Oracle® Parallel Server Management User's Guide

Release 1.5

For Use with Oracle Enterprise Manager 1.5

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Oracle Parallel Server Management User's Guide

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Release 1.5

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Thank you for helping us improve our documentation.

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Preface

Oracle Parallel Server version 8.0.4 can be managed using the Oracle Enterprise Manager Console 1.5.

This preface describes the purpose and organization of the *Oracle Parallel Server Management User's Guide.*

This preface discusses the following topics:

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Purpose of this Guide

The *Oracle Parallel Server Management User's Guide* explains how to start up, shut down, and monitor the activity of your Oracle Parallel Server (OPS) using the Oracle Enterprise Manager Console. Oracle Enterprise Manager is Oracle's graphical administration and networking tool for distributed database environments.

This guide describes only those features of Enterprise Manager which pertain to managing Oracle Parallel Server. For a complete description of the functionality and basic components provided by Enterprise Manager, refer to the Oracle Enterprise Manager documentation set.

Intended Audience

This guide is written for Oracle Enterprise Manager users, such as database administrators (DBAs) or system administrators, who maintain parallel servers in their network. System management tasks are performed on the Enterprise Manager Console running the Microsoft Windows NT® or Microsoft Windows 95® operating system.

Knowledge Assumed of the Reader

This guide assumes that you are familiar with the administrative tasks you want to perform on your Oracle8 Server. If you are not, refer to the Oracle8 Server documentation set which contains thorough descriptions of the database administration tasks you can perform with the Oracle Enterprise Manager tools. In addition, the Oracle8 Server documentation provides recommendations on how to administer your database optimally.

If you have not yet read the introductory chapters of the *Oracle8 Server Administrator's Guide* or the *Oracle Enterprise Manager Administrator's Guide*, we recommend that you do so. These chapters describe the specific responsibilities of a database administrator and the basic operation of the Oracle Enterprise Manager.

This guide also assumes that you are familiar with the operation of either the Microsoft Windows 95 or Windows NT operating system. Refer to the documentation for your operating system, if necessary.

How this Guide is Organized

The *Oracle Parallel Server Management User's Guide* is comprised of the following chapters:

Chapter 1, "Overview of Oracle Parallel Server Management"

Lists the software requirements and provides an overview of the Oracle Parallel Server features, Oracle Parallel Servers, parallel server instances, and Oracle Parallel Server Management (OPSM).

Chapter 2, "Oracle Parallel Server Management Operations"

Describes how to specify user preferences for parallel server nodes and databases which is required for startup and shutdown of parallel servers and parallel server instances. This chapter also describes how to create jobs and events for parallel servers and parallel server instances.

Chapter 3, "Monitoring Oracle Parallel Server Performance"

Describes the Performance Manager statistics and charts that you can display from the Enterprise Manager Console to monitor the activity of the Oracle Parallel Servers on your network.

Appendix A, "OPS Performance Monitoring for Oracle Parallel Server"

Describes the installation and operations of OPS performance monitoring on both Oracle7 and Oracle8 database.

Appendix B, "Enterprise Manager Error Messages for Oracle Parallel Server"

Lists the error messages pertaining to parallel servers that can be returned by Oracle Enterprise Manager. Possible causes and solutions are listed for the errors that may occur.

Documentation Set

The Oracle Parallel Server Management 1.5 documentation set includes the following publications:

- The *Oracle Parallel Server Management User's Guide* provides information on using the Oracle Enterprise Manager Console to monitor and control Oracle Parallel Servers.
- The *Oracle Parallel Server Management Configuration Guide for UNIX* provides essential information for preparing your Oracle8 Server for use with Oracle Parallel Server and the Oracle Enterprise Manager Console. The Quick Start

section lists all the required server and console-related steps to get you started with OPSM quickly.

Note: Non-UNIX users should refer to their platform-specific installation and configuration guide for information on setting up the OPSM components.

- Online help for all configuration parameters pertaining to Oracle Parallel Server Management is available when using the Oracle Enterprise Manager Console.

Related Publications

For more information about Oracle Enterprise Manager 1.5, refer to the following publications:

- The *Oracle Enterprise Manager Readme* provides important notes regarding the updates to the software and documentation as well as late-breaking news.
- The *Oracle Enterprise Manager Installation CD-ROM Insert* provides information about installing Oracle Enterprise Manager components.
- The *Oracle Enterprise Manager Concepts* provides an overview of the Enterprise Manager system.
- The *Oracle Enterprise Manager Configuration Guide* provides information about configuring Oracle Enterprise Manager components.
- The *Oracle Enterprise Manager Administrator's Guide* provides information on how to use the components and features of the Oracle Enterprise Manager system.
- The *Oracle Performance Monitoring User's Guide, Oracle Expert User's Guide, Oracle Trace User's Guide,* and *Oracle Trace Developer's Guide* provide information about performance monitoring applications.
- The *Oracle Enterprise Manager Messages Manual* describes the Oracle Enterprise Manager error messages and methods for diagnosing the messages.
- The *Oracle Enterprise Manager Application Developer's Guide* provides information on programming external interfaces to Oracle Enterprise Manager. The guide includes information on using `Tcl` and `OraTcl` to write custom job and event scripts.

For information about Oracle8 Server, refer to the following publications:

- *Oracle8 Server Concepts* provides general information about the Oracle8 Server and how it works.
- *Oracle8 Server Administrator's Guide* provides information on how to administer the Oracle8 Server.
- *Oracle8 Server Migration* provides procedures for migrating a previous version of the Oracle database to Oracle8.
- *Oracle8 Server SQL Reference* provides information on Oracle's SQL commands and functions.
- *Oracle8 Server Utilities* provides information about the utilities bundled with the Oracle Server, including Export, Import, and SQL*Loader.
- *Oracle8 Server Messages* provides information about Oracle messages and codes.
- *Net8 Administrator's Guide* provides information about Net8.
- *Oracle8 Server for Windows NT Installation and User's Guide* and the system release bulletins, if available, provide information about the Oracle Server on Windows NT.

Ordering Related Documentation

To order related documentation, call the appropriate number listed below:

- In the United States, call Documentation Sales at: **1.800.252.0303**.
- In the United Kingdom, call Oracle Direct Response at: **+44.990.332200**.
- In other European countries, contact your local Oracle Support office.
- In the Asia-Pacific region, contact your Oracle sales representative.

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- In the United States, call Client Relations at: **1.650.506.1500**.
- In the United Kingdom, call Customer Relations at: **+44.990.622300**.
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- In the United States, call: **1.650.506.1500**.
- In Europe, call: **+44.1344.860160**.
- In Asia, call: **+81.3.5717.1850**.

Please prepare the following information before you call:

- ❑ Your CSI number (if applicable) or complete contact details, including any special project information.
- ❑ The release levels of the Oracle Server and associated products (for example, Oracle8 Server release 8.0.4 and Oracle Enterprise Manager release 1.5).
- ❑ Operating system name and release level, including patches and packages.
- ❑ Details of error codes, numbers, and descriptions associated with the problem.
- ❑ A full description of the issue, including:
  - What happened? For example, the command used and result obtained.
  - When did it happen? For example, time of day, or after a particular command, or after an operating system or Oracle upgrade.
  - Where did it happen? For example, on a particular system, or within a particular procedure or table.
  - What is the extent of the problem? For example, is your production system unavailable, or is the impact less severe? Is the problem getting worse?

  Keep in mind what did *not* happen, as well as what did happen.
- ❑ Copies of any trace files, core dumps, or log files recorded near the time of the incident.

For installation-related problems, please have the following information available:

- ❑ Listings of the contents of the ORACLE_HOME directory, and any staging area, if applicable.
- ❑ Contents of the installation log files in the `$ORACLE_HOME/orainst` directory: `install.log`, `sql.log`, `make.log`, and `os.log`.

For more information, contact http://www.oracle.com/support.

Conventions Used in this Guide

Command syntax is shown in monospace font in this guide. The following conventions apply to command syntax:

monospace	Monospace type indicates commands, directory names, pathnames, and filenames.

backslash \	A backslash indicates a command that is too long to fit on a single line. Enter the line as printed (with a backslash) or enter it as a single line without a backslash.
	`dd if=/dev/rdsk/c0t1d0s6 of=/dev/rst0 bs=10b \`
	`count=10000`

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

1

Overview of Oracle Parallel Server Management

This chapter presents the Oracle software requirements for using Oracle Parallel Server Management (OPSM).

An overview of Oracle Parallel Servers, Oracle Parallel Server instances, and Oracle Parallel Server Management is also presented.

You can control the activity of parallel servers and parallel server instances using the Oracle Enterprise Manager Console. For further information about getting started and using the Enterprise Manager Console, refer to the Oracle Enterprise Manager documentation set.

This chapter discusses the following topics:

Topic	Refer to Page
Oracle Software Requirements	1-2
Oracle Parallel Server Features	1-2
Oracle Parallel Server Instances	1-3
Oracle Parallel Server Management	1-5
Oracle Enterprise Manager Architecture	1-5

Oracle Software Requirements

Ensure that the following Oracle software products and services are installed and operating on the Oracle8 Parallel Server nodes and the Oracle Enterprise Console:

Oracle8 Parallel Server Nodes

- ❑ Oracle8 RDBMS
- ❑ Oracle8 Parallel Server Option
- ❑ Oracle8 Parallel Server Management Components which consist of the following:
  - Intelligent Agent 8.0.4
  - opsctl utility
  - OPS Communication Daemon (for UNIX only)

For more information about the above server requirements, refer to the *Oracle Parallel Server Management Configuration Guide for UNIX* or your platform-specific installation guide.

Oracle Enterprise Manager Console

- ❑ Oracle Enterprise Manager 1.5
- ❑ Oracle Net8
- ❑ Oracle Repository (can be located anywhere on the network)

For more information about additional Console requirements, refer to your platform-specific installation guide.

Oracle Parallel Server Features

Oracle Parallel Server allows users and processes on multiple nodes to operate on the same database simultaneously. Oracle Parallel Server is an Oracle8 Server software option which you must choose to install.

Oracle Parallel Server offers these features:

- Superior scaleability, primarily by spreading the workload across nodes
- Parallel operation
- High availability and online recovery: failure of a node does not take the database down
- Flexibility
- Shared I/O
- Dynamic online upgrade

Oracle Parallel Server allows separate Oracle instances to run on different nodes. These instances operate against a common database which resides on shared disks physically accessible by all nodes that make up the cluster. The application database files reside on shared disks. Oracle8 environment files reside on local disks on a node. Each node has an Oracle8 server instance running and simultaneously accesses application data files on shared disks.

Oracle Parallel Server coordinates each node's access to the shared database, assuring data consistency and integrity. It provides complete data and lock recovery support should any node fail for abnormal reasons.

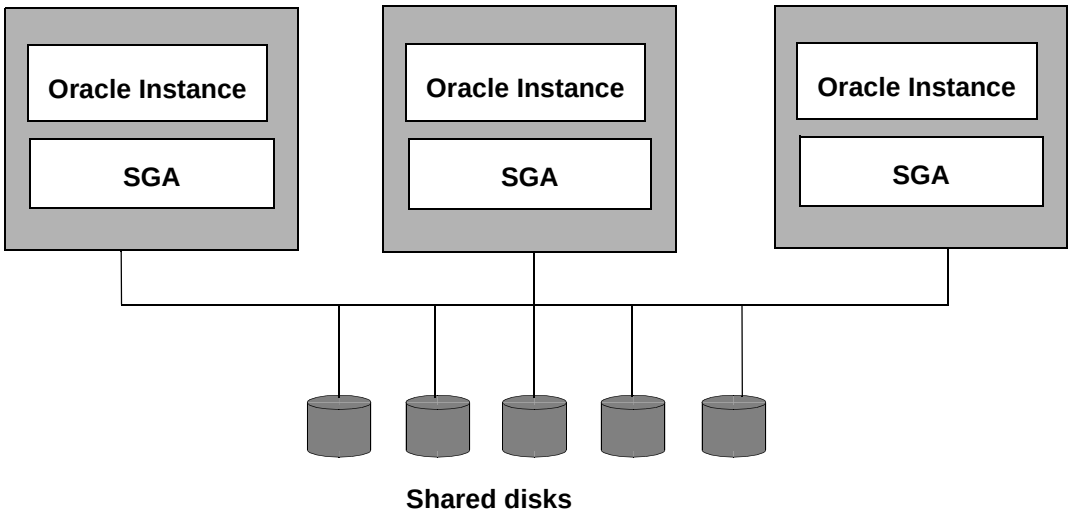
Oracle Parallel Server Instances

An Oracle instance is defined as the set of processes and resources required for proper database operation. The pool of processes or threads that make up an instance coordinate their work on the database through shared memory by means of the Shared Global Area (SGA). All processes or threads belonging to the instance exist on the same node.

