Oracle® Enterprise Manager

Getting Started with the Oracle Management Pack for Oracle Applications

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Getting Started with the Oracle Management Pack for Oracle Applications, Release 2.2

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If you would like a reply, please give your name, address, telephone number, and (optionally) electronic mail address.

If you have problems with the software, please contact your local Oracle Support Services.

Preface

This section describes the purpose and organization of this guide: *Getting Started with the Oracle Management Pack for Oracle Applications*. Specifically, it covers the following topics:

Purpose of This Guide

This guide provides an overview of the Oracle Performance Manager and Oracle Capacity Planner applications and their features. It also describes the Concurrent Processing Tuning Assistant and the Oracle Applications Advanced Event Tests. As the guide describes how to use these applications and events, it also introduces you to key concepts and terminology.

This guide also provides a brief description of all the Oracle Applications charts and chart groups available in Oracle Performance Manager.

Audience

This guide is written for those who wish to use Oracle Performance Manager, Oracle Capacity Planner, Concurrent Processing Tuning Assistant, and Oracle Applications Advanced Event Tests for managing Oracle Applications.

This guide assumes that you are familiar with the Oracle Enterprise Manager console and base applications. If you are not, please read *Oracle Enterprise Manager Concepts Guide* and *Oracle Enterprise Manager Administrator's Guide*.

This guide also assumes you have some administrative knowledge of Oracle Applications. If not, please refer to the Oracle Applications documentation.

How This Guide Is Organized

This guide is organized as follows:

Chapter 1, "Overview"

Provides an overview of the Oracle Management Pack for Oracle Applications and its features.

Chapter 2, "Post-Installation Configuration"

Provides lists of steps to consider after the installation of the Oracle Management Pack for Oracle Applications has taken place.

Chapter 3, "Introduction to Oracle Performance Manager"

Provides an overview of the Oracle Performance Manager application and its features.

Chapter 4, "Introduction to Oracle Capacity Planner"

Provides an overview of the Oracle Capacity Planner application and its features.

Chapter 5, "Concurrent Processing Tuning Assistant"

Provides an overview of the Concurrent Processing Tuning Assistant feature.

Chapter 6, "Oracle Applications Advanced Event Tests"

Provides an introduction to the Oracle Applications Advanced Event Tests.

Chapter 7, "Oracle Applications Jobs"

Describes Oracle Applications jobs.

Appendix A, "Charts and Chart Groups"

Provides a description of the charts and chart groups available with Oracle Performance Manager.

Appendix B, "Remote Data Gatherer Configuration"

Provides information on how to configure the Data Gatherer to point to an Oracle Applications instance located on a remote node.

Appendix C, "Troubleshooting"

Provides solutions to problems you may encounter while working with the Management Pack for Oracle Applications.

Oracle Enterprise Manager Pack Information

The Oracle Enterprise Manager product family includes the following packs: Oracle Change Management Pack, Oracle Diagnostics Pack, Oracle Tuning Pack, Oracle Standard Management Pack, Oracle Management Pack for SAP R/3, and Oracle Management Pack for Oracle Applications. Each pack is fully integrated into the Oracle Enterprise Manager Console framework.

Oracle Change Management Pack

- Includes Baseline Viewer, Change Manager, DB Alter, Create Baseline, Compare Database Objects, DB Propagate, DB Quick Change, Find Database Objects, and Plan Editor.
- Tracks metadata changes in databases.
- Eliminates errors and loss of data when upgrading databases to support new applications.
- Analyzes the impact and complex dependencies associated with application change and automatically performs database upgrades.
- Allows you to find the database objects that match a set of search criteria that you specify.
- Initiates change with easy-to-use wizards that teach systematic steps necessary to upgrade databases.

Oracle Diagnostics Pack

- Includes Oracle Performance Manager, Oracle Capacity Planner, Oracle Trace, Oracle TopSessions, and Oracle Advanced Event Tests.
- Monitors, diagnoses, and maintains the stability of databases, operating systems, and applications. Both historical and real-time analysis are used to automatically avoid problems before they occur.
- Provides powerful capacity planning features that enable users to easily plan and track future system resource requirements.

Oracle Tuning Pack

- Includes Oracle SQL Analyze, Oracle Expert, Oracle Index Tuning Wizard, Oracle Tablespace Map, and Oracle Reorg Wizard.
- Optimizes system performance by identifying and tuning major database and application bottlenecks such as inefficient SQL coding, poor data structures, and improper use of system resources.
- Discovers tuning opportunities and automatically generates the analysis and required changes to tune the system. Inherent in the product are powerful teaching tools that help DBAs learn to tune the system as they work.
- Helps increase developers and DBAs productivity.

Oracle Standard Management Pack

- Includes Baseline Viewer, Change Manager, Create Baseline, Compare Database Objects, Oracle Index Tuning Wizard, Oracle Performance Manager, and Oracle TopSessions.
- Monitors and diagnoses problems, tunes high impact indexes, and tracks and compares changes in your Oracle environment.

Oracle Management Pack for SAP R/3

- Includes Oracle Performance Manager, Oracle Capacity Planner, and Oracle Event Tests that are specific to monitoring your SAP R/3 environment.
- Monitors, diagnoses, and maintains the health of a SAP R/3 system. Both historical and real-time analysis are used to automatically avoid problems before they occur.
- Provides powerful capacity planning features that enable users to easily plan and track future system resource requirements.

Oracle Management Pack for Oracle Applications

- Includes Oracle Performance Manager, Oracle Capacity Planner, Concurrent Processing Tuning Assistant, and Oracle Applications Event Tests that are specific to monitoring your Oracle Applications environment.
- Enables you to monitor all aspects of your system, including databases and concurrent managers.
- Enables the monitoring, diagnosing, and capacity planning of the Oracle Applications environment.

Oracle Enterprise Manager Documentation

Getting Started with the Oracle Management Pack for Oracle Applications is one of several Oracle Enterprise Manager documents.

Oracle Enterprise Manager Base Documentation

- *Oracle Enterprise Manager Readme* provides important notes regarding the online documentation, updates to the software, and other late-breaking information.
- *Oracle Enterprise Manager Administrator's Guide* explains how to use Oracle Enterprise Manager, the Oracle systems management console, common services, and integrated platform tools.
- *Oracle Enterprise Manager Concepts Guide* provides an overview of Oracle Enterprise Manager.
- *Oracle Enterprise Manager Configuration Guide* explains how to configure Oracle Enterprise Manager.
- *Oracle Enterprise Manager Messages Manual* describes Oracle Enterprise Manager error messages and methods for diagnosing those errors.
- *Oracle Intelligent Agent User's Guide* provides configuration information and answers to crucial troubleshooting questions pertaining to the Oracle Intelligent Agent.

Oracle Change Management Pack Documentation

- The *Readme for Oracle Change Management, Diagnostics, and Tuning Packs* provides important notes regarding the online documentation, updates to the software, and other late-breaking information.
- *Oracle Enterprise Manager Getting Started with Oracle Change Management Pack* provides an overview of the concepts and features of Oracle Change Management Pack applications.
- The *Installation Guide for Oracle Enterprise Manager with Change Management, Diagnostics, and Tuning Packs* provides important information for installing the Oracle Enterprise Manager console and the management packs. This manual also contains information such as hardware and software requirements, installable components, and deinstallation procedures.

Oracle Diagnostics Pack Documentation

- The *Readme for Oracle Change Management, Diagnostics, and Tuning Packs* provides important notes regarding the online documentation, updates to the software, and other late-breaking information.

- *Getting Started with the Oracle Diagnostics Pack* provides an overview of the concepts and features of Oracle Performance Manager, Oracle Capacity Planner, and Oracle TopSessions applications. It also describes Oracle Event Tests that are provided with the Oracle Diagnostics Pack, which allow you to implement automatic problem detection and correction on databases, listeners, and nodes.
- *Oracle Enterprise Manager Oracle Trace User's Guide* explains how to use Oracle Trace to capture and use historical data to monitor Oracle databases.
- The *Installation Guide for Oracle Enterprise Manager with Change Management, Diagnostics, and Tuning Packs* provides important information for installing the Oracle Enterprise Manager console and the management packs. This manual also contains information such as hardware and software requirements, installable components, and deinstallation procedures.

Oracle Tuning Pack Documentation

- The *Readme for Oracle Change Management, Diagnostics, and Tuning Packs* provides important notes regarding the online documentation, updates to the software, and other late-breaking information.
- *Oracle Enterprise Manager Database Tuning with the Oracle Tuning Pack* provides an overview of the concepts and features of each of the applications included in the Oracle Tuning Pack. The applications include Oracle SQL Analyze, Oracle Expert, Oracle Index Tuning Wizard, Reorg Wizard, and the Tablespace Map. A description of how these applications can work together to tune an Oracle database is also provided.
- The *Installation Guide for Oracle Enterprise Manager with Change Management, Diagnostics, and Tuning Packs* provides important information for installing the Oracle Enterprise Manager console and the management packs. This manual also contains information such as hardware and software requirements, installable components, and deinstallation procedures.

Oracle Standard Management Pack Documentation

- The *Oracle Standard Management Pack Readme* provides important notes regarding the Oracle Standard Management Pack online documentation, updates to the software, and other late-breaking information.
- The *Getting Started with the Oracle Standard Management Pack* provides an overview of the concepts and features of Baseline Viewer, Change Manager, Create Baseline, Compare Database Objects, Oracle Index Tuning Wizard, Oracle Performance Manager, and Oracle TopSessions.

- The *Oracle Standard Management Pack Installation Guide* provides information for installing the Oracle Standard Management Pack. This guide also provides information on Oracle Enterprise Manager's three-tier framework, hardware and software requirements, installable components, and installation and deinstallation procedures.

Oracle Management Pack for SAP/R3 Documentation

- *Oracle Management Pack for SAP/R3 Readme* provides important notes regarding Oracle Management Pack for SAP R/3 online documentation, updates to the software, and other late-breaking information.
- *Oracle Enterprise Manager Getting Started with the Oracle Management Pack for SAP/R3* provides an overview of the concepts and features of Oracle Performance Manager and Oracle Capacity Planner. It also describes Oracle Event Tests that are provided with the Oracle Management Pack for SAP/R3.
- The Installation *Guide for Oracle Enterprise Manager with Management Pack for SAP R/3* provides important information for installing the Oracle Enterprise Manager console and the Oracle Management Pack for SAP R/3. This manual also contains information such as hardware and software requirements, installable components, and deinstallation procedures.

Oracle Management Pack for Oracle Applications Documentation

- *Oracle Management Pack for Oracle Applications Readme* provides important notes regarding Oracle Management Pack for Oracle Applications online documentation, updates to the software, and other late-breaking information.
- *Getting Started with the Oracle Management Pack for Oracle Applications* provides an overview of the concepts and features of Oracle Performance Manager, Oracle Capacity Planner, and Concurrent Processing Tuning Assistant. It also describes Oracle Applications Event Tests and Jobs that are specific to monitoring your Oracle Applications environment.
- The *Oracle Management Pack for Oracle Applications Installation* provides important information for installing the Oracle Enterprise Manager console and the Oracle Management Pack for Oracle Applications. This manual also contains information such as hardware and software requirements, installable components, and deinstallation procedures.

Obtaining Oracle Documentation

Installation documentation is available on its respective product CD-ROM. For example, the *Oracle Management Pack for Oracle Applications Installation* is located on the *Oracle Management Pack for Oracle Applications* CD-ROM.

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

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

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Overview

The sheer complexity of enterprise application systems presents you, the Oracle Applications system administrator, with much greater challenges than managing the database by itself. The Oracle Management Pack for Oracle Applications (hereafter referred to as the Management Pack for Oracle Applications) helps you better manage your systems through a single console, from which you can monitor and administer all major aspects of the system, including databases and concurrent managers.

The Management Pack for Oracle Applications extends Oracle Enterprise Manager to enable the monitoring, diagnosing, and capacity planning of the multitiered Oracle Applications environment. The Management Pack for Oracle Applications takes advantage of the following Oracle Enterprise Manager system management features:

- Discovery and graphical representation of services to be monitored
- Starting tools from the console in the context of a specific service
- Automated data collection and management services
- Central monitoring and administration of remote systems using intelligent agents

The Management Pack for Oracle Applications extends the following tools to work with Oracle Applications:

- Oracle Enterprise Manager Console

  The console is extended to discover concurrent managers and to notify you should any of the servers go down. You can also define event tests and jobs for any of the Oracle Applications subsystems, allowing central administration of a distributed Oracle Applications system.

- Oracle Applications Advanced Event Tests and Jobs

A library of event tests specific to Oracle Applications are provided for lights-out event monitoring and problem detection of the Oracle Applications system.

Additional lights-out problem resolution is provided with fix-it jobs that are configured to run automatically when an event triggers. These fix-it jobs are either custom-built or chosen from a small predefined set provided with the Management Pack for Oracle Applications.

- Oracle Performance Manager

  A new Oracle Applications data gatherer cartridge feeds data to Oracle Performance Manager, providing you with an extensive array of real-time monitoring charts on all concurrent managers and Oracle Forms sessions that are used by your Oracle Applications instance.

- Oracle Capacity Planner

  Concurrent manager performance data is gathered over time and fed to Oracle Capacity Planner for analysis of resource consumption and detection of performance anomalies.

- Concurrent Processing Tuning Assistant

  This utility allows you to examine historical processing information about Oracle Concurrent Processing requests and concurrent managers.

This chapter investigates the interaction of each of these tools with Oracle Applications.

Oracle Enterprise Manager Console

Concurrent Manager servers can be discovered in the Oracle Enterprise Manager navigator. By discovering all databases and Concurrent Manager servers available on the system, Oracle Enterprise Manager provides a single point of administration for an Oracle Applications system. The integration with Oracle Enterprise Manager provides the benefits of the existing 3-tiered management infrastructure and provides you with a familiar interface thus reducing the learning curve.

Central Administration of Oracle Applications System

You can group together discovered services into a single logical entity, such as the Production Financials System or the Human Resource Test System. Once grouped, you can quickly identify which system is affected when a particular Oracle Forms

server goes down, or easily link the slow performance of a particular application with an overloaded concurrent manager in that system.

The base Enterprise Manager console ships with simple events for Oracle Applications, allowing you to check whether the relevant subsystems are up or down, and have notifications delivered by a pager or e-mail to the appropriate administrators identified by their job responsibilities and work shifts. This capability allows you not only to detect problems before an end user does, but also to do so when you are not even in the office!

Automatic Problem Resolution

The base console also is shipped with a library of predefined jobs specific to Oracle Applications, such as shutting down or starting up a remote server. These jobs can be configured to trigger automatically as fix-it jobs for particular events, or scheduled to run at predefined times or intervals. As a result, you can automatically correct problems before end users are aware of them.

Oracle Applications Advanced Event Tests

In addition to the basic UpDown event tests provided for all services administered in the Oracle Enterprise Manager console, the Management Pack for Oracle Applications provides a library of advanced event tests specific to Oracle Applications subsystems. Examples of the problems that the event tests notify you of include:

- Internal Concurrent Manager is waiting on a lock.
- Percentage of requests with errors has exceeded a threshold.
- Run-alone request was submitted, locking out all other requests.

See Chapter 6, "Oracle Applications Advanced Event Tests" for a complete list of these problems.

The key to smooth system administration is to resolve problems before they turn into crises. These advanced event tests allow you to focus on the causes of problems before the symptoms become serious. In addition, with pager and e-mail notification mechanisms provided by Oracle Enterprise Manager, you can be notified of any problems with the system wherever you are located.

Oracle Performance Manager

The Management Pack for Oracle Applications uses Oracle Performance Manager, a tool also available as part of the Oracle Diagnostics Pack. Oracle Performance Manager has been extended to monitor the performance statistics of concurrent managers.

Oracle Performance Manager displays performance data in real-time graphical views that can be automatically refreshed at user-defined intervals. Multiple charts and tables can be presented in a single monitoring window, affording you a multifaceted view of applications' system performance. For example, an Oracle Applications administrator can monitor the number of Oracle Forms sessions, pending concurrent requests, and the number of running concurrent requests all in a single screen. The following are two of the predefined chart groups shipped with the Management Pack for Oracle Applications:

- System Activity Overview Chart Group
  - Forms Sessions and Concurrent Requests Chart
  - Completed Requests by Status Chart
  - Pending Requests per Manager Chart
  - Running Requests per Manager Chart
  - Longest Running Requests Chart
- Top Resource Consumers Chart Group
  - Top Form Sessions Chart
  - Top Running Requests Chart

Users can further drill down on these charts to see greater detail, and in some cases, drill down to problematic requests and terminate them. Many other subsystem specific charts are available, giving you a rich set of data to analyze your system from multiple angles. See Appendix A, "Charts and Chart Groups" for a description of individual charts.

Oracle Capacity Planner

The same data collection mechanism used by Oracle Performance Manager is also used to collect historical performance and resource consumption data for capacity planning. The Management Pack for Oracle Applications uses Oracle Capacity Planner to analyze concurrent manager performance data to help you configure your systems appropriately and project your future capacity needs.

Historical data can be gathered for many charts exposed in the Oracle Performance Manager. This collection can be customized, allowing you to select the interval at which these statistics should be sampled. The data collection mechanism allows you to customize roll up capabilities, where data can be aggregated at the end of each hour, day, week, or month. This data collection mechanism, along with data expiration policies you customize, gives you full control over the amount of storage needed for the historical data.

Once the data is gathered, you can use Oracle Capacity Planner to chart the historical data for the purposes of identifying trends and predicting future hardware requirements for the system. You can also extrapolate to a particular point in time or work back from a particular target value and find when that event is expected to occur. These charts can be customized, allowing you to get the data you need and to view data from multiple sources (for example, CPU, disk, and concurrent manager processes) on a single, unified chart.

Concurrent Processing Tuning Assistant

The Concurrent Processing Tuning Assistant reports historical information about concurrent managers, concurrent programs, and concurrent processing requests. You can use these reports to achieve better throughput and performance.

Unlike other Management Pack for Oracle Applications tools, the Tuning Assistant does not connect to the Oracle Management Server. Instead you log in directly to the database schema containing the Oracle Application Object Library tables for the subsystems you want to tune.

The Tuning Assistant reports help you balance concurrent manager workloads by determining:

- Time periods with greatest wait times
- Requests that waited during those time periods
- Time periods with excess concurrent manager capacity

You can then reschedule requests that waited, add more concurrent managers, or, if necessary, add more hardware to address the problem.

Many reports allow you to drill down to other reports associated with the selected items. For example, when you run the Waiting Requests by Hour report, you can quickly determine the time period with the greatest wait times. You can then select the period, drill down to the Requests that Waited report, and identify the requests that were blocked.

Oracle Applications Manager

Oracle Applications has integrated its concurrent manager administrative interface with Oracle Enterprise Manager, enabling administrators to better manage their systems.

The Oracle Applications Manager console provides an Applications DBA-oriented subset of the current Oracle Applications System Administration functions. These functions include administration of concurrent managers, processes, and requests.

The Oracle Applications Manager is available for Releases 11.0 and 11i.

This new functionality is in addition to the multi-window Oracle Applications forms, and administrators can choose which tools to use. Requests submitted within the standard Oracle Applications windows can be viewed from the Oracle Applications Manager console. Likewise, concurrent managers defined in the console can be accessed from within the Oracle Applications windows.

The Oracle Applications Manager can be found in the Windows Start menu under Oracle Applications or under the Enterprise Manager Tools menu under Application Management. For further information on the Oracle Applications Manager, consult the Readme file located at:

ORACLE_HOME\relnotes\EM\OAMREADME.htm

Note: To use the Oracle Applications Manager, you must install the Oracle Applications Manager Server Extensions into the Oracle Management Server Oracle home. The Server Extensions can be found under the **Custom** Installation Type of the **Oracle Applications Pack and Management Infrastructure** product.

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Post-Installation Configuration

After you have installed the Management Pack for Oracle Applications, you need to configure the following software:

- Intelligent Agent on the managed nodes (for example, Internal Concurrent Manager node and Applications Database node)
- Oracle Management Server
- Oracle Enterprise Manager console

> **Note:** All the configuration tasks listed in this chapter are required to bring the Management Pack for Oracle Applications online. A checklist is provided at the end of this chapter to help you ensure that each step has been performed correctly.

The following sections provide detailed information about each of these configuration tasks.

Intelligent Agent on the Managed Node

On the managed node you must:

- ❏ Apply Oracle Applications patch for bug #1302931
- ❏ Configure Windows NT security for the Enterprise Manager job system (for Windows NT targets only)
- ❏ Enable disk statistics collection for Capacity Planner and Performance Manager on Windows NT (for Windows NT only)
- ❏ Configure Oracle Applications Sign-On Auditing profile
- ❏ Start the Intelligent Agent and Data Gatherer on the managed node

> **Note:** If you are running the Concurrent Processing Server in Parallel Concurrent Processing mode (that is, distributed across several host computers), configure as a managed node only the host which runs the Internal Concurrent Manager. In this configuration, the Applications Disk Free event will only report on the disk space on this node.

Applying Oracle Applications Patch for Bug #1302931

The patch for bug #1302931 must be applied to the Oracle Applications instance for it to be managed by the Management Pack for Oracle Applications. This patch must be applied to the $APPL_TOP directory of each of the Concurrent Processing Servers.

> **Note:** The fix for bug #1302931 is a server-side patch, which applies identically to 10.7 SC (Smart Client), 10.7 NCA (Network Computing Architecture), and 10.7 character mode deployments.

As a convenience, the US_ENGLISH version of the patch for bug #1302931 for Oracle Applications is supplied on the Management Pack for Oracle Applications CD-ROM for the following operating systems:

Operating System	Oracle Applications Version
DIGITAL_ALPHA_OPENVMS	11.0

Operating System	Oracle Applications Version
DIGITAL_UNIX	10.7, 11.0
HP-UX_11.0.32bit	10.7, 11.0
HP-UX_98XX	10.7
IBM_RS_6000_AIX	10.7, 11.0
INTEL_SVR4_UNIX_SOLARIS	10.7, 11.0
INTEL_WINDOWS_NT	10.7, 11.0
SUN_SPARC_SOLARIS	10.7, 11.0

You will find this patch in the top-level directory labeled Applications Patches. If you require this patch for other languages or operating systems, or are otherwise unable to install this patch from this media, please use your normal channels for pulling patches for Oracle Applications. The patch for bug #1302931 is a prerequisite for using the Management Pack for Oracle Applications.

Configuring Windows NT Security for the Enterprise Manager Job System

You can use the Oracle Intelligent Agent to perform a variety of jobs on the managed node, such as starting or stopping the Concurrent Manager, or running fix-it jobs to correct problems detected by Advanced Event Tests.

To use this feature against a Concurrent Processing Server on Windows NT, you must grant the **Log on as a batch job** privilege to the Windows NT user whose account will be used to run these jobs. If you know what user accounts you will be using for this purpose, configure them now. If not, perform this step later when you enter preferred node credentials to be used on this node by Oracle Enterprise Manager.

> **Note:** On Windows NT, the Internal Concurrent Manager is created as a service. Only users belonging to the Administrators group are allowed to start and stop services.

To grant a Windows NT user the **Log on as a batch job** privilege, do the following:

1. Select **Start=>Programs=>Administrative Tools=>User Manager**.
2. Highlight the user to be granted the privilege.

3. Choose **Policies=>User Rights**.
4. Check the **Show Advanced User Rights** box.
5. In the Right field, select the **Log on as a batch job** right.
6. Click **Add**.

Jobs submitted using user names without the **Log on as a batch job** privilege fail with the status of Vni Authentication Error. Refer to the *Oracle Intelligent Agent User's Guide* for information regarding the **Logon as a batch job** privilege.

Enabling Disk Statistics Collection for Capacity Planner and Performance Manager on Windows NT

To collect disk statistics on Windows NT, type the following at the DOS prompt:

```
diskperf  -Y
```

Disk statistics will be enabled the next time the system is restarted.

Note: If you want to view CPU usage of your concurrent programs using Performance Manager, the Applications database must have the Timed Statistics parameter, located in the oracle.ini file, turned on. See your database documentation for details. Activating this parameter may have a performance impact on your database.

Configuring Oracle Applications Sign-On Auditing

To monitor Applications form sessions with the Management Pack for Oracle Applications, you must set the Oracle Applications "Sign-On: Audit Level" profile to FORM, using your normal Applications administration tools. Oracle suggests that you periodically run the Purge Sign-on Audit Data concurrent program to purge unwanted historical data from your FND tables.

Starting the Intelligent Agent and Data Gatherer on the Managed Node

To start the Intelligent Agent and the Intelligent Agent Data Gatherer on the managed node, see the appropriate sections that follow:

- "Managing the Intelligent Agent on UNIX" on page 2-5
- "Managing the Intelligent Agent on Windows NT" on page 2-6

- "Managing the Intelligent Agent from the Windows NT Command Prompt" on page 2-6
- "Managing the Data Gatherer on UNIX" on page 2-7
- "Managing the Data Gathering Service on Windows NT" on page 2-8

Managing the Intelligent Agent on UNIX

On UNIX, Oracle Enterprise Manager uses the `lsnrctl` command to start and stop the Intelligent Agent. The relevant `lsnrctl` commands to control the UNIX Intelligent Agent are listed in the following table.

Note: Verify that your Oracle home environment variable is set to the Intelligent Agent's Oracle home before running lsnrctl. Also, Oracle suggests you perform the following steps:

- Construct an environment file for use with this agent separate from the environment files you use for other Oracle Applications on this node.
- Ensure that the PATH variable includes the $ORACLE_HOME/bin directory and that the LD_LIBRARY_PATH variable includes the $ORACLE_HOME/lib directory for this agent's Oracle home. These directories must be at the beginning of their respective lists of directories.
- Do not set any values for the ORA_NLS and ORA_NLS33 environment variables. You will run into trouble if these are set to the directories Oracle Applications uses for these variables.
- If the agent is using the tnsnames.ora file in its own Oracle home, do not set your TNS_ADMIN environment variable.

If you want to...	Enter the command...
Start the agent on UNIX platforms	lsnrctl dbsnmp_start
Stop the agent on the UNIX platform	lsnrctl dbsnmp_stop

If you want to...	Enter the command...
Verify status of the agent	lsnrctl dbsnmp_status *or* ps -ef | grep dbsnmp Verify there are two dbsnmp processes.

Managing the Intelligent Agent on Windows NT

On Windows NT, the Intelligent Agent runs as a Windows NT service. The steps to control the Intelligent Agent are listed in the following table.

If you want to...	Do the following...
Start Intelligent Agent	Start=>Settings=>Control Panel=>Services=>Oracle<name of Oracle home>Agent=>Start
Stop Intelligent Agent	Start=>Settings=>Control Panel=>Services=>Oracle<name of Oracle home>Agent=>Stop
Verify status of Intelligent Agent	Start=>Settings=>Control Panel=>Services=>Oracle<name of Oracle home>Agent=>look at Status column *or* View the Windows NT Task Manager to see the dbsnmp.exe process information

In the Windows NT Services panel, the Intelligent Agent Startup Type is set by default to Manual. This allows the Intelligent Agent to be started by a user. If you want the Intelligent Agent to start automatically whenever you start the system, set the Startup Type to Automatic. Refer to the *Oracle Intelligent Agent User's Guide* for additional information.

Managing the Intelligent Agent from the Windows NT Command Prompt

To start or stop the Intelligent Agent from the command prompt, enter the appropriate command. From the command prompt, you can also verify that the service is running.

If you want to...	Enter the following command
Start the Intelligent Agent from the prompt	net start <agent service>
Stop the Intelligent Agent from the prompt	net stop <agent service>

If you want to...	Enter the following command
Verify status of the Intelligent Agent from the prompt	net start

The <agent service> is composed of the word Oracle, followed by the name of the Oracle home (for example, OUIHome), and concluded with the word Agent with a number attached. `OracleOUIHomeAgent80`, is an example of an agent service.

> **Note:** Do not use the `lsnrctl` command to start the Intelligent Agent for Windows NT.

Managing the Data Gatherer on UNIX

On UNIX, Oracle Enterprise Manager uses the `vppcntl` command to manage the Data Gatherer. The `vppcntl` executable file is located in the ORACLE_HOME/bin directory.

> **Note:** The same environment variable considerations apply when running the Data Gatherer as when running the Intelligent Agent. See the note in the section titled "Managing the Intelligent Agent on UNIX" on page 2-5 for additional details.

Commands to control Oracle Data Gatherer are listed in the following table.

If you want to...	Enter the command...
Start Oracle Data Gatherer	vppcntl -start
Stop Oracle Data Gatherer	vppcntl -stop
Verify that Oracle Data Gatherer is running	vppcntl -ping *or* ps -ef | grep vppdc
Identify the version of Oracle Data Gatherer	vppcntl -version
Run Oracle Data Gatherer in debug mode	vppdc -console -debug The Data Gatherer needs to be stopped before executing this command. The debug output will be printed to the user's terminal window, not to a log file.

Managing the Data Gathering Service on Windows NT

On Windows NT, the Data Gatherer runs as a Windows NT service. The steps to control Oracle Data Gatherer are listed in the following table.

If you want to...	Do the following...
Start Oracle Data Gatherer	Start=>Settings=>Control Panel=>Services=>Oracle<name of Oracle home>DataGatherer=>Start *or* Open an MS-DOS window and type the command: vppcntl -start
Stop Oracle Data Gatherer	Start=>Settings=>Control Panel=>Services=>Oracle<name of Oracle home>DataGatherer=>Stop *or* Open an MS-DOS window and type the command: vppcntl -stop
Verify that Oracle Data Gatherer is running	Start=>Settings=>Control Panel=>Services=>Oracle<name of Oracle home>DataGatherer=>look at Status column to verify that the service is started *or* Check Task Manager for a process running vppdc.exe *or* Open an MS-DOS window and type the command: vppcntl -ping
Identify the version of Oracle Data Gatherer	Open an MS-DOS window and type the command: vppcntl -version
Run Oracle Data Gatherer in debug mode	Open an MS-DOS window and type the command: vppdc -console -debug The Data Gatherer needs to be stopped before executing this command. The debug output will be printed to the user's terminal window, not to a log file.

