

Oracle9i

Installation Guide

Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP 9000 Series HP-UX, Linux Intel, and Sun Solaris

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Oracle9i Installation Guide, Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP 9000 Series HP-UX, Linux Intel, and Sun Solaris

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Preface

This guide and the *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems* provide instructions for installing and configuring Oracle9i release 2 (9.2.0.1.0) on UNIX systems.

Audience

This document is intended for anyone responsible for installing Oracle9i release 2 (9.2.0.1.0) on UNIX systems.

Oracle9i Standard Edition and Oracle9i Enterprise Edition

Unless noted otherwise, the information in this document is common to both Oracle9i Standard Edition and Oracle9i Enterprise Edition.

Terminology

The names for the UNIX operating systems have been shortened in this guide and the *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems*. The names are as follows:

Operating System	Abbreviated Name
AIX-Based Systems	AIX
	Note: Where there is a difference between AIX 4.3.3 and 5.1, this is noted in the text.
HP 9000 Series HP-UX	HP

Operating System	Abbreviated Name
Linux Intel (32-bit)	Linux
Sun Solaris (32-bit and 64-bit)	Solaris
	Note: Where there is a difference between 32-bit and 64-bit systems, this is noted in the text.
Compaq Tru64 UNIX	Tru64

Typographic Conventions

The following typographic conventions are used in this guide:

Convention	Description
<code>monospace</code>	Monospace type indicates UNIX commands, directory names, usernames, pathnames, and filenames.
<i>italics</i>	Italic type indicates a variable, including variable portions of filenames. It is also used for emphasis and for book titles.
UPPERCASE	Uppercase letters indicate Structured Query Language (SQL) reserved words, initialization parameters, and environment variables.
<cr>	This string indicates a newline character.

Command Syntax

UNIX command syntax appears in `monospace` font and assumes the use of the Bourne shell. The "\$" character at the beginning of UNIX command examples is the default UNIX command prompt. Do not enter it as part of the command.

Convention	Description
backslash \	A backslash indicates a command that is too long to fit on a single line. Enter the line as displayed (with a backslash) or enter it on a single line without a backslash: <pre>dd if=/dev/rdisk/c0t1d0s6 of=/dev/rst0 bs=10b \ count=10000</pre>
braces { }	Braces indicate required items: <code>.DEFINE {macro1}</code>

Convention	Description
brackets []	Brackets indicate optional items: <code>cvtrct termname [outfile]</code>
ellipses ...	Ellipses indicate an arbitrary number of similar items: <code>CHKVAL fieldname value1 value2 ... valueN</code>
<i>italics</i>	Italic type indicates a variable. Substitute a value for the variable: <code>library_name</code>
vertical line	A vertical line indicates a choice within braces or brackets: <code>SIZE filesize [K M]</code>

Accessing Installed Documentation

Oracle9i Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP 9000 Series HP-UX, Linux Intel, and Sun Solaris documentation includes this guide and the *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems*. You can install documentation in HTML and PDF (Adobe Portable Document Format, which requires Acrobat Reader) formats. UNIX-specific documentation files are located on the Oracle9i product CD-ROM. Generic documentation files are located on the Online Generic Documentation CD-ROM. The exact location of the documentation files is determined according to the following rules:

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- If the ORACLE_DOC environment variable is not defined but the ORACLE_BASE environment variable is defined, then the files are installed in the \$ORACLE_BASE/doc directory.
- If neither the ORACLE_DOC environment variable nor the ORACLE_BASE environment variable are defined in the environment, then the files are installed in the \$ORACLE_HOME/doc directory.

To access the documentation, navigate to the documentation directory. If you want to access the HTML documentation, use a browser to open the `index.htm` file. If you prefer paper documentation, open and print the PDF files.

Oracle Product Documentation

Oracle9i product documentation is on the Oracle9i Generic Documentation CD-ROM. Instructions for accessing and installing the documents on the CD-ROM are found in the `README` file in the top-level directory of the CD-ROM.

Documentation Library

The documentation library on the Generic Documentation CD-ROM includes a Web-based search tool that enables you to search through the complete library of Oracle9i documents. You may search for information on a particular product, parameter, filename, procedure, error message, or other area of interest. The tool also makes it possible to construct a "virtual book" that consists of topics and procedures relevant for your needs drawn from the complete documentation library. The library also includes a comprehensive Master Index, as well as lists of SQL and PL/SQL keywords, initialization parameters, catalog views, and data dictionary views.

Related Documentation

If you are unfamiliar with the concepts or terminology associated with relational database management systems, then refer to *Oracle9i Database Concepts* before beginning your installation. Use the Installation Checklist in Appendix C to ensure that you have the required information and that you have completed the necessary pre-installation steps for a successful installation.

Information on system administration and tuning for a production database system is provided in these documents:

- *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems*
- *Oracle9i Database Administrator's Guide*
- *Oracle9i Net Services Administrator's Guide*
- *Oracle9i Database Performance Guide and Reference*

Information on upgrading from a previous version of the Oracle Server is provided in *Oracle9i Database Migration*.

Information on installing Oracle Workflow is provided in the *Oracle Workflow Server Installation Notes* and *Oracle Workflow Client Installation Notes (Release 2.6.2)*.

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At the Oracle support site, templates are available to help you prepare information about your problem before you call so that you may be helped more quickly. You must also provide your CSI (Customer Support Identifier) or SAC (Support Access Code) number if applicable or complete contact details, including any special project information.

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<http://www.oracle.com/support/metalink>

Use your CSI or SAC number to register.

Products and Documentation

For U.S.A. customers, Oracle Store is at:

<http://oraclestore.oracle.com>

Links to Stores in other countries are provided at this site.

Product documentation is available at:

<http://docs.oracle.com>

Customer Service

Global Customer Service contacts are listed at:

<http://www.oracle.com/support/>

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- For non-technical questions, call 1.800.464.2330

Oracle9i Installation Planning

This chapter describes Oracle9i product installations, database configurations, Oracle Configuration Assistants, and other installation concepts. It contains the following sections

- [Oracle9i Installation Overview](#)
- [Oracle9i Products for Installation](#)
- [Oracle9i Database Configurations](#)
- [Oracle Configuration Assistants](#)
- [Installation With Existing Oracle Databases](#)
- [Oracle9i Re-installation](#)
- [Oracle9i Installation Restrictions](#)

Oracle9i Installation Overview

Installing Oracle9i products consist of four stages:

1. **Planning your installation:** This chapter provides information on products, installation types, database configurations, and concepts you should be aware of in planning an installation.
2. **Completing pre-installation tasks:** Refer to Chapter 2, "Pre-Installation" in this guide and to the release notes for your platform to complete the pre-installation tasks.
3. **Installing software:** Refer to Chapter 3, "Installation" in this guide to assist you in using the Oracle Universal Installer to install Oracle9i software. Use the Installation Worksheet to organize information you need during installation. If

you plan to install Oracle Transparent Gateway, refer to Appendix B, "Oracle Transparent Gateway."

4. **Completing post-installation tasks:** Refer to Chapter 4, "Post-Installation" in this guide to complete the post-installation tasks and configuration.

Oracle9i Products for Installation

During installation, you are asked to choose one of the three products. These products are:

- Oracle9i Database
- Oracle9i Client
- Oracle9i Management and Integration

Oracle9i Database

The Oracle9i Database is an object-oriented relational database management system. It may be installed in one of the three installation types: Enterprise Edition, Standard Edition or Custom installation.

- **Enterprise Edition:** If you select this type, then the Oracle Universal Installer installs a preconfigured database, networking services, licensable Oracle Options, database configuration and management tools, the Oracle Enterprise Manager framework, including the Oracle Management Server, Oracle Intelligent Agent, Console, and licensable Management Packs, Oracle Utilities and online documentation. It also contains those products most commonly used for data warehousing and transaction processing.
- **Standard Edition:** If you select this type, then the Oracle Universal Installer installs a preconfigured database, networking services, the Oracle Enterprise Manager framework including the Oracle Management Server, Oracle Intelligent Agent, Console, Standard Management Packs, and Oracle Utilities.
- **Custom:** If you select this type, then the Oracle Universal Installer prompts you to select individual components to be installed from the components available with Enterprise Edition installation.

Note: AIX, HP, Linux, Solaris, and Tru64 are supported for use with Standard Edition on applicable platform system types that have a maximum of four CPU slots in the cabinet closure.

Oracle9i Client

Oracle9i Client is one of the front-end database applications that connects to the database through one or more application servers. There are three Client installation types: Administrator, Runtime and Custom.

- **Administrator:** If you select this type, then the Oracle Universal Installer installs the Oracle Enterprise Manager Console and licensable Management Packs, networking services, utilities, basic client software, the OLAP API, and online documentation.
- **Runtime:** If you select this type, then the Oracle Universal Installer installs networking services and support files.
- **Custom:** If you select this type, then the Oracle Universal Installer prompts you to select individual components to be installed from the components available with Administrator and Runtime.

Oracle9i Management and Integration

Oracle Management Server is a central processing and distributed system for management tasks. It enables distributed control between clients and managed nodes. Oracle9i Integration Server is a software suite that provides internet and intranet tools to integrate applications within and across organizations.

There are three Management and Integration installation types: Oracle Management Server, Oracle Internet Directory, and Custom.

- **Oracle Management Server:** If you select this type, then the Oracle Universal Installer installs the Oracle Management Server, Console and Management Packs. The Management Server processes all system management tasks and administers the distribution of these tasks to Intelligent Agents on managed nodes across the enterprise. In addition, the Installer installs basic client software and online documentation.
- **Oracle Internet Directory:** If you select this type, then the Oracle Universal Installer installs a Lightweight Directory Access Protocol (LDAP)-enabled Oracle Internet Directory Server, LDAP-enabled client tools and the Oracle Internet Directory database schema.
- **Custom:** If you select this type, then the Oracle Universal Installer prompts you to select individual components to be installed from the components available with Oracle Management Server, Oracle Internet Directory, and Oracle Integration Server.

Oracle9i Database Configurations

When you install the Oracle9i Database product, you are prompted to select a database configuration suited to your needs. Select from one of five Oracle9i database configurations:

1. General Purpose
2. Online Transaction Processing
3. Data Warehouse
4. Customized
5. Software Only

Options one through three are preconfigured databases that you can use for the Oracle9i database. Each preconfigured database is designed to provide optimal support for particular database needs. Options four and five are configurations for special needs. [Table 1-1, "Oracle9i Database Configurations"](#) describes these configurations.

Table 1-1 Oracle9i Database Configurations

Environment	Description
General Purpose	Users perform a variety of database tasks, ranging from simple transactions to complex queries. Select this database environment for general purpose usage.
Online Transaction Processing	Users perform large numbers of concurrent transactions, where each transaction is a relatively simple operation processing a small amount of data. Transactions consist of reading, writing and deleting data in database tables. Billing databases, such as those commonly found on internet commerce sites, are the most common example of this database configuration. These are also known as Online Transaction Processing (OLTP) databases.
Data Warehouse	Users perform Online Analytical Processing (OLAP) where very complex queries access and process large volumes of data. OLAP queries are typically read-only and range from a simple query of a few records to complex queries that sort thousands of records from many different tables. Historical databases are the most common example of this database configuration. Data warehousing databases are also known as Decision Support Systems (DSS).

Table 1–1 Oracle9i Database Configurations (Cont.)

Environment	Description
Customized	<p>Allows you to create a customized database configuration of Oracle products that meets specialized requirements.</p> <p>Select this option only if you are prepared to provide detailed product and database environment choices. Choosing this option requires a longer installation session than choosing a preconfigured database.</p>
Software Only	<p>Allows you to install Oracle products. It does not configure the listeners or network infrastructure and does not create a database.</p> <p>Oracle Corporation recommends that you install at least one preconfigured database to serve as a template for database configuration.</p>

See Also: *Oracle9i Concepts*, *Oracle9i Database Performance Tuning Guide and Reference* and *Oracle9i Real Application Clusters Setup and Configuration* for more information on database environment issues.

"[Database Configuration Assistant](#)" on page 1-7 for more information on how to choose a database.

Many of the Oracle documents included in the Oracle9i Generic Documentation CD-ROM provide information about database environments, the effect database environment settings have on performance, and how your database can be tuned to maximize performance.

Oracle Configuration Assistants

Oracle Configuration Assistants are Graphical User Interface (GUI) tools included with the Oracle9i software to assist you with configuring and fine-tuning your environment and system for optimal performance. Many of them start automatically when the installation is completed, depending on the selections you make when you run the Installer. You can also manually start the configuration assistants as standalone tools.

- **Database Upgrade Assistant** starts automatically when you select the Upgrade an Existing Database option. You can also choose not to select the option and run Database Upgrade Assistant independently after completing installation.

- **Database Configuration Assistant** starts automatically when you create an Oracle9i database during installation.
- **Oracle HTTP Server Configuration Assistant** starts automatically when you install Oracle HTTP Server.

Note: Oracle HTTP Server includes software developed by the Apache Software Foundation (<http://www.apache.org/>).

- **Oracle Enterprise Manager Configuration Assistant** starts automatically when you select the Oracle Management Server type from the Oracle Management and Integration product installation types window, or when you explicitly select the Oracle Management Server type from an Oracle Management and Integration Custom install or a Custom Database install. The Enterprise Manager Configuration Assistant will not launch automatically with any other installation process. You must manually launch it after exiting from the Installer.
- **Oracle Internet Directory Configuration Assistant** starts automatically when you select Oracle Internet Directory from Oracle Management and Integration product installation types window, or when you explicitly select Oracle Internet Directory during an Oracle Management and Integration Custom installation.
- **Oracle Net Configuration Assistant** starts automatically for all Database installation types. The Oracle Net Configuration Assistant creates and modifies network configuration files located in the \$ORACLE_HOME/network/admin directory. Depending on the installation type selected, Oracle Net Configuration Assistant configures the network for standard database connection methods or a customized network.
- **Oracle Workflow Configuration Assistant** starts automatically only when you select Workflow from Oracle Management and Integration custom installation type. It installs and configures the Oracle Workflow Schema in the Oracle9i database.
- **Agent Configuration Assistant** starts the intelligent agent service automatically. This is invoked when the Agent is installed.

Oracle HTTP Server Configuration Assistant

The Oracle HTTP Server Configuration Assistant starts the HTTP listener in non-SSL (Secure Sockets Layer) on port 7777. If port 7777 is not available, the Oracle HTTP Server Configuration Assistant defaults to port 7778.

See Also: <http://www.apache.org> for more information on configuring Oracle HTTP Server to use the HTTPS (HTTP over SSL) protocol.

Database Configuration Assistant

Database Configuration Assistant enables you to copy an Oracle9i preconfigured database, or create a fully customized database to match your selected environment and database configuration. It starts automatically after Oracle9i software has been installed during Oracle9i installation.

When installing Oracle9i software using any database configuration option other than the Custom and Software Only, the Oracle Universal Installer prompts for a global database name and System Identifier (SID). After Oracle9i installation is completed, the Database Configuration Assistant uses this information to create the database. In addition, the Database Configuration Assistant automatically configures the static service information for the Oracle9i database in the `listener.ora` file.

The following list provides descriptions of database configurations:

- General Purpose configuration:** If you select this option with an Enterprise Edition or Standard Edition installation, the Database Configuration Assistant creates a preconfigured, ready-to-use, multipurpose database with the following:
 - Default initialization parameters using server parameter file and Automatic Undo Management
 - Automatic installation and configuration of Oracle Options and *interMedia*
 - Advanced Replication capabilities
 - Database configuration of dedicated server mode
 - Archiving mode of NOARCHIVELOG
- Transaction Processing option:** If you select this, the Database Configuration Assistant creates a preconfigured, ready-to-use OLTP database.

- ❑ **Data Warehouse option:** If you select this, the Database Configuration Assistant creates a database that is fully enabled for data warehousing applications. The OLAP option, consisting of support for analytic workspaces and the OLAP catalog metadata repository (`CWMLite`), is included in the database.
- ❑ **Customized installation option:** If you select this, the Database Configuration Assistant guides you in creating a fully customized database. You can choose to configure options, Oracle Text components and advanced replication either automatically or manually.

Select this option only if you are experienced with advanced database creation procedures. You will need to customize some or all of the following settings or parameters:

- Data, control, and redo log file settings
 - Tablespace and extent sizes
 - Database memory parameters
 - Archiving modes, formats and destinations
 - Trace file destinations
 - Character set values
- ❑ **Software Only option:** If you select this, the Oracle Universal Installer installs only Oracle9i software. Database Configuration Assistant does not start after installation, and no preconfigured database is installed.

See Also: ["Using Database Configuration Assistant"](#) on page 4-30 for more information on running Database Configuration Assistant in a standalone mode.

Oracle9i Globalization and National Language Guide for more information on database character sets.

Database Upgrade Assistant

Database Upgrade Assistant enables you to upgrade an existing database to Oracle9i when you have completed an Oracle9i installation. You must complete a number of steps prior to upgrading with Database Upgrade Assistant. These include performing a full backup of your current production database, and reviewing required planning and backup preparations prior to beginning an upgrade.

See Also: ["Installation With Existing Oracle Databases"](#) on page 1-12 for more information on upgrade issues.

Oracle9i Database Migration for more information on planning, preparing, and completing a database upgrade with Database Upgrade Assistant.

Appendix C of Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP 9000 Series HP-UX, Linux Intel, and Sun Solaris for more information on upgrading from Oracle8i and prior database versions to Oracle9i

Oracle Enterprise Manager Configuration Assistant

Oracle Enterprise Manager Configuration Assistant configures the Oracle Management Server on a local system. It can create, upgrade or delete a repository, and edit existing configurations. A repository is a set of database tables that must be located in any Oracle database accessible to the Oracle Management Server. The Oracle Management Server uses a repository to store all system data, application data, and information on the state of managed nodes distributed throughout the environment.

See Also: *Oracle Enterprise Manager Configuration Guide* for more information on using Oracle Enterprise Manager Configuration Assistant.

Oracle Internet Directory Configuration Assistant

Oracle Internet Directory Configuration Assistant configures the Oracle Internet Directory on a local system. The configuration assistant automatically starts the Oracle Internet Directory Server. To make it easier to start the Oracle Internet Directory Server, the assistant loads the default Oracle Schema and Oracle Context, and creates a default subscriber Directory Information Tree.

See Also: *Oracle Internet Directory Administrator's Guide* for more information on installing or configuring Oracle Internet Directory.

Oracle Net Configuration Assistant

Oracle Net Configuration Assistant configures the Oracle client/server network environment. It modifies the configuration files located in the default `$ORACLE_HOME/network/admin` directory. Review the Oracle Net Configuration Assistant procedure for your product installation choice.

Oracle9i Database Enterprise Edition and Standard Edition Installation

For Enterprise and Standard installations, the Oracle Net Configuration Assistant performs the following task:

- ❑ Configures the Oracle Net server environment by configuring the following files:
 - `listener.ora`: Oracle Net Services configures a listener with the name and protocol address you select. Oracle Net Services also configures a protocol address and static service information for external procedures.
 - `sqlnet.ora`: Oracle Net Services configures the server's network domain as the default domain, which is the same as the network domain of your system. The domain is automatically appended to any unqualified net service name given in the connect string. The `sqlnet.ora` file also configures the naming methods the server uses to resolve a name to connect descriptor.
 - `tnsnames.ora`: Oracle Net Services creates a net service name entry to use for external procedure connections.

Oracle9i Database Custom Installation

For Custom Database installation, Oracle Net Configuration Assistant guides you to:

- ❑ Complete directory server usage configuration. This requires that you enter a directory server type and location and specify which Oracle Context should be used by default. You are prompted for this information only if you have never configured the Oracle home directory for directory service usage.
- ❑ Create listeners to use for connecting to the database.
- ❑ Select the naming method to use when connecting to the local database. By default, the local naming method is selected. In most circumstances, Oracle Corporation recommends that you use this default. You also have the option to use one of the following naming methods: directory naming (if directory usage configuration was completed), Oracle Names, host naming, Network Information System naming, and Distributed Computing Environment's Cell Directory Service naming (listed only if `/instcomp` also is passed from the Installer).

Oracle Net Configuration Assistant automatically creates your Oracle Net server environment. This affects the following files:

- `listener.ora`: Oracle Net Services configures a listener with the name and protocol address you select. Oracle Net Services also configures a protocol address and static service information for external procedures.
- `sqlnet.ora`: Oracle Net Services configures the server's network domain as the default domain, which is the same as the network domain of your system. The domain is automatically appended to any unqualified net service name given in the connect string. The `sqlnet.ora` file also configures the naming methods the server uses to resolve a name to connect descriptor.
- `tnsnames.ora`: Oracle Net Services creates a net service name entry to use for external procedure connections.
- `ldap.ora`: Oracle Net Services configures parameters to access the directory server.

See Also: *Oracle9i Net Services Administrator's Guide* for more information on installing, naming methods, service name configuration, and client configuration.

Client Installation

For Oracle9i Administrator and Runtime Client installations, the local or directory naming method is selected based on whatever you choose to use a directory service. For Oracle9i Custom Client installation, Oracle Net Configuration Assistant prompts you to:

Complete directory usage configuration if you have a directory server. Select a naming method to use for accessing the database.

- Local naming specifies a net service name to resolve network addresses. This name is configured and stored in configuration files on each client.
- Directory naming specifies a directory server to resolve net service names and database services. Clients then use the information registered with the directory service to connect to Oracle9i databases.

Depending on the naming method you select, you are prompted to provide additional information.

Oracle Net Configuration Assistant then creates your Oracle Net client environment by configuring the following files:

- `sqlnet.ora`: configures the naming methods a client uses to resolve a name to a connect descriptor. The Assistant configures the client's domain as the

default domain. This domain is automatically appended to any unqualified net service name given in the connect string.

- `tnsnames.ora`: configures a net service name if using local naming.
- `ldap.ora`: is configured if you chose to use a directory server.

See Also: ["Using Oracle Net Configuration Assistant"](#) on page 4-29 or *Oracle9i Net Services Administrator's Guide* for more information on running Oracle Net Configuration Assistant in standalone mode.

Oracle9i Net Services Administrator's Guide for more information on naming methods, configuring service names, and client configurations.

Oracle Workflow Configuration Assistant

The Oracle Workflow Configuration Assistant automatically creates an Oracle Workflow database account to which the Oracle Workflow database objects are installed. Oracle Workflow is only installed automatically if you install it at the same time as you create your database. If you run the Oracle Universal Installer to install Oracle Workflow on an existing database, then the Oracle Universal Installer only copies the Oracle Workflow files to your file system; it does not automatically run those files to perform the installation. You must manually run an installation/upgrade script to complete the installation. This precaution helps ensure that any previous installation of Oracle Workflow in an existing database is upgraded correctly.

See Also: *Oracle Workflow Server Installation Notes* for more information on Oracle Workflow Configuration Assistant, manual installation, and post-installation procedures.

Installation With Existing Oracle Databases

You can access different versions of Oracle on the same computer system at the same time using Oracle Net Services. You can only access Oracle8i and Oracle9i databases separately. You cannot submit a single query to access the databases simultaneously.

See Also: *Oracle9i Database Migration* and *Oracle9i Database Administrator's Guide* for more information on compatibility and interoperability issues, and on connecting different client versions to the database.

Upgrading Existing Oracle Databases

Upgrading is the process of installing a new database server version and using the Database Upgrade Assistant or the Export/Import utility to convert an existing database to the new version. Upgrade if you want to test a new installation with a copy of your old database prior to bringing it online in a production environment.

Oracle8 release 8.0.6 or later databases and Oracle8i release 8.1.5 or later databases can be upgraded directly to Oracle9i. Oracle8 databases earlier than 8.0.6 must be upgraded to Oracle8 release 8.0.6, and then to Oracle9i. Use the Database Upgrade Assistant when upgrading your data.

All Oracle8i versions are supported for upgrading to Oracle9i release 2.

Upgrade Issues

If you have an existing Oracle installation, Oracle Corporation recommends that you install Oracle9i 9.2.0.1.0 into a new Oracle home directory.

It is not possible to have more than one Oracle release in the same Oracle home. If you must install Oracle9i into an Oracle home directory that contains previously installed Oracle8i products, then use the Oracle Universal Installer to remove the previously installed products before beginning the new installation.

Note: Oracle Upgrade Utility supports Oracle Real Application Clusters 9.2.0.1.0.

See Also: *Oracle9i Database Migration* for more information on upgrading an existing database.

Oracle9i Re-installation

If you re-install Oracle9i database into an Oracle home directory where an Oracle9i database is already installed, you must also re-install any component selections, such as Oracle Partitioning, that were enabled before you began the re-installation.

Oracle9i Installation Restrictions

There are restrictions that can affect the installation or use of Oracle9i software on UNIX platforms. For the latest information on these restrictions, refer to the release notes and the README files that accompany this release. For documentation, access the `index.htm` file from Disk 1 of the CD-ROM.

Release Notes are updated regularly online and are available with the rest of the Oracle documentation at the following location:

<http://docs.oracle.com>

In addition, if you have hardware or operating system software versions that are released after this installation guide and you are an Oracle Support Services customer, then review the certification matrix on Oracle *MetaLink* to determine if Oracle9i 9.2.0.1.0 is certified for these products or versions.

See Also: ["Oracle Services and Support"](#) on page -xvi for more information on Oracle *MetaLink*.

Installing in Character Mode

You cannot perform an Oracle9i installation using character mode. You can, however, configure the Oracle Universal Installer to perform a non-interactive ("silent") installation. Non-interactive mode can be run directly from an X Window System console, or through an X terminal or PC X terminal on a remote system.

Note: Whenever you perform a non-interactive installation, you must set your DISPLAY environment variable. Otherwise, installation will fail.

See Also: ["Non-Interactive Installation and Configuration"](#) on page 3-37 for more information on the non-interactive installation of Oracle products.

Writing To File Systems

Oracle9i Server must be able to verify that writes to a disk were completed successfully. NFS file systems may not be able to guarantee that writes to a disk were completed successfully, and this may lead to possible data file corruption. Oracle Corporation recommends that you do not have data files located on NFS mount points unless your storage vendor and storage device are listed in the Oracle

Storage Compatibility Program list. This list can be accessed from the following Web site:

<http://www.oracle.com/ip/deploy/database/storage/>

Using Hummingbird Exceed X Window Emulator

An X Window emulator is a software package that emulates the X Window System, which is a network-based graphics window system that is the industry standard windowing system for UNIX systems. If you intend to install Oracle9i on a server from a client terminal whose operating system is a non-UNIX system, such as Microsoft Windows, then you must obtain an X Window emulator.

If you use the Hummingbird Exceed X Window emulator while installing and using Oracle9i, then set the window manager to run in Native mode so that Microsoft Windows functions as the window manager. See your Exceed documentation for instructions on configuring the window manager.

The following are common problems with the Hummingbird Exceed X Window emulator:

- Exceed does not handle screen coordinates correctly. The *Installer* window and related Installer dialogs and configuration assistants can encounter display problems when run through the emulator. If Exceed causes display problems, then exit the entire X Window session and start a new session.
- For some dialog windows the text fields appear truncated when viewed through Exceed and display correctly when viewed through a native X Window on a UNIX system.

To correct any problems with hidden dialog fields, perform the following steps:

1. Select the xconfig application under the Exceed Program Group from the Windows Start Menu.
2. Select the Fonts applet.
3. Select the Font Database button in the *Font Settings* dialog.
4. Deselect the Automatic Font Substitution option in the *Font Database* dialog.
5. Select the Add... button.

The *Add Font Directory* dialog is displayed.

6. Select the Server radio button in the *Add Font Directory* dialog.

7. Enter the host name for your machine in the Host Name field in the *Add Font Server* dialog.
8. Leave all other entries at their default settings.
9. Select OK.
10. Select Close on all dialogs to save the settings.

Pre-Installation Requirements

This chapter describes pre-installation steps required for an Oracle9i software installation. It contains the following sections.

- [Installation Requirements](#)
- [Installation Recommendations](#)
- [Setup Tasks to Perform as root User](#)
- [Setup Tasks to Perform as the oracle User](#)
- [Setup Tasks for Oracle Products](#)

Installation Requirements

Verify that your system meets the hardware, disk space, operating system, and other requirements for installing the Oracle9i database.

Hardware Requirements

To install the Oracle9i products included with this release, your system must meet the minimum hardware requirements listed in the following table:

Hardware	Requirements
Memory	<p>A minimum of 512 MB of RAM is required to install Oracle9i Server.</p> <p>A minimum of 512 MB of RAM is required to install Oracle9i Management and Infrastructure.</p> <p>A minimum of 256 MB is required to install Oracle9i Client.</p> <p>HP only: If you are installing Oracle Real Application Clusters on a cluster with Hyper Messaging Protocol (HMP), each Oracle shadow process using HMP requires an additional 0.3 MB of memory. Allocate memory depending on the applications and the number of users on the systems.</p>
Swap space	Disk space equal to the system's physical memory, or 1GB, whichever is greater.
CD-ROM device	A CD-ROM drive capable of reading ISO 9660 format CD-ROM discs with RockRidge extensions.

Note: To use HP's Hyper Messaging Protocol (HMP) for cluster interconnection in an Oracle Real Application Clusters environment on HP-UX, you must have Hewlett-Packard proprietary HyperFabric Switches. These should be product A6384a, the fiber-based HyperFabric2 switch. Use adaptor cards A6386a and A7525a (fiber cable).

Random Access Memory

To determine the amount of random access memory installed on your system, enter one of the commands listed in the following table, depending on your platform:

Platform	Command
AIX	\$ /usr/sbin/lssattr -E -l sys0 -a realmem
Linux	\$ /usr/sbin/dmmsg grep "Physical:"
HP	\$ grep MemTotal /proc/meminfo
Solaris	\$ /usr/sbin/prtconf grep "Memory size"
Tru64	\$ /bin/vmstat -P grep "Total Physical Memory"

Swap Space

To determine the amount of swap space currently configured in your system, enter one of the commands listed in the following table, depending on your platform:

Platform	Command
AIX	\$ /usr/sbin/lspv -a
HP	\$ /usr/sbin/swapinfo -a
Linux and Tru64	\$ /sbin/swapon -s
Solaris	\$ /usr/sbin/swap -l

From the output of the command that you enter, divide the value shown in the BLOCKS column by 2.

Disk Space Requirements

The following table lists the disk space requirements for the Oracle9i database software and seed database.

Note: These are approximate values that might vary slightly at installation time.

Component	Required Disk Space
Database software	3.5 GB
Seed database	1 GB

Temporary Disk Space Required by the Oracle Universal Installer

The Oracle Universal Installer requires up to 400 MB of space in the `/tmp` directory. If you do not have enough space in the `/tmp` directory, set the `TMPDIR` and `TMP` environment variables to specify a directory with sufficient space.

Operating System Requirements

This section lists the Oracle9i operating system requirements.

Operating System Version

The following table lists the operating system version required by each platform, and the command to determine the current operating system version, if available.

Platform	Operating System Version	Command
AIX 4.3.3	4.3.3	<code>\$ oslevel -r</code>
AIX 5.1	5.1	<code>\$ oslevel -r</code>
HP	HP-UX version 11.0 (64-bit).	<code>\$ uname -a</code>
Linux	SuSE Linux Enterprise Server 7 (or SLES-7) with kernel 2.4.7, and glibc 2.2.2. Note: In addition to this distribution, Oracle Corporation works with other Linux distribution vendors to certify Oracle products with their default kernel and OS utilities.	<code>\$ uname -a</code>
Solaris 32-Bit	2.6 (5.6), 7 (5.7) or 8 (5.8)	<code>\$ uname -a</code>
Solaris 64-Bit	8 (5.8)	<code>\$ uname -a</code>
Tru64	5.1 or 5.1A	<code>\$ /usr/sbin/sizer -v</code>

Operating System Patches

The following table lists operating system patches required by Oracle9i and the Web sites where you can download the patches.

OS	Required Patches	Web Sites to Download the Patches From
AIX 4.3.3	Maintenance Level 09 and IY24568, IY25282, IY27614, IY30151	http://techsupport.services.ibm.com/server/fixes

OS	Required Patches	Web Sites to Download the Patches From
AIX 5.1	AIX 5L release 5.1 ML01+ (IY22854), IY26778, IY28766, IY28949, IY29965, IY30150	http://techsupport.services.ibm.com/server/fixes
HP-UX 11.0 (64-bit)	Sept. 2001 Quality Pack, PHCO_23792, PHCO_24148, PHKL_24268, PHKL_24729, PHKL_25475, PHKL_25525, PHNE_24715, PHSS_23670, PHSS_24301, PHSS_24303, PHSS_24627, PHSS_22868	For patch bundles: http://www.software.hp.com/SUPPORT_PLUS For individual patches: http://itresourcecenter.hp.com
Linux SuSE SLES 7	Not Applicable	
Solaris 2.6 (5.6)	Not Applicable	http://sunsolve.sun.com
Solaris 2.8 (64-bit)	Update 5 (07/01)	http://sunsolve.sun.com
Tru64 5.1 Standalone systems	5.1 patchkit 4	http://www.compaq.com/support
Tru64 5.1A Standalone systems	5.1A patchkit 1	http://www.compaq.com/support

Operating System Requirements to Support Oracle Real Application Clusters

The following table lists the operating system packages and patches required to support Oracle Real Application Clusters.

Platform	Packages and Patches
AIX 4.3.3	PSSP 3.4 (SP only), HACMP/ES CRM 4.4.1 (RS6000 only)
AIX 5L	PSSP 3.4 (SP only), HACMP/ES CRM 4.4.1, IY28111 (RS6000 only)
HP	MC/ServiceGuard A.11.13 OPS Edition, PHSS_25915, PHNE_26177
Linux	Not Applicable
Solaris 32-bit	Not Applicable
Solaris 64-bit	SunCluster 3.0, 110648-15

Platform	Packages and Patches
Tru64 5.1	TruCluster 5.1, T64V51B18-C0099700-13027-M-20020129.tar (this is the Tru64 V51CSP 997.00 / AdvFS Stale Data Patch)
Tru64 5.1A	TruCluster 5.1A, TCV51AB1-C0001100-13278-M-20020220.tar (this is the Tru64 V5.1A CSP 11.0 / Fix for RDG patch)

Determining Installed Patches

To determine if a specific patch is installed, enter one of the following commands, depending on your platform:

Platform	Command
AIX	<code>\$ instfix -a -ivk APAR_number</code>
HP	<code>\$ /usr/sbin/swlist -l patch</code>
Linux	<code>\$ rpm -qa</code>
Solaris 32-bit	<code>\$ pkginfo -i package name</code>
Solaris 64-bit	<code>\$ showrev -p</code>
Tru64	<code>\$ /usr/sbin/dupatch -track -type kit</code>

JRE Patches

Oracle9i installs one of the versions of the Java Runtime Environment (JRE) listed in the following table, depending on your platform:

Platform	JRE Version
AIX	JRE 1.1.8-build 20020313
HP	JRE 1.1.8.06
Linux	Blackdown JRE 1.1.8 v3
Solaris 32-bit	JRE 1.1.8_12
Solaris 64-bit	JRE 1.1.8_15
Tru64	JRE 1.1.8-10

The following table lists required or recommended JRE patches:

OS	Required Patch	Required/Recommend
HP	PHCO_23792	Recommended
	PHCO_24148	Recommended
	PHKL_25475	Recommended
	PHNE_23456	Recommended
	PHNE_24034	Recommended
	PHSS_24303	Recommended
Solaris 2.6 (5.6)	106040-11 X Input and Output Method patch	Required
	105181-15 Kernel patch	Required
	105284-25 Motif Runtime liberty patch	Recommended
	105490-07 Dynamic Linker patch	Recommended
	106409-01 Chinese TrueType fonts patch (1)	Recommended
	105633-21 OpenWindows 3.6: Xdun patch (1)	Recommended
	105568-13 Libthread patch	Recommended
	105210-19 LibC patch	Recommended
105669-07 CDE 1.2: libDTSvc patch (dtmail)	Recommended	
Solaris 7 (5.7)	107636-01 X Input and Output Method patch	Required
	106980-05 Libthread patch	Recommended
	107607-01 Motif fontlist, fontset, libxm	Recommended
	107078-10 Open Windows 3.6.1 Xsun patch (1)	Recommended

Operating System and Font Packages (AIX, Solaris, and Tru64 Only)

The following table lists the required operating system and font packages for AIX, Solaris, and Tru64 systems:

OS	Package Type	Required Packages
AIX	Operating system	<code>bos.adt.base</code> , <code>bos.adt.lib</code> , <code>bos.adt.libm</code> , <code>bos.perf.perfstat</code>
Solaris	Operating system	<code>SUNWarc</code> , <code>SUNWbtool</code> , <code>SUNWhea</code> , <code>SUNWlibm</code> , <code>SUNWlibms</code> , <code>SUNWsprot</code> , and <code>SUNWtoo</code>
Solaris	Font packages for Java	<code>SUNWilo</code> and <code>SUNWxfnt</code> are required for all locations. You may need to obtain additional font packages to support font styles used at your location. Refer to the following Web site for a listings of Solaris font packages: http://java.sun.com/j2se/1.3/font-requirements.html
Tru64	Operating system	<code>OSF11</code> , <code>OSFSER</code> , <code>OSFLIBA</code> , <code>OSFPGMR</code> , <code>OSFCMPLRS</code>

To check whether an operating systems package is installed, enter one of the following commands, depending on your platform:

Platform	Command
AIX	<code>\$ lslpp -l os_package</code>
Solaris	<code>\$ pkginfo -i os_package</code>
Tru64	<code>\$ setld -i grep os_package</code>

In the preceding examples, `os_package` is the name of the operating system package that you want to check.

Additional Operating System Requirements

The following software is required for all the platforms:

Software	Requirement
X Server and Window Manager	<p>Use any X server supported by your UNIX operating system. Use any Sun-supported window manager supported by your UNIX operating system.</p> <p>For Hummingbird Exceed, use a native window manager.</p> <p>For WRQ Reflections, allow a remote window manager.</p> <p>To determine if your X Window System is working properly on your local system, enter the following command</p> <pre>\$ xclock</pre> <p>The X clock should appear on your monitor</p>
Required executables	The following executables must be present: <code>make</code> , <code>ar</code> , <code>ld</code> , <code>nm</code> .