Oracle Parallel Server allows separate instances to coordinate operations on a common database. Typically, only a single instance is run on each node; the Parallel Server option allows multiple instances on separate nodes, each operating against the same database.

The following diagram illustrates how Oracle Parallel Server allows simultaneous access to the database.

Figure 1–1 Oracle Parallel Servers and Instances



For more information about Parallel Server database features and operations, refer to the *Oracle8 Parallel Server Concepts and Administration Guide.*

Oracle Parallel Server Management

Oracle Parallel Server Management is a comprehensive and integrated system management solution for the Oracle Parallel Server. OPSM allows you to manage multi-instance databases running in heterogeneous environments through an open client-server architecture.

In addition to managing parallel databases, OPSM allows you to schedule jobs, perform event management, monitor performance, and obtain statistics to tune parallel databases.

Oracle Enterprise Manager provides database administrators (DBAs) with a powerful set of tools to manage, monitor, and administer even the most complex network of databases from a single workstation, called the Enterprise Manager Console.

The following lists some of the parallel-server tasks you can perform with the Enterprise Manager Console:

- Proactively manage an Oracle Parallel Server located anywhere in the enterprise. This enables DBAs to have more control over the system and significantly reduces downtime.
- Schedule jobs for the Oracle Parallel Server database and individual instances. This feature makes “lights out” management a reality.
- Monitor performance of the Oracle Parallel Server through Performance Manager charts and graphs. Drill-down operations can be performed on the key metrics to view performance statistics at the instance or object level.

Oracle Enterprise Manager Architecture

Oracle Enterprise Manager consists of a centralized Enterprise Manager Console, a set of centralized services, Intelligent Agents, and a set of management applications which provide DBAs the necessary tools to manage database environments with multiple instances and parallel databases.

On the managed systems, the Intelligent Agent receives the request, schedules the request, and then transmits the results back to the Console.

Important: An Intelligent Agent must be running on the node it resides on for a system to be managed by Enterprise Manager.

Thus, for Oracle Parallel Server, every node which has an instance of the parallel database must have an Intelligent Agent running on it. This Enterprise Manager architecture provides a scalable and reliable infrastructure for managing Oracle Parallel Servers.

IMPORTANT: Before performing the management operations described in this guide, ensure that you have performed the following requirements which are described in the Oracle guides listed below.

- *Oracle Parallel Server Management Configuration Guide for UNIX* or your platform-specific installation and configuration guide

  Describes how to properly set up the OPSM components: opsctl utility, Intelligent Agent, and OPS Communication Daemon. The Quick Start section in this guide provides the server-related and console-related steps you must perform.

- *Oracle Enterprise Manager Configuration Guide*

  Describes how to set up a repository on the Enterprise Manager Console. Each administrator is associated with a specific repository in a database. Any information related to the tasks performed by the administrator is stored in that repository. The repository provides a centralized location for storing information about the state of the environment managed by Oracle Enterprise Manager from the perspective of each console user. It contains information on configurations, jobs and events, historical collections, tuning recommendations, the preferred credentials for each user, and other information associated with each Enterprise Manager Console login.

2

Oracle Parallel Server Management Operations

Oracle Enterprise Manager and Oracle Parallel Server Management provide an integrated solution for managing your heterogeneous environment, including management of Oracle Parallel Servers on your network.

This chapter discusses the following topics:

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Using the Enterprise Manager Console

The Oracle Enterprise Manager Console allows you to perform a variety of management tasks on your parallel servers, distributed systems, and databases. The Enterprise Manager Console provides a central point of control for the Oracle environment through an intuitive graphical user interface (GUI) that provides drag-and-drop system management.

The Enterprise Manager Console enables you to manage a heterogeneous environment as easily as a homogeneous one. You can schedule jobs on multiple nodes simultaneously or monitor groups of services together.

A database or system administrator can thus handle all nodes in a parallel server as a single entity. For example, you can configure Oracle Enterprise Manager to execute a job across all nodes of a parallel server.

Displaying Parallel Server Objects in the Navigator Window

From the Enterprise Manager Console Navigator, you can view and manage both single-instance and multiple instance Oracle Servers. The information available for parallel servers is the same as for single-instance databases.

The Navigator displays all the network objects and their relationships to other objects including a direct view of objects such as user-defined groups, nodes, listeners, servers, databases, and database objects. Refer to the *Oracle Parallel Server Management Configuration Guide* or your platform-specific installation and configuration guide for information on the requirements for performing automatic discovery of parallel server objects on the Navigator.

From the Navigator window, parallel servers are located in the Databases folder which contains entries for databases. Each entry can be either a single instance database or a parallel server which can be expanded by double-clicking the entry.

Each parallel server folder contains the objects for datafiles, in-doubt transactions, profiles, redo log groups, roles, rollback segments, schema objects, tablespaces, and users. Entries that represent parallel servers also contain a Parallel Server Instances folder which can be expanded to display the instances belonging to the parallel server.

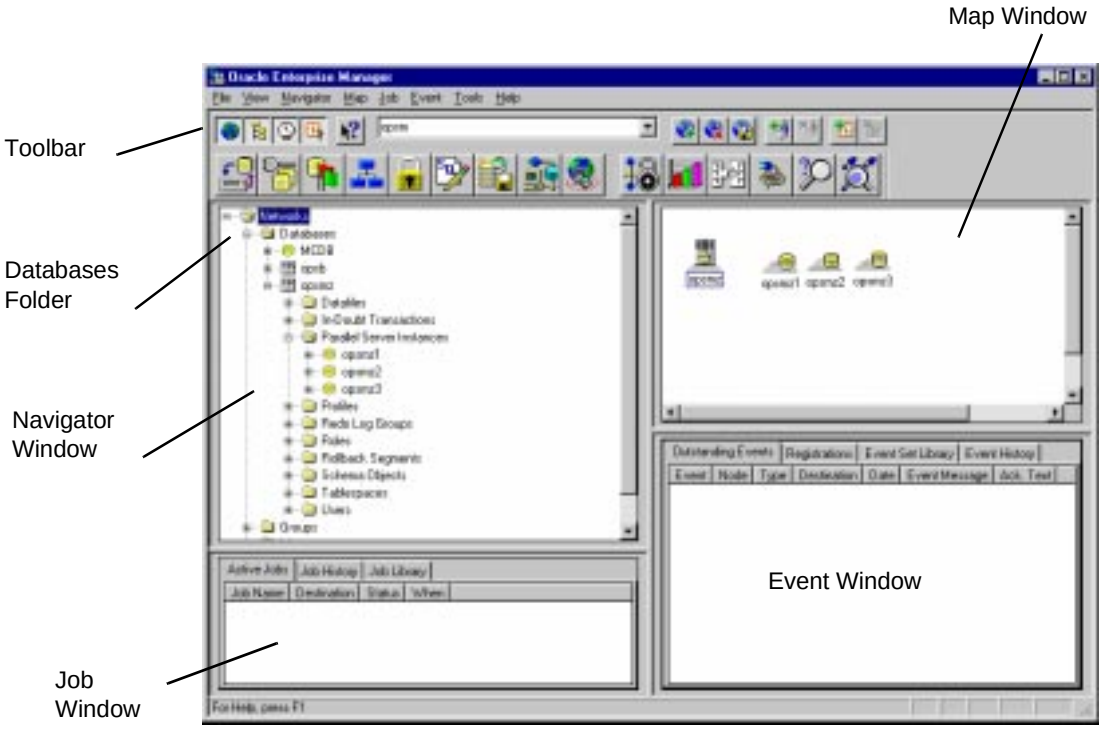
Note: Right-clicking on a Navigator object may display a menu allowing you to drill down to view other related options.

The icon which represents Oracle Parallel Servers in the Enterprise Manager Console is shown in Figure 2–1.

Figure 2–1 Oracle Parallel Server Icon

Figure 2–2 illustrates the tree structure of the Oracle Parallel Server named "opsmz" in the Navigator window.

Figure 2–2 Main Navigator Window



For more information on the Navigator window and manipulating objects in the window, see Navigator in the *Oracle Enterprise Manager Configuration Guide.*

Specifying User Preferences for Parallel Server Nodes and the Parallel Server Database

IMPORTANT: There are three requirements that you must perform before you can use the Enterprise Manager Console to start up or shut down a parallel server. These requirements are listed below:

- ❑ You must ensure that all nodes on which the parallel server(s) runs are automatically discovered and displayed in the Enterprise Manager's Navigator window. Refer to the *Oracle Parallel Server Management Configuration Guide for UNIX* or your platform-specific installation guide for information about performing auto-discovery.
- ❑ You must first specify a valid operating system username and password credentials for at least one node belonging to each parallel server. Refer to "Setting Node Credentials" below.
- ❑ You must select the parallel server database credentials and specify a valid database username and password. Refer to "Setting Database Credentials" below.

Setting Node Credentials

Follow these steps to specify a username and password for at least one node belonging to each Oracle Parallel Server on your network:

1. From the Enterprise Manager Console File menu, choose Preferences. The User Preferences dialog box appears which dynamically displays all objects in the network.
2. Scroll down to the line that displays the parallel server node (below Service Type column) you want to start up or shut down. In the following example, the Parallel Server is named “opsmz.”

Figure 2–3 User Preferences Dialog Box for Node Credentials

3. Click this line and enter your Username and Password in the appropriate text boxes. Typically, you would enter the username and password of the *oracle* owner. The Role option appears dimmed and becomes unavailable for nodes.

> **IMPORTANT:** The Preferred Credentials you set for the selected node are inherited by all other nodes belonging to the same parallel server. Therefore, you are not required to set the credentials for each node belonging to the same parallel server.

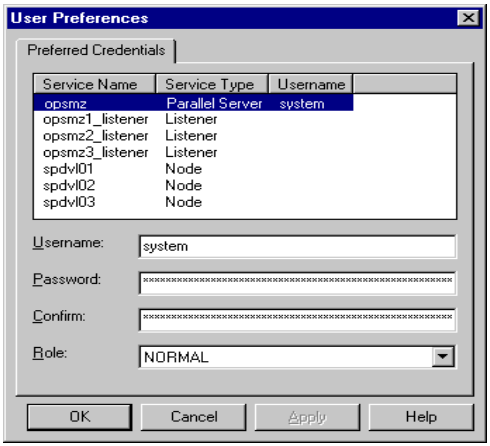
4. Repeat the above steps for at least one node belonging to each parallel server on your network.

Setting Database Credentials

Follow these steps to specify a username and password for your Oracle Parallel Server database:

1. From the Enterprise Manager Console File menu, choose Preferences. The User Preferences dialog box appears which dynamically displays all objects in the network.

Figure 2–4 User Preferences Dialog Box for Database Credentials



2. Scroll down to the line that displays the parallel server you want to start up or shut down.
3. Click this line and enter your database Username, Password, and Role in the appropriate text boxes.

Important: The SYSDBA role is required for Oracle Parallel Server startup and shutdown.

You are now ready to start up your Enterprise Manager Console to manage your Oracle Parallel Server(s).

Node Credentials for Parallel Server Startup and Shutdown

The process of starting up a parallel server from the Startup page on the Quick Edit property sheet works by initiating a startup job on one of the nodes of the parallel server. Enterprise Manager many select any node to run the job. This process is similar for shutting down a parallel server.

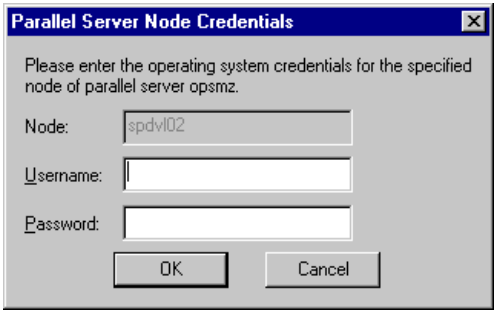
When running the job, this process requires the operating system credentials (username and password) for the selected node which you should have already set in the Preferred Credentials dialog box by choosing the File>Preferences menu. Refer to “Setting Node Credentials” above for details.

Typically, all nodes share the same preferred credentials. However, in certain situations, Enterprise Manager may not be able to determine the credentials for a node. For example:

- If you did not specify the preferred credentials for at least one node on each parallel server.
- If you specified ambiguous credentials for different nodes on the same parallel server.

In these situations, the following Parallel Server Node Credentials dialog box is displayed:

Figure 2–5 Parallel Server Node Credentials Dialog Box



Enter the valid username and password for the selected node in the appropriate text boxes and click OK to accept these credentials and run the job.

Or, you can click Cancel to dismiss the dialog box and cancel the job.