Oracle Management Server (OMS)

After you install the Oracle Management Server for the Management Pack for Oracle Applications, you must:

- ❏ Create the Oracle Management Server repository, if not already created
- ❏ Start the Oracle Management Server
- ❏ (Optional) Run the Management Pack for Oracle Applications through a web browser

Creating the Oracle Management Server Repository

When you create your Oracle Management Server, you must provide the repository address in the `<host:port:sid>` format, rather than using a Net8 service name or leaving the name field blank to indicate a local default database. The host portion should be a fully qualified DNS name, for example, `myhost.us.acme.com`. Otherwise, Capacity Planner and Performance Manager clients from other DNS domains (for example, uk.acme.com) will not be able to connect to the server. This step ensures that all Enterprise Manager applications can connect to the Oracle Management Server repository when needed.

If you are using a previously created repository, use the Enterprise Manager Configuration Assistant to verify that the Oracle Management Server is using the `<host:port:sid>` syntax for its repository address, and modify it to use this syntax if needed. To do this task, start the Configuration Assistant, as follows:

- To start the Configuration Assistant on Windows NT, select **Start=>Programs=><Enterprise Manager Home>=>Enterprise Manager=>Configuration Assistant**
- To start the Configuration Assistant on UNIX, run **<Enterprise Manager Oracle Home>/bin/emca**

  Select the **Edit Configuration Parameters** option and click **Next**.

The existing Oracle Management Server connection parameters are now displayed. The bottom parameter ("Service") indicates the repository service. If this is already in the <host:port:SID> syntax, nothing further needs to be done, and you can exit the tool.

If this line instead contains a name (for example, omsdb or omsdb.acme.com) or is blank, you need to do the following:

1. Change the line to contain the fully-qualified host name on which the Oracle Management Server repository database is run. Insert a colon after the host name.
2. Type the port number that the TNS listener for this database is using. Insert a colon after the port number.
3. Type the SID of this database. The resulting line looks like:

   ```
   omhost.acme.com:1521:ORCL
   ```

4. Click **Next**.
5. Click **Finish** to save the changes.

Starting the Oracle Management Server

To start the Oracle Management Server, see the appropriate section that follows:

- "Managing the Oracle Management Server on UNIX" on page 2-10
- "Managing the Oracle Management Server on Windows NT" on page 2-11

Note: If you have problems starting the Oracle Management Server, see the *Oracle Enterprise Manager Configuration Guide* for information.

Managing the Oracle Management Server on UNIX

On UNIX, Oracle Enterprise Manager uses the `oemctrl` command to start and stop the Oracle Management Server. The relevant `oemctrl` commands to control the UNIX Oracle Management Server are listed in the following table. In all cases, the command string is case-sensitive and must be entered with lowercase characters.

If you want to...	Enter the command...
Start Oracle Management Server	oemctrl start oms

If you want to...	Enter the command...
Stop Oracle Management Server	oemctrl stop oms <EMAdministratorName> / <EmPassword> where *EMAdministratorName* is your Oracle Enterprise Manager super administrator name (for example, sysman). *EmPassword* in your Oracle Enterprise Manager super administrator password (for example, oem_temp). *EmPassword* is case-sensitive and must be entered in the same case as it was originally entered.
Verify status of Oracle Management Server	oemctrl status oms <EMAdministratorName> / <EmPassword>[@<hostname>] where *EMAdministratorName* is your Oracle Enterprise Manager super administrator name (for example, sysman). *EmPassword* is your Oracle Enterprise Manager super administrator password (for example, oem_temp). *EmPassword* is case-sensitive and must be entered in the same case as it was originally created. *hostname* is the machine where your Oracle Management Server is running. You do not need to enter the host name if the Oracle Management Server is running locally.

Note: If the need arises, you can reset the superuser password by running the `vduResetSysman.sql` script from the Enterprise Manager master account. The script is located in the ORACLE_HOME/sysman/admin directory.

Managing the Oracle Management Server on Windows NT

On Windows NT, the Oracle Management Server runs as a Windows NT service. The steps to control the Oracle Management Server are listed in the following table.

If you want to...	Do the following...
Start Oracle Management Server	Start=>Settings=>Control Panel=>Services=>Oracle<name of Oracle home>ManagementServer=>Start
Stop Oracle Management Server	Start=>Settings=>Control Panel=>Services=>Oracle<name of Oracle home>ManagementServer=>Stop **NOTE:** You must have the Windows NT operating system administrator privilege to stop the Oracle Management Server.

If you want to...	Do the following...
Verify status of Oracle Management Server	Start=>Settings=>Control Panel=>Services=>Oracle<name of Oracle home>Management Server=>look at Status column *or* oemctrl status oms

The status information of the Oracle Management Server includes the following:

- Overall status of the Oracle Management Server
- Time period the Oracle Management Server has been up and available
- Statistics regarding the performance of the Oracle Management Server

Running the Management Pack for Oracle Applications through a Web Browser

Windows NT clients can run the Oracle Enterprise Manager console through a web browser without installing any software on the client node. In this mode of operation, Concurrent Manager Server discovery and Advanced Events are available. However, the other tools in the Management Pack for Oracle Applications are not supported.

> **Note:** To use the Management Pack for Oracle Applications advanced event tests from a browser, the Management Pack for Oracle Applications must be installed in the same Oracle home as the Oracle Management Server.

To run in this mode of operation, some special setup steps must be taken to make the Enterprise Manager software available from a Web server. Refer to the Web browser information in the *Oracle Enterprise Manager Configuration Guide* for a complete description of how to set up and run Oracle Enterprise Manager in this configuration.

Oracle Enterprise Manager Console

After you install the client software for the Management Pack for Oracle Applications, you must:

1. Start the Oracle Enterprise Manager console.
2. Discover nodes and services to manage in the console.
3. Configure the oapps.ora file on the concurrent manager node.
4. Discover concurrent managers in the console.
5. Set preferred credentials.
6. Start the applications delivered with the Management Pack for Oracle Applications.

The following sections describe these tasks in detail.

Starting the Oracle Enterprise Manager Console

1. Start the Oracle Enterprise Manager console.
   - On Windows NT, start the console from the Windows Start menu under the appropriate Oracle home.
   - On UNIX, start the console from the command line by typing:

     ```
     oemapp console
     ```

     The command string is case-sensitive and must be entered with lowercase characters.
2. If you are logging in to the console for the first time, at the first login dialog, type in the default credentials for the super administrator account.

   Administrator = `sysman`

   Password = `oem_temp`

   Note: Should you forget the Enterprise Manager password after you set it, run the VtdruResetPassword.sql script to reset the password.

3. From the Oracle Management Server pull-down list, select an Oracle Management Server which is configured for Oracle Applications management.

If the name of the Oracle Management Server you want to use does not appear, do the following:

a. Click the Management Servers button. The Management Servers dialog is displayed.

b. Click the Add button. The Add Management Server dialog is displayed.

c. Type in the host name of the computer on which the Oracle Management Server you want to add is running, and click OK.

d. Select the Oracle Management Server from the pull-down list.

4. After the initial login, a security login dialog is displayed where you can change your password. Change your password immediately.

Note: Passwords cannot have more than 8 characters.

Discovering Nodes and Services

During the start up of the Oracle Management Server, the manageable services on the machine where the Oracle Management Server is running are automatically discovered. The Console Navigator shows all these discovered services.

To discover additional nodes:

1. Select **Discover Nodes** from the Console's Navigator menu.
2. Enter the host name of the node in the text window of the Discover Nodes dialog. You can discover multiple services at one time by entering each node you want to discover on a new line within the text window.
3. Click **OK** to continue.

If a node cannot be discovered, it may be because the node is down or the node is not running an Intelligent Agent. Also note that you must be using the TCP/IP network protocol.

Configuring the oapps.ora File on the Concurrent Manager Node

There are several manual steps you must perform before discovering an Oracle Applications instance. These steps are:

1. In the Enterprise Manager Console, discover the node where the Oracle Applications database resides, as described in "Discovering Nodes and Services" on page 2-14.

2. Make a note of the fully qualified database name as it appears in the Enterprise Manager console, for example, Production_DB.acme.com. You will need this information later.

3. Go to the Concurrent Processing Server node and locate the Oracle home of the Intelligent Agent. For the Intelligent Agent to discover the Concurrent Processing Server, you must edit the oapps.ora file. The oapps.ora file is installed into the following directory in the Intelligent Agent's Oracle home:

   ```
   $ORACLE_HOME/network/agent/config
   ```

   The oapps.ora file is an input file used to associate Oracle Applications instances with information about the instances.

   The file format is:

   ```
   <type> <WS> <dbname> <WS> <envfile> <WS> <startup information> <NL>
   ```

Variable	Definition
<type>	Entry type. Currently only cmanager is recognized; cmanager denotes Concurrent Manager Server.
<WS>	White space (one or more blanks or tabs).
<dbname>	Applications database name. This name is also used as the Applications instance name. **This must be exactly the same (fully qualified) name as the database name that appears in the Enterprise Manager console.**
<envfile>	Fully qualified path and file name of the Applications environment file. This file must set up the entire Applications environment, including all required database environment variables, and all variables from the Applications environment file located in the APPL_TOP directory. **Note:** For the Windows NT 10.7 instance, which does not have the Applications environment file, type a dummy file name. This file name can reference an empty file or a non-existing file.
<startup information>	For Windows NT. Name of the ICM service in the NT Services panel. For UNIX. Fully qualified path to the ICM startup script. Typically this is the `oemstart.sh` script in the $FND_TOP/bin directory, installed when you apply the patch for bug #1302931.
<NL>	New line, that is, one line per entry. **Note:** You can have multiple entries in a single oapps.ora file.

Lines starting with a pound sign (#) as the first non-WS character are comments and are ignored.

An example of an entry for Windows NT is:

```
# entry for discovering the headquarters production applications instance
cmanager hqprod.world C:\home\admin\appsenvfile ICMprod
```

An example of an entry for UNIX is:

```
# entry for discovering the headquarters production applications instance
cmanager hqprod.world /appltop/APPLSYS.env /appltop/fnd/11.0/bin/oemstart.sh
```

4. Stop and start the Intelligent Agent as described earlier in this chapter. This will force the Intelligent Agent to read the oapps.ora file and recognize the existence of the Concurrent Manager on this node.

5. After starting the Intelligent Agent, verify that the Intelligent Agent successfully discovered the concurrent manager by inspecting the Intelligent Agent's $ORACLE_HOME/network/agent/services.ora file. This file should contain an entry of the form:

   ```
   <applications instance name> = (oracle_sysman_cmanager, <hostname>,
   <environment file name>, <startup information>)
   ```

   If such a line does not appear in the services.ora file, refer to Appendix C, "Troubleshooting", or the *Oracle Intelligent Agent User's Guide* for additional information.

Note: It is possible to name the concurrent manager instance using a name that is different from the name of its corresponding database. To do this, you must define a tnsnames.ora entry for the Oracle Applications database with the name you want to use for the concurrent manager in the Console. Use this name in the oapps.ora file and verify that every oracle home (for example, Enterprise Manager Console, OMS, and Agent) has this tns alias defined in its tnsnames.ora file.

Discovering Concurrent Managers in the Console

After configuring the oapps.ora file, return to the Enterprise Manager console. Right mouse click on the node where the Concurrent Processing Server resides and select **Refresh Node**. Upon completion, you will see a new Concurrent Manager appear in the console.

Setting Preferred Credentials

You must enter preferred credentials for both the concurrent manager and the managed node. The Intelligent Agent uses these credentials when running jobs on the managed node.

To enter preferred credentials, select System=>Preferences=>Preferred Credentials on the Oracle Enterprise Manager console main window. To manage Concurrent Manager Servers, you must add preferred credentials for each concurrent manager discovered, and you must add node credentials for the host computer on which they run. All the fields are mandatory. Refer to the Oracle Enterprise Manager console help and the *Oracle Enterprise Manager Configuration Guide* for information about setting preferred credentials.

Note: Node credentials for Windows NT nodes must be for users who are granted the Windows NT **Log on as a batch job** privilege. See "Configuring Windows NT Security for the Enterprise Manager Job System" on page 2-3 for details on configuring this privilege.

Starting Applications in the Management Pack for Oracle Applications

After starting the Oracle Enterprise Manager console, you can now start the applications in the Management Pack for Oracle Applications. The following table lists these applications and where to find the appropriate information.

Step	Where to Find the Information
Starting Oracle Performance Manager	See "Starting Oracle Performance Manager" on page 3-4.
Starting Oracle Capacity Planner	See "Introduction to Oracle Capacity Planner" on page 4-1.
Starting Concurrent Processing Tuning Assistant	See "Concurrent Processing Tuning Assistant" on page 5-1.
Using Advanced Events	See "Oracle Applications Advanced Event Tests" on page 6-1.

Configuration Checklist

The following table provides a checklist of steps to perform when configuring the Management Pack for Oracle Applications.

Table 2–1 Configuration Checklist

Intelligent Agent on the Managed Node (Concurrent Manager Node)

- ❑ Install software on the managed node

  See the *Oracle Management Pack for Oracle Applications Installation* for instructions on installing the Oracle Intelligent Agent and Agent Extensions for Oracle Applications.

- ❑ Apply Oracle Applications patch for bug #1302931

  See "Applying Oracle Applications Patch for Bug #1302931" on page 2-2.

- ❑ Configure Windows NT security

  See "Configuring Windows NT Security for the Enterprise Manager Job System" on page 2-3.

- ❑ Enable disk statistics collection (Windows NT only)

  See "Enabling Disk Statistics Collection for Capacity Planner and Performance Manager on Windows NT" on page 2-4.

- ❑ Start the Intelligent Agent and data gatherer in the newly installed Oracle Home

  See "Starting the Intelligent Agent and Data Gatherer on the Managed Node" on page 2-4 and information in the file itself.

Oracle Management Server

- ❑ Install software

  Skip this step if Oracle Management Server Release 2.2 is already running.

- ❑ Create an Oracle Management Server repository

  Skip this step if Oracle Management Server Release 2.2 is already running. The installation will guide you through these steps. See "Creating the Oracle Management Server Repository" on page 2-9 or refer to the Oracle Enterprise Manager documentation for additional details.

- ❑ Start the Oracle Management Server

  See "Starting the Oracle Management Server" on page 2-10.

- ❑ (Optional) Run the Management Pack for Oracle Applications through a web browser

  See "Running the Management Pack for Oracle Applications through a Web Browser" on page 2-12.

Oracle Enterprise Manager Console

Table 2–1 Configuration Checklist (Cont.)

❑ Install software
❑ Start the Oracle Enterprise Manager Console See "Starting the Oracle Enterprise Manager Console" on page 2-13.
❑ Discover managed nodes (Oracle Applications Database Node) See "Discovering Nodes and Services" on page 2-14.
❑ Configure the oapps.ora file on the Concurrent Manager node See "Configuring the oapps.ora File on the Concurrent Manager Node" on page 2-14.
❑ Discover concurrent managers in the console See "Discovering Concurrent Managers in the Console" on page 2-16.
❑ Set preferred credentials See "Setting Preferred Credentials" on page 2-17.
❑ Start and use the Management Pack for Oracle Applications tools See "Starting Applications in the Management Pack for Oracle Applications" on page 2-17.

3

Introduction to Oracle Performance Manager

Oracle Performance Manager is an Oracle Enterprise Manager application that allows you to monitor different types of real-time performance data.

Oracle Performance Manager uses the Agent data gathering service (also called the Oracle Data Gatherer) to collect performance data. To monitor some types of data, you must install the Oracle Data Gatherer on the system (or systems) where you want to monitor data. See the *Oracle Intelligent Agent User's Guide* for information on managing the Agent data gathering service on a system. In addition, see the *Oracle Management Pack for Oracle Applications Installation* booklet for information on installing the Intelligent Agent Extensions from the Management Pack for Oracle Applications CD-ROM.

If you are using Oracle Performance Manager to monitor concurrent manager performance, the Agent data gathering service can be installed on another system. See Appendix B, "Remote Data Gatherer Configuration" for information about setting up the Oracle Data Gatherer on another system.

The types of performance data that Oracle Performance Manager can monitor on a system depends on the products that are installed. Table 3–1 shows the types of data (or services) that Oracle Performance Manager can monitor when various Oracle products are installed. The number of services that appear in the Performance Manager navigator tree will also vary, depending on the number of applications you have installed.

Table 3–1 Data that Performance Manager Can Monitor when Various Oracle Products Are Installed

Oracle Product	Oracle Concurrent Manager Data	Oracle Server Data	Operating System Data	SAP R/3 System Data	Microsoft SQL Server Data
Diagnostics Pack		Yes	Yes		Yes
Management Pack for Oracle Applications	Yes		Yes		
Management Pack for SAP R/3			Yes	Yes	
Standard Management Pack (Oracle Standard Edition only)		Yes	Yes		Yes

If additional products from Oracle or other vendors are installed, Oracle Performance Manager may be able to monitor additional types of data not shown in Table 3–1.

Accessing Performance Data Through an Intermediate Host

Oracle Performance Manager relies on the Oracle Data Gatherer to monitor a service (such as a node, a database, or a concurrent manager). Usually, the collection of the data is done on the system where the service is located. However, for some types of services Oracle Performance Manager can also monitor data on a system by using the Oracle Data Gatherer on another system (an intermediate host).

This intermediate host could be the client system where the Oracle Performance Manager is running, or any other system on the network on which the Data Gatherer is available.

There are three ways to set the location of the Oracle Data Gatherer. The method you use depends on how you connect to the service. Consider the following three scenarios:

- You connect to a database that has been discovered using the Enterprise Manager console and you are running Oracle Performance Manager while connected to the Oracle Management Server.

  Performance Manager attempts to connect to the Data Gatherer on the host where the service is located. If this connection fails or cannot be attempted because no preferred credentials have been set for the database, you will be prompted with a dialog box containing logon credentials for the database. This dialog box also contains a field to specify the location of the Oracle Data Gatherer that will be used to collect performance data.

- You click the **Add New Service** button in the toolbar panel and manually add the service to the navigator.

  Performance Manager displays a Logon dialog box. This dialog box also contains a field to specify the location of the Data Gatherer that will be used to collect performance data.

- You select a service in the Performance Manager navigator tree and choose **Set Data Gatherer Location** from the **File** menu.

  Performance Manager displays the Database Logon dialog box for the selected service. This dialog box also contains a field to specify the location of the Data Gatherer that will be used to collect performance data.

> **Note:** The database name (or service) shown in the Database Logon dialog box must be a service name which can be resolved on the system where the Agent data gathering service is located. A **tnsnames** entry or name server entry must be available for that service on the system specified in the **Data Gatherer Location** field.

Usage Scenarios for Oracle Performance Manager

Using Oracle Performance Manager, you can:

- Monitor one or more services concurrently.
- View the monitored data in various chart formats, including strip (line), pie, bar, table, and hierarchical.

- Set the refresh rate for a chart's data.
- View multiple charts concurrently for each monitored service.
- View multiple charts in a single window.
- Drill down from one chart to another related chart.
- Drill down from real-time chart data to historical chart data.
- Choose the collected data and data sources to display in a chart.
- Print a chart.
- Generate an HTML report for a chart.
- Display context-sensitive help for a chart, if help is available for the chart.
- Play a recording of a chart, with fast-forward and pause features.

Starting Oracle Performance Manager

You can start Oracle Performance Manager from the Oracle Enterprise Manager console or from the **Start** menu.

Starting Oracle Performance Manager from the Console

You can start Oracle Performance Manager from the Oracle Enterprise Manager console in any of the following ways:

- On the Oracle Enterprise Manager console, point to the **Application Management** drawer, then click **Performance Manager**.
- On the **Tools** menu of the Oracle Enterprise Manager console, point to **Application Management**, then click **Performance Manager**.
- Click the right mouse button on the **service node** for which you want to start Performance Manager and then choose **Performance Manager** from the **Related Tools** menu item on the context menu.

Note: When you start Oracle Performance Manager from the Oracle Enterprise Manager console, Oracle Performance Manager connects to the Oracle Management Server using the same credentials used to start the Oracle Enterprise Manager console.

- On the Oracle Enterprise Manager console, select a concurrent manager service, right mouse click, then follow the path **Related Tools**=>**Performance Manager**. This allows you to start Performance Manager and be connected to the service you have selected.

Starting Oracle Performance Manager from the Start Menu

On the **Start** menu, follow the path: **Start**=>**Programs**=>**ORACLE_HOME**=>**Oracle Applications**=>**Performance Manager**.

> **Note:** ORACLE_HOME represents the home directory in which the Management Pack for Oracle Applications is installed.

When you start Performance Manager from the **Start** menu, you are given a choice of logging in to the Oracle Management Server or running Performance Manager in standalone mode.

Running Performance Manager in Repository Mode

To run Oracle Performance Manager in repository mode:

1. Click **Login to the Oracle Management Server**.
2. Enter the appropriate connection information for your Oracle Management Server.

To select an alternate Management Server, click the **Management Server** button next to the **Management Server** drop-down list. In the resulting dialog box, you can add another node that is running Oracle Management Server software. The Oracle Management Server and its associated repository must already exist.

For information on the fields in the Management Servers dialog box, click **Help**.

3. Click **OK**.

> **Note:** If the repository was created using Enterprise Manager Release 2.1 or earlier, you must upgrade the repository or create a new repository. For more information, see the *Oracle Enterprise Manager Configuration Guide*.

Running Performance Manager in Standalone Mode

To run Oracle Performance Manager in standalone mode (not connected to the Oracle Enterprise Manager repository), click **Standalone, no repository connection**, then click **OK**.

Note: When you run Oracle Performance Manager without connecting to a valid repository, any recordings you make during the session will not be saved when you exit Oracle Performance Manager.

In addition, you will need to manually add services you want to monitor, and you will have to add them again each time you start Performance Manager.

Using the Oracle Performance Manager Main Window

The primary component of the Oracle Performance Manager user interface is the main window (see Figure 3–1), which contains two panels. The navigator or tree panel appears on the left side of the main window and the property sheet panel appears on the right side. When you select an item in the navigator panel, the property sheet panel displays the properties of the selected item.

When you first start Oracle Performance Manager, the navigator panel displays the service type folders and the property sheet panel displays the Performance Manager welcome screen.

A vertical toolbar appears on the left side of the window and a menu bar appears across the top of the window. For more information about the buttons in the toolbar and the commands available from the Performance Manager menus, choose **Window** from the Performance Manager **Help** menu.

In the navigator panel, the **Network** folder contains a folder for each service type. For example, when you have the Management Pack for Oracle Applications installed, the service types are Nodes and Concurrent Managers. To monitor the performance of database services, you must have the Oracle Diagnostics Pack installed.

In addition to the **Network** folders, the **Recordings** folder contains any recordings of chart data that exist. For more information about the **Recordings** folder, see "Recording Chart Data" on page 3-19.

Figure 3–1 Oracle Performance Manager Main Window

Connecting to a Discovered Service in Repository Mode

If you are working in repository mode, expand a service type folder to view the corresponding services previously discovered through the Oracle Enterprise Manager console.

To connect to a discovered service, select the service in the navigator tree and click **Connect to Service** in the Performance Manager toolbar, or click the plus sign (+) next to the service in the navigator. You may be prompted with a Logon dialog box if credentials are required to connect to the service. For information on the fields in the Logon dialog box, click **Help**.

Manually Connecting to a Service

If you are working in standalone mode, the service type folders are empty and you must manually add each service you want to monitor to the navigator tree.

If you are working in repository mode, you can manually add additional services that have not been discovered using the Enterprise Manager console.

> **Note:** When you add a service manually to the navigator tree using the **Add New Service** button, you are adding that service for the current session of Performance Manager only. You can begin collecting data for the service, but if you exit and restart Performance Manager, you will have to add the service again.

To add and connect to a service manually:

1. Select the folder for the service type you are adding.

2. Click **Add New Service** in the Performance Manager toolbar panel.

   Performance Manager displays a Logon dialog box.

3. Fill in the fields in the Logon dialog box and click **OK**.

   For information on the fields in the Logon dialog box, click **Help**.

After you connect to a service, Performance Manager displays the classes of performance information you can monitor for the selected service. Expand a class to see the individual performance data charts available for the selected class.

Viewing Performance Manager Charts

You can display a chart using one of the following methods:

- Select the chart in the navigator, and click the **Show Chart** button on the toolbar.
- Select the chart in the navigator, and choose **Show Chart** from the **Chart** menu.

- Select the chart in the navigator, which displays the chart's property sheet. To start the chart with the selected property sheet options, click **Show Chart** on the property sheet.
- Select a chart class, then select the chart in the **Predefined Displays** list and click **Show Chart**.
- Select the chart in the navigator and click the right mouse button. From the context menu, click **Show Chart**.

Performance Manager displays each chart or chart group in its own window, which is separate from the main window. This window is called the Chart Display

window. For more information, see "Using the Chart Display Window" on page 3-11.

For a description of the charts available with the Oracle Management Pack for Oracle Applications, see Appendix A, "Charts and Chart Groups".

Monitoring Multiple Services Concurrently

You can view charts from multiple services concurrently by connecting to the services from the navigator tree and displaying the chart.

Viewing Chart Groups

Some types of data include a chart group, which is two or more charts that are displayed within a single Chart Display window. You display a chart group the same way as you view any other chart (see "Viewing Performance Manager Charts" on page 3-8).

You can display a special chart group that contains the Overview Charts for a selected service:

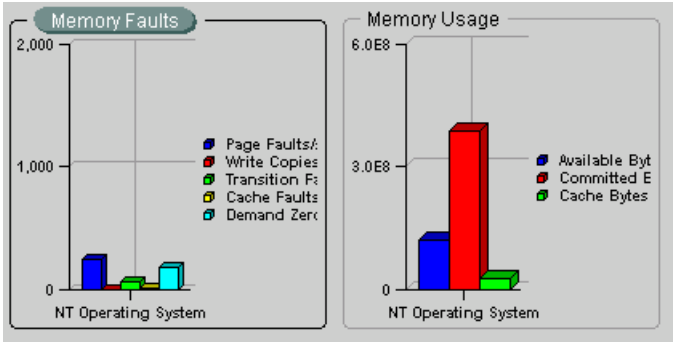
1. Select a service in the Performance Manager navigator.

2. Click the **Show Overview Charts** button in the toolbar panel.

   Performance Manager displays a chart group containing some key statistics most likely of interest to database administrators monitoring the selected service.

Charts in a chart group are displayed within a single window. You perform actions, such as setting options and displaying drill-down charts, on one chart at a time within a chart group. The currently selected chart within a chart group window is identified by a highlighted title. For example, the **Memory Faults** chart is the currently selected chart in Figure 3–2.

Figure 3–2 Identifying the Selected Chart In a Chart Group



Besides viewing the Overview Charts for a selected service, you can also view a chart group provided with a data class. For example, you can select the **Memory** data class for a Windows NT node and display the **Memory at a Glance** chart group. Not all data classes provide chart groups, however.

Selecting Collected Data and Data Sources

For some charts, the chart's property sheet allows you to select the collected data to display and the data sources for which the collected data should be displayed.

The collected data are the statistics that can be monitored and displayed in the chart. The data sources are the items from which Oracle Performance Manager is able to collect the data. For example, the data source of disk statistics may be disk1 or disk2, and the data source of file statistics may be file1 or file2.

By clicking in the column next to the name of the collected data or the name of the data source in the chart property sheet, you can specify whether or not to monitor that collected data or data source and display it in the chart.

When a green check mark appears in the column, Oracle Performance Manager will display that collected data or data source in the chart. If you click in the column again, the check mark goes away, which indicates that Oracle Performance Manager will not display that collected data or data source. You can toggle back and forth between monitoring and not monitoring all the collected data or data sources by clicking in the column head. If the check mark is gray, it means Oracle Performance Manager will display the collected data or data source, and you are unable to change the selection of this data.

If the chart definition contains default data source or collected data attributes, then those items are preselected in the chart's property sheet.

Using the Chart Display Window

When you display a chart, Oracle Performance Manager opens the Chart Display window. The window contains its own toolbar and menu bar. For information about the Chart Display window, choose **Window** from the Chart Display window **Help** menu.

Selecting a Chart Format

To change the format of the chart, click one of the chart format buttons in the Chart Display window toolbar.

For example, suppose a chart initially displays as a bar chart. To see the data as a pie chart, click the **Pie Chart** button in the toolbar. You can also display a chart in one of the additional formats:

- Bar
- Strip (or line chart)
- Table
- Hierarchical

For more information about the buttons on the Chart Display window toolbar, see the Oracle Performance Manager online help.

Note: Depending upon the type of chart you are displaying, one or more of the chart formats may not be available.

Setting the Chart Refresh Rate

By default, most charts are set to refresh every five seconds. That means that Performance Manager collects the data every five seconds and then immediately refreshes (or redisplays) the chart using the new data.

To change the refresh rate for the current chart:

1. Click the **Set Refresh** rate button in the Chart Display window toolbar.

   Performance Manager displays the Set Refresh Rate dialog box.

2. Use the fields on the dialog box to set a new refresh rate for the current chart.
3. Click **OK** to close the dialog box and display the chart using the new refresh rate.

Pausing and Restarting a Chart

By default, Performance Manager continues to collect performance data and update the current chart using the current refresh rate.

To pause a chart so it stops redisplaying based on the refresh rate, click the **Pause Chart** button in the Chart Display toolbar.

To restart the chart, click the **Resume Chart** button in the Chart Display toolbar.

Selecting Chart Options

After you display a chart in the Chart Display window, you can still modify the collected data and data sources for the chart. For more information about selecting the collected data and data sources before you display a chart, see "Selecting Collected Data and Data Sources" on page 3-10.

To set the chart options:

1. Click the **Set Options** button in the Chart Display toolbar.

   Performance Manager displays the Set Options dialog box.

2. Use the dialog box to add or remove data items from the chart.

   For more information on selecting data sources and selecting collected data, click **Help**.

Oracle Performance Manager also allows you to select filters to limit the data collected for a chart. However, not all charts provide filters.

For charts that allow you to filter the chart data, you can select a limit to the number of data sources that are displayed. For example, if the data sources are the processes on an operating system, you can modify the chart to display only 10 processes, rather than all the processes.