Note: Due to a known HP bug (Doc. id: KBRC00003627), the default HP-UX (64-bit) operating system installation does not create a few required X library symbolic links. These links must be created manually before starting Oracle9i installation.

To create these links, you must have superuser privileges, as the links are to be created in the `/usr/lib` directory. After enabling superuser privileges, run the following commands to create the required links:

```
$ cd /usr/lib
$ ln -s /usr/lib/libX11.3 libX11.sl
$ ln -s /usr/lib/libXIE.2 libXIE.sl
$ ln -s /usr/lib/libXext.3 libXext.sl
$ ln -s /usr/lib/libXhp11.3 libXhp11.sl
$ ln -s /usr/lib/libXi.3 libXi.sl
$ ln -s /usr/lib/libXm.4 libXm.sl
$ ln -s /usr/lib/libXp.2 libXp.sl
$ ln -s /usr/lib/libXt.3 libXt.sl
$ ln -s /usr/lib/libXtst.2 libXtst.sl
```

Product-Specific Requirements

This section provides product-specific system configuration requirements. Make these additional system configuration changes to use the optional Oracle products.

Oracle9i Options

[Table 2-1](#) lists additional restrictions and requirements for installing Oracle9i Options on a UNIX system. You must ensure that your system meets these requirements prior to installing Oracle9i.

Table 2–1 Additional Restrictions and Requirements for Installing Oracle9i Options

Product Name	Platform	Restrictions and Requirements
Oracle HTTP Server	AIX	JDK 1.3.1-build 20020316.
	HP	JDK 1.3.1.02.
	Linux	Sun JDK 1.3.1_02.
	Solaris	JDK 1.3.1_02
	Tru64	JDK 1.3.1.03
Oracle Spatial, 9.2.0.1.0	AIX	The following software package is required to build Spatial's sample programs only: Window Motif
	HP	The following software package is required to build Spatial's sample programs only: Window Motif
	Linux	The following software package is required to build Spatial's sample programs only: XFree86-devel
	Solaris	The following software package is required to build Spatial's sample programs only: Window Motif
	Tru64	The following software package is required to build Spatial's sample programs only: Window Motif
Oracle Messaging Gateways, 9.2.0.1.0	AIX	MQSeries for Java V5.2
	HP	MQSeries for Java V5.2
	Linux	MQSeries for Java V5.2
	Solaris	MQSeries for Java V5.2
	Tru64	MQSeries for Java V5.1

Precompilers and Tools

[Table 2–2](#) lists the restrictions and requirements for precompilers and tools.

Table 2–2 Precompilers and Tools Restrictions and Requirements

Product Name	Platform	Restrictions and Requirements
Pro*C/C++, 9.2.0.1.0	AIX	VAC 5.0 (5.0.2.1), U479781, U479971, IY23677 Note: These packages/patches are applicable to both AIX 4.3.3 and 5.1.
	HP	HP ANSI C compiler release B.11.01.25171, PHSS_25171, PHSS_25249. HP C++ A.03.27
	Linux	GNU gcc 2.95.3
	Solaris 64-bit	Sun Forte Workshop 6.2. 111678-05, 111679-03, 111681-01, 111683-03, 111685-03, 111690-03, 111691-02, 111678-06. Note: Solaris 32-bit uses Sun Forte Workshop 6.1.
	Tru64	Tru64 5.1: Patchkit 4: V6.3-029, C++ V6.3-008 Tru64 5.1A: Patchkit 1: V6.4-014, C++ V6.3-008
Pro*COBOL, 1.8.77	AIX	Microfocus Server Express 2.0.10
	HP	Microfocus Server Express 2.0.11
	Linux	Not Applicable
	Solaris	Microfocus Server Express 2.0.11
	Tru64	Microfocus Server Express 2.0.11 Service Pack 1
Pro*COBOL, 9.2.0.1.0	AIX	Microfocus Server Express 2.0.10
	HP	Microfocus Server Express 2.0.11
	Linux	Not Applicable
	Solaris	Microfocus Server Express 2.0.11
	Tru64	Microfocus Server Express 2.0.11 Service Pack 1
Pro*FORTRAN, 1.8.77	AIX	XL FORTRAN 6.1 on AIX 4.3.3 XL FORTRAN 7.1 + xlopt 1.1.0.1 on AIX 5.1
	HP	HP FORTRAN/9000 B.11.01.20
	Linux	Not Applicable
	Solaris	Sun WorkShop 6 update 2 Fortran 77
	Tru64	Compaq FORTRAN 5.4A

Table 2–2 Precompilers and Tools Restrictions and Requirements (Cont.)

Product Name	Platform	Restrictions and Requirements
SQL*Module Ada, 9.2.0.1.0	AIX	OCS Power ADA 3.1
	HP	Not Applicable
	Linux	Not Applicable
	Solaris 32-bit	SPARC Compiler ADA 3.0
	Tru64	Not Applicable
Database Upgrade Assistant, 9.2.0.1.0	All platforms	Oracle8 database must be at least release 8.0.6 to be upgraded; and an Oracle8i database must be at least version 8.1.5 to be upgraded to Oracle9i. Note: Refer to the release notes for your platform for more information on supported upgrade paths.

Network and System Management Products

All network products require the underlying software and operating system libraries for the supported network. The network software must be installed and running prior to installing the Oracle Net products.

[Table 2–3](#) lists the restrictions and requirements for networking and system management products.

Table 2–3 Networking and System Management Restrictions and Requirements

Product Name	Restrictions and Requirements
Oracle Advanced Security, 9.2.0.1.0	See Table 2–4, "Supported Authentication Methods and Requirements" for more information on Oracle Advanced Security authentication support requirements.
Oracle Enterprise Manager, 9.2.0.1.0	JRE 1.1.8 is required. No additional system configuration is necessary for Oracle Enterprise Manager and its components.
Oracle TCP/IP with SSL Protocol Support, 9.2.0.1.0	SSL 3.0 or later.

See Also: [Chapter 4, "Post-Installation"](#) for more information on installing Oracle networking and system management products separately after Oracle9i installation.

Your operating system and third-party vendor networking product documentation for more information on network and system management products.

Oracle Advanced Security

Oracle Advanced Security is a licensable option for the Enterprise Edition of the database. For all the features to function, Oracle Advanced Security must be installed on both the server and the client systems.

[Table 2-4](#) describes the requirements for authentication protocols supported by Oracle Advanced Security.

Table 2-4 Supported Authentication Methods and Requirements

Authentication Method	Requirements
Kerberos	MIT Kerberos Version 5, release 1.1. The Kerberos authentication server must be installed on a physically secure machine.
RADIUS	A RADIUS server that is compliant with the standards in the Internet Engineering Task Force (IETF) RFC #2138, <i>Remote Authentication Dial In User Service (RADIUS)</i> and RFC #2139, <i>RADIUS Accounting</i> . To enable challenge-response authentication, run RADIUS on a platform that supports the Java Native Interface as specified in release 1.1 of the Java Development Kit from JavaSoft. Oracle Corporation does not provide the RADIUS authentication server. To use it, you must install and configure it separately.
Secure Sockets Layer (SSL)	A wallet that is compatible with the Oracle Wallet Manager version 3.1. Wallets created in earlier releases of the Oracle Wallet Manager are not forward-compatible. Oracle Advanced Security provides and installs Secure Sockets Layer.
Entrust	Entrust IPsec Toolkit for C Version 6.0. Entrust Server Login Version 6.0. Note: Entrust is not supported on AIX and Linux.

Table 2–4 Supported Authentication Methods and Requirements

Authentication Method	Requirements
DCE	DCE 4.1 is required for Tru64. Note: DCE is not supported on AIX, HP, Linux, and Solaris (64-bit)
nCipher	nCipher HSM 5.22 for HP and Linux. Note: nCipher is not supported on AIX, Solaris 64-bit, and Tru64.

See Also: *Oracle Advanced Security Administrator's Guide* for more information on Oracle Advanced Security.

Installation Recommendations

Oracle Corporation recommends the following installation configuration step.

Using Optimal Flexible Architecture

Oracle Corporation recommends that the Optimal Flexible Architecture (OFA) standard be implemented when installing and configuring Oracle9i databases. The OFA standard is a set of configuration guidelines for creating fast, highly available, and reliable Oracle databases that require little maintenance. An OFA-compliant database:

- organizes file systems to allow for easy administration
- accommodates scalability, such as adding data into existing databases, or adding users to the system
- distributes I/O loads across disk drives to prevent performance bottlenecks caused by multiple read/write commands issued simultaneously to a single drive
- distributes applications across more than one drive to safeguard against disk failure
- ensures integrity of login home directories when home directories are added, moved, or deleted by the DBA
- allows multiple versions of the application software to be used concurrently

Note: The Oracle Universal Installer supports, but does not require, OFA. The preconfigured database included with the Database installation type of Oracle9i database is created under a single mount point and is, therefore, not OFA-compliant.

See Also: *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems* for more information on OFA, and details on how to set up your system to use OFA.

Setup Tasks to Perform as root User

The following pre-installation setup tasks configure your system and set up the accounts, groups, variables and permissions needed to run the Oracle9i database. If you choose not to perform these tasks prior to installation, then you will be given the option during the installation process to log in as `root` user and run the `oraInstRoot.sh` script. The `oraInstRoot.sh` script performs many of these setup tasks for you but might not provide a satisfactory environment for your system. Oracle Corporation recommends that you perform these steps manually.

To set up your environment for Oracle9i database, log in as the `root` user and perform the following tasks for your platform:

- ❑ [Configure Kernel Parameters](#)
- ❑ [Create Mount Points](#)
- ❑ [Create UNIX Groups for Database Administrators](#)
- ❑ [Create a UNIX Group for the Oracle Universal Installer Inventory](#)
- ❑ [Create a UNIX Account to Own Oracle Software](#)
- ❑ [Create a UNIX Account to Own the Oracle HTTP Server](#)
- ❑ [Set Permissions for File Creation](#)

Configure Kernel Parameters

Oracle9i uses UNIX resources such as shared memory, swap memory, and semaphore extensively for interprocess communication. If your parameter settings are insufficient for Oracle9i, then you will experience problems during installation and instance startup. The greater the amount of data you can store in memory, the faster your database will operate. In addition, by maintaining data in memory, the UNIX kernel reduces disk I/O activity.

Review your kernel parameter settings to ensure that they meet Oracle9i requirements. If you do not do this, you may experience errors during installation, or operational errors after installation. These are the recommended kernel parameter requirements for a typical Oracle9i environment. If you have previously tuned your kernel parameters to levels that meet your application needs, then continue to use these values. A system restart is necessary if you change the kernel settings for the kernel changes to take effect.

Refer to the appropriate tables for the kernel parameters for your platform.

- [Kernel Parameter Settings for AIX](#)
- [Kernel Parameter Settings for HP](#)
- [Kernel Parameter Settings for Linux](#)
- [Kernel Parameter Settings for Solaris](#)
- [Kernel Parameter Settings for Tru64](#)

Kernel Parameter Settings for AIX

AIX does not require kernel parameter configuration prior to Oracle9i installation. However, certain system parameters may need to be adjusted to increase performance.

See Also: *Appendix A of Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP 9000 Series HP-UX, Linux Intel, and Sun Solaris* for more information.

Kernel Parameter Settings for HP

For HP, you may use the System Administrator's Menu (SAM) to configure the HP kernel as required by your application. The parameters in the following table are those recommended for a general user running a typical Oracle9i single database instance on HP. You may need to change the values per your application needs and the type of system you are working on. Refer to the following table to determine if your system shared memory and semaphore kernel parameters are set correctly for Oracle9i. Use the `ipcs` command to obtain a list of the system's current shared memory and semaphore segments, and their identification numbers and owner.

The parameters in the following table are the recommended values to run Oracle9i with a single database instance on HP.

Kernel Parameter	Setting	Purpose
KSI_ALLOC_MAX	(NPROC * 8)	Defines the systemwide limit of queued signals that can be allocated.
MAX_THREAD_PROC	256	Defines the maximum number of kernel threads allowed per process. You may need to increase the value if required by your application. Setting it to a default or low value may lead to an out of memory error for certain applications.
MAXDSIZ	1073741824 bytes	Refers to the maximum data segment size in bytes for 32-bit systems. Setting this value too low may cause the processes to run out of memory.
MAXDSIZ_64	2147483648 bytes	Refers to the maximum data segment size in bytes for 64-bit systems. Setting this value too low may cause the processes to run out of memory.
MAXSSIZ	134217728 bytes	Defines the maximum stack segment size in bytes for 32-bit systems.
MAXSSIZ_64BIT	1073741824	Defines the maximum stack segment size in bytes for 64-bit systems.
MAXSWAPCHUNKS	16384	Defines the maximum number of swap chunks where SWCHUNK is the swap chunk size (1 KB blocks). SWCHUNK is 2048 by default. It specifies the maximum amount of configurable swap space on the system.
MAXUPRC	((NPROC*9)/10)	Defines the maximum number of user processes.
MSGMAP	(MSGTQL + 2)	Defines the maximum number of message map entries.
MSGMNI	NPROC	Defines the number of message queue identifiers.
MSGSEG	32767	Defines the number of segments available for messages.
MSGTQL	NPROC	Defines the number of message headers.
NCALLOUT	(NPROC + 16)	Defines the maximum number of pending timeouts.
NCSIZE	((8 * NPROC + 2048) + VX_NCSIZE)	Defines the Directory Name Lookup Cache (DNLC) space needed for inodes. VX_NCSIZE is by default 1024.
NFILE	(15 * NPROC + 2048)	Defines the maximum number of open files.

Kernel Parameter	Setting	Purpose
NFLOCKS	4096	Defines the maximum number of file locks available on the system.
NINODE	$(8 * NPROC + 2048)$	Defines the maximum number of open inodes.
NKTHREAD	$((NPROC * 7) / 4 + 16)$	Defines the maximum number of kernel threads supported by the system.
NPROC	4096	Defines the maximum number of processes.
SEMMAP	$(SEMMNI + 2)$	Defines the maximum number of semaphore map entries.
SEMMNI	4096	Defines the maximum number of semaphore sets in the entire system.
SEMMNS	$(SEMMNI * 2)$	Defines the maximum number of semaphores in the system. The default value of SEMMNS is 128, which is, in most cases, too low for Oracle9i software.
SEMMNU	$(NPROC - 4)$	Defines the number of semaphore undo structures.
SEMVMX	32768	Defines the maximum value of a semaphore.
SHMMAX	Available physical memory	Defines the maximum allowable size of one shared memory segment. The SHMMAX setting should be large enough to hold the entire SGA in one shared memory segment. A low setting can cause creation of multiple shared memory segments which may lead to performance degradation.
SHMMNI	512	Defines the maximum number of shared memory segments in the entire system.
SHMSEG	32	Defines the maximum number of shared memory segments one process can attach.
VPS_CEILING	64	Defines the maximum System-Selected Page Size in kilobytes.

Kernel Parameter Settings for Linux

For Linux, use the `ipcs` command to obtain a list of the system's current shared memory segments and semaphore sets, and their identification numbers and owner.

Perform the following steps to modify the kernel parameters by using the `/proc` file system.

1. Log in as the root user.
2. Change to the `/proc/sys/kernel` directory.
3. Review the current semaphore parameter values in the `sem` file by using the `cat` or `more` utility. For example, using the `cat` utility, enter the following command:

```
# cat sem
```

The output lists, in order, the values for the `SEMMSL`, `SEMMNS`, `SEMOPM`, and `SEMMNI` parameters. The following example shows how the output appears:

```
250 32000 32 128
```

In the preceding output example, 250 is the value of the `SEMMSL` parameter, 32000 is the value of the `SEMMNS` parameter, 32 is the value of the `SEMOPM` parameter, and 128 is the value of the `SEMMNI` parameter.

4. Modify the parameter values by using the following command syntax:

```
# echo SEMMSL_value SEMMNS_value SEMOPM_value SEMMNI_value > sem
```

Replace the parameter variables with the values for your system in the order that they are entered in the preceding example. For example:

```
# echo 100 32000 100 100 > sem
```

5. Review the current shared memory parameters by using the `cat` or `more` utility. For example, using the `cat` utility, enter the following command:

```
# cat shared_memory_parameter
```

In the preceding example, the variable `shared_memory_parameter` is either the `SHMMAX` or `SHMMNI` parameter. The parameter name must be entered in lowercase letters.

6. Modify the shared memory parameter by using the `echo` utility. For example, to modify the `SHMMAX` parameter, enter the following command:

```
# echo 2147483648 > shmmax
```

7. Modify the shared memory parameter by using the `echo` utility. For example, to modify the `SHMMNI` parameter, enter the following command:


```
# echo 4096 > shmni
```

8. Modify the shared memory parameter by using the `echo` utility. For example, to modify the `SHMALL` parameter, enter the following command:

```
# echo 2097152 > shmall
```

9. Write a script to initialize these values during system startup, and include the script in your system `init` files.

See Also: Your system vendor's documentation for more information on script files and `init` files.

10. Set the File Handles by using `ulimit -n` and `/proc/sys/fs/file-max`.

```
# echo 65536 > /proc/sys/fs/file-max
ulimit -n 65536
```

11. Set the Sockets to `/proc/sys/net/ipv4/ip_local_port_range`

```
# echo 1024 65000 > /proc/sys/net/ipv4/ip_local_port_change
```

12. Set the Process limit by using `ulimit -u`. This will give you the number of processes per user.

```
ulimit -u 16384
```

The parameters in the following table are the minimum values required to run Oracle9i with a single-database instance on Linux.

Kernel Parameter	Setting	Purpose
SEMMNI	100	Defines the maximum number of semaphore sets in the entire system.
SEMMNS	256	Defines the maximum semaphores on the system. This setting is a minimum recommended value, for initial installation only. The <code>SEMMNS</code> parameter should be set to the sum of the <code>PROCESSES</code> parameter for each Oracle database, adding the largest one twice, and then adding an additional 10 for each database.
SEMOPM	100	Defines the maximum number of operations for each <code>semop</code> call.

Kernel Parameter	Setting	Purpose
SEMMSL	100	Defines the minimum recommended value, for initial installation only.
SHMMAX	2147483648	Defines the maximum allowable size of one shared memory segment. 2 GB for SMP kernel. The recommended size is half the RAM size.
SHMMIN	1	Defines the minimum allowable size of a single shared memory segment.
SHMMNI	100	Defines the maximum number of shared memory segments in the entire system.
SHMSEG	4096	Defines the maximum number of shared memory segments one process can attach.
SHMVMX	32767	Defines the maximum value of a semaphore.

Kernel Parameter Settings for Solaris

For Solaris, use the `ipcs` command to obtain a list of the system's current shared memory and semaphore segments, and their identification number and owner.

Use a text editor such as `vi` to change the kernel parameter settings in the `/etc/system` file after making a backup copy. If you have previously changed your kernel for another program to levels equal to or higher than the levels Oracle9i requires, then do not change the settings. If the levels are too low, change them to levels at least as high as those in the table. If you change the settings, save the `/etc/system` file and restart the system.

The parameters in the following table are the minimum values to run Oracle9i with a single database instance on Solaris.

Kernel Parameter	Setting	Purpose
SEMMNI	100	Defines the maximum number of semaphore sets in the entire system.
SEMMNS	1024	Defines the maximum semaphores on the system. This setting is a minimum recommended value, for initial installation only. The SEMMNS parameter should be set to the sum of the PROCESSES parameter for each Oracle database, adding the largest one twice, and then adding an additional 10 for each database.

Kernel Parameter	Setting	Purpose
SEMMSL	256	Defines the minimum recommended value, for initial installation only.
SHMMAX	4294967295	Defines the maximum allowable size of one shared memory segment. 4 GB = 4294967295
SHMMIN	1	Defines the minimum allowable size of a single shared memory segment.
SHMMNI	100	Defines the maximum number of shared memory segments in the entire system.
SHMSEG	10	Defines the maximum number of shared memory segments one process can attach.

Kernel Parameter Settings for Tru64

For Tru64, use a text editor such as `vi` to change the kernel parameter settings in the `/etc/sysconfigtab` file after making a backup copy. If you have previously changed your kernel for another program to levels equal to or higher than the levels Oracle9i requires, then do not touch the settings. If the levels are too low, change them to at least as high as those in the table. If you change the settings, save the `/etc/sysconfigtab` file and restart the system. For example, if you need to change your `SHM_MAX`, `SHM_MNI`, `SHM_SEG`, `PER_PROC_STACK_SIZE`, and `PER_PROC_DATA_SIZE` parameter settings, add the following lines to the `/etc/sysconfigtab` file:

```
ipc:  shm_max = 4278190080
      shm_mni = 256
      shm_seg = 128

proc: per_proc_stack_size = 33554432
      per_proc_data_size = 201326592
```

Refer to the following table to determine if your system shared memory and semaphore kernel parameters are set high enough for Oracle9i.

To determine the current kernel parameter settings, use the following command:

```
# /sbin/sysconfig -q ipc
```

The parameters in the following table are the recommended values to run Oracle9i with a single database instance on Tru64.

Kernel Parameter	Setting	Purpose
<code>MAX_PER_PROC_STACK_SIZE</code>	33554432 (32 MB)	Defines the processor stack size. The default size is sufficient for Oracle9i software. If an application that shares the system with Oracle9i requires a higher per process stack size, do not set this parameter higher than 512 MB.
<code>PER_PROC_STACK_SIZE</code>	33554432 (32 MB)	Defines the processor stack size. The default size is sufficient for Oracle9i software. If an application that shares the system with Oracle9i requires a higher per process stack size, do not set this parameter higher than 512 MB.
<code>PER_PROC_DATA_SIZE</code>	201326592 (192 MB)	Defines the minimum per process data segment size.

Kernel Parameter	Setting	Purpose
SHM_MAX	4278190080 (4GB less 16 MB)	Defines the maximum allowable size of the shared memory. The SHM_MAX parameter does not affect how much shared memory is used or needed by Oracle9i, the operating system, or the operating system kernel.
SHM_MIN	1	Defines the minimum allowable size of a single shared memory segment.
SHM_MNI	256	Defines the maximum number of shared memory segments in the entire system.
SHMSEG	128	Defines the maximum number of shared memory segments one process can attach.

Additional SYSCONFIGTAB file Parameter Settings

For all systems, including standalone or Real Application Clusters systems, you must set the following parameter in the `/etc/sysconfigtab` file:

```
vm:    new_wire_method = 0
```

If you are installing Oracle9i on systems where you expect to have SGAs (System Global Areas) greater than 4 GB in size, or on systems with many simultaneous (or near simultaneous) Oracle connects and disconnects, then Oracle Corporation recommends that you use different settings to enable the Granularity Hint (GH) regions (also called GH chunks) that such systems require.

The GH chunk region must be set large enough to hold all of the SGAs of concurrently running instances. The following section shows you how to determine the size of an individual SGA, and how to aggregate SGA sizes together to determine the proper settings for the GH chunks parameter.

To enable GH regions, you must know the total size of the SGA. The total size of the SGA is displayed on instance startup, as in the following example:

```
SQL> startup
ORACLE instance started.
Total System Global Area          4515625680 bytes
Fixed Size                        441040 bytes
Variable Size                     218103808 bytes
Database Buffers                  4294967296 bytes
Redo Buffers                       2113536 bytes
```

You can also obtain SGA size using the following Query:

```
SQL> column totalsz format 9999999999999999
SQL> select sum(value) totalsz from v$sga
```

```
          TOTALSZ
-----
4515625680
```

If more than one instance resides on your system, then you must add up the "Total System Global Area" numbers for all instances to set the `gh_chunks` parameter.

Use the following procedure to calculate the number for the `gh_chunks` parameter.

1. Determine the value for the adjusted SGA size for each instance with the following formula:

$$\text{adjusted_sga_size} = \text{"Total System Global Area" number} + 8388608$$

2. As `gh_chunks` is allocated in 4 MB (4194304) units, the sum of the "Total System Global Area" numbers needs to be divided by 4 MB. Add up the *adjusted_sga_size* numbers for all instances and divide the sum by 4 MB (4194304) to find the value for *sga_value* as represented in the following formula:

$$\text{sga_value} = (\text{Sum of } \text{adjusted_sga_size} \text{ numbers}) / 4194304$$

3. Round up *sga_value* to a whole number, and use it to make the following changes to the `vm` and `ipc` settings in the `/etc/sysconfigtab` file:

```
vm: gh_chunks = <sga_value + 2>
```

When you have made these changes, restart the system so that they can take effect.

For example, if you had three instances on your system that each had a "Total System Global Area" value of 4515625680, then your calculations would be as follows:

$$\text{Instance a: } \text{adjusted_sga_size } a = 4515625680 + 8388608 = 4524014288$$

$$\text{Instance b: } \text{adjusted_sga_size } b = 4515625680 + 8388608 = 4524014288$$

$$\text{Instance c: } \text{adjusted_sga_size } c = 4515625680 + 8388608 = 4524014288$$

$$\text{sga_value} = \text{Sum of } \text{adjusted_sga_size } a + b + c = 13572042864$$

$$\text{value for } \text{gh_chunks} = (13572042864 / 4194304) + 2$$

$$= 3235.8271 + 2$$

$$= 3237.8271$$

= 3238 (rounded to the nearest integer)

gh_chunks = 3238

See Also: *Compaq Tru64 UNIX V5.1 System Configuration and Tuning Guide* for more information on GH regions.

Refer to *Appendix C* of *Oracle9i Administrator's Reference Guide for UNIX Systems* if you enable Oracle9i Directed Placement (available for AlphaServers GS80, GS160 and GS320 only).

If you use Real Application Clusters and have a `db_block_size` of 16 KB or greater, and you are using UDP IPC implementation, then edit the `inet` parameter in the `/etc/sysconfigtab` file to be at least the following:

```
inet:  udp_recvspace = 42240
       udp_sendspace = 42240
```

Note: Default IPC for Oracle Real Application Clusters on Oracle9i is RDG.

Note: To ensure that Oracle Corporation is able to communicate any new recommendations to customers as rapidly as possible, frequently updated release notes are available at the following site:

<http://docs.oracle.com>

Create Mount Points

The Oracle9i installation requires at least two mount points:

- one for the software
- one or more for the database files

An Optimal Flexible Architecture (OFA)-compliant installation requires at least four mount points:

- one for the software
- three or more for the database files

All software and database mount point names use the syntax `/pm`, where `p` is a string constant and `m` is a unique fixed-length key (typically a two-digit number) used to distinguish each mount point. Examples: `/u01` and `/u02`, or `/disk01` and `/disk02`.

See Also: *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems* for more information on Optimal Flexible Architecture.

Create UNIX Groups for Database Administrators

Oracle requires database administration groups to complete installation and to control database operations that are executed when a database is not mounted. Database administration groups enable operating system user authentication for Oracle administrative privileges, both for internal database accounts and for users to whom you may choose to grant privileges. Privileges are similar to those granted to INTERNAL in previous Oracle versions.

Oracle refers to these administrative UNIX groups as OSDBA, typically named `dba`, and OSOPER, typically named `oper`.

- You must create the OSDBA group. By default, the Oracle Universal Installer searches for a group called `dba`. If you choose to assign the OSDBA group privilege to a group with a name other than `dba`, then you are prompted for the group name during installation.

Users that belong to the OSDBA group are granted SYSDBA privileges, which comprise all database system privileges. These privileges include the right to grant or revoke system privileges, as well as all other administrative privileges. OSDBA group membership must be granted only to database administrators.

For HP users, the OSDBA group must be granted the HP system privileges RTSCHED, RTPRIO and MLOCK. For more information, refer to the *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems*.

- You may choose to create the OSOPER group.

Users that belong to the OSOPER group are granted SYSOPER privileges, which comprise privileges required for basic system maintenance. SYSOPER privileges are a subset of those granted to SYSDBA. These include database startup and shutdown, and other privileges required for database operation. Users granted access to OSOPER group privileges may include application developers, application administrators, database users, and network administrators.

[Table 2-5](#) lists utilities with which you can create the OSDBA group and other database administration groups. Use the utility that corresponds to your platform to create the OSDBA group.

Table 2-5 Utility to Add a Group

Platform	Utility
AIX	smit
HP	sam
Linux	groupadd
Solaris	admintool or groupadd
Tru64	addgroup or groupadd

If you perform a Custom installation of Oracle9i database, or if the `oracle` account is not a member of a group called `dba`, then the Oracle Universal Installer prompts you to enter the group(s) you have created for these system privileges.

Create a UNIX Group for the Oracle Universal Installer Inventory

The ORAINVENTORY group owns the Oracle Universal Installer's `oraInventory` directory. It can be named anything, but typically it is named `oinstall`. The `oraInventory` is a repository of all installed Oracle products. The `oraInventory` is usually located in a directory named `oraInventory`, and its contents may only be modified by the Oracle Universal Installer. Any user who will be installing, removing, or patching Oracle products must be a member of the ORAINVENTORY group.

If you plan to have only one OSDBA group on a single system, then you can set the ORAINVENTORY group to the same name as the OSDBA group, which typically is `dba`. In this case, skip ahead to "[Create a UNIX Account to Own Oracle Software](#)" on page 2-31.

If you plan to have multiple installations on a single system and plan on having a unique OSDBA group for each install, then you will need a separate ORAINVENTORY group. The software owner, typically `oracle`, must have the ORAINVENTORY group as the primary group.

Note: You are prompted for the ORAINVENTORY group only for the first Oracle product installed on the system. Subsequent installs on the system will reuse the group name you entered the first time.

Scenario for Creating an ORAINVENTORY Group

The following is a typical scenario for which a separate ORAINVENTORY group is needed:

- You have an operating system user named `oracle1` with an OSDBA group of `dba1`.
- The `oracle1` user works with a database named `db11`.
- You have another operating system user named `oracle2` with an OSDBA group of `dba2`.
- The `oracle2` user works with a database named `db22`.
- The `db11` and `db22` databases are installed in different `ORACLE_HOME` directories.
- The `oracle1` user should have `SYSDBA` privileges in the `db11` database, but should not have `SYSDBA` privileges in the `db22` database.
- The `oracle2` user should have `SYSDBA` privileges in the `db22` database, but should not have `SYSDBA` privileges in the `db11` database.

In this situation, it is important to remember that the `oraInventory` can only be updated by a single operating system group. In order to maintain this central repository of installed Oracle products, the `oracle1` and `oracle2` users must share a common group, which Oracle Corporation refers to as the ORAINVENTORY group.

In this scenario, by creating the ORAINVENTORY group and making it the primary group for both the `oracle1` and `oracle2` users, any new entries created by the Oracle Universal Installer for the `oracle1` user can be read or updated by the Oracle Universal Installer for the `oracle2` user.

Even though both `oracle1` and `oracle2` share Oracle software information in the ORAINVENTORY group, their different OSDBA group memberships preserve a separate database administrative access. `oracle1` has `dba1` as its secondary group. `oracle2` has `dba2` as its secondary group. The ORAINVENTORY group keeps the `oraInventory` repository of all Oracle executables and data files, but none of these files, except the `oraInventory`, are group writable. Only the owner of the executables or data files can modify them. `oracle1` owns all files installed by `oracle1`. `oracle2` owns all files installed by `oracle2`.

Create a UNIX Account to Own Oracle Software

The `oracle` account is the UNIX user account that owns Oracle9i software after installation. You must run the Oracle Universal Installer with this user account.

[Table 2-6](#) describes the properties for the `oracle` account.

Table 2-6 *oracle Account Properties*

Property	Description
Login Name	Any name, but this guide refers to it as the <code>oracle</code> account.
Primary GID	The ORAINVENTORY group.
Secondary GID	The OSDBA group.
Home Directory	Choose a home directory consistent with other user home directories. The home directory of the <code>oracle</code> account does not have to be the same as the Oracle home directory.
Login Shell	The default shell can be <code>/usr/bin/sh</code> , <code>/usr/bin/csh</code> , or <code>/usr/bin/ksh</code> , but the examples in this guide assume that the Bourne shell (<code>/usr/bin/sh</code>) is used.

[Table 2-7](#) lists the utilities to create the `oracle` account. Use the utility that corresponds to your platform.

Table 2-7 *Utility to Add the oracle Account*

Platform	Utility
AIX	<code>smit</code>
HP	<code>sam</code>
Linux	<code>useradd</code> (any GNOME or KDE based User Admin Tool)
Solaris	<code>admintool</code> or <code>useradd</code>
Tru64	<code>adduser</code> or <code>useradd</code>

Caution: Use the `oracle` account only for installing and maintaining Oracle software. Never use it for purposes unrelated to the Oracle9i server. Do not use the `root` account as the `oracle` account.

Sites with multiple Oracle home directories on one system may install Oracle software either with the same `oracle` account or with different ones. Each `oracle` account must have the ORAINVENTORY group as its primary group.

Additional Steps for Creating Multiple oracle Accounts

If you will have multiple `oracle` accounts that must access the same ORAINVENTORY group as described in the preceding "Scenario for Creating an ORAINVENTORY Group", then verify that you have set up each account correctly. Table 2-8 describes the appropriate command for each platform.

Table 2-8 Command to Verify oracle Account Access to Primary Group

Platform	Command
AIX	<code>\$ id</code>
HP	<code>\$ id</code>
Linux	<code>\$ id</code>
Solaris	<code>\$ id -a</code>
Tru64	<code>\$ id</code>

You should see the ORAINVENTORY group after `gid=`. You should see the OSDBA group in the `groups=` list. If you do not, ensure that both `oracle1` and `oracle2` accounts are listed in the `/etc/groups` file for the ORAINVENTORY group, that `oracle1` is listed for the OSDBA1 group, and that `oracle2` is listed for the OSDBA2 group.

Create a UNIX Account to Own the Oracle HTTP Server

The APACHE account is a UNIX user account that owns the Oracle HTTP Server after installation. If you use a default configuration (one that listens to ports lower than 1024, which are reserved for `root`), Oracle Corporation recommends that you set up a separate account to own Apache processes after installation for security reasons. This may affect the performance of other Oracle products.

See Also: *Apache 1.3 User's Guide* for more information on Apache configuration and examples.

Oracle Corporation will have further updates on maintaining security with Oracle products and Apache at the following site:

<http://www.oracle.com/support>

Setting up the Oracle HTTP Server for Installation

During installation, the user account that owns the Oracle HTTP Server software must be a member of the ORAINVENTORY group in order to complete installation. The Oracle HTTP Server also must be started by the `root` user in order for ports reserved for `root` to be made available to the database and applications. For security reasons, Oracle Corporation recommends that provisions be made to change the Oracle HTTP Server group membership to a low-privileged group, and to transfer ownership of Oracle HTTP Server processes from `root` to a low-privileged account.

Improving Oracle HTTP Server Security After Installation

To improve security for database and application processes, create the Apache user. Configure the Oracle HTTP Server to transfer ownership of its processes from `root` to the Apache user by using the Apache configuration parameter `user`, which resets user ownership of processes spawned by Apache once the server starts. Assign ownership of listener and module actions for the Oracle HTTP Server to this user. This post-installation process is described in "[Changing Group Membership of the Apache User](#)" on page 4-4.

Assign required access privileges to all Apache related module components to this user such that Apache and its modules can function as expected while minimizing security risks.

The Apache user should have minimal user privileges, and should not be a member of any groups whose files are not intended to be visible to the public. The `nobody` user account that many UNIX systems have can serve as a model for the Apache user. Be aware that all Web servers open to the public are at risk of being compromised, and take measures accordingly to minimize exposure to that risk.

Caution: Configuring the Apache user with OSDBA group or `oracle` user privileges compromises database security. If the Apache user needs additional rights to run programs, use the Apache `suEXEC` feature to obtain additional rights for the Apache user.

If a user other than `root` starts the Oracle HTTP server, any scripts, servlets, or programs spawned by the Oracle HTTP server will have the same privileges as that user.

Table 2-9 describes the properties of the APACHE account.

Table 2–9 Properties of the Apache User for Installation

Property	Description
Login Name	The Apache user may be given any name, but this guide refers to it as the Apache user.
Primary GID	The primary group must be the same group that owns the oraInventory directory. The location of the oraInventory directory is defined in the <code>/etc/oraInst.loc</code> file for AIX. The location of the oraInventory directory is defined in the <code>/var/opt/oracle/oraInst.loc</code> file for HP, Linux, Solaris, and Tru64. The default group name that has ownership of the oraInventory directory is the ORAINVENTORY group. For security reasons, this group ownership must be changed after installation. For more information, see " Changing Group Membership of the Apache User " on page 4-4.
Secondary GID	The secondary group should be one in which only the Apache user is a member.
Home Directory	Choose a home directory consistent with other user home directories.

Table 2–10 lists the utilities to create the Apache user. Use the utility that corresponds to your platform.

Table 2–10 Utility to Add the Apache User

Platform	Utility
AIX	<code>smit</code>
HP	<code>sam</code>
Linux	<code>useradd</code> (any GNOME or KDE based User Admin Tool)
Solaris	<code>admintool</code> or <code>useradd</code>
Tru64	<code>adduser</code> or <code>useradd</code>

Caution: Oracle Corporation recommends caution when adding servlet classes, modifying or upgrading to Apache modules not certified with this version of Oracle9i database, or upgrading the Oracle HTTP Server to later versions than the one certified with this version of Oracle9i database. Oracle-provided patches for Apache and configurations of Apache will be supported, but it is possible for users to change Apache in ways that are difficult or impossible for Oracle Corporation to support.

See Also: *Apache 1.3 User's Guide* for more information on security features and examples of how to configure Apache to meet your system requirements and environment.

Set Permissions for File Creation

It is necessary to set the `umask` parameter to `022` for the `oracle` user to ensure that group and others have read and execute permissions, but not write permission, on the installed files.

1. Check the current setting by entering the following command:

```
$ umask
```

2. If the `umask` command does not return the value `022`, then set it for the `oracle` user by adding the following line to the `.profile` or `.login` file:

```
umask 022
```

3. Execute the following command to verify the `umask` setting:

```
$ umask 022
```

Oracle Post-Wait Kernel Extension for AIX

For Oracle9i 9.2.0.1.0 on AIX 5L, the function and performance benefits of the Oracle post-wait kernel extension are incorporated into the AIX kernel. Oracle9i 9.2.0.1.0 on AIX 5L does not require the Oracle post-wait kernel extension to be loaded.

