Oracle® Enterprise Manager

Configuration Guide

Release 9.2.0.2

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Oracle Enterprise Manager Configuration Guide, Release 9.2.0.2

Part No. A96673-02

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Preface

The *Oracle Enterprise Manager Configuration Guide* explains how to configure Oracle®
Enterprise Manager Release 9.2.0.

Oracle Enterprise Manager is a system management tool which provides an
integrated solution for managing your heterogeneous environment. The product
combines a graphical console, agents, common services, and tools to provide an
integrated, comprehensive systems management platform for managing Oracle
products.

After you have completed the configuration procedures, refer to the Oracle
Enterprise Manager online help or the *Oracle Enterprise Manager Administrator's
Guide* for information on how to use Oracle Enterprise Manager.

For program updates and important notes on using Oracle Enterprise Manager,
refer to the *Oracle Enterprise Manager Readme.*

Intended Audience

This guide is written for DBAs and system administrators who want to configure Oracle Enterprise Manager. You should already be familiar with Oracle and the administrative tasks you want to perform.

For general information about the Oracle9*i* and how it works, refer to *Oracle9i Database Concepts*. For information about database administration procedures, refer to the Oracle9*i* documentation set. The Oracle9*i* documentation set contains specific and thorough descriptions of the database administration tasks you can perform with Oracle Enterprise Manager tools. In addition, the Oracle9*i* documentation set provides recommendations on how to administer your database optimally.

You should also be familiar with the operation of your specific Microsoft Windows or Unix system. Refer to the documentation for your Windows or Unix system, if necessary.

Structure

This manual contains the following chapters and appendices:

Chapter 1, "Introduction"

This chapter provides an overview of the Oracle Enterprise Manager configuration. The introduction contains topics on Oracle Enterprise Manager architecture, deployment strategies, certification, and system and hardware requirements.

Chapter 2, "Standalone"

This chapter will describe requirements for running the Console standalone.

Chapter 3, "Configuring and Controlling the Management Server"

This chapter contains additional configuration tasks that you must perform on the middle tier Management Server machine(s) if you have chosen to deploy the entire Enterprise Manager framework (for example, Console, Management Server, and Intelligent Agents).

Chapter 4, "Configuring the Console when Connected to a Management Server"

This chapter will describe how to configure the Enterprise Manager Console when it is connected to a middle tier Management Server.

Chapter 5, "Running Enterprise Manager Console from a Web Browser"

This chapter contains information on the additional tasks you need to perform to run Enterprise Manager through a web browser.

Chapter 6, "Tuning the Oracle Management Server"

This chapter contains information about tuning the Oracle Management Server.

Appendix A, "Directory Structure"

This appendix describes the directory structure of Oracle Enterprise Manager Release 9i.

Appendix B, "Activating Logging and Tracing"

This appendix contains information about specifying parameters for logging and tracing for Enterprise Manager.

Appendix C, "General Repository Guidelines"

This appendix provides guidelines for determining storage requirements and disk space allocation for your Oracle Enterprise Manager repository.

Appendix D, "Globalization Support"

This appendix lists the languages into which Enterprise Manager has been translated.

Appendix E, "Using Enterprise Manager on Windows 2000"

This appendix contains the difference between using Enterprise Manager on Windows NT and Windows 2000.

Appendix F, "Troubleshooting"

This appendix contains information about possible troubleshooting issues.

Appendix G, "Keyboard Navigation"

This appendix contains non-standard keys.

Appendix H, "Repository Views Addendum"

This appendix documents the repository views that were documented incorrectly or not included in the *Oracle Enterprise Manager Administrator's Guide*

Documentation Set

The Oracle Enterprise Manager Release 9*i* documentation includes the following:

- The *Oracle Enterprise Manager Readme* Release 9*i* provides important notes on updates to the software and other late-breaking news, as well as any differences between the product's behavior and how it is documented.

- The *Oracle Enterprise Manager Configuration Guide* Release 9*i* provides information about configuring the Oracle Enterprise Manager system.

- The *Oracle Enterprise Manager Concepts Guide* Release 9*i* provides an overview of the Enterprise Manager system.

- The *Oracle Enterprise Manager Administrator's Guide* Release 9*i* describes the components and features of the Oracle Enterprise Manager system.

- The *Oracle Intelligent Agent User's Guide* describes how to administer the Oracle Intelligent Agent.

- The *Oracle Enterprise Manager Messages Manual* Release 9*i* contains probable causes and recommended actions for Oracle Enterprise Manager errors.

In addition to the Oracle Enterprise Manager documentation set, extensive on-line help is provided for components in Oracle Enterprise Manager.

To download free release notes or installation documentation, please visit the Oracle Documentation Center at `http://docs.oracle.com/`

Printed documentation is available for sale in the Oracle Store at `http://oraclestore.oracle.com/`

Related Documents

For more information, see the following resources:

- *Oracle9i Database New Features*
- *Oracle9i Database Concepts*
- *Oracle9i Database Administrator's Guide*
- *SQL*Plus User's Guide and Reference*
- *Oracle9i Database Error Messages*
- *Oracle9i Backup and Recovery Concepts*
- *Oracle9i Globalization Support Guide*

- *Oracle9i Database Reference*
- *Oracle9i Recovery Manager Quick Reference*
- *Oracle9i Recovery Manager Reference*
- *Oracle9i Recovery Manager User's Guide*
- *Oracle9i SQL Reference*

In North America, printed documentation is available for sale in the Oracle Store at

```
http://oraclestore.oracle.com/
```

> **Note:** This installation guide and other platform-specific documentation are not available for purchase in printed format.

Customers in Europe, the Middle East, and Africa (EMEA) can purchase documentation from

```
http://www.oraclebookshop.com/
```

Other customers can contact their Oracle representative to purchase printed documentation.

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

```
http://otn.oracle.com/admin/account/membership.html
```

If you already have a username and password for OTN, then you can go directly to the documentation section of the OTN Web site at

```
http://otn.oracle.com/docs/index.htm
```

To access the database documentation search engine directly, please visit

```
http://tahiti.oracle.com/
```

Conventions

This section describes the conventions used in the text and code examples of this documentation set. It describes:

- Conventions in Text
- Conventions in Code Examples
- Conventions for Microsoft Windows Operating Systems

Conventions in Text

We use various conventions in text to help you more quickly identify special terms. The following table describes those conventions and provides examples of their use.

Convention	Meaning	Example
Bold	Bold typeface indicates terms that are defined in the text or terms that appear in a glossary, or both.	When you specify this clause, you create an **index-organized table**.
Italics	Italic typeface indicates book titles or emphasis.	*Oracle9i Database Concepts*
		Ensure that the recovery catalog and target database do *not* reside on the same disk.
`UPPERCASE monospace (fixed-width font)`	Uppercase monospace typeface indicates elements supplied by the system. Such elements include parameters, privileges, datatypes, RMAN keywords, SQL keywords, SQL*Plus or utility commands, packages and methods, as well as system-supplied column names, database objects and structures, usernames, and roles.	You can specify this clause only for a `NUMBER` column.
		You can back up the database by using the `BACKUP` command.
		Query the `TABLE_NAME` column in the `USER_TABLES` data dictionary view.
		Use the `DBMS_STATS.GENERATE_STATS` procedure.

Convention	Meaning	Example
`lowercase monospace (fixed-width font)`	Lowercase monospace typeface indicates executables, filenames, directory names, and sample user-supplied elements. Such elements include computer and database names, net service names, and connect identifiers, as well as user-supplied database objects and structures, column names, packages and classes, usernames and roles, program units, and parameter values. **Note:** Some programmatic elements use a mixture of UPPERCASE and lowercase. Enter these elements as shown.	Enter `sqlplus` to open SQL*Plus. The password is specified in the `orapwd` file. Back up the datafiles and control files in the `/disk1/oracle/dbs` directory. The `department_id`, `department_name`, and `location_id` columns are in the `hr.departments` table. Set the `QUERY_REWRITE_ENABLED` initialization parameter to `true`. Connect as `oe` user. The `JRepUtil` class implements these methods.
`lowercase monospace (fixed-width font) italic`	Lowercase monospace italic font represents placeholders or variables.	You can specify the `parallel_clause`. Run U`old_release`.SQL where `old_release` refers to the release you installed prior to upgrading.

Conventions in Code Examples

Code examples illustrate SQL, PL/SQL, SQL*Plus, or other command-line statements. They are displayed in a monospace (fixed-width) font and separated from normal text as shown in this example:

```
SELECT username FROM dba_users WHERE username = 'MIGRATE';
```

The following table describes typographic conventions used in code examples and provides examples of their use.

Convention	Meaning	Example
[ ]	Brackets enclose one or more optional items. Do not enter the brackets.	`DECIMAL (digits [ , precision ])`
{ }	Braces enclose two or more items, one of which is required. Do not enter the braces.	`{ENABLE	DISABLE}`
|	A vertical bar represents a choice of two or more options within brackets or braces. Enter one of the options. Do not enter the vertical bar.	`{ENABLE	DISABLE}` `[COMPRESS	NOCOMPRESS]`

Convention	Meaning	Example
...	Horizontal ellipsis points indicate either:	
	■ That we have omitted parts of the code that are not directly related to the example	`CREATE TABLE ... AS subquery;`
	■ That you can repeat a portion of the code	`SELECT col1, col2, ... , coln FROM employees;`
. . .	Vertical ellipsis points indicate that we have omitted several lines of code not directly related to the example.	
Other notation	You must enter symbols other than brackets, braces, vertical bars, and ellipsis points as shown.	`acctbal NUMBER(11,2);` `acct    CONSTANT NUMBER(4) := 3;`
Italics	Italicized text indicates placeholders or variables for which you must supply particular values.	`CONNECT SYSTEM/system_password` `DB_NAME = database_name`

UPPERCASE	Uppercase typeface indicates elements supplied by the system. We show these terms in uppercase in order to distinguish them from terms you define. Unless terms appear in brackets, enter them in the order and with the spelling shown. However, because these terms are not case sensitive, you can enter them in lowercase.	`SELECT last_name, employee_id FROM employees;`
		`SELECT * FROM USER_TABLES;`
		`DROP TABLE hr.employees;`

lowercase	Lowercase typeface indicates programmatic elements that you supply. For example, lowercase indicates names of tables, columns, or files.
	
	Note: Some programmatic elements use a mixture of UPPERCASE and lowercase. Enter these elements as shown.
		`SELECT last_name, employee_id FROM employees;`
		`sqlplus hr/hr`
		`CREATE USER mjones IDENTIFIED BY ty3MU9;`

Conventions for Microsoft Windows Operating Systems

The following table describes conventions for Microsoft Windows operating systems and provides examples of their use.

Convention	Meaning	Example
Choose Start >	How to start a program.	To start the Oracle Database Configuration Assistant, choose Start > Programs > Oracle - *HOME_NAME* > Configuration and Migration Tools > Database Configuration Assistant.
File and directory names	File and directory names are not case sensitive. The following special characters are not allowed: left angle bracket (<), right angle bracket (>), colon (:), double quotation marks ("), slash (/), pipe (|), and dash (-). The special character backslash (\) is treated as an element separator, even when it appears in quotes. If the file name begins with \\, then Windows assumes it uses the Universal Naming Convention.	`c:\winnt"\"system32` is the same as `C:\WINNT\SYSTEM32`
`C:\>`	Represents the Windows command prompt of the current hard disk drive. The escape character in a command prompt is the caret (^). Your prompt reflects the subdirectory in which you are working. Referred to as the *command prompt* in this manual.	`C:\oracle\oradata>`

	The backslash (\) special character is sometimes required as an escape character for the double quotation mark (") special character at the Windows command prompt. Parentheses and the single quotation mark (') do not require an escape character. Refer to your Windows operating system documentation for more information on escape and special characters.	`C:\>exp scott/tiger TABLES=emp QUERY=\"WHERE job='SALESMAN' and sal<1600\"`
		
		`C:\>imp SYSTEM/password FROMUSER=scott TABLES=(emp, dept)`

HOME_NAME	Represents the Oracle home name. The home name can be up to 16 alphanumeric characters. The only special character allowed in the home name is the underscore.	`C:\> net start OracleHOME_NAMETNSListener`

Convention	Meaning	Example
ORACLE_HOME and *ORACLE_BASE*	In releases prior to Oracle8*i* release 8.1.3, when you installed Oracle components, all subdirectories were located under a top level *ORACLE_HOME* directory that by default used one of the following names: ■ `C:\orant` for Windows NT ■ `C:\orawin95` for Windows 95 ■ `C:\orawin98` for Windows 98 This release complies with Optimal Flexible Architecture (OFA) guidelines. All subdirectories are not under a top level *ORACLE_HOME* directory. There is a top level directory called *ORACLE_BASE* that by default is `C:\oracle`. If you install Oracle9*i* release 1 (9.0.1) on a computer with no other Oracle software installed, then the default setting for the first Oracle home directory is `C:\oracle\ora90`. The Oracle home directory is located directly under *ORACLE_BASE*. All directory path examples in this guide follow OFA conventions. Refer to *Oracle9i Database Getting Starting for Windows* for additional information about OFA compliances and for information about installing Oracle products in non-OFA compliant directories.	Go to the *ORACLE_BASE**ORACLE_HOME*\ `rdbms\admin` directory.

Documentation Accessibility

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

Accessibility of Code Examples in Documentation

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

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1

Introduction

This chapter describes key concepts and requirements associated with deploying Oracle Enterprise Manager and its separately licensable Management Packs:

- Product Architecture
- Deployment Options
- Certifications
- System and Hardware Requirements
- Version Compatibility

Product Architecture

Oracle Enterprise Manager is Oracle's single, integrated solution for administering and monitoring global enterprises. Enterprise Manager is based upon a lightweight, three-tier architecture that offers flexible deployment options, round-the-clock reliability, and unparalleled scalability.

The product's three-tier architecture is comprised of the following:

- Consoles, integrated applications and Management Packs
- Management Servers and database repository
- Intelligent Agents

This architecture, which underlies the Enterprise Manager framework, is described in more detail below.

Figure 1–1   Three-Tier Architecture
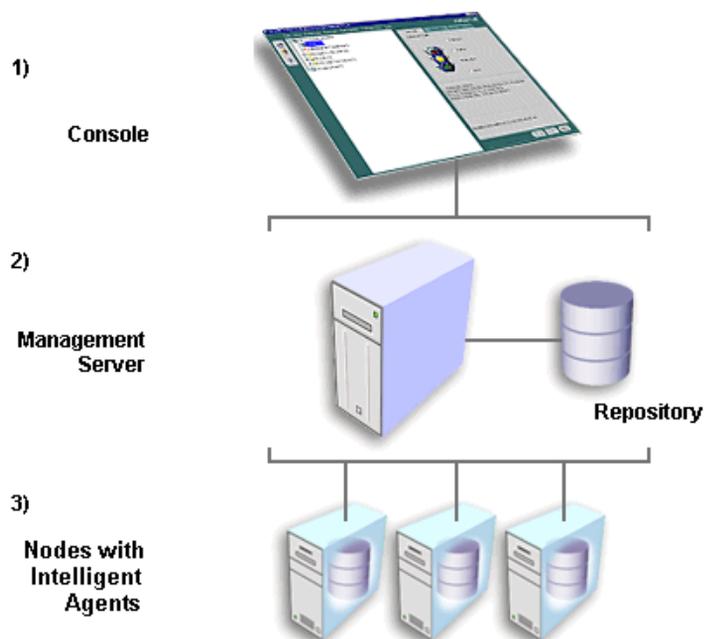
First Tier: Centralized Consoles

The primary responsibility of first-tier Enterprise Manager clients is to present the user interface to administrators for all their management tasks.

Depending on what has been installed and licensed, first tier clients could consist of the following components:

- Consoles

> **Note:** Beginning with Release 9.0, Oracle DBA Studio functionality has been fully integrated within the Console.

- Integrated management applications, which include Oracle Forms Server Manager, Oracle Policy Manager, Oracle Directory Manager, Oracle Net Manager, Oracle Spatial Index Advisor, Oracle Data Guard Manager, Oracle LogMiner Viewer, Oracle Enterprise Security Manager, and Oracle Text Manager.

- Applications from the Management Packs:

  The Oracle Diagnostics Pack includes Oracle Performance Manager, Oracle Capacity Planner, Oracle TopSessions, and Oracle Trace.

  The Oracle Tuning Pack includes Oracle Expert, Oracle Index Tuning Wizard, Oracle SQL Analyze, Oracle Tablespace Map, Reorg Wizard, Outline Editor, and Outline Management.

  The Oracle Change Management Pack includes Oracle Change Manager.

  The Oracle Standard Management Pack includes Oracle Performance Manager, Oracle Index Tuning Wizard, Oracle Create Baseline, Oracle Compare Database Objects, and Oracle Advanced Database and Node Events.

  The Oracle Management Pack for Oracle Applications includes Oracle Performance Manager, Oracle Capacity Planner, Concurrent Processing Tuning Assistant, and Oracle Applications Advanced Events.

  Oracle Management Pack for SAP R/3 includes Oracle Performance Manager, Oracle Capacity Planner, and Oracle Advanced Events.

> **Note:** Oracle Management Pack for SAP R/3 is available on its own
> CD-ROM in your CD Pack; it is not installed with the database.

The Oracle Enterprise Manager Console is designed to reduce the complexity of managing your Oracle Database Server, as well as the network components, software, and hardware that support the database.

Because these first-tier Consoles and applications depend upon the second-tier Management Servers for the bulk of their application logic, these clients are able to run without the overhead and processing burden of housing critical management services.

Second Tier: Central, Scalable and Reliable Oracle Management Servers

The second-tier component of Oracle Enterprise Manager, the Management Server, is the framework engine. The Management Server maintains centralized intelligence and distributed control between clients and managed nodes. It is responsible for all back-end application logic and critical services for maintaining an enterprise. The critical services include the event system, paging and e-mail notifications, reporting, job system, and others.

This middle tier processes requests from first-tier clients, stores the information in a database repository, and distributes tasks for third-tier Intelligent Agents to perform.

The repository also serves as a persistent back-end store where it maintains system data, application data, and the state of managed targets distributed throughout the environment. Data stored in the repository can be shared between any number of administrators accessing one or more Management Servers connected to a single repository.

Third Tier: Managed Targets and Autonomous Intelligent Agents

The third tier in the Enterprise Manager framework consists of managed targets and Intelligent Agents. Managed targets, which can include nodes, databases, web servers, application servers, applications, and others, rely on Intelligent Agents to execute tasks given by the Management Server. Once tasks are assigned, autonomous Intelligent Agents will perform the work as scheduled regardless of the state of the managed targets, Management Server, or clients. Examples of such tasks include executing SQL scripts, monitoring available space in a tablespace,

performing weekly database backups, monitoring the real-time database physical I/O rate, or monitoring the availability of the application server.

Architectural Extensibility

To offer vital framework functionality the Enterprise Manager architecture can be easily extended on each tier. The first tier enables any number of clients to access one or more second-tier Management Servers. Deploying additional Management Servers provides increased scalability and reliability as well as a choice between grouping the Management Servers together with one repository or dividing them into smaller sets, each set with its own repository. The former configuration enables all administrators to share data contained in the single repository, while the latter offers autonomous units which never interact with each other. Lastly, the number of third-tier managed services and Intelligent Agents can increase with business demands.

Figure 1–2   Architectural Extensibility
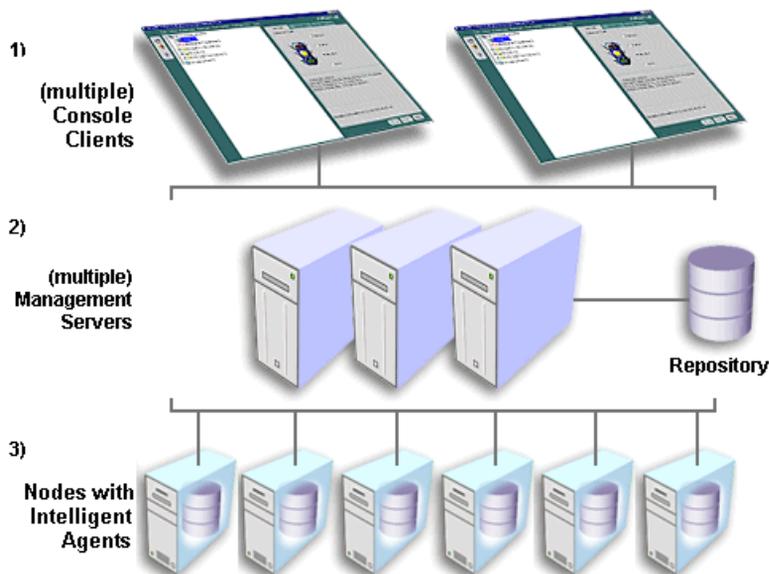
Across all three-tiers, the Enterprise Manager architecture establishes the foundation for the robust Enterprise Manager framework.

Deployment Options

Enterprise Manager's three tier architecture enables the highest level of reliability and scalability. However, not all enterprises need to implement Enterprise Manager as a three tier system. That is, not all businesses need to deploy each of the three tiers, nor need all companies deploy each tier on a separate machine. Because of the flexibility of Enterprise Manager's architecture, many deployment options are available.

Figure 1–3   Deployment Options
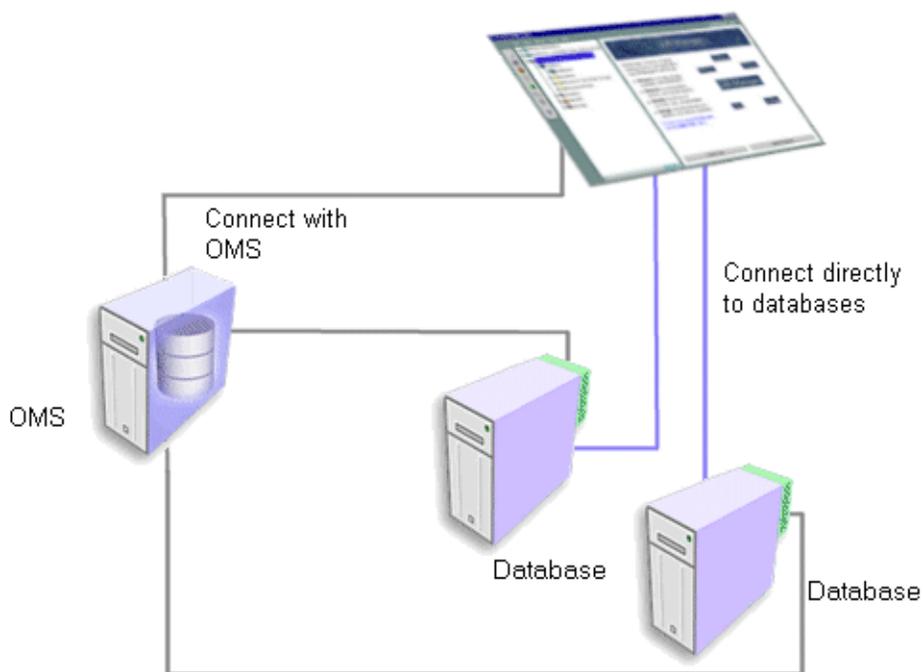
Through analyzing your environment, determining your general administrative needs, and careful planning, you can effectively choose the deployment option best suited for your enterprise.

Available deployment options are described in this section.

Client/Server Deployment

A client/server deployment is one where only the Console and management applications are deployed. Neither the middle tier Management Server nor the Intelligent Agent are installed and used. In this standalone configuration, the client connects directly to the managed target and performs administration tasks.

You should use this type of deployment model if the following conditions apply:

- Only Oracle databases need to be administered.

- Sharing of administrative data across multiple administrators is not a requirement.

- Being proactively notified of potential problems is not a requirement.

- Automating repetitive administrative tasks is not a requirement.

- Running the client from within a web browser is not a requirement.

Three Tier Deployment

A three tier deployment involves the installation and configuration of the entire Enterprise Manager framework: Console, Management Server/Repository, and Intelligent Agent.

You should use this type of deployment model when you require the following features:

- Management of several different target types. For example, target types may include a database, a web server, an application server, applications, and others.

- Sharing of administrative data across multiple administrators

- Proactive notification of potential problems

- Automation of repetitive administrative tasks

- Running the client from within a web browser

For optimal performance with a three tier deployment of Enterprise Manager, follow these guidelines:

- Avoid cases where the Management Server machine runs out of CPU or RAM for prolonged periods of time. A good strategy for protecting against such resource starvation is to run the Management Server on a machine that is dedicated solely to the Management Server, or database repository, or both. Thus, competition with other concurrently running applications is not a factor.

- Install the Management Servers in the same Local Area Network (LAN) as most of the Enterprise Manager administrators who will be connecting to it. Otherwise, excessive network traffic may occur which could have a significant impact on performance.

- Install a Management Server for every 70 managed nodes in your enterprise that combined contain up to 400 targets. This recommendation is applicable when the Management Server is on a machine which meets the recommended hardware requirements documented on page 1-11. The number of nodes and targets that a single Management Server can manage could change based upon the type of machine on which the Management Server runs. For instance, if the machine on which the Management Server is installed exceeds the specified hardware requirements, then the number of recommended managed nodes and targets could increase.

- Deploy at least two Management Servers in order to provide fault tolerance and load balancing among the Management Servers.

- Define Management Regions for large, global deployments or deployments which span a series of WANs and LANs. Management Regions will ensure that cross regional or cross network communication does not occur. In addition, Management Regions allow for mapping nodes across firewall boundaries.

Note: For information on defining Management Regions, a feature introduced with Enterprise Manager release 9*i*, see the *Oracle Enterprise Manager Administrator's Guide.*

For information on the repository views for Management Regions, see Appendix H, "Repository Views Addendum".

Certifications

Regardless of the deployment method selected, the following operating system certifications apply to the various components of Oracle Enterprise Manager Release 9.2.0:

Table 1–1   Operating System Support

	Console	Integrated Applications[1]	Management Packs[2]	Management Pack for SAP R/3[3]	Thin Client[4,7]	Management Server	Intelligent Agent[5]	Paging Server	Web Site[7]
Windows NT 4.0 with Service Pack 6a -Workstation - Server - Terminal Server	x	x	x	x	x	x	x	x	x
Windows NT 4.0 with Service Pack 6a Active Directory							x		
Windows 2000 with Service Pack 2 [6] - Professional Edition - Server - Advanced Server - Terminal Service	x	x	x	x	x	x	x	x	x
Windows 2000 with Service Pack 2 Active Directory							x		
Windows XP - Professional	x	x	x	x	x	x	x		
Windows 98 - Second Edition	x	x	x	x	x				
Solaris 32 bit - 2.8 - 2.7 - 2.6	x	x	x			x	x		x
Solaris 64 bit - 2.8	x	x	x			x	x		x

Table 1–1   Operating System Support

	Console	Integrated Applications[1]	Management Packs[2]	Management Pack for SAP R/3[3]	Thin Client[4,7]	Management Server	Intelligent Agent[5]	Paging Server	Web Site[7]
HP/UX 64 bit -11.0	x	x	x			x	x		x
IBM AIX 64 bit - 4.3.3, 5.1	x	x	x			x	x		x
HP Tru64 - 5.1 & 5.1a	x	x	x			x	x		x
Intel Linux 32 bit - SuSE SLES7 Kernel 2.4.7, glibc 2.2.2 - RedHat Advanced Server 2.1, kernel 2.4.9, glibc2.2.4-25	x	x	x			x	x		x

[1] Integrated applications for Release 9*i* include Integrated applications include: Oracle Forms Server Manager, Oracle Policy Manager, OLAP Services, Oracle Cube Viewer, and Oracle Directory Manager

[2] Management Packs include the Diagnostics Pack, Tuning Pack, Change Management Pack, and Management Pack for Oracle Applications. The following components of the Management Packs are not ported to Unix platforms: Trace in Diagnostics Pack, and SQL Analyze, Expert, Index Tuning Wizard in Tuning Pack.

[3] Management Pack for SAP R/3 Release 9.2 has not been released.

[4] Thin Browser client includes: the base Enterprise Manager; the Enterprise Security Manager; the entire Change Management Pack; and the Performance Manager, Lock Monitor, Performance Overview, Top SQL, and Top Sessions of the Diagnostics Pack; and the Tablespace Map, Reorg Wizard, Outline Manager, and Graphical Explain Plan of the Tuning Pack.

[5] The Intelligent Agent runs on the same Operating Systems as the RDBMS. Also, the Intelligent Agent is certified with the Active Directory shipped with Windows 2000 and Windows NT.