For example, to select a limit to the number of data sources that are displayed for the **Pagefaults Per Session** chart, do the following:

> **Note:** The **Pagefaults Per Session** chart in the **Process** class is available only when you are monitoring a Windows NT node. For a UNIX node, select the **Process Info** chart in the **Process Data** class as an example of a chart you can filter.

1. Highlight the **Pagefaults Per Session** chart in the navigator tree of the Performance Manager main window.

   You can locate the chart by traversing the tree as follows: **Network**=>**Nodes**=><Name of Node>=>**Process**=>**Pagefaults Per Process**.

2. Click the **Options** tab in the Property Sheet panel.

3. Enter **10** in the **Maximum Number of Data Sources to Display** field.

   The 10 data sources will be sorted by Page Faults per second, as shown in the **Sort the data by** drop-down list.

> **Note:** The number of options available on the Options tab will vary, depending upon the chart you are modifying. Some charts offer more or fewer options than the Pagefaults Per Process chart discussed here.

4. Click **Show Chart**.

   Performance Manager displays the chart, but includes a maximum of 10 data sources.

You can later change this setting after the chart is displayed:

1. In the Chart Display window for the Pagefaults Per Process chart, click the **Set Options** button in the toolbar.

2. In the **Options** tab, set the **Maximum Number of Data Sources to Display** back to 7.

3. Click **OK**.

These options can be useful for finding the top resource users. In the case where processes are the data sources and the data collected is memory usage and CPU usage, you can ask the Agent data gathering service to limit the number of data

sources to 10, and to sort by memory usage. Your chart would then show the 10 processes using the most memory. If you were to sort by CPU usage, you would get the 10 processes using the most CPU instead.

Some charts can also give different views of the data. If that feature is available, you will also be able to select a view of the data. An example of a data view may be the current rate per second or current rate per transaction for each piece of data collected in the chart.

Chart-Specific Commands

Some types of charts have their own unique commands. For example, you can select the **Kill Session** command when you are viewing the Lock Manager charts for Oracle database services.

To see if a chart-specific command is available for a chart:

- Click the right mouse button on an item name in the chart legend or a data item in the chart and click **Tools** on the context menu.
- Click the **Tools** menu on the Chart Display window menu bar.

Drilling Down from One Chart to Another

Some charts have drill-down charts associated with them. To see if any drill-down charts are available for the current chart, do one of the following:

- Click the right mouse button on an item name in the chart legend or a data item in the chart and click **Drilldown** on the context menu.
- Click the **Drilldown** menu on the Chart Display window menu bar.

In either case, Performance Manager displays any drill-down charts associated with that chart item as menu options on the **Drilldown** menu. If a list of drill-down chart names is not displayed, it means no drill-down charts are associated with that item.

Note: If you have trouble selecting a particular data item when you try to drill down for related data, pause the chart or reduce the refresh rate. For more information, see "Pausing and Restarting a Chart" on page 3-12.

Drilling Down to an Historical Chart

From a Performance Manager real-time chart, you can drill down to see an historical view of the same data collected over a longer period of time, for example, days, months, and years. This view of historical data, provided by the Oracle Capacity Planner software, allows you to analyze long-term trends in the data.

Historical data collection must be enabled to view the historical data for a chart. If you drill down to a historical chart for which historical data collection has not been enabled, Performance Manager allows you to start historical data collection. You can also start historical data collection by starting Oracle Capacity Planner. From the Capacity Planner window, you can also control other aspects of your historical data collection, such as how often data is collected and loaded into the historical database.

Note: User-Defined charts do not support drill-down to historical data.

To drill down to historical data:

1. Display a chart in the Chart Display window.
2. Click the right mouse button on a data item in the chart.
3. From the context menu, click **Drilldown**.
4. From the **Drilldown** submenu, click **Historical Data**.

What happens next depends on whether or not you have begun collecting historical data. Consider three possible scenarios:

- If Performance Manager finds historical data related to the chart, Performance Manager displays the Analysis Chart window.

  Note that if you previously set up your historical database using an alternate database location, Performance Manager displays a database logon box before it displays the Analysis Chart window.

  The Analysis Chart window shows you the historical information about the collected data. From here, you can modify the format of the chart or perform a trend analysis on the historical data. For more information, select an option from the **Help** menu in the Analysis Chart window or see the chapter about Capacity Planner in this manual.

- If Performance Manager cannot find historical data related to the chart, the following message appears:

  ```
  The historical chart cannot be displayed because there is no history
  available for the data sources or data items.

  Would you like to begin collecting the history of these data sources and
  data items now so that you can view the chart in the future?
  ```

  Click **Yes** to begin collecting historical data automatically or click **Help** to learn how to collect historical data using the Oracle Capacity Planner software.

  When you click **Yes**, Performance Manager displays another message explaining that historical data is now being gathered, but is not yet available. Click **Continue** to return to the Display Chart window.

- If no historical data has ever been saved to the historical database, Performance Manager displays a message box that includes the following errors:

  ```
  Error connecting to the historical database.
  The specified schema is not a Capacity Planner database.
  ```

  Click **Continue**. Performance Manager displays the message described in the previous bullet item.

  Click **Yes** to begin collecting historical data or click **Help** for more information about how historical data is collected. When you click **Yes**, Performance Manager displays another message explaining that historical data is now being gathered, but is not yet available.

  Click **Continue** to return to the Display Chart window.

Displaying Alternate Chart Orientations

You can display bar charts and tables with either a horizontal or vertical orientation.

To change the orientation of the bar chart or table, click the button associated with the orientation that you want.

Sorting Data in a Table Chart

When a chart is displaying data in table format, the sort order of the column data can be changed by clicking the column headers in the table. The first click on a column header sorts the data in ascending order, and a second click sorts the data in descending order.

Changing the sort order in the chart table does not affect the data's sort order on the server. To change the sort order of the data on the server, use the **Options** page. For more information, see "Selecting Chart Options" on page 3-12.

Saving Your Changes to a Chart

If you are working in repository mode and you make modifications to a chart (for example, if you change the format, orientation, or sorting order of a chart), you can save your changes in one of two ways:

- Click **Save** on the Chart Display **File** menu.

  Performance Manager saves your changes using the same name as the original chart. When you display the chart again, your changes will appear in the Chart Display window.

  To later remove your changes and display the predefined chart using its original settings, click **Remove Chart** on the **Chart** menu.

  Note: You can remove the changes you saved to a predefined chart, but you cannot delete the original predefined chart.

- Click **Save As** on the Chart Display **File** menu.

  Performance Manager displays the Save Custom Chart dialog box. Use this dialog box to enter a name for the custom chart and to indicate whether you want to create a similar chart for other services of the same type. For information about the fields on the Save Custom Chart dialog box, click **Help**.

  Click **OK** in the Save Custom Chart dialog box to save the custom chart using the name you provided. Performance Manager saves the chart in the Custom Charts folder for the selected service.

  To delete a custom chart from the Custom Charts folder, select the chart and click **Remove Chart** on the **Chart** menu.

  Note: You can delete custom charts, but you cannot delete predefined charts.

Obtaining Help for a Class, Chart, or Data Item

For a description of the concurrent manager charts available with the Oracle Management Pack for Oracle Applications, see Appendix A, "Charts and Chart Groups".

To get help on a class or chart for a node service:

1. Select the class or chart in the main window navigator.
2. From the **Help** menu, choose **Selected Item**.

   If help is available for the selected chart, Performance Manager displays a message box or a help topic window describing the chart data.

To get help on a data item:

1. Select a chart.
2. In the Property Sheet panel, hover over a data item or select a data item and choose **Selected Item** from the **Help** menu.

   If help is available for the selected item, Performance Manager displays a pop-up balloon or a message box describing the data item.

Note: Help is not available for all objects.

Printing a Chart

To print a chart, click the **Print Screen** button on the Display Chart window toolbar.

The size of the chart on the screen determines the size of the chart in the chart printout. For example, when you print a chart that is 5 inches high and 7 inches wide on your screen, the chart will be 5 inches high and 7 inches wide in the printout.

Generating a Report for a Chart

To generate an HTML report for a chart:

1. Click the **Report Chart** button while the chart is displayed.

   Performance Manager displays a dialog box that tells you the name of the HTML file used to display the report and where the file will be saved.

2. Make a note of the file name and location.

3. Click **Yes** to preview the chart in your Web browser, or click **No** if you do not want to preview the report.

You can view the report later using a Web browser, or—if you have experience with Web publishing tools and techniques—you can share the report with your co-workers by publishing the HTML file and its associated graphic files on a Web server.

Recording Chart Data

Oracle Performance Manager allows you to record the data being monitored in a chart. After a recording is complete, you can play it back. During playback, you can pause and fast forward the recording, if you wish.

Chart recordings are saved under the **Recordings** folder and on the Recordings tab of the right pane of the Performance Manager main window when a recorded chart is selected. The Recordings tab is added to a chart's property sheet after you record the chart.

You can manage chart recordings in the **Recordings** folder without connecting to the service from which a chart was recorded. If you are already connected to a service, you can see a chart's recordings by selecting the **Recordings** tab in that chart's Detail property sheet.

Starting a Recording

You start a recording by performing one of the following steps:

- With a chart highlighted in the navigator tree of the Performance Manager main window, click **Record Chart** on the chart's property sheet.

- With a chart displayed in the Chart Display window, click **Start Recording** in the Chart Display window toolbar.
- With a chart displayed in the Chart Display window, click **File**=>**Recording**=>**Start Recording**.

Oracle Performance Manager displays the Recording Parameters dialog box. For more information on the fields in the Recording Parameters dialog box, click **Help**.

Stopping a Recording

To stop recording a chart, do one of the following:

- To stop recording the current chart, click the **Stop Recording** button in the Chart Display window toolbar.
- To stop all recordings at one time, choose **Stop All Recordings** from the Performance Manager main window **Recordings** menu.
- To stop a recording from the **Recordings** folder, expand the **Recordings** folder in the Performance Manager main window and navigate to the chart. Select the chart and click **Stop Recording** on the chart's property sheet.
- With a chart displayed in the Chart Display window, click **File**=>**Recording**=>**Stop Recording**.

Playing a Recording

Note: Before you can play a recording, you must stop the recording. For more information, see "Stopping a Recording" on page 3-20.

To play a recording, do the following in the Performance Manager main window:

1. Navigate to the **Recordings** folder.
2. Select the chart you want to play in the navigator tree.
3. In the corresponding property sheet, select the recording from the list of recordings for the selected chart, and click **Play Recording** (or on the **Recordings** menu click **Play Recording**).

4. In the Chart Display window toolbar, click **Start Playback**.

   The **Stop Playback**, **Pause Playback**, and **Fast Forward** buttons become available in the playback window (Figure 3–3). When the playback is complete, the **Reset Playback** button becomes available.

Figure 3–3 Chart Playback Buttons in the Chart Display Window

Removing a Recording

To remove a recording:

1. Navigate to the **Recordings** folder or the Recordings tab on the chart's Detail page.
2. Select the recording you want to remove.
3. From the **Recordings** menu, click **Remove Recording**.

Chart Display Window Menu Shortcut Keys

Table 3–2 lists the Chart Display Window menu and submenu items along with their corresponding shortcut keys.

Table 3–2 Chart Display Window Shortcut Keys

Menu	Menu Items	Submenu Items	Shortcut Key
File			
	Print Screen . . .		Control+P
	Report Chart. . .		Control+R
	Recording		
		Start Recording	Control+K
		Stop Recording	Control+J
	Playback		
		StartPlayback	Control+Q
		Stop Playback	Control+Y
		Pause Playback	Control+W
		Fast Forward	Control+F
		Reset Playback	Control+B
	Save		Control+S
	Save As		Control+A
	Close		Alt+F4

Table 3–2 Chart Display Window Shortcut Keys

Menu	Menu Items	Submenu Items	Shortcut Key
View			
	Pie Chart		N / A
	Bar Chart		N / A
	Strip Chart		N / A
	Table		N / A
	Hierarchical Chart		N / A
	Horizontal Orientation		N / A
	Vertical Orientation		N / A
Collection			
	Resume Chart. . .		Control+Q
	Refresh Rate. . .		Control+E
	Options. . .		Control+O
Drilldown			
	Historical Data		Control+D
Tools			
Help			
	Using Help		Control+Shift+U
	Help on Item		Control+Shift+H
	Contents		Control+H
	Search. . .		Control+Shift+S
	Window		F1

4

Introduction to Oracle Capacity Planner

Oracle Capacity Planner is an Oracle Enterprise Manager application that allows you to collect different types of performance statistics and record that data in an historical database. You can then use Oracle Capacity Planner to analyze the historical data to plan future capacity.

Oracle Capacity Planner uses the Agent data gathering service (also called the Oracle Data Gatherer) to collect its historical data. To collect most types of data, you must install the Oracle Data Gatherer on the system (or systems) where you want to collect data. See the *Oracle Enterprise Manager Intelligent Agent User's Guide* for information on managing the Oracle Data Gatherer.

If you are using Oracle Capacity Planner to collect concurrent manager data, the Oracle Data Gatherer can be installed on another system. See Appendix B, "Remote Data Gatherer Configuration" for information about setting up the Oracle Data Gatherer on another system.

The types of performance data that Oracle Capacity Planner can collect on a system depend on the products that are installed. Table 4–1 shows the types of data that Oracle Capacity Planner can collect when various Oracle products are installed. The number of services that appear in the Capacity Planner navigator tree will also vary, depending on the number of applications you have installed.

Table 4–1 Data That Capacity Planner Can Collect When Various Oracle Products are Installed

Oracle Product	Oracle Concurrent Manager Data	Oracle Database Data	Node (Operating System) Data	SAP R/3 System Data	Microsoft SQL Server Data
Diagnostics Pack		Yes	Yes		Yes

Table 4–1 Data That Capacity Planner Can Collect When Various Oracle Products are Installed (Cont.)

Oracle Product	Oracle Concurrent Manager Data	Oracle Database Data	Node (Operating System) Data	SAP R/3 System Data	Microsoft SQL Server Data
Management Pack for Oracle Applications	Yes		Yes		
Management Pack for SAP R/3			Yes	Yes	

If additional products from Oracle are installed, Oracle Capacity Planner may be able to collect additional types of data not shown in Table 4–1.

How Capacity Planner Collects and Stores Performance Data

The following list identifies how Capacity Planner uses the Agent data gathering service to collect performance data:

- The Agent data gathering service collects the data at an interval you specify from within Capacity Planner.

  The Agent data gathering service stores the data in an efficient binary form.

- At a specified loader interval, the data is read from this binary file and stored in a readable form in the Oracle Capacity Planner historical database.

  The Agent data gathering service also aggregates the data by time, creating summary statistics for the data that is collected at different time intervals (hour, day, week, and so on).

- Over time, the Agent data gathering service purges the data in the historical database, keeping only as much data as you specify.

  Purging the historical data allows you to have access to a current view of recent performance data for your environment and to manage the amount of stored data to avoid wasting disk space.

Accessing Historical Data Through an Intermediate Host

Oracle Performance Manager relies on the Oracle Data Gatherer to monitor a service (such as a node, a database, or a concurrent manager). Usually, the collection of the data is done on the system where the service is located. However, for some types of services Oracle Performance Manager can also monitor data on a system by using the Oracle Data Gatherer on another system (an intermediate host).

This intermediate host could be the client system where the Oracle Performance Manager is running, or any other system on the network on which the Data Gatherer is available.

There are three ways to set the location of the Oracle Data Gather. The method you use depends on how you connect to the service. Consider the following scenarios:

- You connect to a database that has been discovered using the Enterprise Manager console and you are running Oracle Performance Manager while connected to the Oracle Management Server.

  Performance Manager attempts to connect to the Data Gatherer on the host where the service is located. If this connection fails or cannot be attempted because no preferred credentials have been set for the database, you will be prompted with a dialog box containing logon credentials for the database. This dialog box also contains a field to specify the location of the Oracle Data Gatherer that will be used to collect performance data.

- You click the **Add Service** button in the toolbar panel and manually add the service to the navigator.

  Performance Manager displays a Logon dialog box. This dialog box also contains a field to specify the location of the Data Gatherer service that will be used to collect performance data.

- You select a service in the Performance Manager navigator tree and choose **Set Data Gatherer Location** from the **File** menu.

  Performance Manager displays the Database Logon dialog box for the selected service. This dialog box also contains a field to specify the location of the Data Gatherer that will be used to collect performance data.

Note: The database name (or service) shown in the Database Logon dialog box must be a service name which can be resolved on the system where the Agent data gathering service is located. A **tnsnames** entry or name server entry must be available for that service on the system specified in the **Data Gatherer Location** field.

Usage Scenarios for Oracle Capacity Planner

Oracle Capacity Planner can perform tasks such as the following:

- Track the increase in the amount of used space on a disk over time and estimate when 95 percent of the space on the disk will be consumed
- Track the increase in the total I/O rate for a host over time, then estimate what the total I/O rate for the host will be at some future point in time
- Display a chart that shows the number of forms sessions per user and per application; estimate how the numbers will change over a designated period of time.

Starting Oracle Capacity Planner

You can start Oracle Capacity Planner in any of the following ways:

- On the Oracle Enterprise Manager console, click the **Application Management** drawer, then click the **Capacity Planner** icon.
- On the Oracle Enterprise Manager console, select a Concurrent Manager service, click the right mouse button, point at **Related Tools** in the context menu, then click **Capacity Planner**.
- On the **Tools** menu of the Oracle Enterprise Manager console, point to **Application Management**, then click **Oracle Capacity Planner**.
- From the **Start** menu, point to **Programs**, then to the Oracle Home where Oracle Enterprise Manager is installed, then to **Oracle Applications**, then click **Capacity Planner**, which displays the Capacity Planner Login dialog box.

  Enter the appropriate connect information for your Oracle Enterprise Manager repository, then click **OK**.

Using Help

When you are using Oracle Capacity Planner, you can display context-sensitive help topics. You can also display conceptual topics and task topics.

To obtain context-sensitive help for an Oracle Capacity Planner panel, window, dialog box, or property page, select an item in the panel, window, dialog box, or property page, then on the **Help** menu, choose **Window**.

To obtain context-sensitive help for a class, chart, or data item on a property page, select the class, chart, or data item on the property page, then take one of the following actions:

- Press F1.
- Click the **Help** icon on the toolbar.
- On the **Help** menu, choose **Selected Item**.

If a help topic is not available for a class, chart, or data item, a No Help Available message is displayed when you request help.

For a description of the charts available with the Oracle Management Pack for Oracle Applications, see Appendix A, "Charts and Chart Groups".

Note: Not all the charts described in the appendix are available from within Oracle Capacity Planner.

To view the Contents page for the Oracle Capacity Planner help, on the **Help** menu, choose **Contents**. On the Contents page, you can:

- View a list of the conceptual help topics by double-clicking the **Conceptual Topics** book on the help system's Contents page.

  Conceptual topics provide conceptual or overview information of which you should be aware before performing a particular Oracle Capacity Planner task. Conceptual topics do not contain step-by-step information for performing a task.

- View a list of the task help topics by double-clicking the **Task Topics** book on the help system's Contents page.

  Task topics provide step-by-step instructions for accomplishing an Oracle Capacity Planner task. They do not provide conceptual information that you should be aware of before performing the task.

You can access a glossary of Oracle Capacity Planner terms by double-clicking the **Oracle Capacity Planner Glossary** book on the Contents page.

Using Oracle Capacity Planner

You may find it helpful to think of using Oracle Capacity Planner as a two-step process:

1. Setting up the collection of historical data

   See "Setting Up a Collection" on page 4-6 for a detailed description of how to collect historical data.

2. Analyzing the collected data

   See "Analyzing Collected Data" on page 4-20 for a detailed description of how to analyze collected data.

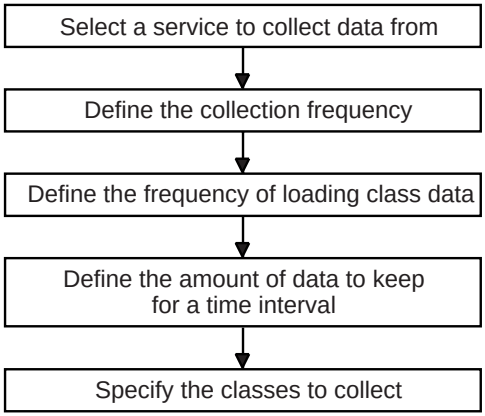
Setting Up a Collection

To set up a historical data collection with Oracle Capacity Planner, you:

1. Select (and connect to) the services for which you want to collect historical data.
2. Define the frequency of collection samples.
3. Define the location of the historical database and the frequency at which collected data should be loaded in the historical database.
4. Define the amount of data to be kept in the Oracle Capacity Planner database at each time interval.
5. Select the classes of data to collect, based on what is available in the Oracle Capacity Planner navigator.

Figure 4–1 shows the steps to follow when setting up a collection. For more information on each step, see the following sections.

Figure 4–1 Steps for Setting Up a Collection



Selecting Services

You can select one or more services from which you want to collect historical performance statistics. For example, when you have the Management Pack for Oracle Applications installed, the service types are typically Nodes and Concurrent Managers.

The procedure for selecting a service depends upon whether or not the server resides on a node that is known to the Enterprise Manager main console. A node is known to the console when it has been *discovered* with the Enterprise Manager console **Discover Nodes** command.

Selecting Services on Discovered Nodes

To select a service on a node that has been discovered by the Enterprise Manager console:

1. Click the **Collection** tab of the Oracle Capacity Planner navigator panel, which displays the Oracle Capacity Planner collection view.
2. Double-click one of the service type folders.

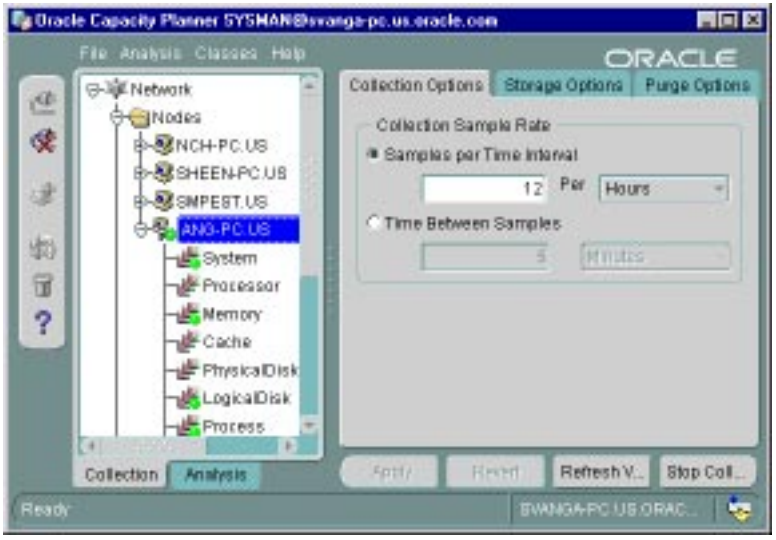
   The Oracle Capacity Planner navigator tree displays the services of the selected type that are known to the Oracle Enterprise Manager main console.

3. Select the service from which you want to collect performance data and click the **Connect** button in the Capacity Planner toolbar, or click the plus sign (+) next to the service in the navigator.

   When you connect to a service in the Oracle Capacity Planner navigator panel, you may be prompted for credentials if they are required to connect to that service. If a logon dialog box appears, click **Help** for information on the individual fields on the dialog box.

   After you connect to a service, the available collection classes for that service appear in the navigator and Oracle Capacity Planner displays the Service property sheet for the selected service. For example, Figure 4–2 shows the classes that appear when you connect to a Windows NT node service.

Figure 4–2 Selecting a Service in the Oracle Capacity Planner Window



Selecting Services on Undiscovered Nodes

If you double-click a service type and the service you are looking for does not appear in the service type folder, you can do one of the following:

- Use the Enterprise Manager console to discover the node where the service resides.

  This is the preferred method for adding a service to the Capacity Planner navigator panel. When you discover a node with the Enterprise Manager

console, Capacity Planner saves key information about the service, such as the preferred credentials, location of the Agent data gathering service, and historical database information.

- Add the service manually to the Capacity Planner navigator panel.

  When you add a service manually, the service is added for the current session of Capacity Planner only. You can start gathering data for the service, but the next time you start Capacity Planner, the service will not appear in the navigator panel. To modify collection settings or analyze data collected for the service, you will have to add the service again the next time you start Capacity Planner.

To add a service manually:

1. Select the service type for the service you want to add.

2. Click the **Add Service** button in the Capacity Planner toolbar.

   Capacity Planner displays a message to remind you that services you add manually will be available for the current session of Capacity Planner only.

3. Click **Yes**.

   Capacity Planner displays a logon dialog box for the service. Click **Help** if you need information about any of the specific fields on the dialog box.

4. After you fill in the logon credentials, click **OK** to connect to the service.

   After you connect to a service, the available collection classes for that service appear in the navigator and Oracle Capacity Planner displays the Service property sheet for the selected service (Figure 4–2).

About the Service Property Sheet

When you connect to a service, Oracle Capacity Planner displays the Service property sheet, which contains the following property pages:

- Collection Options page
- Storage Options page
- Purge Options page

The collection, load, and purge settings you select on these pages apply to all the classes in the selected service. You cannot change these settings for a selected class; you can change them only for a selected service.

Defining the Frequency of Collection Samples

When you first connect to a service, Capacity Planner displays the Collection Options property page. The values you select on this page determine how often the Agent data gathering service will collect information about the selected service and save it to disk. On the Collection Options property page, you can set the frequency of collection samples using either of these two methods:

- By selecting the number of data samples to collect for a specified time interval

  For example, to collect information 3 times every hour, select **Samples per Time Interval**, enter 3 in the text field, and choose **Hours** from the drop-down list.

- By specifying the length of time between collection samples

  For example, to collect information every 20 minutes, select **Time Between Samples**, enter 20 in the text field, and choose **Minutes** from the drop-down list.

Note: To configure the settings for collecting data, the Agent data gathering service that will collect data for a service must be running. Normally, the Agent data gathering service is located on the host where the service is located.

Defining the Location of the Historical Database

After you set the frequency of collection samples, use the **Storage Options** tab to specify the location of the Oracle Capacity Planner historical database. This setting defines where Capacity Planner will save information collected for the selected service. When data is saved in the historical database, you can later analyze the data or use it to generate trend analyses.

By default, collected data is saved in your Oracle Enterprise Manager repository. However, you can specify an alternate database for the historical data if you do not want to store historical data for the selected service in the repository.

To save the data collected for a service in a location other than the Oracle Enterprise Manager repository:

1. From the Storage Options tab, select **Store historical data in alternate location**.
2. Enter the credentials for the database that will store the collection data for the service.

   Enter the appropriate user name, password, and service for the Oracle Capacity Planner historical database. This connection information is used by the Agent data gathering service when it loads the collected data at the specified loader interval. Therefore, the service specified for the Oracle Capacity Planner historical database must be known and accessible from the host where the Agent data gathering service is running.

   For example, if you specify MY_DB.WORLD as the historical database and your Agent data gathering service is running on host MYNODE, then database MY_DB.WORLD must be reachable via Net8 or SQL*Net from host MYNODE (MY_DB.WORLD must exist in the TNSNAMES.ORA file for host MYNODE, for example).

Defining the Frequency of Loading Collection Data

After you define how often data will be collected and where the data will be stored, you can define how often the data will be loaded into the historical database.

You can determine how frequently the Oracle Capacity Planner loader program loads collection data for the service using either of these two methods:

- Using the **Per Time Interval** field to specify the number of loader passes for a specified time interval
- Using the **Time Between** field to specify the length of time between loader passes

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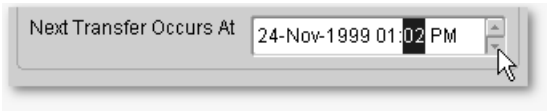
Note: Although data can be collected at short time intervals (such as 5, 10, or 15 minutes), collected data is not available to you for analysis until it has been loaded into the Oracle Capacity Planner historical database. Therefore, the load interval you specify controls when the most recently collected data will be visible to you.

The collection frequency you set determines the lowest time interval for which Oracle Capacity Planner can analyze data. For example, if you want to be able to analyze data from hourly intervals, you need to set a collection frequency of at least once an hour.

After you define the frequency of loading collection data, you can set a time for the next loader pass by using the **Next Transfer Occurs at** field:

1. Click the value that you want to change in the date and time box.
2. Click the up or down arrow to select a higher or lower value.



If the current time is later than the time displayed for the **Next Transfer Occurs at** setting, click **Refresh View** to update the display to show the actual time of the next loader pass.

Note that the values that you select on the Storage Options property page apply to all classes of data collected on the selected service.

Understanding When the Loader Runs

The loader runs at the regular time interval specified on the Storage Options property page. The time specified in the **Next Transfer Occurs at** field controls when the loader runs. For example, if you want the loader to run once a day at 2:00 a.m., then set the transfer interval to once per day, and set the next transfer time to the next day at 2:00 a.m. The loader will run for the first time at 2:00 a.m. the next day, and then will run once a day, each day at 2:00 a.m.

You can use the **Next Transfer Occurs** at field to force the loader to run immediately—or as soon as possible. Simply set the next transfer time to a time earlier than the current time.

Understanding How Data Aggregation Works

As it loads data into the database, Oracle Capacity Planner automatically aggregates the data. During aggregation, Oracle Capacity Planner examines the collection samples for a given time interval, calculates an average value for that interval, then uses that average value for calculations at the next larger time interval.

On each loader pass, Oracle Capacity Planner examines the time stamps of all collected data to determine whether or not the threshold for a set interval (hour,

day, week, month, or year) has been crossed since the previous loader pass. If so, Oracle Capacity Planner performs an aggregation of collected data from the next smaller interval to the interval threshold just passed. Table 4–2 shows the larger time interval to which data at each time interval is aggregated.