For Oracle9i 9.2.0.1.0 on AIX 4.3.3, the following remarks about the kernel extension still apply. The Oracle post-wait kernel extension for AIX implements an optimized mechanism of inter-process communications without the overhead of signal handlers or semaphores. The Oracle post-wait kernel extension is loaded into the

kernel at system startup and remains loaded as long as the system is running. It is used by all the Oracle instances running on the system.

The following section explains how to install and debug the kernel extension. If you have already run `rootpre.sh` from the latest version of the Oracle RDBMS, skip the installation step.

Installation of Post-Wait Kernel Extension for AIX

The Oracle post-wait kernel extension is installed in the `/etc` directory by the `rootpre.sh` script prior to the installation of the Oracle RDBMS. The kernel extension consists of two files: `pw-syscall` and `loadext.pw-syscall`. `pw-syscall` is the actual kernel extension. `loadext.pw-syscall` loads, unloads, queries, or gets the version of the kernel extension. It is also path-sensitive. `rootpre.sh` script copies a 64-bit enabled `pw-syscall` to the `/etc` directory. This kernel extension supports both 32-bit and 64-bit Oracle instances.

Pre-Installation Task for Oracle Real Application Clusters on AIX

Perform the following pre-installation steps to install Oracle Real Application Clusters on AIX.

1. Configure and start HACMP/ES before running `rootpre.sh` script to install Oracle Real Application Clusters.
2. Add `oracle` user to `hagsuser` group. This is required by non `root` users to use the `PSSP` and `HACMP` group service.

Setup Tasks to Perform as the oracle User

Log in as the `oracle` account and perform the following tasks as necessary:

- [Set Environment Variables](#)
- [Update the Environment for Current Session](#)

Set Environment Variables

It is necessary to set the `DISPLAY` and `PATH` environment variables before running the Oracle Universal Installer. Other environmental variables such as the documentation directory or executables path may also be set before running the Oracle Universal Installer.

[Table 2-11](#) provides a brief summary of the variables listed in this section. See each variable's entry in this section for instructions on setting the variable appropriately.

Note: If an Oracle Server already exists on your system, then its settings may affect the settings that you choose for the new environment.

Table 2–11 Environment Variable Summary

Variable	Description	Required?
<code>DISPLAY</code>	The name, server number, and screen number of the system where the Oracle Universal Installer display its Graphical User Interface (GUI).	Yes
<code>ORA_NLS33</code>	Location of character set data.	No
<code>ORACLE_BASE</code>	Directory at the top of the Oracle software and administrative file structure.	No
<code>ORACLE_DOC</code>	Directory where documentation is installed.	No
<code>ORACLE_HOME</code>	Directory containing Oracle software for a particular release.	No
<code>ORACLE_SID</code>	The Oracle server instance identifier to use during installation.	No
<code>PATH</code>	Shell's search path for executables.	Yes

DISPLAY

The `DISPLAY` variable specifies the name, server number, and screen number of the system where the Oracle Universal Installer displays. On the system where you will run Oracle Universal Installer, set the `DISPLAY` variable to include the system name or IP address, the X server value, and the screen value used by your workstation. If you are unsure of the value to which you should set the X server and screen, use 0 (zero) for both. Do not use the hostname or IP address of the system where the software is being installed unless you are performing the installation from that system's X Window console.

If you get an `xlib` error similar to "Failed to connect to server," "Connection refused by server," or "Can't open display" when starting the Oracle Universal Installer, you must run one of the following shell commands on your X workstation.

For the Bourne or Korn shells:

In the session on your workstation, enter the following:

```
$ xhost +server_name
```

From your workstation where you will run the installation, connect to the server to which you intend to install Oracle9i and enter the following:

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

For the C shell:

In the session on your workstation, enter the following:

```
% xhost +server_name
```

Connect from your workstation where you will run the installation, to the server on which you intend to install Oracle9i database. Enter the following:

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

Note: If you are using a PC X server, then refer to your PC X server documentation for instructions on how to configure the PC X server to allow a remote X client to connect to the server.

PATH

The PATH variable specifies the shell's search path for executables. Set the shell's search path to include the information in the following table.

Table 2-12 lists the paths for the PATH variable that correspond to your platform.

Table 2-12 Shell Search Paths

Platform	Paths
AIX	\$ORACLE_HOME/bin, /usr/bin, /etc, /usr/sbin, /usr/bin/X11, and /usr/local/bin, if it exists
HP	\$ORACLE_HOME/bin, /usr/bin, /etc, /usr/bin/X11, and /usr/local/bin, if it exists
Linux	\$ORACLE_HOME/bin, /usr/bin, /bin, /usr/bin/X11/, and /usr/local/bin, if it exists
Solaris	\$ORACLE_HOME/bin, /usr/ccs/bin, /usr/bin, /etc, /usr/openwin/bin, and /usr/local/bin, if it exists
Tru64	\$ORACLE_HOME/bin, /usr/bin, /etc, /usr/bin/X11, and /usr/local/bin, if it exists

ORA_NLS33

The ORA_NLS33 variable specifies the directory location of the *.nls files. The *.nls files define languages, territories, character sets, and linguistic sorting orders. Set this variable only if the *.nls files are in a non-default location, which is \$ORACLE_HOME/ocommon/nls/admin/data.

See Also: *Oracle9i Globalization and National Language Support Guide* for more information on languages, territories, character sets and sorting orders.

ORACLE_BASE

The ORACLE_BASE variable specifies the directory at the top of the Oracle software and administrative file structure. The recommended value for an OFA-compliant configuration is `/software_mount_point/app/oracle`. For example:

```
/u01/app/oracle
```

Note: You must set the ORACLE_BASE variable even if you are not using an OFA-compliant configuration.

ORACLE_DOC

The ORACLE_DOC variable specifies the directory to install the online documentation.

See Also: "[Accessing Installed Documentation](#)" on page xv for more information on how to determine where documentation will be installed if the variable is not set.

ORACLE_HOME

The ORACLE_HOME variable specifies the directory containing the Oracle software for a particular release. Ensure that the value of ORACLE_HOME points to a directory that does not contain any Oracle software from an earlier release.

The Optimal Flexible Architecture recommended value is:

```
$ORACLE_BASE/product/release
```

For example:

```
/u01/app/oracle/product/9.2.0.1.0
```

ORACLE_SID

The `ORACLE_SID` variable specifies the System Identifier (SID) to be used by the Oracle server instance during installation. If you plan on creating a database during installation, then you have the option of setting `ORACLE_SID` to the value of the *sid*. The Oracle Universal Installer will prompt you to confirm this value.

Update the Environment for Current Session

Use a text editor to set the environment variables in the `.profile` or `.login` file of the `oracle` account. You can update the environment in the current shell session before beginning installation by using the appropriate shell command.

For the Bourne or Korn shells:

On the server where the Oracle database will be installed, enter the following commands:

```
$ cd
$ . $HOME/.profile
```

For the C shell:

On the server where the Oracle database will be installed, enter the following commands:

```
% cd
% source $HOME/.login
```

Setup Tasks for Oracle Products

Before you can install Oracle9i software, pre-installation steps must be completed for the following products:

- [Oracle9i Components](#)
- [Oracle Real Application Clusters](#)
- [Precompilers and Tools](#)
- [Network and System Management Products](#)

Oracle9i Components

Perform the following pre-installation step for Oracle9i components.

Oracle HTTP Server

Create the Apache user if you have not done so yet. The steps for creating the account are in "[Setup Tasks to Perform as root User](#)" on page 2-16.

You must have installed the JDK version that the Oracle HTTP Server module requires prior to installing Oracle9i on AIX, HP, and Tru64. You will be prompted for the installed JDK home during installation. Review the release notes for your platform for the required JDK version number. On Linux and Solaris, the required JDK version is bundled with the product and gets installed automatically.

Oracle Real Application Clusters

Perform the following pre-installation steps to install Oracle Real Application Clusters.

See Also: *Oracle9i Real Application Clusters Setup and Configuration* for more information on pre-installation steps for Oracle Real Application Clusters.

Steps to Perform as the root User for Oracle Real Application Clusters Installation

1. Log in as the `root` user.
2. Make sure you have the OSDBA group defined in the `/etc/group` file on all nodes in the cluster. The OSDBA group name and number, and OSOPER group if you plan to designate one, must be identical for all nodes of a UNIX cluster accessing a single database. The default UNIX group name for the OSDBA group is `dba`.
3. Make sure you have the OSDBA group defined in the `/etc/group` file on all nodes in the cluster. The OSDBA group name and number, and OSOPER group if you plan to designate one, must be identical for all nodes of a UNIX cluster accessing a single database. The default UNIX group name for the OSDBA group is `dba`.
4. Create the `oracle` account on each node of the cluster so that the account:
 - has the ORAINVENTORY group as the primary group
 - has the `dba` group as the secondary group
 - is used only to install and update Oracle software
 - has write permissions on remote directories

5. Create a mount point directory on each node to serve as the top of the Oracle software directory structure so that:
 - the name of the mount point on each node is identical to that on the initial node
 - the `oracle` account has read, write, and execute privileges

Note: On Tru64 with Cluster Filesystem, you need to perform the preceding step in only one of the nodes.

6. Set up user equivalence by adding entries for all nodes in the cluster on the node from which you will run Oracle Universal Installer, including the local node, to either the `.rhosts` file of the `oracle` account or the `/etc/hosts.equiv` file.

See Also: ["Create Mount Points"](#) on page 2-27 for more information on the recommended naming conventions for Oracle mount points.

To check user equivalence, execute a remote command on every node as the `oracle` user. For example, enter:

- For HP,

```
$ remsh another_host pwd
```

- For AIX, Linux, Solaris, and Tru64,

```
$ rsh another_host pwd
```

To check RCP equivalence, copy a small file from every node to every node. For example, enter:

```
$ rcp /tmp/dummy_file another_host:/tmp/dummy_file
```

This is required for Oracle Universal Installer to install Oracle software on all selected nodes of the Cluster.

Additional steps to Perform as the root user for Installing Oracle Real Application Clusters on HP, Linux, or Solaris

If you are installing Oracle Real Application Clusters on HP, Linux, or Solaris, then you must complete additional steps as the `root` user. See the appropriate sections for your platform:

- [Additional root user information for HP](#)
- [Additional root user information for Linux](#)
- [Additional root user information for Solaris](#)

Additional root user information for HP

Start MC/ServiceGuard by entering the following command:

```
$ /usr/sbin/cmruncl
```

See Also: Hewlett-Packard's *Configuring OPS Clusters with MC/ServiceGuard OPS Edition* for more information on configuring Oracle Real Application Clusters.

Oracle9i Release Notes Release 2 (9.2.0.1.0) for HP 9000 Series HP-UX for more information on memory requirements, installation and some post-installation issues on Oracle Real Application Clusters using Hyper Messaging Protocol (HMP).

Additional root user information for Linux

1. Set `CONFIG_WATCHDOG_NOWAYOUT` parameter to `Y`. In most kernels, `Y` is a default value. For more information on this, refer to the generic Linux documentation.
2. Load the watchdog module with an appropriate margin.

```
insmod softdog soft_margin=10
```

See Also: *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP 9000 Series HP-UX, Linux Intel, and Sun Solaris* on how to calculate the `soft_margin` value.

3. Add the necessary information to the `/etc/hosts` file on each node. The following information should be presented (entry for public IP address of the local node and entry for private IP address for each node, including local)

```
<public IP address><local hostname with domain><local hostname alias>  
<private IP address><cluster node0 private hostname>  
<private IP address><cluster node1 private hostname>  
<private IP address><cluster node2 private hostname>  
.....
```

4. Create the raw partition with 4 MB size on the shared storage. This partition is to be used by the Cluster Manager as a quorum partition. Bind this partition on each server on the cluster to the same device, for example, to `/dev/raw1`.

Note: You need to install Oracle Cluster Manager before you install Oracle Real Application Clusters on Linux. For more information, see "[Oracle Real Application Clusters](#)" on page 3-45.

Additional root user information for Solaris

1. Apply the Oracle patch for Sun Cluster software that is provided on the Oracle9i CD-ROM. To install the patch, follow the instructions provided in the `README.udlm` file in the `racpatch` directory on your CD-ROM. This patch provides the Cluster Membership Monitor (CMM) that is required before you install Oracle Real Application Clusters.
2. To start the CMM, restart the Cluster Management Software.
 - a. For the first node, enter the following commands:

```
# cd /opt/SUNWcluster/bin  
# scadmin startcluster cluster_name
```

- b. Run the following commands on each of the other nodes in the cluster:

```
# cd /opt/SUNWcluster/bin  
# scadmin startnode cluster_name
```

See Also: *Sun Cluster 3.0 documentation* for more information on `scadmin` command.

Steps to Perform as the oracle user for Oracle Real Application Clusters

1. Log in as the `oracle` account.

If you are performing the pre-installation steps on HP, then verify that the MC/ServiceGuard is running by entering the following command:

```
$ /usr/sbin/cmviewcl
```

2. Verify that the Cluster Membership Monitor (CMM) is running. [Table 2–13](#) lists the appropriate command for each platform.

Table 2–13 Command to Verify Cluster Membership Monitor is Running

Platform	Command
AIX	<p>HACMP</p> <pre>\$ /usr/bin/lssrc -ls grpsvcs</pre> <p>Note: Verify that the CLSTRMGR_ <i>cluster_id</i> has number of providers equal to the number of nodes.</p> <p>PSSP 3.4</p> <pre>\$ /usr/bin/lssrc -ls hags</pre> <p>Note: Verify that <code>css</code> has the correct number of nodes. There should also be a local provider.</p>
HP	<pre>\$ /usr/sbin/cmviewcl</pre>
Linux	<pre>\$ ps -efl egrep 'watchdogd oracm'</pre> <ul style="list-style-type: none"> ▪ if all of <code>watchdogd</code> and <code>oracm</code> program appears in the process list, Oracle Cluster Management Software is running. ▪ if all of <code>watchdogd</code> and <code>oracm</code> program does not appear in the process list, restart the Oracle Cluster Management Software.
Solaris	<pre>\$ ps -ef grep clustd</pre> <ul style="list-style-type: none"> ▪ if the <code>clustd</code> program appears in the process list, <code>clustd</code> is running. ▪ if the <code>clustd</code> program does not appear in the process list, restart the Cluster Membership Monitor.
Tru64	<pre>\$ /usr/sbin/clu_get_info</pre> <p>Note: Verify that the correct number of cluster members are configured. Member state for all nodes should be "up".</p>

3. Check for user equivalence of the `oracle` account by performing a remote login (`rlogin`) to each node in the cluster.

If you are prompted for a password, the `oracle` account does not have user equivalence. Ensure that you gave the same attributes to `oracle` user on all the nodes in the cluster. The Oracle Universal Installer cannot use the `rcp` command to copy Oracle products to the remote directories without user equivalence.

If you have not set up user equivalence, you must perform Step 5 in "[Setup Tasks to Perform as root User](#)" on page 2-16.

4. Create at least one shared configuration file as an information repository for the database server configuration. If your platform supports Cluster Filesystem, skip this step.

On UNIX platforms, create a shared raw device of at least 100 MB for the Server Management (SRVM) configuration. The Oracle Universal Installer will prompt you for the name of this shared file on the Shared Configuration File Name Page. Alternatively, set the environment variable `SRVM_SHARED_CONFIG` to the absolute pathname of the shared raw device from which the Oracle Universal Installer can retrieve the configuration file.

See Also: *Oracle9i Real Application Clusters Setup and Configuration* for more information on setting up shared configuration file.

Precompilers and Tools

Complete pre-installation tasks for the precompilers and tools required for your platform.

Parameters for the Pro*C/C++ Precompiler

Verify that the C compiler executable is in the `PATH` setting. [Table 2-14](#) describes the usual path settings and the appropriate command to verify the path depending on your platform.

Table 2-14 *Pro*C/C++ Precompiler Directory*

Platform	Path	Command
AIX	<code>/usr/bin</code>	<code>\$ which cc</code>
HP	<code>/usr/bin</code>	<code>\$ which cc</code>
Linux	<code>/usr/bin</code>	<code>\$ which gcc</code>
Solaris	<code>/opt/SUNWspro/bin</code>	<code>\$ which cc</code>

Table 2–14 Pro*C/C++ Precompiler Directory

Platform	Path	Command
Tru64	/usr/bin	\$ which cc

Parameters and Environment Variables for the Pro*COBOL Precompiler

1. Set the COBDIR environment variable to the directory where the COBOL compiler is installed.
2. Verify that the PATH setting includes the COBOL compiler executable.
3. Verify that the shared library path includes \$COBDIR/lib directory.

[Table 2–15](#) describes the usual path settings for the platforms and the appropriate command to verify the path depending on your platform.

Table 2–15 Pro*COBOL Precompiler Directory

Platform	Path	Command
AIX	/opt/lib/cobol/bin	\$ which cob
HP	/opt/lib/cobol/bin	\$ which cob
Linux	Not applicable	Not applicable
Solaris	/opt/lib/cobol/bin	\$ which cob
Tru64	/opt/lib/cobol/bin	\$ which cob

Note: If you do not set the COBDIR environment variable prior to starting the installation session, then Pro*COBOL precompiler linking fails.

See Also: Your product-specific COBOL documentation for more information on COBDIR and COBLIB environment variables.

Pro*COBOL Restriction

The use of incorrectly aligned binary data (such as COMP-1) in Pro*COBOL applications will generate unaligned access warnings that will prevent optimum compiler performance, but not affect the application's results. The warnings may appear as follows:

```
Unaligned access pid=12227
```

```
<unaligned> va=11ffffb84
pc=1200010e0 ra=120001060 type=ldq
```

Parameters for Pro*FORTRAN Precompiler

Verify that the PATH setting includes the FORTRAN compiler executable.

[Table 2–16](#) describes the usual path settings for the platforms and the appropriate command to verify the path depending on your platform.

Table 2–16 Pro*FORTRAN Precompiler Directory

Platform	Path	Command
AIX	/usr/bin	\$ which xlf
HP	/opt/Fortran/bin	\$ which f77
Linux	Not applicable	Not applicable
Solaris	/opt/SUNWspro/bin	\$ which f77
Tru64	/usr/bin	\$ which f77

Parameters for SQL*Module Ada

Verify that the PATH setting includes the Ada executable. [Table 2–17](#) describes the usual path settings for the platforms and the appropriate command to verify the path depending on your platform.

Table 2–17 SQL*Module Ada Precompiler Directory

Platform	Path	Command
AIX	/usr/lpp/powerada	\$ which ada95
HP	Not applicable	Not applicable
Linux	Not applicable	Not applicable
Solaris 32-bit	/opt/SUNWspro/bin/ada	\$ which ada
Solaris 64-bit	Not applicable	Not applicable
Tru64	Not applicable	Not applicable

Additional SQL*Module Ada Step for AIX

Verify that the OC Systems PowerAda 3.1 compiler configuration file has been set up. The file is located in the same directory where you have installed PowerAda. The file name will be as follows:

- `setup` for the Korn shell
- `setup.csh` for the C shell

Network and System Management Products

This section describes tasks that must be completed prior to installation if you have existing network and system management products.

Setup Tasks for Oracle Net Services

If you have an existing installation of Oracle Net Services on the database server, then shut down all listeners before installing. To determine if any listeners are running, enter the following command:

```
$ lsnrctl status listener_name
```

The `listener_name` field is required if the listener has a name other than the default name `listener`.

To shut down a running listener, enter the following command:

```
$ lsnrctl stop listener_name
```

See Also: "[Oracle Net Configuration Assistant](#)" on page 1-9 for more information on planning the installation and configuration of Oracle Net Services on your system.

Verify Oracle Supported Protocols

Oracle Universal Installer automatically installs the TCP/IP protocol support with all Oracle9i database installations. Before installing support for any protocol, verify that the underlying network is functioning and configured properly.

To verify that the network is functioning properly, transfer and retrieve a test file using the `ftp` utility by entering the following command:

```
$ ftp remote_server_name
ftp> put test_filename
ftp> get test_filename
```

ftp> bye

Setup Tasks for Oracle Enterprise Manager

Before you install Oracle Management Server, you need to determine if you will use an existing 9.2.0.1.0 Enterprise Manager repository or create a new 9.2.0.1.0 Enterprise Manager repository.

IMPORTANT: All Oracle Enterprise Manager products on your system must be from the same release. Do not migrate the Management Server and repository until all Oracle Enterprise Manager users have upgraded their software to 9.2.0.1.0. If you migrate your Management Server and repository to 9.2.0.1.0, and do not upgrade the Enterprise Manager users' software, then the users will not be able to use their version of Enterprise Manager with the new version.

To Use an Existing Repository:

If you choose to use an existing Oracle Enterprise Manager repository version earlier than 9.2.0.1.0, then you must upgrade the existing repository to 9.2.0.1.0. Review the following information to upgrade your repository.

If you plan to migrate an existing Oracle Enterprise Manager repository to the current version, then backup or export the repository so that it can be recovered in the event of an unexpected error.

Migrating Release 2.x or 9.0.1: Migrate the older repository to the current release by running the Enterprise Manager Configuration Assistant, 9.2.0.1.0.

To Create a New Repository:

If you decide to create a new 9.2.0.1.0 repository, then you must first install and start the database. The Enterprise Manager Configuration Assistant is automatically launched during the configuration phase of the Oracle9i Database Custom installation, the Management and Integration Server installation, and the Management and Integration Custom installation.

See Also: *Oracle Enterprise Manager Configuration Guide* for more information on installing and configuring a new repository, or migrating a repository.

Installation

This chapter describes how to start the Oracle Universal Installer and install Oracle9i products on your system. Review and complete the tasks listed in [Chapter 1, "Oracle9i Installation Planning"](#) and [Chapter 2, "Pre-Installation Requirements"](#) before beginning the installation. This chapter contains the following sections:

- [Installation Mount Options](#)
- [Oracle Universal Installer](#)
- [Non-Interactive Installation and Configuration](#)
- [Oracle Real Application Clusters](#)

Installation Mount Options

The product is delivered on more than one CD-ROM. The Oracle9i CD-ROMs are in ISO 9660 format with Rockridge extensions. You can either choose to install Oracle9i directly from the CD-ROMs, or copy the CD-ROM contents and then install from your system hard drive. You must complete the procedures required for the installation method you choose before starting the Oracle Universal Installer.

- [Installing Oracle9i from the CD-ROMs](#)
- [Installing Oracle9i from the Hard Drive](#)

Note: Oracle Corporation does not support using the Oracle Installer shipped with releases 7.x, 8.0.x, and 8.1.x and 9.0.1 to install 9.2.0.1.0 components.

Installing Oracle9i from the CD-ROMs

Use the following procedures to install Oracle9i from the CD-ROMs.

For operating systems that do not support automatic mounting of CD-ROMs, Oracle9i 9.2.0.1.0 CD-ROMs must be mounted manually. You must have `root` privileges to mount or unmount a CD-ROM. Be sure to unmount a CD-ROM before removing it from the drive.

Mounting and Installing from the CD-ROMs

Refer to these mounting procedures during installation as necessary:

- [Mounting CD-ROMs for AIX](#)
- [Mounting CD-ROMs for HP](#)
- [Mounting CD-ROMs for Linux](#)
- [Mounting CD-ROMs for Solaris](#)
- [Mounting CD-ROMs for Tru64](#)

Mounting CD-ROMs for AIX

Mount disk 1 to begin the installation. Mount the subsequent disk or disks when prompted to do so. Follow these steps to mount the Oracle9i CD-ROM manually:

1. Place Oracle9i CD-ROM disk 1 in the CD-ROM drive.
2. Log in as the `root` user and create a CD-ROM mount point directory, if one does not already exist, by using the following commands:

```
$ su root
# mkdir cdrom_mount_point_directory
```

3. Use the following command to determine the *device_name*:

```
# lsdev -Cc cdrom
```

The output should be similar to the following:

```
cd0 Available 10-60-00-4, 0 SCSI Multimedia CD-ROM Drive
```

4. Mount the CD-ROM drive on the mount point directory, then exit the `root` account by using the following commands:

```
# mount options device_name cdrom_mount_point_directory
# exit
```


[Example 3-1](#) shows how to mount the CD-ROM manually.

Example 3-1 Mounting the AIX CD-ROM Manually

```
$ su root
# mkdir /cdrom
# mount -rv cdrfs /dev/cd0 /cdrom
# exit
```

In the preceding output, `/dev/cd0` is the CD-ROM device.

Caution: Do not run the Installer while the CD-ROM directory is the current directory or you will be unable to unmount the next CD-ROM when prompted to do so.

Mounting CD-ROMs for HP

Mount disk 1 to begin the installation. Mount the subsequent disk or disks when prompted. You must have `root` privileges to mount or unmount a CD-ROM. Be sure to unmount the CD-ROM before removing it from the drive. Follow these steps to mount the Oracle9i CD-ROM manually:

1. Use the following command to determine the `device_file`:

```
$ ioscan -fun -C disk
```

The output should be similar to the following:

```
disk      10  10/12/5.2.0  sdisk      CLAIMED  DEVICE      TOSHIBA CD-ROM
XM-5701TA /dev/dsk/c4t2d0  /dev/rdisk/c4t2d0
```

2. If there is not already an entry in the `/etc/pfs_fstab` file for your CD-ROM device, you must add one. As the `root` user, use a system editor to add a line to the `/etc/pfs_fstab` file following this format:

```
device_file mount_point filesystem_type translation_method
```

In the preceding format, the first entry is the CD-ROM device, the second entry is the mount point, and the third entry indicates that the CD-ROM to be mounted is in ISO9660 format with Rockridge extensions.

The `device_file` in this example is `/etc/pfs_fstab`. For a CD-ROM device with the path `/etc/pfs_fstab`, you would enter the following:

```
/dev/dsk/c4t2d0 /SD_CDROM pfs-rrip xlat=unix 1 0
```

3. Log in as the `root` user with the following command:

```
$ su root
```

4. Enter the following commands:

```
# nohup /usr/sbin/pfs_mountd &  
# nohup /usr/sbin/pfsd &
```

5. Place Oracle9i CD-ROM disk 1 in the CD-ROM drive and mount the CD-ROM by entering the following command:

```
# /usr/sbin/pfs_mount /SD_CDROM
```

6. Log out of the root account.

```
# exit
```

If you run the Installer while the current working directory is in the CD-ROM, follow these steps to mount the next CD-ROM:

1. Change to your system's root directory and log in as the `root` user:

```
$ cd /  
$ su root
```

2. To unmount the CD-ROM, use the following command:

```
# /usr/sbin/pfs_umount /SD_CDROM
```

3. Remove the CD-ROM from the CD-ROM drive.
4. Insert the required CD-ROM into the CD-ROM drive and mount it with the following command:

```
# /usr/sbin/pfs_mount /SD_CDROM
```

5. Enter the correct mount point in the *Installation* dialog box.
6. Click OK to continue.

Mounting CD-ROMs for Linux

Mount disk 1 to begin the installation. Mount the subsequent disk or disks when prompted.

Mounting CD-ROMs for Linux with Auto Mounting Software If you are using auto mounting software, the CD-ROM is mounted automatically to the directory specified in your auto mount configuration when you insert it into the CD-ROM drive. Proceed to "[Oracle Universal Installer](#)" on page 3-10.

To check if you have auto mounting software, use the following command:

```
$ ps -aux | grep automount
```

If you have auto mounting software, the output must be similar to the following:

```
root 628 0.0 0.2 1148 588 ? S 17:32 0:00 /usr/sbin/automount /misc file
/etc/auto.misc
```

In the preceding output, the `/etc/auto.misc` entry defines the directory under the `/misc` file where the CD-ROM will be mounted.

- If the auto mounting software is running and configured properly, the CD-ROM is mounted automatically. Proceed to "[Oracle Universal Installer](#)" on page 3-10.
- If no lines are returned, the auto mounting software is not running, and you will have to mount the CD-ROM manually. Proceed to "[Mounting CD-ROMs for Linux Manually](#)".

Follow these steps to mount subsequent CD-ROMs:

1. Remove the CD-ROM from the CD-ROM drive by using the following commands:

```
$ cd /
$ eject
```

2. Insert the next CD-ROM into the CD-ROM drive and enter the correct mount point in the *Installation* dialog box of the Oracle Universal Installer.
3. Click OK to continue.

Mounting CD-ROMs for Linux Manually To mount the Oracle9i CD-ROM manually, use the following steps:

1. Place Oracle9i CD-ROM disk 1 in the CD-ROM drive.
2. Log in as the `root` user and, if necessary, create a CD-ROM mount point directory by using the following commands:

```
$ su root
# mkdir cdrom_mount_point_directory
```

3. Mount the CD-ROM drive on the mount point directory by using the following commands:

```
# mount options device_name cdrom_mount_point_directory
```

4. Exit the `root` account.

```
# exit
```

If you are unsure of the correct `device_name`, consult your system administrator. Typically, the `device_name` is `/dev/cdrom`.

[Example 3-2](#) shows how to mount the CD-ROM manually.

Example 3-2 Mounting the Linux CD-ROM Manually

```
$ su root
# mkdir /cdrom
# mount -t iso9660 /dev/cdrom /cdrom
# exit
```

If you run the Installer while the current working directory is in the CD-ROM, follow these steps to mount the next CD-ROM:

1. Change directory to the root directory of your system and log in as the `root` user by using the following commands:

```
$ cd /
$ su root
```

2. Unmount the CD-ROM by using the following command:

```
# umount cdrom_mount_point_directory
```

3. Remove the CD-ROM from the CD-ROM drive.
4. Insert the next CD-ROM into the CD-ROM drive and then use the following command to mount it:

```
# mount cdrom_mount_point_directory
```

5. Enter the correct mount point in the *Installation* dialog box of the Oracle Universal Installer.
6. Click OK to continue.

Mounting CD-ROMs for Solaris

Mount disk 1 to begin the installation. Mount the subsequent disk or disks when prompted.

Mounting CD-ROMs for Solaris with Volume Management Software If you are using Volume Management software (available by default on Solaris), the CD-ROM is mounted automatically to the `/cdrom/orcl92010_1` directory when you insert it into the CD-ROM drive. Proceed to ["Oracle Universal Installer"](#) on page 3-10.

To check if you have Volume Management software, use the following command:

```
$ ps -e | grep vold
```

If you have Volume Management software, the output must be similar to the following:

```
404 ? 16:03 vold
```

- If the Volume Management software is running, the CD-ROM is mounted automatically. Use the following commands to unmount subsequent CD-ROMs:

```
$ cd /  
$ eject
```

After entering these commands, proceed to ["Oracle Universal Installer"](#) on page 3-10.

- If no lines are returned, then Volume Management software is not running, and you will have to mount the CD-ROM manually. Proceed to ["Mounting CD-ROMs for Solaris Manually"](#).

Follow these steps to mount subsequent CD-ROMs:

1. Remove the CD-ROM from the CD-ROM drive by using the following commands:

```
$ cd /  
$ eject
```

2. Insert the next CD-ROM into the CD-ROM drive and enter the correct mount point in the *Installation* dialog box of the Oracle Universal Installer.
3. Click OK to continue.

Mounting CD-ROMs for Solaris Manually Follow these steps to mount the Oracle9i CD-ROM manually:

1. Place Oracle9i CD-ROM disk 1 in the CD-ROM drive.
2. Log in as the `root` user and, if necessary, create a CD-ROM mount point directory by using the following commands:

```
$ su root
# mkdir cdrom_mount_point_directory
```

3. Mount the CD-ROM drive on the mount point directory, then exit the `root` account by using the following commands:

```
# mount options device_name cdrom_mount_point_directory
# exit
```

If you are unsure of the correct `device_name`, consult your system administrator. Typically, the `device_name` is `/dev/dsk/c0t6d0s0`.

[Example 3-3](#) shows how to mount the CD-ROM manually.

Example 3-3 Mounting the Solaris CD-ROM Manually

```
$ su root
# mkdir /cdrom
# mount -r -F hsfs /dev/dsk/c0t6d0s0 /cdrom
# exit
```

If you run the Installer while the current working directory is in the CD-ROM, follow these steps to mount the next CD-ROM:

1. Change directory to the root directory of your system and log in as the `root` user by using the following commands:

```
$ cd /
$ su root
```

2. Unmount the CD-ROM by using the following command:

```
# umount cdrom_mount_point_directory
```

3. Remove the CD-ROM from the CD-ROM drive.

4. Insert and mount the next CD-ROM into the CD-ROM drive by using the following command:

```
# mount options device_name cdrom_mount_point_directory
```

5. Enter the correct mount point in the *Installation* dialog box of the Oracle Universal Installer.
6. Click OK to continue.

Mounting CD-ROMs for Tru64

Follow these steps to mount the Oracle9i CD-ROM manually:

1. Place Oracle9i CD-ROM disk 1 in the CD-ROM drive.
2. Log in as the `root` user and create a CD-ROM mount point directory, if one does not already exist, by using the following commands:

```
$ su root
# mkdir cdrom_mount_point_directory
```

3. Use the following command to determine the *device_name*:

```
$ ls /dev/disk/cdrom*c
```

The command should return a line similar to the following:

```
/dev/disk/cdrom0c
```

4. Mount the CD-ROM drive on the mount point directory, by using the following commands:

```
# mount options device_name cdrom_mount_point_directory
```

5. Exit the `root` account.

```
# exit
```

[Example 3-4](#) shows how to mount the CD-ROM manually.

Example 3-4 Mounting the Tru64 CD-ROM Manually

```
$ su root
# mkdir /cdrom
# mount -t cdfs -r -o nodefperm,noversion,rrip /dev/disk/cdrom0c /cdrom
# exit
```

If you run the Installer while the current working directory is in the CD-ROM, follow these steps to mount the next CD-ROM:

1. Change directory to the root directory of your system and log in as the `root` user by using the following commands:

```
$ cd /  
$ su root
```

2. Unmount the CD-ROM by using the following command:

```
# umount cdrom_mount_point_directory
```

3. Remove the CD-ROM from the CD-ROM drive.
4. Insert and mount the next CD-ROM into the CD-ROM drive by using the following command:

```
# mount options device_name cdrom_mount_point_directory
```

5. Enter the correct mount point in the *Installation* dialog box of the Oracle Universal Installer.
6. Click OK to continue.

Installing Oracle9i from the Hard Drive

You can avoid the need to mount and unmount CD-ROMs during installation by copying the contents of each CD-ROM to your system's hard drive. You must have a filesystem that is not in use by other applications and at least 2.5 GB of disk space available.

1. Copy the CD-ROMs to your system hard drive. Copy each CD-ROM to a directory on a single mount point with the same name as the CD-ROM. For example, copy disk 1 to a directory named `Disk1`.
2. Start the Oracle Universal Installer. The Installer automatically finds the contents of each CD-ROM and does not prompt for the location of any CD-ROM during the course of the installation.

Oracle Universal Installer

The following procedure describes the installation of products using the Oracle Universal Installer.

Caution: Do not run the Installer as the `root` user.

1. Log in as the `oracle` user.

2. Start the Installer from the CD-ROM mount-point directory at the root directory level with the following command:

```
$ /cdrom_mount_point_directory/runInstaller
```

Note: The Oracle Universal Installer is capable of running a non-interactive installation of Oracle products and can optionally be configured for "non-interactive" mode. For instructions on using this feature of the Installer, see [Non-Interactive Installation and Configuration](#) on page 3-37.

Caution: Oracle Universal Installer automatically installs the Oracle-supplied version of the Java Runtime Environment (JRE). This version is required to run Oracle Universal Installer and several Oracle assistants. Do *not* modify the JRE except by using a patch provided by Oracle Support Services. The Installer also installs JDK 1.3.1 on Linux and Solaris. On AIX, HP, and Tru64, the Installer prompts for the downloaded/installed location of JDK 1.3.1.

After the Installer starts, the *Welcome* window appears.

3. Click Next.
 - If the Installer is running on a cluster, then the *Cluster Node Selection* window appears. Select the nodes on which you want to install the Oracle software. The local node is always selected by default.
 - If this is the first time any Oracle9i product has been installed on the current system, the *File Locations* window appears. Specify the base directory where you want to install the Oracle software.
 - If any Oracle9i product has been installed on the system, go to step 8.
4. Click Next.

The *UNIX Group Name* window appears. In the *UNIX Group Name* field, specify the ORAINVENTORY group. Members of this group are granted permission to update Oracle software on the system. Review "[Create a UNIX Group for the Oracle Universal Installer Inventory](#)" on page 2-29 if you are not sure what group to specify to own oraInventory files.

5. Click Next.

If the `/etc` directory does not exist or is not writable by the `oracle` user on AIX, HP, Linux, or Tru64, or the `/var/opt/oracle/` directory does not exist on Solaris, or is not writable by the `oracle` user, an *Installer* window appears prompting you to run the `/tmp/OraInstall/orainstRoot.sh` script in another terminal window as the `root` user. When the script has finished running, click *Retry* to continue the installation.

The *File Locations* window appears. Do not change the text in the *Source* field. The *Source* field specifies the location of the installation files.

Attention: A note window opens only if you have not completed all the required pre-installation steps. If you choose to run the `orainstRoot.sh` script, the `oraInventory` file and other files `oracle` account uses will be written in the `$ORACLE_HOME` directory to ensure that `oracle` account has write access. This configuration may not be optimal for your system or your needs. Oracle Corporation recommends that you complete the steps described in [Chapter 2, "Pre-Installation Requirements"](#).

6. Enter the Oracle home directory path in the *Destination* field. The directory path is where you want to install Oracle9i products. If you set the `ORACLE_HOME` environment variable before starting the Installer, the Installer uses this directory path as the default value in the *Destination* field.

You must install Oracle9i products into a new Oracle home directory. You cannot install Oracle9i products into a directory that contains older versions of the software.

Caution: If you have an existing Oracle home directory created with a pre-9.0.x release, you must change the default Oracle9i installation location to a different location.

