

# Oracle® Enterprise Manager

Concepts Guide

Release 9.0.2

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**Oracle Enterprise Manager Concepts Guide, Release 9.0.2**

**Part No. A95411-01**

Oracle Corporation welcomes your comments and suggestions on the quality and usefulness of this document. Your input is an important part of the information used for revision.

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# Preface

The *Oracle Enterprise Manager Concepts Guide* presents a general overview of Oracle Enterprise Manager Release 9.0.2.

Oracle Enterprise Manager Console 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.

The Oracle Enterprise Manager Web site provides Web-based management tools designed specifically for Oracle9i Application Server (Oracle9iAS).

Refer to the Oracle Enterprise Manager online help or the *Oracle Enterprise Manager Administrator's Guide* for information on how to configure and use the Oracle Enterprise Manager Console. Refer to the *Oracle9i Application Server Administrator's Guide* for information about managing Oracle9iAS using the Oracle Enterprise Manager Web site.

## Intended Audience

This guide explains the general concepts of Oracle Enterprise Manager. You should already be familiar with Oracle and the administrative tasks you wish to perform.

## Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains

markup to facilitate access by the disabled community. Standards will continue to evolve over time, and Oracle Corporation is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For additional information, visit the Oracle Accessibility Program Web site at <http://www.oracle.com/accessibility/>.

## Organization

This guide is divided into the following chapters:

### **Chapter 1, "Overview of Oracle Enterprise Manager"**

describes the overall architecture and features of Oracle Enterprise Manager: the Console, Oracle Management Server, and the common services.

### **Chapter 2, "The Console"**

Describes the layout and use of the Oracle Enterprise Manager Console.

### **Chapter 3, "Job and Event Systems"**

Describes the Job Scheduling and Event Systems, which execute jobs and monitor for occurrences on sites throughout the network.

### **Chapter 4, "Database Administration"**

Describes the database administrative functionality bundled with Oracle Enterprise Manager.

## Related Documents

For more information, see these Oracle resources:

- Oracle9i Application Server Documentation Library
- Oracle9i Application Server Platform-Specific Documentation on Oracle9i Application Server Disk 1

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

<http://oraclestore.oracle.com/>

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>

## Conventions

The following conventions are used in this manual:

Convention	Meaning
. . .	Vertical ellipsis points in an example mean that information not directly related to the example has been omitted.
...	Horizontal ellipsis points in statements or commands mean that parts of the statement or command not directly related to the example have been omitted
<b>boldface text</b>	Boldface type in text indicates a term defined in the text, the glossary, or in both locations.
< >	Angle brackets enclose user-supplied names.
[ ]	Brackets enclose optional clauses from which you can choose one or none.



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# Overview of Oracle Enterprise Manager

Oracle Enterprise Manager provides an integrated solution for centrally managing your heterogeneous environment. Combining a graphical console, Oracle Management Servers, Oracle Intelligent Agents, common services, and administrative tools, Oracle Enterprise Manager provides a comprehensive systems management platform for managing Oracle products.

This chapter presents an overview of Oracle Enterprise Manager's benefits, architecture, and major components.

The chapter is divided into the following sections:

- [Managing Your Entire Oracle Environment](#)
- [Managing Oracle9i Application Server \(Oracle9iAS\)](#)
- [Three-Tier Framework](#)
- [Benefits of Oracle Enterprise Manager](#)
- [Common Services](#)

## Managing Your Entire Oracle Environment

The primary interface to managing your Oracle environment is the Oracle Enterprise Manager Console. The Console is part of the Oracle Enterprise Manager three-tier architecture, which is discussed in more detail later in this chapter.

From the Console, you can perform the following tasks:

- Administer the complete Oracle environment, including databases, application servers, applications, and services.
- Diagnose, modify, and tune multiple databases.

- Schedule tasks on multiple systems at varying time intervals.
- Monitor database conditions throughout the network.
- Administer multiple network nodes and services from many locations.
- Share tasks with other administrators.
- Group related targets together to facilitate administration tasks.
- Launch integrated Oracle and third-party tools.
- Customize the display of an Enterprise Manager administrator.

## Managing Oracle9i Application Server (Oracle9iAS)

For Oracle9iAS Release 2.0, Oracle introduces the Oracle Enterprise Manager Web site, which provides Web-based management tools designed specifically for Oracle9iAS. Using this Web site, you can monitor and configure the components of your Oracle9i Application Server installations. You can deploy applications, manage security, and create and manage Oracle9i Application Server clusters.

Depending on the type of Oracle9iAS installation you support, you can use the Enterprise Manager Web site independently to manage individual Oracle9iAS instances and clusters, or you can use it with the Oracle Enterprise Manager console to manage your entire Oracle environment.

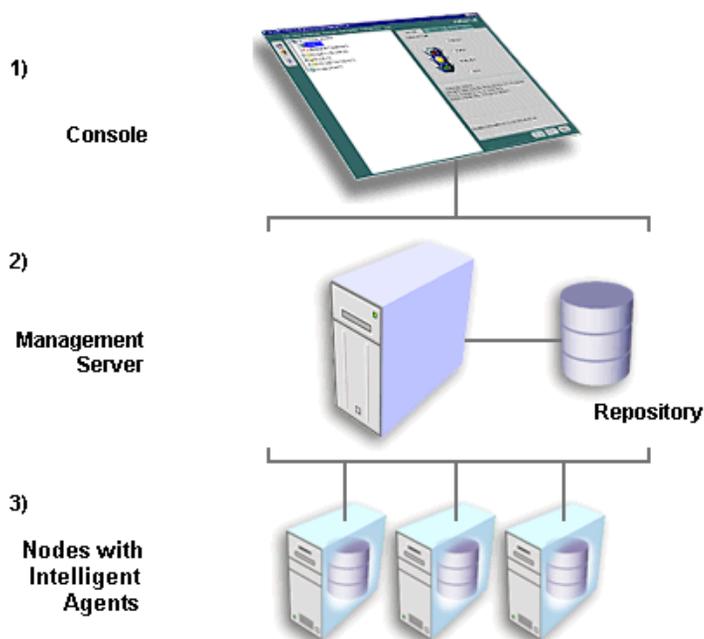
For more information about using the Oracle Enterprise Manager Web site to manage Oracle9iAS, see the *Oracle9i Application Server Administrator's Guide*. For more information about launching the Oracle Enterprise Manager Web site from the Console, see the *Oracle Enterprise Manager Configuration Guide*.

## Three-Tier Framework

Oracle Enterprise Manager architecture consists of a three-tier framework. Unlike a two-tier client-server structure, where a client tier responsible for the presentation of information accesses data from a server, Oracle Enterprise Manager utilizes a three-tier architecture which includes:

- Console clients and integrated tools provide a graphical interface for administrators—first tier
- Management Servers and a database repository provide a scalable middle tier for processing system management tasks—second tier
- Intelligent Agents installed on each node monitor its services and execute tasks from the Management Server—third tier

*Figure 1-1 Three-Tier Architecture*



With Oracle Enterprise Manager's three-tier framework, data-intensive business logic is moved off the client and is recast as shared services on one or more

middle-tier Oracle Management Servers, providing reliability, scalability, and fault tolerance for enterprise environments.

Because not all enterprises need to implement Enterprise Manager as a three tier system, Enterprise Manager is also available in standalone mode, a two-tier framework which connects directly to the databases. The Console launched standalone allows a single person to use one or more applications without requiring an Oracle Management Server or Intelligent Agent.

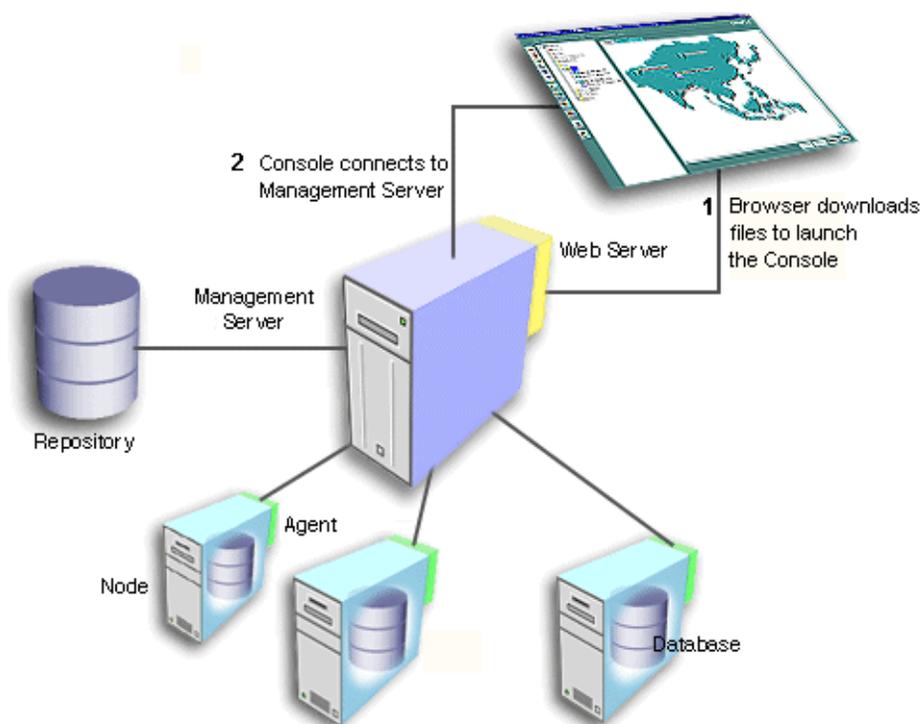
Use the standalone Console if you want to perform basic administrative tasks that do not require the job, event, or group system.

If you want to use events, jobs, sharing of administrative data, blackouts, groups, enhanced notifications, historical collections, and have the ability to run applications in a web browser, use Enterprise Manager connected to the Management Server. For more information about the standalone Console, see the *Oracle Enterprise Manager Configuration Guide*.

## Clients

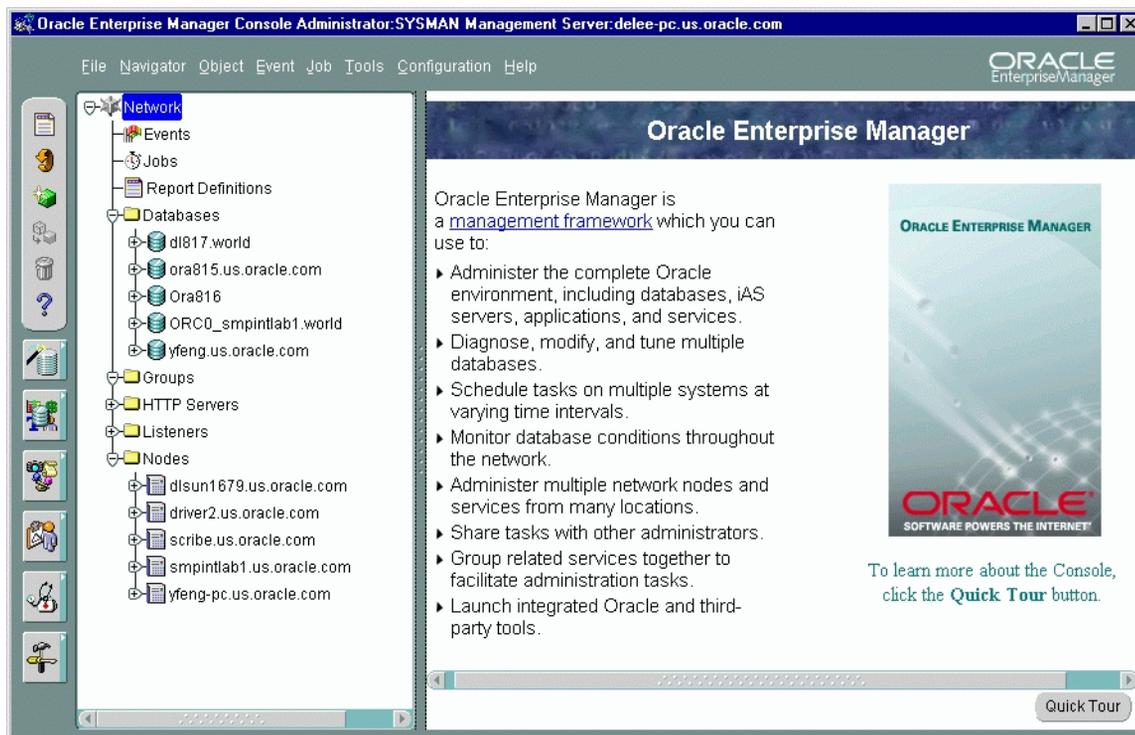
The first tier of Oracle Enterprise Manager is comprised of clients such as consoles and management applications, which present a graphical user interface to administrators for all management tasks. These client components can be installed locally or brought up with a web browser.

The first-tier clients depend on second-tier Oracle Management Servers for the bulk of their application logic.

**Figure 1-2 First Tier**

The Oracle Enterprise Manager Console provides menus, toolbars, and drawers allowing access to Oracle tools.

The Console is partitioned into a two-pane master/detail view of the administrator's global environment. The "master" left pane displays the Navigator tree while the "detail" right pane shows property sheets for objects which are selected within the Navigator. In addition, Events, Jobs, Groups, and Report definitions have been integrated into the Navigator as well.

**Figure 1–3 Oracle Enterprise Manager Console**

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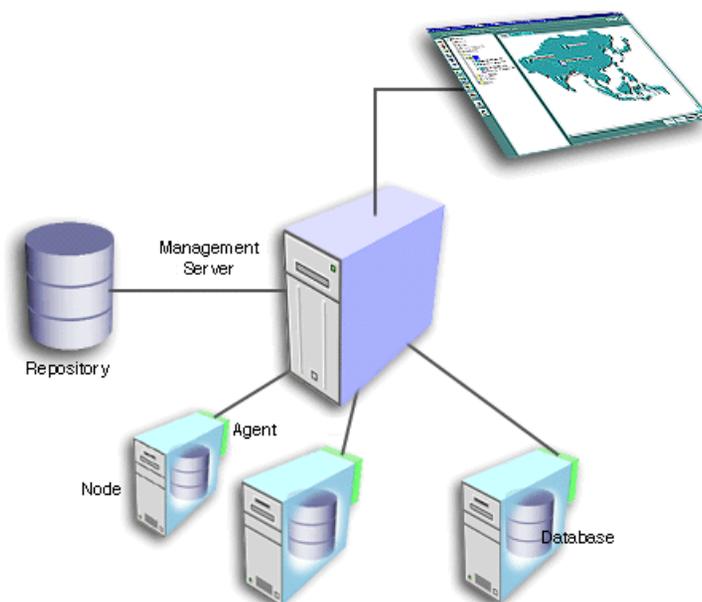
**Note:** See [Chapter 2, "The Console"](#) for descriptions of the basic components of the Console and how they are organized. For information about the Console menus, see the *Oracle Enterprise Manager Administrator's Guide*.