Table 4–2 Aggregation of Data from Smaller to Larger Time Intervals

Data at This Interval	Aggregates to This Interval
Minutes	Hours
Hours	Days
Days	Weeks
Weeks	Months
Months	Years

An example may help clarify how Oracle Capacity Planner aggregates collection data. Suppose Oracle Capacity Planner is collecting a data sample every 10 minutes to capture the percentage of used space on a particular disk, and the loader runs once an hour. When the Oracle Capacity Planner loader runs and transfers data into the Oracle Capacity Planner database every hour, it examines the values for the percentage of used disk space in the samples collected during the previous hour, then it computes an average percentage for the samples. That average percentage is then used as the average value for the hour.

At the first loader pass after midnight, Oracle Capacity Planner uses the hourly averages since midnight the previous day to compute the day's percentage of used disk space.

At the first loader pass after midnight on Saturday, Oracle Capacity Planner examines the daily averages of used disk space since midnight the previous Saturday and computes an average percentage for the week.

At the first loader pass after midnight on the last calendar day of the month, Oracle Capacity Planner examines the weekly averages since midnight on the last calendar day of the previous month and computes an average percentage for the month.

Finally, at the first loader pass after midnight on December 31, Oracle Capacity Planner examines the last 12 monthly averages to compute a yearly average.

Defining the Amount of Data to Keep

The final step in setting up a service for historical data collection is defining the amount of data to keep.

When you select a service, you can click the **Purge Options** tab to display the Purge Options property page. On this page, you specify the amount of data you want to store in the Oracle Capacity Planner historical database for each type of data (for example, hour data, day data, and week data). You can accept the default Purge Options property page values or choose different values.

The values set on the Purge Options property page apply to all classes of data collected on the selected service.

The values you specify in the data retention table (the **Enter the amount of data you want to keep** table on the Purge Options page) determine how far back in time you can go to analyze data for the different types of data.

Suppose, for example, you always want to be able to view hour data for the previous six weeks. In this case, for the Hours **Data Type** row in the data retention table, you would enter 6 in the **Timespan** column and Weeks in the **To Keep** column. This tells Oracle Capacity Planner that you want to keep hour data for a 6-week period. Oracle Capacity Planner calculates 6 weeks from the current time, and the **Purge Data Older Than** column shows the time span for which hour data is available. Table 4–3 shows the Hours row in the data retention table with this data entered.

Table 4–3 Specifying How Much Data to Keep for a Data Type

Data Type	Timespan	To Keep	Purge Data Older Than
Hours	6	Weeks	(current date minus 6 weeks)

For each row in the data retention table, you can choose the time span to keep data samples for that type of data by entering the desired value in the **Timespan to Keep** column.

Applying and Reverting the Collection Settings for a Service

When you finish setting all the options on the Service property sheet, do the following to apply your collection settings:

1. Click **Apply**.

If you changed the location of the historical database on the Storage Options page, Capacity Planner displays a message box reminding you that any information stored in the previous location will not be available for analysis.

If you don't want to be reminded about this implication the next time you change the database location, select **Don't show this message again**.

2. Click **OK**.

   Capacity Planner displays a message stating that the options were set successfully.

3. Click **Continue** to close the message box and return to the Capacity Planner main window.

When you apply your collection settings, Capacity Planner sends the settings to the Agent data gathering service for the selected service. Note that you cannot select data to be collected until these settings have been applied.

At any time during the process of modifying the settings on the Service property sheet, you may revert the settings to their last saved (applied) state by clicking **Revert**. However, after you apply the settings, they cannot be reverted to their previous settings using the **Revert** button; they must be modified manually.

Selecting the Classes of Data to Collect

After you set the collection and loading options for a service, you can then select the classes of performance data that you want to collect for that service:

1. In collection view, select and connect to the service.

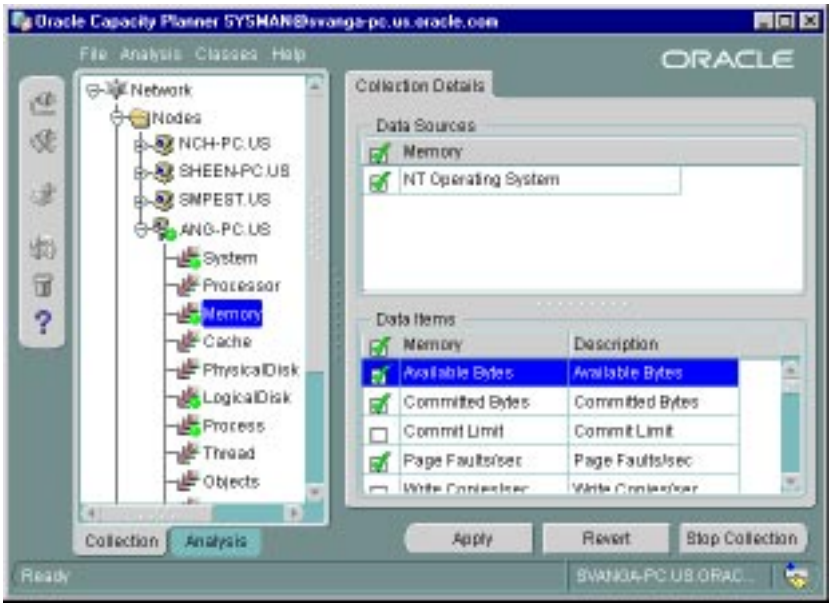
   For more information, see "Selecting Services" on page 4-7.

2. Click the plus sign (+) next to the service to show the classes of data you can collect.

3. Select one of the classes for the service.

Figure 4–3 shows a typical collection class for a node service and the data sources and data items available for the class.

Figure 4–3 Selecting Data Sources and Data Items for a Collection Class



The following list explains classes, data items, and data sources in more detail:

- Classes

  A class is a container for a particular category of data. For example, a node (or operating system) service might include the following classes:

  – System

  – Processor

  – Memory

  When you select a service in the navigator, Capacity Planner displays the names of the classes below the service in the tree view.

  You can collect data from none, some, or all displayed classes for a service. A class may also be a container for other classes, to provide logical groupings of the performance data at higher levels. For example, an I/O class may be a container for other more specific I/O classes.

- Data items

  In a class, each of the related statistics is referred to as a data item. For example, a LogicalDisk class might include the following data items:

  – Percent Free Space

  – Free Megabytes

  – Current Disk Queue Length

  – Disk Writes per Second

  A class can contain one or more data items. When you select a class in the navigator, the names of the data items and data sources associated with the data items are displayed on the Collection Details property page. Select the data items that you are interested in collecting.

  A green check mark appears next to the name of each data item that is selected for collection. You can toggle the state of all data items between collected and not collected by clicking the **Data Items** column header that contains the check mark.

- Data sources

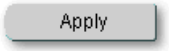
  A data source is a description of where Oracle Capacity Planner can collect the data items for a class. A class can contain one or more data sources. When you select a class in the navigator, the names of the data items and data sources associated with the class are displayed on the Collection Details property page.

  The type of data in the class determines the data sources for the class. For example, in a LogicalDisk class, the data sources might be the individual disks for the operating system (for example, disk1, disk2, and so on). In a CPU Utilization class, the sources are the individual CPUs for the host (for example, cpu1, cpu2, and so on). You can collect data items from one or more data sources.

  When you select a data source, a green check mark appears next to the name of the data source on the Collection Details property page. You can toggle the state of all data sources between collected and not collected by clicking the **Data Sources** column header that contains the check mark.

Starting Data Collection

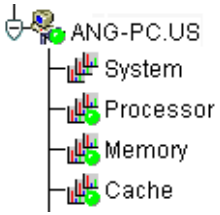
After you select the data items that you want to collect from the available data sources on the Collection Details property page, click **Apply** to confirm your selections, or click **Revert** to cancel the selections.



When you click **Apply** for a class of data, Capacity Planner marks the icon for the selected class and the selected service with a green dot in the Collection view of the navigator panel. A green dot on a collection class icon indicates that one or more data sources are selected for the class. A green dot on a service icon indicates that Capacity Planner is collecting data for one or more classes in the service.

For example, in Figure 4–4, Capacity Planner is actively collecting data for the Processor, Memory, and Cache classes for node ANG-PC. Capacity Planner is not collecting data for the System collection class.

Figure 4–4 Green Dots on a Service or Class Indicate Capacity Planner is Collecting Data



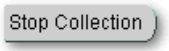
Stopping Data Collection

To stop collecting data for one or more data items or data sources for a collection class, follow these steps:

1. Select the collection class in the navigator.
2. On the Collection Details page, click on the green check marks for those data items or data sources from which you no longer want data collected, which causes the check marks to disappear.
3. Click **Apply**.

To stop collecting data for all data items and data sources for a collection class, follow these steps:

1. Select the collection class in the navigator.



2. On the Collection Details page, click **Stop Collection**.

   Capacity Planner displays a message box stating that collections for the class have stopped.

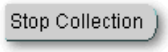
3. Click **OK** to close the message box and return to the Capacity Planner main window.

   When no data sources are selected for collection for a class of data, the icon for that class in the navigator does not display a green dot.

To stop collecting data for all classes in a service:

1. In collection view, select and connect to the service.

   For more information, see "Selecting Services" on page 4-7.



2. Click **Stop Collection** on the Service property sheet.

   Capacity Planner displays a confirmation box.

3. Click **Yes** to stop collecting data for all classes in the service; click **No** to cancel the operation.

Generating a Collection Report

A collection report provides a summary of the collection settings for one or more services. Capacity Planner displays the collection settings in your Web browser. In the browser, you can easily review the settings currently applied to the service or services you selected.

To display a collection report for one or more services:

1. In collection view, on the **File** menu, choose **Collection Report**.

   Capacity Planner displays the first screen of the Collection Report Wizard.

2. Use the Collection Report Wizard to specify the service or services whose collection settings you want to include in the report and to generate and view the report.

   At any time while using the wizard, click **Help** for more information.

When you click **Finish** on the last screen of the Collection Report Wizard, Capacity Planner saves the report to an HTML file and displays the report in your Web browser.

Copying Collection Settings

After you set up collection settings for one servce, you can quickly copy those settings to another similar service.

To copy the collections settings from one service to another:

1. In collection view, select a service whose collection settings you want to copy.
2. On the **File** menu, choose **Copy Collection Settings** or right mouse click on the Collection Settings from the context menu.

   Capacity Planner displays the first screen of the Copy Collections Wizard.
3. Use the Copy Collection Settings Wizard to specify the destination services to which you would like to copy the collection settings for the selected service.

   From the wizard, you can also view the progress of the copy operation. At any time while you are using the Copy Collection Settings Wizard, click **Help** for more information.

Note: Any destination service you select must be running an Agent data gathering service of the same type and version as the service from which you are copying your settings.

Troubleshooting Collection and Load Problems

During the collection and load processes, errors may be encountered by the Agent data gathering service. You can determine if data is not being collected or loaded by using either of these methods:

- Browsing the analysis data in the Oracle Capacity Planner navigator. See "Browsing the Collected Data" on page 4-22 for more information.
- Accessing the historical database using SQL. See "Understanding the Oracle Capacity Planner Historical Database" on page 4-37 for more information.

If data is not being collected or loaded, you should check the status of the Agent data gathering service on the host from which data is being collected. If the Agent data gathering service is running, check the log file ($ORACLE_HOME\odg\log\alert_dg.log) for errors related to the collection or loading of data. See the *Oracle Enterprise Manager Intelligent Agent User's Guide* for additional details on the configuration of the Agent data gathering service.

Analyzing Collected Data

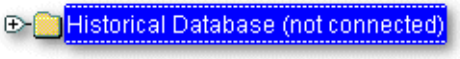
After collected data is loaded into the Oracle Capacity Planner historical database, you can perform a variety of analyses on it. To access the analysis features of Oracle Capacity Planner, click the **Analysis** tab (Figure 4–5) at the bottom of the Oracle

Capacity Planner navigator tree view. This displays the Oracle Capacity Planner analysis view.

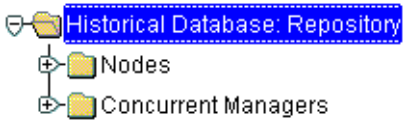
Figure 4–5 Clicking the Analysis Tab

Connecting to an Oracle Capacity Planner Historical Database

When you expand the Historical Database folder at the root of the navigator tree in analysis view, you are prompted for the logon credentials for an Oracle Capacity Planner historical database.



After you connect to a historical database, the folder expands to show the services for which data is available in that historical database.



If you store data in multiple historical databases, you must disconnect from one historical database before you can connect to a different historical database.

To disconnect from the current historical database,

1. Click the Historical Database folder at the root of the navigator tree.

2. Click the **Disconnect** button in the Capacity Planner toolbar panel.

To connect to a different historical database, expand the Historical Database folder again and enter the credentials for the new historical database in the resulting logon dialog box.

Organization of Data in the Navigator

When you expand a service in the navigator under the Historical Database folder, two forms of data are displayed below the service:

- Classes of data

  The classes displayed for the service are the collection classes for which data is available in the Oracle Capacity Planner historical database. You can select and view data from these classes by selecting a class in the navigator, specifying the selection criteria, and then clicking **Show New Chart**. These operations are the first step in creating an analysis.

- Analyses

  Below each service in the navigator is an Analyses folder, which contains predefined and user-defined analyses. Predefined analyses are provided for some services. You can create user-defined analyses by selecting a class of data, displaying an analysis of the data, and then saving the analysis. You can also create a user-defined analysis by using an existing analysis as a template, making modifications to the analysis, and then saving the analysis under a new name.

Browsing the Collected Data

To browse the collected data for a particular service:

1. In analysis view, expand the Historical Database folder.

   You are prompted for the credentials for the historical database that contains the collected data that you want to analyze.

2. Enter your logon credentials and connect to the historical database.

3. On the navigator panel, expand the folder for the service whose collected data you want to analyze.

   The navigator displays the:

   - Names of the classes for which collected data exists in the historical database for the service
   - An **Analyses** folder, which contains predefined and user-defined analyses you created for the service

Viewing an Analysis for a Class of Data

To view an analysis chart for a selected class of data:

1. On the navigator panel, click the name of a class whose collected data you want to analyze.

   Capacity Planner displays the property page for the class (Figure 4–6).

2. To specify the selection criteria for the class of data you want to analyze, see "Specifying Selection Criteria for a Class of Data" on page 4-24 for instructions.

3. Click **Show New Chart**.

   Capacity Planner displays the Analysis window, which contains two or more pages. The Chart page displays the chart. The remaining pages are Details pages. A separate Details page exists for each class from which one or more data items are included in the analysis.

   For information about the Analysis window, choose **Window** from the Analysis window **Help** menu. For information about modifying the analysis or changing the way the data is displayed, see "Working with Analyses" on page 4-28.

Saving a Class Analysis as a User-Defined Analysis

After you view an analysis for a class of data, you can save it as a user-defined analysis to view later.

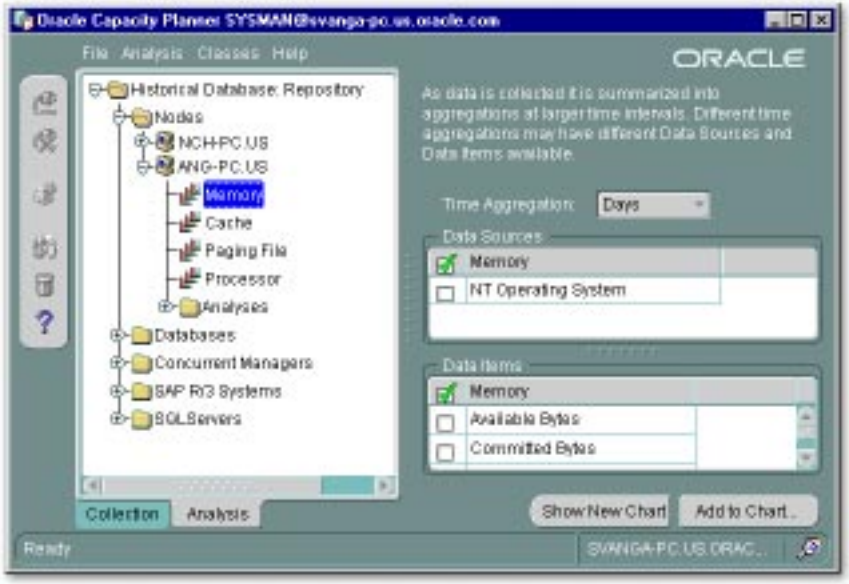
To save the analysis:

1. While viewing the analysis chart, click **Save Chart** on the analysis window toolbar.

2. Click **Yes** in the message box.

   Performance Manager places the new user-defined anlaysis in the **Analyses** folder of the navigator panel.

Figure 4–6 Oracle Capacity Planner Analysis View



Specifying Selection Criteria for a Class of Data

When you select a class in the navigator panel in analysis view, Capacity Planner displays a property sheet that contains options available for selecting data from the Oracle Capacity Planner historical database for that class.

Before you display a chart of the collected data you must:

1. Select the time aggregation level from the **Time Aggregation** drop-down list.

   For example, select **Hours** if you want to analyze hourly data, **Days** if you want to analyze daily data, and so on.

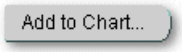
2. In the **Data Sources** section, select one or more data sources whose data items you want to analyze.

3. In the **Data Items** section, select one or more data items you want to analyze.

   A check mark appears next to each data item that is selected for analysis.

After you specify the selection criteria, there are two ways to display the data in an analysis chart:

- To add the selected data to a new analysis chart, click **Show New Chart**, which displays the new chart.



- To add the selected data to an analysis chart that is already displayed in the Analysis window, click **Add to Chart**, then in the Add Data to Analysis dialog box, select the name of the previously-displayed analysis chart. Note that only charts that are currently opened are displayed in the Add Data to Analysis dialog box.

Viewing and Modifying User-Defined and Predefined Analyses

You can view and modify both user-defined and predefined analyses. However, once modifications are made to a predefined analysis, the only way to save those changes is to save the analysis to a new name. This creates a new user-defined analysis and preserves the original predefined analysis.

> **Note:** Not all services provide predefined analyses.

To view an existing analysis, which makes it available for modification, follow these steps:

1. Expand the Analysis folder for the service, which displays the existing predefined and user-defined analyses for the service.

   A bar chart icon identifies a predefined analysis. Not all services provide predefined analyses.

   A bar chart and person icon identifies a user-defined analysis. You create a user-defined analysis by displaying an analysis for a class of data or displaying a predefined analysis, and then saving the analysis.

> **Note:** You can limit the list of displayed analyses to only user-defined analyses by removing the check mark from the **View Predefined Analyses** option on the **File** menu. When you choose the **View Predefined Analyses** option on the **File** menu again, the check mark preceding the menu option is replaced, and predefined analyses are displayed again.

2. Select a predefined analysis or user-defined analysis in the navigator panel.

   The Analysis Summary property page for the selected analysis is displayed in the detail panel. This property page displays the names of the services and classes whose data is used in the analysis.

3. To view the data sources and data items in the analysis, click the plus sign (+) next to the service icons in the **Service/Source** column.

4. To view the chart for the analysis, click **Show**.

   Note that if you are opening a predefined analysis, Capacity Planner displays the Select Data Sources for Analysis dialog box. Predefined analyses are provided for some services. Predefined analyses require you to specify the available data sources for your installation. Select the data sources you want to include in the predefined analysis and click **OK**.

After you have opened an analysis, you can modify the contents and how they are presented. See "Working with Analyses" on page 4-28 for more information.

You can also create a copy of an analysis, rename an analysis, or delete an analysis, as explained in the next three sections.

Creating a Copy of an Analysis

You can create an analysis that is an exact copy of an existing analysis, but the copy has a different name. To do this:

1. In analysis view, locate and expand the service that contains the analysis you want to copy.
2. Expand the **Analyses** folder.
3. Select the analysis you want to copy.
4. On the **Analysis** menu, choose **Create Like**.
5. In the Create Analysis Like dialog box, enter a unique name for the new analysis that you are creating and click **OK**.

   Capacity Planner creates the new copy of the analysis in the **Analyses** folder for the service.

Renaming a User-Defined Analysis

Note: You cannot rename a predefined analysis. This restriction ensures that the original predefined analysis charts are not overwritten.

However, after you make changes to a predefined analysis, you can save the modified version of the predefined analysis as a user-defined chart with a new name. For more information, see "Saving the Results of a Predefined Analysis" on page 4-36.

To rename a user-defined chart:

1. In analysis view, locate and expand the service that contains the analyis you want to rename.
2. Expand the **Analyses** folder.
3. Select the user-defined analysis you want to rename.

A bar-chart-and-person icon identifies user-defined analyses.

4. On the **Analysis** menu, choose **Rename**.
5. In the Rename Analysis dialog box, enter a unique name for the analysis you are renaming and click **OK**.

Deleting a User-Defined Analysis

Note: You cannot delete a predefined analysis.

To delete a user-defined analysis:

1. In analysis view, locate and expand the service that contains the analysis you want to delete.
2. Expand the **Analyses** folder.

A bar-chart-and-person icon identifies the user-defined analyses in the folder.

3. Select the user-defined analysis that you want to delete.
4. On the **Analysis** menu, choose **Delete**.

5. In the message dialog box that prompts you to confirm the deletion, click **OK**.

Working with Analyses

After you have opened an analysis chart, either by selecting and showing an existing analysis or by browsing collected data to create a new analysis, the data included in that analysis is shown in the Oracle Capacity Planner Analysis window.

The Analysis window contains two or more pages. The first page is called the Chart page and it displays the analysis chart. The remaining page or pages are Details pages. A separate Details page exists for each class from which one or more data items are included in the analysis. Each Details page shows the:

- Data sources for the data items plotted in the chart
- Time aggregation level of the plotted data items
- Value of each plotted data item each time the data item was collected during the time range for the analysis

The time range for the collected data appears along the bottom of each chart, with the beginning of the time range at the left and the end of the time range at the right.

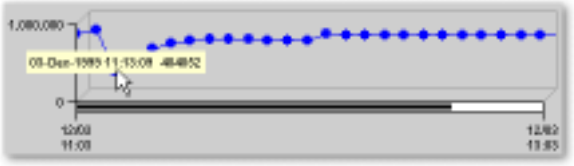
Two types of lines can appear on a chart. Each solid line plots the values of a selected data item during the specified time range. Each dashed line plots the result of a trend analysis to time or trend analysis to value. See "What Is a Trend Analysis?" on page 4-33 for more information about performing a trend analysis.

The rest of this section describes other features of the Analysis window.

Viewing the Value of a Data Point

To view the value for a data point (that is, one plotted point of a data item) on a line in an analysis chart, position the cursor over the data point. If there is a point beneath the cursor, Capacity Planner displays the date, time, and value for that data point displays in a box above the point (see Figure 4–7).

Figure 4–7 Viewing the Value of a Data Point



Selecting a Line

When you view an analysis chart, you can perform certain operations after selecting a line in the chart. Most of the available operations are started by clicking a toolbar button on the analysis window after a chart line is selected.

To select a line, click a data point on the line. When a line is selected, the description of the line is displayed in the status bar at the bottom of the window, and the appropriate toolbar buttons are enabled.

Operations available from the toolbar are also available on a context menu. To display the context menu, click the right mouse button on a data point in a line in the analysis chart.

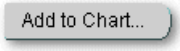
To be sure which line is currently selected (before clicking a toolbar button), read the description of the line in the status bar.

Adding a Class of Data to an Analysis

After you open an analysis, you may want to add data from other classes to the analysis. You can use this feature to compare two different classes of data.

To add a class of data to an analysis that is currently displayed in the Analysis window:

1. Confirm that Capacity Planner is in analysis view.
2. Select from the navigator the class of data that you want to add.
3. Specify the selection criteria (as described in "Specifying Selection Criteria for a Class of Data" on page 4-24) for the class.



4. Click **Add to Chart**.
5. In the Add Data to Analysis dialog box, select the name of the chart to which you want to add the data.

You can add data items from multiple classes to an analysis, and you can select different aggregation levels and date ranges for each class.

However, data items within a single class must share the same aggregation level and date range. If you try to add additional data items from the same class to an existing chart, you will receive a prompt, warning that the chart already contains data from this class. If you click **OK**, Capacity Planner will overwrite the chart with the currently selected data, aggregation levels, and date range.

Modifying Selection Criteria from the Analysis Window

From the analysis window, you can modify the selection criteria associated with any of the classes of data included in the analysis. Modify the selection criteria using one of these methods:

- Select a line in the analysis chart and click the **Select Items** toolbar button.
- Click the right mouse button on a data point in the line and choose **Select Items** from the conext menu.
- Click the **Data** tab in the analysis window (as opposed to the **Chart** tab) and click the **Select Items** toolbar button.

These actions display the Select Items dialog box, which contains the property sheet for the class of data associated with the selected line. This property sheet contains the selection criteria for that class of data, which you can modify and apply to the current analysis. See "Specifying Selection Criteria for a Class of Data" on page 4-24 for more information.

After you modify selection criteria, you can click either **Apply** or **OK** on the Analysis Options dialog box. If you click **Apply**, the changes made to the selection criteria are applied to the analysis and the updated analysis is shown. The Select Items dialog box remains displayed, and you can make other modifications to the same selection criteria, if you want. If you click **OK**, Capacity Planner applies the modifications to the analysis and closes the Select Items dialog box.

Removing a Line from a Chart

You can remove a line from an analysis chart by either of these methods:

- Select the line by clicking the right mouse button, then choose **Remove Line** from the context menu.

- Select the line, then click the **Remove Line** button on the analysis window toolbar.

These actions remove the data for the selected data item from the chart, but not from the historical database.

Excluding a Data Point from a Chart

You can exclude a data point (that is, one plotted point of a data item) from a chart. To exclude a data point, click the right mouse button on the data point and choose **Exclude Point** from the context menu.

Excluding a data point is useful if you know that the value of a particular data point is skewed. For example, if you know that a particular CPU-intensive program was not run at the usual time, you can remove the value for the % Processor Time data item for that time from the chart. The selected data point is removed from the chart, but the data for the data point is not removed from the historical database.

After you exclude one or more data points from a line, a red X appears in the status bar when you select the line.

To later redisplay excluded data points for a selected line, click **View Exclusions** on the Analysis window toolbar, or click the right mouse button on the line and select **View Exclusions** from the context menu.

These actions display the Data Point Exclusions dialog box, which displays the current list of excluded points for the selected line. You can toggle the check mark for each data point in the list. A check mark indicates that the data point is excluded from the analysis. To display an excluded data point in the analysis again, clear the check mark.

When you click **OK**, Capacity Planner closes the Data Point Exclusions dialog box and updates the chart to include the points removed from the list of exclusions.

Note: Data point exclusions are not saved with an analysis.

Showing or Hiding the Chart Legend

You can control whether or not the legend is displayed in an analysis chart by toggling the **Show/Hide Legend** button on the analysis window toolbar. When the legend is not shown, you can identify a line by clicking it, which displays the description of the line in the analysis window status bar.

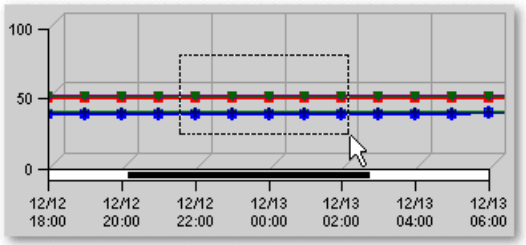
Zooming and Scrolling to View More or Less Chart Data

Depending on the date range and the number of data items and data sources you are analyzing, you may want to zoom in, zoom out, or scroll the contents of the chart window.

To view more detail or less detail, click the **Zoom In** and **Zoom Out** buttons on the Analysis Chart window toolbar. You can also zoom in by pressing the Page Down key on your keyboard or the numeric 3 on your keypad, and you can zoom out by pressing the Page Up key or the numeric 9 on your keypad.

You can also zoom in on a very specific part of the chart by dragging a rectangle around the area you want to magnify (Figure 4–8). Release the mouse button to zoom in on the selected area. You can zoom back out by using the Zoom Out button Home or End key on your keyboard.

Figure 4–8 Zooming in on a Selected Area of the Chart



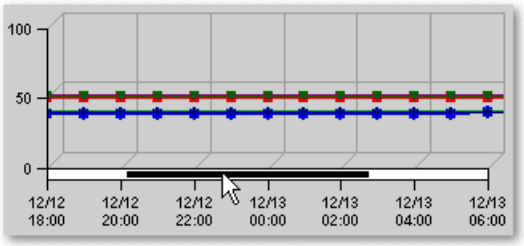
Often, the chart data will extend beyond the width of the Analysis Chart window. You can view the data that extends beyond the edges of the window by resizing the Analysis Chart window or by scrolling to the right or left.

To scroll the Analysis chart window:

1. Press and drag the pointer on the black scroll bar below the chart (Figure 4–9).
2. When the portion of the chart you want to view is displayed in the Analysis Chart window, release the mouse button.

Optionally, you can use the arrow keys on your keyboard to scroll left and right. Press the left arrow to scroll left and the right arrow to scroll right. If you experience a conflict with the Tab function using the left and right arrow keys, you can use the up and down arrow keys on your keyboard to scroll. Press the up arrow to scroll left (or the numeric 8 on your keypad), or the down arrow key to scroll right (or the numeric 2 on your keypad).

Figure 4–9 Scroll Bar in the Analysis Chart Window



Auto-Scaling Data

If an analysis contains data from different classes where the scale of the data is significantly different, you may want to apply scaling to the data. Scaling normalizes the data so that all lines have a maximum value of no greater than 100. Very large data items are scaled down, and very small data items are scaled up.

To apply scaling, click **Toggle Auto Scaling** on the analysis window toolbar. When scaling is applied to a chart, data lines with very different scales may be visually correlated. When scaling is enabled, Capacity Planner displays the label **Scaled Data** along the Y-axis of the chart. If you select a line from the chart by clicking it, the scaling factor for that line is included in the status bar.

What Is a Trend Analysis?

A trend analysis infers or estimates future values by projecting and extending known values. Oracle Capacity Planner can perform the following types of trend analyses:

- Trend analysis to a point in time

  In a trend analysis to a point in time, you provide a goal time for a data item. Oracle Capacity Planner uses the specified values in the historical database to project the value of the data item at the goal time.

  A trend analysis to a point in time is used to answer questions such as, "How full will this disk be at the end of the year?"

- Trend analysis to a value

  In a trend analysis to a value, you provide a goal value for a data item. Oracle Capacity Planner uses the specified values in the historical database to project the time at which the data item will reach the goal value.