7. Click Next.

8. The *Available Products* window appears. Select the product that you want to install and click *Next*. Based on your selection, proceed to one of the following installation guide sections:

If you select...	See...
Oracle9i Database	"Installing Oracle9i Database" on page 3-13.
Oracle9i Client	"Installing Oracle9i Client" on page 3-20.
Oracle9i Management and Integration	"Installing Oracle9i Management and Integration" on page 3-23.

See Also: "Oracle9i Products for Installation" on page 1-2 for more information on product installation types.

Appendix A, "Oracle9i Components" for more information on the products installed with each installation type.

Installing Oracle9i Database

After selecting Oracle9i database from the *Available Products* window, the *Installation Types* window appears. Follow these procedures to install Oracle9i database:

1. Select Enterprise, Standard, or Custom Installation, then click Next.
2. Go to one of the following sections based on the selection you made in step 1.

If you select...	See...
Enterprise Edition or Standard Edition	"Oracle9i Enterprise Edition or Standard Edition Installation" on page 3-13.
Custom	"Oracle9i Database Custom Installation" on page 3-17.

Oracle9i Enterprise Edition or Standard Edition Installation

When you select Enterprise Edition or Standard Edition Installation, the *Database Configuration Types* window appears.

1. Select the appropriate database and click Next.

If you select...	Then Oracle Universal Installer...
General Purpose	Installs a preconfigured database optimized for general purpose usage.

If you select...	Then Oracle Universal Installer...
Transaction Processing	Installs a preconfigured database optimized for transaction processing.
Data Warehouse	Installs a preconfigured database optimized for data warehousing and OLAP.
Customized	Allows you to create a customized database. This option takes longer than the pre-configured options.
Software Only	Installs software only and does not run any configuration tools.

-
2. The *Privileged Operating System Groups* window appears if the `oracle` account is not a member of the OSDBA group created in "[Create UNIX Groups for Database Administrators](#)" on page 2-28, or if there is a UNIX group with a name other than `dba` that serves as the OSDBA group. Enter the UNIX group name that serves as the OSDBA group. If a separate UNIX group serves as the OSOPER group, specify it in this window as well.
3. Click Next.
4. If the Oracle Universal Installer detects an earlier version of an Oracle database on your system, you are prompted to upgrade your database with the Database Upgrade Assistant. Select the Upgrade an Existing Database check box to have Database Upgrade Assistant start immediately after installation to upgrade your database to an Oracle9i database.

If you choose to upgrade your database, go to step 8.

Note: Do not upgrade an Oracle9i database configured for use with Oracle Internet Directory through this installation type. Oracle9i database and Oracle Internet Directory upgrades must be performed by following the procedures in "[Oracle Internet Directory Installation](#)" on page 3-25.

-
-
-
-
5. Click Next. The *Database Identification* window appears.
6. Enter the Global Database Name and System Identifier (SID) in the appropriate fields:

In this field...	Enter the...
Global Database Name	<p>Full database name that uniquely distinguishes it from any other database in your network domain. For example:</p> <p><code>sales.acme.com</code></p> <p>In the preceding example, <code>sales</code> is the name you want to call your database and <code>acme.com</code> is the network domain in which the database is located.</p>
SID	<p>System Identifier, the database instance name that uniquely distinguishes it from any other database on your system. The SID field defaults to the database name portion of the Global Database Name (<code>sales</code> in the preceding example) until it reaches eight characters in length or you enter a period. You can accept or change the default value.</p>

7. Click Next. The *Database File Location* window appears.
8. In the *Directory for Database Files* field, enter the directory location of the database file. Alternatively, use the Browse... button to navigate to the directory location of the database file.

Note: The preceding two steps appear only if you choose the customized database option. Oracle Corporation recommends that database files and Oracle software files be installed on separate disks.

9. Click Next.

The *Database Character Set* window appears. Choose the database character set that you want to use from the available options.
10. Click Next. The *Summary* window appears.
11. Review the information to ensure that you have enough disk space and click Install.

The *Install* window appears and displays a progress meter. The Installer goes through the install and relinking phases, so the meter adjusts for each phase completion.
12. If you are installing from the CD-ROMs, you will be prompted to insert the subsequent disks to continue with installation.

13. Run the `root.sh` script when prompted.

The Installer creates the `root.sh` script in the Oracle home directory and prompts you to run the script when it finishes installing Oracle products. Log in as the `root` user and run the script. The `root.sh` script sets the necessary file permissions for Oracle products and performs other `root`-related configuration activities. To run the `root.sh` script use the following commands:

```
# cd $ORACLE_HOME
# ./root.sh
```

If you install Oracle Real Application Clusters, then you must run the `root.sh` script on every node in the cluster.

When the `root.sh` script runs successfully, return to the Oracle Universal Installer, and click OK in the *Alert* window.

14. The *Configuration Tools* window appears at the end of the installation depending on the selections you made previously.

The configuration assistants help you create and configure the database and network environment. [Table 3-1](#) describes the configuration assistants.

Table 3-1 Configuration Assistants for Enterprise or Standard Edition Installation

The...	Starts...	And...
Oracle Cluster Configuration Assistant	when Oracle Universal Installer is started on a cluster. It does not show up when the Software Only option is selected	starts Global Services Daemon (GSD) on all the nodes selected for installation.
Oracle Net Configuration Assistant	in all cases except if you selected the Software Only configuration type	guides you to configure the network. See " Oracle Net Configuration Assistant " on page 1-9 for more information.
Database Configuration Assistant	if you selected not to upgrade an existing instance and no "Software Only"	automatically creates an Oracle9i database. See " Database Configuration Assistant " on page 1-7 for more information on database types.
Oracle HTTP Server Configuration Assistant	in all cases except if you selected the Software Only configuration type	starts the HTTP Listener in non-SSL mode on port 7777.

Table 3–1 Configuration Assistants for Enterprise or Standard Edition Installation

The...	Starts...	And...
Oracle Intelligent Agent Configuration Assistant	in all cases except if you selected the Software Only configuration type	automatically starts the Intelligent Agent Service.
Database Upgrade Assistant	if you selected to upgrade a database	upgrades the selected database to Oracle9i.

Note: If you are installing a database and want to unlock administrative user passwords after installation, click the Password Management button in the *Database Configuration Assistant* dialog box.

See "[Reviewing User Names and Passwords](#)" on page 4-38 for more information on password management.

The *End of Installation* window appears if the configuration assistants are successful. If a configuration assistant fails, the *Configuration Tools* window displays the results of running these assistants. Correct the cause of the failure and click Retry to re-install, or click Next to continue.

The *End of Installation* window appears.

15. Click Exit to exit the Oracle Universal Installer, or click Next Install to install additional products. Selecting Next Install returns you to the Oracle Universal Installer *File Locations* window.

See Also: "[Reviewing a Log of an Installation Session](#)" on page 3-36 for more information on the log file. Oracle Universal Installer creates a log file to keep an inventory of products that it installs on your system.

Oracle9i Database Custom Installation

When you select Custom Installation, the *Available Product Components* window appears. It displays all products and components available for installation. A typical Custom Installation configuration is selected by default.

1. Select the products you want to install or deselect products you do not want to install and click Next.

2. Provide responses to any window prompts that appear.

The *Summary* window appears.

The Installer notifies you if you do not have enough disk space to install the products you have selected. If necessary, deselect products in order to select a configuration suitable for your system. Otherwise, click Install.

The *Install* window appears.

3. Run the `root.sh` script when prompted.

The Installer creates the `root.sh` script in the Oracle home directory and prompts you to run the script when it finishes installing Oracle products. Log in as the `root` user and run the script. The `root.sh` script sets the necessary file permissions for Oracle products and performs other `root` related configuration activities. To run the `root.sh` script, use the following command:

```
# cd $ORACLE_HOME
# ./root.sh
```

If you install Oracle Real Application Clusters, you must run the `root.sh` script on every node in the cluster.

When the `root.sh` script runs successfully, return to the Oracle Universal Installer, and click OK in the *Alert* window.

4. The *Configuration Tools* window appears at the end of installation, depending on the selections you made previously.

The configuration assistants help you create and configure the database and network environment. [Table 3-2](#) describes the Configuration Assistants.

Table 3-2 Configuration Assistants for Custom Installation

The...	Starts...	And...
Oracle Cluster Configuration Assistant	when the Oracle Universal Installer is started on a cluster. It does not show up when the Software Only option is selected	starts Global Services Daemon (GSD) on all the nodes selected for installation.
Oracle Net Configuration Assistant	when you select any products that require network configuration	guides you to configure the network. See " Oracle Net Configuration Assistant " on page 1-9 for more information.

Table 3–2 Configuration Assistants for Custom Installation (Cont.)

The...	Starts...	And...
Database Configuration Assistant	when you select: <ul style="list-style-type: none"> ■ Oracle9i Server in the product selection screen AND ■ you chose not to upgrade AND ■ Yes when prompted to install an Oracle9i database 	guides you in creating an Oracle9i database. See " Database Configuration Assistant " on page 1-7 for more information.
Oracle HTTP Server Configuration Assistant	when you select the Oracle HTTP Server in the <i>Available Products</i> window	starts the HTTP Listener in non-SSL mode on port 7777.
Oracle Enterprise Manager Configuration Assistant	when you select to install Oracle Management Server in the <i>Available Products</i> window	allows you to configure the local Oracle Management Server to use an existing 9.2.0.1.0 repository or to create a new 9.2.0.1.0 repository. See Also: <i>Oracle Enterprise Manager Configuration Guide</i> for more information on how to use this assistant.
Oracle Intelligent Agent Configuration Assistant	when you select the Intelligent Agent	automatically starts the Intelligent Agent Service.
Database Upgrade Assistant	when you select to upgrade a database	upgrades the selected database to Oracle9i database.

The *End of Installation* window appears if the configuration assistants are successful.

If a configuration assistant fails, the *Configuration Tools* window displays the results of running these assistants. Correct the cause of the failure and click Retry to re-install, or click Next to continue. Then the *End of Installation* window appears.

5. Click Exit to exit the Oracle Universal Installer, or click Next Install to install additional products. Selecting Next Install returns you to the *File Locations* window.

See Also: ["Reviewing a Log of an Installation Session"](#) on page 3-36 for more information on the log file. Oracle Universal Installer creates a log file to keep an inventory of products that it installs on your system.

Installing Oracle9i Client

Note: For a list of products installed with each installation type, see the appropriate product section in [Appendix A, "Oracle9i Components"](#).

After selecting Oracle9i Client from the *Available Products* window, the *Installation Types* window appears.

1. Select the Oracle Client installation type you want to install, then click Next.
2. Go to one of the following sections based on the selection you made in step 1.

If you selected...	See...
Administrator and Runtime	"Oracle9i Client Administrator and Runtime Installation" on page 3-20.
Custom	"Oracle9i Client Custom" on page 3-22.

Oracle9i Client Administrator and Runtime Installation

Follow these procedures to perform a Client Administrator or Runtime installation:

1. After selecting Administrator or Runtime Installation, click Next.
The *Available Products Components* window appears.
2. Select the products you want to install or deselect products you do not want to install and click Next.
The *Summary* window appears.
3. Review the information to ensure that you have enough disk space. You cannot make any product or space allocation changes once the installation begins.
4. Click Install.

The *Install* window appears and displays a progress meter. The Installer goes through the install and relinking phases, and the meter adjusts for each phase completion.

5. Run the `root.sh` script when prompted.

The Installer creates the `root.sh` script in the Oracle home directory and prompts you to run the script when it finishes installing Oracle products. The `root.sh` script sets the necessary file permissions for Oracle products and performs other `root`-related configuration activities. Log in as the `root` user and run the script. To run the `root.sh` script, use the following command:

```
# cd $ORACLE_HOME
# ./root.sh
```

When the `root.sh` script runs successfully, return to the Oracle Universal Installer, and click OK in the *Alert* window.

The *Configuration Tools* window may appear at the end of installation, depending on the selections you made previously.

The configuration assistant helps you create and configure the database and network environment. [Table 3-3](#) describes the Oracle Net Configuration Assistant.

Table 3-3 Configuration Assistant for Oracle9i Client Installation

The...	Starts...	And...
Oracle Net Configuration Assistant	In all cases	Guides you to configure the network for the client. For more information, see " Oracle Net Configuration Assistant " on page 1-9 for details.

The *End of Installation* window appears if the configuration assistants are successful.

If the configuration assistant fails, the *Configuration Tools* window displays the results of running this assistant. Correct the cause of the failure and click Retry to re-install, or click Next to continue.

The *End of Installation* window appears.

6. Click Exit to exit Oracle Universal Installer, or click Next Install to install additional products. Selecting Next Install returns you to the *File Locations* window.

See Also: ["Reviewing a Log of an Installation Session"](#) on page 3-36 for more information on the log file. Oracle Universal Installer creates a log file to keep an inventory of products that it installs on your system.

Oracle9i Client Custom

Follow these procedures to perform a Client Custom installation:

1. After selecting Client Custom installation, click Next.

The *Available Products* window appears and displays all products available for installation.

2. Select products you want to install or deselect products you do not want to install, then click Next. A typical Custom Installation configuration is selected by default.
3. Provide responses to any prompts that appear.

The *Summary* window appears.

4. Review the information to ensure that you have enough disk space and click Install.

The *Install* window appears and displays a progress meter. The Installer goes through the install and relinking phases, and the meter adjusts for each phase completion.

5. Run the `root.sh` script when prompted.

The Installer creates the `root.sh` script in the Oracle home directory and prompts you to run the script when it finishes installing Oracle products. The `root.sh` script sets the necessary file permissions for Oracle products and performs other `root` related configuration activities. Log in as the `root` user and run the script. To run the `root.sh` script, use the following command:

```
# cd $ORACLE_HOME
# ./root.sh
```

When the `root.sh` script runs successfully, return to the Oracle Universal Installer, and click OK in the *Alert* window.

The *Configuration Tools* window may appear at the end of installation, depending on your selections previously.

The Configuration Assistant helps you to create and configure the database and network environment. [Table 3-4](#) describes the Oracle Net Configuration Assistant.

Table 3-4 Oracle Net Configuration Assistants

This Assistant...	Starts...	And does the following...
Oracle Net Configuration Assistant	If you selected any products that require network configuration	Guides you to configure the network for the client. For more information, see " Oracle Net Configuration Assistant " on page 1-9 for details.

The *End of Installation* window appears.

- Click Exit to exit Oracle Universal Installer, or click Next Install to install additional products. Selecting Next Install returns you to the Oracle Universal Installer *File Locations* window.

See Also: "[Reviewing a Log of an Installation Session](#)" on page 3-36 for more information on the log file. Oracle Universal Installer creates a log file to keep an inventory of products that it installs on your system.

Installing Oracle9i Management and Integration

When you select Management and Integration Installation, the *Installation Types* window appears.

- Select Oracle Management Server, Oracle Internet Directory, Oracle Integration Server or Custom and click Next.
- Go to one of the following sections based on the selection you made in step 1.

If you selected...	See...
Oracle Management Server	" Oracle Management Server Installation " on page 3-24.
Oracle Internet Directory	" Oracle Internet Directory Installation " on page 3-25.
Custom	" Oracle9i Management and Integration Custom Installation " on page 3-34.

Note: For a list of products installed with each installation type, see [Appendix A, "Oracle9i Components"](#).

Oracle Management Server Installation

After selecting Oracle Management Server in the *Installation Types* window, the *Oracle Management Server Repository* window appears. Follow these procedures to install Oracle Management Server:

1. Select the repository that you want to use with Oracle Management Server.

Select	If...
Existing repository	<ul style="list-style-type: none"> ▪ a 9.2.0.1.0 repository has already been created and configured for the environment that you want to manage and you want this Management Server to share the existing 9.2.0.1.0 repository <p>or</p> <ul style="list-style-type: none"> ▪ you want to upgrade an existing release 2.x or 9.x repository to a 9.2.0.1.0 repository.
New repository	<ul style="list-style-type: none"> ▪ a 9.2.0.1.0 repository has not been created and configured for the environment that you want to manage.

The *Summary* window appears.

2. Review the information to ensure that you have enough disk space and click Next. You cannot make any product or space allocation changes once the installation begins.
3. Click Install.

The *Install* window appears and displays a progress meter. The Installer goes through the install and relinking phases, and the meter adjusts for each phase completion.

4. Run the `root.sh` script when prompted.

The Installer creates the `root.sh` script in the Oracle home directory and prompts you to run the script when it finishes installing Oracle products. The `root.sh` script sets the necessary file permissions for Oracle products and performs other `root` related configuration activities. Log in as the `root` user and run the script. To run the `root.sh` script:

```
# cd $ORACLE_HOME
# ./root.sh
```

If you install Oracle Real Application Clusters, you must run the `root.sh` script on every node in the cluster.

When the `root.sh` script runs successfully, return to the Oracle Universal Installer, and click OK in the *Alert* window.

5. Provide responses to Oracle Enterprise Manager Configuration Assistant (EMCA) based on your selections.

Note: The default port number used by most databases is 1521. Additional windows appear to help you create a repository in the selected database.

See Also: *Oracle Enterprise Manager Configuration Guide* for more information on Oracle Enterprise Manager Configuration Assistant and on repository migration and upgrade.

6. If you use Enterprise Manager Configuration Assistant, click Close to exit. Otherwise, go to step 7.
7. The *End of Installation* window appears. To exit the Oracle Universal Installer, click Exit. To install additional products, click Next Install. This returns you to the *File Locations* window.

See Also: "[Reviewing a Log of an Installation Session](#)" on page 3-36 for more information on the log file.

Oracle Universal Installer creates a log file to keep an inventory of products that it installs on your system.

Oracle Internet Directory Installation

The following table summarizes the steps you need to perform to install Oracle Internet Directory. Proceed to one of the following selections:

If Oracle database...	Then the...	Go to...
9.2.0.1.0 is already installed in the same Oracle home, but Oracle Internet Directory 9.2.0.1.0 is not installed	<i>Using An Existing Instance</i> window appears and you are prompted for the SID you want to use for Oracle Internet Directory	Step 1 of " Oracle Internet Directory Installation " on page 3-25.
9.2.0.1.0 and Oracle Internet Directory 9.2.0.1.0 are <i>not</i> installed in the same Oracle home	<i>Database Identification</i> window appears and Oracle9i 9.2.0.1.0 database is automatically installed in the same Oracle home directory with Oracle Internet Directory 9.2.0.1.0	Step 3 of " Oracle Internet Directory Installation " on page 3-25.
Oracle Internet Directory release 2.1.1.x or 3.0.1.x is already installed in Oracle home	<i>Upgrade OID</i> window appears and prompts you to upgrade to Oracle9i 9.2.0.1.0 database and Oracle Internet Directory 9.2.0.1.0	Upgrading Oracle Internet Directory on page 3-30.

After selecting Oracle Internet Directory in the *Installation Types* window, the *Using an existing instance* window appears. Follow these procedures to install Oracle Internet Directory:

- Choose between one of the following options:
 - To use the existing database from the current Oracle home for your Oracle Internet Directory installation, select Yes. Click Next.
 - To create a new database for your Oracle Internet Directory installation, select No. Click Next. Go to step 3.
- The *Database Identification* window appears. Enter the SID of the existing database and click Next. Go to step 4.

Note: This database must reside in the current Oracle home directory.

- The *Database Identification* window appears. Enter values for the Global Database Name and SID in the appropriate fields. Click Next.

In this field...	Enter the...
Global Database Name	<p>Full database name that uniquely distinguishes the database from any other database in your network domain. For example:</p> <p><code>sales.us.acme.com</code></p> <p>In the preceding example, <code>sales</code> is the name you want to call your database, and <code>us.acme.com</code> is the network domain in which the database is located.</p>
System Identifier (SID)	<p>System identifier, the database instance name that uniquely distinguishes it from any other database on your system. The SID automatically defaults to the database name portion of the global database name (<code>sales</code> in the preceding example) until you reach eight characters or enter a period. You can accept or change the default value.</p>

The *OID Database File Location* window appears.

4. Enter a directory location in which to install the Oracle Internet Directory database files. These database files contain tables specific to Oracle Internet Directory that were created during configuration.

Note: Oracle Corporation recommends installing database files and Oracle software on separate partitions. For more information on creating reliable system architecture, see ["Using Optimal Flexible Architecture"](#) on page 2-15.

5. Click Next. The *Summary* window appears.
6. Review the information to ensure that you have enough disk space. You cannot make any product or space allocation changes once the installation begins.
7. Click Install.

The *Install* window appears and displays a progress meter. The Installer goes through the install and relinking phases, and the meter adjusts for each phase completion.

The following values are automatically set during installation:

Setting	Value
Use of an Encrypted Password	Yes

Setting	Value
Encryption Schema	MD4
Approximate number of directory entries to be stored in Oracle Internet Directory	Under 10,000 entries
Password of the Administrator Distinguished Name	welcome

8. Run the `root.sh` script when prompted.

The Installer creates the `root.sh` script in the Oracle home directory and prompts you to run the script when it finishes installing Oracle products. The `root.sh` script sets the necessary file permissions for Oracle products and performs other `root`-related configuration activities. Log in as the `root` user and run the script. To run the `root.sh` script enter the following commands:

```
# cd $ORACLE_HOME
# ./root.sh
```

If you install Oracle Real Application Clusters, you must run the `root.sh` script on every node in the cluster.

When the `root.sh` script runs successfully, return to the Oracle Universal Installer. Click OK in the *Alert* window.

The *Configuration Tools* window appears at the end of installation and automatically starts the following assistants to create and configure your network and Oracle Internet Directory environments. [Table 3-5](#) describes the configuration assistants.

Table 3-5 Configuration Assistants

The...	Starts...	And...
Oracle Net Configuration Assistant	in all cases	guides you to the network. See "Oracle Net Configuration Assistant" on page 1-9 for details.

Table 3–5 Configuration Assistants

The...	Starts...	And...
Database Configuration Assistant	in all cases except when using an existing database in the Oracle home for the Oracle Internet Directory installation	<p>automatically creates an Oracle9i database. See "Database Configuration Assistant" on page 1-7. It also creates Oracle Internet Directory tablespaces and schema in the Oracle9i 9.2.0.1.0 database when installing the Oracle Internet Directory in a new Oracle home that does not have Enterprise Edition installed.</p> <p>Note: If a database must be installed, the Database Configuration Assistant automatically launches to create a database with the AL32UTF8 character set.</p> <p>If you are doing a Custom Installation of Oracle Internet Directory, do not change the Global Database Name and SID in the <i>Database Identification</i> window, or you will not successfully install Oracle Internet Directory.</p>
OID Configuration Assistant	in all cases	starts the Oracle Internet Directory Server and configures the default schema and the Directory Information Tree to support various Oracle components.

The *End of Installation* window appears if the configuration assistants are successful.

If a configuration assistant fails, the *Configuration Tools* window displays the results of running these assistants. Correct the cause of the failure. To run the tool, select it and then click Retry, or to continue, click Next.

9. The *End of Installation* window appears. To exit the Oracle Universal Installer, click Exit. If you want to install additional products, click Next Install. Selecting Next Install returns you to the *File Locations* window.

Note: If you install Oracle Internet Directory server, then Oracle Directory Integration Platform server is automatically installed. If you install Oracle Internet Directory client, then Oracle Directory Integration Platform client is automatically installed.

Ensure that the passwords for the database users `SYSTEM` and `SYS` are changed after the installation.

See Also: ["Reviewing a Log of an Installation Session"](#) on page 3-36 for more information on the log file. Oracle Universal Installer creates a log file to keep an inventory of products that it installs on your system.

Upgrading Oracle Internet Directory

Oracle Internet Directory upgrade is supported from Oracle Internet Directory version 2.1.1.x and 3.0.1.x. If the Oracle home where you intend to perform the upgrade of Oracle Internet Directory also contains a complete Enterprise Edition installation, then you must perform the Oracle Internet Directory upgrade before performing the Enterprise Edition upgrade.

Single-Node Upgrade

Perform the following procedures to upgrade the OID installed in the Oracle home.

- [Preparing to Upgrade Oracle Internet Directory](#)
- [Starting Oracle Internet Directory Upgrade](#)

Preparing to Upgrade Oracle Internet Directory

Before upgrading Oracle Internet Directory, stop the following processes:

- Oracle Internet Directory processes (OID Monitor, OID Server, Replication Server, Directory Integration Server), OID database, and listener.

Note: It is strongly recommended that you back up the schema information and data in the existing Oracle Internet Directory version. The best way to do this is to create a backup of the database.

Starting Oracle Internet Directory Upgrade

The *Upgrade OID* window appears if you have a previously installed version of Oracle Internet Directory on your system. Follow these procedures to upgrade Oracle Internet Directory:

1. The *Upgrading an Existing Database* window appears. Select the Oracle Internet Directory Oracle8i or Oracle 9.0.1 database to do the upgrade.
2. To upgrade an existing Oracle8i or Oracle 9.0.1 database already configured for use with Oracle Internet Directory, click Yes.
3. Click Next. The *Oracle SID* window appears.
4. Enter the SID of the Oracle8i or Oracle 9.0.1 database that must be upgraded.
5. Click Next.
6. The *Configuration Tools* window appears and automatically starts the following assistants to upgrade your Oracle8i or Oracle 9.0.1 database and Oracle Internet Directory environment. [Table 3–6](#) describes the Configuration Assistants.

Table 3–6 Configuration Assistants

The...	Upgrades...
Database Upgrade Assistant	Oracle8i, Oracle 9.0.1 to Oracle9i 9.2.0.1.0 database
OID Upgrade Assistant	Oracle Internet Directory 2.1.1.x or 3.0.1.x to 9.2.0.1.0 See Also: <i>Appendix D of the Oracle Internet Directory Administrator's Guide</i> for more information on upgrading an existing OID database.

See Also: ["Post-Upgrade Tasks for Oracle Internet Directory"](#) on page 4-18 for more information on post-upgrade tasks.

Upgrading Oracle Internet Directory in a Multi-Node Environment

You can upgrade a multi-node OID system in two ways.

- [Upgrading One Node at a Time](#)
- [Upgrading all the Nodes at the Same Time](#)

Upgrading One Node at a Time

In this method, while the upgrade on one node is in progress, all the other nodes remain available. This method requires you to follow the following guidelines.

- When you are upgrading a replication network one node at a time, the upgrade is not complete until all the nodes are upgraded. However, during this period, all network nodes except the one being upgraded, remain available.
- While an upgrade is in progress, only one node should be read-write. The rest should be read-only.
- Perform the upgrade on the Master Definition Site (MDS) before you upgrade the other sites.

Perform the following pre-upgrade tasks to upgrade one node at a time:

1. Shutdown the OID processes.
2. Delete ASR push jobs temporarily.

Run the `delasrjobs.sql` script located in `$ORACLE_HOME/ldap/admin` directory. This script deletes the Oracle9i Replication jobs on other master sites that push changes to the MDS. Deleting these jobs temporarily removes the node from the replication environment so that no changes can be applied to it. Other nodes, however, remain operational and continue replicating changes.

Note: Perform the upgrades at each node. See ["Single-Node Upgrade"](#) on page 3-30 for more information.

Perform the following post-upgrade task to upgrade one node at a time:

- Create ASR push jobs.

After you have upgraded the node, create jobs on other nodes by executing `$ORACLE_HOME/ldap/admin/creasrjobs.sql` on the upgraded node. This script creates on the other nodes the jobs that were deleted in the pre-upgrade task. These jobs now start pushing the existing changes and new changes on other nodes to the node you have just upgraded.

Upgrading all the Nodes at the Same Time

If you use this method, the system is not available during the upgrade process. Perform the following pre-upgrade steps to upgrade all the nodes at the same time:

1. Set all the nodes in the network to read-only mode.
 - Edit the input files:
 - `dn:`
 - `changetype: modify`

- replace: orclservermode
- orclservermode: r
- Run the following command against all the nodes in the replication network:


```
ldapmodify -D <super-user DN> -w <super-user password> -h <host-name> -p
<port number> -f input_file.ldif
```
- 2. Wait until all the changes in the change log queue have been applied. Before moving to the next step, wait for the change log queue to empty.

Note: If you skip this step, then the changes in the change log queue will be applied once the nodes are upgraded.
- 3. Verify that you have stopped the OID processes and shutdown the database.

Note: Perform the upgrades at each node. See "[Single-Node Upgrade](#)" on page 3-30 for more information.

Backward Compatibility

When an existing replication Directory Replication Group (DRG) is being upgraded, some of the updates made on the upgraded OID 9.2.0.1.0 will not replicate to the old version node which is not yet upgraded. These upgrades will eventually replicate successfully once the consumer is also upgraded to 9.2.0.1.0. If possible,

- do not make changes on upgraded nodes unless all the nodes in the DRG are upgraded.
- if you need to update upgraded nodes, then do not push the changes to the other nodes unless they are upgraded. Pushing the changes can be temporarily disabled by bringing the replication server in a specific mode (-o FALSE). Run the following command to start the replication server in this special mode:

```
oidctl connect=<conn string> server=oidrepld instance=1 flags="-p <port> -h
<host> -o FALSE" start
```

Note: All the updates made on an older version of OID node will successfully replicate to the 9.2.0.1.0 node.

Oracle9i Management and Integration Custom Installation

When you select Custom Installation, the *Available Product Components* window appears. Follow these procedures to perform an Oracle9i Management and Integration Custom Installation:

Note: For a list of products installed with each installation type, see the appropriate product section in [Appendix A, "Oracle9i Components"](#).

1. Select products you want to install or deselect products you do not want to install, then click Next.
2. Provide responses to any window prompts that appear.
The *Summary* window appears.
3. The Installer notifies you if you do not have enough disk space to install the products you have selected. If necessary, deselect products in order to select a configuration suitable for your system. If this is not necessary, click Install.

The *Install* window appears and displays a progress meter. The Installer goes through the install and relinking phases, and the meter adjusts for each phase completion.

4. Run the `root.sh` script when prompted.

The Installer creates the `root.sh` script in the Oracle home directory and prompts you to run the script when it finishes installing Oracle products. The `root.sh` script sets the necessary file permissions for Oracle products and performs other `root` related configuration activities. Log in as the `root` user and run the script. To run the `root.sh` script:

```
# cd $ORACLE_HOME
# ./root.sh
```

When the `root.sh` script runs successfully, return to the Oracle Universal Installer, and click OK in the *Alert* window.

5. The *Configuration Tools* window may appear at the end of installation, depending on the selections you made previously. The Configuration Assistants help to create and configure your database and network environment.

[Table 3-7](#) describes the Configuration Assistants.

Table 3–7 Configuration Assistants

The...	Starts...	And...
Oracle Net Configuration Assistant	when you select any products that require network configuration	guides you to the network. See " Oracle Net Configuration Assistant " on page 1-9 for more information.
Database Configuration Assistant	when you select: <ul style="list-style-type: none"> ▪ Oracle9i server in the product selection screen AND ▪ you chose not to upgrade AND ▪ you select Yes when prompted to install an Oracle9i database 	automatically creates an Oracle9i database. See " Database Configuration Assistant " on page 1-7 for more information.
Oracle HTTP Server Configuration Assistant	when you select the Oracle HTTP Server in the <i>Available Products</i> window	starts the HTTP Listener in non-SSL mode on port 7777.
Oracle Enterprise Manager Configuration Assistant	when you select to install Oracle Management Server in the product selection screen	allows you to configure the local Oracle Management Server to use an existing 9.2.0.1.0 repository or to create a new 9.2.0.1.0 repository.
OID Configuration Assistant	when you select the Oracle Internet Directory in the <i>Available Products</i> window	starts the Oracle Internet Directory Server and configures the default schema and the Directory Information Tree to support various Oracle components.
Workflow Configuration Assistant	when you select Oracle Workflow	configures the Oracle Workflow schema in the database.
Database Upgrade Assistant	when you select to upgrade a database	upgrades the selected database to Oracle9i.

The *End of Installation* window appears if the configuration assistants are successful.

If a configuration assistant fails, the *Configuration Tools* window displays the results of running these assistants. Correct the cause of the failure. To run the tool, select it and then click Retry or to continue, click Next.

The *End of Installation* window appears.

6. To exit the Oracle Universal Installer, click Exit. Or to install additional products, click Next Install. Selecting Next Install returns you to the *File Locations* window.

Reviewing a Log of an Installation Session

The Installer creates the `oraInventory` directory the first time it is run to keep an inventory of products that it installs on your system as well as other installation information.

The location of the `oraInventory` directory is defined in the `/etc/oraInst.loc` file for AIX, and the `/var/opt/oracle/oraInst.loc` file on HP, Linux, Solaris, and Tru64.

The log file of the most recent installation is:

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

Previous installation log files also use the log file name format:

```
installActionsdate_time.log
```

For example:

```
installActions2001-02-14_09-00-56-am.log
```

Note: Do not delete or manually alter the `oraInventory` directory or its contents. Doing so can prevent the Installer from locating products that you install on your system.

The `make.log` file in `$ORACLE_HOME/install` directory contains a log of every make file action executed during the installation process. The `make.log` file also records any link errors during installation. Do not delete or alter the `make.log` file.

Non-Interactive Installation and Configuration

You can perform a non-interactive installation of Oracle9i products by supplying the Oracle Universal Installer with a response file. The Installer uses the variables and values contained in the response file to provide answers to some or all of the Installer prompts. If you include responses for all of the Installer's prompts in the response file, then you can run a non-interactive installation that displays no graphical output. You can also run Database Upgrade Assistant, Oracle Net Configuration Assistant, Database Configuration Assistant, and Oracle Enterprise Manager Configuration Assistant in non-interactive mode by using response files.

Preparing a Response File

Oracle Corporation provides response file templates for each installation category and type, and for configuration tools. They are located in the `response` directory on the Oracle9i CD-ROM. [Table 3-8](#) lists the response files included on the Oracle9i CD-ROM.

Table 3-8 *Response Files*

File Name	Description
<code>enterprise.rsp</code>	Enterprise Edition Installation of Oracle9i Server
<code>standard.rsp</code>	Standard Edition Installation of Oracle9i Server
<code>custom.rsp</code>	Custom Edition Installation of Oracle9i Server
<code>oms.rsp</code>	Oracle Management Server installation of Oracle9i Management and Integration
<code>oid.rsp</code>	Oracle Internet Directory installation of Oracle9i Management and Integration
<code>infrastructure.rsp</code>	Custom installation of Oracle9i Management Infrastructure
<code>clientadmin.rsp</code>	Administrator installation of Oracle9i Client
<code>clientruntime.rsp</code>	Runtime installation of Oracle9i Client
<code>clientcustom.rsp</code>	Custom installation of Oracle9i Client
<code>dbca.rsp</code>	Database Configuration Assistant
<code>netca.rsp</code>	Oracle Net Configuration Assistant
<code>emca.rsp</code>	Oracle Enterprise Manager Configuration Assistant

To use a response file, copy the response file from the Oracle9i CD-ROM to a directory on your system. For example:

```
$ cd cdrom_mount_point_directory/response
$ cp enterprise.rsp local_directory
```

Edit the response file with any text editor. Each response file contains instructions for configuring it properly to serve your requirements. Custom response files require extensive editing before you can use them for a non-interactive session.

Installing with a Response File

To use a response file with the Oracle Universal Installer, follow the steps described in the section in this chapter called "[Oracle Universal Installer](#)" on page 3-10. Refer to the response file for required configuration information and parameters by specifying the response file location when you start the Installer. Use the following command format:

```
$ /cdrom_mount_point_directory/runInstaller [-silent] -responseFile filename
```

Input the `-silent` parameter to perform a completely non-interactive installation or configuration. In non-interactive mode, the `DISPLAY` environment variable must still be set as described in "[DISPLAY](#)" on page 2-37.

Configuring With a Response file

To use a configuration assistant in non-interactive mode, do one of the following:

- Configure an Oracle Universal Installer response file to spawn the non-interactive configuration assistant.
- Run the configuration assistant in stand-alone mode. Use the following command format:

```
$ assistant_name [-silent] -responseFile filename
```

In the preceding command, *assistant_name* is the configuration assistant that you want to run and *filename* is the response file for that assistant.

If you perform an Oracle9i Enterprise Edition installation in non-interactive mode, then Oracle Net Configuration Assistant will not configure your system at the end of the installation. After the installation, run the Oracle Net configuration with the Oracle Net Configuration Assistant by executing the `netca` command from the Oracle home directory.

Note: The Installer or configuration assistant fails if you attempt a non-interactive session without appropriately configuring a response file. See "[Response File Error Handling](#)" on page 3-44 for more information on troubleshooting a failed non-interactive installation.

See Also: *Oracle Universal Installer Concepts Guide* for more information on preparing and using non-interactive installation and configuration assistant response file scripts.

See also the Oracle *MetaLink* Web site <http://www.oracle.com/support/metalink> if you are an Oracle Support customer. You can find new bulletins and responses to questions about non-interactive installation and configuration

First Time Installation in Non-interactive Mode

During an interactive installation, the `oraInstRoot.sh` script creates the `oraInst.loc` file. If you have not previously installed Oracle products on a system, you must manually create the `oraInst.loc` file before running the Installer in non-interactive mode. This file specifies the `oraInventory` directory where the Installer creates the inventory of Oracle products installed on the system. Read the `/tmp/silentInstall.log` file for information on running the `oraInstRoot.sh` script.

See Also: [Chapter 1, "Oracle9i Installation Planning"](#) and [Chapter 2, "Pre-Installation Requirements"](#) before creating the `oraInst.loc` file for more information.

To create the `oraInst.loc` file on AIX:

1. Log in as the `root` user by entering:

```
$ su root
```
2. If the `/etc` directory does not already exist on your system, create it by entering the command:

```
# mkdir /etc
```
3. Change directory to the `/etc` directory:

```
# cd /etc
```

4. Using a text editor, create a file called `oraInst.loc` that includes the following two lines:

```
inventory_loc=inventory_directory  
inst_group=
```

On the first line, set the `inventory_loc` parameter to the directory defined by the `ORACLE_BASE` variable and the file named `oraInventory`. For example, if the value of the `ORACLE_BASE` variable is `/u01/app/oracle`, then set `inventory_directory` to `/u01/app/oracle/oraInventory`.

On the second line, include, but do not set, the `inst_group=` parameter.

