default value or enter the Oracle home directory path in which you want to install Oracle components. The directory path should not contain spaces. Click **Next.**
10. In the Create Inventory screen, you are prompted by the installer to specify the directory path for central inventory the first time you install Oracle Database on your computer.

    Select the **oraInventory Group Name** of the operating system group that should own the Oracle Inventory directory (the Oracle Inventory group). Click **Next.**

    Note: By default, the Oracle Inventory directory is not installed under the Oracle Base directory. This is because all Oracle software installations share a common Oracle Inventory, so there is only one Oracle Inventory for all users, whereas there is a separate Oracle Base for each user.
11. If you selected Custom as the type of installation in Step 5, then the Available Product Components screen is displayed. Select the products that you want to install and click **Next.**

> **Note:** Starting with Oracle Database 11*g* Release 2 (11.2), you can install Oracle Connection Manager, Oracle Net Listener, and Oracle Scheduler Agent using the Custom install option.

12. In Step 11, if you select Oracle Scheduler Agent as one of the components that you want to install, then the Oracle Database Scheduler Agent screen is displayed. Enter the Scheduler Agent Hostname, and the Scheduler Agent Port Number. Click **Next.**
13. The Perform Prerequisite Checks screen verifies if your computer meets the minimum system requirements to install the desired product. Click **Next.**

    Note: Oracle recommends that you use caution in checking the Ignore All option. If you check this option, then Oracle Universal Installer may not confirm that your system is able to install Oracle Database successfully.
14. Review the information displayed in the Summary screen, and click **Finish.**

> **Note:** Starting with Oracle Database 11*g* Release 2 (11.2), you can save all the installation steps into a response file by clicking **Save Response File** in the Summary screen. Later, this file can be used for a silent installation.

15. The Install Product screen states the progress of a client installation. After Oracle Database Client is installed, you are prompted to execute the root configuration script for new inventory as a `root` user. Execute the `root.sh` script as a `root` user to complete the installation, and click **OK.**

If you select Oracle Net Listener from the list of components to install in Step 11, then Oracle Universal Installer automatically starts Oracle Net Configuration Assistant. You can also invoke Oracle Net Configuration Assistant, to create net service names using `netca` and perform the following:

1. In the Welcome screen, select the **Naming Methods Configuration** option. Then click **Next**. (The remaining steps in this procedure assume you are using Naming Methods.)
2. In the Naming Methods Configuration screen, select the naming method you want from the list of Available Naming Methods and then click **Next.**

   Typically, Local Naming is sufficient.
3. The Naming Method Configuration screen states that the Naming Method Configuration is complete. Click **Next.**
4. The above action takes you back to the Welcome screen. Select **Local Net Service Name configuration**, and click **Next.**
5. In the Net Service Name Configuration screen, select **Add** to add a net service name. Click **Next.**
6. 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`.
7. In the Net Service Name Configuration, Select Protocol screen, depending on the protocol you selected, enter the appropriate information, and click **Next.**

8. 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, and click **Next.**

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

9. In the Net Service Name Configuration, Test screen, click **Yes** to perform a test of the connection. 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**, reenter the user name and password, and click **OK.**

10. In the Connecting screen click **Next.**
11. In the Net Service Name screen, enter the name of the net service name to use.
12. Answer the remaining prompts to complete the configuration.
13. In the Finish screen, click **Close**, to exit from Oracle Universal Installer.
14. Go to Chapter 4, "Oracle Database Client Postinstallation Tasks" to complete the postinstallation tasks.

See Also: *Oracle Database Net Services Administrator's Guide* for information on configuring and administering Oracle Net Listener

Performing an In-place Oracle Database Client Upgrade

Starting with Oracle Database 11*g* Release 2 (11.2.0.2) you can perform an in-place upgrade of Oracle Database Client 11*g* Release 2 (11.2) using the following instructions:

Note: If you do not have an existing Oracle Database Client 11*g* Release 2 (11.2) upgradable home on your system, you cannot perform an in-place upgrade.