A trend analysis to a value is used to answer questions such as, "When will our CPU utilization reach 95 percent?"

Specifying and Performing a Trend Analysis

To specify and perform a trend analysis, follow these steps:

1. In the Analysis window, either:
   - Select a line by clicking a data point in the line, then click the **Trend Analysis Wizard** button on the toolbar.
   - Click the right mouse button on a data point in a line, then select **Trend Analysis Wizard** from the context menu.

   Both of these methods display the Trend Analysis Wizard.
2. Capacity Planner displays the **Trend Analysis Wizard Welcome panel** that identifies the selected data on which you can conduct the trend analysis. You can click on the option box that prevents the Welcome screen from displaying in subsequent uses of the wizard. Click on **Next** to move to the next wizard panel.
3. In the **Date Range panel**, select a date range to use as a basis for the trend analysis:
   - Click **Use only the visible date range (as currently zoomed in the chart)** to use the range of dates currently visible in the analysis chart window (not including any data that extends beyond the edge of the chart window).

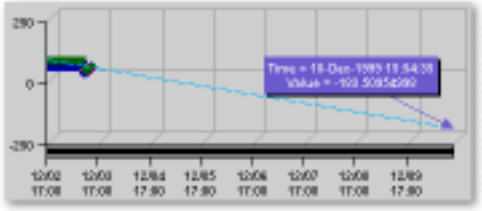
     This option is enabled only if you zoomed in to see more detail in the chart. For more information, see "Zooming and Scrolling to View More or Less Chart Data" on page 4-31.
   - Click **Use the date range selected for the chart** to use the date range currently used for all the data in the chart (even data that extends beyond the edge of the chart window).
   - Click **Select a new chart range** to select a different date range . You can designate either a recent period of time by choosing **Use a recent period of time** and then selecting the time increment and number of units of time to use, or you can specify a new start and end time by choosing **Use a new start and end time**.
   - Click on **Next** to move to the next wizard panel.
4. In the **Trend Analysis Type panel** of the wizard, specify which type of trend analysis you want to perform.

- To perform a trend analysis to a value, click the **Estimate when the data item will reach the following value:** and enter the numeric value for which you wish to determine the date and time.
- To perform a trend analysis to a future date and time, click **Estimate what the value of the data item will be at the following date:** and enter the time and date for which you wish to determine a value.
- Click on **Next** to move to the next wizard panel.

5. The **Summary panel** displays the results of the trend analysis. Click on **Finish** to add the trend line to the chart.
6. Choose **Customize Annotation** from the View menu to display the Annotate Trend dialog box and make changes to the annotation. Optionally, you can right mouse button click on the annotation created by the Trend Analysis wizard and then choose Customize Annotation from the context menu.

   Use the Annotate Trend dialog box to specify whether Capacity Planner will annotate the trend analysis (see Figure 4–10) and the appearance of the trend analysis line in the chart window. If you need information about the fields in the Annotate Trend dialog box, click **Help**.

Figure 4–10 Annotation for a Trend Analysis



7. Click **OK** to close the Annotate Trend dialog box.

Note: To move the annotation box in an analysis chart, click the box, hold the mouse button down, then move the mouse to a different position on the chart. Release the mouse button when you have reached the position in the chart where you want the annotation box displayed.

Saving Changes to a User-Defined or Predefined Analysis

You can save the changes you make to an analysis. Oracle Capacity Planner can determine if you are saving a user-defined analysis or a predefined analysis. The steps for saving your changes differ, depending on the type of analysis.

Saving the Results of a User-Defined Analysis

To save changes to a user-defined analysis:

1. While viewing the analysis, click **Save Chart** on the analysis window toolbar.
2. Click **Yes** in the message box.

   Your changes are saved to in the Analysis folder for the selected service using the current name of the analysis or data class. To save the analysis under a different name, choose **Save As** from the Analysis window **File** menu.

Saving the Results of a Predefined Analysis

If you modify a predefined analysis, you must provide a new name for the analysis when you save the results of the analysis. When you do this, you create a new user-defined analysis. Saving the analysis with a new name ensures that the original predefined analysis is not overwritten.

To save the results of a predefined analysis:

1. While viewing the analysis, click **Save Chart** on the analysis window toolbar.
2. Click **Yes** in the dialog box that is displayed.
3. In the Save Analysis As dialog box, type a unique name for the user-defined analysis that will be created.
4. Click **OK** in the Save Analysis As dialog box.

   Capacity Planner places the new user-defined chart in the Analyses folder of the navigator panel.

Printing an Analysis Chart

To print an analysis chart, click the **Print Chart** button in the Analysis Chart toolbar while the chart is displayed.

The size of the chart on the screen determines the size of the chart in the chart printout. For example, when you print a chart that is 5 inches high and 7 inches wide on your screen, the chart will be 5 inches high and 7 inches wide in the printout.

Generating a Report for an Analysis Chart

To generate an HTML report for an analysis chart:

1. Click the **Report Chart** button while the chart is displayed.

   Capacity Planner displays a dialog box that tells you the name of the HTML file used to display the report and where the file will be saved.

2. Make a note of the file name and location.

3. Click **Yes** to preview the chart in your Web browser, or click **No** if you do not want to preview the report.

You can view the report later using a Web browser, or—if you have experience with Web publishing tools and techniques—you can share the report with your co-workers by publishing the HTML file and its associated graphic files on a Web server.

Understanding the Oracle Capacity Planner Historical Database

The logical structure of the Oracle Capacity Planner historical database schema was designed to facilitate querying of capacity planning data by tools other than Oracle Capacity Planner, such as Microsoft Excel. This section contains a brief description of the design of the Oracle Capacity Planner historical database schema. It is not intended to be a comprehensive description of all tables and columns in the schema.

Caution: Performing any modification to the Oracle Capacity Planner historical database schema (tables, columns, or indexes) or to the data itself is not recommended and is not supported. Such modifications may render your Oracle Capacity Planner historical database schema unusable as a target to load or retrieve capacity planning data.

Understanding the Service Reference Table (vp_service_ref)

The service reference table contains a list of all services for which data has been stored in the Oracle Capacity Planner historical database. The HOST column contains the name of the host where the Agent data gathering service that loaded data for the specified target (the NAME column) is located. The SVC_ID column is

a column used for lookup into the class reference table, described in the following paragraph.

Understanding the Class Reference Table (vp_class_ref)

The class reference table contains a list of all collection classes for which data has been stored in the Oracle Capacity Planner historical database, for all services. To see the list of classes for a particular service, a query should look for the SVC_ID column equal to a SVC_ID value from the service reference table, described in the previous paragraph. Such a query would produce a list of all classes for which data exists in the database for a particular service.

Understanding the Data Tables

Each class of data in the class reference table has six data tables that contain the data for that collection class. Each table contains data for a particular time aggregate, for example, hours, days, weeks, months, and years. The base table contains the raw data as it is collected at the collection frequency. Therefore, the base table does not contain any statistical aggregations. The aggregate tables contain aggregate statistics for each data item collected for that class.

Data Table Names

Data tables are named according to the first four columns of the class reference table (in reverse order) plus the aggregate. Example 4–1 shows an entry for a collection class in the class reference table.

Example 4–1 Collection Class Entry in the Class Reference Table

```
CLS_ID      MOD_ID     SVC_ID     IS_UDS      CONTAINER_CLASS_LABEL
---------- ---------- ---------- ---------- ------------------------------
         8          2          2          0 I/O
```

The collection class in Example 4–1 would have the data tables shown in Example 4–2.

Example 4–2 Data Tables for a Collection Class

```
VP_0_2_2_8_BASE
VP_0_2_2_8_HOUR
VP_0_2_2_8_DAY
VP_0_2_2_8_WEEK
VP_0_2_2_8_MONTH
```

VP_0_2_2_8_YEAR

Data Table Contents

The first two columns of each data table are always the Timestamp column and the Data Source Name column. The Data Source Name column is essentially the class name, for example, Logical Disk. In aggregate tables (tables other than BASE), the third column is an accuracy calculation, which is not supported in this version of Oracle Capacity Planner.

All subsequent columns contain the values for the data items collected for that class, as they are actually named. In aggregate tables, these columns are prefixed with a two-character abbreviation for the aggregation statistic that the column contains. Table 4–4 shows these abbreviations and their meanings.

Table 4–4 Prefixes Used for Column Names in Aggregate Tables

Prefix	Meaning
AV	Average
SM	Sum
MN	Minimum
MX	Maximum
SD	Standard deviation
VR	Variance
CT	Count

These statistics are calculated for the set of data in that aggregate from the next lowest level. For example, a row in the DAY aggregate table contains statistics calculated for all entries in the HOUR table for that day.

5

Concurrent Processing Tuning Assistant

The Concurrent Processing Tuning Assistant (hereafter referred to as the Tuning Assistant) is a reporting mechanism that allows you to examine historical processing information about Oracle Concurrent Processing requests and concurrent managers. The Tuning Assistant provides information that assists you in achieving better concurrent processing throughput by adjusting concurrent manager assignments and request scheduling.

The Tuning Assistant provides several predefined reports that identify problem areas in concurrent manager processing. The Tuning Assistant generates reports directly against the information stored in the Oracle Application Object Library tables.

Considerations When Using the Tuning Assistant

The following sections describe two points you should consider when using the Tuning Assistant: performance and completeness of data.

Performance Considerations

Because the Tuning Assistant generates reports directly from information stored in the Application Object Library tables, the amount of concurrent processing request data has a direct impact on performance. A large amount of data can cause delays in gathering the information necessary to display report data.

One method for improving Tuning Assistant performance in retrieving data is to periodically use the SQL language ANALYZE command to compute statistics on tables that the Tuning Assistant accesses. These tables include:

- FND_APPLICATION_TL
- FND_LOOKUPS

- FND_CONCURRENT_PROCESSES
- FND_CONCURRENT_PROGRAMS
- FND_CONCURRENT_PROGRAMS_TL
- FND_CONCURRENT_QUEUES
- FND_CONCURRENT_QUEUES_TL
- FND_CONCURRENT_REQUESTS
- FND_USER
- FND_CONC_PP_ACTIONS (for Apps 11.x)
- FND_CONC_RELEASE_CLASSES (for Apps 11.x)
- FND_CONC_RELEASE_CLASSES_TL (for Apps 11.x)

See the Oracle SQL documentation for information on how to use the SQL ANALYZE command and the impact it may have on your system.

Completeness of Data

If the concurrent processing tables are purged frequently or if concurrent manager and request data are purged at different intervals, the usefulness of the data displayed in the reports could be limited.

When looking at information presented by the Tuning Assistant, be aware of the data purge policies of your system administration and the effect these policies may have on the data reported.

Note: Tuning Assistant reports do not include currently running requests. Only completed requests are included in reports.

Usage Scenarios for the Tuning Assistant

The following section provides scenarios of how you might use the reports to tune your request schedules: concurrent manager balancing and concurrent manager specialization.

Concurrent Manager Balancing

To determine concurrent manager balancing, view the Waiting Requests by Hour (24 x 7) report and look for the time periods with the greatest wait times.

If you find a time period that seems to have a relatively great number of backups, examine which requests were run and which requests were waiting during this time period. For selected time periods, drill down to the Requests that Waited report to identify the requests that waited. It may be necessary to schedule these requests during periods with excess concurrent manager capacity.

To find time periods with excess concurrent manager capacity, examine the Concurrent Managers by Hour (24 x 7) report, and look for underutilized time periods. For details about activity during selected time periods, drill down to the Requests that Ran report.

To reduce wait time, consider rescheduling a program to run when the concurrent managers have capacity to spare. Use these reports to identify requests whose schedules can be adjusted to distribute load more evenly.

If all concurrent managers are running at near or maximum capacity, it may be necessary to add more concurrent managers. If system resources are also fully utilized, it may be necessary to add additional hardware to support processing demands.

Concurrent Manager Specialization

Designating certain concurrent managers to process either short or long running programs can help to mitigate queue backup. Designating a concurrent manager to process short running jobs can help to prevent short running jobs from getting stuck behind long running jobs.

Look at the Long Running Requests report to determine if any of these requests should be associated with a concurrent manager that will handle long running jobs.

Additionally, look at the Short Running Requests that Waited report to identify if any of these requests should be associated with a concurrent manager that will handle short running jobs.

Starting the Tuning Assistant

You can access the Tuning Assistant in the following ways:

- From the Oracle Enterprise Manager console
- From the Start menu

The following sections explain how to use these methods.

Starting the Tuning Assistant from Oracle Enterprise Manager

To start the Tuning Assistant from Oracle Enterprise Manager, highlight the concurrent manager you want to investigate and do one of the following:

- Click the Application Management drawer and select Concurrent Processing Tuning Assistant
- Select **Tools=>Application Management=>Concurrent Processing Tuning Assistant**
- Select a Concurrent Manager in the navigator tree, click the right-mouse button, and select **Related Tools=>Concurrent Processing Tuning Assistant**

The Tuning Assistant is displayed. However, if preferred credentials have not been set or if they are incorrect, the Concurrent Processing Tuning Assistant Login dialog box is displayed. Provide the login information to connect to a valid Applications schema.

Starting the Tuning Assistant from the Start Menu

To start the Tuning Assistant from the Start menu, select **Start=>Programs=>ORACLE_HOME=>Oracle Applications=>Concurrent Processing Tuning Assistant**. The Concurrent Processing Tuning Assistant Login dialog box is displayed. Provide the login information to connect to a valid Oracle Applications schema.

Note: ORACLE_HOME represents the Oracle home in which the Tuning Assistant is installed.

Once a connection has been established, the Tuning Assistant will ensure that it is a valid schema containing Oracle Application Object Library tables.

Using the Tuning Assistant

The following options are available in the Tuning Assistant:

- Tuning Assistant Main Window
- Displaying Reports
- Saving Reports
- Report Properties

- Drill Down from Tuning Assistant Reports
- Printing Tuning Assistant Reports

Tuning Assistant Main Window

The Tuning Assistant main window consists of two panes: a pane with a report tree and a Report Detail pane. The report tree presents a list of available reports organized by categories: concurrent managers, programs, and requests.

The Report Detail pane contains the General and Options tabs.

General Tab

The General tab contains a thorough description of the contents of the report and why the report is useful.

Options Tab

The Options tab shows the current settings for the reporting options, for example, the reporting period, applications included in the report, and requests included in the report. Change the settings in this tab to retrieve the data in which you are most interested. Of the following options, only those appropriate for the particular report will display.

- Reporting Period

  The Reporting Period group includes alternative options, such as previous week, previous four weeks, one week starting, and time period. The time period will be initialized to the minimum and maximum dates available in the current applications schema.

- Application Included in Report

  With this option, you can select either one application to be represented in the report or all available applications to be represented. By default, all applications are included.

- Requests Included in Report

  The Requests Included In Report option has various settings based on the type of report you selected. These settings include:

  – Minimum Duration

    Only requests with a duration greater than the minimum duration will be included in the report.

- Minimum Wait Time

  Only requests that waited longer than or equal to the minimum wait time will be included in the report.

- Maximum Wait Time

  Only requests that waited less than or equal to the maximum wait time will be included in the report.

- Maximum Runtime

  Only requests that ran for less time than the maximum runtime will be included in the report.

For each of these options, enter a value in the text field and select the time granularity. The time granularity options are minutes, hours, days, and weeks. If you do not want an available option, set its time granularity to None.

- Limit the Number of Rows Retrieved

  With this option you can limit the number of rows retrieved to a value you specify. Only the number of rows specified are included in the report. If you do not specify the number of rows, all rows that meet the criteria for inclusion are displayed in the report.

Displaying Reports

To display reports, you can either click **Show Report** on the Report Detail pane or double click on the report node on the report tree.

When a report is opened, information is retrieved from the Application Object Library tables. As the Tuning Assistant retrieves the data, a busy bar appears at the bottom of the display. Some reports will show intermediate data in the display area. If the busy bar is still visible, this indicates that the data is still being retrieved.

A Cancel button is displayed next to the busy bar. Click **Cancel** to interrupt an operation. Depending on the type of operation that is being performed, the cancel operation may or may not be processed immediately. If partial data is available, Cancel will stop the data retrieval and display the results that were retrieved before the cancellation occurred.

The following are additional characteristics about the reports:

- Clicking column headers in these reports causes data to be sorted by the selected column header if the report is not a "by hour (24x7)" report.

- Some reports present a drop-down list at the top of the display to filter the information that is being displayed, or to change the format of the information that is being displayed.

Saving Reports

To save reports, click **Save As** on the toolbar.

Reports can be saved to a file in comma-separated value (CSV) format or HTML format. The file will contain the data that was retrieved for this report. Files saved in CSV format can be uploaded into spreadsheet applications. Files saved in HTML format can be viewed using a Web browser.

For reports that provide you with the ability to manipulate the displayed data, the Tuning Assistant saves the data as it is currently displayed.

Report Properties

To display the properties of a report, click **Properties** on the toolbar.

The Report Properties option displays information about a report, for example, options selected. Report Properties include the General and Options tabs as in the Report Detail pane, as well as a SQL Text tab that displays the SQL text used to generate the report. Drill-down reports include a Drill Source tab which includes information about the parent report for this drill-down report.

Some reports provide the ability to modify or change report properties and redisplay the report with the changed settings.

Drill Down from Tuning Assistant Reports

To drill down to a report, click **Drilldown** on the toolbar. You can also right-mouse click on a report to access a drill-down report.

Many reports have a drill-down capability. These reports will drill down to data associated with the currently selected items.

Printing Tuning Assistant Reports

To print reports, click **Print** on the toolbar.

The Print option prints the data that is currently displayed in the report window.

Report Descriptions

The following reports are available through the Tuning Assistant:

- Concurrent Managers by Hour (24x7)
- Concurrent Manager Usage by Program
- Program Run Summary by Status
- Program Wait Summary
- Waiting Requests by Hour (24x7)
- Long Running Requests
- Short Running Requests that Waited
- Request Run Summary by Month
- Drill-Down Reports
  - Requests that Ran
  - Requests that Waited
  - Request Details

Concurrent Managers by Hour (24x7)

The Concurrent Managers by Hour (24 x 7) report answers the question, "How is my concurrent manager capacity being used?"

The purpose of this report is to identify time periods when concurrent managers had capacity to spare. This report shows the percentage of time each concurrent manager was actually utilized for a block of time periods. By examining the time jobs were run in a concurrent manager against its total capacity, you determine capacity utilization.

This report shows the days of the week in columns and hourly time periods in rows. Each slot in the display contains the utilization for that concurrent manager during that time period. This report provides a graphical display using color and font styles to show time period utilization: red / bold (greatest utilization), yellow / italic (less utilization), and gray / regular (no utilization).

Because this report displays data in a weekly format (24 x 7), when you choose a time period that extends beyond a week, the data displayed is the sum of the data for each hour over the time period. For example, if the time period extends from

Monday to Monday (8 days), the Monday column in the report displays the sum of the data for the two Mondays.

The features of this report include:

- Selecting individual or all concurrent managers from the Concurrent Manager drop-down list. Concurrent managers prefixed with an asterisk (*) were available for the time period specified in the report options but serviced no requests. In other words, the concurrent managers were running but they did no work.
- Selecting the type of data displayed from the Data Displayed drop-down list. Types of data include:
  - Concurrent manager utilization shows the percentage of concurrent manager capacity that was used. This percentage is calculated by dividing the number of minutes requests were run by the number of minutes of concurrent manager capacity available.
  - Concurrent manager capacity in minutes.
  - Request runtime in minutes.
  - Number of requests that ran.
  - Request runtime to concurrent manager capacity ratio shows the ratio of concurrent manager capacity that was used. This ratio is calculated by dividing the number of minutes requests were run by the number of minutes of concurrent manager capacity available.
  - Concurrent manager utilization fraction shows the fraction of concurrent manager capacity that was used. This fraction is calculated by dividing the number of minutes requests were run by the number of minutes of concurrent manager capacity available.
- Customizing the high utilization threshold using a slider. The slider controls the color in which each hour is displayed. Any hours with a concurrent manager utilization greater than the slider value will be displayed in red.

For this report you can drill down to the Request that Ran report. Select one or more time periods and choose **Drilldown** from the toolbar. You can also right-mouse click on a row or a cell to access a drill-down report.

Concurrent Manager Usage by Program

The Concurrent Manager Usage by Program report answers the question, "Which programs ran on which concurrent managers?"

You can use this information to determine which concurrent manager and program combinations are potential bottlenecks.

For a given time period, this report provides the following information:

- Concurrent Manager
- Program
- Duration in minutes: total, average, minimum, and maximum (The report is sorted by total duration.)
- Times Run (Number of times the program ran in this concurrent manager.)

Program Run Summary by Status

The Program Run Summary by Status report answers the question, "Which programs ran and how long did they take to run?"

This report provides general information about requests summarized by program and grouped by status:

- Application
- Program
- Duration in minutes: total, average, minimum, and maximum (The report is sorted by total duration.)
- Times Run
- Status

From this report you can drill down to the Requests that Ran report. Select one or more rows, and choose **Drilldown** from the toolbar. You can also right-mouse click on a selected row to access a drill-down report.

Program Wait Summary

The Program Wait Summary report answers the question, "Which programs had to wait and how long did they wait?"

With this report you can identify programs that have historically long wait times. This information can be used to identify which programs may benefit most from a change in program scheduling. This report provides the following information:

- Application
- Program

- Actual wait time (in minutes): total, average, minimum, and maximum (The report is sorted by total wait time.)
- Times Run

From this report you can drill down to the Requests that Waited report. Select one or more rows, and choose **Drilldown** from the toolbar. You can also right-mouse click on a selected row(s) to access a drill-down report.

Waiting Requests by Hour (24x7)

The Waiting Requests by Hour (24 x 7) report answers the question, "What are my problem time periods?"

The resulting report shows the days of the week in columns and hourly time periods in rows. Each square in the display contains the amount of time requests waited (in minutes) during that time period.

This report presents a graphical display using color and font styles to show wait times: red / bold (longest wait times), yellow / italic (middle wait times), and gray / regular (no wait).

The graphical display of this data is useful when tuning concurrent managers by adjusting job schedules and by visually locating the "hot", "warm", and "cold" time periods. You can use this information to adjust request scheduling.

The features of this report include:

- Selecting an individual program or all programs from the Programs list.
- Selecting the type of data from the Data Displayed drop-down list. The available types of data are:
  - Minutes requests spent waiting
  - Number of requests that waited
- Customizing the threshold for "hot" and "warm" periods using a slider.

From this report you can drill down to the Requests that Waited report. Select one or more time periods, and choose **Drilldown** from the toolbar. You can also right-mouse click on a row or cell to access a drill-down report.

Long Running Requests

The Long Running Requests report answers the question, "Which jobs took a long time to run?"

This report shows runtimes for requests started during a given time period that took longer than *n* minutes to run. This helps you identify slow running requests.

A possible remedy for slow running requests is to schedule requests during off-peak hours. This report also identifies programs that should run in a particular concurrent manager. You can designate a concurrent manager for slow running requests and a concurrent manager for fast running requests. Long running jobs should be delegated to the slow running concurrent manager, and faster jobs should be delegated to the fast running concurrent manager. This prevents fast jobs from being blocked by a slow job, increasing overall throughput.

For all requests with a duration greater than a specified number of minutes, this report provides the following information:

- Program name
- Duration in minutes (The report is sorted by this column.)
- Request ID
- User Name
- Concurrent Manager
- Actual Start
- Status
- Priority
- Parameters
- Request limit (if available)

From this report you can drill down to the Request Details report. Select a row, and choose **Drilldown** from the toolbar. You can also right-mouse click on a selected row to access a drill-down report.

Short Running Requests that Waited

The Short Running Requests that Waited report answers the question, "Which requests waited a long time relative to their runtime?"

This report lists the short running jobs that queue longer than a specified number of minutes.

This report is useful for determining which requests are waiting a relatively long time compared to their runtime. Requests can wait longer than they run. If many

requests are identified, consider creating a concurrent manager that specializes in short running requests. This may help to increase the throughput of these requests.

This report provides the following information:

- Program name
- Wait Length (in minutes) (The report is sorted by this column.)
- Duration (in minutes)
- Request ID
- Status
- Phase
- Earliest Start
- User Name
- Concurrent Manager

From this report you can drill down to the Request Details report. Select a row, and choose **Drilldown** from the toolbar. You can also right-mouse click on a selected row to access a drill-down report.

Request Run Summary by Month

The Request Run Summary by Month report answers the question, "How has my request processing changed over time?"

You can use this information to determine on a monthly basis if overall performance is improving or deteriorating on a month-to-month basis. The average duration of a request (in minutes) is a good indicator of the change in system performance over time.

You can also use this report to note if the number of requests processed is increasing over time.

This report provides the following information:

- Year-Month
- Total Duration (in minutes)
- Avg Duration (average duration in minutes)
- Number of Requests (that ran during the month)

Drill-Down Reports

Drill-down reports display information that is in the context of the report from which the drill-down was invoked. For example, from the Concurrent Managers by Hour (24x7) report, you can drill down to the Requests that Ran report.

Requests that Ran

The Requests that Ran report answers the question, "Which requests ran in the drill-down context?"

For all requests that ran in this context, this report provides the following information:

- Program
- Duration (in minutes) (The report is sorted by this column.)
- User Name
- Concurrent Manager
- Actual Start (time)
- Actual Completion (time)
- Priority
- Request ID
- Constrained (*yes* or *no*)
- Single Thread (*yes* or *no*)
- Status
- Request limit (if available)

From this report you can drill down to the Request Details report. Select a request, and choose **Drilldown** from the toolbar. You can also right-mouse click on a selected row to access a drill-down report.

Requests that Waited

The Requests that Waited report answers the question, "Which requests waited in the drill-down context?"

For all requests that waited in this context, this report provides the following information:

- Program Name

- Wait Length (in minutes) (The report is sorted by this column.)
- User Name
- Concurrent Manager (that ran the request)
- Run alone
- Priority
- Single Thread
- Earliest Start (possible)
- Actual Start
- Actual Completion
- Request ID
- Constrained (*yes* or *no*)
- Request limit (if available)

From this report you can drill down to the Request Details report. Select a request, and choose **Drilldown** from the toolbar. You can also right-mouse click on a report to access a drill-down report.

Request Details

The Request Details report answers the question, "What are the details for a given request ID?"

You can drill down to this information from any report that shows individual requests. This information is compatible with the request detail information presented by Oracle Applications Manager.

The information in this report is provided in the General, Schedule Options, and Completions Options tabs. The information includes:

- In the General tab
  - Request ID
  - Name
  - Requestor
  - Language
  - Phase

  - Status
  - Submission date
  - Requested start date
  - Actual start date
  - Actual completion date
  - Parameters
  - Completion Text
- In the Schedule Options tab
  - Schedule
  - Priority
  - Requested Start
- In the Completion Options tab
  - Notify
  - Print To

6

Oracle Applications Advanced Event Tests

The Oracle Applications Advanced Event Tests include a library of applications-specific event tests which are provided for lights-out event monitoring and problem detection of the Applications system.

Aside from the basic up / down event tests provided for all services administered in the Oracle Enterprise Manager console, the Management Pack for Oracle Applications provides a library of advanced event tests specific to Oracle Applications subsystems.

> **Note:** To successfully use the event tests, the node credentials on Windows NT must be for a user with the "logon as batch" privilege.

The Application subsystem specific events notify administrators of fault, performance, and space problems. The event tests according to category are:

> **Note:** The Fault and Performance event tests are specific to the version of the Agent. The Space event test is independent of the version of the Agent. To determine the version of the Agent, go to the Enterprise Manager Console and find the node on which the concurrent manager is running. Right mouse click on the node target and select "Properties".
>
> The event tests for release 8.1.6 and earlier targets are included for backward compatibility purposes. It is highly encouraged that you upgrade to the new event tests because the old event tests may not be supported in future releases of the Management Pack for Oracle Applications.

- Fault
  - Concurrent Manager UpDown
  - CRM Waiting on a Lock
  - ICM Waiting on a Lock
  - Request Error Rate
  - Request Warning Rate
- Performance
  - Inactive Request Pending
  - Pending Concurrent Request Backlog
  - Request Pending Time
  - Run Alone Request Submitted
- Fault (for v8.1.6 and earlier Agents)
  - Concurrent Manager UpDown (for V8.1.6 and Earlier Agents)
  - CRM Waiting on a Lock (for V8.1.6 and Earlier Agents)
  - ICM Waiting on a Lock (for V8.1.6 and Earlier Agents)
  - Request Error Rate (for V8.1.6 and Earlier Agents)
  - Request Warning Rate (for V8.1.6 and Earlier Agents)
- Performance (for v8.1.6 and earlier Agents)
  - Inactive Request Pending (for V8.1.6 and Earlier Agents)
  - Pending Concurrent Request Backlog (for V8.1.6 and Earlier Agents)
  - Request Pending Time (for V8.1.6 and Earlier Agents)
  - Run Alone Request Submitted (for V8.1.6 and Earlier Agents)
- Space
  - Concurrent Manager Disk Free

The Oracle Applications event library also includes node events. See "Node Event Tests" on page 6-16 for a complete list of node events.

For more information on submitting or scheduling events, see the *Oracle Enterprise Manager Administrator's Guide*. Pay special attention to the event frequency value, which can be set on the General tab of the Create Event panel. This value

determines the frequency of polling for event occurrences. The default value is every 60 seconds, but for many application management events, you may wish to choose larger values, for better performance and a lower overall impact on system resources.

To expand the Intelligent Agent messages related to the Management Pack for Oracle Applications, at the system prompt from the Agent's Oracle home type: oerr <*facility*> <*message number*> where <*facility*> is **smamp**.

```
For example: oerr smamp 6001
Cause: Failed to open a cursor.
Action: Verify that the maximum cursors limit has not been exceeded.
```

Before running any program from the command line (UNIX or Windows NT), verify that all the correct values are present in the necessary environment variables, for example, ORACLE_HOME, LD_LIBRARY_PATH, and PATH.

Concurrent Manager Event Tests

Run Alone Request Submitted

This event test monitors the state of the requests submitted to the concurrent manager(s). If any of the requests is in a run alone state, a warning is generated.