[6] Windows 2000 Datacenter is not a certified/supported operating system for any Enterprise Manager Oracle9*i* component.

[7]If you choose to run Enterprise Manager from a browser, then the following certifications also apply.

- Oracle HTTP Server Release 1.3.22.0.0a for Sun SPARC Solaris, Intel Solaris, Windows NT, Windows 2000, Windows XP, HP-UX, IBM AIX, HP Tru64, and Linux. The Oracle HTTP Server is the pre-configured, default web server which is bundled with the Enterprise Manager Web Site.

- Oracle Internet Application Server Release 1.0.2.2.2 for Sun SPARC Solaris, Windows NT, and Windows 2000

- Apache Release 1.3.22 for Sun SPARC Solaris, Windows NT, and Windows 2000

- Microsoft Internet Information Server Release 4.0 for Windows NT

- Microsoft Internet Information Server Release 5.0 for Windows 2000

> **Note:** For platform-specific details, refer to the given platform's release notes.

System and Hardware Requirements

After determining how to deploy Enterprise Manager and verifying certifications, ensure that the following system and hardware requirements are satisfied prior to installation and configuration.

> **Note:** Hard disk space requirements for FAT Windows-based operating systems could be as much as four times those indicated below.

For hardware and system requirements for other platforms, such as HP-UX and others, refer to the corresponding installation guides.

Oracle Enterprise Manager Client

Requirements are listed below for a machine running only the Enterprise Manager Client. The Client includes the Console, Management Packs and integrated applications.

Table 1–2   Console, Management Packs, and Integrated Applications

	Minimal	**Recommended**
Available Hard Disk Space	135 MB	N/A
Processor and RAM	Pentium 166 MHz with 128 MB RAM	Pentium 266 MHz with 256 MB RAM
	or	or
	SPARC 20 166 MHz with 128 MB RAM	SPARC Ultra 1 266 MHz with 128 MB RAM

> **Note:**   Processor and RAM requirements identified above are applicable to both an installed Enterprise Manager Client as well as to a thin, web-based Client.

Management Server or Management Server and Client

Requirements are listed below for a machine running only the Management Server Release or for an Oracle Management Server machine which also runs the Enterprise Manager Client:

Table 1–3   Management Server or Management Server and Client

	Minimal	**Recommended**
Available Hard Disk Space	115 MB	N/A
Processor and RAM	Pentium 266 MHz with 128 MB RAM	Pentium 300 MHz with 256 MB RAM
	or	or
	SPARC Ultra 1 266 MHz with 128 MB RAM	SPARC Ultra 1 300 MHz with 256 MB RAM

> **Note:** Information listed above does not account for the database Repository. Refer to your database documentation for appropriate system and hardware requirements specific to an Oracle database.

Management Server, Client, HTTP Server, Intelligent Agent or Management Server and Client

Requirements are listed below for a machine running the Management Server Release 9.2, Enterprise Manager Client Release 9.2, Oracle HTTP Server Release, and Oracle Intelligent Agent 9.2 or for an Oracle Management Server machine which also runs the Enterprise Manager Client:

Table 1–4   Management Server or Management Server and Client

	Minimal	Recommended
Available Hard Disk Space	115 MB	N/A
Processor and RAM	Pentium II 866 MHz with 256 MB RAM	Pentium III 1GHz with 512 MB RAM
	or	or
	SPARC Ultra 1 266 MHz with 128 MB RAM	SPARC Ultra 1 300 MHz with 256 MB RAM

> **Note:** Information listed above does not account for the database Repository. Refer to your database documentation for appropriate system and hardware requirements specific to an Oracle database.

Enterprise Manager Web Site

Requirements are listed below for a machine running only the Enterprise Manager Web Site, which also includes the preconfigured Oracle HTTP Server.

Table 1–5   Enterprise Manager Web Site

	Minimal	Recommended
Available Hard Disk Space	275 MB	N/A
Processor and RAM	depends upon webserver	depends upon webserver

Java Runtime Environment (JRE)

Enterprise Manager has been certified on the following versions of the Java Runtime Environment (JRE):

- JRE Release 1.1.8_12 for Sun SPARC Solaris
- JRE Release 1.1.8.16o for Windows NT

Version Compatibility

The following matrix shows version compatibility between different Enterprise Manager components.

Table 1–6   Enterprise Manager - Intelligent Agent - Database Compatibility Matrix

Enterprise Manager Release...	supports creation of its repository in Database Releases...	and is supported by Intelligent Agent Releases...	and manages Database Releases...
9.2.0	9.2.x	9.2.x	9.2.x
	9.0.1.x	9.0.1.x	9.0.1.x
	8.1.7.x	8.1.7.x	8.1.7.x
9.0.1	9.0.1.x	9.0.1.x	9.0.1.x
	8.1.7.x See Note 1 and Note 2	8.1.7.x	8.1.7.x
	8.1.6.x See Note 1 and Note 2	8.1.6.x	8.1.6.x
	8.0.6.x	8.0.6.x	8.0.6.x

Table 1–6   Enterprise Manager - Intelligent Agent - Database Compatibility Matrix

Enterprise Manager Release...	supports creation of its repository in Database Releases...	and is supported by Intelligent Agent Releases...	and manages Database Releases...
2.2.x	8.1.7.x	8.1.7.x	8.1.7.x
	8.1.6.x	8.1.6.x	8.1.6.x
	8.0.6.x	8.1.5.x	8.1.5.x
	7.3.4.x	8.0.6.x	8.0.6.x
		7.3.4.x	7.3.4.x
2.1.x	8.1.6.x	8.1.6.x	8.1.6.x
	8.1.5.x	8.1.5.x	8.1.5.x
	8.0.6.x	8.0.x	8.0.x
	8.0.5.x	7.3.4.x	7.3.4.x
	8.0.4.x		
	7.3.4.x		
2.0.x	8.1.5.x	8.1.5.x	8.1.5
	8.0.5.x	8.0.6.x	8.0.x
	8.0.4.x	8.0.5.x	7.3.x
	7.3.x	7.3.4.x	
1.6.5.x	8.0.6.x	8.0.6.x	8.0.6
	8.0.5.x	8.0.5.x	8.0.5.x
	7.3.4.x	7.3.4.x	8.0.4.x
			8.0.3.x
			7.3.x

When creating your repository you should choose a database that is always available; will not be shutdown by other administrators, and does not compete for resources on the machine where it is running. Furthermore, Enterprise Manager's release 9i repository has been certified to reside in the following Oracle database releases (see Note 1):

- Enterprise Edition or standard edition release 9.2.x

- Enterprise Edition or standard edition release 9.0.1.x

- Enterprise Edition or standard edition release 8.1.7.x (See Note 1 and Note 2)

Note 1 If your 9.2 repository is in database release 8.1.7.0 or 8.1.7.1, be aware that database base bug 1393049, which causes some SQL queries to return incorrect results, may affect Enterprise Manager in a variety of ways.

For example, the aforementioned database bug may manifest itself through Enterprise Manager through incorrect lists of events or jobs in history; incorrect list of event alerts; incorrect list of active jobs, invalid notifications being sent, and others.

To fix the problem, refer to the table below:

Table 1–7 Fixes for the Repository

If Repository Resides in Database Release	Then Fix the Problem by
8.1.7.0 for all operating systems	Upgrading your database to release 8.1.7.2
8.1.7.1 for all operating systems	Upgrading your database to release 8.1.7.2 or Apply one-off patch for bug 1765292

To avoid these known database problems entirely, Oracle recommends that you create your repository in Enterprise Edition or standard edition release 9.2, Enterprise Edition or standard edition release 9.0.1, or Enterprise Edition or standard edition release 8.1.7.2 or 8.1.7.1 (Sun SPARC Solaris only).

Note 2 If your repository is in database release 8.1.7.x for any operating system, Oracle recommends that you apply the patch for bug 1733170. Failure to apply this patch may result in intermittent Management Server faults due to segmentation violations.

2

Standalone

Beginning with Release 9.0, the Enterprise Manager Console or various other Enterprise Manager applications can be started standalone or with a Management Server connection. When you start the Enterprise Manager Console or other applications standalone, the Console or other application is not connected to the middle tier Management Server.

Because it does not require a middle tier Management Server or Intelligent Agents on target machines, the Console started standalone enables a single administrator to perform simple database schema, instance, storage, security, and other database tasks by connecting directly to the target database or databases.

This chapter will describe the out-of-box requirements for running the Console standalone.

Choosing to Start the Console Standalone

Start the Console standalone when you want to connect directly to your managed target or targets to perform administration tasks. With Enterprise Manager Release 9.2.0, the standalone Console only supports connecting directly to database targets. No other target types are currently supported for direct connection from the Console.

Figure 2–1   Standalone Configuration
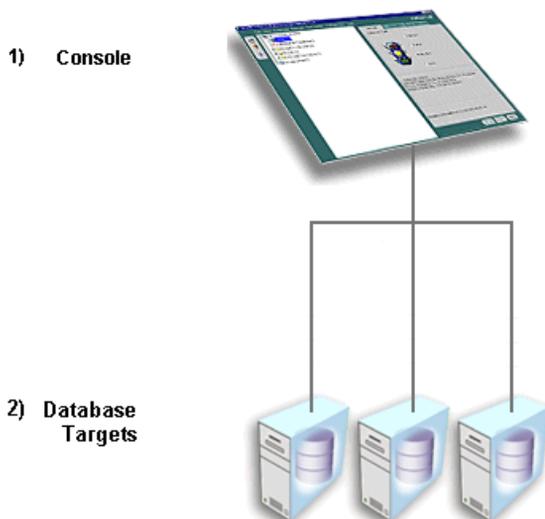
Starting standalone does not require a Management Server as a middle tier or Intelligent Agents on managed targets. Consequently, when you start the Console standalone, you do not have access to functionality typically available through the Management Server and Intelligent Agent, such as:

- Management of several different target types. The target types include database, HTTP server, application server, and applications

- Sharing of administrative data among multiple administrators

- Proactive notification of potential problems

- Automation of repetitive administrative tasks

- Backup and data management tools

- Customization, scheduling, and publishing of reports

- Running the client from within a web browser

- LogMiner Viewer

Starting the Standalone Console

On Windows-based platforms, start the Console from the Windows Start Menu.

On any supported platform, you can start the Console from the command line by entering the command:

```
oemapp console
```

On UNIX platforms, the `oemapp` part of the command is case-sensitive and must be entered with lowercase characters.

When the Oracle Enterprise Manager Console Login appears, select the **Launch standalone** option and click **OK**.

Figure 2–2   Oracle Enterprise Manager Console Login

> **Note:** Your login choice is remembered for the next time you log in whether you selected the **Launch standalone** option or the **Login to the Oracle Management Server** option for the last login. If you had selected the **Login to the Oracle Management Server** option, the Management Server is remembered.

To bypass the Oracle Enterprise Manager Console Login, you can enter the following command at any supported operating system command line:

```
oemapp console oem.loginmode=standalone
```

By entering the command, you will immediately see the standalone Console.

Figure 2–3   Standalone Console

If you are starting the standalone Console for the first time, the left panel of standalone Console is empty because you have not yet added the databases you want to manage. The Add Databases To Tree dialog appears automatically so that you can add them to the Navigator.

Adding Databases to the Tree in the Standalone Console

You can also access the Add Databases To Tree dialog from the Navigator menu.

Figure 2–4   Add Databases to Tree
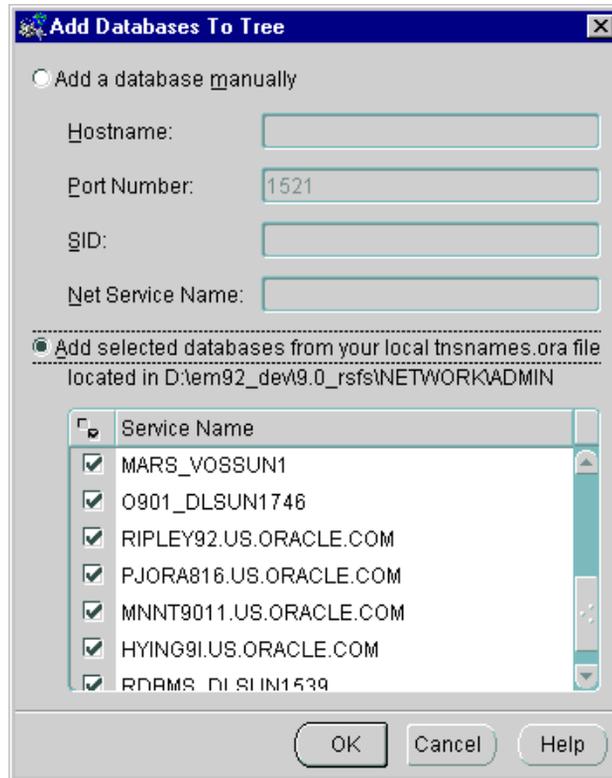
The Add Databases To Tree dialog enables you to manually enter the Net service names or add them from the local `tnsnames.ora` file.

Add a database manually
You can add databases to the standalone Console Navigator by filling in the following fields:

- SID: The database system identifier, usually the instance name, such as `ORCL`.

- Hostname: The machine or node name where the database is located.

- Port Number: The database listener port address, usually 1521 or 1526.

- Net Service Name: A name which uniquely identifies a database when connecting to a machine. It is usually the global database name.

  For example: `ORCL.world`.

.

> **Note:**   Adding a database manually automatically updates the local `tnsnames.ora` file located in your `<Oracle_Enterprise_Manager_Home>/network/admin` directory.

Add selected databases from your local tnsnames.ora file
You can populate the standalone Console Navigator by reading the database service names from the local `tnsnames.ora` file located in your Oracle Enterprise Manager home. The Add Databases To Tree dialog displays a list of databases identified in your `tnsnames.ora` file from which you can select or clear. Click the column header to the left of Service Name to either select or clear all the database boxes. If you have cleared all the selected database boxes, you can select specific databases by clicking their boxes.

> **Note:**   Currently only TCP/IP service names can be added manually for the standalone Console. If other network protocols are required, add them by entering them in the `tnsnames.ora` file using the Oracle Net Configuration Assistant. All protocols are supported when you import selected services from your `tnsnames.ora` file.

After adding databases to the Navigator, see the *Oracle Enterprise Manager Administrator's Guide* for details on how to use the standalone Console to perform administration tasks.

Standalone Repository

The standalone Console includes several integrated applications. Some of these integrated applications require a standalone repository in which to save information.

The standalone repository is different from the repository used by the Management Server since it is used for a single user while the Management repository is used for multiple users.

The applications which require a standalone repository include:

- Change Manager
- Oracle Expert
- Oracle SQL Analyze

The first time one of the above standalone applications is accessed, you will be prompted to create a database user who will own the standalone repository schema or you will be prompted to specify a username and password if you have already created the user.

Figure 2–5   Prompt to Create Database User
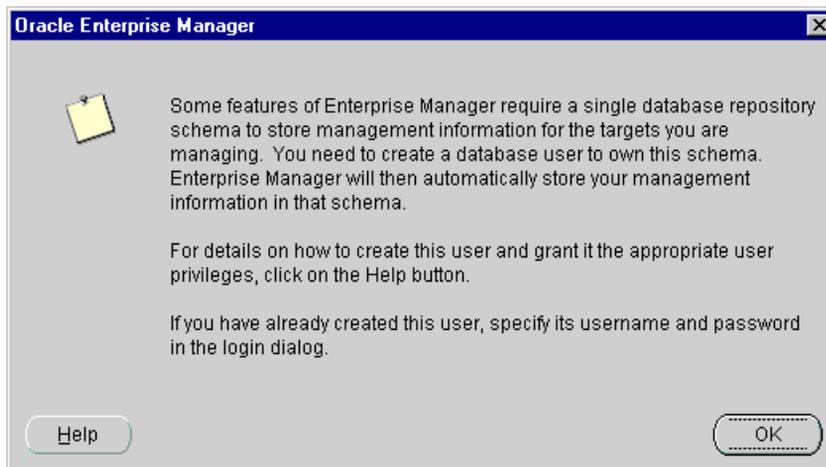
Figure 2–6   Repository Login

Because this database user must have certain roles and privileges, Oracle recommends creating a new database user to own the standalone repository schema. In addition, because certain tablespace attributes are required for the standalone repository, you should also create a new tablespace. Once the user and tablespace have been created, you can supply the user's username and password, and the standalone application will automatically create the standalone repository for you.

When subsequent standalone applications which require a standalone repository are accessed, they will all use the same standalone repository. If you do not want to be prompted with the standalone Repository Login dialog every time you start your standalone application, select the **Save password and automatically log into repository next time** option to save the credentials for future use.

Database Requirements for Standalone Repository

The following database releases are supported for the standalone repository:

- Enterprise Edition or Standard Edition Release 9.2.x

- Enterprise Edition or Standard Edition Release 9.0.1.x

- Enterprise Edition or Standard Edition Release 8.1.7.x

> **Note:** For 8.1.7 databases, refer to the upgrade requirements documented in "Version Compatibility" on page 1-14.

You must ensure that the database in which the repository will be placed has object support. If it does not, repository creation will fail. Either select another database that has object support, or install and enable object support on the chosen database.

> **Note:** Object support is installed and enabled by default for database releases 9.2.x, 9.0.1.x, and 8.1.7.x.

Create a Tablespace for Standalone Repository

Create a tablespace with the following attributes:

- Type: Permanent
- Storage attributes: for Extent Management, use Locally managed
- Datafile attributes:
    - Size:
        * For 2 Kb blocks: 16 MB
        * For 4 Kb blocks: 24 MB
        * For 8 Kb blocks: 32 MB
        * For sizes above 8 KB: 64 MB
    - Reuse Existing File: Yes
    - AUTOEXTEND: Yes
    - AUTOEXTEND increment: 5MB
    - AUTOEXTEND maximum: 2000MB

To create a tablespace for the standalone repository, first select the database in which you want to place the standalone repository, ensuring it meets the requirements outlined on page 2-8. Then, follow the procedure described in this section:

1.   Start the standalone Console.

     On Windows:

     You can start the standalone Console from the Windows Start Menu.

     On UNIX:

     You can start the standalone Console from the command line using the command:

     ```
     oemapp console
     ```

     When the Oracle Enterprise Manager Console Login appears, select the **Launch standalone** option to connect directly to databases and click **OK**.

2.   Click the + next to **Databases** to display the list of databases under the **Databases**.

3.   Double-click the database node in the Navigator and connect to the database as a user with the NORMAL privilege.

4.   Choose **Create** from the **Object** menu. The Create Object List dialog appears.

5.   Expand the database node in the Create Object List dialog and select Tablespace. Then click **Create**. The Create Tablespace property sheet appears.

6.   In the Create Tablespace Property Sheet's General page,

     a.   Enter the name of the new tablespace, OEM_REPOSITORY.

     b.   Specify that the tablespace will be used to hold permanent database objects.

7.   In the Datafile section, enter the size of the new datafile. The File Name and File Directory columns should already contain default entries. The datafile is called OEM_REPOSITORY.dbf or OEM_REPOSITORY.ora depending on the version of the database.

8.   Right-click the + next to OEM_REPOSITORY.dbf and choose **Edit**. The Create Datafile property sheet appears.

9.   In the Create Datafile's General page, select the **Reuse Existing File** box.

10. In the Create Datafile's Storage page, fill the appropriate attributes

     a.   Select the **Automatically extend datafile when full (AUTOEXTEND)** option so that the datafile will automatically increase in size when more space is needed in the database.

     b.   Specify 5 MB as the Increment.

   c. Specify 2000 MB as the Maximum Size.

11. Click **OK** in the Create Datafile property sheet.

12. In the Create Tablespace Property Sheet's Storage page, select the **Locally Managed** option as the method of space management.

13. Click **Create** in the Create Tablespace Property Sheet.

Create a Database User for Standalone Repository

A standalone repository is owned by a database user. A database user, in other words, a repository schema user, who will own the repository must be created before the standalone repository can be created by Enterprise Manager.

To create a database user who will own the standalone repository, follow the procedure described in this section:

1. Start the standalone Console.

2. Click the + next to **Databases** to display the list of databases under the **Databases**.

3. Double-click the database node in the Navigator and connect to the database as a user with the NORMAL role.

4. Choose **Create** from the **Object** menu. The Create Object List dialog appears.

5. Expand the database node in the Create Object List dialog and select User. Then click **Create**. The Create User property sheet appears.

6. In the General page, provide the name of the user and its password and select OEM_REPOSITORY as the default tablespace and TEMP as the temporary tablespace.

7. In the Role page, grant the CONNECT and SELECT_CATALOG_ROLE roles to the repository user.

8. In the System Privileges page grant the CREATE TRIGGER, CREATE PROCEDURE, EXECUTE ANY PROCEDURE, CREATE TYPE, EXECUTE ANY TYPE, SELECT ANY TABLE, and (for 9*i*) SELECT ANY DICTIONARY privileges to the repository user.

9. In the Quota page, specify unlimited for OEM_REPOSITORY and TEMP.

10. Click **Create** in the Create User property sheet.

Once you have a tablespace and a repository user, start a standalone application which requires a standalone repository.

When the dialog appears informing you that certain features of Enterprise Manager require a standalone repository and you must create a new database user to own the standalone repository schema, click **OK** to close the dialog since you have already created the user.

Supply the user's username and password for the repository login and click **OK**. The standalone application will automatically create the standalone repository for you.

> **Note:** If you use the Console standalone but later want to deploy the entire framework, you will not be able to migrate the standalone repository to the full framework/Management Server repository. This type of migration is not supported. Exporting the data of the standalone repository and importing it into another schema and having that schema work with the Management Server repository is also not supported.

3

Configuring and Controlling the Management Server

If you have chosen to deploy the entire Enterprise Manager framework, you will need to perform additional configuration tasks on the middle tier Management Server machines. The framework includes, for example, the Console, the Management Server, and the Intelligent Agents. On such a machine or machines, you must use the Enterprise Manager Configuration Assistant to configure the Management Server.

This chapter will describe the following:

- Configuring a local Management Server
  - To use a new repository
  - To use an existing repository
- Upgrading a repository
- Dropping a repository
- Controlling the Management Server after configuration

> **Note:** In 9.0.1, the recovery catalog schema and user had been created in the TOOLS tablespace during repository creation. In the 9.2 release, you will have to perform a custom database installation to create the repository.

Starting the Enterprise Manager Configuration Assistant

The Enterprise Manager Configuration Assistant will start automatically if you are performing one of the following installation scenarios:

- Oracle9*i* Database > Custom

- Oracle9*i* Management and Integration > Oracle Management Server

- Oracle9*i* Management and Integration > Custom

The Enterprise Manager Configuration Assistant is started as an auto-run during the configuration phase of these installations. If you installed Oracle Enterprise Manager through any other installation type, the Enterprise Manager Configuration Assistant will not start automatically at the end of the installation; you must manually start the Enterprise Manager Configuration Assistant when installation completes.

> **Note:** A database, which is a supported version for a 9*i* Management Server repository, must be installed and running anywhere on the network before you can create the Oracle Enterprise Manager repository schema.

To start the Enterprise Manager Configuration Assistant, perform the following steps:

- On Windows NT:

  You can start the Enterprise Manager Configuration Assistant from the Windows Start Menu.

  You can also start the Enterprise Manager Configuration Assistant from the command line using the command:

  `emca`

- On UNIX:

  You can start the Enterprise Manager Configuration Assistant from the command line using the command:

  `emca`

You must have write access to the `omsconfig.properties` file in the `$ORACLE_HOME\sysman\config` directory to run the `emca` command.

Configuring a Local Management Server To Use a New Release 9*i* Repository

Whenever you start the Enterprise Manager Configuration Assistant to create a new 9*i* repository during a post install configuration or through a manual start of the Configuration Assistant, it will perform the following tasks for you:

- Optionally creates a local database instance into which the repository will be placed.

- Optionally creates an `OEM_REPOSITORY` tablespace.

- Creates a new database user who will own the Enterprise Manager and management packs repository, specifying default and temporary tablespaces for the user.

- Assigns proper privileges and roles to the new database user.

- Loads information into the repository. This information is required when running Oracle Enterprise Manager.

- Creates and updates, or creates or updates the local Management Server's configuration file:
  `ORACLE_HOME/sysman/config/omsconfig.properties.`

- Enters the necessary information into the local machine's client registry so that any Console which runs on the machine has the Management Server already in its list of those to which it can connect.

- Checks to see if a Management Server Windows Service already exists for Windows NT, Windows 2000, or Windows XP. If one does not already exist, it creates the Management Server Windows Service and sets it to Manual. If one does exist, it will use it.

- Starts the Management Server Windows Service for Windows NT, Windows 2000, or Windows XP.

Welcome

When you start the Configuration Assistant manually, the Welcome page appears.

By default, the **Show this page next time** option is selected. You can specify not to show this page again once you are familiar with the Configuration Assistant. If you clear the **Show this page next time** option, the Configuration Assistant starts on the Configuration Operation page next time.

Figure 3–1   Welcome

Configuration Operation

After you click **Next** on the Welcome page, the Configuration Operation page appears.

Figure 3–2   Configuration Operation
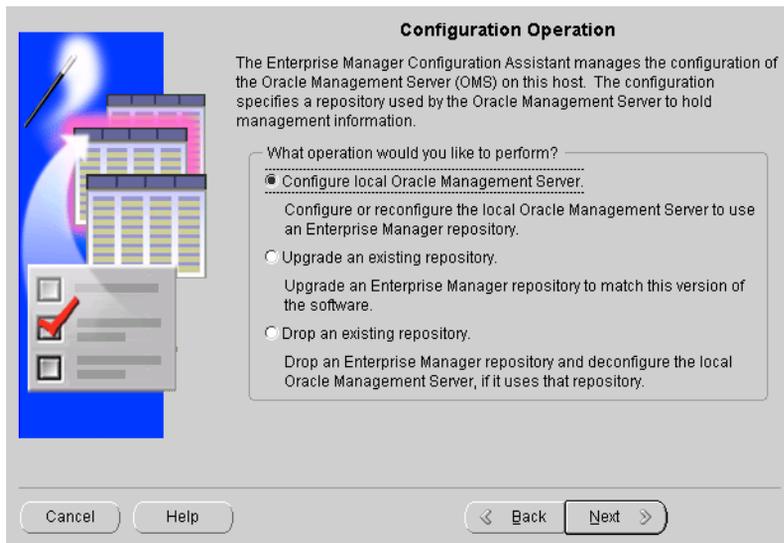
If you want to configure the Management Server by creating a repository or editing an existing repository configuration, select the **Configure local Management Server** option from the list of repository operations and click **Next**.

If no previous configuration exists, the Configure Oracle Management Server page appears.

If a configuration already exists, a dialog appears asking you if you want to edit this configuration or create a new configuration.

Figure 3–3   Edit or Create Dialog

Click **Edit** or **Create**.

If you click **Edit**, the Edit Configuration Parameters page appears. For more information on editing the configuration, skip to "Edit Configuration Parameters" on page 3-24.

If you click **Create**, the Configure Oracle Management Server page appears.

Configure Oracle Management Server

The Management Server on this host requires a repository to hold information about the servers and targets that you will be managing.

Figure 3–4   Configure Management Server
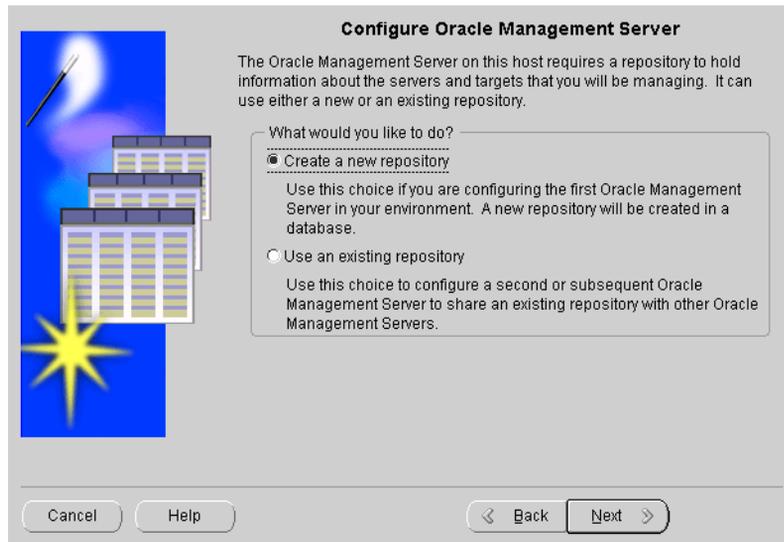
If you are a new Oracle Enterprise Manager user or if you want to configure the first Management Server in your environment and create a new Release 9*i* repository, you will use the **Create a new repository** option. It will create and load your Release 9*i* repository and set up the configuration parameters for a local Management Server.