The `oraInst.loc` file should be owned by both the `oracle` user and the `ORAINVENTORY` group.

```
# chown oracle:oinstall oraInst.loc  
# chmod 664 oraInst.loc
```

To create the `oraInst.loc` file on HP, Linux, Solaris, or Tru64:

1. Log in as the root user by entering:

```
$ su root
```

2. If the `/var/opt/oracle` directory does not already exist on your system, create it by entering the command:

```
# mkdir /var/opt/oracle
```

3. Change directory to the `/var/opt/oracle` directory:

```
# cd /var/opt/oracle
```

4. Using a text editor, create a file called `oraInst.loc` that includes the following two lines:

```
inventory_loc=inventory_directory  
inst_group=
```

On the first line, set the `inventory_loc` parameter to the directory defined by the `ORACLE_BASE` variable and the file named `oraInventory`. For example, if the value of the `ORACLE_BASE` variable is `/u01/app/oracle`, then set `inventory_directory` to `/u01/app/oracle/oraInventory`.

On the second line, include, but do not set, the `inst_group=` parameter.

The `oraInst.loc` file should be owned by both the `oracle` user and the `ORAINVENTORY` group.

```
# chown oracle:oinstall oraInst.loc
# chmod 664 oraInst.loc
```

At this point, you are ready to run the Installer in non-interactive mode.

Running EMCA in Non-interactive Mode

There are two methods to run Enterprise Manager Configuration Assistant (EMCA):

- As a non-interactive standalone method
- As part of a non-interactive installation session

Using either method you can only create a new repository. You cannot delete, upgrade, or edit using EMCA in non-interactive mode.

EMCA Non-interactive Mode Standalone Method

To run standalone EMCA in non-interactive mode:

1. Complete the pre-installation steps listed in "[Setup Tasks to Perform as the oracle User](#)" on page 2-36.
2. Verify that the Oracle Management Server is installed on the node where you intend to run EMCA.
3. Copy the `emca.rsp` response file to a local directory.
4. Use a text editor to edit the `emca.rsp` file according to the instructions in the response file.

Caution: Ensure that the repository user's `USERNAME` variable that you specify in the `emca.rsp` file is unique across your network. If the `USERNAME` variable is not unique, Intelligent Agent queue files will not be in sync with the Oracle Management Server repository. Jobs and events registered with the Intelligent Agent will not work.

5. Change to the `$ORACLE_HOME/bin` directory.
6. Enter the following command:

```
$ emca -responseFile <path> emca.rsp -silent
```

In the preceding command, *path* is the directory path to the response file.

EMCA Non-interactive Mode and Non-interactive Installation Session Method

To run EMCA in non-interactive mode as part of a non-interactive installation session:

1. Copy an installation response file from the Oracle9i CD-ROM to a local directory.

Choose the installation response file that corresponds to the type of installation you are performing. For example, choose the `enterprise.rsp` file to perform an Enterprise Edition installation of Oracle9i Server.

2. Use a text editor to edit the response file according to the instructions in the response file.

Ensure that Oracle Management Server will be installed as part of the non-interactive installation. The Oracle Management Server is only available for installation in the following installation response files:

```
enterprise.rsp
custom.rsp
oms.rsp
infrastructure.rsp
```

3. Edit the following parameters in the `oracle.sysman.oms_9.2.0.1.0` section of the installation response file to ensure that EMCA is properly launched in non-interactive mode:

```
emca
s_responseFileEMCA
```

Refer to the installation response file for more detailed instructions on setting these variables.

The following is an example of the `oracle.sysman.oms_9.2.0.1.0` section of the installation response file:

```
#-----
# Name : emca
# Datatype      : StringList
# Description   : List of Optional Config tools to launch.
# : Following are possible values
```



```

# emca:Enterprise Manager Configuration Assistant
# Example value : {"emca"}
# Default value : {"emca"}
#-----

OPTIONAL_CONFIG_TOOLS={"emca"}

#-----
# Name          : s_responseFileEMCA
# Datatype     : String
# Description   : Path to a customized copy of a response file for EMCA
# : based on the emca.rsp provided with the release
# Valid values: Full path to any valid EMCA response file
# Example value: "/TEMP/EMCA.RSP"
# Default value : None
# Mandatory    : Yes
#-----

s_responseFileEMCA="/TEMP/EMCA.RSP"

```

4. Copy the `emca.rsp` response file to a local directory.
5. Use a text editor to edit it according to the instructions in the response file.

Caution: Ensure that the repository user's USERNAME variable that you specify in the `emca.rsp` file is unique across your network. If the USERNAME variable is not unique, Intelligent Agent queue files will not be in sync with the Oracle Management Server repository. Jobs and events registered with the Intelligent Agent will not work.

6. Change directory to the directory where the Oracle Universal Installer is located. The installation response file automatically spawns the EMCA response file when the non-interactive installation is complete. Run the installation response file with the following command:

```
$ runInstaller -responseFile path/installation_response_file_name -silent
```

Configuration steps for OID in Non-interactive Mode

At the end of a non-interactive installation, the Oracle Internet Directory (OID) server is started on port 5000. Perform the following steps to bring up the server on port 389:

1. Shutdown the OIDLDAPD and OIDMON processes, and the database with the following commands:

```
$ oidctl server=oidldapd instance=1 stop
$ oidmon stop
```

2. As root user, run the `$ORACLE_HOME/root.sh` script:

```
# $ORACLE_HOME/root.sh
```

3. Restart the OIDLDAPD and OIDMON processes, and the database with the following commands:

```
$ oidmon start
$ oidctl server=oidldapd instance=1 start
```

Response File Error Handling

The success or failure of the installation is logged in the `silentInstall.log` file. If an `oraInventory` directory exists on your system, then the `silentInstall.log` file is created there. Otherwise, it is created in the `oraInventory_location/logs` directory. The detailed results of the non-interactive installation session are saved in the `oraInventory_location/logs/silentInstall.log` file.

A non-interactive installation fails:

- if you do not specify a response file
- if you attempt a non-interactive installation with an incorrect or incomplete response file
- if you attempt a non-interactive installation and the Installer encounters an error, such as insufficient disk space

The Installer or Configuration Assistant validates the response file at runtime. If the validation fails, the non-interactive installation or configuration process ends. The Installer treats values for parameters that are of the wrong context, format, or type as if no value was specified in the file. Variables that are outside any section are ignored.

Information about a failure is recorded in the installation session's log file.

See Also: ["Reviewing a Log of an Installation Session"](#) on page 3-36 for more information on the `oraInventory` directory and installation log files.

Oracle Real Application Clusters

This section describes the following:

- [Oracle Real Application Clusters ORACLE_HOME](#)
- [Oracle Real Application Clusters Installation on Cluster Filesystem](#)
- [Oracle Real Application Clusters Installed Software Location](#)
- [Oracle Real Application Clusters Installation on Linux](#)

Note: For Sun Clusters, install racpatch as described in "[Additional root user information for Solaris](#)" on page 2-44.

Oracle Real Application Clusters ORACLE_HOME

To ensure that the installation succeeds on the remote nodes you choose, select a path for ORACLE_HOME that is same on all the chosen nodes and is writable. Otherwise, installation on the remote nodes will fail. No error message will indicate this failure.

Oracle Real Application Clusters Installation on Cluster Filesystem

Oracle Universal Installer supports Oracle Real Application Clusters installation on a Cluster Filesystem for Tru64. The Installer detects the Cluster Filesystem and files are not copied to the remote nodes. Network Configuration Assistant and Database Configuration Assistant are also Cluster Filesystem-aware. On the *Cluster Node Selection* window, select all the nodes that you want to be configured for Oracle Real Application Clusters.

Oracle Real Application Clusters Installed Software Location

During installation, software products are installed on the node from which the Oracle Universal Installer is run and copied to the other selected nodes in the cluster.

See Also: *Oracle9i Real Application Clusters Setup and Configuration* for more information on installing Oracle Real Application Clusters.

Oracle Real Application Clusters Installation on Linux

Before you install Oracle Real Application Cluster, install and configure Oracle Cluster Manager shipped with the server CD-ROMs. Perform the following steps to install Oracle Cluster Manager using Oracle Universal Installer.

1. Launch the Oracle Universal Installer.
2. Enter the Oracle home directory in the destination where you want to install the Oracle Real Application Clusters option.
3. Select the product "Oracle Cluster Manager" from the *Available Products* window.
4. Enter the list of Private node names in the *Private Node Names Information* window.
5. Enter the list of Public node names in the *Public Node Names Information* window.
6. Enter the value for the Watchdog timer.

The Oracle Cluster Manager will now be installed on the nodes. At the end of the installation, a window will pop up asking whether the `cmstart.sh` script be run as the `root` user on all of the nodes of the cluster selected in the installation. Once this script is run, the Oracle Cluster Manager will be started on all the nodes.

After the installation of the Oracle Cluster Manager, restart the Installer and proceed to install the other Oracle products as required.

See Also: *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP 9000 Series HP-UX, Linux Intel, and Sun Solaris* for more information on how to start and configure Oracle Cluster Manager.

Post-Installation

After completing installation, you must perform certain post-installation steps and configure the Oracle9i database. This chapter describes the required steps as well as some optional ones.

- [Configuration Tasks to Perform as the root User](#)
- [Configuration Tasks to Perform as the oracle User](#)
- [Post-Installation for Installed Oracle Products](#)
- [Additional Oracle Product Installation and Configuration](#)
- [Starter Database Contents](#)
- [Oracle Software Removal](#)

Note: This chapter describes basic configuration only. See the *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems* and the product administration and tuning guides for more sophisticated configuration and tuning information.

Configuration Tasks to Perform as the root User

Log in as the `root` user and perform the following tasks:

- ❑ [Creating Additional UNIX Accounts](#)
- ❑ [Verifying Database File Security](#)
- ❑ [Changing Group Membership of the Apache User](#)
- ❑ [Automating Database Startup and Shutdown for HP, Linux and Solaris \(Optional\)](#)

- ❑ [Automating Database Startup and Shutdown for AIX \(Optional\)](#)
- ❑ [Automating Database Startup and Shutdown for Tru64 \(Optional\)](#)

Creating Additional UNIX Accounts

If necessary, create additional UNIX accounts. Users must be members of the OSDBA or OSOPER groups to connect to the database with administrator privileges.

Verifying Database File Security

If you configure Oracle9i database in a way similar to the United States NCSC C2 or European ITSEC E3 security evaluation configuration, then verify database file security to ensure the integrity of the Oracle software installation. This task is optional if security is not an issue.

To prevent unauthorized access to secure data, you must protect your files. The file privileges and recommended ownership are as follows:

- The `oracle` account should have read, write, and execute privileges for all files and directories in the Oracle9i installation.
- The ORAINVENTORY group should have read, write, and execute privileges on the `oraInventory` directory, but should not have write permissions on anything else.
- No user other than the `oracle` user or the ORAINVENTORY group should have write access on any files or directories in the Oracle9i installation.

Table 4–1 summarizes the directory and file permissions for different types of files.

Note: These permissions are the default values and should not be changed.

Table 4–1 Access Permissions on Oracle Directories and Files

Directories/Files	Permissions	Comments
All data files, redo log, and control files (extensions for these files are typically <code>.dbf</code> , <code>.log</code> , and <code>.ctl</code>)	640 rw-r----	The <code>oracle</code> user and ORAINVENTORY group are the only users that should have read privileges for all data files, redo logs, and control files to maintain discretionary access to data.

Table 4–1 Access Permissions on Oracle Directories and Files (Cont.)

Directories/Files	Permissions	Comments
\$ORACLE_HOME/bin/	755 rwxr-xr-x	The oracle user should have read, write and execute privileges and all users should have read and execute privileges to this directory.
The oracle executable, and the following executables: \$ORACLE_HOME/bin/dbsnmp \$ORACLE_HOME/bin/oradism	6751 rws-r-s--x	The 6 sets the setuid bit and the setgid bit so the executables run as the oracle user and OSDBA group, regardless of who executes them.
All other executables	755 rwxr-xr-x	The oracle user should have read, write and execute privileges and all users should have read and execute privileges to this directory.
\$ORACLE_HOME/lib/	755 rwxr-xr-x	The oracle user should have read, write and execute privileges and all other users should have read and execute privileges to this directory.
All files under \$ORACLE_HOME/lib/	644 rw-r--r--	The oracle user should have read, write and execute privileges and the other users should have read-only privileges to these files.
\$ORACLE_HOME/rdbms/log	751 rwxr-x--x	The oracle user and ORAINVENTORY group have restricted access to files in the directory. The other users have execute privileges.
Product subdirectories such as \$ORACLE_HOME/sqlplus or \$ORACLE_HOME/rdbms	751 rwxr-x--x	The oracle user and ORAINVENTORY group have restricted access to log files. The other users have execute privileges.
Files in \$ORACLE_HOME/sqlplus or \$ORACLE_HOME/rdbms	644 rw-r--r--	The oracle user should have read and write privileges and the other users should have read-only privileges to these files.

Table 4–1 Access Permissions on Oracle Directories and Files (Cont.)

Directories/Files	Permissions	Comments
\$ORACLE_HOME/network /trace	777 rwxrwxrwx or 730 rwx-wx---	The <code>oracle</code> user and members of the ORAINVENTORY group have access to trace files when 730 is used in the production environment. 777 allows broad access to view and create trace files during development.
All files under product admin directories, like \$ORACLE_HOME/rdbms /admin and \$ORACLE_HOME/sqlplus /admin	644 -rw-r--r--	SQL scripts should typically be run as the SYS user.

Changing Group Membership of the Apache User

After installing the Oracle9i database, the APACHE account access to the `oraInventory` directory needs to be removed in order to ensure database security. Perform the following tasks:

1. Create a new group to which no other group or user has access.
2. Assign ownership of this group to Apache.
3. Change the APACHE account primary Group Identifier (GID) from the one that has ownership of the `oraInventory` directory (typically ORAINVENTORY) to the new group name.

Automating Database Startup and Shutdown for HP, Linux and Solaris (Optional)

Oracle Corporation recommends that you configure your system to automatically start Oracle databases when your system starts up, and to shut down Oracle databases when your system shuts down. Automatic database startup and shutdown protects against improper shutdown of the database.

The `dbstart` and `dbshut` scripts are located in the `$ORACLE_HOME/bin` directory and can be used to automate database startup and shutdown. The `dbstart` and `dbshut` scripts reference the same entries in the `oratab` file, so the scripts must apply to the same set of databases. For example, you cannot have the `dbstart` script automatically start up databases `sid1`, `sid2`, and `sid3`, and the `dbshut` script shut down only databases `sid1` and `sid2`. You can, however, specify that the `dbshut` script shut down a set of databases while the `dbstart` script is not used at

all. To do this, include a `dbshut` entry in the system shutdown file but omit the `dbstart` entry from the system startup files.

See Also: `init` command in your UNIX system documentation for more information on system startup and shutdown procedures.

Perform the following tasks to set up the `dbstart` and `dbshut` scripts so that they are called at system startup. This process must be completed for every new database that you want to configure for automated startup and shutdown.

1. Edit the `/var/opt/oracle/oratab` file for Solaris and `/etc/oratab` file for HP and Linux.

Database entries in the `oratab` file appears in the following format:

```
ORACLE_SID:ORACLE_HOME:{Y|N}
```

In the preceding command, Y or N specifies whether you want the `dbstart` and `dbshut` scripts to start up and shut down the database. For each database that you want to start up, find the `ORACLE_SID` entry identified by the `sid` in the first field. Change the last field for each to Y.

For Oracle Real Application Clusters installation, this entry appears in the following format:

```
DB_NAME:ORACLE_HOME:{Y|N}
```

In the preceding command, `DB_NAME` is the cluster database name. Y or N specifies whether you want the `dbstart` and `dbshut` scripts to start up and shut down the database.

2. In the `/etc/init.d` directory, create a `dbora` script similar to the following, if it does not already exist. Be sure to give the full path of the `dbstart` utility.

```
#!/bin/sh

# Set ORACLE_HOME to be equivalent to the $ORACLE_HOME
# from which you wish to execute dbstart and dbshut;
#
# Set ORACLE_OWNER to the user id of the owner of the
# Oracle database in ORACLE_HOME.

ORACLE_HOME=/u01/app/oracle/product/9.2.0.1.0
ORACLE_OWNER=oracle

if [! -f $ORACLE_HOME/bin/dbstart]
```

```
then
    echo "Oracle startup: cannot start"
    exit
fi

case "$1" in
    'start' )

        # Start the Oracle databases:
        # The following command assumes that the oracle login
        # will not prompt the user for any values

        su - $ORA_OWNER -c $ORA_HOME/bin/dbstart &
        ;;

    'stop' )

        # Stop the Oracle databases:
        # The following command assumes that the oracle login
        # will not prompt the user for any values

        su - $ORA_OWNER -c $ORA_HOME/bin/dbshut &
        ;;

    esac
```

3. Create symbolic links to the dbora script in the appropriate run-level script directories, as follows:

```
# ln -s /etc/init.d/dbora /etc/rc0.d/K10dbora
# ln -s /etc/init.d/dbora /etc/rc3.d/S99dbora
```

Automating Database Startup and Shutdown for AIX (Optional)

Oracle Corporation recommends that you configure your system to automatically start Oracle databases when your system starts up, and to shut down Oracle databases when your system shuts down. Automatic database startup and shutdown protects against improper shutdown of the database.

Automating Database Startup

Perform the following tasks to set up the dbstart and dbshut scripts so that they are called at system startup. This process must be completed for every new database that you want to configure for automated startup:

1. Edit the `/etc/oratab` file.

Database entries in the `oratab` file appears in the following format:

```
ORACLE_SID:ORACLE_HOME:{Y|N}
```

In the preceding command, Y or N specifies whether you want the `dbstart` and `dbshut` scripts to start up and shut down the database.

For Oracle Real Application Clusters installation, this entry appears in the following format:

```
DB_NAME:ORACLE_HOME:{Y|N}
```

In the preceding command, `DB_NAME` is the cluster database name. Y or N specifies whether you want the `dbstart` and `dbshut` scripts to start up and shut down the database.

2. For each database that you want to start up, find the `ORACLE_SID` entry identified by the `sid` in the first field. Change the last field for each to Y.
3. Add the `dbstart` script to the `/etc/inittab` file:

```
# mkitab "oradb:2:wait:/bin/su oradb -c|/$ORACLE_HOMES/bin/dbstart"
```

In the preceding command, `oradb` is the identifier of the oracle user for which you want to start the database.

Automating Database Shutdown

Automate database and system shutdown by creating a script, `shut`, to start `dbshut` and the system executable `/etc/shutdown`. Complete the following steps to create the script:

1. If you have not already done so, edit the database entries of your `/etc/oratab` file to enable `dbstart` and `dbshut`, as described in step 1 of the `dbstart` instructions.

2. As root, create the `shut` shell script:

```
# cd /etc
cat > shut << EOF
? su oracle_owner -c /usr/oracle/bin/dbshut
? /etc/shutdown $* \
? [Ctrl-D]
# chmod u+x shut
```

3. Execute the following command to run the `shut` script and shut down the database:

```
# /etc/shut -h now
```

This closes Oracle databases and shuts down the system with the specified options.

Automating Database Startup and Shutdown for Tru64 (Optional)

This process must be completed for every new database that you want to configure for automated startup and shutdown. Perform the following tasks to start up and shut down listeners and set up the `dbstart` and `dbshut` scripts so that they are called at system startup:

1. Log in as `root` user.
2. Edit the `/etc/oratab` file.

Database entries in the `/etc/oratab` file appear in the following format:

```
ORACLE_SID:ORACLE_HOME:{Y|N}
```

In the preceding command, Y or N specifies whether you want the `dbstart` and `dbshut` scripts to start up and shut down the database.

For Oracle Real Application Clusters installation, this entry appears in the following format:

```
DB_NAME:ORACLE_HOME:{Y|N}
```

In the preceding command, `DB_NAME` is the cluster database name. Y or N specifies whether you want the `dbstart` and `dbshut` scripts to start up and shut down the database.

3. For each database that you want to start up, find the `ORACLE_SID` entry identified by the `sid` in the first field. Change the last field for each to Y.
4. Change directory to `/sbin/init.d`.
5. Create a file named `oracle`, and use `chmod` to set the privileges to 750.

Note: This script assumes that a password is not set for the listener. If a password is set, the listener will not be stopped.

The `ORACLE_HOME` and `ORACLE` variables are examples. Use information as appropriate for your installation.

6. Add the following contents to the `/sbin/init.d/oracle` file:

```
#!/bin/sh
#
# change the value of ORACLE_HOME to be correct for your
# installation
ORACLE_HOME=/opt/oracle/product/9.2.0.1.0
PATH=${PATH}:${ORACLE_HOME}/bin
HOST=`hostname`
#
# change the value of ORACLE to the login name of the
# oracle owner at your site
#
ORACLE=oracle
export ORACLE_HOME PATH
#
if [ ! "$2" = "ORA_DB" ] ; then
    rsh $HOST -l $ORACLE /sbin/init.d/oracle $1 ORA_DB
    exit
fi
#
LOG=$ORACLE_HOME/startup.log
touch $LOG
chmod a+r $LOG
#
case $1 in
'start')
    echo "$0: starting up" >> $LOG
    date >> $LOG
    # Start Oracle Net
    if [ -f $ORACLE_HOME/bin/tnslsnr ] ;
    then
        echo "starting Oracle Net listener"
        $ORACLE_HOME/bin/lsnrctl start >> $LOG 2>&1 &
    fi
    echo "starting Oracle databases"
    $ORACLE_HOME/bin/dbstart >> $LOG 2>&1
    ;;
'stop')
    echo "$0: shutting down" >> $LOG
    date >> $LOG
    # Stop Oracle Net
    if [ -f $ORACLE_HOME/bin/tnslsnr ] ;
    then
        echo "stopping Oracle Net listener"
        $ORACLE_HOME/bin/lsnrctl stop >> $LOG 2>&1
```

```
        fi
        echo "stopping Oracle databases"
        $ORACLE_HOME/bin/dbshut >> $LOG 2>&1
        ;;
    *)
        echo "usage: $0 {start|stop}"
        exit
        ;;
esac
#
exit
```

7. Change the `.rhosts` file in the `oracle` user login home directory to allow `root` login access to the account.

```
your_host_name root
```

8. Link files into the startup and shutdown directories by using the `'ln -s'` command.

```
# ln -s /sbin/init.d/oracle /sbin/rc3.d/S99oracle
# ln -s /sbin/init.d/oracle /sbin/rc0.d/K01oracle
```

This file automatically starts and stops Oracle9i when the system is started or stopped.

Configuration Tasks to Perform as the oracle User

Perform the following tasks as the `oracle` user:

- [Updating UNIX Account Startup Files](#)
- [Setting Environment Variables](#)
- [Initializing the oraenv Script](#)
- [Backing Up the root.sh Script](#)
- [Setting Initialization Parameters](#)

Updating UNIX Account Startup Files

Update the startup files of the `oracle` user and the UNIX accounts of `oracle` users.

Setting Environment Variables

Set the following environment variables in the `.profile` or `.login` file of the `oracle` user before using Oracle9i products. The settings that you use here should correspond to the settings used during installation as described in "Set Environment Variables" on page 2-36. The syntax for setting environment variables is as follows.

For the Bourne or Korn shell:

```
variable_name=value; export variable_name
```

For the C shell:

```
setenv variable_name value
```

Table 4–2 describes the Environment Variable Settings.

Caution: Do not define environment variables with names that are identical to those used for Oracle processes such as CKPT, PMON, and DEWR.

Table 4–2 Environment Variable Settings

Environment Variable	Recommended Setting
ORACLE_HOME	<p>Set the ORACLE_HOME variable to specify the directory containing the Oracle software for a particular release. The OFA recommended value is:</p> <pre>\$ORACLE_BASE/product/release</pre> <p>For example,</p> <p>ORACLE_BASE variable is: /u01/app/oracle, then the ORACLE_HOME variable would be: /u01/app/oracle/product/9.2.0.1.0</p>
CLASSPATH	<p>Set the CLASSPATH variable to ensure Java functionality. The CLASSPATH variable is different for various products.</p> <p>CLASSPATH must include the following:</p> <pre>\$ORACLE_HOME/jlib/<product jar file>: \$ORACLE_HOME/product/jlib/product_jar_file</pre> <p>See Also: Oracle9i Java documentation for more information on setting the CLASSPATH variable.</p>

Table 4–2 Environment Variable Settings (Cont.)

Environment Variable	Recommended Setting
LD_LIBRARY_PATH	Set the LD_LIBRARY_PATH variable as \$ORACLE_HOME/lib for HP, Linux, Tru64, and Solaris 32-bit. Set the LD_LIBRARY_PATH variable as \$ORACLE_HOME/lib32 for Solaris 64-bit.
LD_LIBRARY_PATH_64	Set the LD_LIBRARY_PATH_64 variable as \$ORACLE_HOME/lib for Solaris 64-bit.
SHLIB_PATH	Set the SHLIB_PATH variable as \$ORACLE_HOME/lib32 for HP.
LIBPATH	Set the LIBPATH variable as \$ORACLE_HOME/lib32:\$ORACLE_HOME/lib for AIX.
ORACLE_SID	Set the ORACLE_SID variable to specify the name of the Oracle Server instance name. Oracle Corporation recommends restricting it to no more than four characters to avoid filename problems on different operating systems, as the <i>sid</i> is incorporated in many files. If you do not remember the value you entered when you were prompted by the Oracle Universal Installer, you can find it listed in the <code>installActions.log</code> file located in the <code>oraInventory_location/ logs</code> directory. The <code>oraInventory_location</code> directory is defined in the <code>/etc/oraInst.loc</code> file in AIX and <code>/var/opt/oracle/oraInst.loc</code> file in HP, Linux, Solaris and Tru64.

Table 4–2 Environment Variable Settings (Cont.)

Environment Variable	Recommended Setting
PATH	<p>Make sure the new \$ORACLE_HOME/bin directory is included in the PATH setting.</p> <p>AIX Path is \$ORACLE_HOME/bin, /etc, /usr/bin, /usr/bin/X11, /usr/sbin, and /usr/local/bin, if it exists</p> <p>HP Path is \$ORACLE_HOME/bin, /usr/bin, /etc, /usr/bin/X11 and /usr/local/bin, if it exists</p> <p>Linux Path is \$ORACLE_HOME/bin, /usr/bin, /bin, /usr/bin/X11 and /usr/local/bin, if it exists</p> <p>Solaris Path is \$ORACLE_HOME/bin, /usr/ccs/bin, /usr/bin, /etc, /usr/openwin/bin and /usr/local/bin, if it exists</p> <p>Tru64 Path is \$ORACLE_HOME/bin, /usr/bin, /etc, /usr/bin/X11 and /usr/local/bin, if it exists</p> <p>See Also: Chapter 2, "Pre-Installation Requirements" for more information on other PATH requirements.</p>
TNS_ADMIN	<p>TNS_ADMIN specifies the directory containing the Oracle Net Services configuration files.</p> <p>Oracle Net Services configuration files are typically, but not always located in the \$ORACLE_HOME/admin/network directory. Depending on the file, Oracle Net uses a different search order to locate the file.</p> <p>The search order for the sqlnet.ora and ldap.ora files is as follows:</p> <ol style="list-style-type: none"> <li data-bbox="651 1190 1310 1242">1. The directory specified by the TNS_ADMIN environment variable, if set <li data-bbox="651 1260 1310 1312">2. /var/opt/oracle directory for Solaris and /etc directory for AIX, HP, Linux, and Tru64. <li data-bbox="651 1329 1310 1350">3. The \$ORACLE_HOME/admin/network directory

Table 4–2 Environment Variable Settings (Cont.)

Environment Variable	Recommended Setting
TWO_TASK	<p>Set the TWO_TASK variable to the default connect identifier to use in the connect string. The default connect identifier does not need to be specified in the connect string. For example, if the TWO_TASK environment variable is set to sales, you can connect to a database using the <code>CONNECT username/password</code> command rather than the <code>CONNECT username/password@sales</code> command.</p> <p>See Also: <i>Oracle9i Net Services Administrator's Reference</i> and <i>Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems: AIX-Based Systems, Compaq Tru64 UNIX, HP 9000 Series HP-UX, Linux Intel, and Sun Solaris</i> for more information on connect identifiers.</p>

Initializing the oraenv Script

You can use the `oraenv` script to set a common environment for Oracle software users.

Single-Instance System

On a single-instance system, set the `ORACLE_SID` environment variable in the `.profile` or `.login` file of the `oracle` user account. Enter the following commands to initialize the `oraenv` file at login.

For the Bourne or Korn shell:

```
ORAENV_ASK=NO
. /usr/local/bin/oraenv
```

For the C shell:

```
set ORAENV_ASK = NO
source /usr/local/bin/coraenv
unset ORAENV_ASK
```

Note: The C shell uses the settings in `coraenv` file instead of the `oraenv` file.

Multiple-Instance System

On a multiple-instance System, include a list of instance names and commands necessary to initialize the oraenv script at the end of the startup file of the oracle user account.

Table 4–3 shows the required Bourne or Korn shell commands for initializing the oraenv script on UNIX platforms.

Table 4–3 Bourne/Korn Commands to Initialize the oraenv Script on Multiple-Instance Systems

Platforms	Bourne or Korn Shell
Solaris	<pre>#!/bin/sh echo "The SIDs on this machine are:" cat /var/opt/oracle/oratab awk -F: '{print \$1}' \ grep -v "#" ORAENV_ASK="YES" . /usr/local/bin/oraenv</pre>
AIX, HP, Linux and Tru64	<pre>#!/bin/sh echo "The SIDs on this machine are:" cat /etc/oratab awk -F: '{print \$1}' grep -v "#" ORAENV_ASK="YES" . /usr/local/bin/oraenv</pre>

Table 4–4 describes the C shell commands for initializing the oraenv script on UNIX platforms.

Table 4–4 C Shell Commands to Initialize the oraenv Script on Multiple-Instance Systems

Platforms	C shell
Solaris	<pre>#!/usr/bin/csh echo "The SIDs on this machine are:" cat /var/opt/oracle/oratab awk -F: '{print \$1}' \ grep -v "#" set ORAENV_ASK="YES" source /usr/local/bin/coraenv</pre>
AIX, HP, Linux and Tru64	<pre>#!/usr/bin/csh echo "The SIDs on this machine are:" cat /etc/oratab awk -F: '{print \$1}' grep -v "#" set ORAENV_ASK="YES" source /usr/local/bin/coraenv</pre>

Other Oracle User Startup Files

To create the same environment for all Oracle software user accounts, modify each `oracle` user startup file to include the following addition at the end of the file:

- For `.profile` files used by the Bourne or Korn shells, add:

```
. /usr/local/bin/oraenv
```
- For `.login` files used by the C shell, add:

```
source /usr/local/bin/coraenv
```
- The `ORACLE_HOME` and `PATH` environment variables are described in ["Setting Environment Variables"](#) on page 4-11.

Update the oratab File

If you have created a database manually instead of using Database Configuration Assistant, you must ensure the system configuration is reflected in the `oratab` file. The `oratab` file is located in the `/var/opt/oracle` directory on Solaris and in the `/etc` directory on AIX, HP, Linux and Tru64.

Add an entry for each server instance on the system in the following format:

```
ORACLE_SID:ORACLE_HOME:{Y|N}
```

In the preceding command, Y or N indicates whether you want to activate the `dbstart` and `dbshut` scripts. Database Configuration Assistant automatically adds an entry for each database it creates.

For Oracle Real Application Clusters installation, this entry appears in the following format:

```
DB_NAME:ORACLE_HOME:{Y|N}
```

In the preceding command, `DB_NAME` is the cluster database name. Y or N specifies whether you want the `dbstart` and `dbshut` scripts to start up and shut down the database.

Backing Up the root.sh Script

Oracle Corporation recommends that you back up the `root.sh` script after a successful product installation. If you install another product category later into the same Oracle home directory, then the Oracle Universal Installer replaces the contents of the existing `root.sh` script during the installation. If after a later

installation you require information from the original `root.sh` script, then you can recover it from the backed up `root.sh` file.

For example, if you install Oracle9i Management Infrastructure into the same Oracle home directory as a successful Oracle9i Server installation, then the Oracle Universal Installer replaces the contents of the existing `root.sh` script during the installation. Backing up the `root.sh` file after each product installation insures that you have all `root.sh` files available for reference if necessary.

Setting Initialization Parameters

When you create a typical startup database using Database Configuration Assistant, the `initsid.ora` parameters are automatically set. Change initialization parameters to configure and tune the system for optimal performance. The default `initsid.ora` file is located in the `$ORACLE_BASE/admin/sid/pfile` directory. A template `init.ora` file is also in the `$ORACLE_HOME/dbs` directory. The file contains settings for small, medium, and large databases, with the settings for medium and large databases commented out in the file. The size settings are relative to each other, but do not represent an empirical size of the database.

Manually modify the initialization parameters in the `initsid.ora` file with a UNIX text editor. To activate the modified `initsid.ora` file, shut down and restart the database.

Oracle Corporation recommends that you do not use symbolic character representations such as question marks (?) for the `ORACLE_HOME` environment variable in parameter files, as they might lead to startup errors.

To bring rollback segments online automatically with database startup, uncomment the `rollback_segments` command in the `initsid.ora` file.

For example, change:

```
# rollback_segments = (r0, r1, r2, r3)
```

to:

```
rollback_segments = (r0, r1, r2, r3)
```

See Also: *Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems* for more information on `initsid.ora` parameters and other tuning and configuring initialization parameters.

Post-Installation for Installed Oracle Products

Perform the following required post-installation steps as necessary for your installation. Not all products require post-installation steps.

- [Configuring Shared Server Parameters](#)
- [Post-Upgrade Tasks for Oracle Internet Directory](#)
- [Configuring Oracle Net Services](#)
- [Configuring Oracle Messaging Gateway](#)

Configuring Shared Server Parameters

Oracle servers configured with Shared Server require a higher setting for the `SHARED_POOL_SIZE` initialization parameter, or a custom configuration that uses the `LARGE_POOL_SIZE` initialization parameter. If you installed your server with Oracle Universal Installer, then the value of the `SHARED_POOL_SIZE` parameter is set automatically by Database Configuration Assistant. However, if you created a database manually, increase the `SHARED_POOL_SIZE` parameter in the `initsid.ora` file. Typically, you should add 1 KB for each concurrent user.

Post-Upgrade Tasks for Oracle Internet Directory

Perform the following post-upgrade tasks for Oracle Internet Directory:

- [Job Queue Processes Parameter in `init.ora` file](#)
- [Default Subscriber Configuration](#)

Job Queue Processes Parameter in `init.ora` file

Set the Job Queue Process parameter in the `init.ora` file of the database to the following values:

- For single-node, set the parameter to at least 1.
- For multi-node, set the parameter to $(\text{Number of nodes} - 1)$

Perform the following tasks for single-node and multi-node upgrades.

Default Subscriber Configuration

The following information needs to be added to the root Oracle Context in the entry identified by the following DN "`cn=Common, cn=Products,`

`%RootOracleContextDN%`. By default, the `RootOracleContextDN` is `"cn=OracleContext"`. [Table 4-5](#) lists the attributes in the Root Oracle Context.

Table 4-5 Attributes in the Root Oracle Context

Attributes	Description
Subscriber Search Base (<code>orclSubscriberSearchBase</code>)	This attribute identifies the node in the DIT under which all subscribers are placed.
Subscriber Nick Name Attribute (<code>orclSubscriberNickNameAttribute</code>)	This attribute identifies the nickname attribute to be used when searching for a subscriber under the subscriber search base.
Default Subscriber (<code>orclDefaultSubscriber</code>)	This attribute identifies the root of your organization (same as the value specified in the Upgrading Subscriber screen of the OID Configuration Assistant.

The following information needs to be added in the subscriber-specific Oracle Context in the entry identified by the following DN `"cn=Common, cn=Products, cn=oracleContext, <subscriber DN>."` [Table 4-6](#) lists the attributes in the Default Subscriber Oracle Context.

Table 4-6 Attributes in the Default Subscriber Oracle Context

Attributes	Description
User Search Base (<code>orclCommonUserBase</code>)	This attribute identifies the node in the DIT under which all users are placed. During the upgrade, this attribute value is set to the <code>subscriber DN</code> value. Note: If this attribute is not set, then the password policy under the Root Oracle Context will be applied.
User Nick Name Attribute (<code>orclCommonNickNameAttribute</code>)	This attribute identifies the nickname attribute to be used when searching for a user under the user search base.
Group Search Base (<code>orclCommonGroupSearchBase</code>)	This attribute identifies the node in the DIT under which all the groups are placed.

Note: You can update these attributes by using the Oracle Directory Manager.

See Also: *Oracle Internet Directory Administrator's Guide* for more information on these attributes.

Password Policy Configuration

If the password policy exists in the earlier version of Oracle Internet Directory (located under the DN "cn=pwdpolicyentry, cn=Oracle Internet Directory"), then this policy will be applied to both the Root Oracle Context and the default Subscriber Oracle Context. The original DN containing the policy "cn=pwdpolicyentry, cn=Oracle Internet Directory" will be removed from the earlier version. Otherwise, the default password policy is set up as part of the Subscriber Oracle Context creation. By default, the password policy for the default subscriber is set to the following values:

- The user passwords expire in 60 days (pwdmaxage=5184000)
- The account is locked out after 10 successive failed login attempts (pwdlockout=1 and pwdmaxfailure=10)
- Password syntax checking is enabled and the minimum length of user passwords is five (pwdchecksyntax=1 and pwdminlength=5)
- User passwords must contain at least one numeric character (orclpwdalphanumeric=1).

Note: You can find the above attribute values in the "cn=PwdPolicyEntry, cn=Common, cn=Products, cn=oracleContext, <subscriber DN>".

The password policy under Root Oracle Context applies to all entries under the root DSE. However, it does not apply to entries under Root Oracle Context.

See Also: *Oracle Internet Directory Administrator's Guide* for more information on how to change the default password policy.

If the upgraded Oracle Internet Directory is integrating with other Oracle components, appropriate access control policies will need to be set up to grant necessary privileges to the Oracle components. See *Oracle Internet Directory Administrator's Guide* for more information.