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## Oracle Management Server

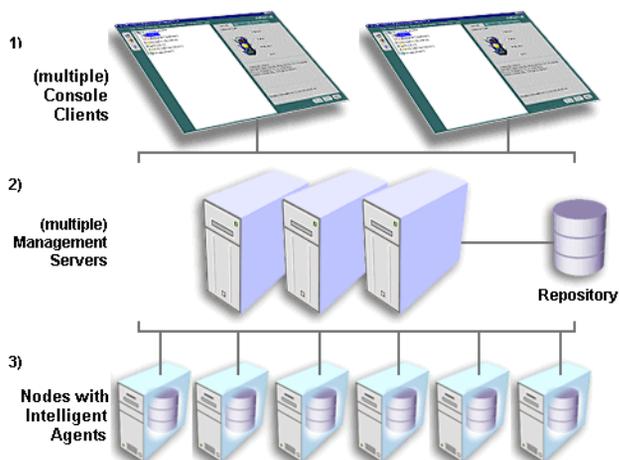
The second tier of the Oracle Enterprise Manager framework is comprised of one or more Oracle Management Servers. The Management Server is the core of the Enterprise Manager framework. It provides administrative user accounts, processes management functions such as jobs and events, and manages the flow of information between the Console (first tier) and the nodes with Intelligent Agents (third tier).

**Figure 1–4 Management Server**



The Oracle Management Server uses a repository to store all system data, application data, information about the state of managed nodes, and information about any system management packs. A repository is a set of database tables that must be located in a supported Oracle database accessible to the Oracle Management Server.

If necessary, a large enterprise can use more than one Oracle Management Server in the middle tier. When multiple Oracle Management Servers are used, they share and balance the workload, ensuring high performance and scalability.

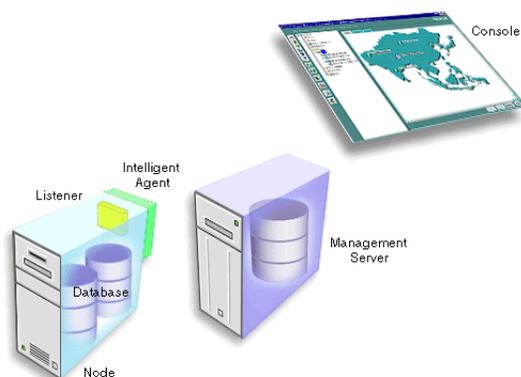
**Figure 1–5 Second Tier**

One of the most important responsibilities of the Oracle Management Server is distributing tasks to the Oracle Intelligent Agents, which run on managed nodes in the third tier. The Intelligent Agents are responsible for the localized execution of tasks and the on-going monitoring of databases and other targets on the managed nodes.

Also, the Administrator can reconnect to a Management Server from within the Console should the Management Server to which the Console was originally connected become unavailable whether due to scheduled maintenance on the node or a power outage in the area where the Management Server resides.

## Managed Nodes

The third tier of the Oracle Enterprise Manager framework is comprised of managed nodes which contain databases and other managed targets. Residing on each node is an Oracle Intelligent Agent, which communicates with the Oracle Management Server(s) and performs tasks sent by consoles and client applications.

**Figure 1–6 Third Tier**

The Oracle Intelligent Agent monitors databases and other targets in the node for registered events (potential problem occurrences) and scheduled jobs (activities), both sent by the client via the middle-tier Oracle Management Server(s).

Intelligent Agents function independently of the databases and other targets they support, and also function independently of the Console, management applications, and Oracle Management Servers. By running independently of other components, Intelligent Agents can perform such tasks as starting up and shutting down a database and staying operational if another part of the system is down.

In the Intelligent Agent version 9.0.1, the Intelligent Agent process will be automatically restarted in cases where the Intelligent Agent process exits due to an abnormal condition within the environment in which the Intelligent Agent is running.

Intelligent Agents support Simple Network Management Protocol (SNMP), enabling third-party applications to communicate with the Intelligent Agent and be managed along with Oracle targets.

The Intelligent Agent handles the collection of system performance data (for example, file I/O or CPU usage data) for Capacity Planner and Performance Manager, which are data-analysis applications in the optional Oracle Diagnostics Pack, Oracle Management Pack for Oracle Applications, and Oracle Management Pack for SAP R/3. You do not have to configure a separate data collection service for this purpose.

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**Note:** For more information about the Intelligent Agent, see the *Oracle Intelligent Agent Users Guide*. The optional management packs are available as part of the Oracle9i Database Server software.

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## Benefits of Oracle Enterprise Manager

Oracle Enterprise Manager enables administrators to maintain the highest level of performance and availability while controlling system management costs. This section describes the major benefits of Oracle Enterprise Manager and its scalability, power, and reliability.

Topic	See Page
<a href="#">Single Point of Management</a>	1-10
<a href="#">Multi-Administrator System</a>	1-11
<a href="#">Scalability for Growing, Distributed Environments</a>	1-11
<a href="#">Extensible Architecture</a>	1-12
<a href="#">Automated Lights-out Administration</a>	1-12
<a href="#">Autonomous Intelligent Agent</a>	1-12
<a href="#">Database Administration Functionality</a>	1-12
<a href="#">Ease of Use</a>	1-13

### Single Point of Management

From the Oracle Enterprise Manager Console, you can manage and administer all your distributed systems, databases, tools, and users from a central location. An intuitive graphical user interface that provides powerful and robust system management, the Console gives you a central point of control for the Oracle environment. The easy-to-use interface can simplify tasks for the system administrator.

With Oracle Enterprise Manager, a distributed enterprise can be managed as easily and effectively as a local workgroup, lowering the cost of system ownership. The Oracle Enterprise Manager framework allows the automation and delegation of routine, time-consuming tasks on multiple targets. Jobs can be scheduled on multiple nodes simultaneously and groups of targets can be monitored together.

## Multi-Administrator System

In many enterprises, teams of database administrators must cooperate to manage numerous systems, often remotely. With Oracle Enterprise Manager, database management tasks can be organized and distributed in multi-administrator enterprises, and system data can be safely shared among administrators.

With Oracle Enterprise Manager, system data, application data, and the state of managed targets is contained in the repository, which stores all administrative data. If you are using more than one Oracle Management Server, they can share a repository. The Oracle Management Server handles security and distributes notifications and management information to administrators based on the access levels that are set up for them in the repository. Each administrator has an account which provides access to the Oracle Management Server and the central data stored in the repository.

The Oracle Management Server filters information as it flows between different consoles and the targets on the managed nodes. Because all administrative data is stored in a central repository, administrators can work together and see the activity of other administrators. This distribution of information reduces redundancy, which saves time and keeps administrative costs down.

## Scalability for Growing, Distributed Environments

With its three-tier architecture, Oracle Enterprise Manager has the ability to maintain performance and automate routine tasks in rapidly growing, distributed environments. As the number of nodes and managed targets in your network increases, or if the current Oracle Management Server is overloaded, you can add more Oracle Management Servers to the middle tier to share and balance the workload. Balancing the workload in the middle tier rather than investing in additional systems management overhead, controls the cost of systems management.

Because multiple Oracle Management Servers can share a repository as their back-end store, they provide fault tolerance for each other. If one Oracle Management Server fails, the clients registered with it can immediately log in again and register with any of the other Oracle Management Servers running with that repository, and work continues seamlessly. Any clients registered with an Oracle Management Server other than the failed one are unaffected.

For failover and scalability of the repository database, Oracle has database solutions such as Oracle<sup>®</sup> Real Application Clusters, Oracle Failsafe, Replication Management, and others.

## Extensible Architecture

Oracle Enterprise Manager's flexible architecture allows new products and additional modules to be written and added to the suite. Oracle Enterprise Manager's use of open standards (CORBA, IIOP, etc.) makes it possible to integrate third-party tools into the Console.

## Automated Lights-out Administration

In a large, distributed database environment, the proportion of managed nodes per administrator increases rapidly, requiring tools that can automate tasks. Oracle Enterprise Manager offers automated, "lights-out" task management and proactive target monitoring for events, which enables control of the enterprise without necessarily needing additional staff to meet increasing system responsibilities.

Using the Job System, you can automate routine tasks such as database backups or running reports on a regular basis. Using the Event System, you can have remote databases and other targets monitored for important occurrences (events) and set up "fixit" jobs that automatically execute in response to events. Monitoring of targets for occurrences and automatic problem correction ensures that problems are dealt with before they noticeably impact end users.

## Autonomous Intelligent Agent

Because jobs are executed locally at the managed nodes, they can be completed even when a crucial part of the network is down. Localized tasks are dependable because all jobs are processed by the Intelligent Agents on the individual managed nodes.

For example, if you schedule a job to run on a node, the job will be executed locally at the node at the specified time, and will run even if a network outage occurs between the node, the Oracle Management Server, and the Console. If a target on the node is down, the Intelligent Agent stores any jobs to be performed on the target until the target is back up. If the Console is down, the Intelligent Agent stores any information about the status of the job until the Console is back in service and can receive information.

## Database Administration Functionality

Oracle Database Administrators (DBAs) are commonly required to perform tasks such as creating users, performing backups, adding tablespaces or datafiles, managing database objects, and changing instance parameters.

The Oracle Enterprise Manager Console offers database administration functionality that help automate and simplify the daily tasks of a DBA:

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**Note:** For an overview of the database administration functionality, see [Chapter 4, "Database Administration"](#) or the Oracle Enterprise Manager online help.

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## Ease of Use

Oracle Enterprise Manager provides a complete user-friendly system management solution that allows administrators to manage distributed environments with a minimum of effort. With the ability to access and manage remote targets, an administrator can more easily make changes and execute commands. The Oracle Enterprise Manager framework is designed to offer high scalability without increasing complexity, allowing an administrator to manage more and more targets, confident that the environment is under control.

In addition, all Oracle Enterprise Manager applications have a similar graphical user interface allowing the administrator to manage the Oracle enterprise using the same familiar front end with each application. This interface can be used by both beginning and advanced users, and also can serve as a training tool when used with the Oracle Enterprise Manager wizards and quick tours.

## Common Services

Oracle Enterprise Manager is made up of common services that help you manage the Oracle environment.

These common services include:

- [Target Discovery](#)
- [Job System](#)
- [Event System](#)
- [Notification System and Filtering](#)
- [Paging/E-mail Blackouts](#)
- [Security](#)
- [Comprehensive Reporting](#)
- [Font Control](#)

### Target Discovery

When you launch the Console with a Management Server connection, you have access to a Discovery Wizard. This wizard is used to identify nodes in your environment that you want to manage with Enterprise Manager. In order for a node to be automatically discovered, an Intelligent Agent must be running on the node. When discovered, the node and any supported targets installed on that node are added to the Console Navigator tree and stored in the repository.

### Job System

The Job System enables the automation of standard and repetitive administrative tasks. With the Job System, you can create and manage jobs, schedule their execution, and view and share information about defined jobs with other administrators connected to the repository.

In-place modification also allows administrators to add and/or remove targets for submitted jobs, regardless of the version of the Intelligent Agent.

Upon job completion or failure, the system can be configured to automatically notify you and/or other administrators through Console alert, e-mail, or page, depending on the access levels and preferred credentials.

Because a job is an administrative entity (object) within the Oracle Enterprise Manager framework, an owner is always specified for the job as well as basic

security parameters, which prevent or allow viewing and modifications by other administrators.

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**Note:** For more information about the Job System, see [Chapter 3, "Job and Event Systems"](#).

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## Event System

The Event System allows the Oracle environment to be monitored for operational occurrences and borderline conditions such as loss of service, shortage of storage, and resource problems such as high CPU usage.

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**Note:** Only up/down events are shipped with base Oracle Enterprise Manager; all other more advanced events are bundled with the separately licensable packs.

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These critical occurrences, called “events”, are each made up of one or more “tests” which an Intelligent Agent makes towards a managed target when an event is registered against it. When you register an event through the Console, you define the event condition by selecting one or more tests.

You can also dynamically change parameters of a registered event by selecting a registered event, adding and/or removing targets, changing some attributes, and then applying the changes to all the targets of that event. For 9i, you can perform a full modification. For pre-9i, you can perform limited modification. For information on Intelligent Agent restrictions, refer to the *Oracle Enterprise Manager Administrator’s Guide*.

In Oracle9i, you can also specify custom operating system scripts as new event tests that will be included as part of the Enterprise Manager events system. User-Defined Events expands the breadth and flexibility of the events system by allowing you to write and incorporate custom scripts that are particular to your environment. Also, you can tie in your existing monitoring scripts into the events system, and thus take advantage of the services provided by the Enterprise Manager framework: paging/e-mail notifications for events that go in alarm, and collaborative administration of targets.

In the Event system, you have the flexibility to schedule the evaluation of an event at specified intervals, on specified day of the week, or on a specified day of the month. It is a useful feature since you can schedule resource intensive jobs during off-peak periods.

When an event occurs and is detected by an Intelligent Agent, specified administrators are notified by Console alert, e-mail, or page, depending on their access levels and preferred credentials. You can also set up a "fixit" job to run automatically in response to an event.

As in the Job System, you can share event information with other administrators connected to the repository. Events are also objects within the Oracle Enterprise Manager framework and are assigned owners and security parameters.

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**Note:** For more information about the Event System, see [Chapter 3, "Job and Event Systems"](#).

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### **Notification System and Filtering**

Administrators can be notified of the status of jobs and events by Console alert, e-mail, or page. When scheduling a job or registering an event, you set up notification procedures and choose which administrators to have notified of job completion or failure or event occurrence. Notification filters allow each administrator to specify when to send an email notification as opposed to a page notification as a result of a job or event status change.