Parameters

1. Monitor Field: Specify or exclude certain concurrent programs from monitoring. Choose one of the following: All Concurrent Programs, All Except These Concurrent Programs, or Only These Specific Concurrent Programs. The default is to monitor all concurrent programs.
2. List Field: Type the application name and concurrent program name for which the event will filter or exclude from monitoring. These names can be found in the Oracle Applications Manager or the Oracle Applications administration screens. The default is empty and disabled.

Output

The number of run alone requests in the concurrent manager(s) queue.

Default Frequency

60 seconds.

User Action

Determine whether or not the run alone request submitted is necessary. If it is not, the request should be deleted so that other requests can be processed.

Run Alone Request Submitted (for V8.1.6 and Earlier Agents)

This event test monitors the state of the requests submitted to the concurrent manager(s). If any of the requests is in a runalone request, a warning is generated.

Parameters

None.

Output

The number of run alone requests in the concurrent manager(s) queue.

Default Frequency

60 seconds.

User Action

Determine whether or not the runalone request submitted is necessary. If it is not, the request should be deleted so that other requests can be processed.

Inactive Request Pending

This event test monitors the state of the requests submitted to the concurrent manager(s). If any of the requests is in an inactive state, an alert is generated.

Parameters

1. Monitor Field: Specify or exclude certain concurrent programs from monitoring. Choose one of the following: All Concurrent Programs, All Except These Concurrent Programs, or Only These Specific Concurrent Programs. The default is to monitor all concurrent programs.
2. List Field: Type the application name and concurrent program name for which the event will filter or exclude from monitoring. These names can be found in the Oracle Applications Manager or the Oracle Applications administration screens. The default is empty and disabled.

Output

The number of inactive requests in the concurrent manager(s) queue.

Default Frequency

60 seconds.

User Action
Locate the inactive request and remove it from the queue.

Inactive Request Pending (for V8.1.6 and Earlier Agents)

This event test monitors the state of the requests submitted to the concurrent manager(s). If any of the requests is in an inactive state, an alert is generated.

Parameters
None.

Output
The number of inactive requests in the concurrent manager(s) queue.

Default Frequency
60 seconds.

User Action
Locate the inactive request and remove it from the queue.

Request Error Rate

This event test monitors the error rate of concurrent requests. When the error rate reaches the threshold parameters set by the user, an alert or warning is generated.

Parameters
1. Monitor Field: Specify or exclude certain concurrent programs from monitoring. Choose one of the following: All Concurrent Programs, All Except These Concurrent Programs, or Only These Specific Concurrent Programs. The default is to monitor all concurrent programs.
2. List Field: Type the application name and concurrent program name for which the event will filter or exclude from monitoring. These names can be found in the Oracle Applications Manager or the Oracle Applications administration screens. The default is empty and disabled.
3. Alert threshold: Percentage of requests marked with errors for alert. Default is 10%.
4. Warning threshold: Percentage of requests marked with errors for warning. Default is 5%.

Output
Percentage of requests with errors.

Default Frequency
60 seconds.

User Action
Review the Request Log files in the APPL_TOP/log directory to determine which requests need to be corrected.

Request Error Rate (for V8.1.6 and Earlier Agents)

This event test monitors the error rate of concurrent requests. When the error rate reaches the threshold parameters set by the user, an alert or warning is generated.

Parameters
1. Alert threshold: Percentage of requests marked with errors for alert. Default is 10%.
2. Warning threshold: Percentage of requests marked with errors for warning. Default is 5%.

Output
Percentage of requests with errors.

Default Frequency
60 seconds.

User Action
Review the Request Log files in the APPL_TOP/log directory to determine which requests need to be corrected.

Request Warning Rate

This event test monitors the warning rate of concurrent requests. When the warning rate reaches the threshold parameters set by the user, an alert or warning is generated.

Parameters
1. Monitor Field: Specify or exclude certain concurrent programs from monitoring. Choose one of the following: All Concurrent Programs, All Except These Concurrent Programs, or Only These Specific Concurrent Programs. The default is to monitor all concurrent programs.
2. List Field: Type the application name and concurrent program name for which the event will filter or exclude from monitoring. These names can be found in

the Oracle Applications Manager or the Oracle Applications administration screens. The default is empty and disabled.

3. Alert threshold: Percentage of requests marked with warning for alert. Default is 10%.
4. Warning threshold: Percentage of requests marked with warnings for warning. Default is 5%.

Output
Percentage of requests with warnings.

Default Frequency
60 seconds.

User Action
Review the Request Log files in the APPL_TOP/log directory to determine which requests need to be corrected.

Request Warning Rate (for V8.1.6 and Earlier Agents)

This event test monitors the warning rate of concurrent requests. When the warning rate reaches the threshold parameters set by the user, an alert or warning is generated.

Parameters
1. Alert threshold: Percentage of requests marked with warning for alert. Default is 10%.
2. Warning threshold: Percentage of requests marked with warnings for warning. Default is 5%.

Output
Percentage of requests with warnings.

Default Frequency
60 seconds.

User Action
Review the Request Log files in the APPL_TOP/log directory to determine which requests need to be corrected.

Request Pending Time

This event test monitors for requests that have been in the pending state for a time period exceeding the threshold set by the user. If this event is triggered, a warning is generated.

Parameters

1. Monitor Field: Specify or exclude certain concurrent programs from monitoring. Choose one of the following: All Concurrent Programs, All Except These Concurrent Programs, or Only These Specific Concurrent Programs. The default is to monitor all concurrent programs.
2. List Field: Type the application name and concurrent program name for which the event will filter or exclude from monitoring. These names can be found in the Oracle Applications Manager or the Oracle Applications administration screens. The default is empty and disabled.
3. Hours pending: Number of hours the request has been pending. Default is 1 hour.
4. Minutes pending: Number of minutes the request has been pending. Default is 30 minutes.

Output

Number of hours or minutes that the request has been pending.

Default Frequency

60 seconds.

User Action

Check to see if the queue is being serviced actively. Increase the processes for the queue manager to balance the load, if necessary.

Request Pending Time (for V8.1.6 and Earlier Agents)

This event test monitors for requests that have been in the pending state for a time period exceeding the threshold set by the user. If this event is triggered, a warning is generated.

Parameters

1. Hours pending: Number of hours the request has been pending. Default is 1 hour.
2. Minutes pending: Number of minutes the request has been pending. Default is 30 minutes.

Output
Number of hours or minutes that the request has been pending.

Default Frequency
60 seconds.

User Action
Check to see if the queue is being serviced actively. Increase the processes for the concurrent manager to balance the load, if necessary.

Pending Concurrent Request Backlog

This event test monitors for concurrent requests that have been in the pending state for a time period exceeding the threshold set by the user, and triggers an alert if the number of pending requests exceeds the 'total concurrent requests' threshold.

Parameters
1. Monitor Field: Specify or exclude certain concurrent programs from monitoring. Choose one of the following: All Concurrent Programs, All Except These Concurrent Programs, or Only These Specific Concurrent Programs. The default is to monitor all concurrent programs.
2. List Field: Type the application name and concurrent program name for which the event will filter or exclude from monitoring. These names can be found in the Oracle Applications Manager or the Oracle Applications administration screens. The default is empty and disabled.
3. Threshold for total number of requests pending: Number of requests pending in the queue. Default is 1.
4. Time Threshold (in minutes) for including requests in the pending queue backlog. Default is 1 minute.

Output
Number of requests currently pending.

Length of time the requests has been pending in the queue.

Default Frequency
60 seconds.

User Action
Increase the number of concurrent processes to handle the load.

Pending Concurrent Request Backlog (for V8.1.6 and Earlier Agents)

This event test monitors for concurrent requests that have been in the pending state for a time period exceeding the threshold set by the user, and triggers an alert if the number of pending requests exceeds the 'total concurrent requests' threshold.

Parameters

1. Threshold for total number of requests pending: Number of requests pending in the queue. Default is 1.
2. Time Threshold (in minutes) for including requests in the pending queue backlog. Default is 1 minute.

Output

Number of requests currently pending.

Length of time the requests has been pending in the queue.

Default Frequency

60 seconds.

User Action

Increase the number of concurrent processes to handle the load.

CRM Waiting on a Lock

This event test checks whether the Conflict Resolution Manager is waiting to get a lock. If the lock wait time reaches a specified amount of time, a warning is issued. It is rare for a concurrent program to lock out the CRM for an excessive amount of time. This event test will most likely be triggered by a form session that is out of control.

Parameters

1. Alert threshold: Lock wait time (in minutes) for an alert. Default is 3 minutes.
2. Warning threshold: Lock wait time (in minutes) for a warning. Default is 2 minutes.

> **Note:** Threshold values must be between 2 and 32 minutes.

Output

Session identification number.

Operating system process identification number.

Lock mode.

Machine name.

Terminal name for the locking session.

Default Frequency
60 seconds.

User Action
Locate the session that is blocking the Conflict Resolution Manager and determine if the session can be deleted.

> **Note:** A fixit job could be registered to automatically delete the blocking session when the event is triggered. This fixit job is activated regardless whether an alert or warning is triggered.

CRM Waiting on a Lock (for V8.1.6 and Earlier Agents)

This event test checks whether the Conflict Resolution Manager is waiting to get a lock. If the lock wait time reaches a specified amount of time, a warning is issued. It is rare for a concurrent program to lock out the CRM for an excessive amount of time. This event test will most likely be triggered by a form session that is out of control.

Parameters
1. Alert threshold: Lock wait time (in minutes) for an alert. Default is 3 minutes.
2. Warning threshold: Lock wait time (in minutes) for a warning. Default is 2 minutes.

> **Note:** Threshold values must be between 2 and 32 minutes.

Output
Session identification number.

Operating system process identification number.

Lock mode.

Machine name.

Terminal name for the locking session.

Default Frequency
60 seconds.

User Action
Locate the session that is blocking the Conflict Resolution Manager and determine if the session can be deleted.

> **Note:** A fixit job could be registered to automatically delete the blocking session when the event is triggered. This fixit job is activated regardless whether an alert or warning is triggered.

ICM Waiting on a Lock

This event test checks whether the Internal Concurrent Manager is waiting to get a lock. If the lock wait time reaches a specified amount of time, a warning is issued. It is rare for a concurrent program to lock out the ICM for an excessive amount of time. This event test will most likely be triggered by a form session that is out of control.

Parameters
1. Alert threshold: Lock wait time (in minutes) for an alert. Default is 3 minutes.
2. Warning Threshold: Lock wait time (in minutes) for a warning. Default is 2 minutes.

> **Note:** Threshold values must be between 2 and 32 minutes.

Output
Session identification number.

Operating system process identification number.

Lock mode.

Machine name.

Terminal name for the locking session.

Default Frequency
60 seconds.

User Action

Locate the session that is blocking the Internal Concurrent Manager and determine if the session can be deleted.

> **Note:** A fixit job could be registered to automatically delete the blocking session when the event is triggered. This fixit job is activated regardless whether an alert or warning is triggered.

ICM Waiting on a Lock (for V8.1.6 and Earlier Agents)

This event test checks whether the Internal Concurrent Manager is waiting to get a lock. If the lock wait time reaches a specified amount of time, a warning is issued. It is rare for a concurrent program to lock out the ICM for an excessive amount of time. This event test will most likely be triggered by a form session that is out of control.

Parameters

1. Alert threshold: Lock wait time (in minutes) for an alert. Default is 3 minutes.
2. Warning Threshold: Lock wait time (in minutes) for a warning. Default is 2 minutes.

> **Note:** Threshold values must be between 2 and 32 minutes.

Output

Session identification number.

Operating system process identification number.

Lock mode.

Machine name.

Terminal name for the locking session.

Default Frequency

60 seconds.

User Action

Locate the session that is blocking the Internal Concurrent Manager and determine if the session can be deleted.

Note: A fixit job could be registered to automatically delete the blocking session when the event is triggered. This fixit job is activated regardless whether an alert or warning is triggered.

Concurrent Manager UpDown

This event test monitors the state of the Internal Concurrent Manager (ICM). If the ICM goes down, an alert is generated.

Parameters
None.

Output
None.

Default Frequency
60 seconds.

User Action
Submit a standalone concurrent manager startup job when the event issues an alert. The startup concurrent manager job could also be configured as a fix-it job to automatically restart the ICM when it goes down.

Concurrent Manager UpDown (for V8.1.6 and Earlier Agents)

This event test monitors the state of the Internal Concurrent Manager (ICM). If the ICM goes down, an alert is generated.

Parameters
None.

Output
None.

Default Frequency
60 seconds.

User Action
Submit a standalone concurrent manager startup job when the event issues an alert. The startup concurrent manager job could also be configured as a fix-it job to automatically restart the ICM when it goes down.

Concurrent Manager Disk Free

This event test monitors the growth rates of the log, output, and other partitions for the concurrent requests. A checkbox is provided to select any or all of these partitions, or any other partition on the concurrent processing server node.

> **Note:** This event test requires the Application environment (APPLSYS.env) file which is located in the Application code base (APPL_TOP).

Parameters

1. Alert threshold for log: Free space threshold in percentage. Default is 30%.
2. Warning threshold for log: Free space threshold in percentage. Default is 50%.
3. Alert threshold for output: Free space threshold in percentage. Default is 30%.
4. Warning threshold for output: Free space threshold in percentage. Default is 50%.
5. Name of partition. (* is not a supported name.)
6. Alert threshold for other partitions: Free space threshold in percentage. Default is 30%.
7. Warning threshold for other partitions: Free space threshold in percentage. Default is 50%.

Output

Partition name and space available in percentage on the partition.

Default Frequency

60 seconds.

User Action

Purge the log or output files.

> **Note:** You can configure the Run OS Command job task as a fixit job to remove the log/output files from the Oracle Applications APPL_TOP.
>
> See the *Oracle Enterprise Manager Administrator's Guide* for more information on configuring job tasks.

Node Event Tests

The node event tests include the following categories:

- Common Node Event Tests
- Compaq Tru64 Event Tests
- HP-UX Event Tests
- IBM AIX Event Tests
- Solaris Event Tests
- Windows NT (TM) Event Tests

Common Node Event Tests

The Common Node Event Tests apply to all operating system platforms that can run the Oracle Intelligent Agent. The Node event tests are divided into the following categories:

- Node Fault Management Event Tests (See Table 6–1)
- Node Performance Management Event Tests (See Table 6–2)
- Node Space Management Event Tests (See Table 6–3)

Table 6–1 Node Fault Management Event Test

Event Test	Description
UpDown (Node)	This event test checks the status of the target node as well as the agent. If the agent is down or communication between the node and the Management Server is lost, this test is triggered. The node up / down event test differs from other event tests because this test is initiated by the Management Server, not the Agent. By default, this check is performed every 2 minutes and is NOT controlled by the event's polling schedule.
Data Gatherer Alert	This event test signifies that the Data Gatherer has generated errors to the Data Gatherer alert file since the last sample time. The Data Gatherer alert file is a special trace file containing a chronological log of messages and errors. Note that the Data Gatherer alert log file is different than the Database alert log file. An alert is displayed when Data Gatherer (ODG-xxxxx) messages are written to the Data Gatherer alert file.
Data Gatherer UpDown	This test checks whether the Intelligent Agent data gathering service on a node can be accessed from the Console. If the Intelligent Agent data gathering service is down, this test is triggered.

Table 6–2 Node Performance Management Event Tests

Event Test	Description
CPU Paging Rate	This test checks the CPU paging rate (kilobytes/second paged in/out) against the threshold values specified by the threshold arguments. If the number of occurrences exceeds the values specified, then a warning or alert is generated.
CPU Utilization	This test checks for the CPU utilization (percentage used) against the threshold values specified by the threshold arguments. If the number of occurrences exceeds the values specified, then a warning or alert is generated.

Table 6–3 Node Space Management Event Tests

Event Test	Description
Disk Full	This test checks for available space on the disk specified by the disk name parameter, such as c: (Windows) or /tmp (UNIX). If the space available is less than the values specified in the threshold arguments, then a warning or alert is generated.
Disk Full (%)	This event test monitors the same file systems as the Disk Full event test. The Disk Full (%) event test, however, returns the percentage of space remaining on the disk destinations.
Swap Full	This test checks for available swap space. If the space available falls below the values specified in the threshold arguments, then a warning or alert is generated.

Compaq Tru64 Event Tests

The Oracle Enterprise Manager Advanced Event Tests for Compaq Tru64 are divided into a series of classes or groupings that will enable you to find the event test you want to register.

The class names and some of the events that you can register within the classes follow. To get a description of the event tests associated with each class, see the referenced tables.

- File System Class: Includes percentage of free space and free megabytes. See Table 6–4.
- Process Class: Includes virtual bytes, working sets, thread counts, and handle counts. See Table 6–5.

Table 6–4 Compaq Tru64 File System Class Event Tests

Event Test	Description
Available (KB)	Available is the amount of space, in kilobytes, available for the creation of new files by users who do not have superuser privileges. This test checks for available space on the disk specified by the File System Name parameter, such as /, /tmp, or * (for all disks). If the space available is less than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–4 Compaq Tru64 File System Class Event Tests

Event Test	Description
Used (KB)	Used is the amount of space (in kilobytes) allocated to existing files. This test checks for space used on the disk specified by the File System Name parameter, such as /, /tmp, or * (for all file systems). If the space used is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Utilized (%)	Utilized is the percentage of space that is currently allocated to all files on the file system. This test checks for the percentage of space used on the disk specified by the File System Name parameter, such as /, /tmp, or * (for all disks). If the percentage of space used is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–5 Compaq Tru64 Process Class Event Tests

Event	Description
Percent Memory Used	Percent Memory Used is the ratio of the resident set size of a process to the physical memory on the machine, expressed as a percentage. This test checks the percent memory used by the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the percent memory used by one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Resident Size (KB)	Resident Size is the resident set size of a process, in kilobytes. This test checks the resident size of the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the resident size of one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Time (%)	System Time (%) is the percentage of system level CPU time that a process used. This test checks the percentage of system time that has been used by the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the System Time (%) value used by any one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Threads	Threads is the number of lwps (lightweight processes) in a process. This test checks the number of threads in the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the number of threads is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
User Time (%)	User Time (%) is the percentage of user level CPU time that a process used. This test checks the percentage of user time that has been used by the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the User Time (%) value used by one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–5 Compaq Tru64 Process Class Event Tests (Cont.)

Event	Description
Virtual Size (KB)	Virtual Size is the total size of a process in virtual memory, in kilobytes. This test checks the total size of the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the total size of any one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

HP-UX Event Tests

The Oracle Enterprise Manager Advanced Event Tests for HP-UX are divided into a series of classes or groupings that will enable you to find the event test you want to register.

The class names and some of the events that you can register within the classes follow. To get a description of the event tests associated with each class, see the referenced tables.

- CPU Utilization Class: Includes virtual bytes, working sets, thread counts, and handle counts. See Table 6–6.
- File System Class: Includes percentage of free space and free megabytes. See Table 6–7.
- Virtual Memory Class: Includes available bytes, page statistics, pool paged statistics, and system byte information. See Table 6–8.

Table 6–6 HP-UX CPU Utilization Class Event Tests

Event Test	Description
Average CPU Load (1 Minute)	The run queue or the load average is an average of the number of runnable processes waiting for the CPU during the last sixty seconds. This test checks the load average during the last minute for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the load average is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Average CPU Load (5 Minutes)	The run queue or the load average is an average of the number of runnable processes waiting for the CPU during the last five minutes. This test checks the load average during the last five minutes for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the load average is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–6 HP-UX CPU Utilization Class Event Tests(Cont.)

Event Test	Description
Average CPU Load (15 Minutes)	The run queue or the load average is an average of the number of runnable processes waiting for this CPU during the last 15 minutes. This test checks the load average during the last 15 minute for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the load average is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Idle (%)	Idle (%) is the percentage of time that the CPU was idle and the system did not have an outstanding disk I/O request. This test checks the percentage of processor time in idle mode for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the Idle (%) value is less than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Kernel (%)	Kernel (%) is the portion of time that the CPU is running in system mode. This test checks the kernel (%) for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If kernel (%) is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Sxbrk (%)	Sxbrk (%) is the portion of time that CPU is in sxbrk state. This test checks the sxbrk (%) for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If sxbrk (%) is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
User (%)	User (%) is the portion of processor time running in user mode. This test checks the percentage of processor time in user mode for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the User (%) value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Wait (%)	Wait (%) is the percentage of time that the CPU was idle during which the system had an outstanding disk I/O request. This test checks the percentage of processor time in wait mode for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the Wait (%) value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–7 HP-UX File System Class Event Tests

Event Test	Description
Available (KB)	Available is the amount of space, in kilobytes, available for the creation of new files by users who do not have superuser privileges. This test checks for available space on the disk specified by the File System Name parameter, such as /, /tmp, or * (for all disks). If the space available is less than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–7 HP-UX File System Class Event Tests (Cont.)

Event Test	Description
Used (KB)	Used is the amount of space (in kilobytes) allocated to existing files. This test checks for space used on the disk specified by the File System Name parameter, such as /, /tmp, or * (for all file systems). If the space used is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Utilized (%)	Utilized is the percentage of space that is currently allocated to all files on the file system. This test checks for the percentage of space used on the disk specified by the File System Name parameter, such as /, /tmp, or * (for all disks). If the percentage of space used is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–8 HP-UX Virtual Memory Class Event Tests

Event Test	Description
Context Switches	Context Switches/sec is the rate of switches from one thread to another. Thread switches can occur either inside a single process or across processes. A thread switch can happen when one thread requests information from another thread, or when a higher priority thread preempts another thread. This test checks the number of context switches per second. If the number of context switches is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Free Memory (Pages)	Free Memory is the size of the free list in system pages. This test checks the size of the free memory on the system. If the size is less than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Interrupts	Interrupts is the number of device interruptions the processor is experiencing per second. Those device interruptions may be caused by system devices such as the mouse, network cards, etc. This metric also indicates how busy those devices are in the overall system environment. This test checks the system interruptions per second. If the system interruptions per second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Page Ins	Page Ins is the number of page read ins (read from disk to resolve fault memory references) by the virtual memory manager per second. Along with the page out statistic, this represents the amount of real I/O initiated by the virtual memory manager. This test checks the number of page read ins per second. If the number of page read ins is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Page Outs	Page Outs is the number of page write outs to disk per second. This test checks the number of page write outs per second. If the number of page write outs is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–8 HP-UX Virtual Memory Class Event Tests (Cont.)

Event Test	Description
Pages Freed	Pages Freed is one of the statistics for the virtual memory management subsystem. This statistic reports on pages placed on the free list by the page stealing daemon. A related statistic is Page Scans per Second. The Page Scans per Second statistic reports on pages per second scanned by the page stealing daemon.
Pages Swapped In	Pages Swapped In are the total number of page ins from the disk during the interval. This includes pages paged in from paging space and from the file system. This test checks the number of page ins per second. If the number of page ins is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pages Swapped Out	Pages Swapped Out is the total number of page outs from the disk during the interval. This includes pages paged out to paging space and to the file system. This test checks the number of page outs per second. If the number of page outs is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Call Forks	This event test checks the number of calls per second to system call fork(). If the system calls is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Calls	Systems Calls is the number of calls, per second, to the system service routines that perform basic scheduling and synchronizing of activities on the computer. This test checks the system calls per second. If the system calls per second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Total Faults (Number per Second)	Total Faults per Second measures the number of Page Faults in the processor per second. A page fault occurs when a virtual memory page is referenced by a process and that page is not in the current Working Set of the main memory. This test checks the number of page faults per second. If the number of page faults is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

IBM AIX Event Tests

The Oracle Enterprise Manager Advanced Event Tests for IBM AIX are divided into a series of classes or groupings that will enable you to find the event test you want to register.

The class names and some of the events that you can register within the classes follow. To get a description of the event tests associated with each class, see the referenced tables.

- CPU Utilization Class: Includes virtual bytes, working sets, thread counts, and handle counts. See Table 6–9.
- File System Class: Includes percentage of free space and free megabytes. See Table 6–10.

- I/O Class: Includes queue lengths, disk read/write times, disk transfers, and average disk byte statistics. See Table 6–11.
- Memory/Swap Class: Includes available bytes, page statistics, pool paged statistics, and system byte information. See Table 6–12.
- Network Class: Includes packet statistics, current bandwidth, and total bytes sent and received. See Table 6–13.
- Process Class: Includes virtual bytes, working sets, thread counts, and handle counts. See Table 6–14.
- System Class: Includes file read/write operations, processor times, and DPC rates. See Table 6–15.

Table 6–9 IBM AIX CPU Utilization Class Event Tests

Event Test	Description
Idle (%)	Idle (%) is the percentage of time that the CPU was idle and the system did not have an outstanding disk I/O request. This test checks the percentage of processor time in idle mode for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the Idle (%) value is less than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Sys (%)	Sys (%) is the percentage of time that the CPU is running in system mode (kernel). This test checks the percentage of processor time in system mode for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the Sys (%) value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
User (%)	User (%) is the portion of processor time running in user mode. This test checks the percentage of processor time in user mode for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the User (%) value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Wait (%)	Wait (%) is the percentage of time that the CPU was idle during which the system had an outstanding disk I/O request. This test checks the percentage of processor time in wait mode for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the Wait (%) value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–10 IBM AIX File System Class Event Tests

Event	Description
Available (KB)	Available is the amount of space, in kilobytes, available for the creation of new files by users who do not have superuser privileges. This test checks for available space on the disk specified by the File System Name parameter, such as /, /tmp, or * (for all disks). If the space available is less than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Used (KB)	Used is the amount of space (in kilobytes) allocated to existing files. This test checks for space used on the disk specified by the File System Name parameter, such as /, /tmp, or * (for all file systems). If the space used is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Utilized (%)	Utilized is the percentage of space that is currently allocated to all files on the file system. This test checks for the percentage of space used on the disk specified by the File System Name parameter, such as /, /tmp, or * (for all disks). If the percentage of space used is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–11 IBM AIX I/O Class Event Tests

Event Test	Description
Reads (Number per Second)	Reads is the number of reads per second. This test checks the read rate. If the read rate is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Writes (Number per Second)	Writes is the number of writes per second. This test checks the write rate. If the write rate is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–12 IBM AIX Memory/Swap Class Event Tests

Event Test	Description
Available Swap (KB)	Available Swap is the amount of swap space currently available in kilobytes. This test checks the size of currently available swap space on the system. If the size in kilobytes is less than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Free Memory (KB)	Free Memory is the size of the free list in kilobytes. This test checks the size of the free memory in kilobytes on the system. If the size is less than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Run Queue	Run Queue is the average number of processes in memory and subject to be run in the last interval. This test checks the run queue. If the run queue is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–12 IBM AIX Memory/Swap Class Event Tests (Cont.)

Event Test	Description
Swap Queue	Swap Queue is the average number of swapped processes in the last interval. This test checks the average number of swapped processes. If the number is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Waiting	Waiting is the average number of jobs waiting for I/O in the last interval. This test checks the average number of jobs waiting for I/O. If the waiting queue is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–13 IBM AIX Network Class Event Tests

Event Test	Description
Collisions (Number per Second)	Collisions is the number of collisions per second. This test checks the rate of collisions on the network interface specified by the network device names parameter, such as le0 or * (for all network interfaces). If the rate is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Incoming Errors (Number per Second)	Incoming Errors is the number of input errors, per second, encountered on the device for unsuccessful reception due to hardware/network errors. This test checks the rate of input errors on the network interface specified by the network device names parameter, such as le0 or * (for all network interfaces). If the rate is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Incoming Packets (Number per Second)	Incoming Packets is the number of packets, per second, that have been received successfully by the device. This test checks the rate at which packets are received on the network interface specified by the network device names parameter, such as le0 or * (for all network interfaces). If the rate is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Outgoing Errors (Number per Second)	Outgoing Errors is the number of output errors per second. This test checks the rate of output errors on the network interface specified by the network device names parameter, such as le0 or * (for all network interfaces). If the rate is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Outgoing Packets (Number per Second)	Outgoing Packets is the number of packets, per second, that have been sent out by the device. This test checks the rate at which packets are sent on the network interface specified by the network device names parameter, such as le0 or * (for all network interfaces). If the rate is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–14 IBM AIX Process Class Event Tests

Event Test	Description
System Time (%)	System Time (%) is the percentage of system level CPU time that a process used. This test checks the percentage of system time that has been used by the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the System Time (%) value used by any one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
User Time (%)	User Time (%) is the percentage of user level CPU time that a process used. This test checks the percentage of user time that has been used by the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the User Time (%) value used by one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Virtual Size (KB)	Virtual Size is the total size of a process in virtual memory, in kilobytes. This test checks the total size of the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the total size of any one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–15 IBM AIX System Class Event Tests

Event Test	Description
Block I/O Reads (Number per Second)	Block I/O Reads is the number of physical block reads per second. Block I/O Reads are generally performed by the kernel to manage the block buffer cache area. This test checks the block I/O read rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the Block I/O Reads value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Block I/O Writes (Number per Second)	Block I/O Writes is the number of physical block writes per second. Block I/O Writes are generally performed by the kernel to manage the block buffer cache area. This test checks the block I/O write rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the Block I/O Writes value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Logical I/O Reads (Number per Second)	Logical I/O Reads is the number of logical block reads per second. When a logical read from a block device is performed, a logical transfer size of less than a full block size may be requested. This test checks the logical I/O read rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the Logical I/O Reads value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Logical I/O Writes (Number per Second)	Logical I/O Writes is the number of logical block writes per second. When a logical write to a block device is performed, a logical transfer size of less than a full block size may be requested. This test checks the logical I/O write rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the Logical I/O Writes value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–15 IBM AIX System Class Event Tests (Cont.)