Configuring Oracle Net Services

Basic configuration of Oracle Net Services is done by Oracle Net Configuration Assistant when it is started by Oracle Universal Installer during installation.

Verify and complete your initial configuration with the following steps:

1. Log in as `root` and reserve a port for the Oracle Net listener by making the following entry in the `/etc/services` file of each Oracle Net Services node on the network:

```
listener_name 1521/tcp                                #Oracle Net listener
```

In the preceding command, 1521 is the default port number. If you chose a different port when you configured the Oracle Net listener, specify that port in the `/etc/services` file.

2. Check the status of the listener following the installation by using the following command:

```
$ lsnrctl status listener_name
```

The `listener_name` field is required if the listener has a name other than the default `listener`.

- If the listener is not running, start it by using the following command:

```
$ lsnrctl start listener_name
```

3. Install and configure Oracle client software on a remote system, if necessary, then start SQL*Plus to test the connection to the server.

```
$ sqlplus username/password@net_service_name
```

If you can successfully connect to the server with SQL*Plus, you have established network connectivity over TCP/IP.

See Also: *Oracle9i Net Services Administrator's Reference* for more information on configuring a complete Oracle network.

["Oracle Net Configuration Assistant"](#) on page 1-9 for more information on how Oracle Net Configuration Assistant configures your installation or how to run it as a standalone tool.

Configuring Oracle Messaging Gateway

Perform the following post-installation tasks before running the Oracle Messaging Gateway.

- [Load Database Objects into the Database](#)
- [Modify listener.ora file for External Procedure for Linux, Solaris 32-bit, and Tru64](#)
- [Modify listener.ora file for External Procedure for AIX, HP, and Solaris 64-bit](#)
- [Modify tnsnames.ora file for External Procedure](#)
- [Modify mgw.ora file for External Procedure](#)
- [Create Users](#)
- [Installation Verification for Oracle Messaging Gateway](#)

Load Database Objects into the Database

1. Log in as SYSDBA.
2. Use SQL*Plus to run the `catmgw.sql` script located in the `$ORACLE_HOME/mgw/admin` directory.

The `catmgw.sql` script does the following:

- Loads the necessary database objects for Oracle Messaging Gateway, such as roles, tables, views, object types, and the PL/SQL packages.
- Creates public synonyms for Oracle Messaging Gateway PL/SQL packages and types.
- Creates two roles, `MGW_ADMINISTRATOR_ROLE` and `MGW_AGENT_ROLE`.
- Creates a library alias for the agent's external procedure.

Modify listener.ora file for External Procedure for Linux, Solaris 32-bit, and Tru64

This section describes the procedure to modify the `listener.ora` file for external procedure. Create a backup copy of the `listener.ora` file before you start.

The following example is specific to Solaris 32-bit.

1. Verify that the default IPC protocol address for external procedure is set. For example,

```
LISTENER = (ADDRESS_LIST=  
(ADDRESS=
```

```
(PROTOCOL=IPC)(KEY=EXTPROC)
```

2. Add static service information for the listener by setting a `SID_DESC` in the `listener.ora` file. For example,

```
# Add a SID_DESC
SID_LIST_LISTENER= (SID_LIST=
(SID_DESC =
  (SID_NAME= mgwextproc)
  (ENVS="LD_LIBRARY_PATH=/private/oracle/orcl9i/jdk/jre/lib/
  sparc:/private/oracle/orcl9i/lib")
  (ORACLE_HOME=/private/oracle/orcl9i)
  (PROGRAM = extproc))
```

In the preceding example, `SID_NAME` is the net service name in `tnsnames.ora` file, `ORACLE_HOME` is the name of the Oracle home directory, and `PROGRAM` is the name of the external procedure agent, `extproc`. `ENVS` defines the `LD_LIBRARY_PATH` environment.

The `LD_LIBRARY_PATH` must contain the following paths for Linux and Tru64:

- For Linux, `LD_LIBRARY_PATH=$ORACLE_HOME/jdk/jre/lib/i386:$ORACLE_HOME/jdk/jre/lib/i386/server:$ORACLE_HOME/rdbms/lib:$ORACLE_HOME/lib:$ORACLE_HOME/mgw/lib`
- For Tru64, `LD_LIBRARY_PATH=$ORACLE_HOME/jdk/jre/lib/alpha:$ORACLE_HOME/jdk/jre/lib/alpha/classic:$ORACLE_HOME/rdbms/lib:$ORACLE_HOME/lib:$ORACLE_HOME/mgw/lib`

Modify listener.ora file for External Procedure for AIX, HP, and Solaris 64-bit

This section describes the procedure to modify the `listener.ora` file for external procedure for AIX, HP, and Solaris 64-bit.

The following example is specific to Solaris 64-bit.

1. Verify that the default IPC protocol address for External Procedure is set.

```
LISTENER = (ADDRESS_LIST=
(ADDRESS=
  (PROTOCOL=IPC)(KEY=EXTPROC))
```

2. Add static service information for the listener by setting a `SID_DESC` in the `listener.ora` file. For example,

```
# Add a SID_DESC
SID_LIST_LISTENER= (SID_LIST=
(SID_DESC =
  (SID_NAME= mgwextproc)
  (ENVS="LD_LIBRARY_PATH_32=/private/oracle/orcl9i/jdk/jre/lib/sparc:
/private/oracle/orcl9i/lib32")
  (ORACLE_HOME=/private/oracle/orcl9i)
  (PROGRAM = extproc32))
(SID_DESC =
  (SID_NAME= ep_agtl)
  (GLOBAL_DBNAME=sales.us.acme.com)
  (ENVS=LD_LIBRARY_PATH=/private/oracle/orcl9i/lib)
  (ORACLE_HOME=/private/oracle/orcl9i)
  (PROGRAM = extproc))
)
```

For HP, replace the `LD_LIBRARY_PATH_32` with `SHLIB_PATH`. The `LD_LIBRARY_PATH` will remain the same. For example,

- `SHLIB_PATH=$ORACLE_HOME/jdk/jre/lib/PA_RISC:
$ORACLE_HOME/jdk/jre/lib/PA_RISC/classic:
$ORACLE_HOME/rdbms/lib32:$ORACLE_HOME/lib32:
$ORACLE_HOME/mgw/lib32`

For AIX, use `LIBPATH` for both `LD_LIBRARY_PATH_32` and `LD_LIBRARY_PATH`. For example,

- `LIBPATH=$ORACLE_HOME/jdk/jre/bin:
$ORACLE_HOME/jdk/jre/bin/classic:
$ORACLE_HOME/rdbms/lib32:$ORACLE_HOME/mgw/lib32`

Modify `tnsnames.ora` file for External Procedure

This section describes the procedure to modify `tnsnames.ora` file for external procedure. Create a backup copy of `tnsnames.ora` file before you start.

1. Add the net service name `MGW_AGENT` to the `tnsnames.ora` file. For example,

```
MGW_AGENT =
(DESCRIPTION=
  (ADDRESS_LIST= (ADDRESS= (PROTOCOL=IPC)(KEY=EXTPROC)))
  (CONNECT_DATA= (SID=mgwextproc) (PRESENTATION=RO)))
```

In the preceding example, the `KEY` value is the IPC Protocol defined in the `listener.ora` file, and the `SID` value is the net service name defined in the `SID_DESC` section of the `listener.ora` file.

2. Add the gateway agent to the `tnsnames.ora` file. For example,

```
AGENT_SERVICE =
  (ADDRESS_LIST= (ADDRESS= (PROTOCOL=IPC)(KEY=EXTPROC))
  (CONNECT_DATA= (SID=mgwsid)))
```

In the preceding example, the `KEY` value is the IPC Protocol defined in the `listener.ora` file, and the `SID` value is the net service name defined in the `SID_DESC` section of the `listener.ora` file.

Modify `mgw.ora` file for External Procedure

This section describes the procedure to modify `mgw.ora` file for external procedure.

1. Set the library path environment variable in the `mgw.ora` file. For example:

- For AIX, `LIBPATH=$ORACLE_HOME/jdk/jre/bin:`
`$ORACLE_HOME/jdk/jre/bin/classic:`
`$ORACLE_HOME/rdbms/lib32:$ORACLE_HOME/lib32:`
`$ORACLE_HOME/mgw/lib32`
- For HP, `SHLIB_PATH=$ORACLE_HOME/jdk/jre/lib/PA_RISC:`
`$ORACLE_HOME/jdk/jre/lib/PA_RISC/classic:`
`$ORACLE_HOME/rdbms/lib32:$ORACLE_HOME/lib32:`
`$ORACLE_HOME/mgw/lib32`
- For Linux, `LD_LIBRARY_PATH=`
`$ORACLE_HOME/jdk/jre/lib/i386:`
`$ORACLE_HOME/jdk/jre/lib/i386/server:`
`$ORACLE_HOME/rdbms/lib:$ORACLE_HOME/lib:`
`$ORACLE_HOME/mgw/lib`
- For Solaris 32-bit, `LD_LIBRARY_PATH=`
`$ORACLE_HOME/jdk/jre/lib/sparc:$ORACLE_HOME/rdbms/lib:`
`$ORACLE_HOME/lib:$ORACLE_HOME/mgw/lib`
- For Solaris 64-bit, `LD_LIBRARY_PATH_32=`
`$ORACLE_HOME/jdk/jre/lib/sparc:`
`$ORACLE_HOME/rdbms/lib32:$ORACLE_HOME/lib32:`
`$ORACLE_HOME/mgw/lib32`

- For Tru64, `LD_LIBRARY_PATH=$ORACLE_HOME/jdk/jre/lib/alpha:$ORACLE_HOME/jdk/jre/lib/alpha/classic:$ORACLE_HOME/rdbms/lib:$ORACLE_HOME/lib:$ORACLE_HOME/mgw/lib`
 - Any additional libraries needed for the Oracle Messaging Gateway agent to access non-Oracle messaging systems, for example, the MQSeries libraries, must be included in `LD_LIBRARY_PATH` for Linux, Solaris, and Tru64, `SHLIB_PATH` for HP, and `LIBPATH` for AIX.
2. Set the `CLASSPATH` environment variable to include the following:
 - Oracle Messaging Gateway classes:
`[ORACLE_HOME]/mgw/classes/mgw.jar`
 - JDK internationalization classes:
`[ORACLE_HOME]/jdk/jre/lib/i18n.jar`
 - JDK runtime classes: `[ORACLE_HOME]/jdk/jre/lib/rt.jar`
 - Oracle JDBC classes: `[ORACLE_HOME]/jdbc/lib/classes12.zip`
 - Oracle internationalization classes:
`[ORACLE_HOME]/jdbc/lib/nls_charset12.zip`
 - SQLJ classes
 - `[ORACLE_HOME]/sqlj/lib/translator.zip`
 - `[ORACLE_HOME]/sqlj/lib/runtime12.zip`
 - Any additional classes needed for Oracle Messaging Gateway to access non-Oracle messaging systems, for example, MQSeries classes
 3. Set the `log_directory` and `log_level` parameters. (Optional)
 4. Set the `oracle_sid` parameter in the `mgw.ora` file to avoid providing the database connect string when configuring the Oracle Messaging Gateway connection information.

Create Users

Perform the following steps to configure the Oracle Messaging Gateway.

- [Create Administration User](#)
- [Create Agent User](#)
- [Configure Oracle Messaging Gateway Connection](#)

- **Use DBMS_MGWADM.DB_CONNECT_INFO**

Create Administration User

Create a database user with `MGW_ADMINISTRATOR_ROLE` privileges to perform Oracle Messaging Gateway administrative functions. For example,

```
CREATE USER <admin_user> IDENTIFIED BY <admin_password>;
GRANT CONNECT, RESOURCE to <admin_user>;
GRANT MGW_ADMINISTRATOR_ROLE to <admin_user>;
```

Create Agent User

Create a database user with `MGW_AGENT_ROLE` privileges to establish the gateway agent's connection with the database. For example,

```
CREATE USER <agent_user> IDENTIFIED BY <agent_password>;
GRANT CONNECT, RESOURCE to <agent_user>;
GRANT MGW_AGENT_ROLE to <agent_user>;
```

Configure Oracle Messaging Gateway Connection

After the agent user is created, the administration user uses `DBMS_MGWADM.DB_CONNECT_INFO` to configure Oracle Messaging Gateway with the user name, password, and database connect string used by the gateway agent to connect back to database. Use the agent user name and password that you just created. The database connect string parameter can be set to either a new service name in `tnsnames.ora` file or null. If null, the `oracle_sid` parameter must be set in `mgw.ora` file. For example,

```
connect <admin_user>/<admin_password>
exec dbms_mgwadm.db_connect_info('<agent_user>', '<agent_password>',
'<agent_database>');
```

Use DBMS_MGWADM.DB_CONNECT_INFO

Use `DBMS_MGWADM.DB_CONNECT_INFO`. For example,

```
connect <admin_user>/<admin_password>;
exec dbms_mgwadm.db_connect_info ('<agent_user>', '<agent_password>',
'<agent_database>');
```

Note: For Oracle9i 9.2.0.1.0, always specify a non-null value for the database connect string parameter when calling `DBMS_MGW_DB_CONNECT_INFO`.

Installation Verification for Oracle Messaging Gateway

The following procedure verifies the installation and includes a startup and shutdown of the Oracle Messaging Gateway agent.

1. Start the database listener for the external procedure and other listeners for the regular database connection.
2. Test the database connect string for the gateway agent user using the following command:

```
sqlplus agent_user/agent_password@agent_database.
```

If successful, the gateway agent will connect to the database.

3. Connect as *admin_user* and call `DBMS_MGWADM.STARTUP` to start the gateway agent.
4. Use the `MGW_GATEWAY` view to see `AGENT_STATUS` change to `RUNNING`, and `AGENT_PING` change to `REACHABLE`.
5. Connect as *admin_user* and call `DBMS_MGWADM.SHUTDOWN`.
6. Use the `MGW_GATEWAY` view to see `AGENT_STATUS` change to `NOT_STARTED`.

Additional Oracle Product Installation and Configuration

This section provides further information on installing additional Oracle products to your initial installation and on using Oracle Configuration Assistants.

- [Running Oracle Configuration Assistants As Standalone Tools](#)
- [Configuring the Database for Additional Oracle Products](#)
- [Configuring Oracle Real Application Clusters](#)
- [Configuring Oracle Label Security](#)
- [Configuring Oracle Precompilers](#)
- [Configuring Oracle Workflow](#)
- [Creating a Recovery Catalog for Recovery Manager](#)
- [Configuring Secure Sockets Layer](#)

Running Oracle Configuration Assistants As Standalone Tools

Configuration Assistants are usually run during an installation session, but can also be run in stand-alone mode. As with Oracle Universal Installer, each of these

assistants can also be run non-interactively using a response file. The following Oracle configuration assistants are described in this section:

- [Using Oracle Net Configuration Assistant](#)
- [Using Database Upgrade Assistant](#)
- [Using Database Configuration Assistant](#)
- [Configuring New or Upgraded Databases](#)
- [Using Oracle Enterprise Manager Configuration Assistant](#)

See Also: ["Non-Interactive Installation and Configuration"](#) on page 3-37 for more information on using response files with the product assistants.

Using Oracle Net Configuration Assistant

When Oracle Net Server or Oracle Net Client is installed, Oracle Universal Installer automatically launches Oracle Net Configuration Assistant.

If you choose to do a separate Oracle9i Client installation, then Oracle Net Configuration Assistant will automatically create a configuration that is consistent with selections made during the installation. The Installer will automatically run the Oracle Net Configuration Assistant to set up a net service name in the local naming file found in the `$ORACLE_HOME/network/admin` directory of the client installation.

After installation is complete, a more detailed configuration can be accomplished using the Oracle Net Configuration Assistant by using the following command in the `$ORACLE_HOME/bin` directory:

```
$ netca
```

Note: If you create a database using the Database Configuration Assistant during or after the installation, it will automatically update the network configuration information necessary for the new database.

See Also: "[Oracle Net Configuration Assistant](#)" on page 1-9 for more information on how Oracle Net Configuration Assistant configures your installation.

Oracle9i Net Services Administrator's Reference for more information on the use and configuration of Oracle Net.

Using Database Upgrade Assistant

If you installed Oracle9i software to use an existing database from a prior software version and chose not to upgrade the database during the installation, then you must upgrade the database before mounting it.

Start Database Upgrade Assistant by using the `dbua` command located in the `$ORACLE_HOME/bin` directory:

```
$ dbua
```

For help with the Database Upgrade Assistant, use the `-help` or `-h` command line parameters with `dbua`.

```
$ dbua -help
```

See Also: *Oracle9i Database Migration* for more information on upgrade.

Using Database Configuration Assistant

Oracle Database Configuration Assistant can create a default or customized database, configure an existing database to use Oracle products, or generate a set of shell and SQL scripts that you can inspect, modify, and run at a later time.

See Also: "[Database Configuration Assistant](#)" on page 1-7 for more information on the types of databases that you can install with Database Configuration Assistant.

Start Database Configuration Assistant by using the `dbca` command located in the `$ORACLE_HOME/bin` directory:

```
$ dbca
```

For help with the Database Configuration Assistant, use the `-help` or `-h` command line parameters with `dbca`.

```
$ dbca -help
```

Configuring New or Upgraded Databases

Oracle Corporation recommends running the `utlrp.sql` script after creating, upgrading, or migrating a database. This script recompiles all PL/SQL modules that may be in an `INVALID` state, including packages, procedures, and types. This step is optional, but recommended so that the cost of recompilation is incurred during the installation rather than at a later time.

1. Start SQL*Plus by using the following command:

```
$ SQLPLUS /NOLOG
```

2. Connect to the database with the `SYS` account by using the following command:

```
SQL> CONNECT SYS/PASSWORD AS SYSDBA
```

In the preceding command, the initial default for `PASSWORD` is `CHANGE_ON_INSTALL`. This password must be changed before using the database.

3. Start the database (if necessary) by using the following command:

```
SQL> STARTUP
```

4. Run the `utlrp.sql` script by using the following command:

```
SQL> @$ORACLE_HOME/rdbms/admin/utlrp.sql
```

Using Oracle Enterprise Manager Configuration Assistant

Oracle Enterprise Manager Configuration Assistant is used to configure the local Oracle Management Server. You can configure the local Oracle Management Server by creating, upgrading or deleting an Oracle Enterprise Manager repository.

If you installed the Oracle Management Server, Oracle Enterprise Manager Configuration Assistant automatically starts at the end of the installation to guide you through configuration.

See Also: *Oracle Enterprise Manager Configuration Guide* for more information on post-installation steps for Oracle Enterprise Manager.

Configuring the Database for Additional Oracle Products

If you install additional Oracle products after the initial installation, use the Database Configuration Assistant to configure your database for the new products. The database must be running.

1. Start up the Database Configuration Assistant by using the `dbca` command located in the `$ORACLE_HOME/bin/` directory:

```
$ dbca
```

2. Select Configure Database option in a database.
3. Select the appropriate database SID from the list of those detected by the Database Configuration Assistant.
4. Choose the products you wish to enable from the list and click Finish.

Execute privileges will be granted to `PUBLIC` for all of the products and packages.

Adding Oracle Text to Your Installation

If you intend to install *Oracle Text* after your initial installation, ensure that you have at least 10 MB of disk space for the data dictionary and include the `$ORACLE_HOME/ctx/lib` directory in the `LD_LIBRARY_PATH` environment variable.

Your database must include tablespaces specific to *Oracle Text* data. Verify that tablespaces exist to serve as default and temporary tablespaces for *Oracle Text*. *Oracle Text* uses the `DRSYS` tablespace for its default and temporary tablespaces. If tablespaces for *Oracle Text* do not exist or you do not want to use the default `DRSYS` tablespace, then create additional tablespaces before installation. Verify that tablespaces exist to serve as default and temporary tablespaces for *Oracle Text*.

See Also: *Oracle9i ConText to Oracle Text Migration* for more information on migrating text.

Oracle9i SQL Reference for more information on creating tablespaces.

Configuring Oracle Real Application Clusters

The following sections contain post-installation instructions for Oracle Real Application Clusters:

- [Managing Oracle Real Application Clusters](#)
- [Re-installing Oracle Real Application Clusters](#)
- [Inspecting Oracle Real Application Clusters Configuration for Linux](#)

Managing Oracle Real Application Clusters

To start the Oracle Real Application Clusters Global Services Daemon automatically when the computer is restarted, log in as the `root` user and add a line similar to the following in the `/etc/init.d/dbora` system startup file:

```
su - oracle -c $ORACLE_HOME/bin/gsd
```

See Also: *Oracle9i Real Application Clusters Setup and Configuration* for more information on Oracle Real Application Clusters.

Re-installing Oracle Real Application Clusters

If the installation fails before completion and you have to re-install, click Yes on all *Installer* windows that ask "Do you want to re-install *name of a product*?" The remote copy operation to the other nodes ignores the products for which you declined the re-install.

Inspecting Oracle Real Application Clusters Configuration for Linux

This section describes how to inspect the kernel configuration for Oracle Real Application Clusters. Configurations do not work if you fail to configure the Watchdog Timer device and the raw device.

Inspecting the Watchdog Timer Device

For the Watchdog Timer device, the typical causes of failures are:

- The Watchdog Timer device driver is not configured.
 - The Watchdog Timer device driver is not loaded to the kernel.
 - The margin time is incorrect.
 - The `CONFIG_WATCHDOG_NOWAYOUT` parameter is not set.
1. If you configured the Watchdog Timer device as a module, load the Watchdog Timer device driver to the kernel. This is required after every boot. For example, enter:

```
# /sbin/insmod softdog soft_margin=10
```

2. Add the `insmod` command lines in the Linux startup script (For example, `/etc/rc.d/rc.local`) to prevent losing the module after restarting the system.

3. Run the `wdttest1` command to check the first three possible configuration failures. If the configuration is correct, it reboots the system after the margin time has passed. For example, enter:

```
# wdttest1
passed: 1 sec
passed: 2 sec
.
.
.
passed: 60 sec
.
.
.
Reboot occurred
```

4. Run the `wdttest2` command to check the `CONFIG_WATCHDOG_NOWAYOUT` parameter. If the configuration is correct, it reboots the system after the margin time has passed. For example:

```
# wdttest2
passed: 1 sec
passed: 2 sec
.
.
.
passed: 60 sec
.
.
.
Reboot occurred
```

Configuring Oracle Label Security

If Oracle9i software is already installed and a database is created, then verify that the `COMPATIBLE` initialization parameter is set to 9.2.0.1.0 or higher.

Configuring Oracle Precompilers

All precompiler configuration files are located in the `$ORACLE_HOME/precomp/admin` directory. [Table 4-7](#) describes the Oracle Precompilers.

Note: You cannot use Oracle Precompilers independently of Oracle9i to convert embedded PL/SQL.

Table 4–7 Oracle Precompilers

Precompilers	Configuration Files	See Also
Pro*C/C++	pcscfg.cfg This file installs without content and can be configured with any text editor according to the site-specific requirements.	<i>Programmer's Guide to the Pro*C/C++ Precompiler</i> for more information on configuring the pcscfg.cfg file.
Pro*COBOL	pcbcfg.cfg This file installs without content and can be configured with any text editor according to the site-specific requirements.	<i>Pro*COBOL Programmer's Guide</i> for more information on configuring the pbcfg.cfg file.
Pro*COBOL18	pcccob.cfg This file installs without content and can be configured with any text editor according to the site-specific requirements.	<i>Pro*COBOL Programmer's Guide</i> for more information on configuring the pcccob.cfg file.
Pro*FORTRAN	pccfor.cfg This file installs without content and can be configured with any text editor according to the site-specific requirements.	<i>FORTRAN documentation</i> for more information on configuring the pccfor.cfg file.
SQL*Modula Ada	pmscfg.cfg This file installs without content and can be configured with any text editor according to the site-specific requirements.	<i>SQL*Module for Ada Programmer's Guide</i> for more information on configuring the pmscfg.cfg file.

Configuring Oracle Workflow

You must perform a number of configuration procedures for Oracle Workflow. These include the following:

- Edit the `init.ora` parameter file
- Install and configure a web server
- Verify your base URL
- Set up the Oracle Workflow Monitor and HTML help

See Also: *Oracle Workflow Server Installation Notes*, *Oracle Workflow Client Installation Notes*, and *Oracle Workflow Guide* for more information on these procedures.

Creating a Recovery Catalog for Recovery Manager

Recovery Manager is an automated recovery utility that is installed as part of Oracle9i database. It stores information in a recovery catalog in a separate Oracle9i database. This second Oracle9i database should be installed on a separate computer to provide maximum fault resistance.

Note: If the installation and maintenance of a second Oracle9i database is impractical, then you can use Recovery Manager in a restricted mode without a recovery catalog. If you do this, be aware that the size of your control file is limited by the size of the minimum data block size your operating system permits. This size varies from platform to platform. Most UNIX systems have a minimum data block size of 2048 bytes, which imposes a 20000 block size limit.

To create a recovery catalog, perform the following steps:

1. Install Oracle9i database on a separate computer from any other Oracle9i system and create a database for the recovery catalog.

Create a typical, preconfigured database with Database Configuration Assistant. The default database is adequate for the recovery catalog.
2. Create a user in the recovery catalog database to be the `RECOVERY_CATALOG_OWNER`.

3. As the `RECOVERY_CATALOG_OWNER` user, run the `createCatalog` command at the Oracle Recovery Manager prompt.

See Also: *Oracle9i Database Backup and Recovery Guide* for more information on Recovery Manager.

Configuring Secure Sockets Layer

After Secure Sockets Layer is installed, run Oracle Net Configuration Assistant to configure it properly for your system.

See Also: *Oracle Advanced Security Administrator's Guide* for more information on Secure Sockets Layer.

Starter Database Contents

The following sections provides database administrative information on the default starter database, as well as basic information on Oracle database usernames, passwords and file locations.

- [Unlocking and Resetting User Passwords](#)
- [Reviewing User Names and Passwords](#)
- [Identifying Databases](#)
- [Tablespaces and Data Files](#)
- [Locating the Initialization Parameter File](#)
- [Locating Redo Log Files](#)
- [Locating Control Files](#)
- [Using Rollback Segments](#)
- [Using the Data Dictionary](#)

Unlocking and Resetting User Passwords

Passwords for all Oracle system administration roles and privileges except SYS, SYSTEM and SCOTT are expired upon installation. You are required to unlock user names and reset passwords for all other administrative user names before using them. You can do this through Database Configuration Assistant.

Unlocking and Resetting Passwords Automatically

During installation, click the Password Management button from the *Database Configuration Assistant* window to change passwords immediately after installation.

There is an alternative method to reset your passwords. If you unlock the password but do not specify a new password, then the database user's account will be unlocked and the password will remain expired until the next time when you login as that user. SQL*Plus will then prompt you for a new password.

Unlocking and Resetting Passwords Manually

To change a password and unlock an account manually, review the list of default administrative user names, passwords and functions in [Table 4-8, "Default User Names and Passwords"](#). Select a user, and unlock and reset the password by using the following commands:

1. Start SQL*Plus and log in as SYSDBA by using the following commands:

```
$ sqlplus /nolog
SQL> connect / as sysdba
```

2. Change the password by using the following command:

```
SQL> ALTER USER USERNAME IDENTIFIED BY PASSWORD ACCOUNT UNLOCK
```

The alter statement will both reset the password and unlock the account.

Note: If you want unauthenticated access to your data via HTTP, unlock the ANONYMOUS user account.

See Also: *Oracle9i Database Administrators' Guide* for more information on unlocking passwords after installation and for information on Oracle security procedures and best security practices.

Oracle Enterprise Manager Administrator's Guide for more information on using Oracle Security Manager or Oracle DBA Studio to change passwords.

Reviewing User Names and Passwords

All databases created by Database Configuration Assistant include the SYS, SYSTEM, and DBSNMP user names and passwords. In addition, Oracle

Corporation provides several other administrative users. Unlock users and reset passwords before using these administrative accounts.

Note: To unlock administrative user passwords after installation, click the Password Management button in the *Database Assistant* window.

Table 4–8 describes the default user names and passwords.

Table 4–8 *Default User Names and Passwords*

User Name	Password	Description	See Also
CTXSYS	CTXSYS	CTXSYS is the Oracle <i>Text</i> user name with CONNECT, DBA, and RESOURCE database roles.	<i>Oracle9i Oracle Text Reference</i>
DBSNMP	DBSNMP	DBSNMP includes the CONNECT, RESOURCE, and SNMPAGENT database roles. Run <code>catnsnmp.sql</code> if you want to delete this role and user.	<i>Oracle Intelligent Agent User's Guide</i>
LBACSYS	LBACSYS	LBACSYS is the Oracle Label Security administrator user name.	<i>Oracle Label Security Administrator's Guide</i>
MDSYS	MDSYS	MDSYS is the Oracle Spatial and Oracle <i>interMedia</i> Locator administrator user name.	<i>Oracle Spatial User's Guide and Reference</i>
MTSSYS	MTSSYS	MTSSYS is the Oracle Service for Microsoft Transaction Server (MTS) user name.	<i>Using Microsoft Transaction Server With Oracle9i</i>
ODM	ODM	ODM is the data mining username. ODM performs data mining operations.	<i>Oracle9i Data Mining Administrator's Guide</i> <i>Oracle9i Data Mining Concepts</i>
ODM_MTR	MTRPW	ODM_MTR is the account associated with the data repository for data mining sample programs.	<i>Oracle9i Data Mining Administrator's Guide</i> <i>Oracle9i Data Mining Concepts</i>

Table 4–8 Default User Names and Passwords (Cont.)

User Name	Password	Description	See Also
OLAPSYS	MANAGER	OLAPSYS is the identity used to create OLAP metadata structures. OLAPSYS, including the OLAP_DBA, RESOURCE, and CONNECT database roles, is the user name that owns the OLAP Catalog (CWMLite).	<i>Oracle9i OLAP User's Guide</i>
ORDPLUGINS	ORDPLUGINS	ORDPLUGINS is the Oracle <i>interMedia</i> Audio and Video user name with the CONNECT and RESOURCE roles. ORDPLUGINS allows non-native plug-in formats.	<i>Oracle9i interMedia User's Guide and Reference</i>
ORDSYS	ORDSYS	ORDSYS is the Oracle <i>interMedia</i> Audio, Video, and Image administrator user name with CONNECT, JAVAUSERPRIV, and RESOURCE database roles.	<i>Oracle9i interMedia User's Guide and Reference</i>
OUTLN	OUTLN	OUTLN includes the CONNECT and RESOURCE database roles, and supports plan stability. Plan stability allows you to maintain the same execution plans for the same SQL statements. OUTLN acts as a role to centrally manage metadata associated with stored outlines.	<i>Oracle9i Database Concepts</i> <i>Oracle9i Database Performance Guide and Reference</i>

Table 4–8 Default User Names and Passwords (Cont.)

User Name	Password	Description	See Also
SYS	CHANGE_ ON_INSTALL	SYS is used for performing database administration tasks. SYS includes the following database roles: AQ_ADMINISTRATOR_ROLE AQ_USER_ROLE CONNECT CTXAPP DBA DELETE_CATALOG_ROLE EXECUTE_CATALOG_ROLE EXP_FULL_DATABASE HS_ADMIN_ROLE IMP_FULL_DATABASE JAVA_ADMIN JAVADEBUGPRIV JAVAIDPRIV JAVAUSERPRIV OEM_MONITOR RECOVERY_CATALOG_OWNER RESOURCE SELECT_CATALOG_ROLE SNMPAGENT TIMESERIES_DBA TIMESERIES_DEVELOPER	<i>Oracle9i Database Administrator's Guide</i>
SYSTEM	MANAGER	You can use SYSTEM to perform database administration tasks. SYSTEM includes the AQ_ADMINISTRATOR_ROLE and DBA database roles.	<i>Oracle9i Database Administrator's Guide</i>
SCOTT	TIGER	SCOTT includes the CONNECT and RESOURCE database roles.	<i>Oracle9i Database Administrator's Guide</i>

Note: Any database user can be granted limited SYS role database privileges to use the Oracle Enterprise Manager Diagnostics Pack. Grant users access to these necessary SYS privileges by granting them the OEM_MONITOR role. This role is created when the database is installed and is defined in the following SQL script:

```
§ORACLE_HOME/rdbms/admin/catsnmp.sql
```

In addition to being granted the OEM_MONITOR role, users must have sufficient default tablespace quota within the monitored database for OEM to run and evaluate some advanced events. Failure to allocate sufficient tablespace to users that are granted the OEM_MONITOR role will result in an insufficient privilege message.

The passwords are necessary only when the user resets and unlocks the passwords manually and are not required when it is done automatically.

Identifying Databases

The Oracle9i software identifies a database by its global database name. A global database name consists of the database name and network domain. The global database name uniquely distinguishes a database from any other database in the same network domain. Enter a global database name when prompted in the *Database Identification* window during Oracle9i database installation.

Example 4-1 Example of a Global Database Name

```
sales.us.acme.com
```

In the preceding example, `sales` is the name of the database. The database name portion is a string of no more than 8 characters that can contain alphanumeric, and additional characters. The database name is also assigned to the `DB_NAME` parameter in the `init.ora` file.

`us.acme.com` is the network domain in which the database is located. Together, the database name and the network domain make the global database name unique. The domain portion is a string of no more than 128 characters that can contain alpha, numeric, period (`.`), and additional characters. The domain name is also assigned to the `DB_DOMAIN` parameter in the `init.ora` file.

The `DB_NAME` parameter and the `DB_DOMAIN` name parameter combine to create the global database name value assigned to the `SERVICE_NAMES` parameter in the `init.ora` file.

The System Identifier (SID) identifies a specific Oracle9i database instance. The SID uniquely distinguishes a database from any other database on the same computer. Multiple Oracle home directories enable you to have multiple, active Oracle databases on a single computer. Each database requires a unique SID and database name.

The SID name comes from the value entered for the SID prefix in the *Database Identification* window. The SID can be up to 8 alphanumeric characters in length.

For example, if the SID and database name for an Oracle database are ORCL, each database file is in the `$ORACLE_BASE/oradata/ORCL` directory and the initialization parameter file is in the `$ORACLE_BASE/admin/ORCL/pfile` directory. The ORCL directory is named after the `DB_NAME` parameter value.

Tablespaces and Data Files

An Oracle9i database is divided into smaller logical areas of space known as tablespaces. Each tablespace corresponds to one or more physical data files. Data files contain the contents of logical database structures such as tables and indexes. You can associate each data file with only one tablespace and database.

Note: Unless you specify different names with Database Configuration Assistant, the tablespaces and data files described in the following table are automatically included in the Custom database.

Table 4–9 describes the tablespaces in the Oracle9i database located in the `$ORACLE_BASE/oradata/db_name` directory.

Table 4–9 *Tablespaces and Data Files*

Tablespace	Data File	Contains...
CWMLITE	<code>cwmlite.dbf</code>	OLAP catalog metadata repository (CWMLite)
EXAMPLE	<code>example01.dbf</code>	Example Schema
DRSYS	<code>drsys01.dbf</code>	Oracle Text-related schema objects

Table 4–9 Tablespaces and Data Files (Cont.)

Tablespace	Data File	Contains...
INDX	indx01.dbf	Indexes associated with the data in the USERS tablespace.
ODM	odm01.dbf	ODM and ODM_MTR schema objects.
RBS	rbs01.dbf	Rolled back transactions that failed to complete normally Note: You might need to expand this tablespace if you have long-running or high-data-volume transactions.
SYSTEM	system01.dbf	The data dictionary. This includes definitions of tables, views, and stored procedures needed by the Oracle database. Note: The database maintains information in this area automatically. The SYSTEM tablespace is present in all Oracle databases.
TEMP	temp01.dbf	Temporary tables and/or indexes created during the processing of your SQL statement Note: You might need to expand this tablespace if you are executing a SQL statement that involves a lot of sorting, such as ANALYZE COMPUTE STATISTICS on a very large table, or the constructs GROUP BY, ORDER BY, or DISTINCT.
TOOLS	tools01.dbf	The Installer creates this data file when the user wants to install any third-party or Oracle tools/products.
USERS	users01.dbf	As you generate and enter data into tables, you fill this space with your data.
XDB	xdb01.dbf	The XDB tablespace holds the data that is stored in the Oracle XML DB repository via SQL or via protocols like HTTP and WebDAV.

Note: If you choose to create a new repository and accept the default settings when running the Oracle Enterprise Manager Configuration Assistant, create the OEM_REPOSITORY tablespace. A data file named `oem_repository.dbf` will be created.

See Also: *Oracle9i Database Concepts* and *Oracle9i Database Administrator's Guide* for more information on tablespaces and data files.

Locating the Initialization Parameter File

The starter database contains the `init.ora` database initialization parameter file. It is a text file that contains a list of preconfigured instance configuration parameters. The file is located in the `$ORACLE_BASE/admin/db_name/pfile` directory, and must exist for an instance to start. No edits are required to this file in order to use the starter database.

See Also: *Oracle9i Database Administrator's Guide* and *Oracle9i Database Reference* for more information on database-specific initialization parameters and their default values.

Locating Redo Log Files

The starter database and the custom database each contain three redo log files located in the `$ORACLE_BASE/oradata/db_name` directory. [Table 4-10](#) describes the redo log files.

Table 4–10 Redo Log files

Database Files	Disk Size	Description
redo01.log	1 MB	Redo log files hold a record of all changes made to data in the database buffer cache. If an instance failure occurs, then Oracle9i uses the redo log files to recover the modified data in memory. Oracle9i uses redo log files in a cyclical fashion. For example, if three files constitute the online redo log, Oracle9i fills the first file, then the second file, and then the third file. In the next cycle, it reuses and fills the first file, the second file, and so on.
redo02.log	1 MB	
redo03.log	1 MB	

See Also: *Oracle9i Database Backup and Recovery Guide* for more information on redo log files.

Locating Control Files

The starter database contains three control files. These files are located in the `$ORACLE_BASE/oradata/db_name` directory. The files `control01.ctl`, `control02.ctl`, and `control03.ctl` are automatically included in the Custom database. Oracle Corporation recommends that you keep at least three control files (on separate physical drives) for each database and set the `CONTROL_FILES` initialization parameter to list each control file. [Table 4–11](#) describes the database control files.