Create New Repository Options

The Enterprise Manager Configuration Assistant can automate the creation of a new repository or you can specify the details of creating a new repository.

> **Note:**   This page will only appear if the Configuration Assistant is run from an Oracle Home that contains a 9*i* database server installation.

Figure 3–5   Create New Repository Options
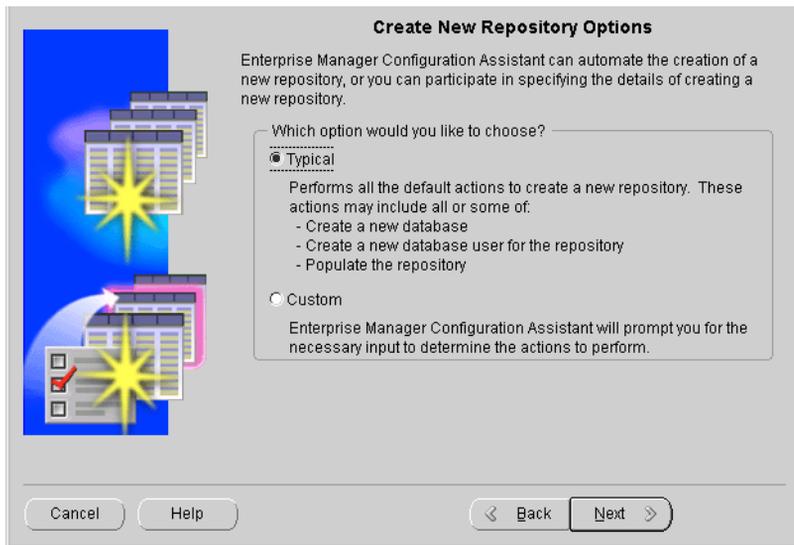
Typical
The actions include all of the ones detailed below.

- Creates a local database

- Creates a new database user for the repository

- Populates the repository

If you select the **Typical** option, there are no additional steps to perform, and the next page will be the Create Repository Summary page with special entries.

Figure 3–6   Create Repository Summary for Typical Repository Option
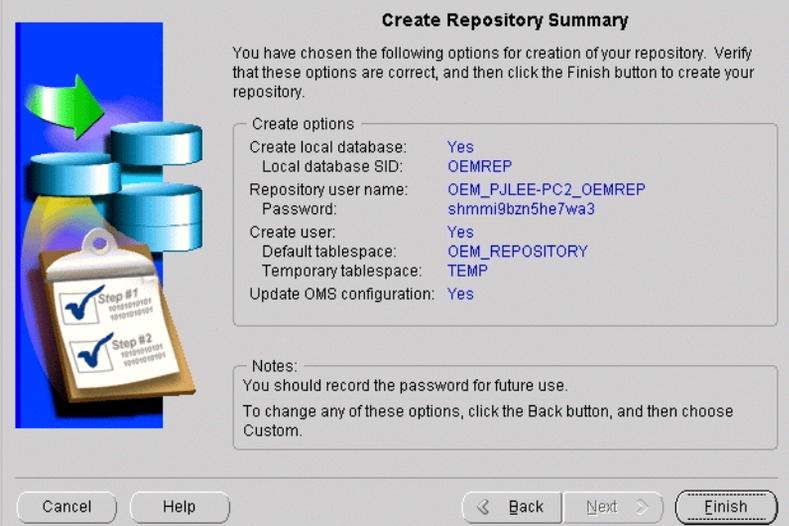
Create Repository Summary

You have chosen the following options for creation of your repository. Verify that these options are correct, and then click the Finish button to create your repository.

Create options
Create local database: Yes
   Local database SID: OEMREP
Repository user name: OEM_PJLEE-PC2_OEMREP
   Password: shmmi9bzn5he7wa3
Create user: Yes
   Default tablespace: OEM_REPOSITORY
   Temporary tablespace: TEMP
Update OMS configuration: Yes

Notes:
You should record the password for future use.

To change any of these options, click the Back button, and then choose Custom.

Cancel   Help   Back   Next   Finish

> **Note:**   Record the password for the repository user for future reference. This is the only time the password will appear, and you will need it to perform such tasks as dropping or upgrading the repository. For information on changing the password for the repository user at a later date, refer to "Changing the Repository User Password" on page F-19.

Click **Finish** to initiate repository creation or click **Back** to return to previous pages to make modifications.

When you click **Finish**, the Enterprise Manager Configuration Assistant starts the Database Configuration Assistant to create the database instance.

> **Note:**   It may not be obvious that the Database Configuration Assistant is being run since there is no Database Configuration Assistant identification on the progress dialog.

When the Database Configuration Assistant allows you to change the passwords for the database, you must change the passwords; otherwise, you will not be allowed to continue.

Once the instance has been created and the Database Configuration Assistant exits, the Enterprise Manager Configuration Assistant tries to connect to the database using the SYS credentials. Once the connection has been made, the Enterprise Manager Configuration Assistant then creates the repository user and populates the repository schema.

Custom

If you select **Custom** option, the assistant will allow you to select from the following actions later depending on the choices you make.

- Lets you select the database location
- Lets you select the database for the repository
- Lets you change the SID when you select to create a new database instance
- Lets you select the repository username and password
- Lets you select the repository user tablespaces

If you select the **Custom** option, the Select Database Location page appears.

Select Database Location

You may place your Enterprise Manager repository in a new local database or in another existing database somewhere on your network. The database must be a version which supports a 9*i* Management Server repository.

Note: This page will only appear if the Configuration Assistant is run from an Oracle Home that contains a 9*i* database server installation.

Figure 3–7   Select Database Location
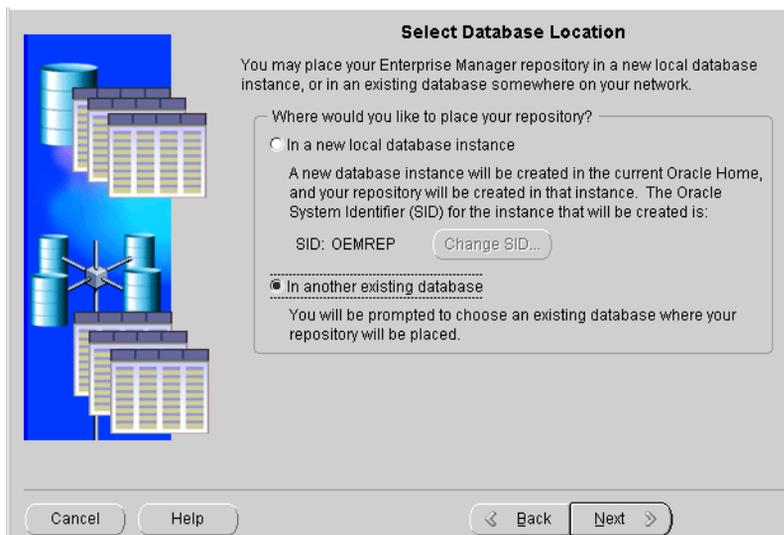
- In a new local database instance

  You will create a new database instance in the current Oracle Home, and your repository will be created in that instance.

  The repository will be created in the OEM_REPOSITORY tablespace. The SID will be OEMREP. If you want to change your SID, click **Change SID**.

- In another existing database.

  You will be prompted to select an existing database where your repository will be placed. Make sure that the database is installed and running.

If you select the **In a new local database instance** option without clicking **Change Database SID**, the Repository Login Information page appears. Skip to "Repository Login Information" on page 3-14 for details.

If you select the **In a new local database instance** option and click **Change Database SID**, the Change Database SID dialog appears. Skip to "Change Database SID" on page 3-12 for details.

If you select the **In another existing database** option, the Select Database for Repository page appears. Skip to "Select Database for Repository" on page 3-13 for details.

Change Database SID

You can change the Oracle System Identifier (SID) that identifies the local database instance where your Enterprise Manager repository will be created.

Figure 3–8   Change Database SID
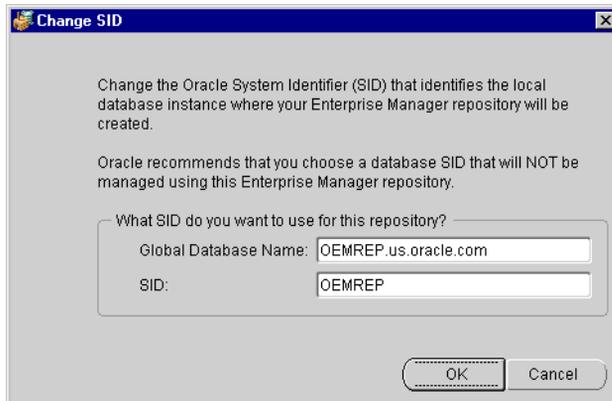
Oracle recommends that you select a database SID that will not be managed using this Enterprise Manager repository.

- Global Database Name

  The full name of the database which uniquely identifies it from any other database. The global database name is of the form `database_name.database_domain`, for example, `oemrep.us.ovenbird.com`.

  The database name portion, `oemrep`, is a simple name you wish to call your database. The database domain portion, `us.ovenbird.com`, specifies the database domain in which the database is located, making the global database name unique. When possible, Oracle recommends that your database domain mirror the network domain.

  The global database name is the default service name of the database, as specified by the SERVICE_NAMES parameter in the initialization parameter file.

- SID

The Oracle System Identifier (SID). A name that identifies a specific instance of a running Oracle database. For any database, there is at least one instance referencing the database.

Click **OK** to close the dialog after changing the database name or SID. Then click **Next** on the Select Database Location page to proceed to the Repository Login Information page. Skip to "Repository Login Information" on page 3-14 for details.

Select Database for Repository

Log in to the database where you want to create the repository.

Figure 3–9   Select Database for Repository
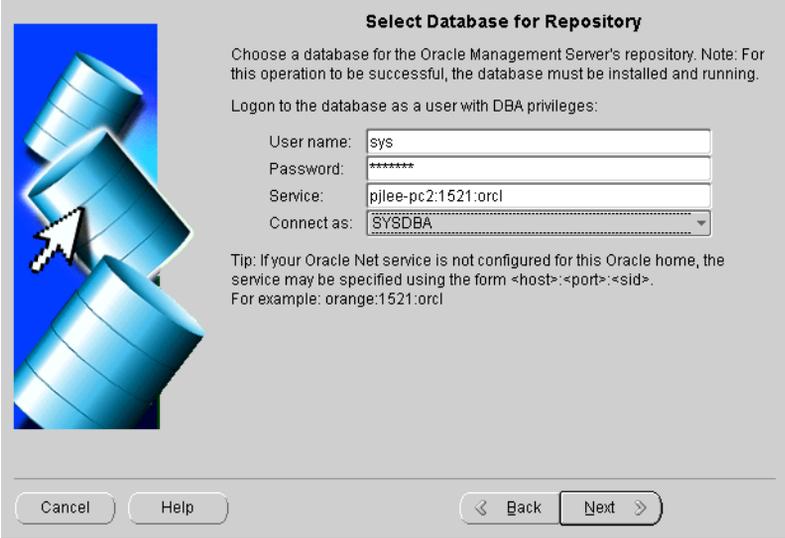
User name and Password: You must connect to the database as a user with DBA privileges. The Enterprise Manager Configuration Assistant asks for a DBA account in case a new user needs to be created in the database to contain the repository and to allow the Configuration Assistant to make queries about the database/repository.

This is an individual database user account, not an Oracle Enterprise Manager administrator account.

For example, `system/manager`.

Service: The service may be specified using the form:

`<host>:<port>:<sid>`

where

host is the machine name where the database is located

port is the database listener port address, usually 1521 or 1526

SID is the database system identifier

An example:

`my_em_machine:1521:em92`

which connects to the `em92` database using port 1521 on the `my_em_machine` machine.

Note: Specifying the service as `<host>:<port>:<sid>` is the recommended method, but you may also use Oracle Net names if your Oracle Net client is properly configured.

Click **Next** to continue.

Repository Login Information

An Enterprise Manager repository is owned by a database user. During repository creation, a database user, a repository schema user who owns the repository, will be created by the Enterprise Manager Configuration Assistant with the username and password you enter on this page.

Figure 3–10   Repository Login Information
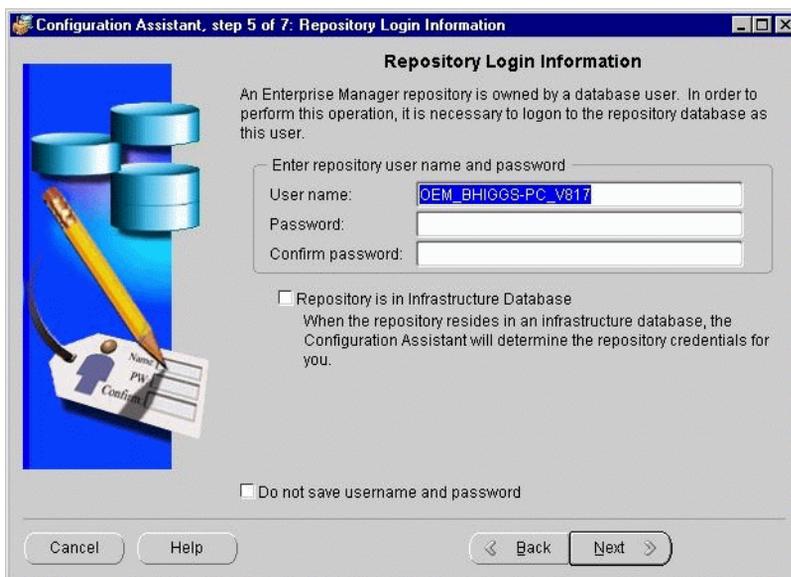
User name: By default, the Enterprise Manager Configuration Assistant uses `OEM_<TCP/IP hostname of machine>_<SID>` as the repository's user name that will be used to create a database user that will own the repository.

> *TCP/IP hostname of machine* is the machine name where the database is located

> *SID* is the database system identifier

The repository's user name must be unique across the network. If you select another name, you must ensure that it is unique.

The Intelligent Agent identifies each Management Server by its repository name. If two repositories existed with the same name in different databases, the Intelligent Agent would have difficulty contacting the Management Server.

Password: Enter the password for that user.

Confirm: Verify the password by typing it again.

You can select whether to save the user name and encrypted password in the `omsconfig.properties` file, which is read by the Management Server on startup. If these repository credentials are stored in the file, the Management Server uses them to login to the repository. The password is stored in encrypted format.

On Windows NT and Windows 2000, if they are not saved, you can enter them in the Control Panel's Startup Parameters field when you start the Management Server. If you do not enter the repository credentials in the Startup Parameters field, you will be prompted for them in a dialog.

On UNIX, if they are not saved, the Management Server will prompt you for a user name and password before it starts up.

If you do not want to store the user name and encrypted password in the `omsconfig.properties` file, select the **Do not save username and password** option. The option of not storing your repository credentials is referred to as the secure Management Server mode.

The repository account information will be used to perform the maintenance operations in the repository schema like create, upgrade, or drop.

The roles and privileges required by the repository schema user which are automatically created by the Configuration Assistant are listed below:

- Roles: CONNECT and SELECT_CATALOG_ROLE

- Privileges: CREATE TRIGGER, CREATE PROCEDURE, EXECUTE ANY PROCEDURE,. CREATE TYPE, EXECUTE ANY TYPE, SELECT ANY TABLE, and (for 9*i* databases only) SELECT ANY DICTIONARY

To avoid potential security issues and unnecessary access to objects outside of Oracle Enterprise Manager, do not grant more privileges to your repository schema user than is absolutely necessary.

Select Repository User Tablespaces

The Select Repository User Tablespaces page does not appear:

- If the repository user already exists

  or

- If the Enterprise Manager Configuration Assistant is run from an installation session and:

  - If the OEM_REPOSITORY tablespace already exists, and:

  - If the OEM_REPOSITORY tablespace has the appropriate size attributes

> **Note:** Do not install the Oracle Enterprise Manager repository into the SYSTEM (especially the SYSTEM tablespace of your production database), ROLLBACK, or TEMPORARY tablespaces.
>
> The tablespace parameter settings used for the SYSTEM tablespace are not appropriate for Oracle Enterprise Manager use. You should only use the SYSTEM tablespace for "system" entities. Tools, users, and management products such as Oracle Enterprise Manager should be placed in other tablespaces.
>
> ROLLBACK tablespaces are used for creating rollback segments. Rollback segments are used by Oracle user processes to store rollback information.
>
> TEMPORARY tablespaces, which are assigned as TEMPORARY tablespaces for users, are used by Oracle user processes as a "scratch pad." Both of these tablespaces fluctuate in tablespace usage when the database is up and running. The TEMPORARY tablespace can be used as the user's temporary tablespace.
>
> The Configuration Assistant does not allow you to use the SYSTEM tablespace either as a temporary tablespace or as a default tablespace.

When you start the Configuration Assistant manually, if the OEM_REPOSITORY tablespace already exists and you have entered the name of a different repository user than the one managing the repository in the Repository Login Information page, an error message appears, saying, "Do you wish to change it to manage the repository owned by user '<user>' on service '<service>'?" If you click **Yes** or **No**, the following page appears.

Figure 3–11   Select Repository User Tablespaces if OEM_REPOSITORY Exists
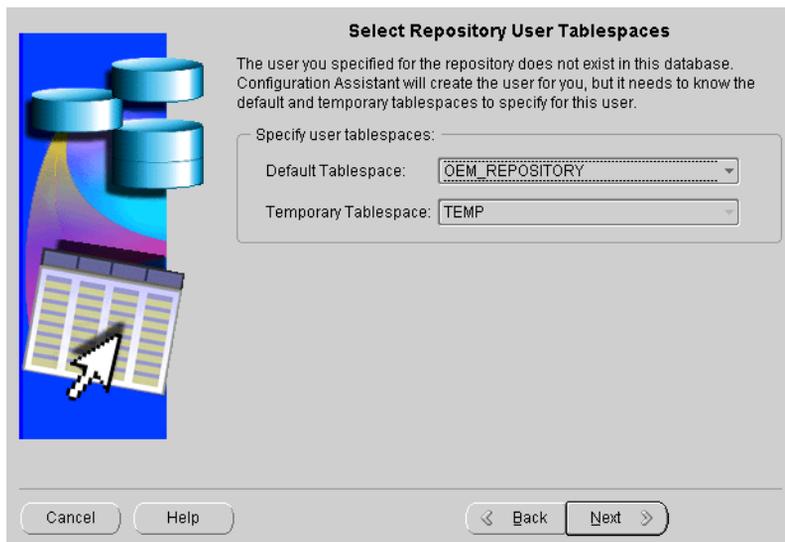
Select the default and temporary tablespaces for the Enterprise Manager repository to use.

If the `OEM_REPOSITORY` tablespace does not exist, the following page appears:

Figure 3–12   Select Repository User Tablespaces if OEM_REPOSITORY Does Not Exist

Default Tablespace:

- Create a new OEM_REPOSITORY tablespace (recommended).

  Select this option if you want to create the OEM_REPOSITORY tablespace, which has specific characteristics for the Enterprise Manager repository, and use it as the repository user's default tablespace.

- Override default datafile name.

  Select this option if you want to change the default name of the datafile for the OEM_REPOSITORY tablespace. This is not normally recommended.

- Use an existing tablespace

  Select an existing tablespace from the list.

Temporary Tablespace

Select a temporary tablespace from the list.

Click **Next** to continue.

If the Enterprise Manager Configuration Assistant detects that the default tablespace for the repository contains the required amount of free space, the Create Repository Summary page appears. Otherwise, errors will appear.

Create Repository Summary

If you have chosen to specify the details of creating a new repository in the Create New Repository Options page, the Create Repository Summary page provides a summary of all the information supplied.

The following page appears at the end if you have selected the **Custom** option.

Figure 3–13   Create Repository Summary
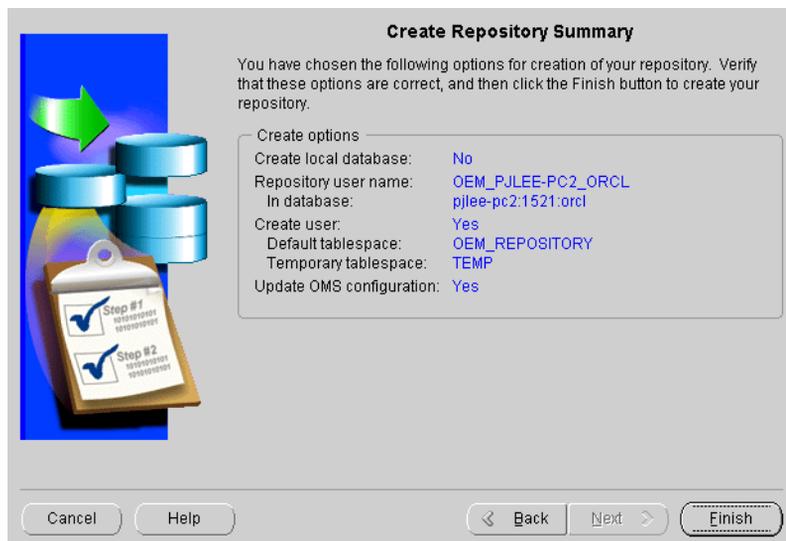
Click **Finish** to initiate repository creation or click **Back** to return to previous pages to make modifications.

When you click **Finish**, the Configuration Assistant Progress window appears, showing the processing performed and the processing steps that comprise the operation being performed.

Configuration Assistant Progress Window

If you want to view detailed information about what is happening during the processing, including any errors that might occur, click **Show Details** to expand the dialog to show a text area. You can hide the detailed information by clicking **Hide Details**.

Figure 3–14   Configuration Assistant Progress
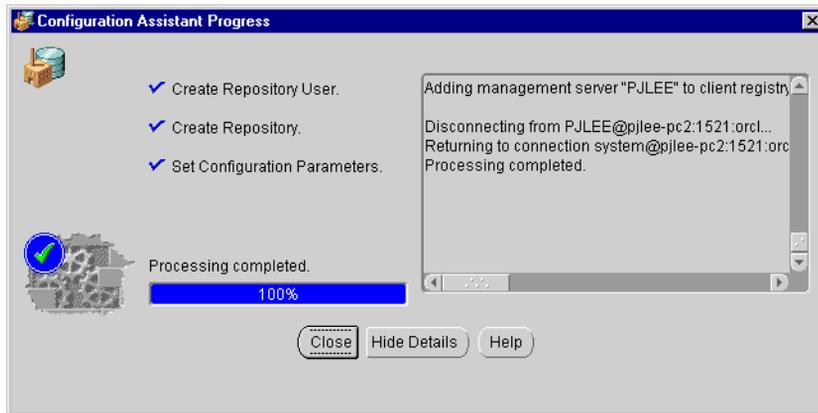
Cancel changes to **Close** when processing is completed, whether it is successful or not.

When all of the steps have been completed without error, the "Processing completed." message appears.

You can cancel the requested operation before it completes by clicking **Cancel**.

> **Note:**   If you cancel the repository creation while it is in progress, the state of the repository is in doubt. In these circumstances, you should drop the repository using the Enterprise Manager Configuration Assistant.

You must click **Close** to exit the Configuration Assistant.

If the repository creation fails, drop the repository, turn on tracing for the Management Server by adding the appropriate tracing properties to the `omsconfig.properties` file, and perform the repository creation procedure again. For information on Management Server tracing and logging, refer to Appendix B, "Activating Logging and Tracing".

For information on dropping the repository, refer to "Dropping an Existing Repository" on page 3-33.

Configuring a Local Management Server To Use An Existing Repository

In an environment with multiple Oracle Management Servers, a set of Management Servers can share the same repository. There may be only one Management Server running per node.

Select the **Configure local Management Server** option if you want to perform the following tasks:

- set up a Management Server to manage an already existing repository.

- change the Management Server configuration to use another repository in the same or another database.

- change the password that the Management Server uses to log into the repository when it starts. You must change the password if someone has changed the repository user password in the database; otherwise, the Management Server will fail to start. The Enterprise Manager Configuration Assistant, when editing the configuration parameters, only changes the `omsconfig.properties` file; it does not change the repository credentials in the database.

As the number of nodes and managed services in your network increases or if the current Management Server is overloaded, you can add more Oracle Management Servers to the middle tier to share and balance the workload.

Multiple Oracle Management Servers provide fault tolerance for each other. If an Oracle Management Server fails, the other Management Servers continue to operate. The clients that registered with the failed Management Server can immediately log in again, registering with any of the other Management Servers using or sharing the same repository, and work continues with the remaining available Oracle Management Servers. Any clients that had been configured to register with a different Oracle Management Server than the one that failed are unaffected.

If the available Management Servers are CPU-bound (the CPU usage is exhausted), adding additional Management Servers is an alterative to increasing the capacity of the nodes that run the Management Servers.

> **Note:** All Management Servers connecting to the same repository must reside in the same DNS Domain.

If you want to run an Oracle Management Server on a specific machine, you must first install the Oracle Management Server software on that machine.

Refer to the installation guide provided with the database release for detailed instructions.

When you add a new Management Server, you must run the Enterprise Manager Configuration Assistant to update the configuration for that node.

The Configuration Assistant can only set or change configuration parameters in the `omsconfig.properties` file for the machine on which it is running. It does not have the ability to change another machine's configuration parameters; you must go to each of the other Management Servers sharing the repository and run the Configuration Assistant to change each machine's configuration parameters.

You must set up or change the repository connect information (user name, password, service) to point to the correct repository. It is important that all the Management Server machines that are sharing the same repository have consistent configuration parameters.

> **Note:** If you change the password for the database user account which owns the repository, you must also change the corresponding Management Server configuration parameter for every Management Server that uses the repository; otherwise, the next Management Server start will fail.

For information about starting the Enterprise Manager Configuration Assistant, refer to "Starting the Enterprise Manager Configuration Assistant" on page 3-2.

Configuration Operation

Select the **Configure local Management Server** option from the list of configuration operations in the Configuration Operation page and click **Next** to continue.

For details about the Configuration Operation page, see "Configuration Operation" on page 3-2.

Configure Management Server

On the Configure Management Server page, select the **Use an existing repository** option to configure a second or subsequent Management Server to share an existing repository with other Management Servers, and click **Next** to continue.

If a configuration already exists, a dialog appears asking you if you want to edit this configuration or create a new configuration. See Figure 3–3, "Edit or Create Dialog". Clicking **Edit** takes you to the Edit Configuration Parameters page directly.

Edit Configuration Parameters

On the Edit Configuration Parameters page, direct the local Management Server to use an existing repository by entering the username, password, and service for an existing repository.

User Name
Enter the user name of the existing repository which you wish this machine's Management Server to use or enter the repository's user name to change the Management Server configuration to use another repository. The user name is a database username, not an Oracle Enterprise Manager administrator name.

Password
Enter the password for the above user name or enter the repository user's password to change the password that the Management Server uses to log into the repository when it starts. The information will be used on the next Management Server start up.

If you change the password, you must also change the Confirm field so that it matches the password you changed.

Service
Enter the service/database where the repository resides to change the Management Server to use a repository in another database.

This information will be used when this machine's Management Server next starts up. If any of the information is invalid, then the Management Server will not start successfully.

Do not save username and password
You can select whether to save the user name and encrypted password in the `omsconfig.properties` file, which is read by the Management Server on startup. If the user name and encrypted password are stored in the file, the Management Server uses them to login to the repository.

On Windows NT, if they are not saved, you can enter them in the Control Panel's Startup Parameters field when you start the Management Server. If you do not enter the repository credentials in the Startup Parameters field, you will be prompted for them in a dialog.

On UNIX, if they are not saved, the Management Server will prompt you for a user name and password before it starts up.

If you do not want to save the user name and password, select the **Do not save username and password** option. The option of not storing your repository credentials is referred to as the secure Management Server mode.

Click **Next** to proceed from the Edit Configuration Parameters page.

If the username and password are not stored in the configuration file, you are prompted with a login dialog for the credentials to log into the repository. The Configuration Assistant connects to the specified repository and validates the specified repository and displays any errors it encounters. If the validation was successful, the Select Management Region page appears.