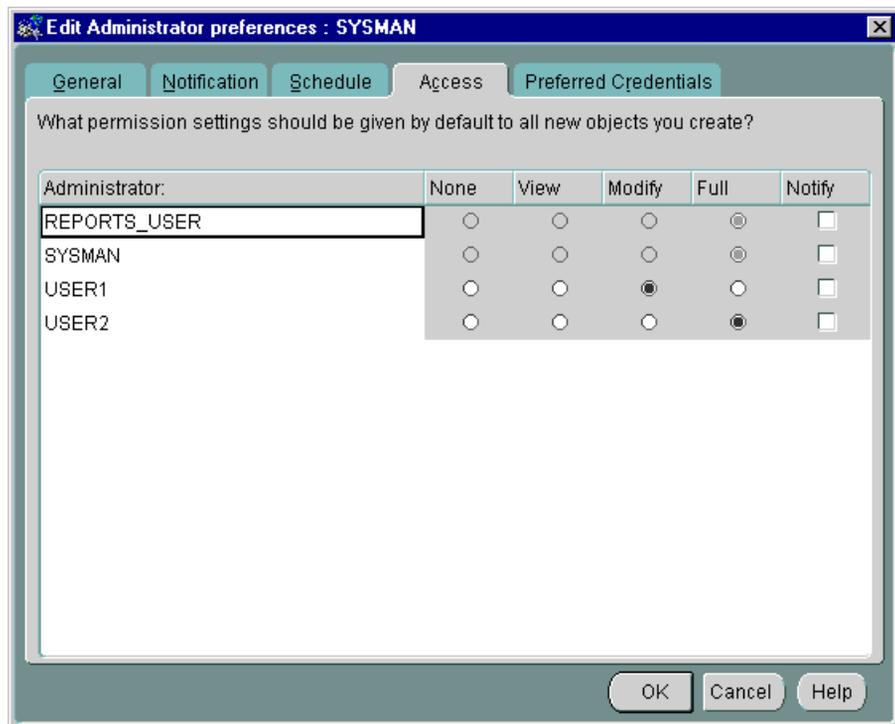
### **Paging/E-mail Blackouts**

Oracle Enterprise Manager has a paging and e-mail blackout feature, which prevents administrators from being flooded with e-mails and pages if a managed target is brought down. For example, if a target is brought down on a regular basis for scheduled maintenance, you can specify paging and e-mail "blackouts" for the targets during those periods. During a specified blackout, enhanced notification (paging/e-mail) is deactivated while the target is down. You also have the options to start and stop blackout periods and show a list of existing blackout periods. Blackout periods can be set indefinitely until stopped, or you can specify a duration (days:hours:minutes) for a blackout period.

## Security

Security parameters in Oracle Enterprise Manager are defined for targets, objects, and administrators. All administrator accounts are defined by a Super Administrator who creates and defines the access levels of all Enterprise Manager administrators. A Super Administrator can access any object and control its security parameters, including objects owned by other administrators. Security parameters are set up in the Preferences dialog box, shown in [Figure 1-7, "Preferences Dialog Box"](#).

**Figure 1-7** Preferences Dialog Box



Oracle Enterprise Manager's restricted access to target discovery provides better security of managed systems by allowing only Super Administrators to discover, refresh, and remove targets from the Enterprise Manager Console. This functionality prevents novice or new administrators of a team from adding or deleting targets for which they are not responsible.

The Console improves the security of managed environments by allowing Administrators who are actually responsible for specific targets to view and manipulate only those targets. This feature allows Super Administrators to control and customize the list of managed targets displayed in the Consoles of other, regular Administrators using Enterprise Manager. In addition, restricting certain targets from Administrators' views improves Administrators' ability to manage the targets to which they do have access. For example, rather than viewing all 300 discovered databases in his Console Navigator tree, Administrator Fred's Super Administrator can customize Fred's view such that only the 20 databases he is responsible for appear.

### **Comprehensive Reporting**

Enterprise Manager provides comprehensive reporting so that administrators can quickly access information about the status of all monitored systems in their enterprise. The reporting functionality is fully integrated with the Enterprise Manager Job system, allowing reports to be generated automatically at specific times or at regular intervals.

This functionality, which is central to all Enterprise Manager applications, allows Administrators to create user-defined reports to satisfy unique business needs, publish reports to a central web site for general viewing, and to specify whether published reports should be generated on demand for constant access to up-to-date information or on a specified schedule to run time-consuming and/or CPU-intensive reports during non-peak hours.

A rich set of predefined reports are supplied with Enterprise Manager out of the box such as:

- **Instance Configuration:** Displays database instance information, options, system global area information, and initialization parameters.
- **Schema:** Displays available schema objects, disk space used by tables, and invalid database objects. (non SYS and SYSTEM objects)
- **Storage Status:** Displays current database storage information such as the number of objects nearing the maximum number of extents, non-extendable tables, rollback segment usage, rollback statistics, and I/O activity against individual files within a tablespace.
- **Topology:** Displays a topological overview of all monitored targets and services. You can select any target or service of interest from this page to generate target-specific reports.

- **Event Reports:** Displays information on outstanding alerts, information on alerts for a target that has moved to the event history, and lists all registered events for a target.
- **Service Level Reports:** Displays combined availability of the services, availability information for selected services, downtime details for selected services, sequential service availability state changes, and captured low-level service availability data.

For more information, see the Oracle Enterprise Manager Administrator's Guide and the online help.

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**Note:** More reports may be available depending on the Enterprise Manager options you have installed.

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### **Font Control**

You can control font size and style of the Console and applications. If the default fonts are too large or small for your display, you can change them from the Console. Any application which is then launched from the Console will display the updated font size.



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## The Console

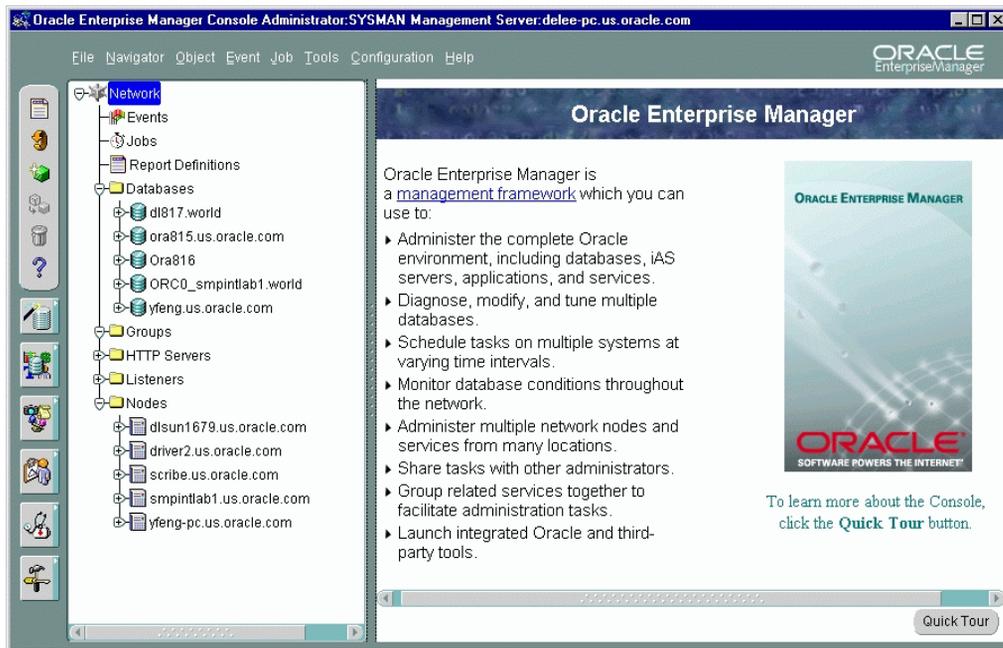
The Console is a client interface in the first tier of the Oracle Enterprise Manager framework and is used to centrally manage and administer multiple databases and other targets and your entire Oracle environment. This chapter describes the basic components of the Console and how they are organized, and is divided into the following sections:

- [Console Graphical User Interface](#)
- [Console Views](#)

## Console Graphical User Interface

The Oracle Enterprise Manager Console uses a master/detail view to provide an integrated, consistent, and efficient way of managing your enterprise. When an object in the Navigator (master) is selected, the appropriate details are displayed on the right-hand side of the Console (the detail pane).

**Figure 2–1 Oracle Enterprise Manager Console**



The Console toolbar, located along the upper-left side of the Console, allows you to access basic functions for objects in the Navigator and the Console in general.

The Console tool drawers, located below the toolbar, provides quick and easy access to a wide variety of integrated applications.

## Console Views

This section describes each of the views which you can access through the Console.

Topic	See Page
<a href="#">Navigator</a>	2-3
<a href="#">Groups</a>	2-3
<a href="#">Jobs</a>	2-5
<a href="#">Events</a>	2-8

### Navigator

The Navigator provides:

- Identification of the targets on nodes in the managed environment.
- Relationships among the objects; by expanding an object, you can display any objects it contains.
- Methods for accessing and launching administration tools on objects.
- A source of targets and nodes with which to populate groups.
- A source of database objects upon which to access database administration functionality and integrated applications.
- A source of objects for copying with a simple drag and drop action.

Because the Enterprise Manager Console uses a master/detail-type user interface, objects selected in the "master" Navigator tree control what is displayed in the "detail" pane to the right. This simple, yet effective interaction paradigm is consistent for all Enterprise Manager applications.

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**Note:** For more information on the Navigator, see the *Oracle Enterprise Manager Administrator's Guide*.

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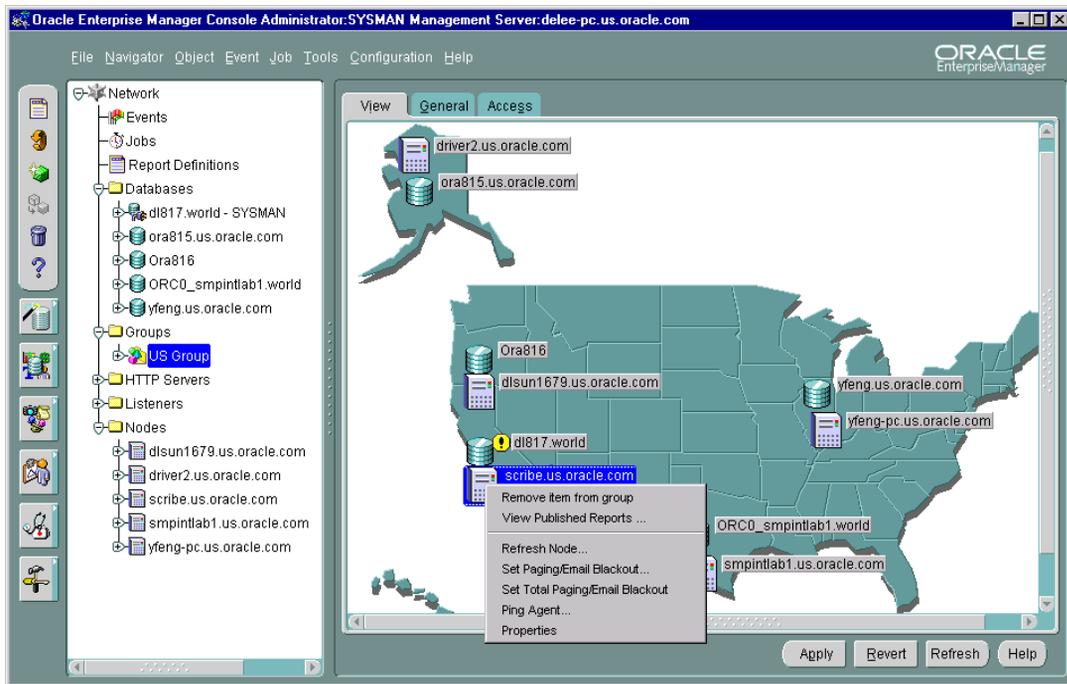
### Groups

Groups allows you organize the objects you manage into logical categories for more efficient management and administration. You can organize groups based on any criteria you determine, such as function, department, geographical location, or

number of administrators. You can then place the groups on a map or graphical view of the network making it easy to locate, diagnose, and act on encountered conditions. The system also lets you schedule jobs against groups and to register events to monitor a group's status. The Groups system is especially useful for managing environments with many databases and targets.

Probably the most important aspect of the Enterprise Manager Group system is that it provides an efficient way to monitor the alerts reported by the event system. If the object or group has events registered against it, a flag showing the state of the event condition is displayed. If an object in a group has more than one event registered against it, the flag will represent the most severe alert condition.

**Figure 2–2 Groups**



You can create, modify, and remove groups to further organize your network view. There are three tabbed pages in a selected Group's right-side detail view. The View page displays the targets in the group on an optional background image. The General page allows you to add targets to the group, to specify a background image, and to select

large or small group icons. The Access page lets you determine whether other administrators have permissions for the group. It also contains default settings defined with administrator Preferences. For more information on the tabbed pages, refer to the *Oracle Enterprise Manager Administrator's Guide*.

A group is represented in the Navigator by an icon and a name. You can double-click on the group's icon to expand the group, and view and update the group's members and sub-groups. Groups can be populated by dragging and dropping databases, groups, nodes, listeners or any other discovered targets in the Navigator into the appropriate group in the Navigator Groups folder.

The Group View gives you a graphical view of the objects in the group and their individual status. You can also add background maps to Group to better visualize locations of particular objects. For example, if you are responsible for several systems in Europe, you could use a background map of Europe and place each system icon in the country where the system resides. If an event occurs on any of the systems, a flag appears on the system's icon in Group.

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**Note:** For more information about Groups, see the *Oracle Enterprise Manager Administrator's Guide*.

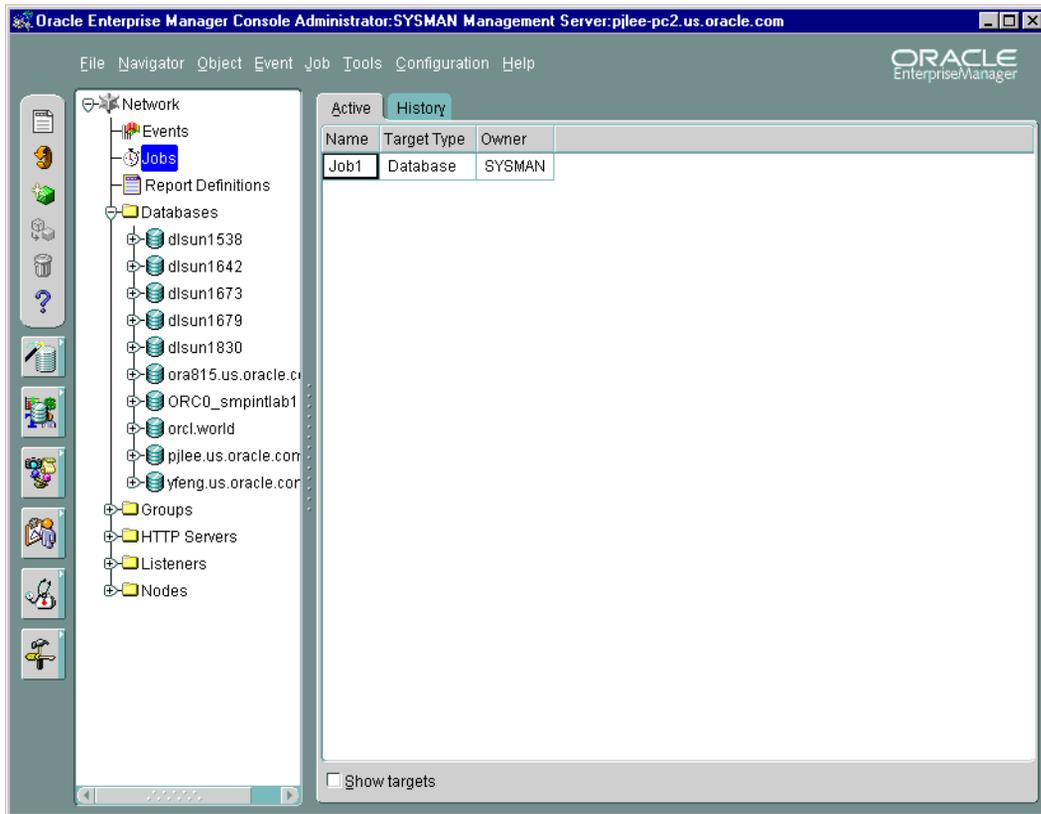
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## Jobs

Jobs is the user interface to the Job System, which enables you to automate repetitive administrative tasks, providing the kind of "lights out" management which is vital in a large, distributed environment.