Starting Up Oracle Parallel Servers

You can start up all instances or only selected instances belonging to a parallel server that are not already up and available. Starting up the instances also starts up all the required services such as the listener, group membership services, and so on.

Starting up these services has traditionally been a time-consuming and tedious task. This task has now been vastly simplified by the OPSM utilities which allow the DBA to start up the parallel server from the Enterprise Manager Console.

From the Enterprise Manager Console, the DBA can start up all Oracle Parallel Server instances or only selected parallel server instances. The Operation Results Status Details window, which is described on 2-14, displays the progress of the instance start up or shut down operation. In addition, the status of the various instances of the Oracle Parallel Server can be monitored from the Enterprise Manager Console.

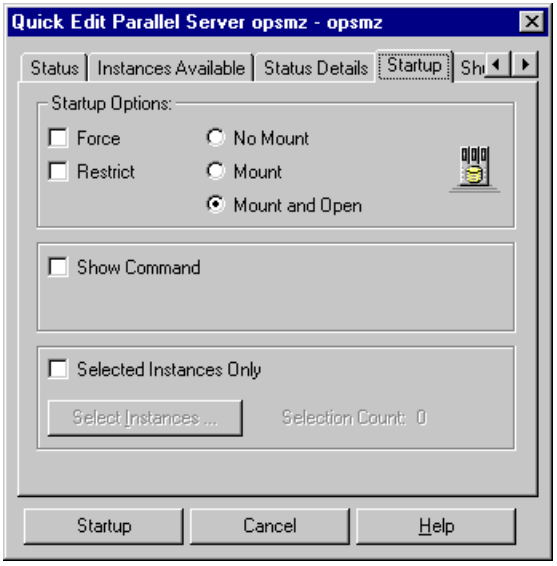
Startup Page

The Startup page on the Quick Edit Parallel Server property sheet allows you to start up all instances or only selected instances that are not already up and available. Starting up the instances also starts up all the necessary services such as the listener, group membership services, and so on.

Follow these steps to start all instances or only selected instances:

1. In the Navigator window, click the appropriate Oracle Parallel Server icon which displays those instances you want to start up.
2. Right-click and select Startup. The Startup page from the Quick Edit property sheet appears as shown below:

Figure 2–6 Startup Page on the Quick Edit Parallel Server Property Sheet



3. Click the Startup Options you want for the selected parallel server. The Startup page on the Quick Edit property sheet contains these options:

Table 2–1 Options on the Startup Page

Option	Description
Force	Shuts down the currently running Oracle instances with the SHUTDOWN mode, ABORT, before restarting them. If the instances are running and FORCE is not specified, an error results. **Warning** You should *not* use the FORCE mode under normal circumstances. Use the FORCE mode only while debugging and under abnormal circumstances.
Restrict	Makes the started instances accessible only to users with the RESTRICTED SESSION system privilege. Users already connected are not affected.
No Mount	Does not mount the database upon instance startup.
Mount	Mounts a database but does not open it.
Mount and Open	*(default)* Mounts and opens the specified database.

Option	Description
Show Command	Select this check box to display the opsctl command line as the first line in the Results field from the Parallel Server Operation Results window.
Selected Instances Only	Select this check box if you want to start only selected instances. The Select Instances button becomes available.
Select Instances	Click the Select Instances button to choose only those instances you want to start.

4. If you want to start up all instances, click the Startup button. If you want to start up only selected instances, follow these steps:
   a. Select the Selected Instances Only check box.
   b. Click the Select Instances button to display the Select Instances To Startup window.
   c. Click the << (Add) and >> (Remove) buttons to select the instances you want to start up.
   d. Close the Select Instances To Startup window.
   e. Click the Startup button from the Startup page.

The Parallel Server Operation Results window displays the progress of the startup operation. For more information, see "Viewing the Parallel Server Operation Results" on page 2-14.

If the instances were started successfully, the Parallel Server Started message box appears as shown below.

Figure 2–7 Parallel Server Started Message Box

Click the View Details button to display more information in the Operation Results window on Figure 2–9 about the instances that were started.

If the startup fails, the Parallel Server Failed message box appears. Click the View Details button to display more information in the Operation Results window about why the startup failed.

Shutting Down Oracle Parallel Servers

You can shut down all instances or only selected instances belonging to a parallel server which are currently up and available. Once all parallel server instances are shut down, the parallel server is considered to be shut down.

Note: Occasionally, a parallel server database may be completely down, but some of its services such as the database listener or group membership services may remain running.

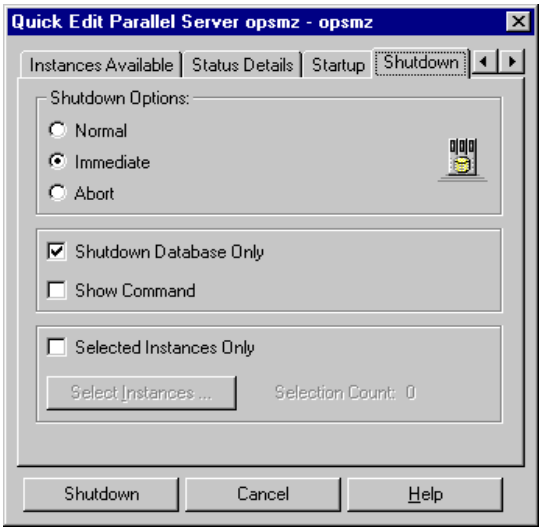
Shutdown Page

The Shutdown page on the Quick Edit Parallel Server property sheet allows you to shut down all instances or only selected instances that are currently up and available. Once all the parallel server instances are shut down, the parallel server is considered shut down.

Follow these steps to shut down all instances or only selected instances:

1. In the Navigator window, click the appropriate Oracle Parallel Server icon which displays those instances you want to shut down.
2. Right-click and select Shutdown. The Shutdown page on the Quick Edit property sheet appears as shown below.

Figure 2–8 Shutdown Page on the Quick Edit Parallel Server Property Sheet



3. Click the Shutdown Options you want for the selected parallel server.

The Shutdown Page on the Quick Edit property sheet contains these options:

Table 2–2 Options on the Shutdown Page

Option	Description
Normal	Waits for the currently connected users to disconnect from the database, prohibits further connects, and closes and dismounts the database before shutting down the instance. Instance recovery is not required on next startup.
Immediate	*(default)* Does not wait for current calls to complete, prohibits further connects, and closes and dismounts the database.The instance is immediately shut down. Connected users are not required to disconnect and instance recovery is not required on next startup.
Abort	Proceeds with the fastest possible shut down. Connected users are not required to disconnect. The database is not closed or dismounted, but the instances are shut down. Instance recovery is required on next startup. **Warning** You must use this option if a background process terminates abnormally.

Option	Description
Shutdown Database Only	(*default*) Shuts down the database only. The services required for an instance, such as the listener and group membership services remain up and available.
Show Command	Select this check box to display the opsctl command line as the first line in the Results field in the Parallel Server Operation Results window.
Selected Instances Only	Select this check box if you want to shut down only selected instances. The Select Instances button becomes available for selection.
Select Instances	Click the Select Instances button to choose only those instances you want to shut down.

4. If you want to shut down all instances, click the Shutdown button. If you want to shut down only selected instances, follow these steps:
   a. Select the Selected Instances Only check box.
   b. Click the Select Instances button to display the Select Instances To Shutdown window.
   c. Click the << (Add) or >> (Remove) buttons to select the instances you want to shut down.
   d. Close the Select Instances To Shutdown window.
   e. Click the Shutdown button on the Shutdown page.

The Operation Results window displays the progress of the shutdown operation. For more information, see “Viewing the Parallel Server Operation Results”on page 2-14.

If the instances were shut down successfully, the Parallel Server Shutdown Successful dialog box appears. Click the View Details button to view more information in the Operation Results window about the instances that were shut down.

If the shutdown fails, the Parallel Server Shutdown Failed message box appears. Click the View Details button to view more information in the Operation Results window about why the shutdown failed.

Viewing the Parallel Server Operation Results

The Parallel Server Operation Results window displays information about the progress of the instance startup or shutdown operation you selected.

The operation results are presented in two views: Status Details and Output.

Status Details

The Status Details view presents the instance operation status graphically.

CAUTION: The Status Details page is not supported on certain platforms or if you are running the Console with Oracle Server 8.0.3 or lower. In such cases, this page remains empty (gray background) with the "No status data available" message displayed.

Figure 2–9 Operation Results Status Details View

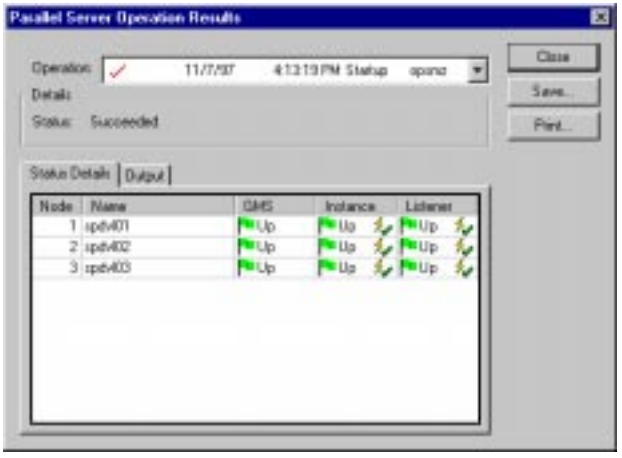


Table 2–3 Fields in the Operation Results Status Details View

Field Name	Description
Operation	Lists the date, time stamp, action, and the name of the parallel server on which the job is submitted.
Details	Displays the status of the operation. The status can be In progress, Succeeded, or Failed.
Status Details	Graphically displays the results of the operation. Information presented includes the following: Node, Name, GMS, Instance, Listener (status).

Current State of a Component

The following are the possible states that each component may experience:

Table 2–4 Current State of a Component from Status Details View

Icon	State	Description
	Up	The component is running.
	Down	The component is not running.
	Can't determine (gray background)	Enterprise Manager cannot determine the state of the component. This state occurs typically when there is an error contacting the Oracle Parallel Server Daemon (OPSD).
	Component doesn't exist on this node (blank background)	The component was not configured on the node. ▪ Not all components (GMS, listener, instance) are required to exist on every node.

Results of an Operation

Results are presented in the Parallel Server Operation Results window shown on page 2-14. The requested operation on the Oracle Parallel Server can have any of the following results:

Table 2–5 Status Icons on the Operation Results Page, Status Details View

Icon	Result	Description
	Operation failed	The requested operation failed.
	Operation succeeded	The requested operation was performed successfully.
	Operation is in progress	The requested operation is currently in progress.
	Don't know	Enterprise Manager was unable to determine the results of the operation.

Output View

The Output view displays the commands executed by the parallel server node and any associated error messages in textual format.

Figure 2–10 Operation Results Output View

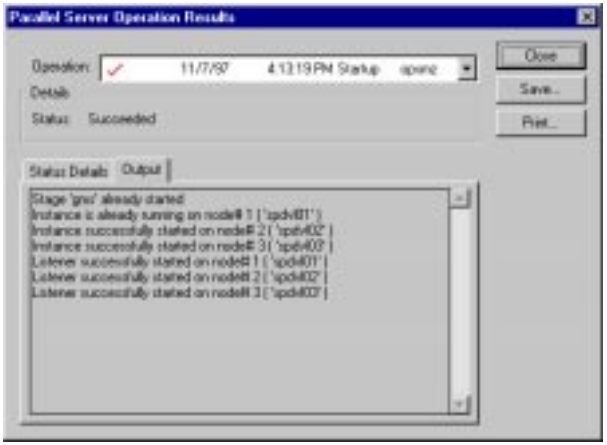


Table 2–6 Fields in the Operation Results Output View

Field Name	Description
Operation	Lists the date, time stamp, action, and the name of the parallel server on which the job is submitted.
Details	Displays the status of the operation. The status can be In progress, Succeeded, or Failed.
Output	Displays the results of the operation in textual format.

In addition to displaying the results in both the Status Details and Output views, you can save or print the results of the operation from the Parallel Server Operation Results window as directed below:

- Click Close to cancel the settings and close the Results window.
- Click Save to save the settings in the Operation Results window. A Save As dialog box appears where you can choose the filename and path for the results.
- Click Print to print the settings in the Operation Results window.