Select Management Region

If you have a large, global deployment of Enterprise Manager or have Enterprise Manager deployed across a mixture of LANs and WANs, then you should consider using the Management Regions feature. In both situations, Management Regions can improve performance over slow networks by allowing you to assign a subset of Management Servers and a subset of discovered nodes to a Management Region to prevent cross-regional or cross-network communication. Additionally, Management Regions are useful for mapping discovered nodes within firewall boundaries.

For example: Company XYZ has a Management Server running in England and monitored targets in England. It also has a Management Server running at its headquarters in California and monitored targets in California.

With previous releases of Enterprise Manager, the Management Server in England could actually monitor the targets in California. You could not "bind" a Management Server to the targets. Additionally, if there is a firewall between the Management Server in England and the monitored node in California, the Management Server and the nodes would not interact with each other. Management Regions functionality in release 9*i* prevents this cross regional communication and enables users to specify that the Management Server in England should only monitor targets in England within a firewall. It should not monitor the targets in California.

The Enterprise Manager Configuration Assistant by default creates the initial, default Management Region called DEFAULT. By default, all Management Servers that use the existing repository and all discovered nodes within the repository will be placed within this DEFAULT Management Region. If your enterprise does not see a need to use Management Region functionality (that is, you do not have a large, global enterprise or a deployment that spans several LANs and WANs) then using this DEFAULT Management Region would be sufficient. However, if you want to take complete advantage of the Management Region functionality, then you should create additional Management Regions and specify a subset of discovered nodes and a subset of Management Servers within each Management Region.

When a Management Server is not already assigned to a Management Region, the Enterprise Manager Configuration Assistant will prompt you to assign it to one, or to create an entirely new Management Region to which the local Management Server will be assigned. Under most circumstances, the Select Management Region page will appear with the options disabled because the Management Server will have already been assigned to a Management Region. In this case, an explanatory message will appear in red within the page.

In situations where the local Management Server is not already assigned to a Management Region, you will see the following page in Enterprise Manager Configuration Assistant:

Figure 3–15   Assign Management Region
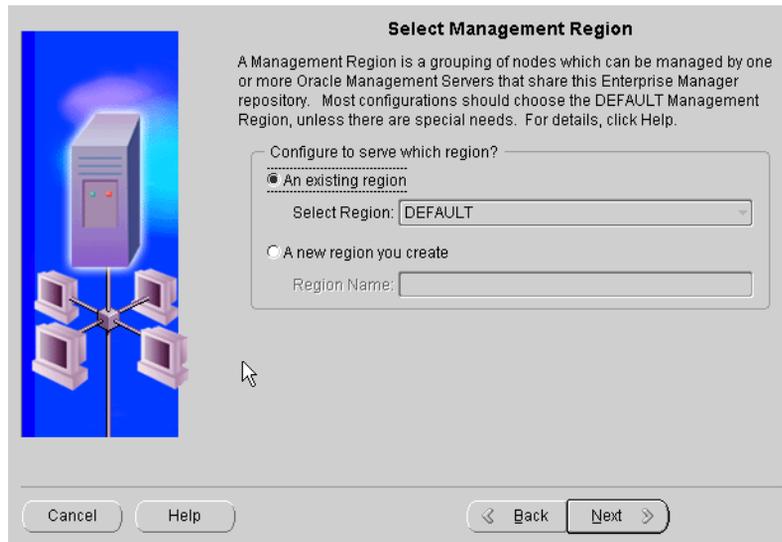
Select one of the listed options or enter a name for a new management region.

An existing region
Select Region: Select the region from the list.

By default, all nodes and Management Servers are in the same management region, called DEFAULT. You can reassign a node/Management Server from one management region to another if you are logged into the Console as a super administrator.

A new region you create
Region Name: Type in the name of the region.

> **Note:**   In order to progress to the next page, you must change at least one of the parameters in the Edit Configuration Parameters page or the Select Management Regions page. If you click **Next** without making changes, an error message appears: "There were no changes to the configuration parameters. Make changes or cancel." In this case, the Enterprise Manager Configuration Assistant does not allow navigation to the next page.

Configuration Parameters Summary

The Configuration Parameters Summary page provides a summary of all the information supplied during the modify configuration parameters operation. Click **Finish** to initiate the change or click **Back** to return to previous pages to change your information.

> **Note:**   When you use the Edit Configuration Parameters to change parameters, the Configuration Assistant changes the Management Server configuration parameters, which are stored in the configuration file: `ORACLE_HOME\sysman\config\omsconfig.properties`. These parameters provide the necessary input to the Management Server, so that it may connect to the repository user within the proper database. The Configuration Assistant does not change the repository username or password in the repository itself once the repository has been created. The Configuration Assistant only manipulates the repository user's password at repository creation time when it creates the repository user.

Upgrading a Repository

Existing pre-9*i* repositories are not upgraded automatically during installation. To upgrade, you must run the Oracle Enterprise Manager Configuration Assistant manually after the installation.

The Oracle Enterprise Manager Configuration Assistant can take an existing Release 2.x repository and upgrade it directly to a Release 9.2 or it can take a Release 9.0 repository and upgrade it directly to a Release 9.2. After the upgrade, the repository is at the newer version.

Direct migration of Release 1.x repositories to a single Release 9.2 repository is not supported with the Enterprise Manager Configuration Assistant. This migration is a two step process. First you must run the Enterprise Manager Migration Assistant to migrate Version 1 to Version 2 and then run the Enterprise Manager Configuration Assistant Release 9.2 to upgrade Version 2 to Version 9.2. Refer to the *Oracle Enterprise Manager Configuration Guide Release 2.2* for instructions on migrating Version 1 repositories to a single Version 2 repository.

Stopping Management Servers and Enterprise Manager Applications

Before you attempt to perform an upgrade, you must first stop all Management Servers and Oracle Enterprise Manager applications that are using this repository. If any Management Server is currently using this repository, upgrading the repository causes a server error.

Backing Up the Repository

Before you attempt to upgrade the repository, you must first back up the database or repository schema using the standard export mechanism.

Note: A repository created under the SYS user cannot be exported.

The EXPORT utility is a base utility shipped with the Oracle database server. For detailed information about the Export utility, refer to *Oracle9i Utilities.*

If there is a failure during a repository upgrade, the repository will no longer be usable. The failed repository would no longer appear in the list of available repositories that could be upgraded.

Coordinating the Upgrade of Oracle Enterprise Manager Products

If you are using a Release 2.x repository or a Release 9.x repository and want to upgrade your repository to Release 9*i*, do not perform any repository upgrades until all Oracle Enterprise Manager components have been upgraded to Release 9*i*.

Because an Enterprise Manager repository is shared, it is important to coordinate your repository upgrade with the installation of the new Oracle Enterprise Manager software on all the machines that share the repository. If you do not upgrade your repository, the new version of the software will not operate with that repository.

However, if you do upgrade your repository, the older version of the software will not operate with that repository. Remember that both the base Oracle Enterprise Manager system, which includes the Management Server, and the Oracle Enterprise Manager packs share a repository, so if you want all your users to continue to perform their work, you must ensure that the repository upgrade is coordinated with the software upgrades on all relevant machines.

The Enterprise Manager Console, separately licensable Packs, Management Server and repository must all be of the same release. For example, you cannot use a Release 2.2 Management Server and repository with a Release 9*i* Console nor can you use a Release 9*i* Management Server and repository with a Release 2.2 Pack.

If the existing Management Server and repository are of a previous version, then you can upgrade them to the most recent version. In the case of upgrading a Management Server and repository to Release 9*i*, ensure that all Enterprise Manager products you intend to use with the repository are of Release 9*i*. For instance, do not upgrade the Management Server and repository to Release 9*i* if you are still using Diagnostics Pack Release 2.2 or Change Management Pack Release 2.2.

Note: Reports scheduled and generated with the Enterprise Manager Reporting Wizard Release 2.2 cannot be upgraded to Release 9.2.

Configuration Assistant Steps to Upgrading the Repository

To upgrade the repository, follow the steps outlined in the following sections.

Note: All job and event details in the repository are stored in binary fields to keep the information secure. The data itself is also encrypted using the schema owner name. Therefore, an Enterprise Manager repository can be moved to another database, but the owner of the repository must have the same schema name. You cannot change the schema name of a repository. If you export/import the repository from one user to another, the decryption key will not match and your jobs and events will no longer be usable.

For information about starting the Enterprise Manager Configuration Assistant, refer to "Starting the Enterprise Manager Configuration Assistant" on page 3-2.

Configuration Operation

When you click **Next** on the Welcome page, the Configuration Operation page appears.

Select the **Upgrade an existing repository** option from the list of configuration operations and click **Next** to continue. The Select Database for Repository page appears.

Select Database for Repository

Log in to the database which contains the repository you want to upgrade.

In order to upgrade a repository, you must connect to the database as a user with DBA privileges. The repository schema user created by the Enterprise Manager Configuration Assistant will not have the necessary DBA privileges for this step. To avoid potential security issues, do not grant more privileges to your repository schema user than is necessary. Connect to the database as a different user with DBA privileges instead. For example, system/manager.

For information about logging in to the database which contains the repository, refer to "Select Database for Repository" on page 3-13.

If you log in successfully, the Select Repository page appears.

Select Repository for Upgrade

If you are selecting a repository to upgrade, the Select Repository page shows only Release 2.0, 2.1, 2.2, and 9.0.1 repositories. The Enterprise Manager Configuration does not display release 9.2 repositories in this situation, because they do not need to be upgraded; they are already at the most up-to-date version.

Username: The username of the repository.

Version: The version of the repository.

Type: The type of repository. Type can be either "Enterprise" or "Standalone". An Enterprise repository is used by the Oracle Enterprise Manager connected to a Management Server. A Standalone repository is required by certain applications when you use Oracle Enterprise Manager not connected to a Management Server.

Select the appropriate repository and click **Next** to continue.

If the specified database does not contain any Release 2.x or 9.0.1 repositories, the list of repositories is empty and grayed out, and a note stating that "No repositories were found in the database" appears. You may click **Cancel** to exit the Enterprise

Manager Configuration Assistant or click **Back** to return to previous pages to connect to a different database.

Repository Login Information

In the Repository Login Information page, you must supply the repository user password.

During repository creation, a database user (repository schema user) who owns the repository was created by the Enterprise Manager Configuration Assistant with the username and password you have supplied.

In order to perform a repository upgrade, it is necessary to logon to the repository database as this user.

The repository user name has been entered into the username field as a result of your choice in the previous page. However, you will need to enter the password.

Click **Next** to continue. The Upgrade Repository Summary page appears.

Upgrade Repository Summary

The Upgrade Repository Summary page provides a summary of all the information supplied during the upgrade repository session. Click **Finish** to initiate the repository upgrade or click **Back** to return to previous pages to change the information.

Upgrade Repository Configuration Assistant Progress

When you click **Finish**, the Configuration Assistant Progress window appears, showing the processing performed and the processing steps that comprise the operation being performed. Each processing step is shown by a line of text.

If you want to view detailed information, click **Show Details** to expand the dialog to show a text area. You can hide the text area by clicking **Hide Details**.

Cancel changes to **Close** when processing is completed whether it is successful or not.

When all of the steps have been completed without error, the "Processing completed." message appears.

You can cancel the requested operation before it completes by clicking **Cancel**. However, if you cancel the operation, the repository will become unusable.

Click **Close** when you are finished.

During the Configuration Assistant upgrade operation, the Oracle Management Service will be created, if it does not already exist and only if the repository being upgraded is the one actually being used by the local Management Server.

Dropping an Existing Repository

In order to drop a repository, you must connect to the database as a user with DBA privileges.

To drop the repository and deconfigure the local Management Server if it uses that repository, follow the steps outlined in the following sections.

Stop the Management Servers and Enterprise Manager Applications

Before you attempt to drop the repository, you must first stop all Management Servers and Oracle Enterprise Manager applications that are using this repository.

If any Management Server is currently using this repository, deleting the repository causes a server error.

Start the Configuration Assistant

For information about starting the Enterprise Manager Configuration Assistant, refer to "Starting the Enterprise Manager Configuration Assistant" on page 3-2.

Drop Repository Configuration Operation

After clicking **Next** on the Welcome page, the Configuration Operation page appears.

Select the Drop an existing repository option from the list of configuration operations and click **Next** to continue. The Select Database for Repository page appears.

Select the Database of the Repository You Want to Drop

Log in to the database which contains the repository you want to drop. You must connect to the database as a user with DBA privileges.

The repository schema user created by the Enterprise Manager Configuration Assistant will not have the necessary DBA privileges for this step. To avoid potential security issues, do not grant more privileges to your repository schema

user than is necessary. Connect to the database as a different user with DBA privileges instead. For example, `system/manager`.

For information about logging in to the database which contains the repository, refer to "Select Database for Repository" on page 3-13. If you log in successfully, the Select Repository page appears.

Select Repository to Drop

If you are selecting a repository to drop, the Select Repository page shows all releases of repositories, beginning with 2.0.

Select the appropriate repository and click **Next** to continue.

Username: The username of the repository.

Version: The version of the repository.

Type: The type of repository. Type can be either "Enterprise" or "Standalone". An Enterprise repository is used by the Oracle Enterprise Manager connected to a Management Server. A Standalone repository is required by certain applications when you use Oracle Enterprise Manager not connected to a Management Server.

If the specified database does not contain any Release 2.x or 9*i* repositories, the list of repositories is empty and grayed out, and a note stating that "No repositories were found in the database" appears. You may click **Cancel** to exit the Enterprise Manager Configuration Assistant or click **Back** to return to previous pages to change the information.

Select Drop Repository Options

From the Select Drop Repository Options page, you can select to drop the repository user and all its schema objects or merely the repository objects.

If you select to drop only the repository, you must supply the repository user's password so that the Enterprise Manager Configuration Assistant can connect to the repository in order to invoke the Oracle Enterprise Manager SQL drop scripts. Only repository objects are dropped. Other schema objects in the repository remain.

If you select to drop the repository user and all its schema objects, a password is not required. Make sure that you do not have other objects of value in that schema before proceeding with this step. Valuable data may be lost if you do not ensure this.

If a repository is selected that is not at the current/latest version, the only valid choice is to drop the repository user because the drop scripts can only handle the latest/current version.

If the Configuration Assistant detects that a managed repository is specified in the `omsconfig.properties` file, and you are not dropping that repository, the Configuration Assistant will not change the Management Server configuration.

If you are dropping the managed repository, the Configuration Assistant will clear the Management Server configuration.

Click **Next** to continue. The Drop Repository Summary page appears.

Drop Repository Summary

The Drop Repository Summary page provides a summary of all the information supplied during the drop repository operation.

Click **Finish** to initiate repository removal or click **Back** to return to previous pages to change the information.

Drop Repository Configuration Assistant Progress

When you click **Finish**, the Configuration Assistant Progress window appears, showing the processing performed and the processing steps that comprise the operation being performed. Each processing step is shown by a line of text.

If you want to view detailed information, click **Show Details** to expand the dialog to show a text area. You can hide the text area by clicking **Hide Details**.

Cancel changes to **Close** when processing is completed whether it is successful or not.

When all of the steps have been completed without error, the "Processing completed." message appears.

You can cancel the requested operation before it completes by clicking **Cancel**.

Click **Close** when you are finished.

Controlling the Management Server After Configuration

Once configured, the Management Server provides distributed control between clients and managed nodes. A central engine for notification, it processes all system

management tasks and administers the distribution of these tasks across the enterprise.

Specific topics discussed in this section are listed below:

- Starting a local Management Server
- Checking the status of the Management Server
- Stopping a local Management Server

Starting a Local Management Server

The repository database used with the Management Server must be started and open and the database listener must be started before starting the Management Server.

Starting a Local Management Server On Windows

To start the Management Server on Windows, follow the instructions below.

1. From the Start menu >Settings >Control Panel, double-click the Services icon.

2. If you have chosen not to store your repository credentials during repository creation (referred to as the secure Management Server mode), you can enter the repository's user name that was used to create the database user and the password for that user in the Control Panel's Startup Parameters field when you start the Management Server. The Startup Parameters field is under the list of services. The database user and password must be in the format of <username>/<password>.

   If you supply invalid or incomplete repository credentials in the Control Panel's Startup Parameters field, the Management Server will not start, and an error message will appear.

   If you are in secure mode and do not enter the repository credentials in the Startup Parameters field, you will be prompted for them later in a dialog.

   For information on troubleshooting the Management Server if it does not start, refer to "Management Server Does Not Start" on page F-14.

3. Select the Oracle<Oracle_Home_Name>ManagementServer service.

4. Click **Startup** to access the Service Startup dialog.

> **Note:** Step 4 only needs to be performed once, not every time you start up the service.

---

   a. In the Startup Type section, specify how the Management Server service is started up by choosing the **Automatic** or **Manual** option. **Manual** enables the Management Server to be started by a user. **Automatic** enables the Management Server to start automatically whenever the user starts the system. The **Disabled** option does not allow the Management Server to start at all. By default, the Configuration Assistant sets the service to **Manual**.

   b. In the Log On As section, check for the following settings:

      * Ensure that the System Account option, which is the supported way to run the Management Server, is selected. The Management Server will not run if you use a local account.

      * Ensure that the **Allow Service to Interact with Desktop** option is selected; otherwise, the Management Server will not run.

5. Click **Start** to start the Management Server.

> **Note:** Your Management Server service is started automatically and set to Manual on Windows during repository creation if you had started the Enterprise Manager Configuration Assistant from an installation session and if you had chosen to save your repository credentials.
>
> If you have chosen not to save your repository credentials, you can enter them in the Control Panel's Startup Parameters field when you start the Management Server. If you do not enter the repository credentials in the Startup Parameters field, you will be prompted for them in a dialog.

Starting a Local Management Server On UNIX

To start the Management Server on UNIX, at the command line, enter

```
% oemctl start oms
```

When you are prompted, enter the repository's user name that was used to create the database user and the password for that user if you have chosen not to save

your repository credentials during repository configuration. For a complete definition of a repository owner, refer to "Repository Login Information" on page 3-14.

Note: If the ORACLE_HOME environment variable is not set to the Oracle home in which the Management Server is running, the Management Server will not start correctly because it will try to find its class files in the default Oracle home instead of the correct Oracle home. For information on setting the Oracle environment, refer to "Management Server May Not Run Correctly from a Non-Default Oracle Home" on page F-13.

Checking the Status of the Management Server

To quickly check whether a local Management Server is up or down on Windows or UNIX, at the operating system prompt, enter:

```
% oemctl ping oms
```

To check the status of a local Management Server on Windows or UNIX, at the operating system prompt, enter:

```
% oemctl status oms
```

You will be prompted to enter the username and password of an Oracle Enterprise super administrator.

To check the status of a remote Management Server on Windows or UNIX, at the operating system prompt, enter:

```
% oemctl status oms sysman/<password>@<hostname of Management Server machine>
```

For example

```
% oemctl status oms sysman/sysman@dlsun2305
```

The information that `oemctl status oms` returns include the following:

- Management Server version
- Whether the Management Server is running or not and how long it has been running
- Target database session count

Indicates the number of target databases in the session. A target database session is obtained when a user tries to connect to a database (by expanding a database under the Databases folder in the navigator). Because it is inefficient to open and close database sessions every time one is required, a certain number of target database sessions are kept in a pool and the Management Server tries to use these sessions before more are opened.

- Operations queued for processing

Indicates the number of activities waiting for processing. Activities may include submitting jobs, registering events, deleting jobs, deleting events, sending email, or other maintenance procedures.

- Number of OMS systems in domain

Indicates the number and host names of Management Servers running in the enterprise.

- Number of administrators logged in

Indicates the number of Enterprise Manager administrators logged into this Management Server.

- Repository session pool depth

Indicates the number of sessions available from the database repository to the Oracle Management Server to perform actions such as submitting jobs to and registering events with Oracle Intelligent Agents. By default, the session pool depth is set to 15. This default value should be sufficient for most environments. Since the repository sessions are consumed when jobs are submitted and events registered, you should only need to adjust this default value if your administrative team is performing many activities.

- Repository session count

Indicates the number of repository sessions currently in the pool. A repository session is obtained when the Management Server performs any task that requires retrieving or updating information in the Enterprise Manager repository. For example, the task could be submitting a job or event, or viewing a group, job history, registered events, etc. Because it is inefficient to open and close a session every time it is required, a certain number of sessions to the repository are kept in a pool and the Management Server tries to use these sessions before more are opened. The Management Server takes up about 5-7 sessions on startup.

An example of the output is shown below:

```
OEMCTL for Windows NT: Version 9.2.0.1.0
Copyright (c) 1998, 2002 Oracle Corporation.  All rights reserved.

The Oracle Management Server on host [znripley-pc.ovenbird.com] is functioning
pr
operly.

  The server has been up for 0 00:00:25.953

  Target database session count: 0 (session sharing is off)
  Operations queued for processing: 1
  Number of OMS systems in domain: 1 (znripley-pc.ovenbird.com)
  Number of administrators logged in: 0
  Repository session pool depth: 15
  Repository session count: 8 in-use and 1 available, pool efficiency: 18%
```

Stopping a Local Management Server

To stop a local Management Server, perform the following steps:

On Windows:

1. From the Start menu >Settings >Control Panel, double-click the Services icon.

2. Select the Oracle<Oracle_Home_Name>ManagementServer service.

3. Click **Stop** to stop the Management Server.

You will be prompted to enter the username and password of an Oracle Enterprise super administrator.

On UNIX:

At the command line, enter

```
% oemctl stop oms
```

You will be prompted to enter the username and password of an Oracle Enterprise super administrator.

4

Configuring the Console when Connected to a Management Server

Beginning with Release 9.0 when you start the Enterprise Manager Console or various other Enterprise Manager applications, you are prompted to choose between starting the product standalone (that is, not connecting to the middle tier Management Server) or starting the product with a Management Server connection. While starting the Console standalone enables a single administrator to perform direct database administration, starting the Console by connecting to a middle tier Management Server provides more comprehensive management capabilities, such as sharing of administrative data among multiple administrators, being proactively notified of potential problems, and automating repetitive administrative tasks. This chapter will describe how to configure the Enterprise Manager Console when it is connected to a middle tier Management Server.

The following topics will be discussed:

- Starting the Console with a Management Server Connection
- Discovering Nodes in Your Environment
- Creating Administrator Accounts
- Granting OEM_MONITOR Role to Database Preferred Credentials
- Enabling the Job System
- Configuring the E-mail Server
- Starting the Enterprise Manager Paging Server
- Configuring Enterprise Manager Reporting
- Configuring the Console If Using a Dialup Line
- Using System Colors for Windows

- Customizing Access to Enterprise Manager's Areas of Database Management
- Using Oracle LogMiner Viewer

Note: Except for some reporting, these features are not available in the standalone Console.

Choosing to Start the Console by Logging into a Management Server

When you start the Enterprise Manager Console, you are prompted to choose between starting the product standalone or starting it with a Management Server connection.

Figure 4–1   Oracle Enterprise Manager Console Login
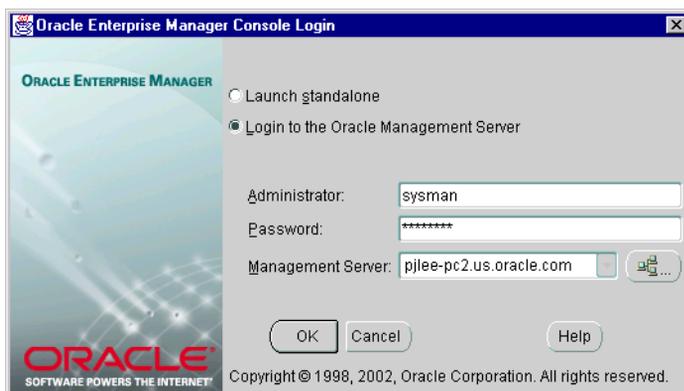
Note: Previous to starting the Console by logging into a Management Server you must first install and configure a Management Server. For installation instructions, refer to the Installation Guide. For configuration details, refer to Chapter 3, "Configuring and Controlling the Management Server".

Choose to start the Console by logging into a Management Server when you want access to functionality such as:

- Management of several different target types. For example, a target type may include databases, web servers, application servers, applications, or others.

- Sharing of administrative data among multiple administrators

- Proactive notification of potential problems

- Automation of repetitive administrative tasks

- Backup and data management tools

- Customization, scheduling, and publishing of reports

- Running the client from within a web browser

- LogMiner Viewer

Figure 4–2   Console Connected to a Management Server
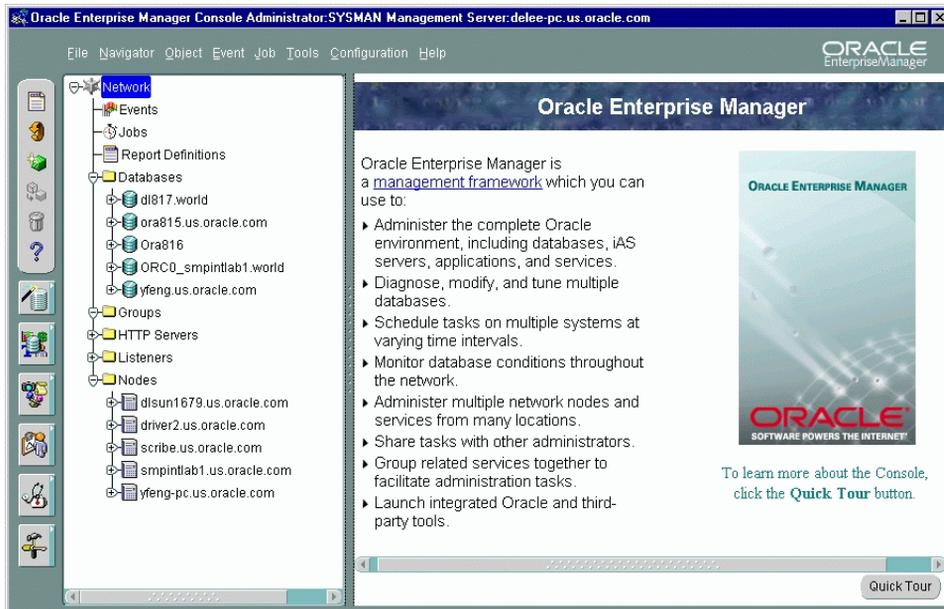
Starting the Console with a Management Server Connection

On Windows-based platforms, you start the Console from the Windows Start Menu.

On any supported platform, you can start the Console from the command line by using the command:

```
oemapp console
```

On UNIX platforms, the `oemapp` part of the command line is case-sensitive and must be entered with lowercase characters.

All of the above options prompt you with the Oracle Enterprise Manager Console Login. If you want to bypass the Oracle Enterprise Manager Console Login, you can enter the following command at the command line to automatically login to the Console by connecting to a Management Server:

```
oemapp console oem.loginmode=
oms oem.credential=<username>/<password>@<management server>
```

Figure 4–3   Oracle Enterprise Manager Console Login

When the Oracle Enterprise Manager Console Login appears, select the **Login to the Management Server** option and if this is the first time you have logged in to the Management Server, enter the Enterprise Manager administrator name and password, which are the default credentials, and the Management Server machine name. The default Enterprise Manager administrator name is `sysman` and its password is `oem_temp`. The Management Server on the node you select or enter must be one which is already configured with the repository you want to access.

> **Note:** The repository you use with a Management Server should not be confused with the standalone repository used with certain standalone, integrated applications.

If the name of the node where the Management Server is running does not appear in the list, you can either enter the node name in the field or follow these instructions:

1. Click **Management Servers**, which is located to the right of the Management Server field. The Management Servers dialog appears.

2. Click **Add**. The Add Management Server dialog appears.

3. Enter the name of the node where the Management Server is running and click **OK**.

If you add a Management Server using the Management Server dialog it becomes the current choice when you return to the login dialog.

> **Note:** Oracle Enterprise Manager may resolve the node name and use the canonical name of the machine. That name will be used in the dialogs from now on. For example, `znripley-pc` may be changed to `znripley-pc.us.ovenbird.com`.

After the initial login with `sysman/oem_temp`, a security dialog appears where you can change the default `sysman` password. The password you specify is not case sensitive. Other than spaces at the beginning or at the end of the password, you can specify any character in an Enterprise Manager Administrator's password.

Discovering Nodes in Your Environment

Oracle Enterprise Manager provides a Discovery Wizard for identifying network nodes and machines and populating the Console Navigator with these discovered nodes and targets. The discovered targets, such as databases and listeners, can then be administered with Enterprise Manager.

The Console is the central location for management and therefore the window from which you would see all the targets you are managing.