**Figure 2–3 Jobs**



Jobs contains two tabbed pages, described in the following table:

Page	Function
Active	The Active page contains a summary of active jobs on the network. These are jobs that have been submitted to the job system and have not yet been completed. A job listed in the Active Jobs page is scheduled or running.
History	The History page contains a list of previous job activities, such as multiple runs of a job. These are jobs that have been submitted to an Intelligent Agent and have run successfully or unsuccessfully.

The Active and History pages automatically refresh when toggling between tabs.

A job is made up of one or more tasks. You select these tasks when you schedule a job to be run on the databases or other targets that you are administering. Jobs can be executed immediately, set for future execution, or scheduled to be performed at regular intervals.

Administrators can use any of the pre-defined job tasks offered with the base system, or define their own tasks using SQL or OS commands. Any tasks can be grouped together to create a single job.

Tasks within a job can be set to be executed based on the success or failure of previous tasks in the job. For example, if an administrator wants users to be notified before a system shuts down, but the notification fails, the system-shutdown task in the job can be halted to avoid unnecessary negative impact on the uninformed users. Depending on the success or failure of a previous task in a job, an administrator can choose to have certain tasks in the job performed or have the entire job halt midway.

Because jobs are executed by the nodes' Intelligent Agents, jobs can be scheduled on multiple targets and groups of targets at once. Intelligent Agents function independently of the Console, management applications, Oracle Management Server, and the targets residing on the nodes.

Once a job has been successfully performed, or if a job failure occurs, designated administrators can be notified by Console alert, page, or e-mail, depending on the access level and preferences. Jobs that have been scheduled and have not yet been completed can be viewed. When selecting a job from the Active pane, the only job attribute you can modify is the job permission. Jobs that have been successfully or unsuccessfully completed are stored in the Job History page, which keeps a historical record of jobs scheduled in your network. Jobs can also be saved in the Job Library to be scheduled at a future time.

An administrator sets access levels on jobs so that others administrators can view the job or alter it. He can also decide who is to be notified if certain conditions occur.

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**Note:** For more information on the Job System, see [Chapter 3, "Job and Event Systems"](#). For detailed information on Jobs, see the *Oracle Enterprise Manager Administrator's Guide*.

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## Events

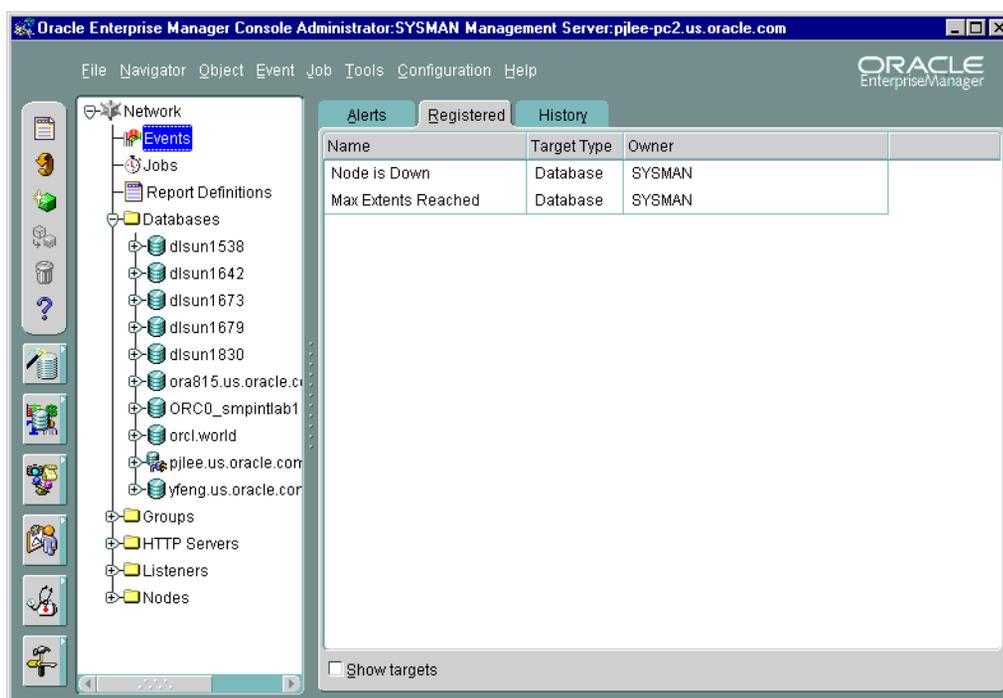
Events is the interface to the Event System and enables you to monitor your network for problem occurrences. To register an event, an administrator specifies one or more tests in Events and then registers the event against one or more managed targets or groups of targets. When the Intelligent Agent(s) detects an event occurrence by performing tests on the target(s), it notifies the Oracle Management Server, which then notifies the appropriate administrator Console based on the access levels that are set for the event.

Like Jobs, Events have assigned access levels such as which administrators can view or modify the event and who is to be notified when the event occurs. After registering an event, Events can be used to modify, cancel, or check the status of the event and see information about past events.

Events contains the following tabbed pages:

<b>Page</b>	<b>Function</b>
Alerts	This page displays events that have occurred and have not yet been cleared by an administrator or have not yet been manually moved to the History page.
Registered	This page displays events that have been registered and for which Intelligent Agents are currently testing targets.
History	This page displays events that have cleared or have been manually moved from the Alerts page.

Figure 2–4 Events



The Alerts, Register, and History pages automatically refresh when toggling between tabs.

When you select an event listed in the History or Alerts page, you can select Edit Event Occurrence item from the Event menu to access the Event Viewer window. It appears containing the following pages:

Page	Function
General	This page displays properties of events and the tests that comprise them.
Log	This page is for viewing and adding comments about events. Any administrator with Modify or Full permissions can add a comment to this page.
Notification Details	This page contains information about all the notifications that were sent when an event occurred.

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**Note:** For more information on the Event System, see [Chapter 3, "Job and Event Systems"](#).

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## Job and Event Systems

This chapter describes the Oracle Enterprise Manager Job System and Event System.

The Job System enables the automation of standard and repetitive tasks. With the Job system, you can create and manage jobs, and view information about jobs. Jobs can be scheduled against a single target (database or other service) or multiple targets in a network, provided that the node has an Intelligent Agent running on it. If the node or its Intelligent Agent is down, the job request is queued, and once the node can be contacted, the queued job is submitted to the Intelligent Agent.

The Event System monitors your network environment for specific event conditions, such as loss of service or lack of storage. You select tests to run on managed targets (databases, nodes, listeners, or other targets), then set the threshold parameters for which you want to be notified. You can share events with other administrators, in addition to being able to notify specific administrators when an event condition occurs. For some event tests, you can also choose to execute a *fixit* job that automatically corrects the problem.

This chapter describes the Job System and the Event System:

Topic	See Page
<a href="#">Job System</a>	3-2
<a href="#">Event System</a>	3-7

## Job System

The Job System allows you to schedule and manage job tasks throughout the network, even remotely. Any job that an administrator can perform from the operating system command or with SQL can be sent from the Job System and can be performed on any remote system.

With the Job System, you can perform asynchronous tasks on multiple databases and other targets without having to maintain connections to all those targets. In addition, jobs can run simultaneously on different nodes in the system.

The three tiers of Oracle Enterprise Manager, which are the Console, the Oracle Management Server, and Intelligent Agents residing on managed nodes, work in unison to schedule and execute the job.

From job scheduling to job completion, the following steps occur:

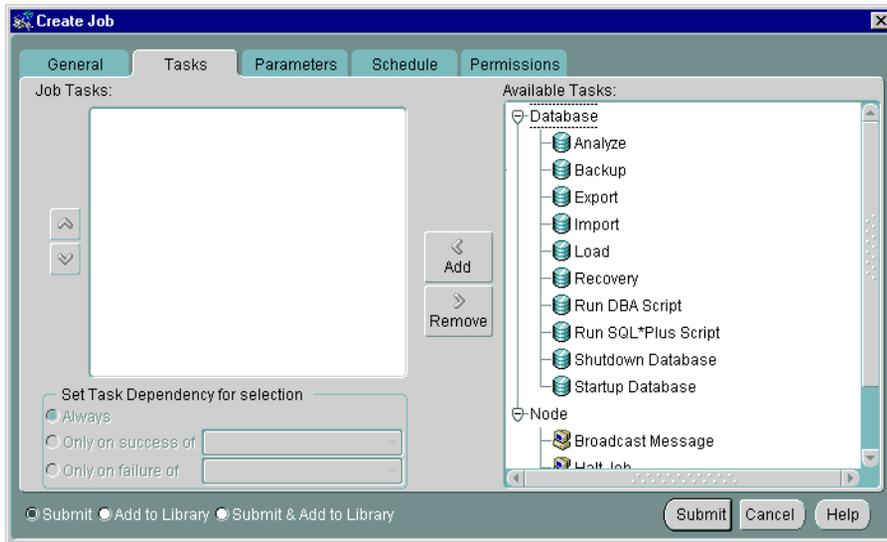
1. From the Console Jobs pane, a job is scheduled against one or more targets of the same type that is made up of one or more tasks.
2. The Oracle Management Server stores the information and checks if the target node is up or down. If the node or its Intelligent Agent is down, the Oracle Management Server queues the job.
3. Once the node can be contacted, the Oracle Management Server sends the job information to the Intelligent Agent residing on the managed node. Jobs can be sent to multiple nodes concurrently.
4. The Intelligent Agent executes the job on schedule.
5. The Intelligent Agent returns any related job messages back to the Oracle Management Server for display in the appropriate consoles based on administrator access levels. If the Intelligent Agent cannot get in touch with the Oracle Management Server, it queues the messages.

This section discusses the benefits of the Job System.

- [Pre-defined System Tasks](#)
- [Job Scheduling](#)
- [Lights-out Management](#)
- [Cross-Platform Job Scripts](#)
- [Job Progress](#)
- [Job Notification and Filtering](#)
- [Communication with the Intelligent Agent](#)
- [Complex Jobs](#)
- [Scalability](#)
- [Security and Jobs](#)

## **Pre-defined System Tasks**

When scheduling a job, you construct it with one or more tasks. The Job System includes a variety of pre-defined tasks from which to select, such as starting up and shutting down Oracle databases and Listeners; running SQL and DBA commands; and running operating system commands or shell scripts.

**Figure 3–1 Selecting Tasks When Creating a Job**

## Job Scheduling

The Job System is simple to use because the task of scheduling and managing jobs is centralized in the Enterprise Manager Console. The administrator only needs to submit a job once, regardless of the number of targets on which the job will run.

When you submit a job, the Management Server sends the job information to the appropriate Intelligent Agents on the targets you selected. The Intelligent Agents are responsible for executing the job on the specified schedule and returning job status messages to the Console through the Management Server. Once submitted, jobs will run regardless of whether you are logged in or not.

When a job is submitted to one or more remote sites, it is possible that any one of those sites may be down. If a site or its Intelligent Agent is down, the Management Server queues any job requests that could not be delivered to the site. Once the site can be contacted, the Management Server submits the queued job to the Intelligent Agent, which in turn executes the job on the node.

If a job has been scheduled with an Intelligent Agent, and the connection between the Intelligent Agent and the Oracle Management Server goes down, the Intelligent Agent still executes the job on schedule. When the job is completed, and if the Oracle Management Server is back up, the Intelligent Agent notifies the Oracle

Management Server, which then displays the status of the job on the Console. If the Oracle Management Server cannot be contacted, the Intelligent Agent queues the status message until the server is available.

To schedule a job, you do not have to connect directly to the node on which the job will be run. You only need to submit the job from the Console and specify the targets on which it should run. The targets can include databases, nodes, listeners, web servers, and groups of such targets.

## Lights-out Management

The Job System allows you to automate repetitive and periodic tasks and problem correction. If a job needs to be run periodically, the Intelligent Agents reschedule the job without the need for additional intervention. Messages about a job's status are reported back to the Console.

The Job System can be used with the Event System to automate problem correction. When you register an event, you have the option of specifying a fixit job, which will automatically be run in response to an event to correct the problem.

## Cross-Platform Job Scripts

Jobs are implemented as Tool Command Language (Tcl) scripts. Tcl is a platform-independent scripting language used to write both job and event scripts. For example, a job can be run against a UNIX and an NT machine at the same time, without changing a single byte of information in the job definition.

## Job Progress

You can monitor the progress of a job by double-clicking on the job in the Active Jobs page of the Jobs pane. When you click on a job in the list, the Job Properties dialog box appears providing information about the job's activities and progress.

After a job is run, a list of tasks comprising the job and the time that each task completed or failed appears in the Progress tab of the Job Properties dialog box.

## Job Notification and Filtering

Administrators can be notified in various ways of the status of jobs, such as by electronic mail or page, depending on the administrator's preferences. With the Job System, you can set up notification procedures and choose which administrators to have notified of job completion or failure. You can also filter e-mail and pages sent to administrators according to a job's status.

## Communication with the Intelligent Agent

Although a job is submitted from the Console, the job scripts themselves reside on the Intelligent Agents residing on the managed nodes. Because the manner in which a job is implemented may depend on the platform, each Intelligent Agent keeps its own set of job scripts.

## Complex Jobs

A complex job is a job comprised of more than one task. Tasks in a job can be set up in any order, and can be configured to depend on the success or failure of other tasks in the job. For instance, a task in a job can be configured to halt if the previous task in the job fails.

## Scalability

The Job System allows you to run jobs efficiently on multiple remote nodes. When you submit a job to run on a remote node, all the information needed to run the job is transferred to the Intelligent Agent servicing the node.

When the job is run, it is run by the Intelligent Agent on that node, minimizing network traffic between the remote node, the Oracle Management Server, and the Console. The only communication between the Intelligent Agent and the Oracle Management Server is the initial transmission of the job and any subsequent messages about job status.