Viewing the Parallel Server Status

The following pages from the Quick Edit Parallel Server property sheet allow you to view various status information about your parallel server(s):

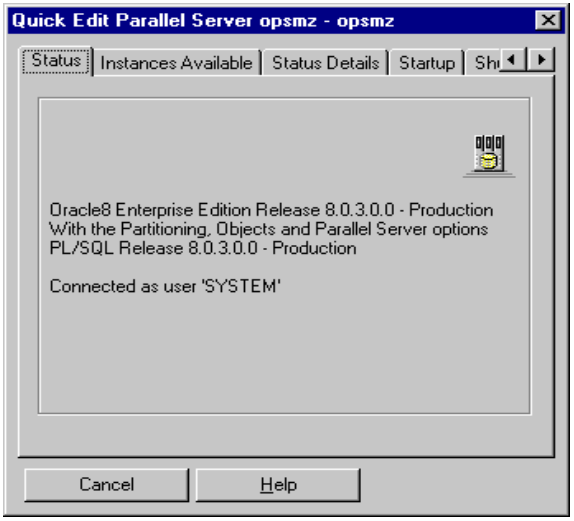
- **Status Page** Displays banner information about the Oracle Server release. This page also contains connection information.
- **Instances Available Page** Displays the names of the instances which are currently up and available.
- **Status Details Page** Displays an overall view of the state of the parallel server and related components.

Note: To display all tabs, click the forward and backward arrow buttons displayed at the top-right corner of the tab area.

Status Page

The Status page on the Quick Edit Parallel Server property sheet displays banner information about the Oracle Parallel Server release. This page also contains connection information.

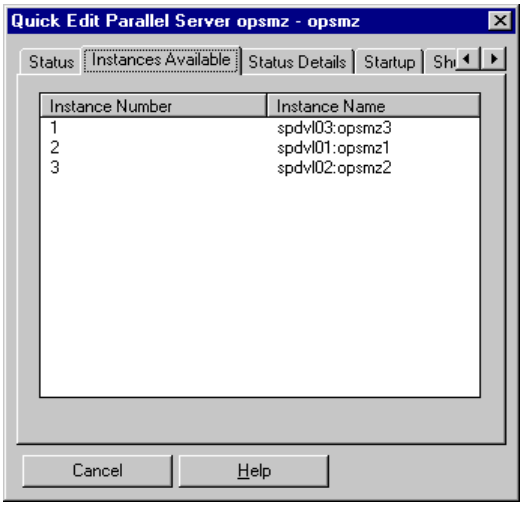
Figure 2–11 Status Page on the Quick Edit Parallel Server Property Sheet



Instances Available Page

The Instances Available page on the Quick Edit Parallel Server property sheet displays the instances belonging to the parallel server which are currently up and available.

Figure 2–12 Instances Available Page on the Quick Edit Parallel Server Property Sheet



The following parallel server and instance information is presented:

Table 2–7 Information on the Instances Available Page

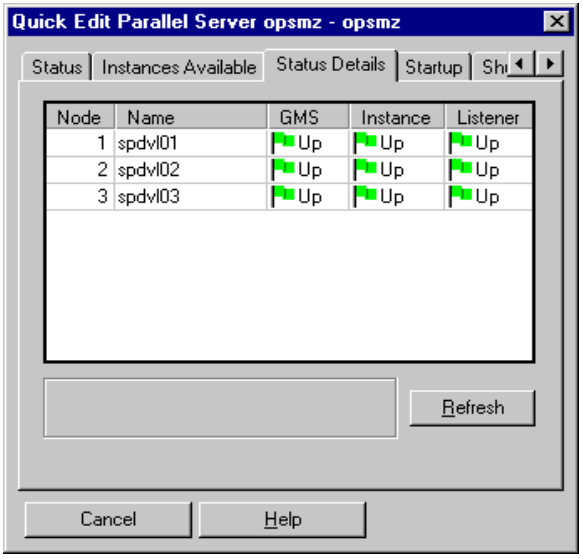
Column Name	Description
Instance Number	The number assigned to the instance.
Instance Name	The name specified for the instance and the node it is running on. This name has the following format: *node*:*instance_name*.

Status Details Page

The Status Details page on the Quick Edit Parallel Server property sheet allows you to obtain an overall view of the state of the parallel server at any given time. This page displays the status of the various components such as GMS, listeners, and instances for all parallel server nodes.

CAUTION: The Status Details page is not supported on certain platforms or if you are running the Console with Oracle Server 8.0.3 or lower. In such cases, this page remains empty (gray background) with the "No status data available" message displayed.

Figure 2–13 Status Details Page on the Quick Edit Parallel Property Sheet



Current State of a Component

The following are the possible states that each component may experience:

Table 2–8 Current State of a Component from the Status Details Page

Icon	State	Description
	Up	The component is running.
	Down	The component is not running.
	Can't determine (gray background)	Enterprise Manager cannot determine the state of the component. This state occurs typically when there is an error contacting the Oracle Parallel Server Daemon (OPSD).
	Component doesn't exist on this node (blank background)	The component was not configured on the node. ■ Not all components (GMS, listener, instance) are required to exist on every node.

Refresh Button

By clicking the Refresh button, the status view is updated with its current display. All components are dimmed until their status is determined.

Creating a Job for a Parallel Server or Parallel Server Instance

The job scheduling system provides a highly reliable and flexible mechanism for DBAs to schedule and automate repetitive jobs on both the parallel server database and parallel server instances.

The Enterprise Manager Console contains a full-featured scheduling tool which allows DBAs to come up with a customized schedule. This provides DBAs with true "lights out" management capability so that they can focus on other tasks. A rich selection of jobs is provided for parallel servers.

You can create a job with a parallel server or a parallel server instance as the destination. To create a new job, follow these steps:

1. On the Job menu, choose Create Job to display the Create Job property sheet.
2. Complete the pages of the Create Job property sheet.
3. When you are satisfied with your job settings, click the Submit button to submit the job to the Intelligent Agent. The job appears in the Active Jobs window.
4. Click the Save button to save the job. The job appears in the Job Library window. You can modify or submit a saved job at a later time.

Note: There is usually a slight delay between submitting the job and notification by the Intelligent Agent.

To modify or view details about a job, refer to the *Oracle Enterprise Manager Administrator's Guide.*

Specifying Job Details

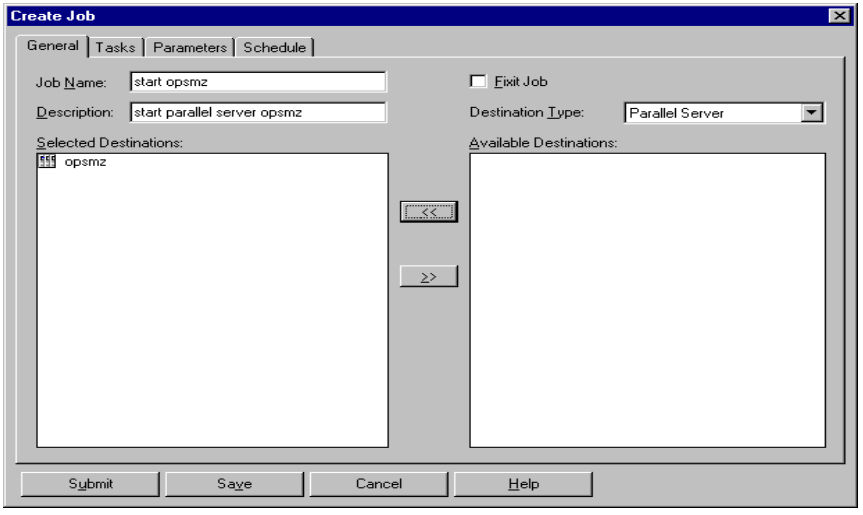
From the Create Job property sheet, you can specify the details of a new job. The Create Job property sheet contains these pages:

- **General Page** Specify the job name, description, type, and destination.
- **Tasks Page** Choose the task(s) that you want the job to perform.
- **Parameters Page** Set the run-time parameters for the tasks. The parameters that appear on this page depend on which task(s) you chose on the Task list box.
- **Schedule Page** Schedule the time and frequency you want Oracle Enterprise Manager to run the job.

General Page

From the General page, specify the Job Name, Description, Destination Type, and Destinations as show in the following window.

Figure 2–14 General Page on the Create Job Property Sheet



The General page contains these options:

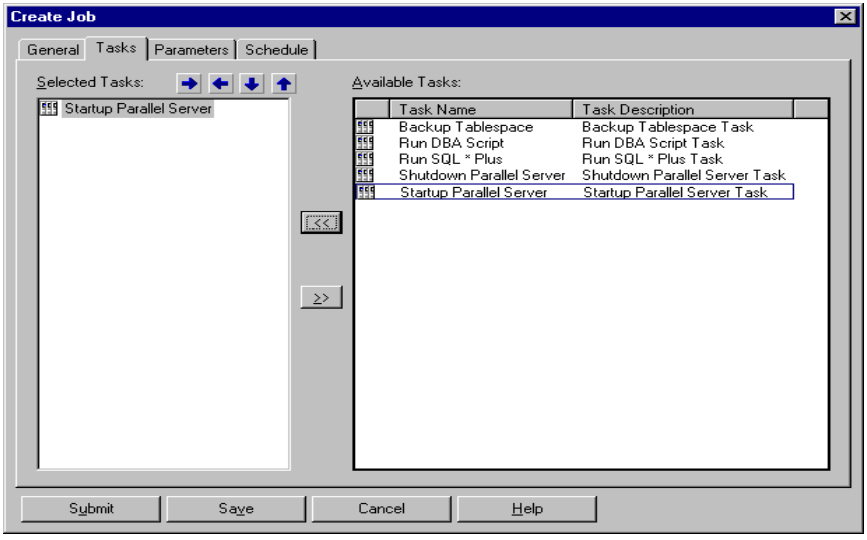
Table 2–9 Options on the Create Job General Page

Parameter	Description
Job Name	Enter the name of the new job.
Description	Enter a description of the job.
Destination Type	Select a destination type from the drop-down list box. You can choose from the following options: parallel server, parallel server instance, database, listener, node, or name server.
Available Destinations	The destinations are determined by your selection of the Destination Type. The destinations include parallel servers, parallel server instances, databases, listeners, nodes, name servers, and groups of these objects. Click the destinations of the job in the Available Destinations list, then click the << (Add) button to move the destination to the Selected Destinations list. To remove a destination from a job, click the destination in the Selected Destinations list, then click the >> (Remove) button. ■ For a parallel server task, a list of parallel servers and parallel server groups appears. ■ For a parallel server instance, a list of parallel server instances appears. ■ For a database task, a list of databases and database groups appears. ■ For an operating system task, a list of nodes and node groups appears. ■ For a listener task, a list of listener and listener groups appears.
Fixit Job	Select this check box if you want to use this job as the fixit job for an event occurrence. The job cannot be scheduled.

Tasks Page

From the Tasks page, choose the task(s) that you want the job to perform. The list of tasks that appear is different depending on whether you select a parallel server or a parallel server instance as your Destination Type from the General page.

Figure 2–15 Tasks Page on the Create Job Property Sheet



Move the tasks between the Available Tasks and Selected Tasks lists with the << (Add) and >> (Remove) buttons.

Table 2–10 Options on the Create Job Tasks Page

Task List	Description
Available Tasks	Click a task, then click the << (Add) button to include the task in the job. You can add multiple tasks to the job from the Available Tasks list.
Selected Tasks	The tasks you move into this list are executed. To remove tasks from this list, select the task, then click the >> (Remove) button.

Tasks for Parallel Server Destinations

If your Destination Type is a parallel server, you can choose from these tasks:

Table 2–11 Tasks for Parallel Server Destination

Task	Description
Backup Tablespace	Backup Tablespace Task
Run DBA Script	Run DBA Script Task
Run SQL *Plus	Run SQL*Plus Task
Shutdown Parallel Server	Shutdown Parallel Server Task
Startup Parallel Server	Startup Parallel Server Task

For a description of these tasks and the parameters you need to set, see "Parameters for the Parallel Server Startup Task" on page 2-28 and "Parameters for the Parallel Server Shutdown Task" on page 2-30.