During start up of the Console, any manageable targets on the machine where the Management Server is running are automatically discovered if the Intelligent Agent is installed and running on that Management Server machine. The Console Navigator then displays all those discovered targets.

To discover additional nodes and targets which reside on nodes within your environment:

1. Choose **Discover Nodes** from the **Navigator** menu.

2. When the Discovery Wizard appears, read the introduction and click **Next** to continue.

3. When the Specify Nodes page appears, enter the name of the node or the IP address in the field. You can also discover targets on multiple nodes at one time by entering each node or IP address you want to discover separated by a space, comma, tab, or new line within the field or using the **Import** button to import a text file of node names. Then click **Next** to continue.

4. A Progress page appears, showing you the status of the node discovery. A checkmark indicates that the node was discovered successfully. An X indicates that the discovery has failed. If an error occurs, an error message explaining the reason for the error appears, giving you insight on how to continue. After the discovery process has completed, click **Finish**.

5. A Discovery Results dialog appears, telling you which nodes have or have not been automatically discovered. Click **OK** to close the dialog.

   If nodes have failed automatic discovery, you can click **Next** on the Progress page. On the Errors page, you will have the option to retry, skip, or perform a manual discovery on the failed nodes.

   If no Intelligent Agent is running for some nodes which failed to be discovered, you can still add the node to the navigator, and add databases to that node using manual discovery.

   During manual discovery, you will be prompted for the following information:

   ■   database name

   ■   SID

   ■   TCP/IP port to use for the communication

   When a node is manually added, you cannot register events or submit jobs against the node.

> **Note:** Manually discovered nodes must be dropped from the Navigator before they can be automatically discovered.

If a node cannot be discovered, check if the node is down or if the node does not have an Intelligent Agent running. You can also check if you are using the TCP/IP network protocol. See the *Oracle Enterprise Manager Administrator's Guide* for more information on discovering nodes.

> **Note:** If you discover two or more targets with the exact same name, regardless of the target type, only one of the discovered targets will appear in the Navigator.

6. If regular Enterprise Manager administrators are defined, an Access to Target page appears, allowing a super administrator to control what appears in the Console Navigator for regular Enterprise Manager administrators. This lets the super administrator create customized Navigators for specific users. The page provides a multi-column list. The first column shows all objects that appear in the Console Navigator. Clicking the + next to the object's name expands the object. One column exists for each Enterprise Manager administrator defined by the super administrator. To allow a regular administrator to see a particular object within the Navigator, in the column belonging to that administrator, select the box in the row corresponding to the Navigator entry.

7. Click **Finish**.

Creating Administrator Accounts

Enterprise Manager is a multi-administrator system: every person who is administering systems using Enterprise Manager has his or her own administrator account which he or she uses to log into the Console by connecting to a Management Server.

The installation of Enterprise Manager creates a Reports user and a Super Administrator named `sysman`. The Super Administrator `sysman` can create administrators using the Manage Administrators item in the Configuration menu. In addition to an administrator name and password, each account can be tagged as

a Super Administrator account or an account to which the administrator has access to only jobs, or events, or both.

Differences between the two types of accounts are as follows:

- **Super Administrators** automatically have full privileges for all objects in the system. To provide greater security, only Super Administrators can discover, refresh, or remove targets from the Console Navigator.

    Most Super Administrators also have a separate account for daily operations but use their Super Administrator account for special operations only available to Super Administrators, such as creating new Enterprise Manager Administrators, configuring paging or e-mail servers, defining management regions, or granting other administrators access to targets. Using the `sysman` account for daily administration work is not recommended. The Super Administrator account is similar to root on UNIX or Administrator on Windows NT and is a user which cannot be deleted or renamed. It is a user that can perform any task and therefore should be used only for setting up the environment.

- **Regular Administrators** can have access to a subset of Console operations and will only see these targets to which they have been granted access by the Super Administrator. For detailed information about customizing what administrators can see, refer to the *Oracle Enterprise Manager Administrator's Guide.*

Typically, all administrators share a single Enterprise Manager repository, which enables administrators to share information. The Enterprise Manager repository is one in which Management Servers share; it is not a standalone repository. Although you can set up multiple repositories, administrators using different repositories will not have access to each other's information; there is no sharing of data between repositories. Administrative data stored in the repository is filtered based on administrator permissions.

Preferred Credentials must be set up for each administrator account. When an administrator connects to managed targets through the Management Server, the preferred credentials used are those defined explicitly for that administrator.

See the *Oracle Enterprise Manager Administrator's Guide* for information on how Enterprise Manager administrators are created, edited, and deleted with the Manage Administrators option of the Console Configuration menu.

Granting OEM_MONITOR Role to Database Preferred Credentials

Beginning with Oracle 8.0.6 databases and higher, the OEM_MONITOR role is created by the Oracle database creation scripts. This role permits access to database functionality within Enterprise Manager, such as registering events against a database or browsing through the objects in a database through the Console Navigator. These types of functionality require database credentials on which to perform these operations. Rather than granting the powerful DBA role to the database credentials, many administrators prefer to provide only the necessary privileges required to do these operations. Granting the OEM_MONITOR role to the database credentials, ensures that the user has the minimum sufficient privileges required for these operations.

> **Note:** You need to create the OEM_MONITOR role using the SYS account.

You must perform the following steps:

1. Create a role called OEM_MONITOR

   ```
   drop role OEM_MONITOR;
   create role OEM_MONITOR:
   ```

2. Grant the "connect" role to OEM_MONITOR

   ```
   grant connect to OEM_MONITOR;
   ```

3. Grant the "analyze any" and "create table" system privileges to OEM_MONITOR

   ```
   grant analyze any to OEM_MONITOR;
   grant create table to OEM_MONITOR;
   ```

4. Create the SELECT_CATALOG_ROLE role as defined in sc_role.sql.

5. Grant the SELECT_CATALOG_ROLE to the OEM_MONITOR role

   ```
   grant select_catalog_role to OEM_MONITOR;
   ```

You are now ready to grant the OEM_MONITOR role to the database user that will be used as "database preferred credentials" in Enterprise Manager. In addition to granting the OEM_MONITOR role to a user, you must also ensure that the QUOTA for the user account is set to UNLIMITED.

The Continued Row event test needs to analyze results into a table so it needs both the "analyze any" and "create table" privileges.

> **Note:** The "analyze any" privilege is used by the "index rebuild" event to compute statistics.

Enabling the Job System

In order for Enterprise Manager administrators to be able to successfully submit jobs, certain configuration steps must be performed:

- An operating system user account must exist with the advanced user right, "logon as batch job" on any Intelligent Agent machine to which administrators plan to submit jobs. This applies to Intelligent Agent machines running on Windows NT, Windows 2000, and Windows XP platforms.

- For Windows NT, Windows 2000, and Windows XP, the user must be a member of the Administrators group. For details on creating a new operating system user or editing an existing user for this purpose, refer to the sections further below.

- Preferred credentials must be set for any node to which jobs will be submitted. The preferred credentials that are used on Windows NT, Windows 2000, and Windows XP must be the same as the operating system user account with the advanced user right "logon as batch job." For more details on preferred credentials, see the *Oracle Enterprise Manager Administrator's Guide.*

- The operating system user account with advanced user rights must have read/write permissions to ORACLE_HOME\NETWORK directory as well as read, write, update, and delete permissions to the TEMP directory or the ORACLE_HOME directory.

> **Note:** If you do not set up the "logon as batch job" privilege, you will receive the "Failed to authenticate user" message when you try to run jobs on the node.

You must create a Windows platform user account for every managed Windows platform node which will have jobs submitted against it. Follow one of the three procedures listed below.

In addition, because the output of some jobs may be quite large, you have the option in Oracle Enterprise Manager to specify the maximum size for any job output. For details, see the *Oracle Enterprise Manager Administrator's Guide.*

Creating a New Windows NT User Account

To create a new Windows NT user account on the Windows NT machine where the Intelligent Agent is installed and grant the "log in as batch jobs" privilege to this user, perform the procedure below.

1. From the Windows Start Menu, select **Programs** > **Administrative Tools** > **User Manager**.

2. Select **New User** from the **User** menu and check for the following:

   - The **User Must Change Password at the Next Logon** option is not selected.

   - SYSTEM or system is not used for the user name.

3. Click **Groups** in the New User page.

4. Click the left-arrow button to move the **Administrators** item in the **Not a Member of** list to the **Member of** list. Click **OK**.

5. In the User Manager window, choose **User Rights** from the **Policies** menu.

6. Select the **Show Advanced User Rights** option.

7. Select "Logon as a batch job" from the **Right** list.

8. Give the selected user this privilege.

Assigning Privileges to an Existing Windows NT User Account

Alternately, to assign privileges to an existing local user account, perform the following steps.

1. Double-click the user on the User Manager panel and check for the following:

   - The **User Must Change Password at the Next Logon** option is not selected.

   - SYSTEM or system is not used for the user name.

2. Click **Groups** in the User Properties page.

3. Click the left-arrow button to move the **Administrators** item in the **Not a Member of** list to the **Member of** list. Click **OK**.

4. In the User Manager window, choose **User Rights** from the **Policies** menu.

5. Select the **Show Advanced User Rights** option.

6. Select "Logon as a batch job" from the **Right** list.

7. Click **Add**. The Add Users and Group window appears.

   a. Select your domain from the **List Names From** list.

   b. Click **Show Users**.

   c. Select the domain user from the list.

   d. Click **Add**.

   e. Click **OK**.

8. In the User Rights Policy dialog, click **OK**.

Configuring a Windows NT Domain User as Your Intelligent Agent User

> **Note:** The Windows NT Domain User works only if the machine is a primary domain controller (PDC); otherwise, jobs will fail with VNI-2015 "authentication error." In all non-PDC environments the account must be local to the machine.

1. Alternately, to configure a domain user as your Intelligent Agent user, perform the following steps.

2. In the User Manager window, choose **User Rights** from the **Policies** menu.

3. Select the **Show Advanced User Rights** option.

4. Select "Logon as a batch job" from the **Right** list.

5. Click **Add**.

   a. Select your domain from the **List Names From** list.

   b. Click **Show Users**.

   c. Select the domain user from the list.

   d. Click **Add**.

   e. Click **OK**.

6. In the User Rights Policy dialog, click **OK**.

> **Note:** If you have both a local and a domain user with the same name, the local user takes precedence. If you have a domain user set up, you must set the domain password to be the same as the local password in order for scheduled jobs to run when they are submitted using the domain user account.

Configuring the E-mail Server

To enable administrators to receive e-mail notifications, super administrators must first configure the e-mail server from the Console:

1. From the Console Configuration menu, choose **Configure Paging/Email**. The Configure Paging/Email dialog appears. By default, the Email Configuration is already selected.

2. Enter the node on which the SMTP mail gateway resides in the **SMTP Mail Gateway** field. For example, mailserver.company.com.

3. Enter the name you want to use to identify the sender of the e-mail in the **Sender's SMTP Mail Address** field.

After completing the SMTP mail configuration, notification and schedule preferences should be specified for all administrators who want to receive e-mail notifications. See the *Oracle Enterprise Manager Administrator's Guide* for details.

Starting the Enterprise Manager Paging Server

Enterprise Manager bundles its own Paging Server which enables administrators to receive notifications on events and jobs on their pagers. Both numeric and alphanumeric pagers are supported; however, alphanumeric pagers must utilize one of the following paging service protocols:

- TAP (Telocator Alphanumeric Protocol)

- GSM (Global System for Mobile Communications)

- FLEX-TD (FLEX Time-Diversity Protocol)

> **Note:** Numeric paging is not supported on Windows 2000.

Most paging service providers support the sending of e-mail messages to pagers. If your provider offers the option of sending e-mail; then, you can choose not to install and configure the Enterprise Manager Paging Server.

If you choose not to install our Paging Server, you can specify the e-mail address of your pager as the Receiver's Email address when you configure your e-mail notification preferences (Figure 4–4, "Email Preferences") or your paging notification preferences (Figure 4–5, "Paging Preferences").

Figure 4–4   Email Preferences
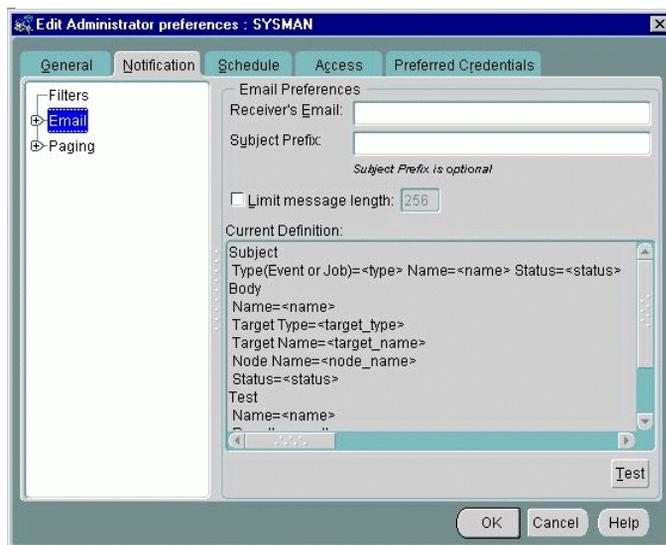
**Figure 4–5 Paging Preferences**
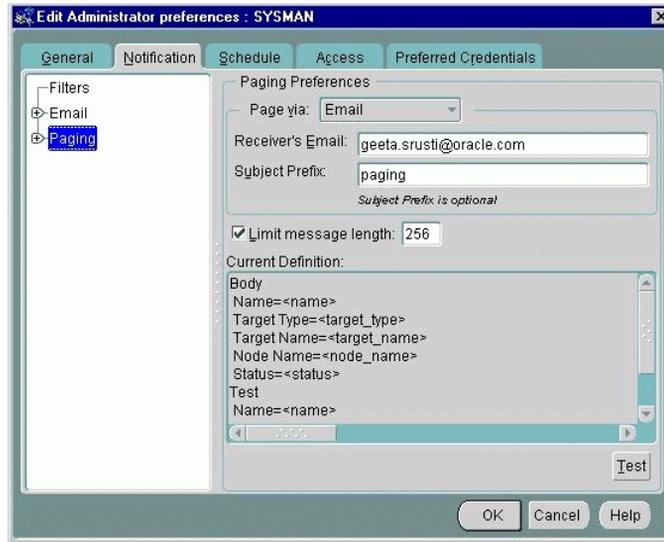
If you specify paging through email using the paging preferences, it will be based on your pager notification's schedule and filters. In Enterprise Manager, you can distinguish the e-mail notification's schedule and filters from the pager notification's schedule and filters. Refer to Figure 4–6, "Email and Paging Filters" and Figure 4–7, "Paging Schedule" below.

Figure 4–6   Email and Paging Filters
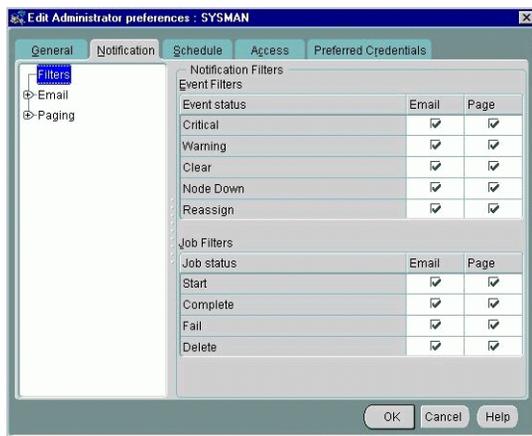
Figure 4–7   Paging Schedule
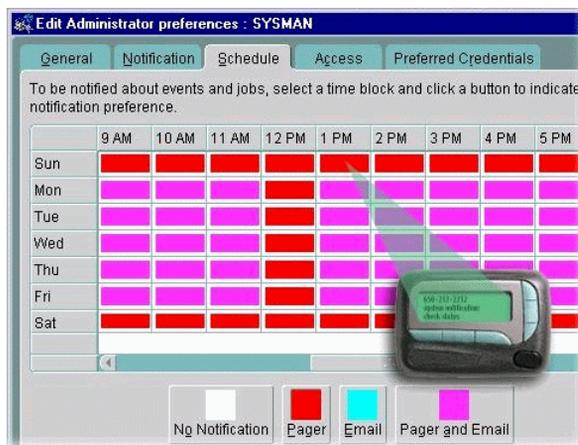

Administrators can specify an email address or several email addresses separated by a comma for email notifications as well as either a phone number or an email address for paging notifications. This lets administrators specify different schedules, filters, and message formatting for both methods of notification. See the *Oracle Enterprise Manager Administrator's Guide* for details.

Figure 4–8   Paging through Paging Server
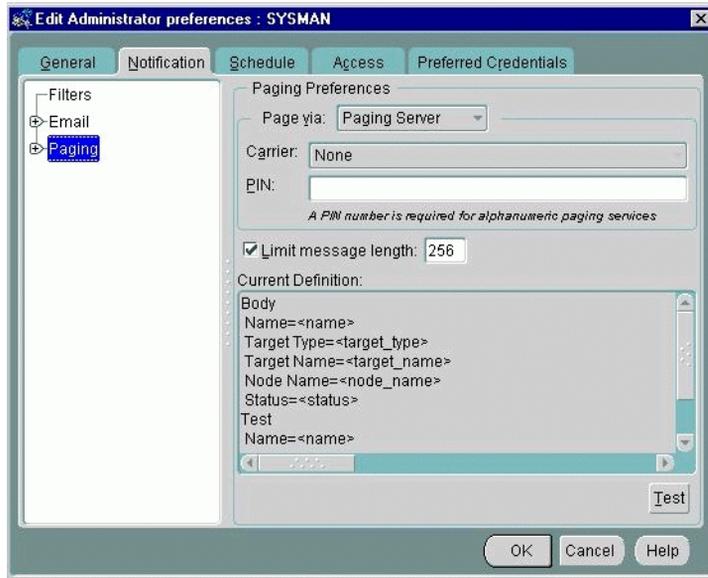
The Enterprise Manager Paging Server is automatically installed with the Oracle Management Server on Windows NT, Windows 2000, or Windows XP; it is not installable for any UNIX platform.

> **Note:**   The Enterprise Manager Paging Server requires a modem. Ensure that the machine on which you install the Paging Server has a modem.

While you can install the Paging Server only on certain Windows platforms, you can configure the Paging Server from the Enterprise Manager Console on any Windows or UNIX operating system.

Only one Paging Server is necessary for an Enterprise Manager deployment.

There are two most common options for deploying the Paging Server.

In the deployment shown in Figure 4–9, "Management Server on Windows NT Machine", the Console is on one machine, and the Management Server is on another

Windows NT machine (connecting to repository). The Paging Server and modem are on the same Windows NT machine as the Management Server.

Figure 4–9   Management Server on Windows NT Machine
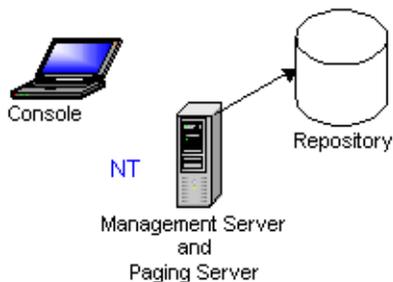
In the deployment shown Figure 4–10, "Management Server on UNIX Machine",

the Console is on one machine and Management Server is on another UNIX machine (connecting to the repository). The Paging Server and modem are on a Windows NT machine.

Figure 4–10   Management Server on UNIX Machine
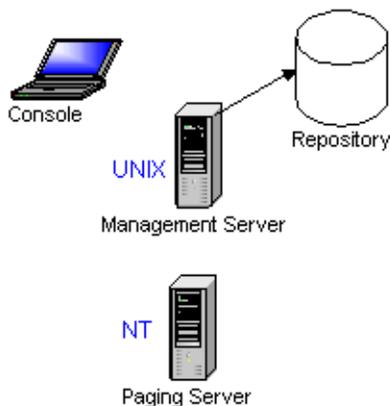
The installation of the Enterprise Manager Paging Server does not automatically start the Paging Server service nor does it configure it. After installation, you must

specify the modem settings, start the Paging Server service manually, and configure the Paging Server from the Enterprise Manager Console.

To specify the modem settings:

1. From the Start menu, choose **Settings** > **Control Panel**.

2. Double-click **Modems** (Windows NT).

3. Click **Dialing Properties** in the Modem Properties page to specify how your calls are dialed by setting the following parameters:

   ■ From what area code you are dialing

   ■ From what country you are dialing

   ■ How you access an outside line. If you are not required to dial a number to access an outside line, leave this field blank.

4. Click **OK** in the Dialing Properties page.

5. In the Modem Properties page, click **Properties** to set the Maximum Speed parameter. Click **OK**. Oracle recommends setting this parameter to 9600K Baud; however, you should find the baud rate setting optimal for your system.

Note: A baud rate higher than 9600 may result in the loss of data with the paging service carrier. The baud rate of 9600 for your modem is only a recommendation. You must find the baud rate setting which is optimal for your system.

To start the Paging Server:

1. From the Start menu, choose **Settings** > **Control Panel**.

2. Double-click **Services**.

3. Select the Oracle<ORACLE_HOME_NAME>PagingService and click **Start**.

You can also start the paging server by typing the following at a command prompt

```
oemctl start paging
```

Configuring the Enterprise Manager Paging Server

To enable administrators to receive paging notifications through the Enterprise Manager Paging Server, super administrators must first configure the Paging Server from the Console.

Adding a Paging Server

To add a paging server to the Enterprise Manager Console, perform the following operations:

1. Choose **Configure Paging/Email** from the **Configuration** menu. The Configure Paging/Email property sheet appears.

2. Click Paging Configuration in the list to display current paging server information.

3. Click **Add Server**. The Add Paging Server dialog appears.

4. Enter the name of the machine on which the paging server runs. For example, smpqa-pc.

5. Click **OK**.

If the Console is unable to find the paging server with the given hostname, an error appears.

If the paging server is found, a new paging server object is added under the Paging Configuration object in the list. The new paging server will have no paging carrier. You must add at least one paging carrier in order for paging to function.

Adding Paging Carrier

1. Choose **Configure Paging/Email** from the **Configuration** menu. The Configure Paging/Email property sheet appears.

2. Expand the Paging Configuration object in the list. Click one of the paging servers you added previously and click the **Add Carrier** button in the detail view to the right. The Add Paging Carrier dialog appears.

3. Enter the requisite information in the text entry fields. Once the paging carrier is defined, you can view the paging carriers by expanding the appropriate paging server and carrier objects in the Configure Paging/Email list. See Figure 4–11, "Add Paging Carrier Dialog"

4. Click **OK**.

Figure 4–11   Add Paging Carrier Dialog

- Name

  Paging carrier name. Field accepts alphanumeric characters and underscores.

- Type

  Type of paging carrier. Enterprise Manager supports alphanumeric or numeric.

- Protocol

  TAP, FLEX-TD, or GSM. Protocol selection is only available if the carrier type is Alphanumeric.

- Connection Properties

  * Country Code: The country code used to dial the pager if the call is international.

  * Area Code: Area code used by the country in which the pager is located.

  * Number: Local dialing number of the pager.

  * Suffix: Permits identification of voice messages from a paging carrier and enables the person being paged to choose from several options when using a touch tone phone. For example, commas can be used as

pauses. The Suffix field accepts the following characters: integers, commas, pound sign, and the star (asterisk). This option is only available if the paging carrier type is set to Numeric.

- Dialing Properties

    * Timeout (in seconds): Maximum dialing time allowed for a successful page.

    * Delay (in seconds): Time delay before dialing. This option is only available if the paging carrier type is set to Numeric.

Specifying Paging Notification Preferences

After completing paging server configuration, notification and schedule preferences should be specified for all administrators who want to receive page notifications. See the *Oracle Enterprise Manager Administrator's Guide* for details.

Configuring Enterprise Manager Reporting

The Enterprise Manager reporting system provides flexible reporting functionality to administrators, permitting quick and easy access to information about the status of all monitored systems in their enterprise. Administrators can create, schedule, and publish a wide variety of enterprise system reports. When published to a web site, these reports can be accessed by a wider audience, enabling anyone from administrators to managers to executives to quickly access information regarding their monitored enterprise.

In order to access published reports, ensure that the Enterprise Manager Web Site component has been installed. By default, it is installed with the Management Server under the `Oracle_Home/oem_webstage` directory. In addition, the Enterprise Manager Web Site automatically installs a preconfigured Oracle HTTP Server to act as the reporting web server. This is the same HTTP Server that is used by default for the browser-based Enterprise Manager.

Note: Reports from 2.2 cannot be upgraded to 9i.

When you install the Management Server, a preconfigured Oracle HTTP Server is automatically installed and started for you, and this HTTP Server will serve as the reporting web server (this is the same web server as is used for browser-based Enterprise Manager). In addition, reporting functionality is also automatically

installed. However, there are additional, manual steps you must perform in order to access the Enterprise Manager Reporting Web site.

Steps to Perform from the Console

1. Change the default password (oem_temp) for the REPORTS_USER administrator.

   a. From the Enterprise Manager Console, choose **Manage Administrators** from the **Configuration** menu. The Manage Administrators Accounts dialog appears.

   b. Select **REPORTS_USER** from the list.

   c. Click **Edit**. The Edit Administrator Preferences property sheet appears.

   d. Enter a new password in the **Password** field and retype the new password in the **Confirm Password** field.

   e. Click **OK** to set the password.

2. Set preferred credentials for the REPORTS_USER if you want to see database reports from the central Enterprise Manager Reporting Web Site. Any future database reports that other Enterprise Manager administrators create will also have to set their own database preferred credentials.

3. Register target up/down events for the all services you want valuable Service Level Reports against; otherwise, the Availability by Service Report shows 100% uptime for services that have no availability data collected, but the text following the Overall Availability bar chart will denote that no data was available for reporting.

4. If you want to see a Trending tab with trending information on the Reporting Web Site, you will need to have collections and affiliated analyses available from Capacity Planner. If you do not have these, the Trending tab will not appear.

Steps to Perform from the Management Server/HTTP Server Machine

1. Ensure Management Server process is started.

2. If the machine is UNIX:

   a. Execute the xhost +<host> command on the X Window machine where you are accessing reports from a web browser. For example, if your reporting web server is running on host servlet1 and the X Window is

running on host `xserv1`, then execute the following command on `xserv1`:
`xhost +servlet1`

b. Specify the DISPLAY environment variable with the X Window machine name on the host where the reporting web server is running. For example, if your reporting web server is running on host `servlet1` and the X Window is running on host `xserv1`, then execute the following command on `servlet1`:

*   if the command shell is C Shell: `setenv DISPLAY xserv1:0.0`

*   if the command shell is B or K Shell: `DISPLAY=xwerv1:0.0; export DISPLAY`

c. Verify that the X Window environment has been configured properly. For example, execute the `xclock` command. If you see the xclock window on your X Server (reporting web server), your X Window environment has been configured properly.

3. Stop and restart the Oracle HTTP Server using `apachectl stop` and `apachectl start`.

4. Review the `oem.conf` file located in `$ORACLE_HOME/oem_webstage/` directory, and note the ServerName directive value.

5. From the `$ORACLE_HOME/bin` directory of the Management Server/HTTP Server, run `oemctl configure rws`. You will be prompted to supply the following information:

    ■   Webserver host name: Specify the same name as what is used as the ServerName directive in `oem.conf` from Step 4 above.

    ■   Webserver port number: The default is 3339.

    ■   Oracle Management Server host name: Specify the same name as what is used as the ServerName directive in `oem.conf` from Step 4 above.

    ■   Password for REPORTS_USER: The password specified cannot be `oem_temp`; you must modify the password as indicated in Step 1 in the "Steps to Perform from the Console" section.

    ■   Whether you would like to specify an alternate location for historical data.

        You can put your historical data in either the Oracle Management Server repository (no) or a separate repository (yes). The default is no, store historical data in the Management Server repository. If you are storing the collections in a separate database, you will have to provide the username, password, and alias for that alternate database.

Access Reporting Web Site URL

1. Enter the URL

   ```
   http://<webserver host name>:3339
   ```

2. Click the **Access Reports** button.

Note: If you plan to launch reports on Windows 2000 using Internet Information Server (IIS) 5.0 instead of the Oracle HTTP Server, you need to modify the `oem.conf` file to configure reports on port 8099. Port 3339 is used for the Oracle HTTP Server which ships with 9.2.0, and port 8099 is the port used for Internet Information Server (IIS) web server. To launch reports, enter the URL:

```
http://<webserver host name>:8099
```

and click the Access Reports button.