Event Test	Description
Page Ins (Number per Second)	System Page Ins is the number of page read ins per second (read from disk to resolve fault memory references) by the virtual memory manager. Along with Page Out, this statistic represents the amount of real I/O initiated by the virtual memory manager. This test checks the number of page read ins for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of page read ins is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Page Outs (Number per Second)	System Page Outs is the number of page write outs to disk per second. This test checks the number of page write outs for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of page write outs is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pages Paged In (Number per Second)	System Pages Paged In is the number of pages paged in (read from disk to resolve fault memory references) per second. This test checks the number of pages paged in for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of pages paged in is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pages Paged Out (Number per Second)	System Page Outs is the number of pages written out (per second) by the virtual memory manager. Along with Page Out, this statistic represents the amount of real I/O initiated by the virtual memory manager. This test checks the number of pages paged out for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of pages paged out is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Physical I/O Reads (Number per Second)	Physical I/O Reads is the number of raw I/O reads per second. This test checks the physical I/O read rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the Physical I/O Reads value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Physical I/O Writes (Number per Second)	Physical I/O Writes is the number of raw I/O writes per second. This test checks the physical I/O write rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the Physical I/O Writes value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Call Forks (Number per Second)	System Call Forks is the number of calls fork() per second. This test checks the calls to system call fork() rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the System Calls value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–15 IBM AIX System Class Event Tests (Cont.)

Event Test	Description
System Calls (Number per Second)	Systems Calls is the number of calls (per second) to the system service routines that perform basic scheduling and synchronizing of activities on the computer. This test checks the system calls rate for CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the System Calls value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Interrupts (Number per Second)	System Interrupts is the number of device interruptions the processor is experiencing per second. These device interruptions can result from system devices such as the mouse, network cards, and so on. This metric also measures the activity of those devices are in the overall system environment. This test checks the system interruptions rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the System Interruptions value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Solaris Event Tests

The Oracle Enterprise Manager Advanced Event Tests for Solaris are divided into a series of classes or groupings that will enable you to find the event test you want to register.

The class names and some of the events that you can register within the classes follow. To get a description of the event tests associated with each class, see the referenced tables.

- CPU Utilization Class: Includes virtual bytes, working sets, thread counts, and handle counts. See Table 6–16.
- File System Class: Includes percentage of free space and free megabytes. Table 6–17.
- I/O Class: Includes queue lengths, disk read/write times, disk transfers, and average disk byte statistics. See Table 6–18.
- Memory/Swap Class: Includes available bytes, page statistics, pool paged statistics, and system byte information. See Table 6–19.
- Network Class: Includes packet statistics, current bandwidth, and total bytes sent and received. See Table 6–20.
- Process Class: Includes virtual bytes, working sets, thread counts, and handle counts. See Table 6–21.
- System Class: Includes file read/write operations, processor times, and DPC rates. See Table 6–22.

Table 6–16 Solaris CPU Utilization Class Event Tests

Event Test	Description
Idle (%)	Idle (%) is the percentage of time that the CPU was idle and the system did not have an outstanding disk I/O request. This test checks the percentage of processor time in idle mode for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the Idle (%) value is less than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Sys (%)	Sys (%) is the percentage of time that the CPU is running in system mode (kernel). This test checks the percentage of processor time in system mode for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the Sys (%) value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
User (%)	User (%) is the portion of processor time running in user mode. This test checks the percentage of processor time in user mode for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the User (%) value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Wait (%)	Wait (%) is the percentage of time that the CPU was idle during which the system had an outstanding disk I/O request. This test checks the percentage of processor time in wait mode for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0, CPU0, or * (for all CPUs on the system). If the Wait (%) value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–17 Solaris File System Class Event Tests

Event Test	Description
Available (KB)	Available is the amount of space, in kilobytes, available for the creation of new files by users who do not have superuser privileges. This test checks for available space on the disk specified by the File System Name parameter, such as /, /tmp, or * (for all disks). If the space available is less than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Used (KB)	Used is the amount of space (in kilobytes) allocated to existing files. This test checks for space used on the disk specified by the File System Name parameter, such as /, /tmp, or * (for all file systems). If the space used is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Utilized (%)	Utilized is the percentage of space that is currently allocated to all files on the file system. This test checks for the percentage of space used on the disk specified by the File System Name parameter, such as /, /tmp, or * (for all disks). If the percentage of space used is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–18 Solaris I/O Class Event Tests

Event Test	Description
Average Service Time (msec)	Average Service Time is the average service time, in milliseconds. This test checks the average service time. If the average service time is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Read Throughput	Read Throughput is the number of kilobytes read per second. This test checks the read throughput. If the read throughput is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Reads (Number per Second)	Reads is the number of reads per second. This test checks the read rate. If the read rate is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Write Throughput	Write Throughput is the number of kilobytes written per second. This test checks the write throughput. If the write throughput is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Writes (Number per Second)	Writes is the number of writes per second. This test checks the write rate. If the write rate is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–19 Solaris Memory/Swap Class Event Tests

Event Test	Description
Available Swap (KB)	Available Swap is the amount of swap space currently available in kilobytes. This test checks the size of currently available swap space on the system. If the size in kilobytes is less than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Free Memory (KB)	Free Memory is the size of the free list in kilobytes. This test checks the size of the free memory in kilobytes on the system. If the size is less than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Run Queue	Run Queue is the average number of processes in memory and subject to be run in the last interval. This test checks the run queue. If the run queue is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Swap Queue	Swap Queue is the average number of swapped processes in the last interval. This test checks the average number of swapped processes. If the number is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–19 Solaris Memory/Swap Class Event Tests (Cont.)

Event Test	Description
Waiting	Waiting is the average number of jobs waiting for I/O in the last interval. This test checks the average number of jobs waiting for I/O. If the waiting queue is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–20 Solaris Network Class Event Tests

Event Test	Description
Collisions (Number per Second)	Collisions is the number of collisions per second. This test checks the rate of collisions on the network interface specified by the network device names parameter, such as le0 or * (for all network interfaces). If the rate is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Incoming Errors (Number per Second)	Incoming Errors is the number of input errors, per second, encountered on the device for unsuccessful reception due to hardware/network errors. This test checks the rate of input errors on the network interface specified by the network device names parameter, such as le0 or * (for all network interfaces). If the rate is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Incoming Packets (Number per Second)	Incoming Packets is the number of packets, per second, that have been received successfully by the device. This test checks the rate at which packets are received on the network interface specified by the network device names parameter, such as le0 or * (for all network interfaces). If the rate is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Outgoing Errors (Number per Second)	Outgoing Errors is the number of output errors per second. This test checks the rate of output errors on the network interface specified by the network device names parameter, such as le0 or * (for all network interfaces). If the rate is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Outgoing Packets (Number per Second)	Outgoing Packets is the number of packets, per second, that have been sent out by the device. This test checks the rate at which packets are sent on the network interface specified by the network device names parameter, such as le0 or * (for all network interfaces). If the rate is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–21 Solaris Process Class Event Tests

Event Test	Description
Percent Memory Used	Percent Memory Used is the ratio of the resident set size of a process to the physical memory on the machine, expressed as a percentage. This test checks the percent memory used by the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the percent memory used by one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Resident Size (KB)	Resident Size is the resident set size of a process, in kilobytes. This test checks the resident size of the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the resident size of one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Time (%)	System Time (%) is the percentage of system level CPU time that a process used. This test checks the percentage of system time that has been used by the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the System Time (%) value used by any one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Threads	Threads is the number of lwps (lightweight processes) in a process. This test checks the number of threads in the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the number of threads is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
User Time (%)	User Time (%) is the percentage of user level CPU time that a process used. This test checks the percentage of user time that has been used by the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the User Time (%) value used by one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Virtual Size (KB)	Virtual Size is the total size of a process in virtual memory, in kilobytes. This test checks the total size of the process(es) specified by the process names parameter, such as vppdc or * (for all processes running on the system). If the total size of any one process is greater than or equal to the values specified in the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–22 Solaris System Class Event Tests

Event Test	Description
AS Faults	AS (address space) Faults is the number of minor page faults via as_fault() per second. This test checks the number of AS faults for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of AS faults is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–22 Solaris System Class Event Tests (Cont.)

Event Test	Description
Block I/O Reads (Number per Second)	Block I/O Reads is the number of physical block reads per second. Block I/O Reads are generally performed by the kernel to manage the block buffer cache area. This test checks the block I/O read rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the Block I/O Reads value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Block I/O Writes (Number per Second)	Block I/O Writes is the number of physical block writes per second. Block I/O Writes are generally performed by the kernel to manage the block buffer cache area. This test checks the block I/O write rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the Block I/O Writes value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
COW Faults	COW (copy-on-write) Faults is the number of copy-on-write faults per second. If one of the processes sharing the page attempts to write to the page, a copy-on-write page fault occurs. Another page is taken from the free list and the original page is copied. This test checks the number of COW faults for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of COW faults is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
HAT Faults	HAT (hardware address translation) Faults is the minor page faults by way of hat_fault() per second. This test checks the number of HAT faults for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of HAT faults is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Logical I/O Reads (Number per Second)	Logical I/O Reads is the number of logical block reads per second. When a logical read from a block device is performed, a logical transfer size of less than a full block size may be requested. This test checks the logical I/O read rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the Logical I/O Reads value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Logical I/O Writes (Number per Second)	Logical I/O Writes is the number of logical block writes per second. When a logical write to a block device is performed, a logical transfer size of less than a full block size may be requested. This test checks the logical I/O write rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the Logical I/O Writes value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Maj Faults	Maj (major) Faults is the number of major page faults per second. This test checks the number of major faults for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of major faults is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–22 Solaris System Class Event Tests (Cont.)

Event Test	Description
Page Ins (Number per Second)	System Page Ins is the number of page read ins per second (read from disk to resolve fault memory references) by the virtual memory manager. Along with Page Out, this statistic represents the amount of real I/O initiated by the virtual memory manager. This test checks the number of page read ins for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of page read ins is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Page Outs (Number per Second)	System Page Outs is the number of page write outs to disk per second. This test checks the number of page write outs for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of page write outs is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pages Paged In (Number per Second)	System Pages Paged In is the number of pages paged in (read from disk to resolve fault memory references) per second. This test checks the number of pages paged in for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of pages paged in is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pages Paged Out (Number per Second)	System Page Outs is the number of pages written out (per second) by the virtual memory manager. Along with Page Out, this statistic represents the amount of real I/O initiated by the virtual memory manager. This test checks the number of pages paged out for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of pages paged out is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Physical I/O Reads (Number per Second)	Physical I/O Reads is the number of raw I/O reads per second. This test checks the physical I/O read rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the Physical I/O Reads value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Physical I/O Writes (Number per Second)	Physical I/O Writes is the number of raw I/O writes per second. This test checks the physical I/O write rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the Physical I/O Writes value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Prot Faults	Prot (protection) Faults is the number of protection faults per second. Protection faults occur when a program attempts to access memory it should not access, receives a segmentation violation signal, and dumps a core file. This test checks the number of protection faults for the CPU(s) specified by the Host CPU(s) parameter, such as cpu_stat0 or * (for all CPUs on the system). If the number of protection faults is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–22 Solaris System Class Event Tests (Cont.)

Event Test	Description
System Calls (Number per Second)	Systems Calls is the number of calls (per second) to the system service routines that perform basic scheduling and synchronizing of activities on the computer. This test checks the system calls rate for CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the System Calls value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Call Forks (Number per Second)	System Call Forks is the number of calls fork() per second. This test checks the calls to system call fork() rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the System Calls value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Call VForks (Number per Second)	System Call VFork is the number of calls vfork() per second. This test checks the calls to system call vfork() rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the System Calls value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Interrupts (Number per Second)	System Interrupts is the number of device interruptions the processor is experiencing per second. These device interruptions can result from system devices such as the mouse, network cards, and so on. This metric also measures the activity of those devices are in the overall system environment. This test checks the system interruptions rate for the CPU(s) specified by the Host CPU parameter, such as cpu_stat0 or * (for all CPUs on the system). If the System Interruptions value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Windows NT (TM) Event Tests

The Oracle Enterprise Manager Advanced Event Tests for Windows NT are divided into a series of classes or groupings that will enable you to find the event test you want to register.

The class names and some of the events that you can register within the classes follow. To get a description of the event tests associated with each class, see the referenced tables.

- Cache Class: Includes data maps, pin reads, MDL Statistics, lazy write statistics, and data flush information. See Table 6–23.
- Logical Disk Class: Includes percentage of free space and free megabytes. See Table 6–24.
- Memory Class: Includes available bytes, page statistics, pool paged statistics, and system byte information. See Table 6–25.

- Network Interface Class: Includes packet statistics, current bandwidth, and total bytes sent and received. See Table 6–26.
- Objects Class: Includes processes, threads, events, semaphores, mutexes, and sections. See Table 6–27.
- Paging File Class: Includes usage and peak usage percentages. See Table 6–28.
- Physical Disk Class: Includes queue lengths, disk read / write times, disk transfers, and average disk byte statistics. See Table 6–29.
- Process Class: Includes virtual bytes, working sets, thread counts, and handle counts. See Table 6–30.
- Processor Class: Includes user time, processor time, privilege time, and DPC rates. See Table 6–31.
- System Class: Includes file read / write operations, processor times, and DPC rates. See Table 6–32.

Table 6–23 Windows NT Cache Class Event Tests

Event Test	Description
Async Copy Reads per Second	Async Copy Reads per Second measures the frequency of cache page reads that include placing a memory copy of the data from the cache on the application's buffer. The application will be able to access the disk and retrieve the page immediately. If the value of Async Copy Reads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Async Data Maps per Second	Async Data Maps per Second measures the frequency that the NTFS or HPFS file systems map a page of a file into the cache to read the page and does not wait for the cache to retrieve the page (if the page is not in the main memory.) If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Async Fast Reads per Second	Async Fast Reads per Second measures the frequency of cache page reads that retrieve data directly from the cache without going through the installed file system. In a typical read, the I/O requests prompt the file system to retrieve data from a file. If the data is not in the cache, a fast read will still eliminate one invocation of the file system. The request will have immediate control of the data even if the data is not in the cache. If the value of Async Fast Reads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Async MDL Reads per Second	Async MDL (Memory Descriptor List) Reads per Second measures the frequency of cache page reads that access data using the MDL. The physical address of each page within the transfer is contained in the memory descriptor list. This information enables the Direct Memory Access (DMA) device to secure the copy. The access device will not wait for the pages to fault from the disk if the pages are not in the main memory. If the value of Async MDL Reads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–23 Windows NT Cache Class Event Tests (Cont.)

Event Test	Description
Async Pin Reads per Second	Async Pin Reads per Second measures the frequency of reading data into the cache before the data is written back to disk. When pages are read this way they become pinned in memory when the read is complete. The file system will have immediate control of the page and will be able to access the disk and retrieve the page immediately if needed. A pinned page's physical address cannot be modified. If the value of Async Pin Reads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Copy Read Hits per Second	Copy Read Hits measures the percentage of copy read hit requests that the cache receives. Copy read hits do not require a disk read to access a page in the cache. A copy read is a type of file read operation that allows a memory copy from a cache page to the application's buffer. The Local Area Network (LAN) Redirector, the LAN Server and the disk file systems use the copy reads for retrieving cache information. If the value of Copy Read Hits per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Copy Reads per Second	Copy Reads per Second measures the frequency of cache page reads that includes placing a memory copy of the data from the cache on the application's buffer. The Local Area Network (LAN) Redirector, the LAN Server, and the disk file systems use copy reads for retrieving cache information. If the value of Copy Reads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Data Flush Pages per Second	Data Flush Pages per Second calculates the number of pages have been flushed to disk from the Cache. Pages are flushed when the cache approves a write-through file write request of its content to disk. Note that more than one page can be transferred for each flush operation. If the value of Data Flush Pages per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Data Flushes per Second	Data Flushes per Second measures the frequency at which the cache has approved a write-through file write request of its content to disk. Note that for each flush operation, more than one page can be transferred. If the value of Data Flushes per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Data Map Hits Percentage (%)	Data Map Hits calculates the percentage of Data Maps in the cache that can be resolved without retrieving a page from the disk. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Data Map Pins per Second	Data Map Pins per Second measures the frequency of Data Maps in the cache that caused a page to be pinned in the main memory. When a page is pinned the physical address in main memory and its virtual address in the cache cannot be modified. If the value of Data Map Pins per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Data Maps per Second	Data Maps per Second measures the frequency that the NTFS or HPFS file systems map a page of a file into the cache. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–23 Windows NT Cache Class Event Tests (Cont.)

Event Test	Description
Fast Read Not Possibles per Second	Fast Read Not Possibles per Second is the frequency at which calls are made by the Application Program Interface (API) to try and avoid the file system to get cache data. This metric monitors the number of times that these calls fail because the file system must be accessed. If the value of Fast Read Not Possibles per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Fast Read Resource Misses per Second	Fast Read Resource Misses per Second measures the frequency at which cache reads are missed due to a lack of resources to satisfy the request. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Fast Reads per Second	Fast Reads per Second measures the frequency of cache page reads that retrieve data directly from the cache without going through the installed file system. In a typical read, the I/O requests prompt the file system to retrieve data from a file. If the data is not in the cache, a fast read will still eliminate one invocation of the file system. If the value of Fast Reads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Lazy Write Flushes per Second	Lazy Write Flushes per Second measures the frequency at which the lazy write thread involves updating the disk after the page has been changed in memory. By doing this the application requesting the file change will not have to wait for the disk write to complete before proceeding. Note that more than one page can be transferred on each writer operation. If the value of Lazy Write Flushes per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Lazy Write Pages per Second	Lazy Write Pages per Second measures the frequency at which the lazy write thread involves updating the disk after the page has been changed in memory. By doing this the application requesting the file change will not have to wait for the disk write to complete before proceeding. Note that more than one page can be transferred on a single disk write operation. If the value of Lazy Write Pages per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
MDL Reads per Second	MDL (Memory Descriptor List) Reads per Second measures the frequency of cache page reads that access data using the MDL. The physical address of each page within the transfer is contained in the memory descriptor list. This information enables the Direct Memory Access (DMA) device to secure the copy. If the value of MDL Reads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Percentage of MDL Read Hits	MDL (Memory Descriptor List) Read Hits measures the percentage of requests that the cache receives for cache memory descriptor (MDL) list reads. MDL reads provide memory access to the cache pages without accessing the disk. If the Percentage of MDL Read Hits is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–23 Windows NT Cache Class Event Tests (Cont.)

Event Test	Description
Pin Read Hits Percentage (%)	Pin Read Hits calculates the percentage of pin requests that the cache receives. A pin read request does not require a disk read to access the page in cache. A pinned page's physical address in the cache cannot be modified. The Local Area Network (LAN) Redirector, the LAN Server, and the disk file system use pin reads to retrieve cache information. If the value of Pin Read Hits is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pin Reads per Second	Pin Reads per Second measures the frequency of reading data into the cache before the data is written back to disk. When pages are read this way they become pinned in memory when the read is complete. A pinned page's physical cache address cannot be modified. If the value of Pin Reads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Read Aheads per Second	Read Aheads per Second measures the frequency at which cache reads detect sequential file access. Read aheads reduce overhead access by enabling the data to be transferred in larger blocks than those requested by the application. If the value of Read Aheads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Sync Copy Reads per Second	Sync Copy Reads per Second measures the frequency of cache page reads that include placing a copy of the data from the cache on the application's buffer. The file system will not be able to access the disk and retrieve the page until the copy operation is complete. If the value of Sync Copy Reads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Sync Data Maps per Second	Sync Data Maps per Second measures the frequency that the NTFS or HPFS file systems map a page of a file into the cache and waits for the cache to retrieve the page (if the page is not in the main memory.) If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Sync Fast Reads per Second	Sync Fast Reads per Second measures the frequency of cache page reads that retrieve data directly from the cache without going through the installed file system. In a typical read, the I/O requests prompt the file system to retrieve data from a file. If the data is not in the cache, a fast read will still eliminate one invocation of the file system. The request will not wait until the data has been retrieved from disk if the data is not in the cache. If the value of Sync Fast Reads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Sync MDL Reads per Second	Sync MDL (Memory Descriptor List) Reads per Second measures the frequency of cache page reads that access data using the MDL. The physical address of each page within the transfer is contained in the memory descriptor list. This information enables the Direct Memory Access (DMA) device to secure the copy. The access device will wait for the pages to fault from the disk if the pages are not in the main memory. If the value of Sync MDL Reads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–23 Windows NT Cache Class Event Tests (Cont.)

Event Test	Description
Sync Pin Reads per Second	Sync Pin Reads per Second measures the frequency of reading data into the cache before the data is written back to disk. When pages are read this way they become pinned in memory when the read is complete. When the page is pinned in the cache the file system can regain control of the page. Until the page is pinned in cache, however, the file system cannot access the disk and retrieve the page. A pinned page's physical address in the cache cannot be changed. If the value of Sync Pin Reads per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–24 Windows NT Logical Disk Class Event Tests

Event Test	Description
Free Megabytes	Free Megabytes measures the available (unallocated) space on the selected disk drive in megabytes. One megabyte = 1,048,576 bytes. If the Free Megabytes is less than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Percentage (%) Free Space	Percentage Free Space calculates the ratio of available free space on the logical disk unit to the total usable space provided by the selected logical disk drive. If this value is less than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–25 Windows NT Memory Class Event Tests

Event Test	Description
Available Bytes	Available Bytes metric measures the real-time amount of virtual memory on the Zeroed, Free and Standby lists. If this value is less than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Cache Bytes	Cache Bytes measures the number of bytes currently being used by the system cache. The system cache buffers data retrieved from the disk or local area network. The system cache then uses the memory that is not currently being used by any active system processes. If Cache Bytes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Cache Faults per Second	Cache Faults per Second measures the number of times a cache fault occurs. Cache faults are caused when the cache manager fails to find a file's page in the immediate cache and requests the memory manager to locate the page in memory or on the disk so that it can be added to the immediate cache. If the value of Cache Faults per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Commit Limit	Commit Limit measures the amount of virtual memory (in bytes) that can be committed without extending the paging files. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–25 Windows NT Memory Class Event Tests (Cont.)

Event Test	Description
Committed Bytes	Committed Bytes measures the total amount of virtual memory (in bytes) that have been committed. Committed memory should not be confused with reserved memory. Committed memory must have available disk storage or the main memory must by large enough to contain the committed virtual memory. If the value of Committed Bytes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Demand Zero Faults per Second	Demand Zero Faults per Second measures the number of page faults for pages that must be filled with zeroes before the fault is resolved. If the zeroed list is not empty, the fault can be resolved by removing a page from the zeroed list. If the value of Demand Faults per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Free System Page Table Entries	Free system page table entries measure the number of page table entries that are not currently being used by the system. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Page Faults per Second	Page Faults per Second measures the number of Page Faults in the processor. A page fault occurs when a virtual memory page is referenced by a process and that page is not in the current Working Set of the main memory. If the value of Page Faults per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pages per Second	Pages per Second measures the number of pages read from the disk or written to the disk to resolve faulty memory references. The metric calculates the sum of pages input per second plus the pages output per second. Use this metric to monitor memory thrashing and excessive paging. If the value of Pages per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pages Input per Second	Pages Input per Second measures the number of pages read from the disk to resolve faulty memory references. This is an important metric to monitor if memory thrashing and excessive paging has become a problem. If the value of Pages Input per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pages Output per Second	Pages Output per Second measures the number of pages that were written to disk because the pages were modified in main memory. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pages Reads per Second	Page Reads per Second measures the number of times the disk was read to retrieve pages of virtual memory to resolve page faults. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pages Writes per Second	Page Writes per Second measures the number of times pages have been written to disk because they were modified since the last retrieval. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–25 Windows NT Memory Class Event Tests (Cont.)

Event Test	Description
Percentage (%) Committed Bytes in Use	Percentage of Committed Bytes in Use measures the real-time ratio of committed bytes to the commit limit. The ratio indicates the amount of virtual memory in use. Note that if the paging file is extended the commit limit may change. If the Percentage of Committed Bytes in Use is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pool Nonpaged Allocs	Pool Nonpaged Allocs (Allocations) is the number of times a call has been made to allocate space in the nonpaged pool. Nonpaged pool pages cannot be paged out to the paging file. As long as they are allocated they must remain in the main memory. If the value of Pool Nonpaged Allocs is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pool Nonpaged Bytes	Pool Nonpaged Bytes measures the number of bytes in the nonpaged pool. Nonpaged pool pages cannot be sorted in the paging file. As long as they are allocated, they must remain in the main memory. If the value of Pool Nonpaged Bytes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pool Paged Allocs	Pool Paged Allocs (Allocations) is the number of times a call has been made to allocate space in the system paged pool. Paged pool pages can be paged out to the paging file when the pages are not being accessed for any sustained amount of time. If the value of Pool Paged Allocs is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pool Paged Bytes	Pool Paged Bytes measures the number of bytes in the paged pool. Paged pool pages can be paged out to the paging file when not being used by the system for a sustained length of time. If Pool Paged Bytes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pool Paged Resident Bytes	Pool Paged Resident Bytes measures the size of paged pool bytes that reside in the main memory. The pool paged resident bytes value indicates the actual cost of the paged pool allocation since it is currently in use and it uses real (physical) memory. If the value of Pool Paged Resident Bytes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Cache Resident Bytes	System Cache Resident Bytes measures the total number of bytes residing in the disk cache. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Code Resident Bytes	System Code Resident Bytes measures the number of bytes of system code currently residing in the main memory. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–25 Windows NT Memory Class Event Tests (Cont.)

Event Test	Description
System Code Total Bytes	System Code Total Bytes monitors the ntoskrnl.exe, hal.dll, and the boot drivers and file systems loaded by the ntldr/osloader for the total number of bytes of the pagable pages. If System Code Total Bytes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Driver Resident Bytes	System Driver Resident Bytes measures the total number of system driver bytes residing in the core memory. The returned value is considered the code working set of pagable drivers. If the value of System Driver Resident Bytes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
System Driver Total Bytes	System Driver Total Bytes monitors all of the system driver devices and returns the total number of pagable pages currently in the devices. If the value of System Driver Total Bytes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Transition Faults per Second	Transition Faults per Second measures the number of page faults that have been resolved by recovering pages that were being written to disk when the page fault occurred. These pages can be recovered without any additional disk activity. If the value of Transition Faults per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Write Copies per Second	Write Copies per Second measures the number of page faults that have been resolved by making a copy or the page when an attempt is made to write to the page. If the value of Write Copies per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–26 Windows NT Network Interface Class Event Tests

Event Test	Description
Bytes Received per Second	Bytes Received per Second measures the rate at which bytes are received on the interface. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Bytes Sent per Second	Bytes Sent per Second measures the rate at which bytes are sent on the interface. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Bytes Total per Second	Bytes Total per Second measures the rate at which bytes are sent and received on the interface. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–26 Windows NT Network Interface Class Event Tests (Cont.)

Event Test	Description
Current Bandwidth	Current Bandwidth estimates the interface's current bandwidth in bits per second (bps). The nominal bandwidth value is given for interfaces that do not vary in bandwidth or for those where no accurate estimation can be made. If the Current Bandwidth is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Output Queue Length	Output Queue Length measures the length of the output packet queue (in packets.) Performance delays occur when the output queue experiences a bottleneck (typically when the length is longer than 2). Eliminate bottlenecks for optimal performance. If the Output Queue Length is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Packets Outbound Discarded	Packets Outbound Discarded measures the number of outbound packets that were chosen to be discarded (to prevent them from being transmitted) and possibly free up buffer space. If the number of Packets Outbound Discarded is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Packets Outbound Errors	Packets Outbound Errors measures the total number of outbound packets that had errors and therefore could not be transmitted. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Packets per Second	Packets per Second measures the rate at which packets are sent and received on the network interface. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Packets Received Discarded	Packets Received Discarded measures the number of inbound packets that were chosen to be discarded to prevent them from being delivered to a higher-layer protocol. One possible reason for discarding such a packet could be to free up buffer space. If the number of Packets Received Discarded is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Packets Received Errors	Packets Received Errors measures the total number of inbound packets that contained errors and prevented them from being delivered to a higher-layer protocol. If the number of Packet Received Errors is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Packets Received Non-Unicast per Second	Packets Received Non-Unicast per Second measures the rate at which non-unicast (subnet broadcast or subnet multicast) packets are delivered to a higher-layer protocol. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Packets Received per Second	Packets Received per Second measures the rate at which packets are received on the network interface. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–26 Windows NT Network Interface Class Event Tests (Cont.)

Event Test	Description
Packets Received Unicast per Second	Packets Received Unicast per Second measures the rate at which (subnet) unicast packets are delivered to a higher-layer protocol. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Packets Received Unknown	Packets Received Unknown measures the total number of packets the interface received and discarded because of an unknown or unsupported protocol. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Packets Sent Non-Unicast per Second	Packets Sent Non-Unicast per Second measures the rate at which higher-level protocols requested packets to be transmitted to non-unicast (subnet broadcast or subnet multicast) addresses. The packets sent non-unicast rate includes the packets that were discarded or not sent. If the value of Packets Sent Non-Unicast per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Packets Sent per Second	Packets Sent per Second measures the rate at which packets are sent on the network interface. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Packets Sent Unicast per Second	Packets Sent Unicast per Second measures the rate at which higher-level protocols requested packets to be transmitted to subnet-unicast addresses. The packets sent unicast rate includes the packets that were discarded or not sent. If the value of Packets Sent Unicast per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–27 Windows NT Objects Class Event Tests

Event Test	Description
Events	The Events metric measures the total number of real-time events in the computer at the time of data collection. Events are used when two or more threads wish to synchronize execution. If the number of real-time events is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Mutexes	The Mutexes metric measures the total number of real-time mutexes in the computer at the time of data collection. Threads use mutexes to assure only one thread is executing some section of code. If the total number of real-time mutexes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Processes	Processes calculates the total number of real-time processes in the computer at the time of data collection. Each process represents the running of a program. If the number of Processes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–27 Windows NT Objects Class Event Tests (Cont.)