Tasks for Parallel Server Instance Destinations

If your Destination Type is a parallel server instance, you can choose from these tasks:

Table 2–12 Tasks for Parallel Server Instance Destinations

Task	Description
Backup Tablespace	Backup Tablespace Task
Export	Export Data Task
Import	Import Data Task
Load	Load Data Task
Run DBA Script	Run DBA Script Task
Run SQL *Plus	Run SQL*Plus Task
Shutdown Database	Shutdown Database Task
Startup Database	Startup Database Task
Broadcast Message	Broadcast Message Task
Run OS Command	Run OS Command Task

Task	Description
Run TCL	Run TCL Command Task
Deinstall Products	Remove one or more products
Delete Package	Remove a software package from a host
Distribute Package	Copy a software package from a host to another host
Install Package	Install a software package.
Refresh Hosts	Refresh information about the selected host(s)

For a description of these tasks and the parameters you need to set, refer to the *Oracle Enterprise Manager Administrator's Guide.*

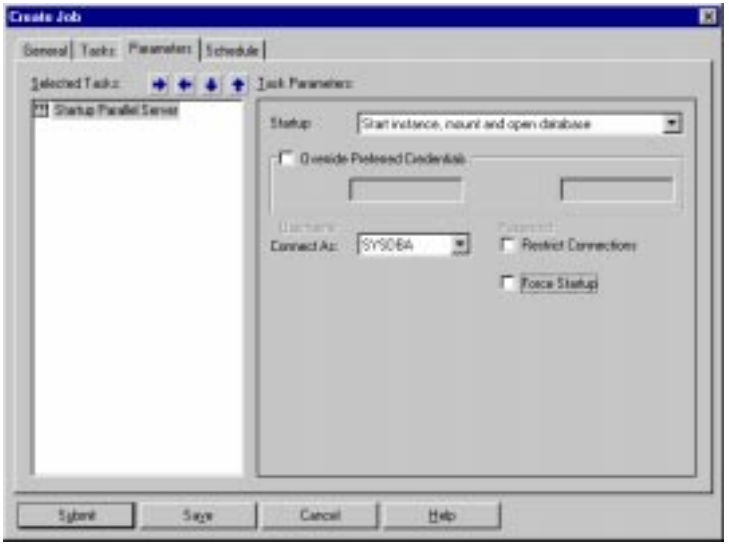
Parameters Page

From the Parameters page, you can specify parameter settings for the job tasks you selected on the Tasks page. The parameters which display vary according to the job task. Parameters for parallel server startup and shutdown tasks are described below. To find out what parameters you need to set for parallel server instance tasks, refer to the *Oracle Enterprise Manager Administrator's Guide.*

Parameters for the Parallel Server Startup Task

When you select the Startup Parallel Server task on the Tasks page, the following Parameters page displays.

Figure 2–16 Parameters Page for Startup Parallel Server



Complete the parameters on the page and click the Submit button to run the parallel server startup task.

The Parameters page for Startup contains these options:

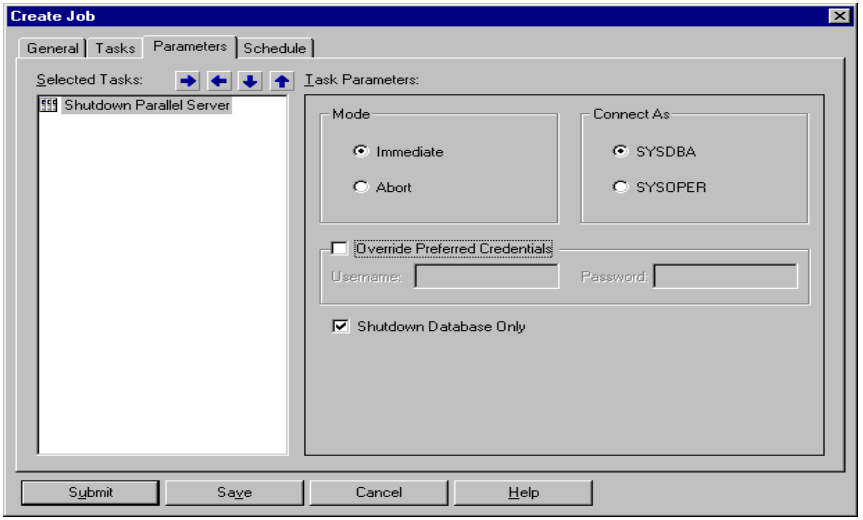
Table 2–13 Options on the Startup Parameters Page

Parameters	Description
Startup	Select the startup modes for the job from the drop-down list box.
Override Preferred Credentials	You can use the preferred credentials that have been set up for the database, or you can enter a Username and Password. If you select this check box to override the credentials, you must enter a Username and Password. ▪ The names of parallel servers appear in the Preferred Credentials window but the instances belonging to parallel servers do not. When you set Preferred Credentials for a parallel server, its instances inherit those settings.
Username	Your Oracle username for the database to which you are connecting.
Password	Your Oracle password for the database to which you are connecting.
Connect As	Pop-up menu containing NORMAL, SYSOPER, and SYSDBA for Oracle8. Only Normal is allowed for Oracle7. For Oracle8, SYSOPER and SYSDBA roles allow you the maximum database administration privileges. You require SYSDBA or SYSOPER privileges to run job tasks such as shutdown or startup on the database. For more information on SYSOPER and SYSDBA roles, refer to the *Oracle8 Server Administrator's Guide*. ▪ If you try to connect as SYSDBA and do not have SYSDBA privileges, an error message states that an invalid username or password was entered. The error message should state that invalid Login credentials were entered.

Parameters for the Parallel Server Shutdown Task

When you select the Shutdown Parallel Server task on the Tasks page, the following Parameters page displays.

Figure 2–17 Parameters Page for Shutdown Task



Complete the parameters on the page and click the Submit button to run the parallel server startup task.

The Parameters page for Shutdown contains these options:

Table 2–14 Options on the Shutdown Parameters Page

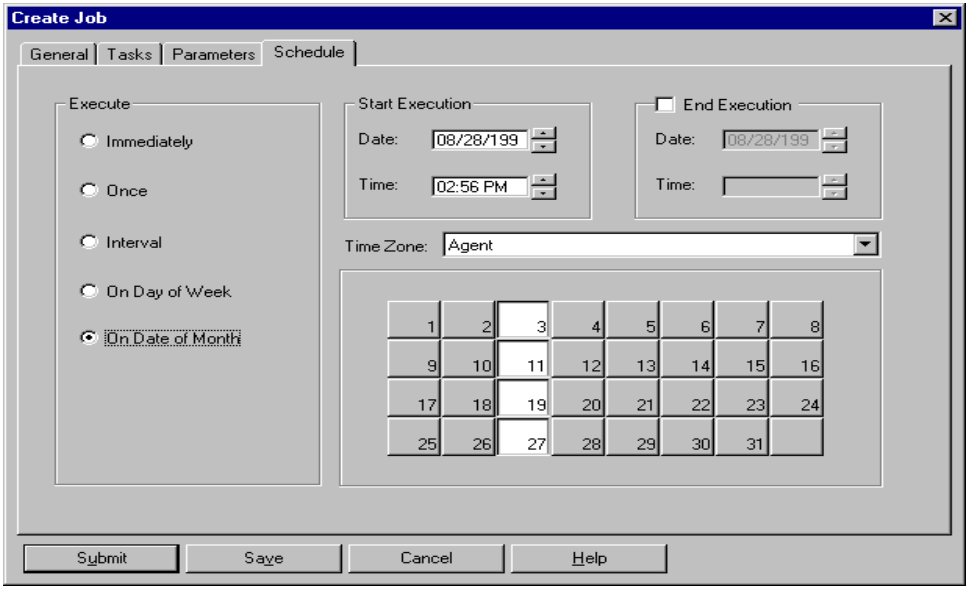
Parameter	Description
Mode	Click the Immediate button (*default*) or the Abort button.
Connect As	Click the SYSDBA button (*default*) or the SYSOPER button.
Override Preferred Credentials	You can use the preferred credentials that have been set up for the database, or you can enter a Username and Password. If you select this check box to override the credentials, you must enter a Username and Password. ▪ The names of parallel servers appear in the Preferred Credentials window but the instances belonging to parallel servers do not. When you set Preferred Credentials for a parallel server, its instances inherit those settings.

Parameter	Description
Username	Enter the username for accessing the database.
Password	Enter the password corresponding to the specified username. The password can be a null string.
Shutdown Database Only	(*default is on*) Shuts down the database only. The services required for an instance, such as the listener, group membership services, and so on, remain up and available.

Schedule Page

From the Schedule page, schedule the time, date, and frequency at which you want to execute your job.

Figure 2–18 Schedule Page on the Create Job Property Sheet



The Schedule page contains these options:

Table 2–15 Options on the Schedule Page

Parameter	Description
Execute	Click the frequency at which you want the job executed. The choices are: ■ Immediately: Schedules the job as soon as you click the Submit button. The job executes only one time. ■ Once: Schedules the job only one time at the date and time you specify. ■ Interval: Schedules a specific number of days between job executions. The interval can be a combination of hours and minutes, or number of days. Click the value you want to change, then click the scroll buttons. You can also enter the new value. ■ On Day of Week: Schedules the job on one or multiple days (Sunday, Monday, etc.) of the week. Click the days of the week to select the days you want the job scheduled. ■ On Date of Month: Schedules the job on one or more days (1 - 31) of the month. Click the dates of the month to select the dates you want the job scheduled.
Start Execution	Choose the first date and time that you want the job executed. This is the starting time for any job scheduled on an interval. ■ Click the month, day, and year in the Date field, then click the scroll buttons to change the value. You can also enter the new values. ■ Click the hour, minute, and AM/PM in the Time field, then click the scroll buttons to change the value. You can also enter the new values.
End Execution	Choose the last date and time that you want the job executed. This option does not apply if you chose the Immediately or Once execution options. ■ Click the month, day, and year in the Date field, then click the scroll buttons to change the value. You can also type in new values. ■ Click the hour, minute, and AM/PM in the Time field, then click the scroll buttons to change the value. You can also type in new values.

Parameter	Description
Time Zone	Select the time zone from the drop-down list box. The choices are: ■ Agent: The agent schedules the job execution at each destination based on the system time of each agent. Jobs are not necessarily run simultaneously. ■ Console: The agent schedules the job execution simultaneously on all destinations based on the system time of the console. ■ GMT: The agent schedules the job execution simultaneously on all destinations based on Greenwich Mean Time.

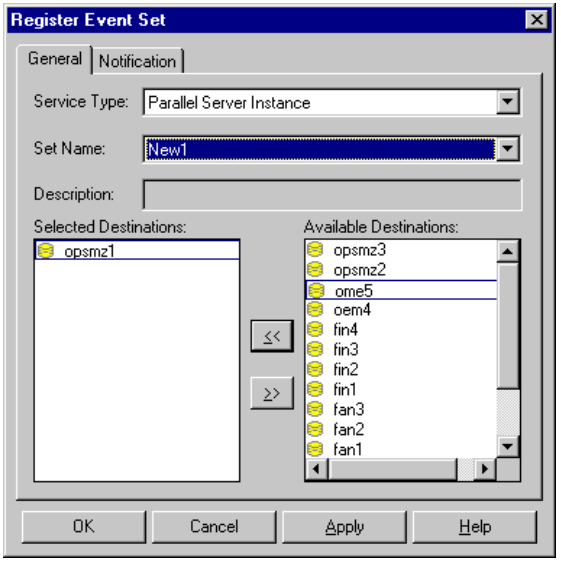
Registering Database Event Sets for Oracle Parallel Server Instances

The Oracle Enterprise Manager's Event Management System allows you to register Database event sets for Oracle Parallel Server instances.

To register Database event sets for OPS instances, complete the following steps:

1. From the Event menu, select Register Event Set. The Register Event Set property sheet appears:

Figure 2–19 Register Event Set Property Sheet



2. On the General page, select Parallel Server Instance from the Service Type list.
3. Select an appropriate event Set Name from the list. This list displays all Database event sets including those pre-defined or created by the user.
4. From the Available Destinations scroll list, select the appropriate Oracle Parallel Server instance and click the << (Add) button. The OPS instance is added to the Selected Destinations list.
5. Configure the Notification page as required.
6. Repeat the above steps for each Parallel Server Instance for which you want to create and register an event set.

For more information about the Event Management System, refer to the *Oracle Enterprise Manager Administrator's Guide.*

Related Tools for Parallel Servers and Parallel Server Instances

From the Enterprise Manager Console, you can execute a number of database administration tools and utilities on parallel servers and parallel server instances. Click a parallel server or parallel server instance in the Navigator window, then right-click. Select the Related Tools command. A menu displays with the following options:

- Backup Manager
- Lock Manager
- Performance Manager
- Schema Manager
- Security Manager
- SQL Worksheet
- Storage Manager
- Tablespace Manager
- Instance Manager (not available for parallel servers)
- TopSessions (not available for parallel servers)

Select the tool or utility you want to run for the parallel server or parallel server instance.

Note: For more information on database tools and utilities, refer to the *Oracle Enterprise Manager Administrator's Guide* and the *Oracle Enterprise Manager Performance Monitoring User's Guide.*

3

Monitoring Oracle Parallel Server Performance

This chapter presents the Performance Manager charts specific to Oracle8 Parallel Servers. You must have Performance Manager installed on the Enterprise Manager Console to display these Oracle Parallel Server Performance Manager charts.