Note about Service Availability Reports

When a node experiences an outage, the Service Availability reports show the outage as "unknown time" rather than downtime. This is consistent with the node's state that you will see in the Console or Reporting Home Page. Node availability is determined by pinging the Agent, and not the node. When the Agent is unreachable, the node is in an unknown state. There may be a network latency or outage or the node may be down.

Configuring the Console If Using a Dialup Line

You must have the correct TCP/IP configuration; incorrect TCP/IP configurations result in timeouts and lost connections.

Note: Dynamic IP addresses attributed by DHCP are not supported on nodes running the Management Server or an Intelligent Agent. DHCP is supported only on Enterprise Manager clients.

When the Console connects over a dialup line, the Console machine obtains a dynamic IP address. This dynamic IP address needs to be sent by the operating system (Windows 2000, Windows NT, Windows 98) to the Enterprise Manager application.

In order for the operating system to return the correct IP address, the network communication protocol (TCP-IP) needs to be configured to obtain the IP address using the Dynamic Host Configuration Protocol (DHCP).

To specify the setting:

1. From the Start menu, choose **Settings** > **Control Panel**.

2. Double-click **Network**.

3. Select the Protocols tab.

4. Double-click **TCP-IP Protocol**.

IMPORTANT: You must make note of your previous settings in order to return to those settings when you connect the same machine to the network through the ethernet. Copy the Settings specified in IP Address, Subnet Mask and Default Gateway to a file.

5. In the IP Address page, select the **Obtain an IP address from a DHCP Server** option.

6. Click **OK**.

7. Connect to the network through your dial-up line. You will now be able to start the Console.

Note: If you are not running from a web browser, you may need to restart your system after making the changes.

Using System Colors for Windows

You can set the preferred color by adding this line to the $ORACLE_HOME/sysman/config/ClientConfig.properties file:

```
user.color.scheme=System
```

The value can be any valid color scheme. Currently available color schemes are blue, khaki, olive, purple, red, teal, titanium, or System. The values are not case sensitive.

`Blue`, `khaki`, `olive`, `purple`, `red`, `teal`, `titanium`, and `System` are the currently known values for this property. Setting the `user.color.scheme` property will change the color scheme in the Console with the basic color as the named color in the property. System is the only one that takes the system default properties.

If the color scheme you are trying to use does not seem to take effect, turn on client tracing using the `oemapp trace console` command. Use level two tracing. In the trace output, search for "Color Scheme." The information is at the top of the trace output. If an incorrect value is entered, the following will appear in the trace file:

```
Unrecognized Color Scheme: <>
Color Schemes: ...
```

Customizing Access to Enterprise Manager's Areas of Database Management

You can restrict access to certain areas of database management in Oracle Enterprise Manager 9i so that the database management information will not appear in the navigator.

> **Note:** Because manual editing is error prone, backing up the `OEMClient.properties` file prior to editing is strongly recommended to ensure that the current Oracle Enterprise Manager environment can be recovered in cases of any error. The data in the file is crucial and the edits must be free of error to be of any use.

For example, a DBA whose role is only to create new users will only need access to Security Management. He will not need access to Schema Management, Instance Management, Storage Management, and others.

> **Note:**   Restricting access applies to database management. You cannot customize access with this procedure for Events, Jobs, Groups, and others.

To restrict database management access:

1. Locate the `OEMClient.properties` file in the client's `ORACLE_HOME\sysman\config` directory.

2. Make a backup of the `OEMClient.properties` file so that you can back out of the procedure should an error occur.

3. Locate the pair of entries that contain "/category/"

    For example,

```
/com/oracle/sysman/em/category/storage/order=3
/com/oracle/sysman/em/category/storage/class=oracle.sysman.vtg.VtgStorageCategory
```

4. Comment out the two entries per area of management with a pound sign, #.

    For example,

```
#/com/oracle/sysman/em/category/storage/order=3
#/com/oracle/sysman/em/category/storage/class=oracle.sysman.vtg.VtgStorageCategory
```

The area of management will no longer appear in the navigator under the database or databases that are managed.

Using Oracle LogMiner Viewer

Oracle LogMiner Viewer provides an easy-to-use graphical user interface to the Oracle9*i* LogMiner utility. LogMiner Viewer can be used to query online and archived redo log files to analyze the activity that has taken place in a database. Users can select redo log files, specify filters to be applied to the data, view query results and save the query and results for future use.

You can launch LogMiner Viewer either through the Oracle Enterprise Manager Console or as a separate application.

Using the Enterprise Manager Console

To launch LogMiner Viewer through the Oracle Enterprise Manager Console, you must log into the Oracle Management Server. You cannot launch LogMiner Viewer if you launch the Oracle Enterprise Manager Console in standalone mode.

After you log into the console, choose Tools > choose Database Applications > LogMiner Viewer to start LogMiner Viewer.

Launching LogMiner Viewer as a Separate Application

To launch LogMiner Viewer as a separate application, you must decide whether to log into the Oracle Management Server or to launch in standalone mode:

- Logging into the Oracle Management Server gives you access to all databases on the discovered nodes. Any discovered databases appear in the Navigator tree.

- Launching in standalone mode gives you access to all databases that you added to the Oracle Enterprise Manager Console. The databases that you added appear in the Navigator tree. Information about the databases is kept in a local record.

To invoke LogMiner Viewer as a separate application:

- On UNIX platforms, enter:

```
oemapp lmviewer
```

- On Windows NT, from the Programs menu, choose Oracle_home > Database Administration > LogMiner Viewer

For more information, see the Oracle Enterprise Manager Help.

5

Running Enterprise Manager Console from a Web Browser

This chapter will describe how to run the Enterprise Manager Console and its management applications from a web browser.

Running the Oracle Enterprise Manager Console from a Web Browser

With Oracle Enterprise Manager, an administrator is not limited to managing targets from a particular machine where the product has been installed. Instead, administrators can deploy the Enterprise Manager Web Site in order to run the Enterprise Manager Console from any supported web browser.

> **Note:** Browser-based Oracle Enterprise Manager is only supported with web browsers on the following operating systems: Windows 2000, Windows XP, Windows NT, and Windows 98.

All Enterprise Manager products and applications are web-enabled with the following exceptions:

- Oracle Diagnostics Pack
  - Oracle Capacity Planner
  - Oracle Trace Data Viewer
- Oracle Tuning Pack
  - Oracle Expert
  - Oracle Index Tuning Wizard
  - Oracle SQL Analyze
- Integrated Applications
  - Oracle Directory Manager
  - Oracle Net Manager

> **Note:** In order to see any Management Pack applications from browser-based Enterprise Manager you must install the corresponding Management Packs on the Management Server machine to which you intend to connect.

In order to run Oracle Enterprise Manager from a web browser, you must perform the following installation and configuration steps.

Client Install

Ensure that a supported web browser is installed on the client machines that will run web-enabled Enterprise Manager.

Supported web browsers are listed below:

- Netscape Navigator Release 4.7 for Windows NT, Windows 2000, Windows XP, and Windows 98

- Microsoft Internet Explorer Release 5.0 for Windows NT, Windows 2000, and Windows 98

- Microsoft Internet Explorer Release 5.5 for Windows NT, Windows 2000 and Windows 98

- Microsoft Internet Explorer Release 6.0 for Windows XP

> **Note:** Using Microsoft® Internet Explorer when it is run from a Microsoft® Active Desktop is not supported.

Server-Side Install

1. Ensure that the Enterprise Manager web site component has been installed.

By default, it is installed with the Management Server under the `Oracle_Home/oem_webstage/` directory. In addition, the Enterprise Manager web site automatically installs a preconfigured Oracle HTTP server to act as its web server. The Oracle HTTP server is automatically started. This is the same HTTP server that is used by the Enterprise Manager Reporting web site.

2. Start the Oracle HTTP Server by performing the following steps:

On Windows NT:

To start the Oracle HTTP Server:

a. From the Start menu, choose **Settings** > **Control Panel**.

b. Double-click **Services**.

c. Select the OracleHTTPServer_<Oracle_Home_Name> service.

d. Click **Start** to start the Oracle HTTP Server.

On UNIX:

You can start the Oracle HTTP Server from the command line using the command:

```
$Oracle_Home/Apache/Apache/bin/apachectl start
```

To stop the Oracle HTTP Server, perform the following steps:

On Windows NT:

To stop the Oracle HTTP Server:

a. From the Start menu, choose **Settings** > **Control Panel**.

b. Double-click **Services**.

c. Select the OracleHTTPServer_<Oracle_Home_Name> service.

d. Click **Stop** to stop the Oracle HTTP Server.

On UNIX:

You can stop the Oracle HTTP Server from the command line using the command:

```
$Oracle_Home/Apache/Apache/bin/apachectl stop
```

If you want to use a web server other than the default configured Oracle HTTP Server Release 1.3.22.0.0a for the browser-based Enterprise Manager, you must install and manually configure another supported web server. Additional supported web servers include:

- Oracle Internet Application Server Release 1.0.2.2.2 for Sun SPARC Solaris, Windows NT, and Windows 2000
- Apache Release 1.3.22 for Sun SPARC Solaris, Windows NT, and Windows 2000
- Microsoft Internet Information Server Release 4.0 for Windows NT
- Microsoft Internet Information Server Release 5.0 for Windows 2000

For examples on configuring the non-Oracle web servers for use with browser-based Enterprise Manager, refer to "Configuring the Web Server and Directory Mapping for Web Site" on page 5-8.

Run the Browser-Based Oracle Enterprise Manager Console on the Client

Figure 5–1   The emwebsite.html Page

After performing the above configuration steps, you are ready to start the browser-based Oracle Enterprise Manager.

> **Note:** In order to run Enterprise Manager from a web browser, you must remove any proxies that are configured for use by your web browser. You can do this by either:
>
> - Choosing to connect directly to the network using the web browser's proxy setting, or
>
> - Choosing to manually configure the proxy, but specify not to use the proxy for the web server that runs the Enterprise Manager web site.
>
> If you should experience problems with the proxies, refer to "Troubleshooting the Web Browser" on page F-18.

1. Open your web browser and enter the following URL regardless of which web server you have installed.

    ```
    http://<webserver hostname>:<port number>/
    ```

    For example:

    ```
    http://znripley-sun.us.ovenbird.com:3339/
    ```

    Note: The default preconfigured Oracle HTTP Server's port number is 3339.

    The index (`emwebsite.html`) page will appear. The index page lets you start the Enterprise Manager Console, Enterprise Manager Reporting web site, and documentation, and access various web sites. For information on setting up the Enterprise Manager Reporting Web Site, see "Configuring Enterprise Manager Reporting" on page 4-22.

2. From this index page, if you want to start the Console, enter the machine name for the Management Server to which you want to connect and click **Launch Console**. If you want to access published Enterprise Manager reports, enter the reporting web server hostname and port number (if it is different from the defaults) and click **Access Report**. You must have configured Enterprise Manager Reporting prior to clicking the button. For information on setting up the Enterprise Manager Reporting Web Site, see "Configuring Enterprise Manager Reporting" on page 4-22.

3. If you are entering the URL for the first time, you must install the Oracle JInitiator plug-in 1.1.8.18o.

    On Netscape, you are automatically prompted to install the plug-in.

> **Note:** Once you are prompted to install the plug-in and you exit or cancel before installing it, you will no longer be prompted to install it the next time you start the browser-based Enterprise Manager. In this situation, to install the plug-in, select <u>Download Plug-in</u> on the index page to download the java plug-in.

On Microsoft Internet Explorer, you can select <u>Download Plug-in</u> on the index page to download the plug-in.

4. Follow the instructions on the plug-in page to download the plug-in. Downloading the plug-in may take several minutes depending on your machine and network environment.

5. After installing the java plug-in, a dialog will appear, which explains the following:

The Console applet has been started from the browser window. Closing the dialog will cause the applet to stop.

> You will not be able to close the Oracle Enterprise Console window without stopping the Console since the application has been started from this browser window.

You can exit the emwebsite.html page without exiting the Console.

In addition, the Oracle Enterprise Manager Console Login will appear.

> **Note:** Starting the browser-based Oracle Enterprise Manager for the first time may take several minutes, and if you are running a dial up connection, download times will typically be longer and vary based on the line speed. A progress dialog will appear the first time you start browser-based Oracle Enterprise Manager.

6. If you are logging in to Oracle Enterprise Manager for the first time, type in the default credentials (administrator name and password).

Administrator = `sysman`

Password = `oem_temp`

These credentials are for the default Super Administrator account. The first time you start Enterprise Manager, you must login as this Super Administrator. After other administrator accounts have been created using the Super Administrator account, you can login as a different administrator.

> **Note:** If you are not able to connect to the Management Server specified, you must return to the index (`emwebsite.html`) page to enter a different Management Server machine name. You cannot simply enter a new

Management Server machine name at the Oracle Enterprise Manager Console Login.

7. Bookmark the URL.

Note: You can access only one URL for running browser-based Enterprise Manager applications. You cannot access browser-based Enterprise Manager applications from multiple URLs from a single machine.

Configuring the Web Server and Directory Mapping for Web Site

If you want to use a web server other than the default preconfigured Oracle HTTP server for browser-based Enterprise Manager, you must install and manually configure another supported web server.

To configure the Apache Server, Microsoft Internet Information Server, or Oracle Internet Application Server, refer to the following instructions.

Apache 1.3.22

1. Install the Enterprise Manager web site without the Oracle HTTP Server.

2. Install Apache 1.3.22. Consult your Apache-specific configuration documentation for detailed information.

3. Edit the `httpd.conf` located in the `Apache home/conf/httpd.conf/`.

4. ScriptAlias controls which directories contain server scripts. ScriptAliases are essentially the same as Aliases, except that documents in the realname directory are treated as applications and run by the server when requested rather than as documents sent to the client.

   The same rules about trailing "/" apply to ScriptAlias directives as to Alias.

   ```
   ScriptAlias /oem_webstage/cgi-bin/
   "/private/ora92/oem_webstage/cgi-bin/"
   ```

   Note: `/private/ora92/` is your Oracle Home.

5. Add as many aliases as you need (with no limit). The format is

   ```
   Alias fakename realname
   ```

   Note that if you include a trailing "/" on fakename, then the server requires that it is present in the URL. In this example, "/icons" is not aliased. "/icons/" is aliased.

```
Alias /icons/ "/usr/local/apache/icons/"
Alias /oem_webstage/ "/private/ora92/oem_webstage/"
```

Note: /private/ora92/ is your Oracle Home.

6. Change "/apache/cgi-bin" to where your ScriptAliased CGI directory exists, if you have that configured.

```
<Directory "/usr/local/apache/cgi-bin"> to
```

```
<Directory "/private/ora92/oem_webstage/cgi-bin">
```

```
AllowOverride all
Allow from all
</Directory>
```

7. Stop and restart the web server.

```
apachectl stop
apachectl start
```

Internet Information Server (IIS)

To use the Internet Information Server, you will need to create three virtual directories pointing to the oem_webstage directory and two subdirectories inside of that directory. The oem_webstage directory is created automatically by the installation procedure when the Oracle Enterprise Manager Web Site component is installed:

1. Install the Enterprise Manager web site without the Oracle HTTP Server.

2. Install Internet Information Server (IIS). Consult your Internet-Information-Server-specific configuration documentation for detailed information.

3. From the Windows NT Program Start Menu, select **Microsoft Internet Information Server** > **Internet Service Manager** to configure the Internet Information Server. The Microsoft Internet Service Manager window is displayed.

4. Choose **Default Web Site** and right mouse-click to display the associated submenu.

5. Click **Properties** to display the Properties sheet.

6. Verify that the IP address of the node is correctly set in the Properties sheet. Then click **OK**.

7. Select **New, Virtual Directory**.

8. Enter the name of the virtual directory. For example, `oem_webstage`.

9. Specify the following settings:

    Alias: `/oem_webstage`

    Path: `ORACLE_HOME\oem_webstage`

    Access: Read, Execute

10. After saving the settings, expand the Default Web Site to display the new virtual directory.

11. Select the new oem_webstage virtual directory.

12. Click **Action**, select **New, Virtual Directory** to create a additional virtual directory with the following settings:

    Alias: `cgi-bin`

    Path: `ORACLE_HOME\oem_webstage\cgi-bin`

    Access: Read, Execute

13. Create an additional virtual directory with alias "\oem_webstage\java-plugin" and directory `ORACLE_HOME\oem_webstage\java-plugin` with the following settings:

    Alias: `java-plugin`

    Path: `ORACLE_HOME\oem_webstage\java-plugin`

    Access: Read-only

    Note: Make sure you do not enable execute permissions; otherwise, you will not be able to download the plug-in.

14. Restart the web server.

Oracle Internet Application Server

1. Install the Enterprise Manager web site without the Oracle HTTP Server.

2. Stop all services from this installation.

3. Install the Oracle Internet Application Server in a different Oracle Home on the same machine. Refer to the *Oracle9i Application Server Installation Guide* in the Oracle9*i*AS platform-specific documentation for complete installation information.

4. From the Oracle Internet Application Server installation, locate `oem.conf` in its `Oracle home/oem_webstage` directory.

5. Edit all the directories in the `oem_conf` file to point to the corresponding directories under the 9.2 install.

   For example, change

   `/private/oracle/ias10222/oem_webstage`

   to

   `/private/oracle/920rel10/oem_webstage`

6. Search for EMWebSite.html and change it to `emwebsite.html`.

7. Stop and restart the Apache web server from the Oracle Internet Application installation.

   ```
   apachectl stop
   apachectl start
   ```

8. Open your web browser and enter the following URL:

   `http://<webserver hostname>:<port number>/`

   For example:

   `http://znripley-sun.us.ovenbird.com:3339/`

   This launches the 9.2 client connected to the `ias10222` web server.

6

Tuning the Oracle Management Server

There may be special circumstances which require specific tuning of the Management Server to improve performance such as when the enterprise is managing a large number of nodes. Tuning can be performed by setting the Management Server configuration parameters. Refer to the sections below.

After editing the `omsconfig.properties` file, you must stop and restart the Management Server in order for the changes to take effect.

Setting the Ping Interval

The Management Server is designed to ping Agents on all targets' hosts on a pre-defined interval to monitor the availability of the Agent and its target host.

To manage the interval between pings, you can use the following property in the omsconfig.properties file:

```
oms.vdp.ping_interval=<integer; time in minutes; default 2>
```

The Management Sever actually pings the Agents at intervals of 1/2 of the `oms.vdp.ping_interval` value. Maintaining the default value for this parameter (i.e. 2 minutes) indicates that the Management Server will ping each Agent at 1 minute intervals. For instance, if you would like to have the Management Server ping Agents every 10 minutes, set the `oms.vdp.ping_interval` to 20.

If the Node Up/Down event test is registered against a node, then this pinging of the Agent by the Management Server is actually used to determine the status of the node up/down event. When the Management Server pings the agent, and if the Agent or its target host is unavailable, then the node up/down event triggers with the appropriate message.

For Management Servers managing a large number of nodes (more than 64 nodes), you can adjust this parameter to provide the Management Server enough time to ping all the nodes.

Setting the Maximum Connections Out

The Management Server is designed to maintain a certain number of outgoing connections toward different Intelligent Agents simultaneously.

To manage the number of simultaneous outgoing connections, you can use the following property in the omsconfig.properties file:

```
oms.vdg.max_out_conns =<integer; default 64>
```

The default is 64. Oracle recommends that this value to be greater or equal to the number of nodes managed by the Management Server in order to avoid performance degradation. If the maximum number of managed nodes is less than 64, Oracle recommends keeping the default value. If the maximum number of managed nodes is more than 64, set the value to the number of nodes.

Setting the Maximum Connections In

The Management Server is designed to maintain a certain number of incoming connections simultaneously.

To manage the number of simultaneous incoming connections, you can use the following property in the omsconfig.properties file:

```
oms.vdg.max_in_conns=<integer; default 32>
```

To prevent performance degradation, it is recommended that you set this value to be half the value of the `oms.vdg.max_out_conns`.

Setting the Management Server Retry Interval

If the Management Server and the repository server lose connection, the Management Server can be configured to try to re-establish the connection to the repository server. The Management Server is designed to retry at a pre-defined intervals with these two parameters:

- oms.repository.connect_timeout
- oms.repository.connect_numTries

To specify the interval between retries, use the following properties in the `omsconfig.properties` file to set the retry interval:

```
oms.repository.connect_timeout=<time in seconds>
oms.repository.connect_numTries=<integer>
```

`oms.repository.connect_timeout` is the maximum time (in seconds) the Management Server will wait for the repository database to start up.

`oms.repository.connect_numTries` is the maximum number of tries the Management Server will make to connect to the repository at the startup of the Management Server service.

The management server retry interval for connection to the repository is calculated as the value of `oms.repository.connect_timeout` divided by the value of `oms.repository.connect_numTries`.

By default, the properties are set as follows:

```
oms.repository.connect_timeout=120
oms.repository.connect_numTries=12
```

The Management Server will try to establish a repository connection at startup at 10 second intervals for a total of 12 times.

Smoothing Over Temporary Network Failures

The Management Server tries to ping all nodes every interval in order to detect whether a node is up or down.

If it detects that it was able to successfully ping a node in the previous interval and not in the present interval, it would mark that node as down.

The ping can be made more tolerant to temporary network outages by the following parameters.

```
oms.vdg.conn_retries = (integer, default 1).
```

This parameter specifies the number of retries the Management Server will try to establish a connection either for pinging or for other communication. The Management Server defaults to 1. In other words, it will not retry any connection.

For networks prone to temporary outages, set it to 2 or 3.

```
oms.vdg.conn_retries_delay = (integer, default 5)
```

This parameter specifies the amount of time in seconds the Management Server will wait between retries to establish a connection.

This parameter needs to be set to a value depending on the duration of network outages.

A

Directory Structure

This appendix describes important directories and files that are created upon the installation of Oracle Enterprise Manager.

Useful Directories

While there are numerous directories created upon installation of Enterprise Manager and its components, the most important and useful directories for you to be aware of include the following:

$ORACLE_HOME/sysman/
This directory will be described in detail below.

$ORACLE_HOME/relnotes/em/
Contains any readme files specific to Enterprise Manager and its management applications. Such readme files identify differences between the delivered Oracle Enterprise Manager product and its documented functionality.

$ORACLE_HOME/doc/em/
Contains any documentation (selected for installation from the Documentation CD-ROM) specific to Enterprise Manager and its management applications. By default, this directory also includes the complete diagnostics help system in HTML format for use as a guide to Oracle performance metrics.

$ORACLE_HOME∕oem_webstage/
Contains the Enterprise Manager web site component. By default, the web site is installed with the Management Server in this directory. The component enables you to run Enterprise Manager and its management applications from a web browser.

$ORACLE_HOME/sysman/ Directory

The $ORACLE_HOME/sysman/ directory contains several subdirectories with which you should be familiar:

- admin

- config

- expert

- ifiles

- jlib

- log

- mesg

- report

- reporting

- temp

admin/
Contains SQL scripts and registry files that are used by the Enterprise Manager Configuration Assistant to perform configuration of the Management Server and repository. The contents of this directory must not be altered.

config/
Contains several configuration files for Enterprise Manager components. Only the following files contained in this directory can be modified:

- dbappscfg.properties

  Contains configuration settings specific to SQL*Plus Worksheet.

- ClientConfig.properties

  Contains a list of machines that run Management Servers. This file also lets you enable tracing of the Enterprise Manager Console and management applications.

- clientconfig.properties.template

  Contains configuration details for enabling tracing of Change Manager.

- omsconfig.properties

Contains configuration details of the local Management Server including database repository connection information. This file also lets you enable tracing and logging of the middle tier Management Server.

- omsexternalregistry.registry.template

    Lets you add an External Service registry file. This file currently contains the External Service registry settings for Management Server integration with Oracle Internet Directory Server. You must copy this file to omsexternalregistry.registry and restart the Management Server if you wish the Management Server to connect to a Directory Server. Oracle Internet Directory requires a Management Server External Service as it uses native libraries in your Oracle Home.

- paging.cfg.template

    Lets you enable tracing of the Enterprise Manager Paging Server. This file is generated only when the Paging Server has been installed on a Windows NT or Windows 2000 machine. The Paging Server is not available on any other platform.

Any other files located in the $ORACLE_HOME/sysman/config/ directory must not be altered. For example, oemclient.properties contains information about all event tests and job tasks as well as details for starting applications in context. It must not be altered.

expert/
The expert directory is NT-specific. It contains the expert rule files. You must not edit any file located in this directory.

ifiles/
Contains saved init.ora parameters from Instance Management. Initially, this directory is empty but after accessing Instance Management to save init.ora parameters, it will become populated with files.

jlib/
Contains needed jar files for Enterprise Manager components to function properly. The contents of this directory must not be altered.

log/
Contains tracing information that has been redirected to log files. Initially, this directory is empty; the directory is populated with the oms.nohup file. The oms.nohup file contains information corresponding to when the Management Server is started and stopped (and if the Management Server restarts itself for any reason). Any critical error messages (for example, running out of sessions, SQL

exceptions, etc.) would also be logged to this file. Any other tracing information would be directed to the oms.log files if tracing and logging is enabled for the Management Server.

Once tracing and logging are enabled, this directory would be populated with additional log files (e.g. oms.log).

mesg/
Contains message files specific to Enterprise Manager applications that have not been written in Java, including Trace Data Viewer, Oracle Expert, and SQL Analyze. This directory is created only on Windows-based platforms, not on UNIX based platforms. The contents of this directory must not be altered.

report/
Contains HTML formatted reports generated from Enterprise Manager Console and various management applications. Initially, this directory is empty but after generating a report from Enterprise Manager, it will become populated with HTML files. The contents of this directory should not be altered.

reporting/
Contains GIF files for generated HTML reports. The contents of this directory should not be altered.

temp/
This is a scratch directory used by the Management Server, as well as Enterprise Manager applications that have not been written in Java (e.g Trace Data Viewer, Oracle Expert and SQL Analyze), for creating temporary files. The contents of this directory should not be altered.

B

Activating Logging and Tracing

Each tier of the Enterprise Manager framework such as the Console, Management Server, and Intelligent Agents supports its own tracing and logging capabilities.

Both tracing and logging will provide the same detailed information on what actions the component is performing; however, tracing would be used to write data to a display for real-time viewing while logging would be used to redirect trace information to a file to view at a later time.

This appendix will describe how to enable both tracing and logging of the various Enterprise Manager components. The sections include:

- Logging and Tracing Enterprise Manager Client Applications
- Logging and Tracing Management Server
- Logging and Tracing of the Event Handler
- Logging and Tracing the Dynamic Web Site
- Logging and Tracing the Oracle Intelligent Agent
- Tracing Browser-Based Enterprise Manager
- Tracing the Paging Server
- Tracing the SQL Engine
- Tracing the Management Pack Applications

Logging and Tracing Enterprise Manager Client Applications

There are two ways to enable logging and tracing. One method will give you quick results without you having to set environment variables or variables in the `ClientConfig.properties` file. The other method is more deliberate and will require more time than the quick method because you will have to add properties and values to the `ClientConfig.properties` file.

Enabling Tracing Quickly

You can obtain information about client applications without setting environment variables or variables in the `ClientConfig.properties` file.

To obtain information for debugging a specific client application, at the command prompt, type

```
$ oemapp debug [app]
```
or

```
$ oemapp trace [app]
```

The command enables tracing at level 2 for the client application you specified, and the output is directed to the Console.

For example:

```
$ oemapp debug console
$ oemapp trace console
```

Enabling Tracing Deliberately

1. Update the `clientConfig.properties` files.

   The `clientConfig.properties` file is located in the `$ORACLE_HOME/sysman/config` directory.

   When you add logging and tracing parameters in the `clientConfig.properties`, all client applications will use these settings.

The following variables can be specified in the `clientConfig.properties` file:

Table B–1   clientConfig.properties variables

Properties	Values
LOGGING.ENABLED	Boolean value. You can set the variable to true or false.
	This variable has to be set to TRUE if logging and tracing is needed.
	Default value is FALSE.
TRACING.ENABLED	Boolean value. You can set the variable to true or false.
	This variable has to be set to TRUE if logging and tracing is needed.
	If only this variable is set to TRUE, not all client applications will actually produce tracing. Therefore, if you want logging and tracing, you must also set the LOGGING.ENABLED parameter.
	Default value is FALSE.
TRACING.LEVEL	Level of tracing desired.
	Possible values: 2, 3 and 5.
	2 = Development tracing. Show all messages.
	3 = Admin tracing. Show all warning and errors.
	5 = User tracing. Show only errors.
	Default value is 5.