Because jobs are run independently by Intelligent Agents, you can submit any number of jobs on multiple nodes without affecting the Console. For example, you can submit several jobs and then immediately administer something else without waiting for the Intelligent Agents to schedule the jobs.

Additionally, because there is an Intelligent Agent residing on each managed node, jobs can run on multiple nodes simultaneously. For example, you can submit a job, such as running a report, on multiple databases worldwide. The job is then run independently by each Intelligent Agent servicing each database. In this way, all jobs are performed by their respective Intelligent Agents at the same time.

## Security and Jobs

When jobs are run on a managed target, your preferred credentials for that target (stored in the repository) are used for accessing that target; therefore, you can perform any task from the Console that you could perform if you were logged directly into the target using those credentials.

## Event System

The Event system allows you to efficiently monitor a large system. Using the Event system and Intelligent Agents, you can effectively monitor any number of databases, nodes, or other targets 24 hours a day, and be alerted when a problem or specific condition is detected. You can also pinpoint only the targets you wish to monitor. The Event system can be extended to include other third-party applications that detect events independent of the Intelligent Agents.

Events are simply a group of event tests that you want to run on your managed systems. Oracle Enterprise Manager includes a variety of predefined event tests that you can use when creating events. The event tests are grouped by target type, for instance:

- Database
- Listener
- HTTP Servers
- Concurrent Manager
- Node

You can create events using the predefined event tests that have been installed with Oracle Enterprise Manager. The events are created with information entered in the Event property sheet. You determine parameters such as the target that is monitored, the specific tests to perform, the frequency that the event test is executed, and whether other administrators can share the events. Some event tests have parameters with threshold values that you can customize for your system.

In the Event system, event settings are stored based on the administrator registering the event. This allows administrators of large systems to customize their event systems to their preferences and tasks. Administrators receive messages for events for which they have been selected to receive notifications by other administrators.

The Event system includes the following processes:

1. Creating an event by completing the Event property sheet pages. This involves:
  - a. Determining the target and frequency of the event.
  - b. Selecting the event tests that you want to run.
  - c. Determining the parameters for the event tests.
  - d. Specifying a fixit job to be run when an event triggers. (Optional)
  - e. Assigning access levels to allow other administrators to share the event.
2. Saving and modifying an event.
3. Registering, or submitting, an event to a target.
4. Interpreting and correcting an event occurrence.
  - a. Logging information pertinent to your interpretation of the event to the Event log.
  - b. Assigning the Event to a different administrator if appropriate.

The Event System contains the following features:

Topic	See Page
<a href="#">Proactive Event Management</a>	3-8
<a href="#">Scalability</a>	3-9
<a href="#">Event Notification and Filtering</a>	3-9
<a href="#">Event Log</a>	3-11

## Proactive Event Management

When registering an event, in some cases you can create a fixit job that responds to specific event conditions. Refer to the Oracle Enterprise Manager Administrator's Guide for more information about associating fixit jobs with events. These situations are noted in the online help for Oracle events.

Events and fixit jobs used together automate problem detection and correction. The proactive management of an event ensures that a problem is corrected before it noticeably impacts end-users.

## Scalability

The Event System allows administrators to monitor multiple databases and systems. For example, it would be difficult for one person to connect to 100 databases individually every day to check on each database's performance. However, using the Event System, one person can effectively have the databases monitored 24 hours a day with minimal performance impact on the Console, and he can be alerted if a problem is detected. Because the monitoring is performed by Intelligent Agents independently of the Console, multiple targets can be monitored without slowing down other tasks.

The Event System also gives you the option of focusing on select systems and events. Rather than monitoring all targets or a large number of targets at once, you can choose to focus on select targets.

## Event Notification and Filtering

Events can consist of multiple event tests.

### Event Notification

If any one of these tests identify a specified condition, the event is triggered and a notification is sent to the Console. If enhanced notification is configured for your system, paging and/or e-mail notifications are sent.

Event notification occurs as follows:

- A notification is sent when the threshold of an event test exceeds the level specified by parameter values. If the event does not have parameters, a notification is sent when the event occurs.
- If the event test condition remains above the threshold specified, a new notification is not sent. If the condition does not exist when the next test is run, the event clears. Notifications can also be sent (e-mail/paging) when an event clears based on filtering.
- If an event test condition changes from warning to critical or critical to warning, a new notification is sent to the Event pane or via e-mail or page.
- If you acknowledge and move an alert to history, a new notification is not sent to the Alerts page unless a moved warning changes to a critical alert.

### Extended Event Status

To determine the general severity for the event, the following rules apply in succession:

1. If the event includes an UpDown event test, and this test triggers, then the general status of the Event is "Unknown" (gray flag)
2. Otherwise, if the event includes a test that reaches an alert state, then the general status of the Event is "Critical" (red flag)
3. Otherwise, if the event includes a test that reaches a warning state, then the general status of the Event is "Warning" (yellow flag)
4. Otherwise, if the event includes a test that is in error, then the general status of the Event is "Error" (yellow hexagon)
5. Otherwise, all tests should be clear, so the general status of the event is "Clear"

You can still see the individual status of each event test in the Event Viewer.

### Event Colors and Icons

All events return values and some events produce output messages. The events return different icons depending on the severity of the event. These severity levels are determined by parameter thresholds you set for the event tests during event creation. The colors are displayed on the event severity icon that is located:

- Next to the event name listed in the Alerts page of the Events detail view.
- On the object in the Group detail view if the target is part of a group.

The colors of the event severity icons are:

- Error State (yellow hexagon with an exclamation point). An error state indicates there is a problem with the evaluation of the event condition, as opposed to a threshold being met.
- Event cleared (green flag)
- Warning (yellow flag)
- Critical (red flag)
- Unknown (gray flag). A gray flag represents an "unknown" state where it is not possible for Enterprise Manager to ascertain the event status because the node is unreachable or the Intelligent Agent is not working.

## Event Log

With the Event Log page, located in the Event Viewer page, administrators can share information with other administrators about events and how they are being managed. The Event Log page allows comments to be entered on a selected event by administrators with modify access levels for the event.

The information displayed in the Event Log page includes any comments that have been entered for the event, the names of the administrators that entered the comments, and the time and date each comment was entered. The Event System itself also enters data in the Event Log page.

## Unsolicited Error Detection

Unsolicited event tests are event tests that have been initiated outside the Enterprise Manager Event system. An event is considered unsolicited if it is raised by a process other than the Oracle Intelligent Agent, but is running on the same node as the Intelligent Agent. These events are usually provided by third-party software. Creating an unsolicited event allows you to integrate and monitor third-party events.

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**Note:** Fixit jobs can be specified for unsolicited events only if you are using an Oracle9i Intelligent Agent

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## Event Handler

Specific enterprise IT demands may require that responses to certain event occurrences be performed and/or tracked automatically by Enterprise Manager. For example, if the database updown event triggers, administrators may want Enterprise Manager to automatically open an in-house trouble-ticket so that the appropriate IT staff can respond to this event occurrence. The ability to provide customized automatic responses to event occurrences can be achieved by using the Event Handler.

The Event Handler is an integral part of the Oracle Management Server. It listens for event notifications and responds to these events in ways specified by the administrator.

For detailed information about the Event Handler, refer to the Oracle Enterprise Manager Administrator's Guide.



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## Database Administration

Database administration functionality and wizards are integrated into Oracle Enterprise Manager. You can access the database administration functionality through the Console. The Console can either be launched with a connection to an Oracle Management Server, which utilizes Oracle Enterprise Manager's three-tier framework, or launched standalone, which connects directly to a database.

The databases folder contains all databases that are accessible to you. You can expand a specific database to administer any of the following from a unified tree view without launching separate tools:

- Instances, including startup, shutdown, and initialization.
- Schemas, including tables, indexes, and all other schema objects.
- Security, including user accounts, roles, and privileges.
- Storage, including tablespaces, datafiles, and rollback segments.
- Replication, including multimaster and materialized view replication.
- JVM, including namespaces, CORBA and EJB components, and their permissions.
- OLAP, including tools for developing and deploying internet-based business intelligence applications and services that support complex statistical, mathematical, and financial calculations within a multidimensional data model.
- Workspace, including a virtual environment that one or more users can share to make versioned changes to data.
- Other database features, depending on the products installed with your database.

This integrated access to database administration functionality simplifies switching between DBA tasks and provides an accurate view of database configuration status.

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The Backup and Recovery wizards are also available to help you back up or restore and recover various objects such as the database, datafiles, and tablespaces. The Backup wizard also allows you to make an image copy of the datafiles and the current controlfile.

## Common Features of DBA Management Functionality

This section discusses the common features shared by the database administration functionality in Enterprise Manager.

### Tree Views

The Console displays a tree view of connected databases, which can be expanded to show subordinate objects.

### General Information about Databases

When you select a database node in the tree, a non-editable General page appears on the right where you can view information about the host, port, SID, TNS descriptors, and listener.

### Comprehensive Overview Pages

When you select one of the database management functionality nodes such as Instance, Schema, and so on, comprehensive overview pages with links to related Quick Tours or functional overviews appear on the right.

### Property Sheets

When relevant, if you select an object in the tree, a property sheet appears on the right where you can view or edit database properties. Wizards also display tree views and property sheets as necessary.

### Multi-Column Lists

In most cases when you select a folder under one of the database management functionality nodes such as Schema (with the exception of Advanced Queues), Instance, and so on, a multi-column list of all the folder's objects appears on the right side of the window, providing a quick summary of information about each object in the selected folder.

### Database Version Awareness

All database administration functionality and wizards are aware of the features that are available in each database version. When you select a database in a tree view, the tool only displays objects and properties that are enabled in that database version.

## Database Reports

You can extract information from the database such as object definitions, object dependencies, database configuration, or reports, including custom SQL queries.

## Logging of Database Changes

You can now log all Data Definition Language (DDL) and Data Manipulation Language (DML) changes made by an application when connected to a database.

## Showing Object DDL

Data Definition Language (DDL) commands set up the data such as creating and altering databases and tables. You can display the Data Definition DDL for objects.

## Show SQL

Though one of the benefits of Enterprise Manager is that DBA tasks can be performed without manually entering SQL, you do have the option of viewing the SQL code generated for you. By selecting Show SQL button, you can review this code before implementing any changes, as well as copy and paste it into your own SQL scripts if you wish.

## Show Dependencies

Database object dependencies and dependents can be viewed by right-mouse clicking an object in the tree view and choosing Show Dependencies. Dependencies show what the selected object depends on, such as the tablespace location and the owner of the selected object. Dependents rely on the selected object, such as which indexes will be dropped and which synonyms will be affected if you drop the selected object.

## Right-Mouse Commands

With database administration functionality, you can right-mouse click any folder or object in a tree list to perform administrative tasks. Right-mouse clicking an object shows all the tasks that can be performed on the object, such as connecting to or disconnecting from the database, creating users, adding or removing profiles, assigning privileges, showing dependencies, and bringing up wizards.

## DB Search Capabilities

Database Search allows you to search for any object in a database given a flexible set of criteria:

- Names of the objects that you want to find. You can enter wild card characters for the object name.
- Database that you want to search.
- Object types that you want to include in the search.
- Schemas that you want to include in the search.

The object definitions that match the search criteria are displayed in a multi-column table.

## DBA Management Functionality and Wizards

This section describes DBA Management functionality and wizards.

<b>DBA Management Functionality</b>	<b>Task</b>	<b>See Page</b>
<a href="#">Instance Management</a>	Manages instances and sessions	4-7
<a href="#">Schema Management</a>	Manages schema objects	4-13
<a href="#">Security Management</a>	Manages security parameters	4-16
<a href="#">Storage Management</a>	Manages database storage	4-19
<a href="#">Replication Management</a>	Enables an administrator to quickly set up, configure, and manage an Oracle replication environment	4-22
<a href="#">Oracle 9i JVM</a>	Enables you to manage the namespace, browse CORBA and EJB components published in the namespace, change permissions on the published components, and execute the main() method in schema-resident Java classes and view the output.	4-23
<a href="#">OLAP Services</a>	Develops and deploys internet-based business intelligence applications and provides services that support complex statistical, mathematical, and financial calculations within a multidimensional data model	4-23
<a href="#">Workspace Management</a>	Allows you to version-enable tables and create, modify, refresh, and merge workspaces	4-24
<a href="#">SQL*Plus Worksheet</a>	Executes SQL and PL/SQL commands	4-24
<a href="#">Wizards</a>	Assist with importing, exporting, loading, backing up, and recovering data, as well as analyzing and creating tables and views	4-25

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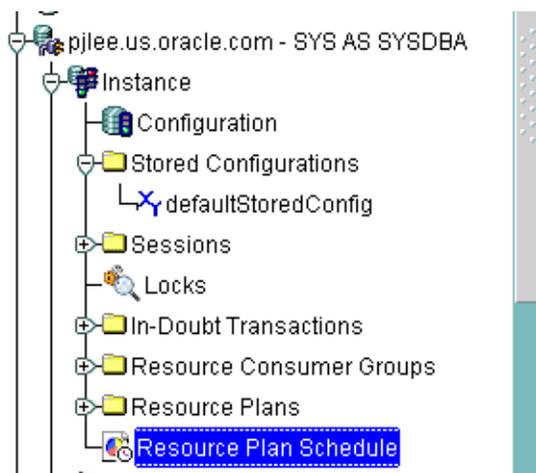
## Instance Management

Instance Management functionality helps you manage database instances and sessions in your Oracle environment. With the Instance Management functionality you can:

- Start up and shut down a database.
- View and edit the values of instance parameters.
- Manage users' sessions, and view currently running SQL and its explain plan.
- Manage in-doubt transactions.
- Monitor long-running operations.
- Control processing resources via Resource Plans.
- Manage stored configurations (only when connected to Oracle Management Server).
- Administer locks and sessions consuming the highest amounts of resources (if the Diagnostics Pack is installed).