> **IMPORTANT**: If you are planning to use OPS Performance Manager with Oracle7, you must install the PL/SQL package. For use with Oracle8, you must run a SQL script on the monitored system. Refer to Appendix A, "OPS Performance Monitoring for Oracle Parallel Server" for more information in both cases.

This chapter discusses the following topics:

Topic	Refer to Page
Performance Manager Overview	3-2
Total Block Pings Chart	3-4
Data Block Pings by Tablespace Chart	3-6
Data Block Pings by Instance Chart	3-7
Sessions Chart	3-8
Total File I/O Rate Chart	3-9
File I/O Rate by File Chart	3-11
File I/O Rate by Instance Chart	3-12

Topic	Refer to Page
Lock Activity Chart	3-13
Active Users Chart	3-14
Active Users by Instance Chart	3-15
Users Logged On Chart	3-16
Users Logged On by Instance Chart	3-17
Overview Chart	3-18

Note: If you need information on other features provided by Performance Manager, refer to the *Oracle Enterprise Manager Performance Monitoring User's Guide*. For information on the statistics these charts display, and how to interpret these statistics, refer to the *Oracle Server Tuning Guide*. For more information about the fields in these charts and the V$ views from which they are derived, refer to the *Oracle Server Reference Guide.*

Performance Manager Overview

Performance Manager displays a variety of tabular and graphic performance statistics for parallel servers. The statistics represent the aggregate performance of all instances running on a parallel server. The statistics are displayed in individual charts and include information on data block pings, lock activity, file I/O, and session and user information. You can also use the Performance Manager to display an overview of all of these statistics on one chart.

Oracle Parallel Server performance monitoring is crucial for realizing the full potential of the system. There are several key performance metrics which need to be constantly monitored to keep the Oracle Parallel Server in peak operating condition. The Performance Manager, available as an applet within Enterprise Manager, is an application designed to capture, compute, and present performance data that help database administrators focus on key performance metrics.

The following are the Oracle Parallel Server performance metrics which can be monitored by Oracle Parallel Server:

- The Data Block Pings Chart displays the total block pings on the parallel server. Block pings on the individual instances or tablespaces can be obtained by drilling down further.
- The Sessions Chart displays the sessions attached to the Oracle Parallel Server and related information such as instance name, session ID, session serial number, process ID, status, username, lockwait, and command.
- The File I/O Rate Chart displays the rate of physical reads and writes for all files in the parallel server database. You can drill down to obtain the same information either at the instance level or at the file level.
- The Lock Activity Chart displays the statistics on the lock activity rate for all the different lock types across all parallel servers. You can drill down to obtain lock activity information for a particular lock type at the instance level.
- The Active Users Chart displays the total number of active users on the parallel server.
- The Users Logged On Chart displays the total number of user sessions logged on to the parallel server, regardless of whether activity is generated. This information is also available for each instance.
- The Overview Chart displays a group of charts that display key performance statistics for the selected parallel server.

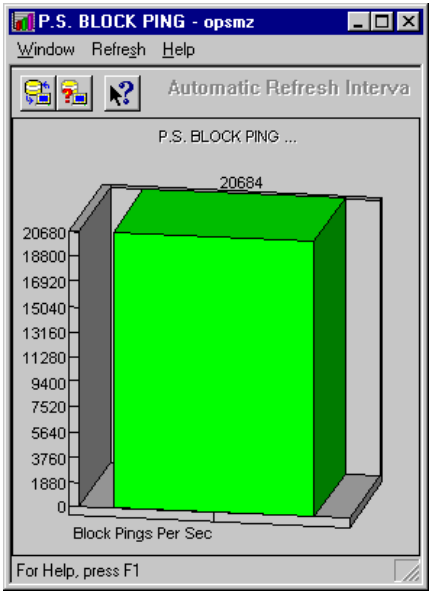
Note: Right-clicking on a displayed chart displays a menu allowing you to drill down from or customize the chart.

Total Block Pings Chart

From the Display menu, choose the Parallel Server>Parallel Server Total Block Pings command to display a bar chart which represents the total block pings on the parallel server. You can drill down to view the block pings on tablespaces and objects within the parallel server. Similarly, you can drill down on individual tablespaces and objects to view the block pings on individual instances.

The Total Block Pings chart displays statistics from the V$PING view.

Figure 3–1 Total Block Pings Chart



Drill Down — Parallel Server Total Block Pings Chart

To display the block pings at the tablespace level or at the instance level:

1. When the Performance Manager displays the Total Block Pings chart, click anywhere on the chart.
2. Right-click and select the Drill Down option.

Table 3–1 Total Block Pings Options at the Tablespace Level

Option	Description
Instance	Select Instance to view the pinging on individual instances in the parallel server. You cannot drill down below the instance level. For more information about this chart, see "Data Block Pings by Instance Chart" on page 3-7.
Object	Select Object to display the pinging on the tablespaces in the parallel server. From the tablespace level, you can click an individual tablespace and drill down again. For more information about this chart, see "Data Block Pings by Tablespace Chart" on page 3-6.

To display the block pings at the object level or at the instance level:

1. From the tablespace level, click an individual tablespace.
2. Right-click and select the Drill Down option.

Table 3–2 Total Block Pings Options at the Instance Level

Option	Description
Instance	Select Instance to view the pinging on instances within the selected tablespace. You cannot drill down below the instance level.
Object	Select Object to view the pinging on objects in the selected tablespace. Objects represent tables, indexes, free extents, clusters of tables, and so on. From the object level you can select an individual object and drill down again.

To display the block pings at the instance level for the selected object:

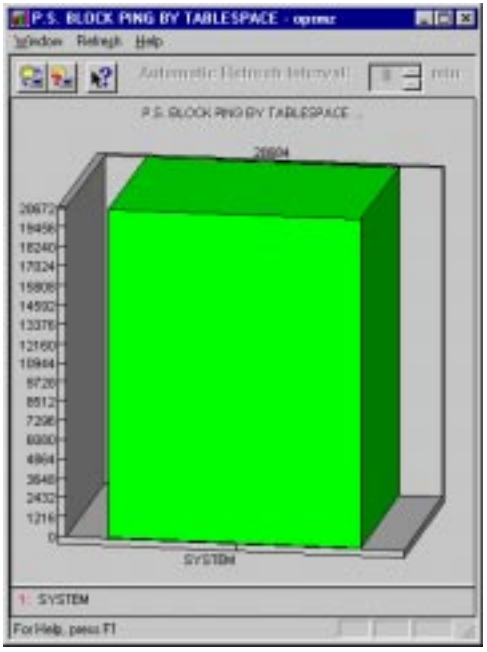
1. From the object level, click an individual object.
2. Right-click and select the Drill Down option.

Data Block Pings by Tablespace Chart

From the Display menu, choose the Parallel Server>Parallel Server Block Pings by Tablespace command to display a bar chart which represents the total block pings on the individual tablespaces in the parallel server. You can drill down on individual tablespaces to view the block pings on individual objects and instances.

The Block Pings by Tablespace chart displays statistics from the V$PING view.

Figure 3–2 Data Block Pings by Tablespace Chart



Drill Down — Parallel Server Block Pings by Tablespace Chart

To display the block pings at the object level or at the instance level:

1. When Performance Manager displays the Block Pings by Tablespace chart, click an individual tablespace.
2. Right-click and select the Drill Down option.

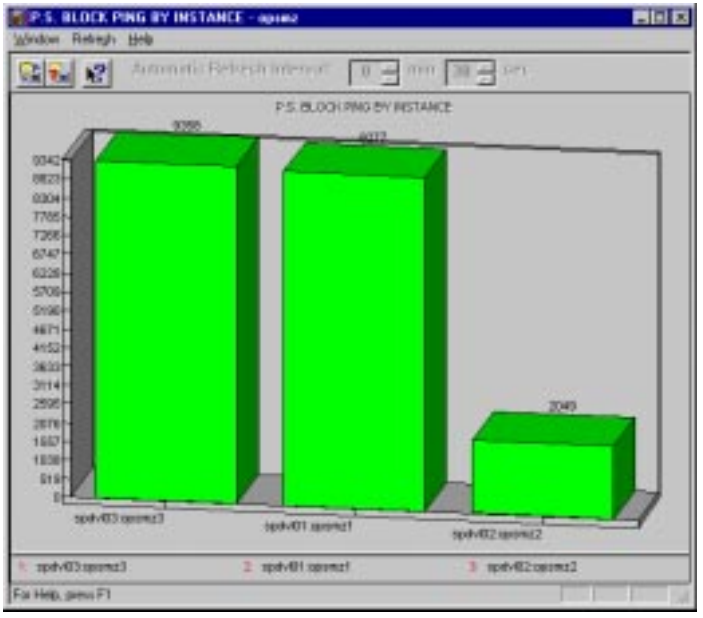
Table 3–3 Data Block Pings by Tablespace at the Instance and Object Level

Option	Description
Instance	Select Instance to view the pinging on instances within the selected tablespace. You cannot drill down below the instance level.
Object	Select Object to view the pinging on objects in the selected tablespace. Objects represent tables, indexes, free extents, clusters of tables, and so on. From the object level you can select an individual object and drill down again.

Data Block Pings by Instance Chart

From the Display menu, choose the Parallel Server>Parallel Server Block Pings by Instance command to display a bar chart which represents the total block pings on the individual instances in the parallel server. You cannot drill down below the instance level. The Block Pings by Instance chart displays statistics from the V$PING view.

Figure 3–3 Block Pings by Instance Chart

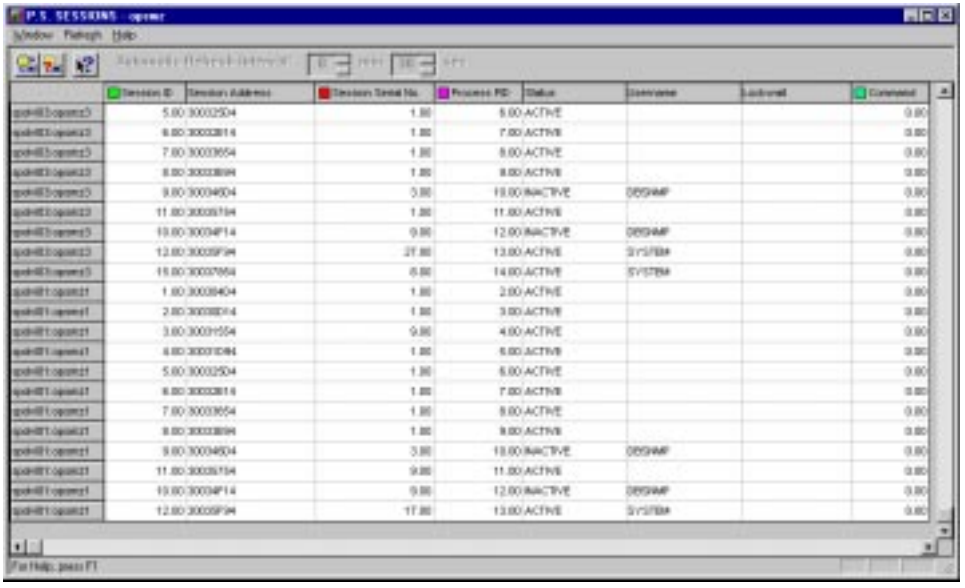


Sessions Chart

From the Display menu, choose the Parallel Server>Parallel Server Sessions command to display a table of Session IDs. The table includes columns for Instance Name, Session ID, Session Address, Session Serial Number, Process PID, Status, Username, Lockwait, and Command.

The Sessions chart displays statistics from the V$PROCESS and V$SESSION views.

Figure 3–4 Sessions Chart

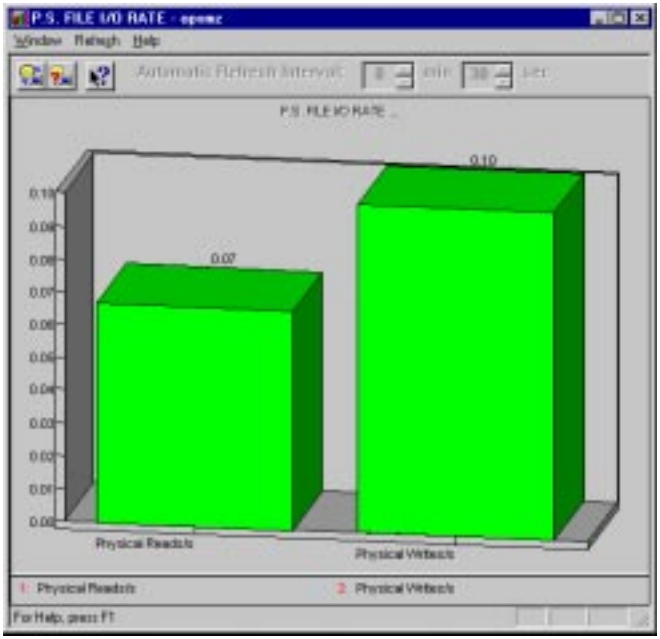


Total File I/O Rate Chart

From the Display menu, choose the Parallel Server>Parallel Server Total File I/O Rate command to graphically display the rate of physical reads and writes for all files in the parallel server database. Only information about Oracle files is shown in this chart.