---

1. Perform Steps 1 through 3 listed in "Running Oracle Universal Installer" on page 3-5.
2. Only if you have an existing Oracle Database Client 11*g* Release 2 (11.2.0.1) installed on your system, the Select Installation Mode screen is displayed. Select **Upgrade** to upgrade the existing Oracle Database Client software with the latest version.
3. Perform Steps 8 through 15 listed in listed in "Running Oracle Universal Installer" on page 3-5 to complete the upgrade process.

See Also:

- "Updating the Existing Software with the Current Version" on page 1-3
- "Performing an In-place Oracle Database Client Upgrade Using the Response File" on page B-6

4

Oracle Database Client Postinstallation Tasks

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

- Required Postinstallation Tasks
- Recommended Postinstallation Tasks
- Required Product-Specific Postinstallation Tasks

You must perform the tasks listed in "Required Postinstallation Tasks" on page 4-1. Oracle recommends that you perform the tasks listed in "Recommended Postinstallation Tasks" on page 4-3 after all installations.

If you install and intend to use any of the products listed in "Required Product-Specific Postinstallation Tasks" on page 4-7, 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-Based Operating Systems*, *Oracle Database Administrator's Guide* and product-specific administration and tuning guides for exhaustive 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 My Oracle Support (formerly 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.
- Browsers require an Adobe Flash plug-in, version 9.0.115 or higher to use My Oracle Support. Check your browser for the correct version of Flash plug-in by going to the Adobe Flash checker page, and installing the latest version of Adobe Flash.

  If you do not have Flash installed, then download the latest version of the Flash Player from the Adobe Web site:

  `http://www.adobe.com/go/getflashplayer`

To download required patches:

1. Use a Web browser to view the My Oracle Support Web site:

   `https://support.oracle.com/`

2. Log in to My Oracle Support.

   Note: If you are not a My Oracle Support registered user, click **Register for My Oracle Support** and follow the registration instructions.

3. On the main My Oracle Support page, click **Patches and Updates.**
4. In the Patch & Updates page, click **Advanced Search.**
5. On the Advanced Search page, click the search icon next to the Product or Product Family field.
6. In the Search and Select: Product Family field, select **Database and Tools** in the Search list field, enter **RDBMS Server** in the text field, and click **Go.**

   RDBMS Server appears in the Product or Product Family field. The current release appears in the Release field.
7. Select your platform from the list in the Platform field, and at the bottom of the selection list, click **Go.**
8. Any available patch updates are displayed under the Results heading.
9. Click the patch number to download the patch.
10. On the Patch Set page, click **View README** and read the page that appears. The README page contains information about the patch set and how to apply the patches to your installation.
11. Return to the Patch Set page, click **Download**, and save the file on your system.
12. Use the unzip utility provided with Oracle Database 11*g* Release 2 (11.2) to uncompress the Oracle patch updates that you downloaded from My Oracle Support. The unzip utility is located in the `$ORACLE_HOME/bin` directory.

Updating Instant Client

To update Instant Client:

1. Download Instant Client from Oracle Technology Network:

   http://www.oracle.com/technetwork/database/features/instant-client/index-097480.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.

   Note: 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 to perform patch upgrades. 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/11.2.0/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/11.2.0/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 Using an Empty Connect String and TWO_TASK

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 as you do not have to create and manage a `tnsnames.ora` file. However, the application users must specify the host name and port number when they want to log in to the application.