When you expand the Instance node under the database in the tree view, the following list of objects and folders appears:

- Configuration
- Stored Configurations (only when connected to Oracle Management Server)
- Sessions
- Locks
- In-Doubt Transactions
- Resource Consumer Groups
- Resource Plans
- Resource Plan Schedule

**Figure 4–1 Instance Management**

## Configuration Operations

When you select the Configuration node under Instance, a property sheet of tabbed pages appears on the right for viewing information about the database instance and editing database properties. In this property sheet, the following information can be viewed and/or edited:

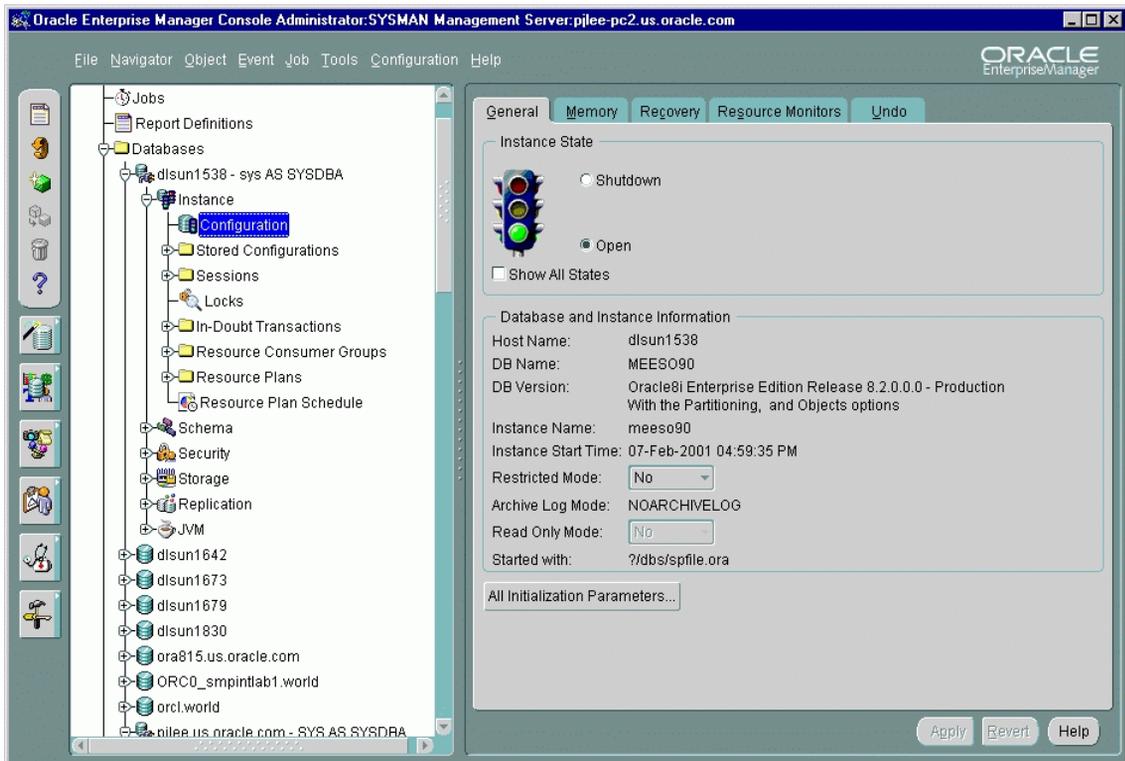
- Status of the instance, including the database version and any installed options, and allows you to start up and shut down a database.

**Note:** For a cluster database, do not accept the option to restart the database unless you are sure that no instance is running other than the current one. If some more instances are running; then, you need to arrange for their shut down using the right mouse menu of the cluster database or individual instances.

- Location of the spfile if the database had been started with an spfile
- Persistent parameters which allow you to modify, apply changes, and re-initialize the database.

**Note:** The Configured mode for a cluster database displays an additional "Instance Name" column, which helps distinguish the parameters as either database-wide or instance-specific. If this column is blank for a parameter; then, it implies that the parameter's value is available database wide (i.e. for all instances). A string in this column specifies the SID of a specific cluster database instance to which the parameter's value is applicable.

- Memory usage of the current database
- Estimated mean time to recover the database from an instance crash
- Current state of redo log archival
- Performance statistics of an active plan and of each consumer group associated with the active resource plan
- Information about the undo tablespace including the name of the current undo tablespace and the retention time.

**Figure 4–2 Instance Management Window**

## Stored Configurations

When the database is connected to the Oracle Management Server, the Stored Configurations folder appears in the tree view with which you can create multiple database start-up configurations without the need to track initialization parameter files (INIT<SID>.ORA). Stored configurations exist in the Oracle Enterprise Manager repository (they are not external files) and can be created, edited, and deleted. You can also add and delete parameters and export a configuration to a file.

**Note:** If you are connected to an Oracle9i database, you can also start up the database by using the SPFILE on the server side. The database knows the location of the SPFILE and will look for it when it starts up to find the startup parameters. An SPFILE is similar to an init.ora file but located on the server-side and maintained by the server.

## Sessions List

The Sessions List page displays the top number of sessions that you specify using database instance resources in real time. Sessions are displayed in descending order based upon the delta value of the statistic chosen as the sort statistic. You can use the information in the chart to isolate executing SQL or to kill a problem session.

## Sessions Folder

The Sessions folder lists all users connected to the discovered database. When you select a user in the list, the Sessions property sheet appears with which you can edit user properties, view information about the status of each user, view current SQL or the last run SQL for the database session, and view the database session explain plan.

## Locks

The Locks list contains information about the locks currently held by the Oracle server and outstanding requests for a lock or latch. Locks are mechanisms that prevent destructive interaction between transactions accessing the same resource--either user objects such as tables and rows or system objects not visible to users, such as shared data structures in memory and data dictionary rows. In all cases, Oracle automatically obtains necessary locks when executing SQL statements, so users need not be concerned with such details. Oracle automatically uses the lowest applicable level of restrictiveness to provide the highest degree of data concurrency yet also provide fail-safe data integrity. Oracle also allows the user to lock data manually.

Note: Background sessions holding locks are not problematic and should not be killed.

## In-Doubt Transactions

The In-Doubt Transactions folder contains information about distributed transactions that failed in the PREPARED state. You can sort the Transactions list on each of the columns by clicking on the column heading.

The In-Doubt Transactions property sheet displays information about distributed transactions in which a commit was interrupted by a system, network, or any failure resulting from external factors.

## Resource Consumer Groups

The Resource Consumer Groups folder lists sets of users who have similar resource usage requirements. When you select a resource consumer group object in the

folder, a property sheet appears in which you can view or specify properties and assign or remove users from the resource consumer group.

### **Resource Plans**

The Resource Plans folder lists objects that represent resource plans, which are ways of allocating resources among consumer groups. Resource plans contain directives that specify the resources to be given to each group and can be specified in hierarchical fashion using subplans.

The Resource Plans property sheet, which appears when you select an object representing a Resource Plan, allows you to choose available groups/subplans to include in the resource plan, select the percentage of CPU resources allocated to a group, and then activate the plan. You can also view the degree of parallelism for each consumer group.

### **Resource Plan Schedule**

The Resource Plan Schedule property sheet allows you to automate when to activate a resource plan.

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**Note:** The scheduling job is implemented using DBMS\_JOB.

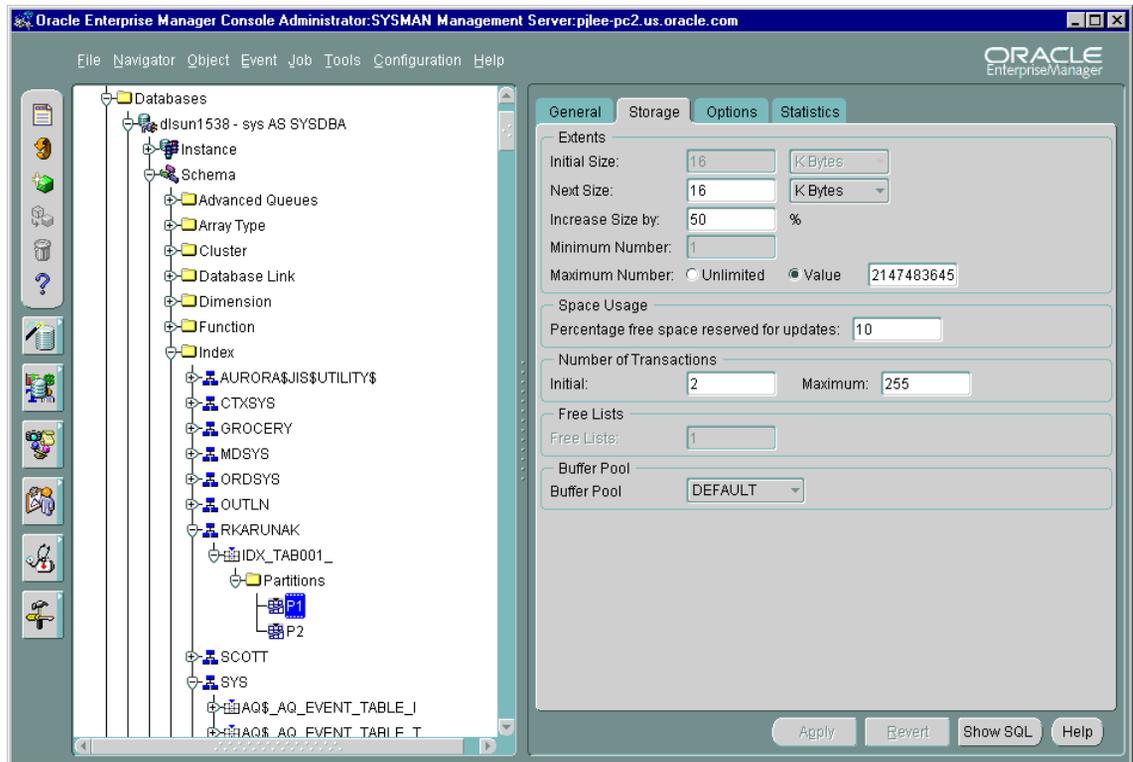
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## Schema Management

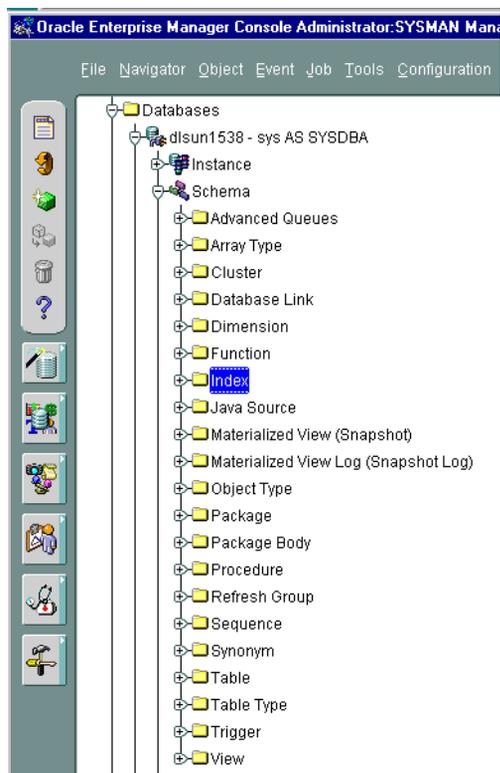
With the Schema Management functionality, you can create, alter, or drop database schema objects such as clusters, indexes, materialized views, tables, and views, as well as view dependencies of schema objects. The Schema Management functionality also supports index organized tables, partitioned tables and indexes, advanced queues, Java stored procedures, and unicode. In 9i, the unicode feature allows you to select a column of "character" type and specify the length in bytes or characters.

**Figure 4–3 Schema Management Window**



When you expand the Schema node under the database in the tree view, a list of schema objects appears.

**Figure 4–4** Schema Objects



### Tree List by Schema

Databases contain at least one named schema for each database user. Each schema object belongs to one of these named schemas, regardless of object type. Several objects belonging to the same schema can be edited by opening the View menu and selecting By Schema. The tree view then reorders all schema objects within a set of schema folders listed alphabetically by name.

### **Editing an Object**

To edit an object, you use the object's property sheet, which appears when you select the object in the tree view. You can then modify the object's parameters.

The Schema Management functionality also includes the Table Data Editor content viewer, which allows you to view, update, and delete the contents of a table and display the contents of a view or synonym by selecting a right-mouse command on a table in the tree view.

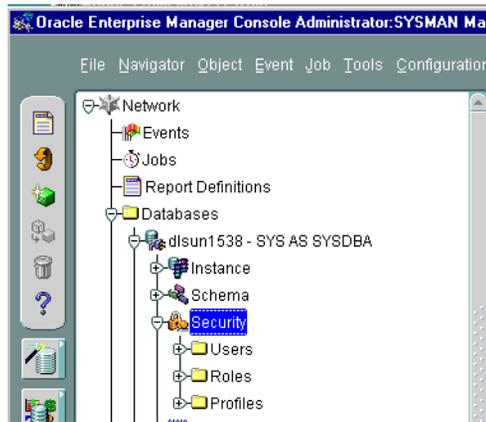
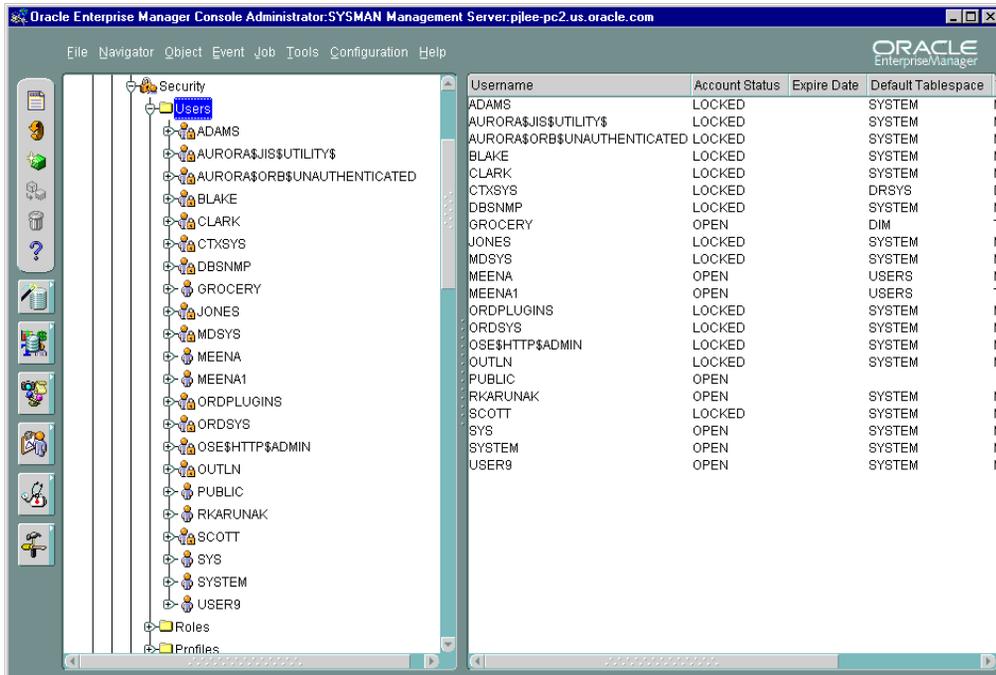
### **Creating Objects**

Schema Management allows you to create an object or a clone of an object by selecting Create or Create Like from the Object menu. When creating a clone of an object, all attributes are identical except for the name. Parameters for new objects and cloned objects are specified in property sheets which appear when you select Create and the object from the Create dialog or Create Like from the Object menu.