The Total File I/O Rate chart displays statistics from the V$FILESTAT view.

Figure 3–5 Total File I/O Rate Chart



Drill Down — Total File I/O Rate Chart

To display the file I/O rate at the instance level or at the file level:

1. When Performance Manager displays the Total File I/O Rate chart, click anywhere on the chart.
2. Right-click and select the Drill Down option.

Table 3–4 Total File I/O Rate Options at the Instance and File Level

Option	Description
Instance	Select Instance to view the file I/O rate on individual instances in the parallel server. You cannot drill down below the instance level. For more information about this chart, see "File I/O Rate by Instance Chart" on page 3-12.
Object	Select Object to view the file I/O rate on individual files on the parallel server. For more information about this chart, see "File I/O Rate by File Chart" on page 3-11.

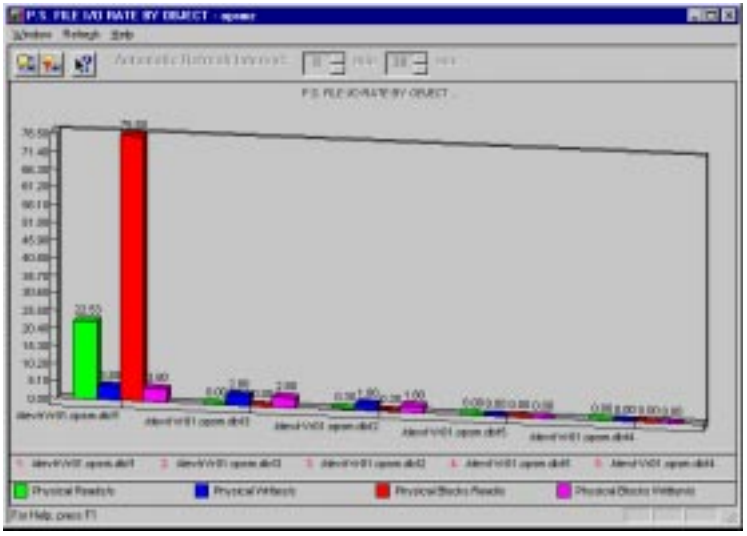
To view the file I/O rate of individual instances within the selected file:

1. From the file level, click an individual tablespace.
2. Right-click and select the Drill Down>Instance option.

File I/O Rate by File Chart

From the Display menu, choose the Parallel Server>Parallel Server File I/O Rate by File command to graphically display the rate of physical reads and writes for individual files in the parallel server database. Only information about Oracle files is shown in this chart. The File I/O Rate by File chart displays statistics from the V$FILESTAT view.

Figure 3–6 File I/O Rate by File Chart



Drill Down — File I/O Rate by File Chart

To display the file I/O rate at the instance level:

1. When Performance Manager displays the File I/O by File chart, click any individual file.
2. Right-click and select the Drill Down option.

Table 3–5 File I/O Rate by File Options at Instance Level

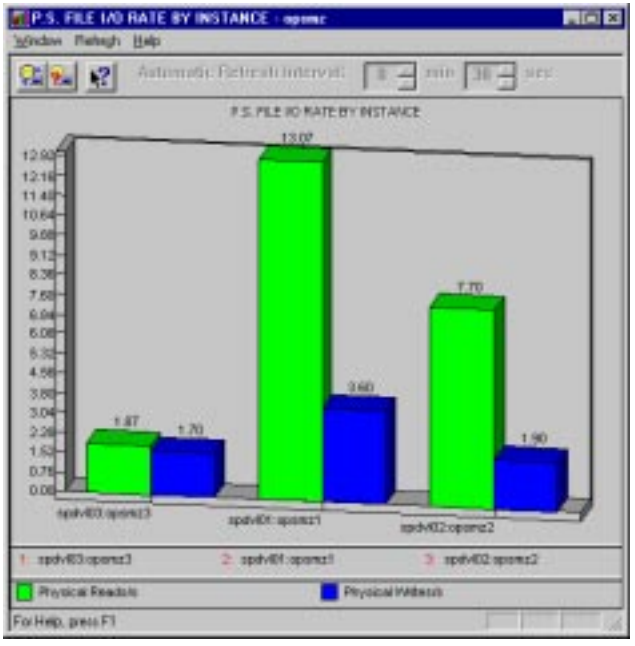
Option	Description
Instance	Select Instance to view the file I/O rate on individual instances in the parallel server. You cannot drill down below the instance level.

File I/O Rate by Instance Chart

From the Display menu, choose the Parallel Server>Parallel Server File I/O Rate by Instance command to graphically display the rate of physical reads and writes for individual instances in the parallel server database. Only information about Oracle files is shown in this chart. You cannot drill down below the instance level.

The File I/O Rate by Instance chart displays statistics from the V$FILESTAT view.

Figure 3–7 File I/O Rate by Instance Chart

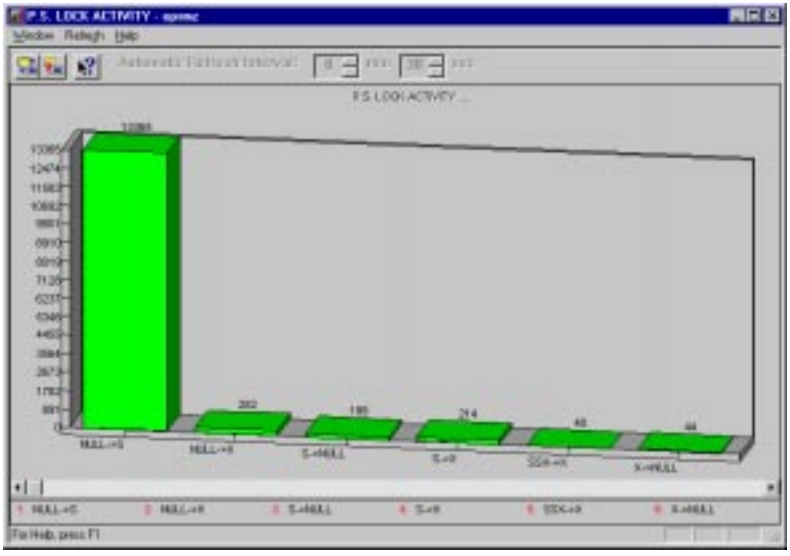


Lock Activity Chart

From the Display menu, choose the Parallel Server>Parallel Server Lock Activity command to display statistics on the lock activity rate for all different lock types parallel server-wide.

The Lock Activity chart displays statistics from the V$LOCK_ACTIVITY view.

Figure 3–8 Lock Activity Chart



Drill Down — Lock Activity Chart

To view the total lock activity by instance for the selected lock type:

1. When Performance Manager displays the Lock Activity chart, click any lock type.
2. Right-click and select the Drill Down option.

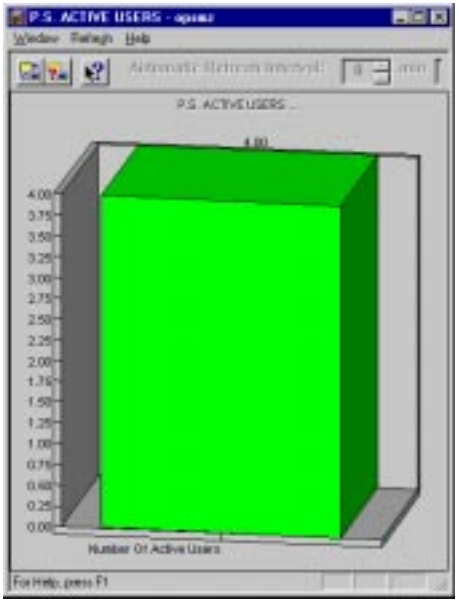
Table 3–6 Lock Activity Option at the Instance Level

Option	Description
Instance	Select Instance to view the total lock activity by instance for the selected lock type. You cannot drill down below the instance level.

Active Users Chart

From the Display menu, choose the Parallel Server>Parallel Server Active Users command to display the total number of active user sessions on the parallel server. The Active Users chart displays statistics from the V$SESSION view.

Figure 3–9 Active Users Chart



Drill Down — Active Users Chart

To view the active user sessions on each instance on the parallel server:

1. When Performance Manager displays the Active Users chart, click anywhere on the chart.
2. Right-click and select the Drill Down option.

Table 3–7 Active User Option at the Instance Level

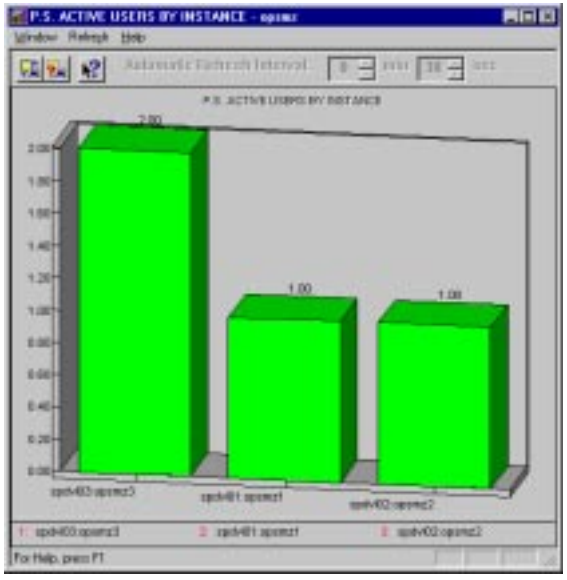
Option	Description
Instance	Select Instance to view the active users on each instance in the parallel server. You cannot drill down below the instance level. For more information about this chart, see the “Active Users by Instance Chart” on page 3-15.

Active Users by Instance Chart

From the Display menu, choose the Parallel Server>Parallel Server Active Users by Instance command to display the number of active user sessions on each instance in the parallel server. You cannot drill down below the instance level.

The Active Users by Instance chart displays statistics from the V$SESSION view.

Figure 3–10 Active Users by Instance Chart

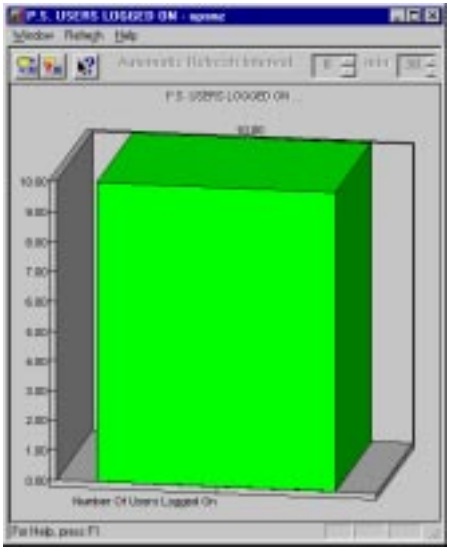


Users Logged On Chart

From the Display menu, choose the Parallel Server>Parallel Server Users Logged On command to display the total number of user sessions currently logged on to the parallel server, whether or not activity is being generated.

The Users Logged On chart displays statistics from the V$LICENSE view.

Figure 3–11 Users Logged On Chart



Drill Down — Users Logged On Chart

To view the number of user sessions currently logged on to each instance on the parallel server:

1. When Performance Manager displays the Users Logged On chart, point your mouse anywhere on the chart.
2. Right-click and select the Drill Down>Instance option.