Table 4–11 Database Control Files

Control Files	Description
<code>control01.ctl</code>	A control file is an administrative file. Oracle9i requires a control file to start and run the database. The control file records the physical structure of the database. For example, a control file contains the database name, and the names and locations of the database data files and redo log files.
<code>control02.ctl</code>	
<code>control03.ctl</code>	

See Also: *Oracle9i Database Administrator's Guide* for more information on setting this initialization parameter value.

Using Rollback Segments

Rollback segments record the old values of data changed by each transaction whether or not the transaction has been committed. Every database contains one or more rollback segments. Use rollback segments to provide read consistency, roll back transactions, and recover the database. [Table 4–12](#) describes the rollback segments of the starter database.

Table 4–12 Rollback Segments

Rollback Segment	Contained in this Tablespace...	Used by
SYSTEM	SYSTEM	SYS
RB_TEMP	SYSTEM (private)	SYS
RB1 through RB16 are a pool of rollback segments that any instance, requiring a rollback segment, can use.	RBS	PUBLIC

Using the Data Dictionary

The data dictionary is a protected collection of tables and views containing reference information on the database, its structure, and its users. The data stored in the dictionary includes the following:

- Names of the Oracle database users
- Privileges and roles granted to each user
- Names and definitions of schema objects including tables, views, snapshots, indexes, clusters, synonyms, sequences, procedures, functions, and packages
- Integrity constraints
- Space allocation for database objects
- Auditing information, such as who accessed or updated various objects

See Also: *Oracle9i Database Concepts* and *Oracle9i Database Reference* for more information on data dictionary.

Oracle Software Removal

A complete removal of Oracle software requires you to remove any installed databases with the Database Configuration Assistant and deconfigure Oracle Net with the Oracle Net Configuration Assistant. Removal requires that you:

- Run Database Configuration Assistant and Oracle Net Configuration Assistant before you use the Installer to remove the Oracle software
- Stop Oracle Internet Directory Control Utility and Oracle Internet Directory Monitor
- Change APACHE account primary GID to the group that owns the `oraInventory` directory

A partial removal of Oracle software does not necessarily require you to run either Database Configuration Assistant or Oracle Net Configuration Assistant.

Note: You cannot remove Oracle9i JVM separately from other products installed with Oracle9i. Removing Oracle9i JVM causes Oracle Universal Installer to remove Oracle9i and other products dependent on Oracle9i JVM from your system.

Removing an Oracle Database with Database Configuration Assistant

1. Start the Database Configuration Assistant by using the `dbca` command located in the `$ORACLE_HOME/bin/` directory:

```
$ dbca
```

2. The *Welcome* window appears. Click Next.
3. Select Delete a Database from *Operations* window.
4. Select the instance for the database that you want to delete.
5. Click Finish. Verify that you want to delete the database in the window that appears.

Because you can only delete one database at a time, you must repeat these steps for each database that you want to delete.

After you have run the Database Configuration Assistant, run the Oracle Net Configuration Assistant in remove mode by starting the assistant from the command line with the `/deinst` parameter:

```
$ netca /deinst
```

Removing Oracle Internet Directory

To remove Oracle Internet Directory Services:

1. Stop the Oracle Internet Directory Server by using the following command:

```
$ oidctl connect=net_service_name server=oidldapd \  
instance=server_instance_number stop
```

In the preceding command, *net_service_name* parameter is the network connection to the Oracle9i Database Server which stores the directory data and *server_instance_number* is the instance number which appears in the Server List tab of Oracle Directory Manager.

2. Stop the Oracle Internet Directory Monitor by using the following command:

```
$ oidmon connect=net_service_name stop
```

Follow the procedures in ["Removing an Oracle Database with Database Configuration Assistant"](#) to remove the Oracle9i database configured with Oracle Internet Directory.

See Also: *Oracle Internet Directory Administrator's Reference* for more information on removing Oracle Internet Directory.

Changing the APACHE Account GID for Removal

1. Log in as `root` user.
2. Change the APACHE account primary GID group to the group that has ownership of the `oraInventory` directory. Typically, this is the `ORAINVENTORY` group.
3. Log out as `root` user.

Removing Oracle Label Security

Perform the following steps to remove Oracle Label Security. Do not perform a `DROP USER CASCADE` on the `LBACSYS` account to remove Oracle Label Security.

1. Connect as `SYSDBA`.
2. Execute the `$ORACLE_HOME/lbac/admin/droplbasys.sql` script to delete the `LBACSYS` account.

3. Use the Oracle Universal Installer to remove Oracle Label Security.

Removing Oracle Messaging Gateway

Perform the following steps to remove Oracle Messaging Gateway.

1. Shut down the Oracle Messaging Gateway.
2. Remove any user-created queues whose payload is a Oracle Messaging Gateway canonical type. (For example, `MGW_BASIC_MSG_T`)
3. Log in to SQL*Plus as user `SYS` as `SYSDBA`.
4. Run the `catnomgw.sql` script, located in the `$ORACLE_HOME/mgw/admin` directory.
5. Run Oracle Universal Installer to uninstall Oracle Messaging Gateway.
6. Use the backup copies of `listener.ora` and `tnsnames.ora` to return the files to their previous state.

Removing Oracle Software with Oracle Universal Installer

1. Start the Installer as described in "[Oracle Universal Installer](#)" on page 3-10.
2. Click on the Deinstall Products button on the *Welcome* window or the Installed Products... button available on any *Installer* window. The *Inventory* window appears, listing the installed products.
3. In the *Inventory* window, select any product(s) to remove.
4. Click on the Remove button.

Cleaning Up After a Failed Installation

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

1. Start the Installer as described in "[Oracle Universal Installer](#)" on page 3-10.
2. Click on the Deinstall Products button on the *Welcome* window or the Installed Products... button available on any *Installer* window. The *Inventory* window appears, listing installed products.
3. In the *Inventory* window, select any product(s) to remove.
4. Click on the Remove button.

To complete the cleanup, you must manually remove the Oracle home directory. This is necessary because the Oracle Universal Installer might copy files to your system but fail to register them during the unsuccessful installation. This step is not necessary if removal deletes all files from the Oracle home directory.

Oracle9i Components

This appendix describes the products included with Oracle9i:

- [Oracle9i Database Components](#)
- [Oracle9i Client Components](#)
- [Oracle9i Management and Integration Components](#)
- [Product Descriptions](#)

Oracle9i Database Components

The following sections provide information on the Oracle9i Database components.

Enterprise Edition

This section alphabetically lists additional components available with each installation type of the Oracle9i Server Enterprise Edition. Enterprise Edition includes all the components in the Standard Edition, with the exception of the Oracle Enterprise Manager Standard Management Pack. Refer to the release notes for your platform for updates on component availability.

- Oracle Advanced Security, which includes the following:
 - Encryption and Integrity Support, including:
 - * AES (Advanced Encryption Standard)
 - * DES40 Encryption
 - * DES Encryption
 - * 3DES_112 Encryption (2-key option)

- * 3DES_168 Integrity (3-key option)
- * MD5 Integrity
- * RC4_40 Encryption
- * RC4_56 Encryption
- * RC4_128 Encryption
- * RC4_256 Integrity
- * SHA-1 Integrity
- Thin JDBC Java-based Encryption Support, including:
 - * DES40 Encryption
 - * DES Encryption
 - * MD5 Integrity
 - * RC4_40 Encryption
 - * RC4_56 Encryption
 - * RC4_128 Encryption
 - * RC4_256 Integrity
 - * SHA-1 Integrity
- Authentication Support, including:
 - * Kerberos (with SSO support)
 - * RADIUS (for Smart Cards, Token Cards and SecurID)
 - * SSL (with X.509 version 3) (with SSO support)

Note: Kerberos and Radius are installable through the Custom installation *Authentication Methods* window.
- Oracle Enterprise Manager Management Packs, which include the following:
 - Oracle Change Management Pack
 - Oracle Diagnostics Pack
 - Oracle Tuning Pack
 - Oracle Management Pack for Oracle Applications
- Oracle Label Security

- Oracle OLAP
- Oracle Messaging Gateway supports for IBM MQSeries
- Oracle Partitioning
- Oracle Real Application Clusters, which includes the following:
 - Oracle Real Application Clusters Management Pack (integrated with Oracle Enterprise Manager)
 - Oracle Real Application Clusters Guard I
- Oracle Spatial
- Oracle9i Data Mining

Standard Edition

This section alphabetically lists the components available with each installation type of the Oracle9i Server Standard Edition top-level component. Refer to the release notes for your platform for updates on component availability.

- Advanced Queuing
- Advanced Replication
- Character Set Scanner
- Common Schema Demos
- Generic Connectivity
- Object Type Translator
- Enterprise User Security, including:
 - Oracle Enterprise Login Assistant
 - Oracle Wallet Manager

Note: Oracle Enterprise Login Assistant and Oracle Wallet Manager are features of Oracle Advanced Security. You can only use them if you purchase an Oracle Advanced Security license.

- Oracle Call Interface
- Oracle Connection Manager
- Database Upgrade Assistant
- Database Configuration Assistant

- Oracle Dynamic Services
- Oracle Enterprise Manager, which includes the following:
 - Oracle Enterprise Manager Client, including Oracle Enterprise Manager Console with Integrated Applications, which includes the following:
 - * Oracle Directory Manager
 - * Oracle Net Manager
 - * Oracle Policy Manager
 - * Spatial Index Advisor
 - * SQL*Plus Worksheet
 - * Text Manager
 - Oracle Enterprise Manager Standard Management Pack
 - Oracle Enterprise Manager Web Site
 - Oracle Intelligent Agent (includes data collection services)
 - Oracle Management Server, including Oracle Enterprise Manager Configuration Assistant
- Oracle HTTP Server, which includes the following:
 - Oracle HTTP Server Configuration Assistant
 - Apache Configuration for Oracle Java Server Pages
 - Apache Configuration for XML Developer's Kit
 - Apache WebServer Files
 - Business Components for Java
 - mod_perl
 - mod_plsql
 - Perl Interpreter

Note: Oracle HTTP Server includes software developed by the Apache Software Foundation (<http://www.apache.org/>).
- Oracle *interMedia*, which includes the following:
 - Oracle *interMedia* Annotator
 - Oracle *interMedia* Audio

- Oracle *interMedia* Client Option
 - Oracle *interMedia* Image
 - Oracle *interMedia* Video
 - Oracle *interMedia* Locator
 - Oracle Internet Directory, including Oracle Directory Manager (integrated with Oracle Enterprise Manager)
 - Oracle JavaServer Pages (JSP)
 - Oracle JDBC Drivers, which include the following:
 - Oracle JDBC Thin Driver for JDK 1.1
 - Oracle JDBC Thin Driver for JDK 1.2
 - Oracle JDBC Thin Driver for JDK 1.4
 - Oracle JDBC/OCI Driver for JDK 1.1
 - Oracle JDBC/OCI Driver for JDK 1.2
 - Oracle JDBC/OCI Driver for JDK 1.4
 - Oracle Locale Builder
 - Oracle *interMedia* Locator
 - Oracle Net, which includes the following:
 - Oracle Net Manager
 - Oracle Net Configuration Assistant
 - Oracle Net Listener
 - Oracle Names
 - Oracle Protocol Support
- Note:** When Oracle Net Client installs through the Enterprise Edition or Standard Edition installation type, the Installer installs Oracle Protocol Support for the networking protocols that it detects.
- Oracle Policy Manager (integrated with Oracle Enterprise Manager)
 - Oracle SNMP Agent
 - Oracle SQLJ, which includes the following:
 - SQLJ Runtime

- SQLJ Translator
- Oracle Syndication Server
- Oracle Text
- Oracle Trace
- Oracle Universal Installer, which includes Oracle's Java Runtime Environment version
- Oracle Utilities, which includes the following:
 - Database Verify Utility
 - Export
 - Import
 - Migration Utility
 - Recovery Manager
 - SQL *Loader
- Oracle Ultra Search
- Oracle Workspace Manager
- Oracle XML Developer's Kit
- Oracle XML SQL Utility
- Oracle9i JVM, which includes the following:
 - Java Virtual Machine
 - Oracle9i JVM Accelerator
- Oracle9i Server (the Oracle9i database), which includes the following:
 - Oracle Database Demos
 - PL/SQL
 - PL/SQL Gateway
 - SQL*Plus

Oracle9i Client Components

The following sections provide information on the Oracle9i Client components.

Runtime Edition

The following alphabetically lists the components available with each installation type of the Oracle9i Client Runtime top-level component. Refer to the release notes for your platform for updates on component availability.

- Oracle JDBC Drivers, which includes the following:
 - Oracle JDBC Thin Driver for JDK 1.1
 - Oracle JDBC Thin Driver for JDK 1.2
 - Oracle JDBC Thin Driver for JDK 1.4
 - Oracle JDBC/OCI Driver for JDK 1.1
 - Oracle JDBC/OCI Driver for JDK 1.2
 - Oracle JDBC/OCI Driver for JDK 1.4
- SQL*Plus
- Oracle Net

Administrator Edition

Oracle9i Client Administrator includes the components in the Oracle9i Client Runtime, and the following components. Refer to the release notes for your platform for updates on component availability.

- Object Type Translator
- Oracle OLAP API
- Enterprise User Security, including Oracle Enterprise Login Assistant
- Oracle Call Interface
- Oracle Enterprise Manager, which includes the following:
 - Oracle Enterprise Manager Client, including Oracle Enterprise Manager Console, which includes the following:
 - * Integrated Applications, with:
 - Oracle Directory Manager
 - Oracle Net Manager
 - Oracle Policy Manager
 - Spatial Index Advisor

- SQL*Plus Worksheet
- Text Manager
- Oracle Enterprise Manager Management Packs, including:
 - * Oracle Change Management Pack
 - * Oracle Diagnostics Pack
 - * Oracle Standard Management Pack
 - * Oracle Tuning Pack
 - * Oracle Management Pack for Oracle Applications
- Oracle Net, including Oracle Protocol Support
- Oracle XML Developer's Kit
- Oracle XML SQL Utility
- Pro*C/C++ 9.2.0.1.0
- Pro*COBOL 1.8.77
- Pro*COBOL 9.2.0.1.0
- Pro*FORTRAN 1.8.77
- SQL Module for ADA 1.8.77

Oracle9i Management and Integration Components

The following sections list the components available with each installation type of the Oracle9i Management and Integration top-level component when an Oracle9i database is not currently installed. Refer to the release notes for your platform for updates on component availability.

Oracle Management Server

The following alphabetically lists the components available for Oracle Management Server. Refer to the release notes for your platform for updates on component availability.

- Advanced Queuing
- Oracle Advanced Security, which includes the following:
 - Authentication Support, including:

- * SSL (with X.509 version 3) (with SSO support)
- * Oracle Wallet Manager
- * Oracle Enterprise Login Assistant

Note: Oracle Enterprise Login Assistant and Oracle Wallet Manager are features of Oracle Advanced Security. You can only use them if you purchase an Oracle Advanced Security license.

- Oracle Enterprise Manager, which includes the following:
 - Oracle Enterprise Manager Client, including Oracle Enterprise Manager Console with Integrated Applications, which include the following:
 - * Oracle Directory Manager
 - * Oracle Net Manager
 - * Oracle Policy Manager
 - * Spatial Index Advisor
 - * SQL*Plus Worksheet
 - * Text Manager
 - Oracle Enterprise Manager Management Packs, which include the following:
 - * Oracle Standard Management Pack
 - * Oracle Change Management Pack
 - * Oracle Diagnostics Pack
 - * Oracle Tuning Pack
 - * Oracle Management Pack for Oracle Applications
 - Oracle Enterprise Manager Web Site
 - Oracle Management Server, including Oracle Enterprise Manager Configuration Assistant
- Oracle *interMedia*
- Oracle JDBC Drivers, which include the following:
 - Oracle JDBC/OCI Driver for JDK 1.1
 - Oracle JDBC/OCI Driver for JDK 1.2

- Oracle JDBC/OCI Driver for 1.4
- Oracle JDBC Thin Driver for JDK 1.1
- Oracle JDBC Thin Driver for JDK 1.2
- Oracle JDBC Thin Driver for JDK 1.4
- Oracle Net, which includes the following:
 - Oracle Net Manager
 - Oracle Net Configuration Assistant
 - Oracle Listener
- Oracle Universal Installer, which includes Oracle's Java Runtime Environment version
- Oracle Utilities, which includes the following:
 - Export
 - Import
 - Recovery Manager
 - SQL*Loader
- Oracle XML Developer's Kit
- Oracle XML SQL Utility
- SQLJ, which includes the following:
 - SQLJ Runtime
- SQL*Plus

Oracle Internet Directory

The following alphabetically lists the components available for Oracle Internet Directory. Refer to the release notes for your platform for updates on component availability.

- Advanced Queuing
- Advanced Replication
- Generic Connectivity
- Object Type Translator

- SSL (with X.509 version 3) (with SSO support)
- Oracle Wallet Manager

Note: Oracle Enterprise Login Assistant and Oracle Wallet Manager are features of Oracle Advanced Security. You can only use them if you purchase an Oracle Advanced Security license.
- Oracle Call Interface
- Database Upgrade Assistant
- Database Configuration Assistant
- Oracle Internet Directory, which includes the following:
 - Oracle Internet Directory Client Toolset
 - Oracle Internet Directory Configuration Assistant
 - Oracle Internet Directory Server
- Oracle JDBC Drivers, which include the following:
 - Oracle JDBC/OCI Driver for JDK 1.1
 - Oracle JDBC/OCI Driver for JDK 1.2
 - Oracle JDBC/OCI Driver for JDK 1.4
 - Oracle JDBC Thin Driver for JDK 1.1
 - Oracle JDBC Thin Driver for JDK 1.2
 - Oracle JDBC Thin Driver for JDK 1.4
- Oracle Net, which includes the following:
 - Oracle Net Manager
 - Oracle Net Configuration Assistant
 - Oracle Listener
- Oracle Trace
- Oracle Universal Installer, which includes Oracle's Java Runtime Environment version
- Oracle Utilities, which includes the following:
 - Database Verify Utility
 - Export

- Import
- Migration Utility
- Recovery Manager
- SQL*Loader
- Oracle XML Developer's Kit
- Oracle XML SQL Utility
- Oracle9i JVM (either Oracle9i JVM Enterprise Edition or Oracle9i JVM), which includes the following:
 - Java Virtual Machine
 - Oracle9i JVM Accelerator
 - Oracle Java Tools
- Oracle9i Server (the Oracle9i database), which includes the following:
 - Oracle Database Demos
 - PL/SQL
 - PL/SQL Gateway
- SQL*Plus

Oracle Workflow

- Oracle Workflow

Note: Select the Custom Installation type to install Oracle Workflow.

See Also: *Oracle Workflow Client Installation Notes* for more information on Workflow Client components.

Product Descriptions

The following table, [Table A-1](#), provides descriptions and release numbers for products available for installation. Some products described are automatically installed with other products. Refer to the release notes for your platform for updates on component availability.

Table A-1 Product Descriptions

Product	Release	Description	For more information, see...
Advanced Queuing	9.2.0.1.0	Advanced Queuing provides secure, scalable asynchronous communication between applications and databases. This enables you to create highly distributed, heterogeneous and autonomous applications.	<i>Oracle9i Application Developer's Guide-Advanced Queuing</i>
Advanced Replication	9.2.0.1.0	Advanced Replication copies and maintains database objects, such as tables, in multiple databases that make up a distributed database system. The three types of advanced replication are Asynchronous, Synchronous, and Updateable Snapshots. In Asynchronous Replication and Updateable Snapshots, changes applied at one site are captured and stored locally before being forwarded and applied at each of the remote locations. Synchronous Replication applies data changes to all replication sites in real-time. Oracle Replication is a fully integrated feature of the Oracle Enterprise Edition Server; it is not a separate server.	<i>Oracle9i Replication Oracle9i Replication Management API Reference</i>
Assistant Common Files (installed with Oracle Configuration Assistants, such as Database Configuration Assistant and Oracle Net Assistant.)	9.2.0.1.0	Assistant Common Files are a collection of automatically installed files that are required by Oracle configuration assistants. These files include: <ul style="list-style-type: none"> ▪ BaliShare 1.1.17 (compressed) ▪ DBUI 2.2.11 ▪ EWT 3.4.13 ▪ ICE Browser 5.06.8 (compressed) ▪ Kodiak 1.2.1.0.0A ▪ Oracle Help for Java 4.1.13 (compressed) 	<i>Not applicable</i>
Authentication Support	9.2.0.1.0	Oracle Advanced Security provides strong authentication support through several authentication modules.	<i>Oracle Advanced Security Administrator's Guide</i>
Authorization Support	9.2.0.1.0	The enterprise role management functionality in Oracle Advanced Security includes authorization support.	<i>Oracle Advanced Security Administrator's Guide</i>

Table A–1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Character Set Scanner	9.2.0.1.0	Character Set Scanner is a National Language Support utility for checking data before migrating character sets.	<i>Oracle Globalization Support Guide</i>
Database Upgrade Assistant	9.2.0.1.0	Oracle Data Upgrade Assistant upgrades Oracle8, 8.0.6, Oracle8i release 8.1.5, 8.1.6 and 8.1.7 to Oracle9i database.	<i>Oracle9i Migration</i>
Encryption and Integrity Support	9.2.0.1.0	<p>Oracle Advanced Security ensures data confidentiality during transmissions that use the encryption and data integrity types in the installable products tables above. It enables the following public-key solutions: native encryption, Secure Sockets Layer (SSL), X.509 certificates, passwords, and smartcards.</p> <p>Note: Changes in the United States Export Administration Regulations (EAR) make it possible for Oracle Corporation to ship this edition of Oracle Advanced Security worldwide. Oracle Advanced Security functionality includes strong encryption for protocols into the Oracle database that were previously available only to the U.S. and Canadian markets.</p>	<i>Oracle Advanced Security Administrator's Guide</i>
Enterprise User Security Support	9.2.0.1.0	Oracle Advanced Security integrates with Lightweight Directory Access Protocol (LDAP) v3-compliant directory services, such as Oracle Internet Directory, for centralized enterprise user management, enterprise role management, and single sign-on.	<i>Oracle Advanced Security Administrator's Guide</i>
Generic Connectivity	9.2.0.1.0	Generic Connectivity creates a framework for accessing non-Oracle systems by extending the Oracle SQL engine to optimize and rewrite SQL for non-Oracle data stores. This framework integrates the core of Oracle gateway technology directly into the Oracle9i database server.	<i>Heterogeneous Connectivity Administrator's Reference</i>
Java Runtime Environment	1.1.8 and 1.3.1 (required for Oracle Universal Installer)	Java Runtime Environment is required for running Java applications, such as Oracle Universal Installer. JRE version 1.1.8 is the minimum standard Java platform for running Java programs.	<i>Not applicable</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Object Type Translator	9.2.0.1.0	Object Type Translator enables you to create C-struct representations of Abstract Data Types (ADTs) in an Oracle database. To take advantage of objects, run Object Type Translator against the database, which generates a header file that includes the C-structs.	<i>Oracle Call Interface Programmer's Guide</i>
Oracle Advanced Security	9.2.0.1.0	Oracle Advanced Security provides the following comprehensive suite of security services for Oracle9i: Note: This product requires a separate license.	<i>Oracle Advanced Security Administrator's Guide</i>
Oracle Call Interface	9.2.0.1.0	Oracle Call Interface is an Application Programming Interface (API) for accessing an Oracle database from a C or C++ program.	<i>Oracle Call Interface Programmer's Guide</i>
Oracle Connection Manager	9.2.0.1.0	Oracle Connection Manager acts like a router through which client connection requests can route to the next hop or directly to a server. The Connection Manager contains configurations for session multiplexing, access control and protocol conversion features.	Oracle Net Administrator's Guide
Database Configuration Assistant	9.2.0.1.0	Database Configuration Assistant automates the process of creating, modifying and deleting an Oracle database.	<i>Oracle9i Database Administrator's Guide</i>
Oracle Documentation	9.2.0.1.0	Oracle Documentation is the online version of Oracle9i documentation. It is available in HTML and PDF format.	<i>"Accessing Installed Documentation"</i> on page -xv
Oracle Dynamic Services	9.2.0.1.0	Oracle Dynamic Services is a Java-based programmatic framework for incorporating, managing and deploying Internet services.	<i>Oracle Dynamic Services User's and Administrative Guide</i>
Oracle Enterprise Login Assistant	9.2.0.1.0	Oracle Enterprise Login Assistant enables single sign on and implements a subset of the Wallet Manager functionality for opening a user wallet and enabling applications to use it.	<i>Oracle Enterprise Manager Administrator's Guide</i>

Table A–1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle Enterprise Manager	9.2.0.1.0	Oracle Enterprise Manager provides an integrated solution for centrally managing your heterogeneous environment. Oracle Enterprise Manager combines a graphical console, Oracle Management Servers, Oracle Intelligent Agents, common services and tools to provide an integrated and comprehensive systems management platform for managing Oracle products.	<i>Oracle Enterprise Manager Concepts Guide</i>
Oracle Enterprise Manager Configuration Assistant (installed with Oracle Management Server)	9.2.0.1.0	Oracle Enterprise Manager Configuration Assistant assists administrators to create and configure a Management Server, or to upgrade, edit or delete an existing repository.	<i>Oracle Enterprise Manager Configuration Guide</i>
Oracle Enterprise Manager Console	9.2.0.1.0	Oracle Enterprise Manager Console is a client interface for the first tier of Oracle Enterprise Manager. It performs the following functions: <ul style="list-style-type: none"> ■ Centrally administers, diagnoses and tunes multiple databases ■ Manages other Oracle products and targets ■ Monitors and responds to the status of Oracle components and third-party services 24 hours a day ■ Schedules jobs on multiple nodes at varying time intervals ■ Monitors networked targets for events ■ Customizes your display by organizing databases and other targets into logical administrative groups 	<i>Oracle Enterprise Manager Administrator's Guide</i>
Oracle Enterprise Manager Integrated Applications	9.2.0.1.0	These are applications that Oracle9i integrates and installs with Oracle Enterprise Manager. These applications enable you to manage your Oracle environment. You can access the applications from the Oracle Enterprise Manager Tools main menu, the Console application drawers, or from your operating system.	<i>Oracle Enterprise Manager Concepts Guide</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle Enterprise Manager Management Pack	9.2.0.1.0	Oracle Enterprise Manager Management Pack provides the following comprehensive suite of management services for Oracle9i:	
Oracle Change Management Pack	9.2.0.1.0	The Oracle Change Management Pack, a component of Oracle Enterprise Manager, is a group of integrated applications used to track and make changes to database object definitions. Use the Pack to eliminate errors and loss of data when upgrading databases to support new applications, analyze the impact and complex dependencies associated with metadata change and automatically perform upgrades using easy-to-learn wizards that teach systematic upgrade steps.	<i>Getting Started with Oracle Change Management Pack</i>
Oracle Diagnostics Pack	9.2.0.1.0	The Oracle Diagnostics Pack extends Oracle Enterprise Manager to enable the monitoring, diagnosing and capacity planning of the multi-tiered Oracle server environment. The Diagnostics Pack provides discovery and graphical representation of targets, such as databases or nodes, automated collection of performance and resource usage data and central monitoring and administration of remote systems using intelligent agents.	<i>Getting Started with the Oracle Diagnostics Pack</i>
Oracle Standard Management Pack	9.2.0.1.0	The Oracle Standard Management Pack combines the diagnostic, tuning and change management functions of the Oracle Enterprise Manager Management Packs into one pack for smaller business enterprises that use the standard edition of the database, such as Oracle8i or Oracle9i. This pack monitors and diagnoses problems, tunes high impact indexes and tracks and compares changes in the Oracle environment. The Oracle Standard Management Pack includes the following applications: Oracle Performance Manager, Oracle Index Tuning Wizard, Oracle Create Baseline, Oracle Compare Database Objects and Oracle Advanced Events.	<i>Oracle Enterprise Manager Getting Started with the Oracle Standard Management Pack</i>

Table A–1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle Management Pack for Oracle Applications	9.2.0.1.0	The Oracle Management Pack for Oracle Applications extends Oracle Enterprise Manager to enable administrators to correlate all tiers of their Oracle Applications deployment. This deployment extends from Oracle Applications-specific Concurrent Processing down through the middle-tier to the database and node.	<i>Getting Started with the Oracle Management Pack for Oracle Applications</i>
Oracle Messaging Gateway	9.2.0.1.0	Oracle Messaging Gateway is an Oracle database feature. It provides integration of Oracle-based applications with third party message queuing-based applications. It provides automatic queue-to-queue propagation from Advanced Queuing (AQ) queue to a third party queue and from a third party queue to an Advanced Queuing (AQ) queue. Advanced Queuing is a high performance messaging queuing feature of Oracle database.	<i>Oracle9i Application Developer's Guide-Advanced Queuing</i>
Oracle Tuning Pack	9.2.0.1.0	The Oracle Tuning Pack provides advanced tools that focus on tuning the highest impact database performance areas, such as application SQL, indexing strategies, instance parameters controlling I/O, SGA performance and object sizing, placement and reorganization. The applications included in the Oracle Tuning Pack are Oracle SQL Analyze, Oracle Expert, Outline Editor, Outline Management, Oracle Index, Tuning Wizard, Reorg Wizard and the Tablespace Map.	<i>Database Tuning with the Oracle Tuning Pack</i>
Oracle Enterprise Manager Web Site	9.2.0.1.0	The Oracle Enterprise Manager Web Site enables administrators to access the Oracle Enterprise Manager Console from a Web browser. The Oracle Enterprise Manager web site uses the Oracle HTTP Server as a web listener.	<i>Oracle Enterprise Manager Configuration Guide</i>
Oracle HTTP Server	1.3.22.0.0.a	Oracle HTTP Server provides a preconfigured, ready-to-use listener to enable use of a browser-based Oracle Enterprise Manager Console with Oracle Enterprise Manager Web Site. It includes the following components: <ul style="list-style-type: none"> ■ Apache Configuration for Oracle Java Server Pages (JSPs) ■ Oracle HTTP Server Files (Apache 1.3.22) 	<i>Apache documentation</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle Intelligent Agent	9.2.0.1.0	Oracle Intelligent Agent monitors targets on a managed node for registered events and scheduled jobs sent by the Console. Oracle Intelligent Agent also collects statistical data for Capacity Planner and Performance Manager, which are data-collecting applications in the Oracle Diagnostics Pack.	<i>Oracle Intelligent Agent User's Guide and Reference</i>
Oracle <i>interMedia</i>	9.2.0.1.0	Oracle <i>interMedia</i> consists of services that manage rich content, such as audio, video and images and associated metadata in an integrated fashion with other enterprise information.	<i>Oracle interMedia User's Guide and Reference</i>
Oracle <i>interMedia</i> Annotator	9.2.0.1.0	Oracle <i>interMedia</i> Annotator is an XML-based engine that interprets various media formats, parses out application metadata from these formats, and uploads this data along with the media into <i>interMedia</i> objects.	<i>Oracle interMedia Annotator User's Guide</i>
Oracle <i>interMedia</i> Audio (installed with Oracle <i>interMedia</i>)	9.2.0.1.0	Oracle <i>interMedia</i> Audio provides for the storage, retrieval, and management of digitized audio data within an Oracle database.	<i>Oracle interMedia User's Guide and Reference</i>
Oracle <i>interMedia</i> Client (part of Oracle <i>interMedia</i>)	9.2.0.1.0	Oracle <i>interMedia</i> Client provides an Oracle9i <i>interMedia</i> audio, image and video Java interface that makes it easy for you to use client-side applications to manipulate or modify multimedia data stored in a network-accessible database on the server.	<i>Oracle interMedia Java Classes User's Guide and Reference</i>
Oracle <i>interMedia</i> Common Files (installed with Oracle <i>interMedia</i>)	9.2.0.1.0	Oracle <i>interMedia</i> Common Files includes the common files used by Oracle <i>interMedia</i> components.	<i>Not applicable</i>
Oracle <i>interMedia</i> Image (installed with Oracle <i>interMedia</i> , formerly Oracle Image Cartridge)	9.2.0.1.0	Oracle <i>interMedia</i> Image provides for the storage, retrieval and processing of two-dimensional, static bitmapped images. Images are stored efficiently using popular compression schemes in industry-standard desktop publishing image interchange formats.	<i>Oracle interMedia User's Guide and Reference</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle <i>interMedia</i> Video (installed with Oracle <i>interMedia</i>)	9.2.0.1.0	Oracle <i>interMedia</i> Video provides for the storage, retrieval and management of digitized video data within an Oracle database.	<i>Oracle interMedia User's Guide and Reference</i>
Oracle Internet Directory	9.2.0.1.0	Oracle Internet Directory is an LDAP v3-compliant directory service implemented as an Oracle9i database application. It provides an optional single repository for the storage and management of Oracle user and application metadata, such as Oracle Net network connector and database listener parameters. Oracle Internet Directory's availability, scalability and integration capabilities make it suitable for general deployment in enterprise and internet applications. If you have deployed an Oracle Internet Directory instance, installing the Oracle9i database with the Custom installation options enables you to specify the LDAP directory server for storing the entry attributes. In a typical installation scenario, you install the Oracle Internet Directory on a dedicated server.	<i>Oracle Internet Directory Administrator's Guide</i>
Oracle Internet Directory Configuration Assistant	9.2.0.1.0	Oracle Internet Directory Configuration Assistant is a tool for creating the Oracle Internet Directory tablespaces and schema in the Oracle9i database when you install Oracle Internet Directory.	<i>Oracle Internet Directory Administrator's Guide</i>
Oracle Internet Directory Client Toolset	9.2.0.1.0	Oracle Internet Directory Client Toolset is available on Windows platforms to access Oracle Internet Directory server components.	<i>Oracle Internet Directory Administrator's Guide</i>
Oracle Internet Directory Manager (Oracle Directory Manager) (integrated with Oracle Enterprise Manager)	9.2.0.1.0	This is a Java-based tool for administering Oracle Internet Directory and related processes.	<i>Oracle Internet Directory Administrator's Guide</i>
Oracle Java Database Connectivity (JDBC) Drivers	9.2.0.1.0	Oracle JDBC Drivers are a standard set of Java classes, specified by JavaSoft, that provide vendor-independent access to relational data.	<i>Oracle JDBC Developer's Guide and Reference</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle Java Tools	9.2.0.1.0	Oracle Java Tools are utilities for building and deploying Java stored procedures with Oracle's Java Virtual Machine.	<i>Oracle SQLJ Developer's Guide and Reference</i>
Oracle JavaServer Pages (JSP)	1.1.3.1.0	Oracle JavaServer Pages generates dynamic content in Web pages that are output by applications running on web servers. This technology enables you to include Java code snippets and calls to external Java components in the markup code of your web pages.	<i>Oracle JavaServer Pages Developer's Guide and Reference</i>
Oracle Label Security	9.2.0.1.0	Oracle Label Security enables you to add label-based access control to your Oracle9i applications. It mediates access to rows in database tables based on a label contained in the row, and the label and privileges associated with each user session. Oracle Label Security is built on the virtual private database technology of Oracle9i Enterprise Edition. It includes the Oracle Policy Manager, a graphical user interface for ease of administration. Note: Oracle Label Security requires a separate license.	<i>Oracle Label Security Administrator's Guide</i>
Oracle Locale Builder	9.2.0.1.0	Oracle Locale Builder simplifies manipulation of National Language Support locale data definitions. It provides a graphical user interface for viewing, modifying and defining locale-specific data.	<i>Oracle Globalization Support Guide</i>
Oracle <i>interMedia</i> Locator (installed with Oracle <i>interMedia</i>)	9.2.0.1.0	Oracle <i>interMedia</i> Locator enables Oracle9i to support online internet-based geocoding facilities for locator applications and proximity queries.	<i>Oracle Spatial User's Guide and Reference</i>
Oracle Management Server	9.2.0.1.0	Oracle Management Server is the middle tier of Oracle Enterprise Manager. It provides centralized intelligence and distributed control between clients and managed nodes. The Oracle Management Server relies on a database repository that maintains system data, application data and the state of the managed targets distributed throughout the environment.	<i>Oracle Enterprise Manager Administrator's Guide</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle Names	9.2.0.1.0	<p>Oracle Names is a distributed naming service developed for Oracle environments to help simplify the setup and administration of global, client/server computing networks. It establishes and maintains an integrated system of Names servers.</p> <p>Oracle Names servers work like a directory service, storing addresses for all the database services on a network and making them available to clients that want to make a connection.</p>	<i>Oracle Net Administrator's Guide</i>
Oracle Net Services	9.2.0.1.0	<p>Oracle Net Services provides products that enable client connections to databases across a network. A client-side application sends a request to Oracle Net Services to be transported across the network to the server.</p> <p>Oracle Net Services (not Oracle Universal Installer) installs TCP/IP and Named Pipes.</p>	<i>Oracle Net Administrator's Guide</i>
Oracle Net Configuration Assistant (installed with Oracle Net)	9.2.0.1.0	The Installer starts the Oracle Net Configuration Assistant during installation to configure directory service usage and Oracle Net Services components. Oracle Net Configuration Assistant can run in stand-alone mode to configure Oracle Net Services.	<i>Oracle Net Administrator's Guide</i>
Oracle Net Listener	9.2.0.1.0	<p>Oracle Net Listener accepts connections, through a protocol, from client applications on the network.</p> <p>Note: Oracle Net Listener is not installable through any Oracle9i Client installation types.</p>	<i>Oracle Net Administrator's Guide</i>
Oracle Net Manager (installed with Oracle Net Services; integrated with Oracle Enterprise Manager)	9.2.0.1.0	Network administrators and DBAs use Oracle Net Manager to configure and administer Oracle Net Services.	<i>Oracle9i Net Services Administrator's Guide</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle OLAP	9.2.0.1.0	Oracle OLAP, which is embedded in the Oracle9i database, enables you to build and deploy business intelligence applications. These applications perform complex analysis of warehouse data stored in both relational and multi-dimension schemas (analytic workspaces). The applications can be developed either by using the Oracle OLAP API to access the warehouse via OLAP catalog metadata or by using SQL to interact with the warehouse directly. Oracle OLAP supports a full range of analytic capabilities.	<i>Oracle9i OLAP User's Guide</i>
Oracle Partitioning	9.2.0.1.0	Oracle Partitioning provides more control in managing tables and indexes by directing all maintenance operations to individual partitions rather than to tables and index names. Note: This product requires a separate license.	<i>Oracle9i Concepts</i> <i>Oracle9i Data Warehousing Guide</i>
Oracle Personalization	9.2.0.1.0	Oracle Personalization provides real-time personalization for applications using a recommendation engine that is embedded in an Oracle9i database. Oracle Personalization uses the Recommendation Engine API, a Java API, to collect data and return recommendations to a web site, call center, or other customer-facing application. Users can also generate recommendations in bulk. Recommendations (such as products, page content, banner ads, and navigational links) are based on both explicit (transactions, purchases, ratings, demographics) and implicit (clicks, pages and banners viewed) information. Note: This product is on a separate CD-ROM.	<i>Oracle Personalization Administrator's Guide</i> <i>Getting Started with Oracle Personalization</i> <i>Recommendation Engine API Programmer's Guide</i> <i>Recommendation Engine Batch API Programmer's Guide</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle PL/SQL Gateway	9.2.0.1.0	<p>The PL/SQL Gateway provides support for building and deploying PL/SQL-based applications on the web. PL/SQL stored procedures retrieve data from database tables and generate HTTP responses. You can deploy it in the following way:</p> <ul style="list-style-type: none"> mod_plsql: This configuration supports running in a stateless mode in which each HTTP request maps to a new database session. This is the recommended configuration if you want to develop stateless PL/SQL-based web applications. 	<p><i>Oracle Internet Application Server Release: Using mod_plsql</i></p> <p><i>Oracle9i Administrator's Reference Release 2 (9.2.0.1.0) for UNIX Systems</i></p> <p><i>Oracle Servlet Engine User's Guide</i></p>
Oracle Policy Manager (integrated with Oracle Enterprise Manager)	9.2.0.1.0	Oracle Policy Manager is a graphical user interface for administering Oracle Label Security, Virtual Private Database and application context.	<i>Oracle Label Security Administrator's Guide</i>
Oracle Real Application Clusters	9.2.0.1.0	<p>Oracle Real Application Clusters enables the database to run in clustered systems. Oracle instances in the nodes of the cluster provide shared access to the single database. A clustered database enhances scalability and high availability for all types of applications.</p> <p>Note: This product requires a separate license.</p>	<i>Oracle9i Real Application Clusters Setup and Configuration</i>
Oracle Real Application Clusters Guard I	9.2.0.1.0	Oracle Real Application Clusters Guard I is an optional feature that provides enhanced high availability for clusters. Oracle Real Applications Clusters Guard I supports a primary or secondary configuration with rapid failover and minimal overhead.	<i>Oracle Real Application Clusters Guard Administration and Reference Guide</i>
Oracle Spatial	9.2.0.1.0	<p>Oracle Spatial provides data management for location data, including information regarding addresses, road networks and sales territories. Oracle Spatial provides powerful spatial type management, indexing methods and spatial operators for the deployment of location-based services and extends the capabilities of existing Oracle-based applications.</p> <p>Note: This product requires a separate license.</p>	<i>Oracle9i Spatial User's Guide and Reference</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle Spatial Index Advisor (installed with Oracle Enterprise Manager Integrated Applications)	9.2.0.1.0	This component helps analyze and tune spatial indexes on data. Use it to see if indexes are properly defined for optimum query performance. You can also use it to visually inspect the distribution of the data.	<i>Oracle Enterprise Manager Concepts Guide</i>
Oracle SQLJ	9.2.0.1.0	Oracle SQLJ is a standard way to embed SQL statements in Java programs. Oracle SQLJ consists of the following components:	<i>Oracle9i SQLJ Developer's Guide and Reference</i>
Oracle SQLJ Runtime (installed with SQLJ)	9.2.0.1.0	Oracle SQLJ Runtime is a thin layer of pure Java code that runs above the JDBC driver. When Oracle SQLJ translates your SQLJ source code using standard SQLJ code generation, embedded SQL commands in your Java application are replaced by calls to the SQLJ runtime. When you run the application, the SQLJ runtime acts as an intermediary, reading information about your SQL operations from your profile and passing instructions along to the JDBC driver.	<i>Oracle9i SQLJ Developer's Guide and Reference</i>
Oracle SQLJ Translator (installed with SQLJ)	9.2.0.1.0	Oracle SQLJ Translator is a preprocessor for Java programs that contain embedded SQL statements. It converts the SQL statements to JDBC calls.	<i>Oracle9i SQLJ Developer's Guide and Reference</i>
Oracle Syndication Server	9.2.0.1.0	Oracle Syndication Server securely syndicates Internet content to internet subscribers. Syndication Server supports all available communication mechanisms while allowing the subscriber access via multiple channels to internet resources, enterprise portals, corporate databases and conventional file systems.	<i>Oracle Syndication Server User's and Administrator's Guide</i>
Oracle Text (formerly Oracle <i>interMedia</i> Text)	9.2.0.1.0	Oracle Text uses standard SQL to index, search and analyze text and documents stored in the Oracle database, in files and on the Web. Oracle Text analyzes document themes and gists and searches text using various search strategies. It also renders search results in several formats and analyzes and indexes most document formats with over 150 document filters. Oracle Text supports approximately 39 languages and bulk loads documents in the database with SQL*Loader.	<i>Oracle9i Text Reference</i> <i>Oracle Text Application Developer's Guide</i>