## Security Management

In a large network environment, security parameters for objects, administrators, and users are in constant change. With the Security Management functionality, an administrator can make these necessary changes quickly and efficiently.

When you expand the Security node under the database in the tree view, folders for users, roles, and profiles appear.

**Figure 4–5 Managing Users, Roles, and Profiles****Figure 4–6 Security Management Window**

### **User Operations**

The Security Management functionality helps you manage the database users in your network by helping you create users and clones of users, add and remove user permissions and roles, grant or revoke the switch privilege of resource consumer groups for a user or role, alter user properties, including account status and default profiles, and set up database users to act as proxy for a user. Security Management capabilities also allow you to easily see users' dependents and dependencies.

### **Role Operations**

With Security Management role operations functionality, you can modify role properties as easily as user properties. You can also create roles and clones of roles, add and remove permissions from roles, and see grantees of roles, including consumer groups.

### **Profile Operations**

A profile is a set of limits on a user's database resources. As with users and roles, you can create a profile or a clone of a profile, alter a profile's properties, and assign and remove profiles from users. You also have the ability to see profile dependents and dependencies, as well as grantees of profiles.

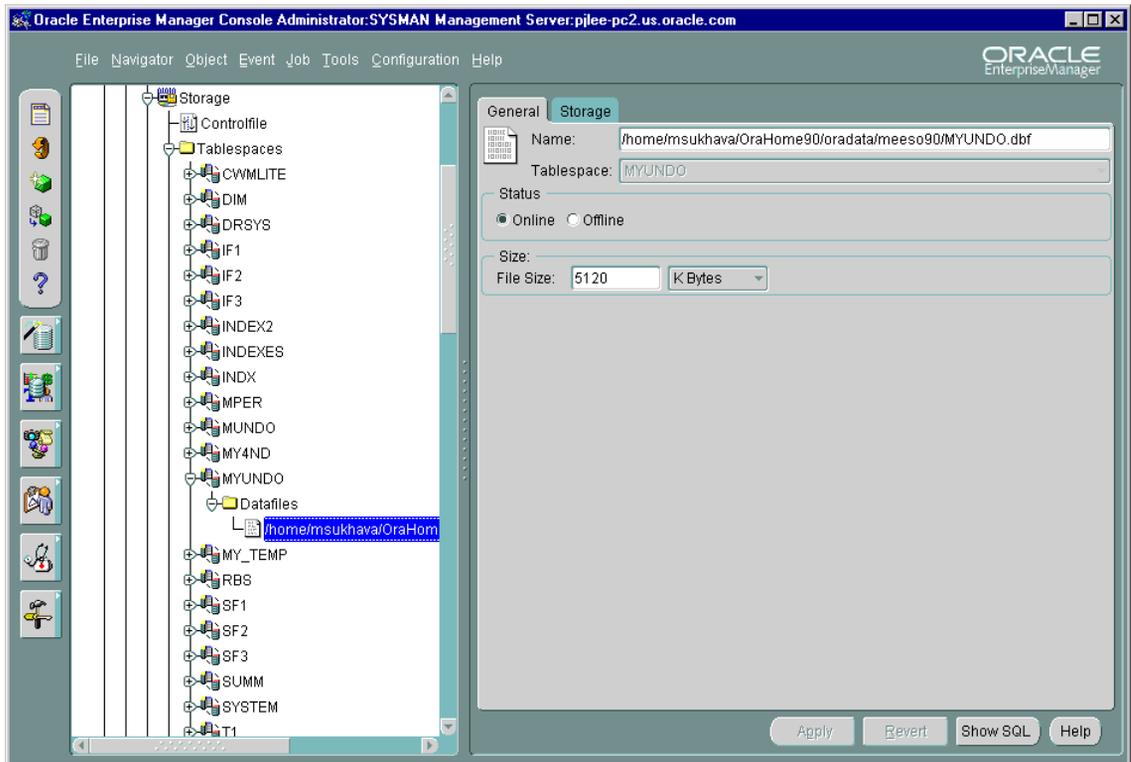
Profiles, roles, and the users to which they are assigned can easily be seen in security lists provided by Security Management. Administrators can then use property sheets to determine security parameters, simplifying the process of making changes.

The Security Management functionality also supports Oracle password management, which increases system security. Supported functionality includes: account locking, password lifetime and expiration, password history, password complexity, verifications, and export/import of passwords.

## Storage Management

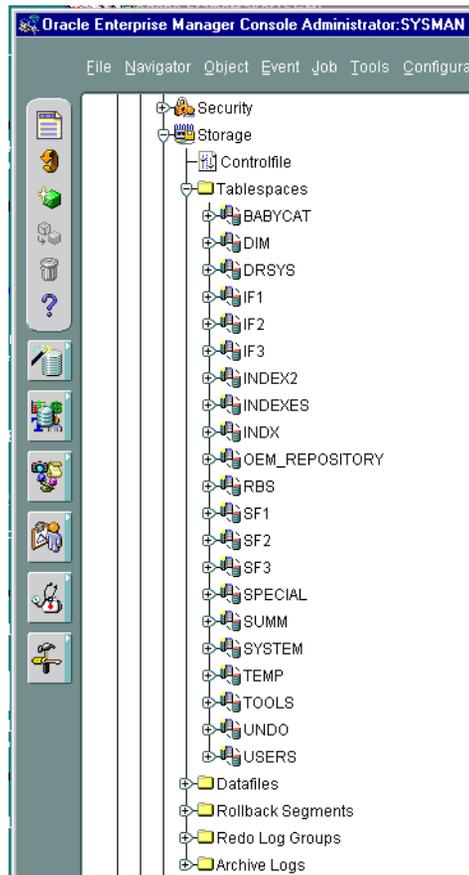
The Storage Management functionality helps you administer tablespaces (permanent, temporary, and undo), datafiles, redo logs, archive logs, and rollback segments for optimum database storage.

**Figure 4-7** Storage Management Window



When you connect to a database, the Storage Management branch of the tree view lists an icon for the Controlfile and five folders which contain all the storage objects in the selected database. The five folders include:

- Tablespaces
- Datafiles
- Rollback Segments
- Redo Log Groups
- Archive Logs

**Figure 4–8 Managing Database Storage Parameters**

The following sections describe the Storage Management operations that can be performed with the objects in each of these folders:

### Controlfile Operations

When you select the Controlfile icon, a property sheet appears where you can see the number of controlfiles created for the database and other statistics.

### **Tablespace Operations**

Using the contents of the Tablespaces folder, you can create, edit, or drop a tablespace, switch to a new default temporary tablespace, add a datafile or rollback segment, take a tablespace off- or on-line, make a tablespace read-only or writable, and set tablespace storage parameters, including multiple block sizes which is key in facilitating the transportability of tablespaces from one database type to another. You can also click the tablespace to see the used and free space of the tablespace or datafile.

In Oracle9i, you can also allocate your undo space in a single undo tablespace, instead of distributing them into a set of statically allocated rollback segments. For each Oracle instance, you will only have to allocate enough disk space for the workload in that instance in an undo tablespace.

### **Datafile Operations**

With the contents of the Datafiles folder, you can create a datafile or a clone of a datafile, edit a datafile, and take a datafile off- or on-line. You can also click the datafile to see the used and available space.

### **Rollback Segment Operations**

Using the Rollback Segments folder, you can create, alter, drop, or shrink a rollback segment as well as take one off- or on-line.

### **Redo Log Group Operations**

Using the Redo Log Groups folder, you can switch the current redo log group, trigger a checkpoint in a redo log group, create a new redo log group, and rename, remove, or add new redo log group members.

### **Archive Log Operations**

The archive log folder allows you to view the current archive logs in the database.

## **Replication Management**

Replication Management enables an administrator to quickly set up, configure, and manage an Oracle replication environment. Specifically, the Replication Management functionality provides a comprehensive wizard to prepare a database for supporting multimaster and/or snapshot replication. Once set up, additional wizards help you replicate schema objects using either multimaster or a combination of multimaster and snapshot replication. After you have configured

your replication environment, you can use Replication Management and the other database administration functionality in the Oracle Enterprise Manager Console to monitor and manage your replication environment.

## Oracle 9i JVM

Oracle 9i JVM is the name of the Java engine embedded in Oracle database. CORBA and EJB components implemented in Java can be stored and executed inside the database. Client applications access these components through a name service.

Use the Oracle Enterprise Manager Console to:

- Manage the namespace
- Browse CORBA and EJB components published in the namespace
- Change permissions on the published components
- Execute the main() method in schema-resident Java classes and view the output

## OLAP Services

Oracle OLAP Services is an Oracle9i database installation option that provides tools for developing and deploying internet-based business intelligence applications. OLAP (Online Analytical Processing) products provide services that support complex statistical, mathematical, and financial calculations within a multidimensional data model.

Oracle OLAP Services consists of the following components:

- Oracle's Java API for OLAP
- One or more OLAP services that run as child processes of a database instance
- An OLAP metadata repository in each database instance
- Tools within Oracle Enterprise Manager for creating OLAP metadata and managing OLAP services

For information on OLAP Services, see *Oracle9i OLAP Services Concepts and Administration Guide*. For information on Oracle's Java API for OLAP, see *Oracle9i OLAP Services Developer's Guide to the Oracle OLAP API*. For information on data warehousing, see *Oracle9i Data Warehousing Guide*.

## Workspace Management

Workspace Management allows you to version-enable tables and create, modify, refresh, and merge workspaces.

Oracle Workspace Manager provides a long transaction framework, in which multiple data versions are stored in the database as different workspaces. Users can create new versions of data to update, while maintaining a copy of the old data.

Versioning improves concurrent access of data in the database and allows multiple what-if analyses to be run against the data simultaneously.

For detailed information about Workspace Manager concepts and the application programming interface (API), see the *Oracle Workspace Manager User's Guide*.

## SQL\*Plus Worksheet

When you need to administer your database environment with SQL, PL/SQL, or SQL\*Plus commands, use Oracle SQL\*Plus Worksheet. With Oracle SQL\*Plus Worksheet, you can enter SQL and PL/SQL code and DBA commands dynamically and run scripts which are stored as files.

The SQL\*Plus Worksheet window consists of an Input pane (top) where commands are entered, and an Output pane (bottom) where the results of your commands appear after you click the Execute button.

SQL\*Plus Worksheet maintains a history of the commands you have entered, allowing you to edit and re-execute an earlier command without having to retype it. The last 50 command executions can be displayed by clicking the Command History button. Selections from the Command History dialog box can then be copied and inserted into the Input pane.

With SQL\*Plus Worksheet, you can have multiple copies of the worksheet open at a time, each of which is separate from the others; so work can be committed or rolled back in each worksheet independently.

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**Note:** Additional information on the database administration functionality and wizards in the Oracle Enterprise Manager can be found in the Oracle Enterprise Manager Online Help.

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## Wizards

For help with database administration tasks, Oracle Enterprise Manager offers a variety of wizards:

- **Analyze Wizard:** The Analyze wizard allows you to collect statistics about the objects and store them in the data dictionary, delete statistics about the objects from the data dictionary, validate the structure of the objects, and identify migrated and continued rows of tables or clusters.
- **Backup and Recovery Management Wizards:** The Backup and Recovery wizards are also available to help you back up or restore and recover various objects such as the database, datafiles, and tablespaces. The Backup wizard also allows you to make an image copy of the datafiles and the current controlfile.
- **Create Table Wizard:** The Create Table Wizard facilitates the creation of a table.
- **Cube Wizard:** The Create Cube Wizard helps you build a cube object. Cubes represent multidimensional data stored in your data warehouse fact tables.
- **Data Management Wizards (Import/Export/Load):** Oracle Data management wizards automate the transfer of data to and from an Oracle database.
- **Dimension Creation Wizard:** The Create Dimension Wizard will help you build a dimension object. Dimensions represent columns in your data warehouse dimension tables as levels and attributes. Dimensions typically define hierarchical relationships between their levels.
- **Resource Plan Wizard:** The Resource Plan Wizard helps you group user sessions that have similar processing and resource usage requirements and allocate resources among the consumer groups.
- **Summary Advisor Wizard:** The Summary Advisor Wizard provides advice as to which materialized views should be created, dropped, or retained.
- **View Wizard:** The View Wizard facilitates the creation of a view, a tailored presentation of the data contained in one or more tables (or other views).

For more information on wizards, see the Oracle Enterprise Manager Quick Tour or the Oracle Enterprise Manager Online Help.



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# Glossary

## **Administrative User**

An Oracle Enterprise Manager administrative user is an account that provides users permission to perform administrative tasks and access administrative information. An administrative account is usually created for each person on an administrative team by the super administrator. Oracle Enterprise Manager is installed with a default user/password super administrator account which can be used for the initial login. 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.

When you launch the Console with a Management Server connection, you login as an Enterprise Manager administrator. This administrator account should not be confused with your user account on any of the databases or systems that you manage.

When you launch the Console standalone, you connect directly to databases as a database user (such as SYS). Standalone connections do not use Enterprise Manager's middle tier, so do not require an Enterprise Manager administrator account.

## **Advanced Events**

A set of additional pre-defined events that are included in Oracle Diagnostics Pack, Oracle Management Pack for Oracle Applications, and Oracle Management Pack for SAP R/3. These events provide advanced options for use with the Event System.

## **Blackout**

A feature which can be set up to prevent administrators from being flooded with e-mails and pages if a managed target is brought down for scheduled maintenance; deactivates enhanced notification (page/e-mail) while the target is down.

### **Capacity Planner**

A tool in Oracle Diagnostics Pack used for collecting, storing, and analyzing historical performance data collected from managed databases.

### **Console**

The client user interface of Oracle Enterprise Manager; the first tier in the three-tier framework from which network tasks are administered; The Oracle Enterprise Manager Console uses a master/detail view to provide an integrated, consistent, and efficient way of managing your enterprise. When an object in the Navigator (master) is selected, the appropriate details are displayed on the right-hand side of the Console (the detail pane).

### **Console Launched Standalone**

Enterprise Manager is also available in standalone mode, a two-tier framework which connects directly to the databases. The Console launched standalone allows a single person to use one or more applications without requiring an Oracle Management Server or Intelligent Agent. Use the standalone Console if you want to perform basic administrative tasks that do not require the job, event, or group system.

### **Change Management Pack**

An optional system management pack that is used with Oracle Enterprise Manager to help simplify the managing of complex changes to the Oracle Server and database objects.

### **Clients**

The first tier of Oracle Enterprise Manager is comprised of clients such as consoles and management applications, which present a graphical user interface to administrators for all management tasks. These client components can be installed locally or brought up with a web browser.