> **Note:**   In order to fully trace the client applications, both the LOGGING.ENABLED and TRACING.ENABLED parameters must be set to TRUE.

2. After updating the `clientConfig.properties` file, set the special environment variable `ORACLE_OEM_CLIENTTRACE` (name in uppercase) to make the logging and tracing active.

Table B–2   ORACLE_OEM_CLIENTTRACE Examples

Platforms	Examples
Windows	`C:\ > SET ORACLE_OEM_CLIENTTRACE=TRUE`
	`C:\ > OEMAPP CONSOLE`
UNIX csh	`$ setenv ORACLE_OEM_CLIENTTRACE TRUE`
	`$ oemapp console`
UNIX sh	`$ ORACLE_OEM_CLIENTTRACE=TRUE`
	`$ export ORACLE_OEM_CLIENTTRACE`
	`$ oemapp console`

Performing Additional JAVA debugging

If you need to perform additional JAVA debugging, you can modify the `OEMAPP` script file and add debugging parameters. This level of JAVA detail is not necessary in most cases, and is only useful if specific JAVA errors about class mismatches or missing classes are reported.

On Windows
Change

```
SET JRE=jre –nojit ...rest of commandline...
```
to

```
SET JRE=jre –nojit –verbose ...rest of commandline...
```

On UNIX
Change

```
JRE="jre ...options... –nojit ...more options...
```
to

```
JRE="jre ...options... –verbose –nojit ...more options...
```

Logging and Tracing Management Server

Logging and tracing of the Management Server, the middle tier, is specified in the OMSCONFIG.PROPERTIES file, located in the $ORACLE_HOME\SYSMAN\CONFIG directory.

Parameters in the Management Server properties file are case sensitive; therefore, specify the parameters in the same case as specified in this section.

Table B–3   OMSCONFIG.PROPERTIES Variables

Properties	Values
LOGGING.ENABLED	Boolean flag. Specifies if the trace information is written to a file. The information will only be written to a file if the TRACING.ENABLED flag is also activated.
	Possible values are TRUE and FALSE. Default is FALSE.
LOGGING.DIR	Directory in which the OMS.LOG file will be written to. Default value is $ORACLE_HOME\SYSMAN\LOG.
	On Windows NT, in order to set LOGGING.DIR to a directory of c:\temp, you must use "\\" (in order to escape the "\" character) and set LOGGING.DIR=c:\\temp
	For example,
	LOGGING.DIR = C:\\temp\\filename.log
	If you do not, the \t in c:\temp is read as a tab character and the Management Server fails to start.
LOGGING.FILENAME	Filename to use for the Management Server logging.
	Default value is OMS.LOG. An index counter will be appended to this file. Every time the maximum size is reached, a new file with the increased index number will be created.
	At startup the counter is always 0 (zero), and the value of this counter will be increased if the log file reaches its specified maximum size.
LOGGING.MAX_SIZE	Maximum file size of the log file. Default value is 50 MB.
	When set to 0 (zero), no file limit is imposed, and only 1 OMS.LOG file will be created and used.
	If a specific size is specified, all of the log files generated will be suffixed with a counter value.

Table B–3   OMSCONFIG.PROPERTIES Variables

Properties	Values
LOGGING.MAX_FILE_CNT	Defines the maximum number of files the log will span at any given time. The cumulative size of all the files would be less than or equal to LOGGING.MAXSIZE.
	Default value is 2.
	If LOGGING.MAX_SIZE=0 (unlimited log size), LOGGING.MAX_FILE_CNT will not make sense and hence be ignored.
TRACING.ENABLED	Boolean flag specifying if trace information needs to be generated. If logging is disabled, the trace information will be written to the Console from which the Management Server was started.
	Possible values are TRUE and FALSE. Default is FALSE.
TRACING.LEVEL	Tracing level to be used. Possible values are:
	2 - dev: View all messages
	3 - admin: View only critical errors and warnings
	5 - user: View only critical errors
LOGGING.SAVE_PREVIOUS_LOG	Boolean flag. Specifies if the previous Management Server log files will be renamed to a filename with a timestamp (format: yyyyMMddHHmmss) to prevent them from being overwritten when the Management Server is started again.
	Possible values are TRUE and FALSE. Default is FALSE.

> **Note:**   LOGGING.MAX_SIZE and LOGGING.MAX_FILE_CNT control how much disk space is used for the Management Server log files. You can affect the size and disk usage of the log files with these parameters.

The oms.nohup file (the Management Server trace file) is automatically created (on both Windows NT and UNIX). The oms.nohup file has entries corresponding to when the Management Server is started and stopped and if the Management Server restarts itself for any reason. Any critical error messages (for example, running out of sessions, SQL exceptions, and others) are also logged to this file. Any other detailed tracing is directed to the oms.log files (if tracing is turned on)

Logging and Tracing of the Event Handler

The Event Handler is part of the Oracle Management Server. In order to trace the Event Handler, perform the steps to trace the Management Server. Trace information about the Event Handler will be included in the Management Server's trace/log file.

Refer to "Logging and Tracing Management Server" on page B-5, for more information about the properties and values to add to the OMSCONFIG.PROPERTIES file in order to enable tracing.

Logging and Tracing the Dynamic Web Site

Logging and Tracing the Oracle HTTP Server

Use this section only if you are using the Oracle HTTP server installed with the Management Server.

Change or modify the following settings:

1. The log modules need to be present and loaded when the Oracle HTTP server starts. This is the default installation and unless the list of modules and linked in objects has been changed or altered, nothing additional should be done for this step.

2. Modify $ORACLE_HOME/Apache/Apache/conf/httpd.conf

   Oracle HTTP server logging and tracing should be enabled

   ```
   # LogLevel: Control the number of messages logged to the error_log.
   # Possible values: debug,info,notice,warn,error,crit,alert,emerg
   Loglevel warn
   ```

The following log files will be created:

- `access_log`

  The default directory is $ORACLE_HOME/Apache/Apache/logs unless overruled by a CustomLog setting in httpd.conf. This file contains a list of all HTML requests handled by the Oracle HTTP server.

- `error_log`

  The default directory is $ORACLE_HOME/Apache/Apache/logs unless overruled by the ErrorLog setting in httpd.conf. This file contains a list of all failed HTML requests handled by the Oracle HTTP server.

> **Note:** After every modification of the Oracle HTTP server configuration files, you must stop and restart the Oracle HTTP server.

Logging and Tracing JServ

Use this section only if you are using the Oracle HTTP server installed with the Management Server.

Change or modify the following settings:

1. Modify `$ORACLE_HOME/Apache/Jserv/etc/jserv.properties`. Make sure the log switch is set to true. You can also specify the location of the jserv log file:

```
log=true
log.timestamp=true
log.file=<path to jserv log file>/jserv.log
log.channel.servletException=true
log.channel.jservException=true
log.channel.warning=true
log.channel.servletLog=true
log.channel.critical=true
```

2. Modify `$ORACLE_HOME/Apache/Jserv/etc/jserv.properties`, and disable the JAVA JIT (Just In Time) compiler to obtain line numbers and more JAVA debug output in exceptions and JAVA tracing.

   Near the top of the file, there is the list command line switches:

```
wrapper.bin.parameters=-Xms64m
wrapper.bin.parameters=-Xmx128m
```

   Add the line:

```
wrapper.bin.parameters=-Djava.compiler=NONE
```

> **Note:** Disabling the JAVA JIT compiler causes a performance decrease in the reporting framework. As soon as debugging is no longer required, comment out the parameter and let the framework run with the JAVA JIT compiler enabled.

The `jserv.log` is created. The default directory is `$ORACLE_HOME/Apache/Jserv/logs` unless the value is overruled by the `log.file` setting in `jserv.properties`. This file contains all actions the Jserv has performed.

> **Note:** After every modification of the Jserv configuration files, you must stop and restart the Oracle HTTP server.

Logging and Tracing the Dynamic Web Site

Modify `$ORACLE_HOME/sysman/config/reporting.properties` by adding the following lines:

```
TRACING.ENABLED=true
LOGGING.ENABLED=true
TRACING.LEVEL=2
```

> **Note:** The name of the parameters have to be in UPPERCASE. The value of the parameters have to be in LOWERCASE.

The reporting.log is created. The default directory is `$ORACLE_HOME/sysman/log`. This file will contain all the actions the reporting servlets have performed.

> **Note:** After every modification of the reporting configuration file, you must stop and restart the Management Server.

Logging and Tracing the Oracle Intelligent Agent

Tracing and logging of the third tier Intelligent Agent enables tracking of all communication between the Intelligent Agent and Management Servers. For information on activating tracing and logging of the Intelligent Agent, refer to the *Oracle Intelligent Agent User's Guide.*

Tracing Browser-Based Enterprise Manager

If you encounter problems bringing up Oracle Enterprise Manager in a browser, collect tracing information before reporting the problem to Oracle Support Services.

To set up tracing for your browser perform the following steps:

1. Exit your browser session

2. Start the Java plug-in Console.

   From the Windows Start menu, select Programs > JInitiator Control Panel. A Java Plug-in Properties window appears.

   a. Select the Show Java Console box.

   b. In the Java Run Time Parameters box, append the following to the end of the line:

      ```
      -DTRACING.ENABLED = TRUE -DTRACING.LEVEL = 2
      ```

   c. Click **Apply**.

   d. Close the Oracle JInitiator Properties dialog.

3. Restart your browser and Oracle Enterprise Manager.

   The Java Console window appears, showing the Java classes loaded by the plugin as well as any exceptions that may occur. If no exceptions are displayed, clear the window (by clicking **Clear**) every 3rd or 4th window-full of displayed information.

4. If an exception appears in the Java Console window, copy and paste it into a file and send it to Oracle Support Services along with a description of your problem.

Tracing the Paging Server

The Enterprise Manager Paging Server can be debugged and traced separately from the Management Server. Tracing for the paging server is disabled by default. If tracing is enabled, the server writes trace statements for all telephone line handling and any successes or failures to a log file by default. Since information is logged whenever a page is sent, the log file grows proportionally to the number of pages sent. To delete a log file, you must shut down the paging server and delete the file.

The installation of the Oracle Enterprise Manager Paging Server provides a template configuration file, `paging.cfg.template`, located in the `ORACLE_HOME\sysman\config` directory.

1. Copy the `paging.cfg.template` file to the `paging.cfg` file, which is also located in the `ORACLE_HOME\sysman\config` directory.

   Oracle recommends copying this file (not renaming it) to retain information. If you do not copy this file, all comments concerning enabling tracing of paging will be removed. In addition, when updates to Enterprise Manager software are made, any configuration will be lost and not retrievable.

2. Based on the instructions in the `paging.cfg.template` file, modify the `paging.cfg` file according to your tracing needs and save it.

To enable tracing of the Enterprise Manager Paging Server, add the following properties and appropriate values to the `paging.cfg` file:

Table B–4   paging.cfg variables

Properties	Values
TRACING.ENABLED	Set value for debugging purposes; paging service will then track what paging is occurring by writing trace statements for all telephone line handling and any successes or failures.
	The value can be either true or false. If the value is set to true, you must specify a value for TRACEFILENAME and a value for TRACING.LEVEL. If the value is set to false, you need not specify values for TRACEFILENAME and TRACING.LEVEL.
TRACING.LEVEL	Set value to specify the detail of trace information to collect if tracing is enabled.
	■ 5 - user: collects critical messages and error messages.
	■ 3 - admin: collects critical, error, and warning messages.
	■ 2 - dev: collects all messages from admin trace level as well as informational and debug messages.

Table B–4 paging.cfg variables

Properties	Values
TRACEFILENAME	Set value for where to write tracing output if tracing is enabled.
	Oracle recommends setting the value to PAGING_LOG.TRC. By default, this file is located in the Paging Server's `ORACLE_HOME\SYSMAN\LOG` directory.
	If you specify a different directory, you must specify `<Drive_Letter>:\\<directory_path>\\paging_log.trc`. For example, if you want the tracing file stored in `C:\temp\`, set the value to `C:\\temp\\paging_log.trc`.

Tracing the SQL Engine

The SQL engine accepts, executes, and transmits the results of the SQL statements issued by the Enterprise Manager software.

Client applications include the Enterprise Manager Configuration Assistant and the database management portion of the Console. Depending on how the client application was started, the SQL Engine can be running on either the client or the Management Server:

- A client application connecting to the Management Server will use the SQL Engine of the Management Server.

- A client application connecting directly to a database will use its own SQL engine.

Since the engine can be traced on both the client and the Management Server, these parameters can be specified in both the `omsconfig.properties` and the `ClientConfig.properties` files.

The possible VDB (SQL Engine) parameters are mutually exclusive. You should use the highest requested tracing.

Table B–5 SQL Engine Variables

Properties	Values
VDB_DEBUG	When enabled, the SQL Engine will display trace stack traces and messages that are the first level of information. Boolean value. Possible values: true and false. Defaults to false.

Table B–5   SQL Engine Variables

Properties	Values
VDB_VERBOSE_DEBUG	In this case, the SQL engine will display the methods as they are being entered and exited as well as any DEVELOPER DEBUG information. Boolean value. Possible values: true and false. Defaults to false.
VDB_SESSION_DEBUG	This is validated when displaying the contents of the database session pool. It is also used to trace session creation and destruction, as well as session pool activity. Boolean value. Possible values: true and false. Defaults to false.
VDB_VERBOSE_SESSION_DEBUG	This parameter gives more detail on session activity including stack traces when sessions are opened, closed, released to, or retrieved from the session pool. Like VDB_VERBOSE_DEBUG, it is a verbose version of the session tracing. Boolean value. Possible values: true and false. Defaults to false.

Tracing the Management Pack Applications

Refer to Database Tuning with the Oracle Tuning Pack for information on tracing.

C

General Repository Guidelines

Repository Sizing

This section provides guidelines for determining storage requirements and disk space allocation for your Oracle Enterprise Manager repository.

Space requirements can vary greatly as a result of what Oracle Enterprise Manager tools you are licensed to use and the amount of data generated by the work you perform. In addition, the growth of the repository could vary slightly depending upon the database version in which the repository is created.

If you choose to create a new repository from a typical installation session and accept the default configuration for the repository, a new OEM_REPOSITORY tablespace will be created. The OEM_REPOSITORY tablespace contains repository objects for the Oracle Enterprise Manager Console and all separately licensable Packs regardless if you have installed or purchased licenses for them. In addition, depending on the database version in which the repository is created, the repository could initially allocate between 6 - 26 MB of hard disk space.

Depending on how you actually use Oracle Enterprise Manager products, the repository size may increase. To determine by how much your repository could grow, refer to the table below. To accommodate an increase in repository size, the default OEM_REPOSITORY tablespace is automatically configured to autoextend. For example, if you have created the default OEM_REPOSITORY tablespace which allocates 4 MB for using Capacity Planner for a single, small database, but you actually plan to use Capacity Planner on a more regular basis - for example, for three large databases - then you should expect the size of your repository to increase by approximately 16 MB. In such situations, the tablespace would autoextend automatically to accommodate the increase.

If you choose to create a new repository from a typical installation session and want to use an existing tablespace, follow these steps to determine how much disk space the repository will use:

1. Review the "Product" column to find the products you are using.

2. Identify those actions you perform with each product in the "If you…" column.

3. Add the corresponding hard disk space requirements for those actions from the "Then allocate…" column. The total of these requirements is the expected size of your repository.

Product	If you...	Then allocate...
Oracle Enterprise Manager Console	■ use only the Console ■ save little (if anything) in job history	4 - 9 MB
Oracle Diagnostics Pack	■ collect less than 4 MB of Trace Data ■ use Capacity Planner for a single, small database over a few days	35 MB
	■ collect between 4 - 20 MB of Trace Data · ■ use Capacity Planner for a single, medium-sized database over several months	60 MB
	■ collect between 20 - 60 MB of Trace Data · ■ use Capacity Planner for up to three large databases over several months	120 MB

Product	If you...	Then allocate...
Oracle Tuning Pack	save less than: ■ 50 tuned SQL statements ■ 5 scoped tuning sessions ■ 10 tablespace jobs in job history	less than 15 MB
	save between: ■ 50 - 150 tuned SQL statements ■ 5 - 15 scoped tuning sessions ■ 10 - 30 tablespace jobs in job history	15 - 45 MB
	save more than: ■ 150 tuned SQL statements ■ 15 scoped tuning sessions ■ 30 tablespace jobs in job history	more than 90 MB
Oracle Change Management Pack	■ for a schema with approximately 500 objects · 1 baseline, with 2 saved versions of baseline· 1 saved comparison· 1 change plan (propagate the schema)	20 MB

Product	If you...	Then allocate...
	■ For a schema with approximately 500 objects. 2 baselines, with 2 saved versions of baseline· 2 saved comparisons· 5 change plans	40 MB
	■ For a schema with approximately 500 objects· 5 baselines, with 2 saved versions of baseline· 5 saved comparisons, with 2 versions each· 10 change plans	100 MB
Oracle Management Pack for Oracle Applications	■ use Capacity Planner for a single, small database over a few days	4 MB
	■ use Capacity Planner for a single, medium-sized database over several months	10 MB
	■ use Capacity Planner for up to three large databases over several months	20 MB
Oracle Management Pack for SAP R/3	■ use Capacity Planner for a single, small database over a few days	4 MB

Product	If you...	Then allocate...
	■ use Capacity Planner for a single, medium-sized database over several months	10 MB
	■ use Capacity Planner for up to three large databases over several months	20 MB
Oracle Standard Management Pack[1]	■ for a schema with approximately 500 objects· 1 baseline, with 2 saved versions of baseline· 1 saved comparison	20 MB
	■ for a schema with approximately 500 objects· 2 baselines, with 2 saved versions of baseline· 2 saved comparisons	35 MB
	■ for a schema with approximately 500 objects· 5 baselines, with 2 saved versions of baseline· 5 saved comparisons, with 2 versions each	80 MB

---

[1] While the other separately licensable Packs are available with Oracle9*i* Enterprise Edition, the Oracle Standard Management Pack is only available with Oracle9*i* standard edition.

For example, if you:

- use the Console regularly but typically do not save large output to the job history (approximately 7 MB)

- collect approximately 45 MB of Trace Data (approximately 45 MB)

- use Capacity Planner very little (approximately 4 MB)

- save approximately 100 tuned SQL statements, 11 scoped tuning sessions and 25 tablespace jobs in job history (approximately 32 MB)

The total of all these space allocations (7 MB + 45 MB + 4 MB + 32 MB) is 88 MB. Thus, you should allocate approximately 88Mb for your repository.

> **Important:** This is only a guideline based upon default configuration of the Oracle Enterprise Manager environment; any custom configuration done may significantly affect repository sizing requirements. What applications you are actually using in the Console and the various Packs; how you have configured certain parameters, etc., all will affect how much disk space the repository will require. For instance, the default sampling frequency for Oracle Diagnostics Pack is five minutes. If you reduce the sampling frequency then you will need to allocate more disk space. How much you save in the job history will also affect the amount of space necessary for the repository. If you have large outputs of 40-50 MB and you save those in job history, then you should allocate an additional 40-50 MB of disk space.

D

Globalization Support

Oracle Enterprise Manager Release 9.2.0 has been translated into the following languages:

- German
- French
- Italian
- Brazilian Portuguese
- Spanish
- Japanese
- Korean
- Simplified Chinese

These translations are bundled along with the English version of the product. To use Enterprise Manager and its applications in a language other than English, you must choose the appropriate language during product installation.

However, regardless of the language you select to install, the English versions will always be installed automatically.

For further details regarding the installation of Enterprise Manager components in languages other than English, refer to your installation guide.

Repository Setting

The Enterprise Manager repository must be created in the language you want to use.

If you use an existing Oracle instance, make sure the database character set is the superset of the character set that the language supports. If it is not, you need to create a new Oracle instance with an appropriate character set.

With the Oracle Database Configuration Assistant, you can easily change the database character set for a new Oracle database.

To create a new repository with a specific language, follow the steps below:

1. Set the language setting.

2. Set the NLS_LANG parameter setting.

3. Start the Enterprise Manager Configuration Assistant.

4. Complete the repository creation task.

Setting the Language and NLS_LANG Parameter

Make sure to set the language setting and the NLS_LANG parameter setting before you start the following:

- Oracle Intelligent Agent

- Oracle Management Server

- Oracle HTTP Server

- Oracle Enterprise Manager Console and the other Enterprise Manager applications

Whenever you change the language setting or the NLS_LANG, you must restart the Oracle Intelligent Agent, Oracle Management Server, Oracle HTTP Server, Oracle Enterprise Manager Console, and the other Enterprise Manager applications.

Language Setting

To create the repository or to run any Oracle Enterprise Manager programs, you may need to specify the language that you want to use before you start the operation.

The way to specifying the language is platform specific. A typical setting is as follows:

NT

1. From the Start menu, choose **Settings** > **Control Panel**.

2. Double-click **Regional Settings**.

3. Choose the language from the region name list.

4. Click **OK** to complete the change.

Solaris and Typical UNIX System
Set the environment variable LANG.

- Born shell or Korn shell:

```
$ LANG=<locale>
$ export LANG
```

- C shell or tcsh:

```
% setenv LANG <locale>
```

where <locale> is a platform specific value. If the command locale is available, locale -a shows the list of all available locales.

```
% locale -a
```

Example to set the language to German on Solaris tcsh:

```
% setenv LANG de
```

NLS_LANG Setting

To access the Oracle database you need to specify the NLS_LANG parameter. Refer to *Oracle9i Database Globalization Support Guide* for details.

Accessing Browser-Based Enterprise Manager in a Language Other Than English

To run browser-based Enterprise Manager in a language other than English, you must first install the Enterprise Manager web site with the appropriate language.

Directly Accessing Enterprise Manager in Another Language

Without having to edit any files, you can directly access browser-based Enterprise Manager in a language other than English by entering the following:

```
http://<machine name>:3339/emwebsite_<lang>.html
```

For example, to see the German-translated version of the index page, enter the following:

```
http://<webserver host name>:3339/emwebsite_de.html
```

Edit the oem.conf File

To change the default page to point to a non-English website, edit the `oem.conf` file so that the file name, emwebsite. html, points to the appropriate file name for the website. For instance, change emwebsite.html to emwebsite_de.html in order to display the German-translated version of the index page.

Change the Preferred Language Setting

To view content in a specific language in your browser, you can change the preferred language setting on your browser machine:

Netscape Navigator

1. Choose **Preferences** from the **Edit** menu.

2. In the Preferences dialog, expand the Navigator category.

3. Click **Languages**.

4. Click **Add**.

5. Choose an appropriate language, then click **OK**.

6. Click **OK** in the Language Preferences window.

7. Click **OK** in the Internet Options window to complete the change.

Internet Explorer

1. Choose Internet Options from the **Tools** menu.

2. Click **Languages**.

3. Click **Add**.

4. Choose an appropriate language, then click **OK**.

5. Click **OK** in the Preferences dialog to complete the change.

E

Using Enterprise Manager on Windows 2000

This appendix contains these topics:

- Differences between using Enterprise Manager on Windows NT and Windows 2000

- Procedures

Differences between using Enterprise Manager on Windows NT and Windows 2000

Feature	On Windows NT	On Windows 2000
Services	Choose Start > Settings > Control Panel > Services to access the Services dialog box.	On Windows 2000, the Services Directory is located further down the Control Panel directory. Choose Start > Settings > Control Panel > Administrative Tools > Services
User Manager	Enables you to manage Windows computer security and create user accounts on Windows NT. Choose Start > Programs > Administrative Tools > User Manager	To create user accounts, choose Start > Settings > Control Panel > Administrative Tools > Active Directory Users and Computers

Procedures

This section documents how to perform the following tasks on Windows 2000:

- manipulate services (start, stop, change startup mode, etc.)
- create a new user
- assign privileges (i.e. "logon as batch job") to a user

Manipulating Windows 2000 Services

To manipulate Windows 2000 services:

1. Go to Start menu > Settings > Control Panel > Administrative Tools > Services
2. Select the service that you wish to manipulate.
3. Right-mouse click and select the action you wish to perform (start, stop, etc.). To modify the Startup Type, right-mouse click and select Properties and edit the Startup Type as needed.

Creating a New Windows 2000 User

To create new Windows 2000 user:

1. Go to Start menu > Settings > Control Panel > Users and Passwords
2. From the Users and Passwords dialog that appears you can add new users.

Assigning Privileges to a Windows 2000 User

To assign privileges to a Windows 2000 User:

1. Go to Start menu > Settings > Control Panel > Administrative Tools > Local Security Policy
2. Select Local Policies in the tree on the left.
3. Select User Rights Assignment in the tree on the left.
4. Find and select the appropriate privilege on the right.
5. Right-mouse click and select Security. From the Local Security Policy Setting dialog that appears you can add which user should have the specified privilege.

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Troubleshooting

This chapter describes possible troubleshooting issues.

- Reporting Problems to Oracle Support Services
- Troubleshooting the Enterprise Manager Configuration Assistant
- Changing the Permissions on the omsconfig.properties File
- Troubleshooting the Management Server
- Troubleshooting the Paging Server
- Troubleshooting the Web Browser
- Changing the Repository User Password
- Resetting the Password
- Setting the Format of Dates
- Troubleshooting for Reporting

Reporting Problems to Oracle Support Services

There are many sources for help if you should encounter problems when using Oracle Enterprise Manager.

Before you contact Oracle Support Services, take the time to consult your manuals and the *Oracle Enterprise Manager Readme*. A list of Oracle Enterprise Manager manuals are listed in the Preface under "Documentation Set" on page xvi.

Manuals

Manuals of particular interest are listed below:

- The *Oracle Enterprise Manager Readme* provides important notes on updates to the software and other late-breaking news, as well as any differences between the product's behavior and how it is documented.

- The *Oracle Intelligent Agent User's Guide* describes how to administer the Oracle Intelligent Agent and provides troubleshooting information.

- The *Oracle Enterprise Manager Messages Manual* contains probable causes and recommended actions for Oracle Enterprise Manager errors.

MetaLink

In addition to the manuals and online help, Oracle offers OracleMetaLink, an electronic support service available to Oracle customers with active support service contracts, 24 hours a day, seven days a week. Customers can register on-line through `http://www.oracle.com/support`.

MetaLink includes the following features:

- *My Headlines*

  Uses push technology to provide you with proactive notifications. *My Headlines* gives you the ability to customize information in your user profile such that you get only the specific information you desire when you access the *My Headlines* section of MetaLink. You can also choose to have this information sent to you through email. The information delivered to you falls into the following categories and can be personalized by product and platform: *News & Notes*, *Knowledge Base*, *Patches*, *Bugs*, *TAR Updates*, *Product Lifecycle*, and *Forum Updates*.

- *User Administration*

  Gives companies the ability to manage access of MetaLink users at the support identifier/CSI level. In situations where you want to restrict the access to certain areas of MetaLink to specific users at your site, this feature enables that control. For example, only internal help desk employees at your site may be allowed to create TARs in MetaLink.

- *User Profile*

  You can update your contact information, add and remove support identifiers, view other users registered under the same support identifier, customize MetaLink, change your password, and view your license information. You will now have a choice of languages in which to view the MetaLink interface: English, German, or French.

- *Technical Libraries*

  Organized by product and platform, these libraries enable you to access information that support analysts have determined will aid you in your installation and use of Oracle products (documentation, white papers, problem/solution articles, and more).

- *Forums*

  You can post questions to technical analysts and receive responses within two business days. Users also share information and ideas with other Oracle users.

- *File Access*

  Previously referred to as Download, this section provides you the ability to download patches and patch sets directly from within MetaLink. View the Readme files to find out which bugs have been fixed in the patch sets.

- *Knowledge Base Search*

  Lets you do a full-text search against the internal repositories within Oracle Support Services. Advanced searching is also available.

- *Bug Search*

  Provides you with query access to published header and abstract information in the Oracle Bug Database.

- *Product Lifecycle*

  Provides product availability, product alerts, certifications, and de-support information online.

- *Enter TARs Online*

  Submit, update, review, and close your TARs online (not available in some countries).

- *Skills-Based Routing*

  TARs submitted electronically are automatically matched to the right technical resource within Oracle Support Services (not available in some countries).

- *TAR Access and Reporting*

  Track issues by generating and viewing TAR reports.

- *Context-Sensitive Help*

  Learn the features of MetaLink and see "how to" instructions.