For example, 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:

```
sqlplus 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, to shield users from having to specify actual host names and port numbers, 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**, click **Exit**, and then click **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 Using an Empty Connect String and TWO_TASK

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 must 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-Based Operating Systems*.

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 user session. 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 A, "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/11.2.0/client_1
     $ export ORACLE_HOME
     ```

   - C shell:

```
% setenv ORACLE_HOME /u01/app/oracle/product/11.2.0/client_1
```

3. Enter the following command:

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

Required Product-Specific Postinstallation Tasks

The following sections describe 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 must perform postinstallation tasks only 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`

Table 4–1 (Cont.) C/C++ Compiler Directory

Path	Command
`/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.

5

Removing Oracle Database Client Software

This chapter describes how to completely remove Oracle software and configuration files related to the specified Oracle home using the Deinstallation Tool.

The `deinstall` command removes the Oracle Database Client installations.

It includes information about the following topics:

- About the Deinstallation Tool
- Downloading the Deinstall Tool for Use with Failed Installations
- Example of Running the Deinstall Command
- Example of a Deinstallation Parameter File

About the Deinstallation Tool

The Deinstallation Tool (`deinstall`) is available in Oracle home directories after installation. It is located in the `$ORACLE_HOME/deinstall` directory.

The `deinstall` command uses the information you provide, plus information gathered from the software home to create a parameter file. You can alternatively supply a parameter file generated previously by the `deinstall` command using the `-checkonly` option, or by editing the response file template.

The command uses the following syntax, where variable content is indicated in italics:

```
deinstall -home complete path of Oracle home [-silent] [-checkonly] [-local]
[-paramfile complete path of input parameter property file] [-params name1=value
name2=value . . .] [-o complete path of directory for saving files] [-help | -h]
```

The default method for running the deinstall tool is from the deinstall directory in the Oracle home as the installation owner:

```
$ $ORACLE_HOME/deinstall/deinstall
```

Provide information about your servers as prompted or accept the defaults.

The `deinstall` command stops Oracle software, and removes Oracle software and configuration files on the operating system.

In addition, you can run the deinstall tool from other locations, or with a parameter file, or select other options to run the tool.

The options are:

- `-home`

Use this flag to indicate the home path of the Oracle home that you want to check or deinstall. To deinstall Oracle software using the `deinstall` command in the Oracle home you plan to deinstall, provide a parameter file in another location, and do not use the `-home` flag.

If you run deinstall from the `$ORACLE_HOME/deinstall` path, then the `-home` flag is not required because the tool knows from which home it is being run. If you use the standalone version of the tool, then `-home` is mandatory.

- `-silent`

  Use this flag to run the command in silent or response file mode. If you use the `-silent` flag, then you must use the `-paramfile` flag, and provide a parameter file that contains the configuration values for the Oracle home that you want to deinstall or deconfigure.

  You can generate a parameter file to use or modify by running `deinstall` with the `-checkonly` flag. The `deinstall` command then discovers information from the Oracle home that you want to deinstall and deconfigure. It generates the properties file, which you can then use with the `-silent` option.

  You can also modify the template file `deinstall.rsp.tmpl`, located in the `response` folder.

- `-checkonly`

  Use this flag to check the status of the Oracle software home configuration. Running the command with the `-checkonly` flag does not remove the Oracle configuration. The `-checkonly` flag generates a parameter file that you can use with the `deinstall` command.

- `-local`

  Use this flag on a multinode environment to deinstall Oracle software in a cluster.

  When you run `deinstall` with this flag, it deconfigures and deinstalls the Oracle software on the local node (the node where `deinstall` is run). On remote nodes, it deconfigures Oracle software, but does not deinstall the Oracle software.

- `-paramfile` *`complete path of input parameter property file`*

  Use this flag to run `deinstall` with a parameter file in a location other than the default. When you use this flag, provide the complete path where the parameter file is located.

  The default location of the parameter file depends on the location of `deinstall`:

  – From the installation media or stage location: `$ORACLE_HOME/inventory/response`.

  – From a unzipped archive file from OTN: `/`*`ziplocation`*`/response`.

  – After installation from the installed Oracle home: `$ORACLE_HOME/deinstall/response`.

- `-params` [`name1=`*`value`* `name 2=`*`value`* `name3=`*`value`* `...`]

  Use this flag with a parameter file to override one or more values that you want to change in a parameter file you have already created.

- `-o` *`complete path of directory for saving response files`*

  Use this flag to provide a path other than the default location where the properties file (`deinstall.rsp.tmpl`) is saved.

  The default location of the parameter file depends on the location of `deinstall`:

  - From the installation media or stage location before installation: `$ORACLE_HOME/`
  - From a unzipped archive file from OTN: `/ziplocation/response/`.
  - After installation from the installed Oracle home: `$ORACLE_HOME/deinstall/response`.
- `-help | -h`

  Use the help option (`-help` or `-h`) to obtain additional information about the command option flags.

Downloading the Deinstall Tool for Use with Failed Installations

If you require the Deinstallation Tool (deinstall) to remove failed or incomplete installations, then it is available as a separate download from the Oracle Technology Network (OTN) Web site.

To download the Deinstallation Tool:

1. Go to the following URL:

   http://www.oracle.com/technology/software/products/database/index.html

2. Under **Oracle Database 11g Release 2**, click **See All** for the respective platform for which you want to download the Deinstallation Tool.

   The Deinstallation Tool is available for download at the end of this page.

Example of Running the Deinstall Command

As the `deinstall` command runs, you are prompted to provide the home directory of the Oracle software that you want to remove from your system. Provide additional information as prompted.

Use the optional flag `-paramfile` to provide a path to a parameter file.

In the following example, the `deinstall` command is in the path `/u01/app/oracle/product/11.2.0/client_1/deinstall`, and it uses a parameter file in the software owner location `/home/usr/oracle`:

```
# cd /u01/app/oracle/product/11.2.0/client_1/deinstall/
# ./deinstall -paramfile /home/usr/oracle/myparamfile.tmpl
```

If you enter the deinstall command outside of the `$ORACLE_HOME/deinstall` folder, then help is displayed, unless you enter a `-home` flag and provide a path. If you run the deinstall command from the `$ORACLE_HOME/deinstall` folder, then deinstallation starts without prompting you for a home address.

Example of a Deinstallation Parameter File

You can run the `deinstall` command with the `-paramfile` option to use the values you specify in the parameter file. The following is an example of a parameter file, in which the Oracle Database binary owner is `oracle`, the Oracle Database home (Oracle home) is in the path `/u01/app/oracle/product/11.2.0/client_1/`, the Oracle base (where other Oracle software is installed) is `/u01/app/oracle/`, the central Oracle Inventory home (`oraInventory`) is `/u01/app/oraInventory`, and the client is `client1`:

```
ORACLE_BASE=/u01/app/oracle
INVENTORY_LOCATION=/u01/app/oraInventory
CRS_HOME=false
HOME_TYPE=CLIENT
silent=false
local=false
LOCAL_NODE=node1
ObaseCleanupPtrLoc=/var/tmp/install/orabase_cleanup.lst.
LOGDIR=/u01/app/oraInventory/logs/
ORACLE_HOME=/u01/app/oracle/product/11.2.0/client_1
```

A

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

> **See Also:** *Oracle Database Globalization Support Guide* for an overview of globalization support for Oracle Database

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 Database Client libraries such as OCI.

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

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 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
```

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 Using NLS_LANG

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 user session. 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.

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

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 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.

To install the translation resources:

1. Start Oracle Universal Installer.
2. In the Configure Security Updates screen enter the relevant information and click **Next.**
3. In the Download Software Updates and Apply Software Updates screens, enter the relevant information and click **Next.**
4. In the Select Installation Option screen, select the installation option and click **Next.**
5. In the System Class screen, select the type of system class for installing the database, and click **Next.**

6. In the Grid Installation Options screen, select the type of database installation you want to perform, and click **Next.**
7. In the Select Product Languages 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.

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

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

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 the listed earlier, then Oracle Universal Installer runs in English.

You must 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.