### **Compare Database Objects**

A tool in Change Management Pack used for selecting two sets of database object definitions and comparing them.

### **Create Baseline**

A tool in Change Management Pack used for capturing database definitions in the form of a baseline to be used by other Change Management Pack tools.

**Cube Viewer**

The Cube Viewer is a tool within OLAP Management that enables you to browse the data associated with OLAP metadata. A cube is a logical organization of multidimensional data.

**Data Guard Manager**

Oracle Data Guard Manager provides the monitoring, control, and automation necessary to manage a Data Guard configuration, including the primary and standby databases, and the log transport and log apply services.

**Database Search**

A tool in the Console that helps administrators locate database objects based on naming characteristics.

**Database User**

A user of a database managed by Oracle Enterprise Manager; not an Oracle Enterprise Manager user.

**DB Alter**

A tool in Oracle Change Management Pack used for making changes to one or more object definitions in one or more databases.

**DB Propagate**

A tool in Change Management Pack that helps administrators select one or more object definitions from a database and reproduce them in a destination schema within the source or destination database.

**DB Quick Change**

A tool in Change Management Pack that helps administrators make one or more changes to a single definition of a database object.

**Diagnostics Pack**

An optional system management pack that is used with Oracle Enterprise Manager to help manage the health of a system, including detecting and diagnosing problems and planning for the future.

## **Discovery**

There are two types of discovery

- Automatic discovery performed by the Intelligent Agent to record the list of all services that it can manage
- Target discovery performed by the Console to obtain the list of targets from the Intelligent Agent so that the Console Navigator can display the targets

Without the Intelligent Agent discovery, there is no Console discovery. Both discoveries must be successful and must happen in the correct order for the services to appear in the Console Navigator.

When you use the Discovery Wizard in the Console, the Management Server contacts the Intelligent Agent installed on that node to discover the Oracle services installed on the node.

When the Intelligent Agent starts, it performs its service discovery by scanning the system for Oracle targets to manage. The Intelligent Agent records the target discovery. When the Console requests a discovery of the node, the Intelligent Agent transmits the service discovery information it has detected to the Management Server.

The Management Server then places the new information in the repository, and updates the Console Navigator, displaying a view of all nodes and their respective targets.

Target discovery allows administrators to run jobs and monitor for events on those nodes and allows the information to be centrally managed by the Consoles.

## **Directory Manager**

An application integrated with Oracle Enterprise Manager used for administering most functional areas of Oracle Internet Directory and its related processes; can be used to connect to directory servers; manage configuration parameters; add, modify, and delete entries, attributes, and object classes; set up access control policies; configure security; and view and modify replication agreements.

## **e-Business Management Tools**

The Oracle e-Business Management Tools are a set of applications that enable centralized management of the complete e-Business infrastructure including the client, middle-tier HTTP servers, and database.

**Enterprise Security Manager**

An application integrated with Oracle Enterprise Manager used for administering the Oracle environment for user security using an LDAP-compliant directory server; allows an administrator to manage enterprise-level role authorization among multiple databases simultaneously.

**Event**

A potential problem occurrence registered with the Event System in the form of one or more tests on a managed database or other service; triggers an alert to the Console, as well as a possible corrective action, if an event occurs; can also trigger e-mail or page alerts.

**Event System**

The system through which events are registered from the Events detail view in the Oracle Enterprise Manager Console; provides proactive alert notification.

**Expert**

See Oracle Expert.

**Export Wizard**

A data management wizard that aids in transferring data from an Oracle database to an Oracle binary operating system file.

**Filtering (see Notification Filtering)****Fixit Job**

A job that can be scheduled to run when a particular event occurs to automatically correct the problem.

**Forms Server Manager**

An application integrated with Oracle Enterprise Manager that allows administrators to control and monitor Forms Listener, Forms Server, Load Balancer Server, and Load Balancer Client.

**Group**

A logical administrative collection of objects which are grouped together in the Group detail view of the Oracle Enterprise Manager Console for more efficient management and administration.

**Import Wizard**

A data management wizard that aids in transferring data from an exported binary file to an Oracle database.

**Index Tuning Wizard**

A tool in Oracle Tuning Pack that helps administrators quickly identify and correct index problems by recommending optimal indexing strategies and implementing the tuning recommendations.

**Intelligent Agent**

An independent object that resides on a managed node in the third tier and executes commands sent by the Oracle Management Server; monitors for critical occurrences (events) and executes jobs on the databases and other managed services on the node; is responsible for reporting back to the Console via the Oracle Management Server the status of jobs and events on the node; functions independently of the databases and other services it supports, and is also independent of the Oracle Management Server and Console clients.

**Instance Management**

Functionality in the Console that helps administrators manage database instances and sessions.

**Job**

A set of one or more administrative tasks scheduled with the Oracle Enterprise Manager Job System; runs on managed databases or other services.

**Job System**

The system through which jobs are scheduled from the Jobs detail view of the Oracle Enterprise Manager Console.

**Load Wizard**

A data management wizard that aids in transferring data from operating system files, such as text files, to an Oracle database.

**LogMiner Viewer**

Oracle9i LogMiner is a relational utility that helps you analyze online or archived log files to evaluate all updates to a database.

**Managed Node**

A managed node is any machine that is being monitored by an Intelligent Agent that has been discovered by the Console.

**Managed Service/Managed Target**

Every service running on a managed node is a managed service or target. Multiple services (targets) can exist on a single machine (node).

**Management Pack for Oracle Applications**

An optional system management pack that is used with Oracle Enterprise Manager; a set of applications for monitoring and diagnosing the Oracle Applications environment and planning for future resource needs.

**Management Pack for SAP R/3**

An optional system management pack that is used with Oracle Enterprise Manager; a set of applications for monitoring, diagnosing, and planning for future needs in the SAP R/3 environment.

**Navigator**

The view in the Oracle Enterprise Manager Console where a tree list of discovered databases and their objects appears when connected to an Oracle Management Server; provides access to managed databases and other services which can be viewed and managed from this pane.

**Net Manager**

Oracle Net Manager is a graphical user interface tool that combines configuration abilities with Oracle Names component control to provide an integrated environment for configuring and managing Oracle Net. It can be used on either the client or server. Oracle Net Manager is also integrated with Oracle Enterprise Manager.

**Node**

A machine in the third tier of the Oracle Enterprise Manager framework where the managed databases and other services reside; also hosts an Intelligent Agent which monitors performance and performs tasks on the node's databases and services.

**Notification**

The ability of Enterprise Manager administrators to be notified of the status of jobs and the occurrence of events by Console alert, e-mail, or page; allows you to choose which administrators to have notified, and whether to use notification filtering.

### **Notification Filtering**

Notification filters allow each administrator to specify when to send an email notification as opposed to a page notification as a result of a job or event status change.

### **OLAP Services**

Oracle OLAP Services is an Oracle9i database installation option that provides tools for developing and deploying internet-based business intelligence applications. OLAP (Online Analytical Processing) products provide services that support complex statistical, mathematical, and financial calculations within a multidimensional data model.

### **Oracle9i JVM**

Oracle9i JVM is the name of the Java engine embedded in Oracle database. CORBA and EJB components implemented in Java can be stored and executed inside the database. Client applications access these components through a name service.

### **Oracle9i Text**

An application integrated with Oracle Enterprise Manager; a text-search system for managing and searching for text in the Oracle database.

### **Oracle Enterprise Manager Console**

The Oracle Enterprise Manager Console and its three-tier architecture provide a wide view of your entire Oracle environment. Use the Console to automatically discover and manage Oracle databases, application servers, and Oracle applications across your entire network.

### **Oracle Enterprise Manager Web site**

The Oracle Enterprise Manager Web site provides Web-based management tools designed specifically for Oracle9iAS. Using this Web site and its Oracle Enterprise Manager Home Pages, you can monitor and configure the components of your Oracle9i Application Server installations. You can deploy applications, manage security, and create and manage Oracle9i Application Server clusters.

### **Oracle Management Server**

The middle tier and the core of the Oracle Enterprise Manager framework. The Management Server provides administrative user accounts, processes management functions such as jobs and events, and manages the flow of information between the tiers.

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. These additional Management Servers provide fault-tolerance in the case where one Management Server becomes unavailable. All Management Servers administering the same set of managed nodes share a single Repository, which stores all system data, application data, and the state of managed nodes throughout the environment.

### **Oracle Expert**

A tool in Oracle Tuning Pack that helps administrators with database initialization parameter tuning, application tuning, and structure tuning.

### **Oracle Real Clusters Management**

Oracle Real Clusters Management enables the administration of databases that use the Oracle Real Clusters option. Once discovered, Real Clusters Databases appear in the Databases folder of the Console's navigator panel alongside single-instance databases. Real Clusters behave similarly to single-instance databases, allowing the full power of the Schema, Security and Storage applications to be applied to Real Cluster databases. The database administrator can start up, shut down, or check the status of Real Cluster databases, as well as see the status of Real Clusters and the progress of Real Cluster operations by node and target.

### **Oracle Trace**

A tool in Oracle Diagnostics Pack that is used for collecting precise database-occurrence statistics from Oracle products as well as end-user and third-party applications.

### **Outline Editor**

Outline Editor is an advanced Oracle9i application that allows the user to control the optimizer behavior by modifying the optimizer mode, join order, or index usage without having to change the statement in the application code.

### **Outline Management**

The Outline Management is an advanced Oracle9i application that allows you to manage stored outlines directly using a GUI-based tool. Specifically you can browse, sort, delete, and edit outlines with this tool.

### **Performance Manager**

A tool in Oracle Diagnostics Pack that helps administrators monitor the factors that most affect database performance; provides real-time graphical views of

performance data collected from Oracle databases, other services, and the host operating system.

### **Policy Manager**

You can use Oracle Policy Manager to administer Oracle Label Security. The navigator tree lists policies, along with their labels, authorizations, and protected objects. The detail view shows a property sheet in which labels are specified.

### **Privilege**

The right to execute a particular Oracle Enterprise Manager command or SQL statement; a right granted to a database administrator by a Super Administrator, or to a database user by a database administrator.

### **Profile**

An individualized summary of data specifying system privileges as well as limitations on system resources; assigned to each database administrator and database user.

### **Property Sheet**

A summary of information about a database or object that appears when you select a database or object in a tree view; can be used to view and change object properties; often contains multiple tabbed pages.

### **Reorg Wizard**

Oracle Tuning Pack provides the Reorg Wizard to help you maintain a well performing database by correcting space usage problems. The Reorg Wizard eliminates space problems by reorganizing database space usage and allows you to change an object's storage settings and location.

### **Replication Management**

A functionality of Oracle Enterprise Manager that enables an administrator to quickly set up, configure, and manage an Oracle Replication environment.

### **Reporting**

Enterprise Manager provides comprehensive reporting so that administrators can quickly access information about the status of all monitored systems in their enterprise. The reporting functionality allows reports to be generated automatically at specific times or at regular intervals.

**Repository**

A set of database tables used as a back-end store for the middle-tier Oracle Management Server(s), and that can be located in any Oracle database; is shared by administrators and stores the state and history of registered events and scheduled jobs; also contains accounts of all administrators, including information such as administrator passwords and privileges; contains the current view of the network including all system data, application data, and information about the state of managed nodes.

**Repository User**

An Enterprise Manager repository is owned by a database user. During repository creation a repository's user name is entered that will be used to create this database user. The name of the repository user will also be the name of this repository, and this name will be used throughout the network to identify all the objects in this repository. The name of the repository must be a unique schema name across the entire managed network.

If the repository user name and encrypted password are saved during repository creation, the Management Server uses them to login to the repository; if they are not saved, the Management Server prompts the user for a user name and password before it starts up.

**Role**

A set of database privileges granted to a database administrator or database user.

**Schema Management**

Functionality in the Console that helps administrators manage database schema objects; helps administrators to create, alter, or drop database clusters, indexes, snapshots, tables, and views.

**Security Management**

Functionality in the Console that helps administrators make changes to security parameters for database objects, users, and other administrators quickly and efficiently.

**Spatial Index Advisor**

An application integrated with Oracle Enterprise Manager that enables administrators to analyze and tune spatial indexes on database data.

**SQL Analyze**

A tool in Oracle Tuning pack that analyzes and tunes problematic SQL statements that are causing the greatest impact on database performance.

**SQL\*Plus Worksheet**

A tool with which administrators can execute SQL and PL/SQL commands and store them as files to reuse at a later time.

**Standard Management Pack**

An optional system management pack that is used with Oracle Enterprise Manager by administrators of smaller database enterprises who use the Oracle Workgroup Server or Oracle9i; combines several of the diagnostic, tuning, and change management features of Diagnostics Pack, Tuning Pack, and Change Management Pack into one application suitable for smaller enterprises.

**Storage Management**

Functionality in the Console that helps administrators manage database storage for optimum database performance, such as managing tablespaces, datafiles, redo logs, and rollback segments.

**Super Administrator**

Default user/password. The first administrator to set up an administrator account in the repository; the head administrator to one or more middle-tier Oracle Management Servers; can create as well as disable other administrator accounts and set up all administrator credentials.

**Tablespace Map**

A tool in the Oracle Tuning Pack for monitoring tablespace usage. The Tablespace Map provides a complete picture of the characteristics of all tablespaces associated with a particular Oracle database. These characteristics include analysis status, segment type, segment name, number of extents, and the total size of the extent in blocks. You can display all segments for a tablespace or all segments for a datafile.

**Task**

What a job is comprised of when scheduled to run on a managed database or other service; what an administrator selects to create a job when scheduling a job with the Job Scheduling System; is selected from a list of pre-defined tasks.

**Test**

What an event is comprised of when registered against a managed database or other service; what an administrator selects to create an event when registering an event with the Event System; is selected from a list of pre-defined tests.

**TopSessions**

A tool in Oracle Diagnostics Pack that gives administrators the ability to pinpoint database sessions that are causing the greatest impact on performance.

**Tuning Pack**

An optional system management pack that is used with Oracle Enterprise Manager to help optimize performance in the database environment, including identifying and tuning major database and application bottlenecks such as inefficient SQL, poor database structures, and improper use of resources.

**Trace**

See Oracle Trace

**Trace Manager**

A tool in Oracle Trace for administering Oracle Trace data collected from API-instrumented products.

**Tree List**

A list of discovered and managed databases and other services and their objects that appears in a Console client when connected to the Oracle Management Server or single database; can appear in the Oracle Enterprise Manager Console, a system management pack, or, in certain circumstances, wizards.

**Workspace Management**

Workspace Management allows you to version-enable tables and create, modify, refresh, and merge workspaces. Oracle Workspace Manager provides a long transaction framework, in which multiple data versions are stored in the database as different workspaces. Users can create new versions of data to update, while maintaining a copy of the old data.



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