Table 3–8 Users Logged On Options at the Instance Level

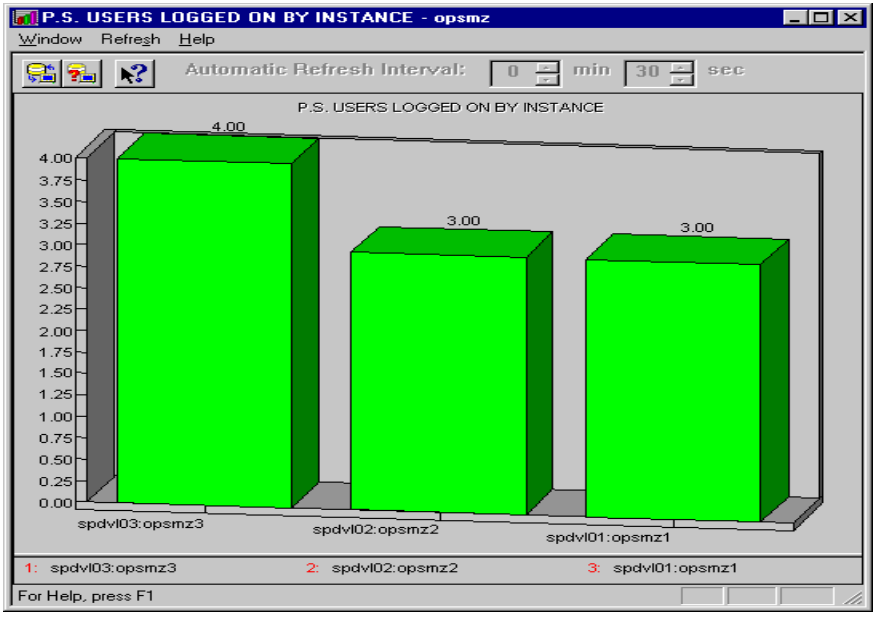
Option	Description
Instance	Select Instance to view the number of user sessions currently logged on to each instance in the parallel server. For more information about this chart, see "Users Logged On by Instance Chart"

Users Logged On by Instance Chart

From the Display menu, choose the Parallel Server>Parallel Server Users Logged On by Instance command to display the number of users logged on to each instance in the parallel server. You cannot drill down below the instance level.

The Users Logged On by Instance chart displays statistics from the V$LICENSE view.

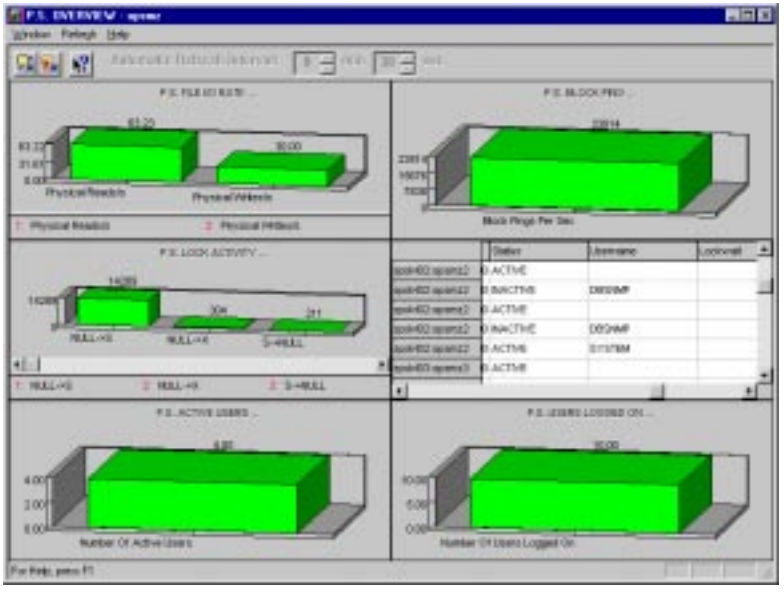
Figure 3–12 Users Logged On by Instance Chart



Overview Chart

From the Display menu, choose the Parallel Server>Overview command to display all performance statistics charts. Run this command to display the Total Block Pings, Sessions, Total File I/O Rate, Lock Activity, Active Users, and Users Logged On charts as individual tiles.

Figure 3–13 Overview Chart



A

OPS Performance Monitoring for Oracle Parallel Server

Oracle Performance Manager is a powerful tool for monitoring database performance in real-time. It is integrated with Oracle's Enterprise Manager to display charts with tabular and graphical performance statistics for instances running in a parallel server. These charts are presented in Chapter 3, "Monitoring Oracle Parallel Server Performance".

Note: This appendix provides information for performance monitoring on both the Oracle7 database described on page A-3 and the Oracle8 database described on page A-2. Refer to the appropriate section.

Oracle8: Performance Monitoring

If you are using Enterprise Manager's Performance Manager to monitor an Oracle8 Parallel Server, you must run the `ops_8mon.sql` script from either the Enterprise Manager Console or from the Oracle8 Server.

Enterprise Manager Console

Follow these steps to run the `ops_8mon.sql` script from the Enterprise Manager Console:

1. From the *ORACLE_HOME*`\sysman\admin` directory, execute Server Manager:

   ```
   C:\ORANT\SYSMAN\ADMIN> SVRMGR30
   ```

2. Connect to the database to be monitored, using the account that will be used to monitor the database with Performance Manager:

   ```
   SVRMGR> connect system/system_password@ops_db
   ```

   where *ops_db* is the alias for the monitored database to which you are connecting.

3. Run the `ops_8mon.sql` script as follows:

   ```
   SVRMGR> @ops_8mon.sql
   ```

Oracle8 Server

Follow these steps to run the `ops_8mon.sql` script from the Oracle8 Server:

1. Connect to the database to be monitored as the "internal" user by typing the following:

   ```
   connect internal
   ```

2. Run the `ops_8mon.sql`script from the *ORACLE_HOME*`/opsm/admin` directory as follows:

   ```
   @?/opsm/admin/ops_8mon.sql
   ```

Oracle7: Performance Monitoring

If you are using Enterprise Manager Performance Manager to monitor an Oracle7 Parallel Server, you must first install the PL/SQL package on your parallel server.

PL/SQL Package Contents

The Enterprise Manager Performance Manager PL/SQL package consists of the following three components:

- A set of PL/SQL scripts (procedures) that are executed by Performance Manager to aggregate results from all parallel server instances.
- A set of tables used to store the aggregated results.
- A database link for each parallel server instance.

The PL/SQL procedures are contained in `ops_pack.sql`, the tables are created by `ops_ctab.sql`, and the database links are created by `ops_dbl.sql`, which must be configured to match your parallel server configuration.

Once the above components have been installed, you can start Performance Manager against any parallel server instance. Performance Manager executes a PL/SQL procedure on the instance to query for performance data from all parallel server instances via database links, aggregating the results into a set of database tables, which are then displayed in graphical charts by Performance Manager.

Performance Manager Requirements

The following is a list of requirements to properly run Performance Manager on Oracle7:

- Since the PL/SQL package uses database links to get results from all parallel server instances, the `init.ora` parameter, `open_links`, should be increased by the number of instances in the parallel server.
- Each instance must have a TNS service name defined for it, which is used to define the database links for the instances. If `Oracle Names` is not being used, the `tnsnames.ora` containing these service names must be installed on each node or in a single `tnsnames.ora` file shared among all nodes.
- The SIDs (instance identifiers) of the instances in the parallel server must be different, otherwise it will not be possible to distinguish among them in the Performance Manager charts.

Note: The Enterprise Manager's Intelligent Agent is *not* required by the Performance Manager, as all of its functions are performed using a database connection to the parallel server.

Installing Oracle7 Performance Monitoring Scripts

You can install Oracle7 monitoring scripts from either of these locations:

- (*Recommended*) Enterprise Manager Console's *ORACLE_HOME*\sysman\admin
- Oracle7 Server

Enterprise Manager Console

The SQL*Plus scripts are located in the following location from the Enterprise Manager Console:

ORACLE_HOME\sysman\admin

Follow these steps to install the PL/SQL package on an Oracle7 database:

1. From the *ORACLE_HOME*\sysman\admin directory, ensure that all parallel server instances are running.
2. Connect to the database to be monitored using SQL*Plus as the user, "sys". Run the SQL*Plus script, ops_gdl.sql, against the parallel server. This creates the database links creation script named ops_dbl.sql.

   ```
   C:\ORANT\SYSMAN\ADMIN> sqlplus sys/sys_password@ops_db
   SQL> set linesize 250
   SQL> @ops_gdl.sql
   ```

   where *ops_db* is the alias for the monitored database to which you are connecting.
3. Run the ops_mon.sql script against the parallel server while still connected as the user "sys":

   ```
   SQL> @ops_mon.sql
   ```

Oracle7 Server

If you are installing from the Oracle7 Server, the pathname is *ORACLE_HOME*/rdbms/admin. Create the ops_dbl.sql script file using this format for each instance's entry as follows:

```
create public database link db_name@node_name_SID using 'connect_string';
```

where *db_name* is the database name from V$DATABASE, *node_name* is the hostname of the node on which the instance runs, *SID* is the ORACLE_SID of the instance, and *connect_string* is the SQL*Net connect string for the instance.

The ops_dbl.sql file is a script that creates database links across instances. These links are necessary for Performance Manager to run. You must have one database link per parallel server instance. See "Example of ops_dbl.sql" below.

1. Choose from either of these two methods to create the ops_dbl.sql script on Oracle7:

   a. If your platform includes the opsctl utility, use it to generate the database link file by running the following command:

      ```
      opsctl config -l
      ```

      The *ORACLE_HOME*/ops/ops_dbl.sql is created. Move the ops_dbl.sql file to *ORACLE_HOME*/rdbms/admin.

   b. Or, the SQL*Plus script, ops_gdl.sql, can be run against the parallel server to create these database links. Ensure that all parallel server instances are running, change the directory to *ORACLE_HOME*/rdbms/admin, and execute SQL*Plus as follows:

      ```
      sqlplus sys/sys_password
      SQL> set linesize 250
      SQL> @ops_gdl.sql
      ```

2. Run the ops_mon.sql script while still connected as the user "sys":

   ```
   SQL> @ops_mon.sql
   ```

Example of ops_dbl.sql

```
Rem -- This is an example ops_dbl.sql file for a database named "fin"
       with 4 instances
Rem --  "fin1" running on node "spdev13"
Rem --  "fin2" running on node "spdev14"
Rem --  "fin3" running on node "spdev15"
Rem --  "fin4" running on node "spdev16"
```

```
drop public database link fin@spdev13_fin1
/
create public database link fin@spdev13_fin1 using 'fin1'
/
drop public database link fin@spdev14_fin2
/
create public database link fin@spdev14_fin2 using 'fin2'
/
drop public database link fin@spdev15_fin3
/
create public database link fin@spdev15_fin3 using 'fin3'
/
drop public database link fin@spdev16_fin4
/
create public database link fin@spdev16_fin4 using 'fin4'
```

Troubleshooting Oracle7 Performance Manager

If the Performance Manager displays the "No Data Available" message, there are several items to check on the monitored parallel server. Invoke Server Manager and connect to the first instance of the parallel server. Log on with the same database username as Performance Manager. For example,

```
connect user/password@fin1
```

First, ensure that the database links can be used to connect to remote instances. Choose an instance other than the one to which you are connected (we will use instance "fin4" from the example `ops_dbl.sql` file, and run a simple query using its database link. For example,

```
select * from dual@fin@spdev16_fin4;
```

If this query fails, check that the service name used ("fin4") is valid on the node which runs the instance ("fin1") by logging into the node ("spdev13") and connecting via the service name ("fin4"). Check whether the listener serving the instance ("fin4") is up. Ensure that the `init.ora` parameters are set properly on instance "fin1" (see "Requirements" above).

Ensure that the database links as created use the proper database name, host names, and instance names. The database name is given by:

```
select name from v$database
/
```

The host names are given by:

```
select substr(inst_name, 0, instr(inst_name, ':') -1) from v$active_instances
/
```

The instance names are given by:

```
select substr(inst_name,instr(inst_name,':') + 1) from v$active_instances
/
```

If the database links work properly, try running the PL/SQL procedure used by Performance Manager to fill the aggregation table O$FILEIO:

```
connect user/password
truncate table sys.o$fileio
/
begin sys.ops_monitor.fileio; end;
/
select * from sys.o$fileio
/
```

If rows are retrieved by the final query, check that there are no o$* tables owned by the database account used by Performance Manager, which hide the synonyms:

```
connect user/password
truncate table o$fileio
/
begin ops_monitor.fileio; end;
/
select * from o$fileio
/
```

If the last query returns no rows but did return rows when the sys. prefix was appended, then the PL/SQL objects and o$ tables have been incorrectly installed under the database account used by Performance Manager, rather than under the "internal" user. Correct this by typing the following:

```
connect user/password
drop package ops_monitor
/
drop table o$fileio
/
drop table o$ping
/
drop table o$lockact
/
drop table o$session
/
drop table o$license
```

```
/
```

Then, if necessary, reinstall the package under the “internal” account as follows:

```
connect internal
@?/rdbms/admin/ops_mon.sql
```

B

Enterprise Manager Error Messages for Oracle Parallel Server

The Oracle Enterprise Manager may report the following error messages for Oracle Parallel Servers and Oracle Parallel Server instances.

Error Number	Description
PR-00208	No parameters specified for this task.
Cause	Internal Error: Startup / shutdown OCX state not initialized.
Action	Contact your Oracle customer support services representative.
PR-00210	Username has not been specified.
Cause	Override credentials option enabled, but no username specified.
Action	When overriding preferred credentials, enter a username in the Username field.

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