- *Feedback*

  Enter feedback about MetaLink.

Oracle Support Services

If the manuals and MetaLink do not answer your questions, contact Oracle Support Services and provide them with the following information:

1. What is the problem?

2. What were you doing when the problem occurred?

   - In which product or component is the problem occurring?

   - What operations were you performing? Is the problem reproducible? What are the steps you took to see the problem?

3. What is your environment?

   - What is your operating system and version?

   - What version of Oracle Enterprise Manager are you using and where is it installed?

   - What version of the Intelligent Agent are you using and where is it installed?

   - What version of the database are you using and where is it installed?

   - Where is the Management Server installed?

■ Provide schema, data, scripts, or any other relevant information about your environment. If possible, provide log files to assist in problem reproduction.

4. What error messages and numbers did you see?

5. Turn on tracing (when available) and provide tracing information.

6. Look at log files (when available) and provide log information.

Troubleshooting the Enterprise Manager Configuration Assistant

This section describes actions recommended to troubleshoot the Enterprise Manager Configuration Assistant should a problem occur.

Enterprise Manager Configuration Assistant Errors

This section describes the Enterprise Manager Configuration Assistant error messages and their probable causes, and provides the actions recommended to correct them.

The Database User You Chose Does Not Have the Necessary DBA Privileges
When you login as a DBA user on a selected database, the Configuration Assistant checks whether the user has the necessary privileges. If the user does not have the necessary DBA privileges, a message appears: "The database user you chose does not have the necessary DBA privileges. Logon to the database as a user with DBA privileges." Click **OK** to close the message dialog. You must enter the proper credentials in order to continue. Enter the credentials and try again.

Select Database for Repository Login is Unsuccessful
If you have entered an invalid username, password, or service, an error message indicating the failure appears. For example: "Connection failed ORA-01017: Invalid username/password; logon denied" message appears. Click **OK** to close the message dialog. Enter the data and try again.

The User Already Exists
The user already exists, and already contains an incomplete Enterprise Manager Release 9 repository. A repository create, drop, or upgrade operation may be in progress, or a previous operation may have failed. Continuing the current operation can replace incomplete components and create missing components in the repository.

What would you like to do?

■ Select another user.

■ Continue and use the selected repository.

If a repository operation is already actively in progress elsewhere, do not continue. Attempting to perform simultaneous operations on the same repository may cause repository corruption.

The user "<username>" already contains a complete and up-to-date Enterprise Manager Release 9 repository

The user "<username>" already contains a complete and up-to-date Enterprise Manager Release 9 repository. If you wish to overwrite the existing repository, first use the Drop option.

The User Already Exists and Contains a V1 Repository
If the Enterprise Manager Configuration Assistant detects that the chosen repository name is the name of an already existing user/schema in the database and that it contains an Oracle Enterprise Manager Release 1.x repository, a message appears: "The user already exists and contains a V1 repository. A 9*i* repository may not coexist with a V1 repository in the same schema. Please choose another user name."

The User Already Exists in this Database
If the Enterprise Manager Configuration Assistant detects that the chosen repository name is the name of an already existing user/schema in the database, and that it contains neither an Oracle Enterprise Manager Release 2.x nor Release 1.x repository, a message appears: "The user already exists in this database. Do you wish to create the repository within this user's schema anyway?"

If you choose no, you may select a different user name.

If you choose yes, the Create Repository Summary page appears.

The Management Server on this Machine is Currently Managing a Repository Owned by user <user_name> on service <service_name>
During create repository, if the Configuration Assistant detects that a managed repository is already specified in the omsconfig.properties file, and you are creating a repository that is different from the managed repository, a message appears: "The Management Server on this machine is currently managing a repository owned by user <user_name> on service <service_name>. Would you like to change it to now manage the repository owned by user <user_name> on service <service_name>?"

If you choose yes, the configuration will be updated. The Management Server must be stopped and restarted in order for the changes to the configuration file to take effect. If you choose no, the configuration will not be updated. The Create Repository Summary page and the steps in the Configuration Assistant Progress Window will reflect your choices.

You have chosen the user's default or temporary tablespace to be SYSTEM.
Note that the Configuration Assistant, when it creates the user for an Oracle
Enterprise Manager repository, asks you for the default and temporary tablespaces
to use. If you choose SYSTEM for either of these, Configuration Assistant puts up
the following warning: "You have chosen the user's default or temporary tablespace
to be SYSTEM. We recommend the SYSTEM tablespace be used only for data
dictionary tables and the SYSTEM rollback segment. Are you sure?" Pick another
tablespace.

The Default Tablespace for the Repository Does Not Contain Enough Free Space
If the Enterprise Manager Configuration Assistant detects that the default
tablespace for the repository does not contain enough free space, the following
message appears: "The default tablespace for the repository does not contain
enough free space."

Refer to "Repository Database Default Tablespace Does Not Contain Enough Free
Space" on page F-7 for information for possible solutions.

Repository Database Default Tablespace Does Not Contain Enough Free Space

The Configuration Assistant checks that the selected default tablespace for the
repository has the appropriate attributes/characteristics, but if it does not contain
enough free space, the following message appears: "The default tablespace for the
repository does not contain enough free space."

Use the OEM_REPOSITORY tablespace if it exists. It is the default tablespace for
Enterprise Manager.

If you are creating a repository in a new user, the Select Repository User
Tablespaces page strongly encourages you to create an OEM_REPOSITORY
tablespace. Using the Enterprise Configuration Assistant to create the
OEM_REPOSITORY tablespace ensures that the tablespace has appropriate
attributes/characteristics.

However, if you prefer, you can create another tablespace, or use an existing
tablespace. If you decide to use an existing tablespace, you may have to increase its
size.

> **Note:** You do not have to exit from the Configuration Assistant when
> using Storage Management to create another tablespace or increase the
> size of an existing tablespace.

Creating an OEM_REPOSITORY Tablespace if One Does Not Exist

If the `OEM_REPOSITORY` tablespace has not been created for you, the **Create a new OEM_REPOSITORY tablespace (recommended)** option is available on the Select Repository User Tablespaces page of the Enterprise Manager Configuration Assistant.

Select this option if you want to create the OEM_REPOSITORY tablespace. Using the Enterprise Manager Configuration Assistant to create the OEM_REPOSITORY tablespace gives that tablespace appropriate attributes/characteristics. Then use it as the user's default tablespace.

Creating Another Tablespace

Using the Configuration Assistant is the preferred method for creating a tablespace since it creates the tablespace with the proper attributes in any of the supported databases. The attributes of the default tablespace depend on the database version.

To use Storage Management to create a new tablespace, follow the procedure described in this section:

1. Start the standalone Console.

   - On Windows NT:

     You can start the standalone Console from the Windows Start Menu.

   - On UNIX:

     You can start the standalone Console from the command line using the command:

     ```
     oemapp console
     ```

   When the Oracle Enterprise Manager Console Login appears, choose the **Launch standalone** option and press **OK**. For more information on using the Console in standalone mode, refer to Chapter 2, "Standalone".

2. Expand the Database folder.

3. Double-click the database node in the navigator tree and connect to the database as a user with the DBA privilege.

4. Select **Create** from the **Object** menu. The Create Object List dialog appears.

5. Expand the database node in the Create Object List dialog and select Tablespace. Then click **Create**. The Create Tablespace property sheet appears.

6. In the Create Tablespace Property Sheet's General page,

a. Enter the name of the new tablespace.

b. Specify that the tablespace will be used to hold permanent database objects.

7. In the Datafile section, enter the size of the new datafile. The File Name and File Directory columns should already contain default entries.

8. Right-click + which appears next to the name of the datafile and choose **Edit**. The Create Datafile property sheet appears.

9. In the Create Datafile's Storage page, select the **Automatically extend datafile when full (AUTOEXTEND)** option so that the datafile will automatically increase in size when more space is needed in the database.

10. Click **OK** in the Create Datafile property sheet.

11. In the Create Tablespace Property Sheet's Storage page, choose a method of space management. You cannot alter the method at a later time.

12. Click **Create** in the Create Tablespace Property Sheet.

Increasing the Size of an Existing Tablespace

Using the Configuration Assistant is the preferred method for creating a tablespace since it creates the tablespace with the proper attributes in any of the supported databases. The attributes of the default tablespace depend on the database version.

To use the Console's Storage Management functionality to increase the size of an existing tablespace, follow the procedure described in this section:

1. Start the standalone Console.

- On Windows NT:

  You can start the standalone Console from the Windows Start Menu.

- On UNIX:

  You can start the standalone Console from the command line using the command:

  ```
  oemapp console
  ```

  When the Oracle Enterprise Manager Console Login appears, choose the **Launch standalone** option and press **OK**. For more information on using the Console in standalone mode, refer to Chapter 2, "Standalone".

2. Expand the Database folder.

3. Double-click the database node in the navigator tree and connect to the database as a user with the DBA privilege.

4. Expand the Storage Management node.

5. Double-click the datafile you want to increase from the Datafiles folder. The General page of the Datafile property sheet appears, allowing you to edit the file size of the datafile.

6. Click **Apply** in the General page.

7. Click on the Storage tab. The Storage page of the Datafile property sheet appears.

8. Select the **Automatically extend datafile when full (AUTOEXTEND)** option and click **Apply**.

Database Parameters Not Large Enough for Repository Operation

An Oracle Management Server will open a number of repository database sessions while processing work on behalf of clients and managed nodes.

The number of sessions required by a single Management Server generally ranges from 3 to 5, depending on the load placed on the Management Server. More repository database sessions may be required under the following circumstances:

- many Consoles are actively submitting jobs/registering events

- multiple Management Servers are concurrently using the same repository

- many Intelligent Agents are sending notifications back to the Management Servers

If other applications are accessing the same database used for the Enterprise Manager Repository the session load will increase on the database.

If your processes setting is too low for Oracle Enterprise Manager, you will receive an error message similar to the following in the `oms.log` file located in the `Oracle_OEM_Home/sysman/log` directory.

```
can't open a session
```

For large workloads, or for cases where multiple applications are accessing the database where the repository resides, you can increase the processes parameter in the database init.ora to accommodate the workload.

To use Instance Management functionality to change your database parameters, follow the procedure described in this section:

1. Start the standalone Console.

   ■ On Windows NT:

      You can start the standalone Console from the Windows Start Menu.

   ■ On UNIX:

      You can start the standalone Console from the command line using the command:

      ```
      oemapp console
      ```

   When the Oracle Enterprise Manager Console Login appears, choose the **Launch standalone** option and press **OK**. For more information on using the Console in standalone mode, refer to Chapter 2, "Standalone".

2. Expand the Database folder.

3. Double-click the database node in the navigator tree and connect to the database as a user with the DBA privilege.

4. Expand the Instance Management node.

5. Select the Configuration node.

6. Select **All Initialization Parameters** in the Configuration Property Sheet's General page.

7. Change the value of the parameter.

8. Click **Save As** on the All Initialization Parameters page. The Save Initialization Parameters dialog appears.

9. Enter the complete directory path and a file name or click **Browse** to find a location on your local operating system to place the file and enter the file name.

10. Press **OK** to save the file.

Changing the Permissions on the omsconfig.properties File

If you have chosen to store your repository credentials in the
omsconfig.properties file during repository creation, you may want to change
the permissions on the file to restrict who can view it.

If you change the file permissions appropriately, other users cannot view or modify
the file.

> **Note:** The repository credentials stored in the
> omsconfig.properties file do not expose plain text passwords. The
> password, if present, is encrypted in that file.

UNIX:
To change the file permissions, at the command prompt, enter:

```
$ chmod 600 omsconfig.properties
```

This command sets the read and write permissions only for the owner of the file.

Windows NT:
To change the file permissions, perform the following steps.

1. From the Start menu, select **Programs** > **Windows NT Explorer**.

2. From Oracle_Home/sysman/config directory, select the
   omsconfig.properties file.

3. Right-click the selected file, and then choose the Properties item in the resulting
   pop-up menu.

4. Select the Security tab from the Properties dialog. Note: This step only applies
   to NTFS file systems.

5. Press **Permissions** on the Security page to display the File Permissions dialog.
   The default is "Everyone" has Full Control (All). The type of Access is Full
   Control.

6. Click **Remove** to remove this entry.

7. Click **Add** to display the Add Users and Groups window.

8. Click **Show Users** to view all users.

9. Select the user who starts the Management Server regularly and uses the Enterprise Manager Configuration Assistant for the **type of access** option and select "select full control" from the list.

10. Click **OK** to close the Add Users and Groups dialog.

11. Click **OK** to close the File Permissions dialog.

12. Click **OK** to close the File Properties dialog.

You can provide access to multiple usernames.

Troubleshooting the Management Server

This section contains the following topics:

- Management Server May Not Run Correctly from a Non-Default Oracle Home

- Management Server Does Not Start

- Error Messages When Starting the Management Server

- Changing Your Management Server for Client Access

Management Server May Not Run Correctly from a Non-Default Oracle Home

On Unix, if the ORACLE_HOME environment variable is not set to the Oracle home where the management server is running, the management server will not start correctly. It will try to find its class files in the default Oracle home instead of the correct Oracle home.

csh
To set the environment variable:

```
setenv ORACLE_HOME '/usr/local/oracle'
```

ksh/sh
To set the environment variable:

```
ORACLE_HOME = '/usr/local/oracle'
export ORACLE_HOME
```

On UNIX systems, the Oracle environment can also be set by calling `coraenv` (for the CSH) or `oraenv` (for any other shell). This shell script sets the oracle environment for a given identifier. This identifier can be a specific database or it can

point to an ORACLE_HOME which contains the Management Server software. These scripts can be customized to include specific machine or server based settings.

Refer to the specific operating system's Oracle Administration documentation for more information about the coraenv and oraenv scripts.

Management Server Does Not Start

For information to troubleshooting the Management Server if it does not start, refer to the following resources:

- the oms.log file
- the oms.nohup file
- the Windows NT Event Log (for Windows NT)
- oemctl batch file

oms.log File

The $ORACLE_HOME\sysman\log directory contains the output of traces that are redirected to disk if logging is enabled. This directory contains the oms.log and oms.nohup files.

The Management Server places all its trace messages in oms.log file. The oms.log file contains messages generated when the Management Server is starting and running.

The Management Server places all its trace messages in Management Server log files (oms.log.0, oms.log.1, oms.log.2, and so on). It writes to one log file, and when the log file is full, it writes to the next file, recycling the last two files.

The Management Server's log files have size limits. By default, when the Management Server starts, it can only create log files with a size of 25 MB. The initial log file name is oms.log.0. If the file reaches its 25 MB limit, a separate log file is created. The separate log file name is oms.log.1. If that file reaches its 25 MB limit, the oms.log.0 file is deleted and a new log file, oms.log.2, is created. The last two log files are kept.

> **Important Note:** When the Management Server starts, all previous log files of the name oms.log.* are automatically deleted.

oms.nohup File

The `oms.nohup` file in the $ORACLE_HOME/sysman/log directory contains Management Server error messages which appear before the Management Server starts up and critical messages during its run.

Windows NT Event Log

To access the Windows NT Event Log to view the events logged by the Management Server.

1. From the Start menu->Programs->Administrative Tools (Common), select the Event Viewer item or search for eventvwr.exe.

2. Select Application from the Log menu.

3. When the log screen appears, double-click any event logged by the Oracle<Oracle_Home_Name>ManagementServer service which has red octagonal stop signs next to them. These will be the errors reported by the Management Server, if any.

Events and event numbers which the Management Server can log in the event viewer are listed below:

Event Number	Message	Meaning
101	(<NT OMS service name>) could not be found. It contains the following insertion string: <NT OMS service name>.	Problem starting service. Look at log and trace files for more information
105	The service was started.	Informational message
108	The service was stopped.	Informational message
110	The service is entering production run mode.	Informational message
112	The service has terminated abnormally.	See the oms.log file for more information.
113	Fatal error Process terminated abnormally.	See log file for more information.

Errors will only be reported in the Event Viewer if the Management Server is voluntarily shutting down.

oemctl Batch File

To obtain more information for debugging, you can change the JRE startup command in the oemctl script.

- On Windows, change

```
SET JRE=jre –nojit –mx32m
```

to

```
SET JRE=jre –nojit –mx32m –verbose
```

- On Unix, change

```
JRE="jre –native –nojit –mx32m "
```

to

```
JRE="jre –native –nojit –mx32m –verbose "
```

Performing this procedure enables you to identify class loading problems caused by environmental or installation problems. When you have collected the data from the batch file, send the information to Oracle Support Services.

> **Note:** If you encounter problems starting the Management Server, turn on tracing for the Console first. If you still cannot determine what the cause is, perform other troubleshooting procedures before using the oemctl batch file procedure.

Error Messages When Starting the Management Server

If you receive the following error when starting the Management Server, refer to the solutions below:

```
Could not start the Oracle<ORACLE_HOME_NAME>ManagementServer service on <HOST NAME>.
Error 0203:  The system could not find the environment option that was entered.
```

The Management Server has been installed but not configured. You must run the Enterprise Manager Configuration Assistant to create a new repository or to edit an existing repository.

For Windows NT: The Enterprise Manager Configuration Assistant has been run, and you have chosen to not save the repository connection's username and password to a file (in secure Management Server mode). You must select the Oracle<ORACLE_HOME_NAME>ManagementServer service and then enter the username and password in the Control Panel's Startup Parameters' field or you must enter the repository credentials when you are prompted for them in a dialog.

Changing Your Management Server for Client Access

If a Management Server fails in a multi-Management Server environment, it only affects the clients connected to it. Each Management Server is independent of the other Management Servers connected to the repository.

To change your Management Server node to another node where a Management Server is still running, follow the procedure below.

1. In the Oracle Enterprise Manager Console Login, select a node that has a Management Server which is configured with the repository you want to access from the Management Server list.

   If the node name where the Management Server is running does not appear in the list, follow the instructions below:

   a. Click **Management Servers**. The Management Servers dialog appears.

   b. Type in the name of the node where the Oracle Management Server is running that is configured with the repository you want to access and click OK.

   c. Select the node where the Oracle Management Server is running from the list.

2. On each machine which runs Oracle Enterprise Manager through a web browser, return to the `emwebsite.html` page to change the machine name to point to the node where a management server is running. You cannot simply enter a new Management Server machine name at the Oracle Enterprise Manager Console Login.

Running the Management Server on a Multiple NIC Machine

The default behavior of the Management Server when running on a multi NIC machine is to listen on all the network cards. If you want the Management Server to listen only on a specific network card, you must perform the following steps:

1. Add the following property to $ORACLE_HOME/sysman/config/omsconfig.properties

   ```
   MULTI_NIC.ENABLED=false
   ```

2. Modify the BootHost property in `$ORACLE_HOME/sysman/config/omsconfig.properties` to have the name of the network card on which the Management Server has to listen.

   Change "BootHost=localhost" to "BootHost=<network card host name>"

   For example, if a multi nic machine has 2 network cards and has names host1 and host2, setting "BootHost=host1" will make the Management Server listen on host1.

3. Restart the Management Server.

Troubleshooting the Paging Server

If a page notification fails, the paging server will try to resend the page three more times. The interval of time between these retries is a value that can be altered. By default, the interval of time between retries is 1 minute. You can change this default setting by editing the OMSCONFIG.PROPERTIES file located in the Management Server's `ORACLE_HOME\sysman\config` directory. You can add the property

```
OEM.PAGING.RETRYINTERVAL=<integer>
```

to the OMSCONFIG.PROPERTIES file and replace `<integer>` with the number of minutes between retries.

Troubleshooting the Web Browser

This section contains information about troubleshooting the web browser.

Console Hangs

If you start the web browser, log in to the Console, but the Console hangs, and the following is displayed in JInitiator Console:

```
@org.omg.CORBA.INITIALIZE[completed=MAYBE, reason=java.net.BindException:
Cannot assign requested address]
```

You must perform the following steps:

1. Check that the JInitiator uses browser settings for the proxy.

    a.   From the Windows Start menu, click Programs-> JInitiator Control Panel. A window appears.

    b.   Choose the Proxies tab.

    c.   View the contents.

2. Append the domain name to the web server address you type in the browser, for example, `@.us.oracle.com`

3. Edit the browser settings and add that domain to "no proxy settings for" or edit the browser settings and choose Direct Connection to Internet.

Console Does Not Open Web Browser

If `user.browser` is not defined properly in the `clientconfig.properties` file, the Netscape Navigator will not open from within the Enterprise Manager Console. The default Enterprise Manager browser will be opened instead.

If viewing reports from the Console does not work, it may be because the Netscape Navigator is using a script and not the actual program.

You must perform the following task in order for Unix to know how to open the Netscape Navigator.

Set the following property in ClientConfig.properties:

```
user.browser=/usr/local/packages/netscape/netscape
```

The user.browser should be set to the actual name of the browser, not a script.

`/usr/local/bin/netscape` is a script and not an executable.

`user.browser` should be pointed to an executable and not to a shell script.

Changing the Repository User Password

You can change the password on the repository using ALTER USER and then use the Configuration Assistant to edit the configuration parameters.

1. Execute the ALTER USER command once for the database user.

```
ALTER USER <repository username>
         IDENTIFIED BY <new password>;
```

2. Run the Enterprise Configuration Assistant to edit the Management Server configuration once on each host that is running a Management Server that is

using that repository. Refer to "Configuring a Local Management Server To Use An Existing Repository" on page 3-22.

Resetting the Password

If you forget your SYSMAN password and need to reset it to `oem_temp`, follow the instructions below:

You must first be connected to the Management Server repository (via SQL*Plus) before using the reset_sysman() procedure.

1. Start SQL*Plus from the command line by typing:

   ```
   sqlplus
   ```

2. When you are prompted for the connection information, type:

   ```
   <emrepository>/<emrepository-pwd>@<em-repository>
   ```

   to connect to the database.

   For example:

   ```
   mynode/mypassword@mynode.world
   ```

   since the default repository name is the hostname.

3. Then type:

   ```
   execute smp_maintenance.reset_sysman();
   ```

Setting the Format of Dates

To set up how the order of the date elements are to be displayed in the Oracle Enterprise Manager Console, you must set the following environment variables:

- NLS_DATE_FORMAT for the month, date, and year

  ```
  mm-dd-yyyy
  ```

- NLS_TIMESTAMP_FORMAT for the date and time

  ```
  mm-dd-yyyy hh:mi pm
  ```

> **Note:** You can only set up the order in which the elements are to be displayed; you cannot set up what is to be displayed.

Windows Platforms
To set the environment variable:

```
set NLS_DATE_FORMAT = mm-dd-yyyy
set NLS_TIMESTAMP_FORMAT = mm-dd-yyyy hh:mi pm
```

UNIX
To set the environment variable:

```
setenv NLS_DATE_FORMAT mm-dd-yyyy
setenv NLS_TIMESTAMP_FORMAT mm-dd-yyyy hh:mi pm
```

Troubleshooting for Reporting

Webserver Will Be Deconfigured Error

If you access the Enterprise Manager Web site, and you encounter the following error:

```
The management server <hostname> is using a different webserver <hostname> for
Enterprise Manager reporting services. This webserver <hostname> will be
deconfigured and will no longer support Enterprise Manager reporting. To access
Enterprise Manager Reports in the future, please use the webserver <hostname>
```

You must perform the following step.

Edit the `httpd.conf` file located in the `$ORACLE_HOME\Apache\apache\` directory by setting the `ServerName` property to the hostname of the machine running the Oracle HTTP Server for the Enterprise Manager Reporting Web Site.

The `ServerName` property in the `httpd.conf` must be the same name as the Oracle Management Server Host in the reporting properties.

Blank Page or Internal Server Error

If you access Enterprise Manager reports from a web browser and see a blank page or the following error:

```
Internal Server Error: The server encountered an internal error or
misconfiguration and was unable to complete your request. Please contact the
server administrator, you@your.address and inform them of the time the error
occurred, and anything you might have done that may have caused the error. More
information about this error may be available in the server error log
```

You must review the Oracle HTTP Server log file for the following exception:

```
Xlib: Client is not authorized to connect to Server
java.lang.NoClassDefFoundError: sun/awt/motif/MToolkit.
```

The Oracle HTTP Server log file is located in the
`$ORACLE_HOME/Apache/Apache/logs` directory.

If this exception occurred, perform the following steps to fix the problem.

1. Execute the `xhost +<host>` command on the X Window machine where you are accessing reports from a web browser. For example, if your reporting web server is running on host servlet1 and the X Window is running on host xserv1, then execute the following command on xserv1: `xhost +servlet1`

2. Specify the DISPLAY environment variable with the X Window machine name on the host where the reporting web server is running. For example, if your reporting web server is running on host servlet1 and X Window is running on host xserv1, then execute the following command on servlet1:

    - if the command shell is C Shell: setenv DISPLAY xserv1:0.0

    - if the command is B or K Shell: DISPLAY=xwerv1:0.0; export DISPLAY

3. Verify that the X Window environment has been configured properly. For example, execute the xclock command. If you see the xclock window on your X Server (i.e. reporting web server), your X Window environment has been configured properly.

4. Restart the Oracle HTTP Server using the command apachectl restart.

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Keyboard Navigation

Oracle Enterprise Manager supports standard keyboard navigation. Standard keyboard navigation includes the use of the tab key, mnemonics (using the Alt key and the underlined character), and accelerators (such as Alt+F4 to exit a window).

The following table contains keyboard actions that are not commonly known or for which there is no firm standard.

Keyboard Action	Result
F10 (release), Space	Drops the system menu for a window or dialog.
When focus is on a selected tree item or a selected table item, type Shift + F10	Drops the context menu for the selected item.
With focus on an edit field within a table, type in a new value and press Enter	Accepts new value is accepted and the focus is moved to the next row of the table.
With focus on a drop down list within a table, press Space.	Changes the drop down list from opened to closed or from closed to open.

Accelerators for picture buttons are documented in the Help for the dialog or window where the picture buttons appear.

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Repository Views Addendum

This appendix documents the repository views that were documented incorrectly or not included in the *Oracle Enterprise Manager Administrator's Guide.*

Operational System Metrics

SMP_VIEW_RUNNING_OMS_MACHINES

Shows all Management Servers currently connected to a repository. All Management Servers in this region must be up and running in order to be displayed in this view.

Table H–1   SMP_VIEW_RUNNING_OMS_MACHINES

Columns	Descriptions
OMS_MACHINE	Name of the machine, as it is known in the network. This name is the canonical name of the Management Server machine, as it was resolved by the network protocols.
REGION	Name of the region.
LAST_CHECKED	Timestamp of the last heartbeat of this Management Server, using the timezone of the Management Server machine.

SMP_VIEW_REGIONS

Lists all regions along with pertinent information for each region such as attached Management Servers and Intelligent Agents.

Table H–2   SMP_VIEW_REGIONS

Columns	Descriptions
REGION_NAME	Name of the region.
OMS_MACHINE	Name of the machine
NODE_NAME	Name of the agent.
UPDOWN	Current status of the agent.
LAST_CHECKED	Timestamp of the last heartbeat of this Management Server using the timezone of the machine on which it runs.

Job Definition Views

SMP_VIEW_JOB_NOTIFICATIONS

List of all administrators who will get notified when particular jobs are executed.

Table H–3   SMP_VIEW_JOB_NOTIFICATIONS

Columns	Descriptions
JOB_ID	The JOB_ID is an unique identifier for this job. Since a job can be submitted at different times, and because the same job can be created more than once, the job_name is not enough to uniquely identify an job in the repository. Therefore, all queries used to obtain job information must use the JOB_ID identifier.
JOB_NAME	Name of this job. JOB_NAME contains the name of the job as entered by the administrator.
ADMINISTRATOR_NAME	Name of the administrator who will get notified
TARGET_NAME	Name of the service that caused the job to trigger
TARGET_TYPE	Type of target this job is meant for.

Event Definition Views

SMP_VIEW_EVENT_NOTIFICATIONS

List of all administrators who will get notified for specific events.

Table H–4   SMP_VIEW_EVENTS

Columns	Descriptions
EVENT_ID	Unique identifier for an event. Since an event can be registered and de-registered at different times, and because the same event can be registered against more than one target, the EVENT_NAME is not enough to uniquely identify an event in the repository. Therefore, all queries used to obtain event information must use the EVENT_ID identifier.
EVENT_NAME	Name of this event
ADMINISTRATOR_NAME	Name of the administrator who will get notified
TARGET_NAME	Name of the service that caused the event to trigger
TARGET_TYPE	Type of target this event is meant for

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