B

Installing Oracle Database Client Using Response Files

This appendix describes how to use response files to perform a silent or response file installation of Oracle Database Client. It includes information about the following topics:

- How Response Files Work
- Preparing a Response File
- Running Oracle Universal Installer Using a Response File
- Performing an In-place Oracle Database Client Upgrade Using the 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 Response File 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.

- Response file 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 response file mode. During a response file mode installation, Oracle Universal Installer displays all the screens, screens for which you specify information in the response file and also screens for which you did not specify the required information in the response file. The advantage is that you can validate the values in the screens for

which you have already provided the information in the response file and continue with the installation.

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

```
ORACLE_HOME=/u01/app/oracle/product/11.2.0/dbhome_1
```

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=/u01/app/oracle/product/11.2.0/dbhome_1
```

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=password" ...
```

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

See Also:

- *Oracle Universal Installer and OPatch User's Guide for Windows and UNIX* for more information about response file formats
- My Oracle Support Web site for more information on response files:

  https://support.oracle.com/

Reasons for Using Silent Mode or Response File Mode

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

Mode	Uses
Silent	Use silent mode to: ▪ Complete an unattended installation, which you might schedule using an operating system utility such as `cron`. ▪ 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.
Response file	Use response file mode to complete similar Oracle software installations on more than one system, providing default answers to some, but not all of Oracle Universal Installer prompts. In response file mode, all the installer screens are displayed, but defaults for the fields in these screens are provided by the response file. You have to provide information for the fields in screens where you have not provided values in the response file.

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 response file mode:

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

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

- Editing a Response File Template
- Recording a Response File

Editing a Response File Template

This method is 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 in the `client\response` directory on the Oracle Database installation media.

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

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

Table B–1 Response Files

Response File	Description
`client_install.rsp`	Client installation of Oracle Database Client.
`netca.rsp`	Oracle Net Configuration Assistant to perform the configuration with the client installation types.

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
```

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 B-1 explains this method.

> **See Also:** *Oracle Universal Installer and OPatch User's Guide for Windows and UNIX* 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" on page C-4 for 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 response file mode installations. This method is useful for custom or software-only installations.

Starting with Oracle Database 11*g* Release 2 (11.2), you can save all the installation steps into a response file during installation. You can click the Save Response File button on the Summary page to do this. Later, this file can be used for a silent installation.

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 response file 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 "Creating the Oracle Inventory Group" on page 2-15.

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. On each Oracle Universal Installer screen, specify the required information.
5. When Oracle Universal Installer displays the Summary screen, perform the following actions:
   1. Click **Save Response File** and specify a file name and location for the response file. Then, click **Save** to save the values to the file.
   2. Click **Finish** to continue with the installation.

      Click **Cancel** if you do not want to continue with the installation. The installation stops, but the recorded response file is retained.
6. 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 Installer 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 response file 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 response file 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` runs 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
```

Performing an In-place Oracle Database Client Upgrade Using the Response File

Starting with Oracle Database 11*g* Release 2 (11.2.0.2), you can perform an in-place Oracle Database Client upgrade using the response file:

1. Edit the `oracle.install.client.upgrading` entry in the `client_install.rsp` file and set it to `true`. By default, the `oracle.install.client.upgrading` entry is set to `false`.
2. Run Oracle Universal Installer in silent mode as described in "Running Oracle Universal Installer Using a Response File" on page B-5.

See Also: "Performing an In-place Oracle Database Client Upgrade" on page 3-9

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
- Troubleshooting Inventory Issues
- Troubleshooting Screen Display Issues
- 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 run 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, or contact your X server vendor or system administrator 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, then rerun Oracle Universal Installer with the `-debug` option:

  ```
  $./runInstaller -debug
  ```

  Check the log file for details. Refer to "Reviewing the Log of an Installation Session" section on page C-3.
- 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-5.

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-3.
- 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/installActions*date_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 canceled	-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-5.
2. Correct the cause of the fatal error.
3. Reinstall the Oracle software.