Table A–1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
OracleText Manager (installed with Oracle Enterprise Manager Integrated Applications)	9.2.0.1.0	OracleText Manager is an application for managing Oracle Text functionality.	<i>Oracle Enterprise Manager Concepts Guide</i>
Oracle Ultra Search	9.2.0.1.0	Oracle Ultra Search, a search engine that is built on top of Oracle Text, searches, organizes and categorizes content from multiple repositories, including databases, Web pages, files and mail servers.	<i>Oracle Ultra Search</i>
Oracle Universal Installer (OUI)	2.2.0.10.0	Oracle Universal Installer is a Java-based application that lets you quickly install (interactively or non-interactively), update, and remove Oracle products.	<i>Oracle9i Installation Guide</i> <i>Oracle Universal Installer Concepts Guide</i>
Oracle Utilities	9.2.0.1.0	Oracle Utilities consists of the following products for database administration: <ul style="list-style-type: none"> ■ DBVERIFY ■ Export Utility ■ Import Utility ■ Migration Utility ■ OCOPY ■ Password Utility ■ Recovery Manager ■ SQL*Loader 	<i>Oracle9i Utilities</i>
Oracle Wallet Manager	9.2.0.1.0	Oracle Wallet Manager stores and manages public-key security credentials for clients and servers. It generates a public-private key pair and creates a certificate request for submission to a certificate authority.	<i>Oracle Advanced Security Administrator's Guide</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle Workflow	2.6.2	Oracle Workflow is a workflow management system that supports business process definition and automation. The technology enables automation and continuous improvement of business processes, routing information of any type according to user-defined business rules.	<i>Oracle Workflow Client Installation Notes</i> <i>Oracle Workflow Guide</i> <i>Oracle Workflow Server Installation Notes</i>
Oracle Workflow Builder	2.6.2	Oracle Workflow Builder is a graphical user interface tool for creating, viewing, and modifying workflow process definitions.	<i>Oracle Workflow Client Installation Notes</i> <i>Oracle Workflow Guide</i>
Oracle Workflow Mailer	2.6.2	Oracle Workflow Mailer performs email send and response processing for the Oracle Workflow Notification System.	<i>Oracle Workflow Client Installation Notes</i> <i>Oracle Workflow Guide</i>
Oracle Workspace Manager	9.2.0.1.0	Oracle Workspace Manager enables long-duration transactions to be managed with concurrency, security and referential integrity. Transactions lasting days or months are visible in a workspace until explicitly merged with production data. Transactions can also be rolled back to any point in time without any changes to the application SQL.	<i>Oracle9i Application Developer's Guide-Workspace Manager</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle XML Developer's Kit	9.2.0.1.0	<p>This kit consists of a set of APIs for parsing and generating XML data. These interfaces have been written for Java, C, C++ and PL/SQL. This kit consists of the following components:</p> <ul style="list-style-type: none"> ■ XML Parser for Java ■ XML Parser for C ■ XML Parser for C++ ■ XML Parser for PL/SQL ■ XML Class Generator for Java ■ XML Class Generator for C++ ■ XML Transviewer Beans ■ XSQL Servlet 	<p><i>Oracle9i Application Developer's Guide - XML</i></p> <p><i>Oracle9i XML Reference</i></p>
Oracle XML SQL Utility	9.2.0.1.0	The Oracle XML SQL Utility is a set of Java classes and PL/SQL wrappers that permit queries to return result sets or objects wrapped in XML.	<p><i>Oracle9i Application Developer's Guide - XML</i></p> <p><i>Oracle9i XML Reference</i></p>
Oracle9i Data Mining	9.2.0.1.0	Oracle9i Data Mining, which is embedded in the Oracle9i database, enables you to build integrated business intelligence applications with complete programmatic control of data mining functions that deliver powerful, scalable modeling and real-time scoring. All model-building and scoring functions are accessible through a Java-based API. Data Mining enables e-businesses to incorporate predictions and classifications throughout all customer interactions and business processes.	<p><i>Oracle9i Data Mining Administrator's Guide</i></p> <p><i>Oracle9i Data Mining Concepts</i></p>
Oracle9i JVM Accelerator	9.2.0.1.0	The Oracle9i JVM Accelerator eliminates interpreter overhead by translating standard Java class files into specialized C source files. A platform-dependent C compiler then processes the C source files into native libraries, which can load dynamically. The Oracle9i JVM Accelerator is portable to all operating system and hardware platforms.	<p><i>Oracle9i Java Stored Procedures Development Guide</i></p> <p><i>Oracle9i Java Developer's Guide</i></p>
Oracle9i JVM Enterprise Edition	9.2.0.1.0	The Oracle9i JVM includes Oracle's Java Virtual Machine, embedded JDBC drivers, and SQLJ translator.	<i>Oracle9i Java Developer's Guide</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
Oracle9i Server	9.2.0.1.0	Oracle9i Server is the database component of Oracle9i.	<i>Getting to Know Oracle9i</i>
Pro*C/C++	9.2.0.1.0	Pro*C/C++ takes SQL statements embedded in C and C++ programs and converts them to standard C code. When you precompile this code, the result is a C or C++ program that you can compile and use to build applications that access an Oracle database. Note: This product requires a separate license as a part of Oracle Programmer.	<i>Pro*C/C++ Precompiler Programmer's Guide</i>
Pro*COBOL	1.8.77 9.2.0.1.0	Pro*COBOL takes SQL statements embedded in a COBOL program and converts them to standard COBOL code. When you precompile this code, the result is a COBOL program you can compile and use to build applications that access an Oracle database. Note: This product requires a separate license as a part of Oracle Programmer.	<i>Pro*COBOL Precompiler Programmer's Guide</i>
Pro*FORTRAN	1.8.77	Pro*FORTRAN takes SQL statements embedded in a FORTRAN program and converts them to standard FORTRAN code. When you precompile this code, the result is a FORTRAN program you can compile and use to build applications that access an Oracle database. Note: This product requires a separate license as a part of Oracle Programmer.	<i>Pro*Fortran Supplement to the Oracle Precompilers Guide</i>
Single Sign On Support	9.2.0.1.0	Oracle Advanced Security provides single sign-on to multiple accounts and applications with a single password. Strong authentication occurs transparently in subsequent connections. Oracle supports Kerberos, DCE and Secure Sockets Layers (SSL)-based single sign-on.	<i>Oracle Advanced Security Administrator's Guide</i>
SQL*Module Ada	9.2.0.1.0	SQL*Module Ada takes SQL statements embedded in an Ada program and converts them to standard Ada code. When you precompile this code, the result is a Ada program you can compile and use to build applications that access an Oracle database. Note: This product requires a separate license as a part of Oracle Programmer.	<i>SQL*Module for Ada Programmer's Guide</i>

Table A-1 Product Descriptions (Cont.)

Product	Release	Description	For more information, see...
SQL*Plus	9.2.0.1.0	SQL*Plus is a command line interface that enables you to use SQL and PL/SQL database languages with an Oracle database.	<i>SQL*Plus User's Guide and Reference</i>
SQL*Plus Worksheet (installed with Oracle Enterprise Manager)	9.2.0.1.0	SQL*Plus Worksheet is a graphical user interface for manually entering SQL, PL/SQL and DBA commands or running stored scripts.	<i>Oracle Enterprise Manager Administrator's Guide</i>
TCP/IP Protocol Support	9.2.0.1.0	TCP/IP Protocol Support enables client/server conversation over a network using TCP/IP and Oracle Net. This combination of Oracle products enables an Oracle application on a client to communicate with remote Oracle databases through TCP/IP (if the Oracle database is running on a host system that supports network communication using TCP/IP). Multi-Threaded Server (MTS) Support is available in TCP/IP networks. Connection Pooling is available only with MTS on TCP/IP networks.	<i>Oracle Net Administrator's Guide</i>
XML Development Kit (an Oracle version)	9.2.0.1.0	Required for integrating and running XML applications with the database.	<i>Not applicable</i>

Oracle Transparent Gateway

This chapter describes how to install the gateway software from the distribution CD-ROM. This chapter includes the following sections:

- [System Requirements for Oracle Transparent Gateway](#)
- [Installing Oracle Transparent Gateway](#)
- [Removing Oracle Transparent Gateway](#)

Note: For installation and configuration information on Enterprise Integration Gateways, refer to the *Oracle Transparent Gateway for IBM DRDA Installation and User's Guide Release 9.2.0.1.0 for UNIX Systems*, *Oracle Procedural Gateway for APPC Installation and Configuration Guide Release 9.2.0.1.0 for UNIX Systems*, and *Oracle Procedural Gateway and Tools for IBM MQSeries Installation and User's Guide Release 9.2.0.1.0 for UNIX Systems*.

System Requirements for Oracle Transparent Gateway

Review your system's hardware and software to ensure that it meets requirements, and determine gateway configuration before you install the gateway. Gateway components can be located on one platform or distributed over several platforms.

Oracle Corporation supports the software configurations described in this section as long as the underlying system software products are supported by their respective vendors. Verify the latest support status with your system software vendors.

Use the installation worksheet provided for your configuration to ensure that you have all required information before beginning installation.

The following sections describe system requirements for gateway configuration, and provide worksheets to use during the installation:

- [Informix Gateway Requirements](#)
- [Ingres Gateway Requirements](#)
- [Sybase Gateway Requirements](#)
- [Teradata Gateway Requirements](#)
- [Tested Gateway Configurations](#)
- [Gateway Installation Worksheets](#)

Informix Gateway Requirements

[Table B-1](#) describes the hardware and software requirements for an Informix gateway. Use it to ensure that your system meets requirements to create a gateway for the Oracle Transparent Gateway for Informix.

Table B-1 Informix Gateway Requirements

Hardware/ Software	Platform	Requirements
Operating System Version	HP	HP-UX version 11.0
	Solaris (32-bit only)	Solaris 2.6 and Solaris 7
	Solaris (32-bit and 64-bit)	Solaris 8
Disk Space	HP	200 MB
	Solaris	200 MB
Oracle Database	HP	Oracle9i 9.0.1 or Oracle9i 9.2.0.1.0 Oracle Database Server can reside on any supported platform.
	Solaris	Oracle9i 9.0.1 or Oracle9i 9.2.0.1.0 Oracle Database Server can reside on any supported platform.

Table B–1 Informix Gateway Requirements (Cont.)

Hardware/ Software	Platform	Requirements
Oracle Networking	HP	<p>On gateway computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Server 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>The following are required on the Oracle database server computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Client 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net products are included on the distribution CD-ROM.</p> <p>Oracle Net or Oracle Net Client and the Oracle Adapter must be installed on the computer where the Oracle Database Server is installed. Oracle Net Server and the Oracle Adapter must be installed on the computer where the gateway is installed.</p>
	Solaris	<p>On gateway computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Server 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>The following are required on the Oracle Database Server computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Client 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net products are included on the distribution CD-ROM.</p> <p>Oracle Net or Oracle Net Client and the Oracle Adapter must be installed on the computer where the Oracle Database Server is installed. Oracle Net Server and the Oracle Adapter must be installed on the computer where the gateway is installed.</p>
Informix	HP	<p>INFORMIX-OnLine, version 7.2, 7.3, 7.4, or 9.x and INFORMIX-ESQL/C are required. This version of the gateway does not support INFORMIX-SE.</p>
	Solaris	<p>INFORMIX-OnLine, version 7.2, 7.3 or 7.4 and INFORMIX-ESQL/C are required. This version of the gateway does not support INFORMIX-SE.</p>

Ingres Gateway Requirements

[Table B-2](#) describes the hardware and software requirements for an Ingres gateway. Use it to ensure that your system meets requirements to create a gateway for the Oracle Transparent Gateway for Ingres.

Table B-2 Ingres Gateway Requirements

Hardware/ Software	Platform	Requirements
Operating System Version	HP	HP-UX version 11.0
	Solaris (32-bit only)	Solaris 2.6 and Solaris 7
	Solaris (32-bit and 64-bit)	Solaris 8
Disk Space	HP	200 MB
	Solaris	200 MB
Oracle Database	HP	Oracle9i 9.0.1 or Oracle9i 9.2.0.1.0 Oracle Database Server can reside on any supported platform.
	Solaris	Oracle9i 9.0.1 or Oracle9i 9.2.0.1.0 Oracle Database Server can reside on any supported platform.
Oracle Networking	HP	On gateway computer: <ul style="list-style-type: none"> ■ Oracle Net Server 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. The following are required on the Oracle Database Server computer: <ul style="list-style-type: none"> ■ Oracle Net Client 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. Oracle Net products are included on the distribution CD-ROM. Oracle Net or Oracle Net Client and the Oracle Adapter must be installed on the computer where the Oracle Database Server is installed. Oracle Net Server and the Oracle Adapter must be installed on the computer where the gateway is installed.

Table B–2 Ingres Gateway Requirements (Cont.)

Hardware/ Software	Platform	Requirements
	Solaris	<p>On gateway computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Server 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>The following are required on the Oracle Database Server computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Client 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net products are included on the distribution CD-ROM.</p> <p>Oracle Net or Oracle Net Client and the Oracle Adapter must be installed on the computer where the Oracle Database Server is installed. Oracle Net Server and the Oracle Adapter must be installed on the computer where the gateway is installed.</p>
Ingres	HP	Ingres II version 2.0.
	Solaris	Ingres II version 2.0.

Sybase Gateway Requirements

[Table B–3](#) describes the hardware and software requirements for a Sybase gateway. Use it to ensure that your system meets requirements to create a gateway for the Oracle Transparent Gateway for Sybase.

Table B–3 Sybase Gateway Requirements

Hardware/ Software	Platform	Requirements
Operating System Version	AIX	4.3.3 and 5.1
	HP	HP-UX version 11.0
	Solaris (32-bit only)	Solaris 2.6 and Solaris 7
	Solaris (32-bit and 64-bit)	Solaris 8

Table B-3 Sybase Gateway Requirements (Cont.)

Hardware/ Software	Platform	Requirements
	Tru64	Tru64 5.1 and 5.1A
Disk Space	AIX	200 MB
	HP	200 MB
	Solaris	200 MB
	Tru64	200 MB
Oracle Database	AIX	Oracle9i 9.0.1 (AIX 4.3.3 only) or Oracle9i 9.2.0.1.0 Oracle Database Server can reside on any supported platform.
	HP	Oracle9i 9.0.1 or Oracle9i 9.2.0.1.0 Oracle Database Server can reside on any supported platform.
	Solaris	Oracle9i 9.0.1 or Oracle9i 9.2.0.1.0 Oracle Database Server can reside on any supported platform.
	Tru64	Oracle9i 9.0.1 or Oracle9i 9.2.0.1.0 Oracle Database Server can reside on any supported platform.
Oracle Networking	AIX	<p>The following are required on the gateway computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Server 9.2.0.1.0 ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net Server and the Oracle Adapter must be installed on the computer where the gateway is installed.</p> <p>The following are required on the Oracle Database Server computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Client 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net or Oracle Net Client and the Oracle Adapter must be installed on the computer where the Oracle Database Server is installed.</p> <p>The Oracle Net products are included on the Oracle9i distribution CD-ROM.</p>

Table B-3 Sybase Gateway Requirements (Cont.)

Hardware/ Software	Platform	Requirements
	HP	<p>The following are required on the gateway computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Server 9.2.0.1.0 ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net Server and the Oracle Adapter must be installed on the computer where the gateway is installed.</p> <p>The following are required on the Oracle Database Server computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Client 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net or Oracle Net Client and the Oracle Adapter must be installed on the computer where the Oracle Database Server is installed.</p> <p>The Oracle Net products are included on the Oracle9i distribution CD-ROM.</p>
	Solaris	<p>The following are required on the gateway computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Server 9.2.0.1.0 ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net Server and the Oracle Adapter must be installed on the computer where the gateway is installed.</p> <p>The following are required on the Oracle Database Server computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Client 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net or Oracle Net Client and the Oracle Adapter must be installed on the computer where the Oracle Database Server is installed.</p> <p>The Oracle Net products are included on the Oracle9i distribution CD-ROM.</p>

Table B–3 Sybase Gateway Requirements (Cont.)

Hardware/ Software	Platform	Requirements
	Tru64	<p>The following are required on the gateway computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Server 9.2.0.1.0 ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net Server and the Oracle Adapter must be installed on the computer where the gateway is installed.</p> <p>The following are required on the Oracle Database Server computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Client 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net or Oracle Net Client and the Oracle Adapter must be installed on the computer where the Oracle Database Server is installed.</p> <p>The Oracle Net products are included on the Oracle9i distribution CD-ROM.</p>
	AIX	<p>Sybase Server or Client, version 11.9.2, 12.0, or 12.5 is required. If Sybase Server is not on the same computer as the gateway, then the version of Sybase Open Library certified for your Sybase Server is required.</p>
	HP	<p>Sybase Server or Client, version 11.9.2, 12.0, or 12.5. If Sybase Server is not on the same computer as the gateway, then the version of Sybase Open Library certified for your Sybase Server is required.</p>
	Solaris	<p>Sybase Server or Client, version 11.9.2, 12.0, or 12.5. If Sybase Server is not on the same computer as the gateway, then the version of Sybase Open Library certified for your Sybase Server is required.</p>
	Tru64	<p>Sybase Server or Client, version 11.9.2, 12.0, or 12.5. If Sybase Server is not on the same computer as the gateway, then the version of Sybase Open Library certified for your Sybase Server is required.</p>

Teradata Gateway Requirements

Table B-4 describes the hardware and software requirements for a Teradata Gateway. Use it to ensure that your system meets requirements to create a gateway for the Oracle Transparent Gateway for Teradata.

Table B-4 Teradata Gateway Hardware Requirements

Hardware	Platform	Requirements
Operating System Version	HP	HP-UX version 11.0
	Solaris (32-bit only)	Solaris 2.6 and Solaris 7
	Solaris (32-bit and 64-bit)	Solaris 8
Disk Space	HP	200 MB
	Solaris	200 MB
Oracle Database Server	HP	Oracle9i Enterprise Edition Server 9.2.0.1.0. Oracle database server can reside on any supported platform.
	Solaris	Oracle9i Enterprise Edition Server 9.2.0.1.0. Oracle database server can reside on any supported platform.
Oracle Networking	HP	<p>The following are required on the gateway computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Server 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net Server and the Oracle Adapter must be installed on the computer where the gateway is installed.</p> <p>The following are required on the Oracle database server computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Client 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net or Oracle Net Client and the Oracle Adapter must be installed on the computer where the Oracle database server is installed.</p> <p>The Oracle Net products are included on the Oracle9i distribution CD-ROM.</p>

Table B-4 Teradata Gateway Hardware Requirements (Cont.)

Hardware	Platform	Requirements
	Solaris	<p>The following are required on the gateway computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Server 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net Server and the Oracle Adapter must be installed on the computer where the gateway is installed.</p> <p>The following are required on the Oracle database server computer:</p> <ul style="list-style-type: none"> ■ Oracle Net Client 9.2.0.1.0. ■ Oracle Adapter for Named Pipes or TCP/IP. <p>Oracle Net or Oracle Net Client and the Oracle Adapter must be installed on the computer where the Oracle database server is installed.</p> <p>The Oracle Net products are included on the Oracle9i distribution CD-ROM.</p>
Teradata	HP	Teradata V2R.03.00.02 or V2R.04.00.0115.
	Solaris	Teradata V2R.03.00.02 or V2R.04.00.0115.
NCR's Teradata ODBC Driver	HP	version 02.04.00.00.
	Solaris	version 02.04.00.00.

Tested Gateway Configurations

The following tables provide gateway configurations tested by Oracle Corporation at the time of this document release. Oracle continues to provide support for the most recent releases of Oracle and non-Oracle systems in a timely manner.

Table B-5 Tested Gateway Configurations

Database	Gateway and Operating System
Informix version 7.2	tg4ifmx version 9.2.0.1.0 running on HP-UX version 11.0 tg4ifmx version 9.2.0.1.0 running on Sun Solaris version 2.6 (5.6), 7 (5.7) or 8 (5.8).
Informix version 7.3	tg4ifmx version 9.2.0.1.0 running on HP-UX version 11.0 tg4ifmx version 9.2.0.1.0 running on Solaris version 2.6 (5.6), 7 (5.7) or 8 (5.8).

Table B-5 Tested Gateway Configurations (Cont.)

Database	Gateway and Operating System
Informix version 7.4	tg4ifmx version 9.2.0.1.0 running on HP-UX version 11.0 tg4ifmx version 9.2.0.1.0 running on Solaris version 2.6 (5.6), 7 (5.7) or 8 (5.8).
Informix version 9.x	tg4ifmx version 9.2.0.1.0 running on HP-UX version 11.0 tg4ifmx version 9.2.0.1.0 running on Solaris version 2.6 (5.6), 7 (5.7) or 8 (5.8).
Ingres II version 2.0	tg4ingr version 9.2.0.1.0 running on HP-UX version 11.0 tg4ingr version 9.2.0.1.0 running on Solaris version 2.6 (5.6), 7 (5.7) or 8 (5.8).
Sybase version 11.9.2	tg4sybs version 9.2.0.1.0 running on AIX version 4.3.3 or 5.1 tg4sybs version 9.2.0.1.0 running on HP-UX version 11.0 tg4sybs version 9.2.0.1.0 running on Solaris version 2.6 (5.6), 7 (5.7) or 8 (5.8). tg4sybs version 9.2.0.1.0 running on Tru64 version 5.1
Sybase version 12.0	tg4sybs version 9.2.0.1.0 running on AIX version 4.3.3 or 5.1 tg4sybs version 9.2.0.1.0 running on HP-UX version 11.0 tg4sybs version 9.2.0.1.0 running on Solaris version 2.6 (5.6), 7 (5.7) or 8 (5.8). tg4sybs version 9.2.0.1.0 running on Tru64 version 5.1
Sybase version 12.5	tg4sybs version 9.2.0.1.0 running on AIX version 4.3.3 or 5.1 tg4sybs version 9.2.0.1.0 running on HP-UX version 11.0 tg4sybs version 9.2.0.1.0 running on Solaris version 2.6 (5.6), 7 (5.7) or 8 (5.8). tg4sybs version 9.2.0.1.0 running on Tru64 version 5.1
Teradata V2R3.03.00.02	tg4tera version 9.2.0.1.0 running on HP-UX version 11.0 through NCR's ODBC Driver for Teradata V02.04.00.00 tg4tera version 9.2.0.1.0 running on Solaris version 2.6 (5.6), 7 (5.7) or 8 (5.8) through NCR's ODBC Driver for Teradata V02.04.00.00
Teradata V2R04.03.00.15	tg4tera version 9.2.0.1.0 running on HP-UX version 11.0 through NCR's ODBC Driver for Teradata V02.04.00.00 tg4tera version 9.2.0.1.0 running on Solaris version 2.6 (5.6), 7 (5.7) or 8 (5.8) through NCR's ODBC Driver for Teradata V02.04.00.00

See Also: <http://www.oracle.com/gateways>

Oracle Corporation continually updates supported gateway configurations. For the latest supported configuration information, either contact Oracle Support Services or visit the following Web site:

Gateway Installation Worksheets

Select the worksheet appropriate for your system in one of the following tables, and use the values you enter as a reference during the configuration process:

- [Informix Worksheet](#)
- [Ingres Worksheet](#)
- [Sybase Worksheet](#)
- [Teradata Worksheet](#)

Informix Worksheet

Enter your system values in the following [Table B-6](#) to prepare for an Informix gateway configuration.

Table B-6 *Informix Installation Worksheet*

Description	Value
Oracle database server computer name	
Oracle database server platform (OS and its version number)	
\$ORACLE_HOME of Oracle database server (full path name)	
Gateway computer name	
Gateway computer platform (OS and its version number)	
\$ORACLE_HOME of the gateway (full path name)	
Informix client library location (full path name)	
Name of the Informix server to which the gateway will connect	
Name of the Informix database to which the gateway will connect	

Ingres Worksheet

Enter your system values in the following [Table B-7](#) to prepare for an Ingres gateway configuration.

Table B-7 Ingres Installation Worksheet

Description	Value
Oracle database server computer name	
Oracle database server platform (OS and its version number)	
\$ORACLE_HOME of Oracle database server (full path name)	
Gateway computer name	
Gateway computer platform (OS and its version number)	
\$ORACLE_HOME of the gateway (full path name)	
Ingres net/server installed location (full path name)	
Name of the Ingres virtual node that will be used to access a remote, networked Ingres server	
Name of the Ingres database to which the gateway will connect	

Sybase Worksheet

Enter your system values in the following [Table B-8](#) to prepare for a Sybase gateway configuration.

Table B-8 Sybase Installation Worksheet

Description	Value
Oracle database server computer name	
Oracle database server platform (OS and its version number)	
\$ORACLE_HOME of Oracle database server (full path name)	
Gateway computer name	
Gateway computer platform (OS and its version number)	
\$ORACLE_HOME of the gateway (full path name)	
Name of the Sybase Adaptive Server to which the gateway will connect	

Teradata Worksheet

Enter your system values in the following [Table B-9](#) to prepare for a Teradata gateway configuration.

Table B-9 Teradata Installation Worksheet

Description	Value
Oracle database server computer name	
Oracle database server platform (OS and its version number)	
\$ORACLE_HOME of Oracle database server (full path name)	
Gateway computer name	
Gateway computer platform (OS and its version number)	
\$ORACLE_HOME of the gateway (full path name)	
Version of the Teradata Server to which the gateway will connect.	
ODBC Data Source Name (DSN) to be used by the gateway.	
Directory where the NCR ODBC Driver for Teradata is installed.	

Installing Oracle Transparent Gateway

Use the following procedures and tables to install Oracle Transparent Gateway.

Installation Procedure for Transparent Gateway

Install the gateway software from the database CD-ROM as follows:

1. Start the Oracle Universal Installer.

Note: Complete instructions for mounting and running the Oracle Universal Installer are not presented here. Review [Chapter 3, "Installation"](#) to find complete mounting and starting instructions for your platform. As a gateway is installed using Custom Installation, see [Oracle9i Database Custom Installation](#) on page 3-17.

2. Select the Transparent Gateway option from the Oracle9i database Custom Install type.

3. From the Transparent Gateway List, select the gateway product to be installed.

Installation Prompts for Informix Gateway

Use [Table B–10, "Installation Prompts and Responses for Informix"](#) as a guide during your gateway installation. Follow the instructions in the Response column for each entry in the Screen column. When you have completed the responses, follow the instructions in the ["Completing Informix Gateway Installation"](#) section.

Table B–10 *Installation Prompts and Responses for Informix*

Screen	Response
Informix Client Library Path: The complete path where the Informix client library is installed.	In the Informix Client Library Path text box, enter the location of your Informix client library files. Specify full paths with directory names not exceeding 32 alphanumeric characters. When you have entered these names, click the Next button.

Completing Informix Gateway Installation

When the *Summary* screen appears, click Install.

Verify that the installation was successful after the Oracle Universal Installer confirms that the installation has been completed. Check the contents of the `installActions.log` file located in the `orainventory_location/logs/` directory.

Installation Prompts for Ingres Gateway

Use [Table B–11, "Installation Prompts and Responses for Ingres"](#) as a guide during the installation. Follow the instructions in the Response column for each entry in the Screen column. When you have completed the responses, follow the instructions in the ["Completing Ingres Gateway Installation"](#) section.

Table B–11 Installation Prompts and Responses for Ingres

Screen	Response
Ingres II installation: ANSI/ISO entry SQL-92 database standard.	Indicate if your Ingres database is compliant with the ANSI/ISO-92 Entry SQL database standard. Click the Yes radio button if your Ingres database complies with this standard. Click the No radio button if your Ingres database does not comply with this standard. When you have selected the option that describes your Ingres installation, click the Next button

Completing Ingres Gateway Installation

When the *Summary* screen appears, click Install.

Verify that the installation was successful after the Oracle Universal Installer confirms that the installation has been completed. Check the contents of the `installActions.log` file located in the `orainventory_location/logs/` directory.

Installation Prompts for Sybase Gateway

Use [Table B–12, "Installation Prompts and Responses for Sybase"](#) as a guide during the installation. Follow the instructions in the Response column for each entry in the Screen column. When you have completed the responses, follow the instructions in the "[Completing Sybase Gateway Installation](#)" section.

Table B–12 Installation Prompts and Responses for Sybase

Screen	Responses
Sybase Path: The complete path where Sybase is installed.	In the Sybase path text box, type the complete directory path where the Sybase software is installed. The gateway will connect to this database. When you have entered this path, click the Next button.
Sybase Server and Database Names: Names of the SYBASE server and the SYBASE database.	In the Sybase Server text box, type the name of the Sybase server. The gateway will connect to this server. In the Sybase Database text box, type the name of the Sybase database. The gateway will connect to this database. When you have entered these names, click the Next button.

Completing Sybase Gateway Installation

When the *Summary* screen appears, click Install.

Verify that the installation was successful after the Oracle Universal Installer confirms that the installation has been completed. Check the contents of the `installActions.log` file located in the `orainventory_location/logs/` directory.

Installation Prompts for Teradata Gateway

Use [Table B-13, "Installation Prompts and Responses for Teradata"](#) as a guide during the installation. Follow the instructions in the Response column for each entry in the Screen column. When you have completed the responses, follow the instructions in the "[Completing Teradata Gateway Installation](#)" section.

Table B-13 *Installation Prompts and Responses for Teradata*

Screen	Response
ODBC Data Source name that will be used by the gateway	Enter the Open Database Connectivity (ODBC) data source name (DSN) for the Teradata database to which the gateway will connect. The DSN is defined in the <code>odbc.ini</code> file.

Completing Teradata Gateway Installation

When the *Summary* screen appears, click Install.

Verify that the installation was successful after the Oracle Universal Installer confirms that the installation has been completed. Check the contents of the `installActions.log` file located in the `orainventory_location/logs/` directory.

Removing Oracle Transparent Gateway

Remove the gateway as follows:

1. Start the Oracle Universal Installer.
2. Click the De-install Products button on the *Welcome* window or the Installed Products ... button available on any Oracle Universal Installer window. The *Inventory* window appears and displays a list of installed products.
3. Click to select the gateway product in the *Inventory* window and click Remove.

Only the files that were copied into the Oracle home directory during the gateway installation are automatically removed. You must manually remove all other related files.

Installation Checklist

The tables in this appendix provide you with a checklist to assist you in installing Oracle9i. During the installation, you will be prompted for some of the information on this checklist. The checklist covers the following information:

Note: This checklist is not a substitute for the *Oracle9i Installation Guide Release 2 (9.2.0.1.0) for UNIX Systems*. Use this in conjunction with the installation guide and the Oracle9i release notes for your platform.

The checklists consist of several columns. The leftmost column indicates the requirements to be met, tasks to be completed, or the information to be obtained before you begin to install Oracle9i. Use the rightmost column to confirm that you have the minimum requirements, to mark that you have completed the tasks, or to write any required information.

Note: The requirements listed apply to all of the following platforms, unless otherwise noted: AIX, HP, Linux, Solaris, and Tru64.

Hardware Requirements

The following tables list the hardware requirements for installing Oracle9i database.

Components	Requirements	Requirements Confirmed
Memory	A minimum of 512 MB RAM for AIX, HP, Linux, Solaris, and Tru64	
Swap Space	A minimum of 2 x RAM or 400 MB, whichever is greater	
Disk Space	4.5 GB	

Software Requirements

The following tables list the software requirements for installing Oracle9i database.

Components	Requirements	Requirements Confirmed
Operating System	For the latest information, refer to the Oracle9i Release Notes release 2 (9.2.0.1.0) for your platform on Oracle <i>MetaLink</i> .	
Operating System Patches	For the latest information, refer to the Oracle9i Release Notes release 2 (9.2.0.1.0) for your platform on Oracle <i>MetaLink</i> .	
System Environment Variables	For the latest information, refer to the Oracle9i Release Notes release 2 (9.2.0.1.0) for your platform on Oracle <i>MetaLink</i> .	
Tuning Kernel Parameters for Oracle	For the latest information, refer to the Oracle9i Release Notes release 2 (9.2.0.1.0) for your platform on Oracle <i>MetaLink</i> . There are no kernel parameters required for AIX.	
X Server System Software	For the latest information, refer to the Oracle9i Release Notes release 2 (9.2.0.1.0) for your platform on Oracle <i>MetaLink</i> .	

Administrative Groups

The following tables list the system administration groups to be created before installing Oracle9i database.

Component	Requirement
<ul style="list-style-type: none"> ■ OSDBA group ■ APACHE group ■ OSOPER group (optional) ■ ORAINVENTORY group (optional) 	

Administrative Accounts

The following tables list the operating system administration accounts to be created for installing Oracle9i database.

Component	Operating System Administrative Account Name for your System
<ul style="list-style-type: none"> ■ Oracle Software Owner ■ APACHE account 	

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