Troubleshooting Inventory Issues

If you face any of the following situations for Oracle home, then run the `opatch lsinventory -detail` command to list the contents of the inventory and see section "Recovering from inventory corruption" in the *Oracle Universal Installer and OPatch User's Guide for Windows and UNIX* for information on fixing the issue.

- Oracle home is cloned without completing the inventory steps.
- There is bad inventory.
- Inventory is not available but it is created when the Oracle Enterprise Manager Agent is installed in a separate Oracle home.

Troubleshooting Screen Display Issues

If you connect to Oracle database with a screen resolution of 640X480 or 800X600, then the Next button in the GUI is not visible as it hides behind the Taskbar. To fix this problem, perform one of the following:

- Hide the Taskbar.
- Move the Oracle Universal Installer screen up.
- Set the screen resolution to 1024X768 or higher.

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 ensure 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.

To do this, run the Deinstallation Tool. For more information on how to run the Deinstallation Tool refer to "About the Deinstallation Tool" on page 5-1.

D

Frequently Asked Questions About Installation

Use the following guidelines to decide how to install Oracle Database Client 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 about installing Oracle Database Client:

- 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 *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 *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, in the Select Database Edition screen, select **Enterprise Edition**. Click the **Select Options** button, and from the Choose 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 *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 a Database**: Install Oracle Database on one computer using interactive mode. You can also clone databases. Instructions for cloning databases are 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 *Oracle Database Installation Guide* for more information.
2. Refer to Chapter 3, "Installing Oracle Database Client" 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 response file mode.

   If the client nodes only require a default installation into a new Oracle home directory, consider using *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 *Oracle Database Installation Guide* for more details.
2. Refer to Chapter 3, "Installing Oracle Database Client" 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 response file mode.

How do I upgrade Oracle Database?

Refer to *Oracle Database Upgrade Guide*.

> **See Also:** *Oracle Database Administrator's Guide* 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 Oracle Automatic Storage Management (Oracle ASM) 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 *Oracle Grid Infrastructure Installation Guide* and *Oracle Real Application Clusters Installation Guide* to install Oracle Clusterware or Oracle Real Application Clusters respectively. Oracle Clusterware is available on the Oracle Clusterware installation media. Refer to *Oracle Database Installation Guide* which explains how to install Oracle ASM 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, if 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 about 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 *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 requires an agent which is not installed by default.

   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 Basic Installation Guide* available on the Enterprise Manager Grid Control installation media

   Documentation available on the Oracle Technology Network Web site at:

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

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 *Oracle Database Installation Guide* to install Oracle Database.

   If you plan to use Oracle Real Application Clusters, then install Oracle Database by using *Oracle Grid Infrastructure Installation Guide* and *Oracle Real Application Clusters Installation Guide*.

2. Use *Oracle Enterprise Manager Grid Control Basic Installation Guide* to install and configure Oracle Enterprise Manager. For postconfiguration tasks, use *Oracle Enterprise Manager Advanced Configuration*. Refer to documentation available on the Enterprise Manager Grid Control installation media, or on the Oracle Technology Network Web site at:

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

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 with 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 2 (11.2), 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, in the Select Database Edition screen, select **Enterprise Edition**. Click the **Select Options** button, and from the Choose 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, you must have an Enterprise Edition licence for the database installation. 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 *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 is 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 to 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 about 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 must implement your applications with Oracle Real Applications Clusters databases, refer to *Oracle Grid Infrastructure Installation Guide* and *Oracle Real Application Clusters Installation Guide.*

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

Install Oracle Application Express and a Web server:

Use *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, which ships on separate media, or use the XML DB HTTP Protocol Server and the embedded PL/SQL Gateway that installs with Oracle Database 11*g* Release 2.

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 the 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 an 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 Oracle Solaris 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
WebSphere MQ	Oracle Database Gateway for WebSphere MQ. *Oracle Database Gateway for WebSphere MQ Installation and User's Guide*.

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