Event Test	Description
Sections	The Sections metric measures the total number of real-time sections in the computer at the time of data collection. A section is a portion of virtual memory created by a process for data storage. Processes may share sections with other processes. If the total number of real-time sections is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Semaphores	The Semaphores metric measures the total number of real-time semaphores in the computer at the time of data collection. Semaphores are used by threads to obtain exclusive access to data structures that threads share with other threads. If the total number of real-time semaphores is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Threads	The Threads metric measures the total number of real-time threads in the computer at the time of data collection. (Threads execute instructions in a processor.) If the number of Threads is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–28 Windows NT Paging File Class Event Test

Event Test	Description
Percentage (%) Usage	Percent Usage measures the percentage of Page File instance usage. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–29 Windows NT Physical Disk Class Event Tests

Event Test	Description
Average Disk Bytes / Read	Average Disk Bytes / Read calculates the average number of bytes transferred from the disk during read operations. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Average Disk Bytes / Transfer	Avg. Disk Bytes / Transfer calculates the average number of bytes transferred to or from the disk during write or read operations. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Average Disk Bytes / Write	Average Disk Bytes / Write calculates the average number of bytes transferred to the disk during write operations. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–29 Windows NT Physical Disk Class Event Tests (Cont.)

Event Test	Description
Average Disk Queue Length	Average Disk Queue Length calculates the average number read and write requests that were queued for the selected disk during the sample interval. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Average Disk Read Queue Length	Average Disk Read Queue Length calculates the average number of read requests that were queued for the selected disk during the sample interval. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Average Disk Second/Read	Average Disk sec/Read calculates the average time (in seconds) of a data read from the disk. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Average Disk Second/Transfer	Average Disk Sec/Transfer calculates the average time (in seconds) of a disk transfer. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Average Disk Second/Write	Average Disk sec/Write calculates the average time (in seconds) of a data write to the disk. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Average Disk Write Queue Length	Average Disk Write Queue Length calculates the average number of write requests that were queued for the selected disk during the sample interval. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Current Disk Queue Length	Current Disk Queue Length calculates the total real-time number of outstanding requests that are on the disk and are currently in service when the performance data is collected. To maintain optimal performance calculate the ratio of delayed request to the length of the disk queue minus the number of spindles on the disks. The difference should be less than 2. (Note that disk devices with multiple spindles can have multiple requests active at one time.) If the value of Current Disk Queue Length is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Disk Bytes per Second	Disk Bytes per Second calculates the frequency at which bytes are transferred to or from the disk during write or read operations. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Disk Read Bytes per Second	Disk Read Bytes per Second calculates the frequency at which bytes are transferred from the disk during read operations. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Disk Reads per Second	Disk Reads per Second calculates the frequency of read operations on the disk. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–29 Windows NT Physical Disk Class Event Tests (Cont.)

Event Test	Description
Disk Transfer per Second	Disk Transfers per Second calculates the frequency of read and write operations on the disk. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Disk Writes per Second	Disk Writes per Second calculates the frequency of write operations on the disk. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Disk Write Bytes per Second	Disk Write Bytes per Second calculates the frequency at which bytes are transferred to the disk during write operations. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Percentage (%) Disk Read Time	Percentage Disk Read Time calculates the percentage of time that the selected disk drive is busy servicing read requests. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Percentage (%) Disk Time	Percentage Disk Time calculates the total amount of time that the selected disk drive was busy servicing read or write requests. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Percentage (%) Disk Write Time	Percentage Disk Write Time calculates the percentage of time that the selected disk drive was busy servicing write requests. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–30 Windows NT Process Class Event Tests

Event Test	Description
Elapsed Time	Elapsed time measures the total amount of time (in seconds) that the process has been running. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Handle Count	Handle Count calculates the total number of handles currently open by each thread in this process. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Page Faults per Second	Page Faults per Second measures the rate of Page Faults by the threads executing in this process. Page faults occur when threads reference a virtual memory page that is not in currently its working set in main memory. When the page is not in the working set it cannot be fetched from disk if it is in main memory or when the shared page is being used by another process. If the value of Page Faults per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–30 Windows NT Process Class Event Tests (Cont.)

Event Test	Description
Page File Bytes	Page File Bytes measures the total number of bytes this process has used in the paging file(s). Paging files store pages of memory used by the process but are not contained in other files. Paging files are shared by all processes but if there is insufficient space in the paging files, other processes may not be able to allocate memory. If the value of Page File Bytes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Percentage (%) Privileged Time	Percentage Privileged Time calculates the percentage of time that process threads have been executing code in Privileged Mode. Services often run in Privileged Mode to gain access to system-private data. Threads executing in User Mode protect system-private from access. System calls may be explicit or implicit (when a page fault or an interrupt occurs, for example.) Special process boundaries have been integrated with Windows NT so that code executing in User Mode will not interfere with the Windows NT Executive, Kernel, and device drivers. Note that you may see Windows NT-related tasks in other subsystem processes in addition to seeing the Privileged Time in your own process. If the Percentage Privileged Time is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Percentage (%) Processor Time	Percentage Processor Time measures the total amount of time that the processor was used by the threads of a process to execute instructions. Instructions sent to handle certain hardware interrupts or trap conditions may be included in the percentage of processor time. If the Percentage Processor Time is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Percentage (%) User Time	Percentage User Time calculates the percentage of time that process threads have been executing code in User Mode. Special process boundaries have been integrated with Windows NT so that code executing in User Mode will not interfere with the Windows NT Executive, Kernel, and device drivers. Note that you may see Windows NT-related tasks in other subsystem processes in addition to seeing the Privileged Time in your own process. If the Percentage User Time is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pool Nonpaged Bytes	Pool Nonpaged Bytes calculates the total number of bytes in the Nonpaged Pool. The Paged Pool is the area in the system memory where operating system components acquire space to accomplish tasks. Nonpaged Pool pages remain in main memory as long as they are allocated and cannot be paged out to the paging file. If the value of Pool Nonpaged Bytes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Pool Paged Bytes	Pool Paged Bytes calculates the total number of bytes in the Paged Pool. The Paged Pool is the area in the system memory where operating system components acquire space to accomplish tasks. When not being accessed by the system, Paged Pool pages can be paged out to the paging file. If the value of Pool Paged Bytes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Private Bytes	Private Bytes calculates the total number of bytes allocated by the process that cannot be shared with other processes. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–30 Windows NT Process Class Event Tests (Cont.)

Event Test	Description
Thread Count	Thread Count measures the number of threads in the process that are currently active. Threads are responsible for executing instructions (basic units of application work). Every active process has at least one thread. If the Thread Count is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Virtual Bytes	Virtual Bytes calculates the current size (in bytes) of the virtual address space being used by a process. Using too much virtual memory may limit the ability to load libraries. Note that using virtual address space is not an indication that you are also using disk or main memory pages. If the value of Virtual Bytes is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Working Set	Working Set measures total number of bytes currently in the Working Set of the process. The Working Set is the set of memory pages recently accessed by the threads in the process. If the system's free memory rises above a threshold, the pages are left in the Working Set even if they are not in use. If the system's free memory falls below a threshold, the pages are trimmed from Working Sets. If the memory pages are needed they will then be soft-faulted back into the Working Set before they leave main memory. If the value of Working Set is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–31 Windows NT Processor Class Event Tests

Event Test	Description
APC Bypasses per Second	APC (Asynchronous Procedure Call) Bypasses per Second calculates the rate at which kernel APC interrupts are circumvented. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
DPC Bypasses per Second	DPC (Deferred Procedure Call) Bypasses per Second calculates the average rate at which Dispatch interrupts are circumvented. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
DPC Rate	DPC (Deferred Procedure Call) Rate calculates the average rate at which DPC objects are added to the processor's DPC queue. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
DPCs Queued per Second	DPCs (Deferred Procedure Calls) Queued per Second measures the rate at which DPC objects are added to the processor's DPC queue. If this rate is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Interrupts per Second	Interrupts per Second measures the number of times the processor experiences an interrupt caused by a device. Device interruptions occur when the device completes a task or when the device requires attention. These interruptions suspend normal thread executions which can cause the processor to switch to a higher priority thread. If Interrupts per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–31 Windows NT Processor Class Event Tests (Cont.)

Event Test	Description
Percentage (%) of DPC Time	Percentage of DPC (Deferred Procedure Call) Time measures the percentage of time the processor spends in DPC mode. This metric can also assist in determining the cause of excessive privileged mode usage. A deferred procedure call is caused when a hardware device interrupts the processor and the Interrupt Handler chooses to execute its work in a deferred procedure call. DPCs enable interrupts to occur because deferred procedure calls run at a lower priority than interrupts. If the Percentage of DPC Time is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Percentage (%) of Interrupt Time	Percentage of Interrupt Time measures the percentage of time a processor spends handling hardware interrupts. When the processor is interrupted by a hardware device, the Interrupt Handler signals an I/O completion and issues another pending I/O request. This metric can also be used to determine the source of excessive Privileged mode usage. If the Percentage of Interrupt Time is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Percentage (%) of Privileged Time	Percentage of Privileged Time measures the percentage of time a processor spends in Privileged mode with non-idle threads. The Percentage of Privileged Time metric includes Windows NT service layer, the Executive routines, the Windows NT Kernel, and device drivers in the calculation of total Privileged time. If the Percentage of Privileged Time is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Percentage (%) of Processor Time	Percentage of Processor Time measures the total amount of time that a processor is busy executing a non-idle thread. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
Percentage (%) of User Time	Percentage of User Time measures the percentage of time a processor spends in user mode with non-idle threads. The Percentage of User Time metric includes the amount of time that all application code and peripheral devices execute in user mode. If the Percentage of User Time is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–32 Windows NT System Class Event Tests

Event Test	Description
Alignment Fixups per Second	Alignment Fixups per Second measures the rate by which the system is able to fix alignment faults. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–32 Windows NT System Class Event Tests (Cont.)

Event Test	Description
Context Switches per Second	Context Switches per Second measures the rate of switches among threads. Switches can occur either inside of a single process or across multiple processes. A thread switch can happen when one thread requests information from another thread or when a higher priority thread preempts another thread. In addition to the traditional protection of User and Privileged modes, Windows NT also uses process boundaries for subsystem protection. These protection boundaries may appear in other subsystem processes in addition to the Privileged Time in the application. Switching to the subsystem process causes one Context Switch in the application thread. Switching back causes another Context Switch in the subsystem thread. If the value of Context Switches per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Exception Dispatches per Second	Exception Dispatches per Second measures the rate that the system dispatches exceptions. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
File Control Bytes per Second	File Control Bytes per Second is the sum total of bytes transferred for all file system including file system control requests or requests for information about device characteristics or status. (Does not include read or write operations.) If the value of File Control Bytes per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
File Control Operations per Second	File Control Operations per Second measures the number of Read and Write operations being issued by the computer to file system devices. This metric does not measure File Control Operations. If the value of File Data Operations per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
File Read Bytes per Second	File Read Bytes per Second is the sum total of bytes transferred for all the file system read operations. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.
File Read Operations per Second	File Read Operations per Second is the sum total of all the file system read operations on the system. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
File Write Bytes per Second	File Write Bytes per Second is the sum total of bytes transferred for all the file system write operations. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
File Write Operations per Second	File Write Operations per Second is the sum total of all the file system write operations on the system. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Floating Emulations per Second	Floating Emulations per Second measures the rate by which the system performs floating emulations. If this value is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.

Table 6–32 Windows NT System Class Event Tests (Cont.)

Event Test	Description
Percentage (%) of Registry Quota in Use	Percentage (%) Registry Quota In Use measures the total amount of registry quota allowed by the system. If the value of Percentage Registry Quota In Use is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Percentage (%) Total DPC Time	Percentage (%) Total DPC (Deferred Procedure Call) Time calculates the percentage of total DPC time divided by the number of system processors. If the Percentage Total DPC Time is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Percentage (%) Total Interrupt Time	Percentage (%) Total Interrupt Time calculates the total percentage of interrupt time for all processors divided by the number of system processors. If the Percentage Total Interrupt Time is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Percentage (%) of Total Privileged Time	The Percentage (%) of Total Privileged Time measures the amount of time the processors are running in Privileged mode. For example, if multiple processors are all running in Privileged mode, then the Percentage of Total Privileged Time would be 100%. If only half of the processors are running in Privileged mode then the percentage would be 50%. If the percentage of time that the processors are running in Privileged mode is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Percentage (%) of Total Processor Time	Percentage (%) of Total Processor Time is the fraction or percentage of time that the system processor is running non-idle threads. For example, if all of the system processors are busy the Percentage of Total Processor Time would be 100%. If only half of the processors are busy running non-idle threads, then the Percentage of Total Processor Time would be 50%. If the percentage of time that the system processor is running non-idle threads is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Percentage (%) of Total User Time	The Percentage (%) of Total User Time measures the amount of time the processors are running in user mode. For example, if multiple processors are all running in user mode, then the Percentage of Total User Time would be 100%. If only half of the processors are running in user mode then the percentage would be 50%. If the percentage of time that the processors are running in user mode is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Processor Queue Length	Processor Queue Length measures the number of threads in the current processor queue (not the threads that are currently executing). Note that the Processor Queue Length metric is a real-time count of threads and not an average count over time. If the Processor Queue Length is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the "Number of Occurrences" parameter, then a warning or alert is generated.

Table 6–32 Windows NT System Class Event Tests (Cont.)

Event Test	Description
System Calls per Second	Systems Calls per Second measures the frequency of calls to system service routines that perform basic scheduling and synchronizing of activities on the computer. These routines also provide access to non-graphical devices, memory management, and name space management. If the value of System Calls per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Total APC Bypasses per Second	Total APC (Asynchronous Procedure Call) Bypasses per Second measures the overall rate at which APC interrupts were circumvented across all processors. If this rate is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Total DPC Bypasses per Second	Total DPC (Deferred Procedure Call) Bypasses per Second measures the rate at which Dispatch Interrupts were circumvented across all platforms. If this rate is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Total DPC Rate	Total DPC (Deferred Procedure Call) Rate is the average speed (measured in seconds) by which DPC objects are added to the processor's DPC queue. If the Total DPC Rate is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Total DPCs Queued per Second	Total DPCs (Deferred Procedure Calls) Queued per Second measures the rate at which objects are added to the processor's DPC queue. If this rate is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.
Total Interrupts per Second	Total Interrupts per Second measures the rate that the computer is handling interruptions from system devices such as the mouse, network cards, and system clocks. This metric also indicates how busy those devices are in the overall system environment. If the value of Total Interrupts per Second is greater than or equal to the threshold values specified by the threshold arguments, and the number of occurrences exceeds the value specified in the “Number of Occurrences” parameter, then a warning or alert is generated.

7

Oracle Applications Jobs

The job tasks and job scheduling services of the Oracle Enterprise Manager console allow you to automate standard and repetitive tasks, such as executing a SQL script or executing an operating system command. The Management Pack for Oracle Applications includes job tasks that can be configured to bring a concurrent manager up or down. The pack also includes job tasks that can be configured to trigger automatically as fixit jobs for a particular event. Jobs can be scheduled for specific times or time intervals allowing the administrator to proactively monitor and correct problems.

This chapter describes each of the jobs included with the Management Pack for Oracle Applications. For more information on submitting or scheduling jobs, see the *Oracle Enterprise Manager Administrator's Guide*.

Note: To expand the Intelligent Agent messages related to the Management Pack for Oracle Applications, at the system prompt from the Agent's Oracle home type: oerr <*facility*> <*message number*> where <*facility*> is **smamp**. For example:

oerr smamp 6001

Cause: Failed to open a cursor.

Action: Verify that the maximum cursors limit has not been exceeded.

Before running any program from the command line (UNIX or Windows NT), verify that all the correct values are present in the necessary environment variables, for example, ORACLE_HOME, LD_LIBRARY_PATH, and PATH.

Setting Concurrent Manager Node Credentials

Prior to using the Oracle Applications Jobs, you must set the Concurrent Manager Node Credentials. This is necessary because on UNIX, all jobs executed by the Oracle Intelligent Agent are performed as the operating system (OS) user specified in the preferred credentials for that node. This may present an Oracle Applications administrator with a problem if the APPL_TOP for the Concurrent Processing server is owned by an OS user, such as `applmgr`, which is different from the OS user, `oracle`, which is needed to perform database operations.

The following are suggestions for how to work around this problem:

- Create two separate Enterprise Manager users: one for performing database related activities, and another for performing Oracle Applications related activities.

  Log on to the Enterprise Manager database account and set the node credentials to the user `oracle`. Log out of Enterprise Manager and log back on as the Enterprise Manager Oracle Applications user. Set the node credentials to the applmgr account.

- Keep the user `oracle` in the preferred node credentials. Allow the ICM to be started as user `oracle`. All log and output directories must be writable by user `oracle`. The users `oracle` and `applmgr` should belong to the same group. You may need to set the umask in the .login files of these users to ensure that files created in the Concurrent Manager's environment have the appropriate group permissions.

- Keep the user `oracle` in the preferred node credentials. Configure the .rhosts file for `applmgr` so that the user `oracle` can rsh to the managed node as the user `applmgr`. Alter the concurrent manager startup script ($FND_TOP/bin/oemstart.sh, for example) to rsh as `applmgr` to the managed node and start the concurrent manager.

  For example, if your Intelligent Agent is on "prodapps.acme.com" add the following line to the .rhosts file for the user "applmgr":

  ```
  prodapps.acme.com oracle
  ```

  The concurrent manager startup script should then read:

  ```
  rsh -l applmgr prodapps.acme.com sh -c "\".$1;startmgr sysmgr=$2\""
  ```

- Change the oemstart.sh script to be set-user-id (suid), owned by the APPL_TOP owner `applmgr`.

Job Descriptions

The job tasks for Oracle Applications are:

> **Note:** The jobs for release 8.1.6 and earlier targets are included for backward compatibility purposes. It is highly encouraged that you upgrade to the new jobs because the old jobs may not be supported in future releases of the Management Pack for Oracle Applications.

Concurrent Manager Shutdown

The Concurrent Manager Shutdown job task shuts down the Internal Concurrent Manager (ICM), in the mode specified by the user. This job requires an Agent that is release 8.1.7 or higher.

When configured in the *abort* mode, the job shuts down the ICM regardless of the existing state of the queues.

When configured in the *stop* mode, the job waits until current requests are processed and completed before stopping the ICM.

Parameters

1. Stop
2. Abort

Choose the Stop mode if you would like to bring down the ICM graciously. Choose the Abort mode if you would like to bring down the ICM immediately, regardless of the state of the concurrent request queues.

Output

1. Completion status of the job
2. Name of user who registered the job

3. Name of target database

User Action

If the job fails, check the ICM log file for details. If the environment variable APPLCSF is set, the ICM log file will be located in $APPLCSF/$APPLLOG. Otherwise, the ICM log will be located in $FND_TOP/$APPLLOG.

Concurrent Manager Shutdown (for V8.1.6 and Earlier Agents)

The Concurrent Manager Shutdown job task shuts down the Internal Concurrent Manager (ICM), in the mode specified by the user.

When configured in the *abort* mode, the job shuts down the ICM regardless of the existing state of the queues.

When configured in the *stop* mode, the job waits until current requests are processed and completed before stopping the ICM.

Parameters

1. Stop
2. Abort

Choose the Stop mode if you would like to bring down the ICM graciously. Choose the Abort mode if you would like to bring down the ICM immediately, regardless of the state of the concurrent request queues.

Output

1. Completion status of the job
2. Name of user who registered the job
3. Name of target database

User Action

If the job fails, check the ICM log file for details. If the environment variable APPLCSF is set, the ICM log file will be located in $APPLCSF/$APPLLOG. Otherwise, the ICM log will be located in $FND_TOP/$APPLLOG.

Concurrent Manager Startup

The Concurrent Manager Startup job task starts the Internal Concurrent Manager (ICM). This job task can be configured as a fixit job to be associated with the Concurrent Manager UpDown event test to automatically start up the Concurrent

manager (ICM) when it goes down. This job requires an Agent that is release 8.1.7 or higher.

Parameters

1. Queue Size: The duration of time between worker quantity checks (checks for number of active workers). The unit of time is process monitor checks. Default is 1.
2. Sleep Time: The number of seconds that the concurrent manager should wait between checks for new requests. Default is 60.
3. Pmon: The duration of time between process monitor checks (checks for failed workers). The unit of time is concurrent manager iterations (request table checks). Default is 5.
4. Restart: The concurrent manager will attempt a restart after an abnormal termination. Default value is Not Checked.
5. Diag: Determines if diagnostic output should be produced regularly by all concurrent managers. This should be off (unchecked) under most circumstances, since much information (and thus large log files) is produced. Default value is Not Checked.

Output

1. Completion status of the job
2. Name of user who registered the job
3. Name of target database

User Action

If the job fails, check the ICM log file for details. If the environment variable APPLCSF is set, the ICM log file will be located in $APPLCSF/$APPLLOG. Otherwise, the ICM log will be located in $FND_TOP/$APPLLOG.

Concurrent Manager Startup (for V8.1.6 and Earlier Agents)

The Concurrent Manager Startup job task starts the Internal Concurrent Manager (ICM). This job task can be configured as a fixit job to be associated with the Concurrent Manager UpDown event test to automatically start up the Concurrent manager (ICM) when it goes down.

Parameters

No parameters are required.

Output

1. Completion status of the job
2. Name of user who registered the job
3. Name of target database

User Action

If the job fails, check the ICM log file for details. If the environment variable APPLCSF is set, the ICM log file will be located in $APPLCSF/$APPLLOG. Otherwise, the ICM log will be located in $FND_TOP/$APPLLOG.

Kill Locking Session

The Kill Locking Session job task is intended to be used as a fix-it job for the following Oracle Applications Advanced Event Tests:

- ICM Waiting on a Lock
- CRM Waiting on a Lock

It is rare for a concurrent program to lock out the ICM or CRM for an excessive amount of time. This job will most likely trigger for a form session that is out of control.

When configured as a fixit job for the previously mentioned event tests, the session preventing ICM or CRM from continuing would automatically be deleted. This job requires an Agent that is release 8.1.7 or higher.

Parameters

No parameters are required.

Output

User will be informed if the job succeeds.

User Action

If the job fails, check your user privileges to make sure you have the rights to kill the session.

Also, check the ICM log file for details. If the environment variable APPLCSF is set, the ICM log file will be located in $APPLCSF/$APPLLOG. Otherwise, the ICM log will be located in $FND_TOP/$APPLLOG.

Kill Locking Session (for V8.1.6 and Earlier Agents)

The Kill Locking Session job task is intended to be used as a fix-it job for the following Oracle Applications Advanced Event Tests:

- ICM Waiting on a Lock
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It is rare for a concurrent program to lock out the ICM or CRM for an excessive amount of time. This job will most likely trigger for a form session that is out of control.

When configured as a fixit job for the previously mentioned event tests, the session preventing ICM or CRM from continuing would automatically be deleted.

Parameters

No parameters are required.

Output

User will be informed if the job succeeds.

User Action

If the job fails, check your user privileges to make sure you have the rights to kill the session.

Also, check the ICM log file for details. If the environment variable APPLCSF is set, the ICM log file will be located in $APPLCSF/$APPLLOG. Otherwise, the ICM log will be located in $FND_TOP/$APPLLOG.

A

Charts and Chart Groups

This appendix describes the application charts and chart groups available in Oracle Performance Manager. Some of these charts provide the ability to perform administrative tasks, for example, canceling a request.

The types of charts available are:

- System Overview Charts and Chart Groups
- Form Sessions Charts and Chart Group
- Concurrent Requests Charts and Chart Groups
- Concurrent Managers Charts and Chart Group
- Database Session Charts

Standby and Pending Requests

The charts and classes in the Management Pack for Oracle Applications use the following definitions of standby requests and pending requests. These definitions do not directly correspond to the Applications phase and status codes for concurrent requests. For example, a standby request in the Management Pack for Oracle Applications might have any of the following phase/status combinations: Pending/Scheduled, Pending/Standby, or Inactive/No Manager.

Standby Requests

Standby requests have constraints that need to be evaluated by the Conflict Resolution Manager before they can run. Constraints include incompatibilities with other requests, single-threaded requests, runalone requests, and user-level active request limits. When a standby request is released by the Conflict Resolution Manager, it becomes a pending request.

Pending Requests
Pending requests include all non-standby requests that have not yet run.

System Overview Charts and Chart Groups

The Overview charts and chart groups provide a summary of system performance by presenting a variety of performance indicators in a single screen.

System Activity Overview Chart Group

This chart group pulls together interactive user and concurrent request information to give an overview of system activity.

This group contains the following charts:

- Form Sessions and Concurrent Requests Chart on page A-2
- Longest Running Requests Chart on page A-10
- Completed Requests by Status Chart on page A-11
- Pending Requests per Manager Chart on page A-13
- Running Requests per Manager Chart on page A-14

Top Resource Consumers Chart Group

This chart group identifies the processes consuming the greatest amounts of a specified resource in an Applications system.

This group contains the following charts:

- Top Form Sessions Chart on page A-3
- Top Running Requests Chart on page A-10

Form Sessions and Concurrent Requests Chart

The Form Sessions and Concurrent Requests chart displays the number of open form sessions, the number of standby requests, the number of pending requests, and the number of running requests.

You can drill down to the following charts:

- Current Form Sessions Chart on page A-3
- All Standby Requests Chart on page A-12

- All Pending Requests Chart on page A-12
- All Running Requests Chart on page A-12

Form Sessions Charts and Chart Group

The Form Sessions charts show performance indicators for interactive Oracle Applications sessions.

Note: Information on form sessions is collected through the Oracle Applications Sign-on Auditing feature. The profile Sign-on: Audit Level must be set to FORM within Oracle Applications to enable form sessions information to be collected. If the profile Sign-on: Audit Level is not set to FORM, then the form session charts will not contain any data.

Form Sessions Summary Group

The Form Sessions Summary chart group gives an overview of active sessions per user, application, and responsibility.

This group contains the following charts:

- Form Sessions per User Chart on page A-4
- Form Sessions per Application Chart on page A-5
- Form Sessions per Responsibility Chart on page A-5

Current Form Sessions Chart

The Current Form Sessions chart shows the currently active form sessions. You can set the collection options for this chart to limit the number of rows returned.

For a given form session, you can drill down to the following charts:

- Session Details Chart on page A-15
- Session Statistics Chart on page A-15

Top Form Sessions Chart

The Top Form Sessions chart shows form sessions consuming the greatest amounts of a specified resource. You can choose from the following resources in the

collection options: Session UGA Memory, Session PGA Memory, CPU Used by this Session, Physical Reads, Physical Writes, Open Cursors, User Commits, and User Rollbacks. Also, the number of rows displayed by this chart can be limited in the collection options.

For a particular form session, you can drill down to the following charts:

- Session Details Chart on page A-15
- Session Statistics Chart on page A-15

Form Sessions Waiting on Locks Chart

The Form Sessions Waiting on Locks chart shows the form sessions waiting on database locks. You can set the collection options for this chart to limit the number of rows returned.

You can drill down to the following charts for both the waiting and the locking sessions:

- Session Details Chart on page A-15
- Session Statistics Chart on page A-15

Form Sessions per User Chart

The Form Sessions per User chart shows the count of the active form sessions for a user. A user will not appear in the chart unless that user has at least one active session. You can set the collection options for this chart to limit the number of rows returned.

For a given user, you can drill down to the Forms Sessions Details for User Chart on page A-4.

Forms Sessions Details for User Chart

The Form Sessions Details for User chart is similar to the Current Form Sessions Chart on page A-3 except that it only includes the form sessions for a specific user.

For a given form session, you can drill down to the Session Details Chart on page A-15 or the Session Statistics Chart on page A-15.

Form Sessions per Application Chart

The Form Sessions per Application chart shows the count of the active form sessions for an application. An application will not appear in the chart unless that application has at least one active session.

For a given application, you can drill down to the Forms Sessions Details for Application Chart on page A-5.

Forms Sessions Details for Application Chart

The Form Sessions Details for Application chart is similar to the Current Form Sessions Chart on page A-3 except that it only includes the form sessions for a specific application. You can set the collection options for this chart to limit the number of rows returned.

For a given form session, you can drill down to the following charts:

- Session Details Chart on page A-15
- Session Statistics Chart on page A-15

Form Sessions per Responsibility Chart

The Form Sessions per Responsibility chart shows the count of the active form sessions for a responsibility. A responsibility will not appear in the chart unless that responsibility has at least one active session. You can set the collection options for this chart to limit the number of rows returned.

For a given responsibility, you can drill down to the Forms Sessions Details for Responsibility Chart on page A-5.

Forms Sessions Details for Responsibility Chart

The Form Sessions Details for Responsibility chart is similar to the Current Form Sessions Chart on page A-3 except that it only includes the form sessions for a specific responsibility.

For a given form session, you can drill down to the following charts:

- Session Details Chart on page A-15
- Session Statistics Chart on page A-15

Concurrent Requests Charts and Chart Groups

The Concurrent Requests charts and chart groups provide information about the pending, running, and completed concurrent requests on the system.

Active Requests Chart Group

An active request is a concurrent request that is pending, standby, or running. This chart group provides several different views of the volume of active requests on a system. The following charts are included:

- Active Requests by Status Chart on page A-6
- Active Requests per User Chart on page A-6
- Active Requests per Application Chart on page A-8
- Active Requests per Responsibility Chart on page A-9

Active Requests by Status Chart

The Active Requests by Status chart shows the numbers of pending, standby, and running requests on the system. This chart deals with requests that are currently being processed by the system and filters out scheduled requests and requests that are on hold.

You can drill down to the following charts:

- All Standby Requests Chart on page A-12
- All Pending Requests Chart on page A-12
- All Running Requests Chart on page A-12

Note: The All Standby Requests, All Pending Requests, and All Running Requests charts do **not** filter out scheduled requests and requests that are on hold.

Active Requests per User Chart

The Active Requests per User chart shows the count of the active requests for a user. A user will not appear in the chart unless that user has at least one active request.

For a given user, you can drill down to the following charts:

- Active Requests Detail for User Group on page A-7

- Standby Requests for User Chart on page A-7
- Pending Requests for User Chart on page A-7
- Running Requests for User Chart on page A-7

Active Requests Detail for User Group

This group contains the following charts:

- Standby Requests for User Chart on page A-7
- Pending Requests for User Chart on page A-7
- Running Requests for User Chart on page A-7

Standby Requests for User Chart

The Standby Requests for User chart lists the standby requests for a specific user.

For a given request, you can drill down to the Requests Waited On Chart on page A-12. You can also cancel or toggle hold the request by selecting Cancel Request or Toggle Request Hold from the drill-down menu.

Pending Requests for User Chart

The Pending Requests for User chart lists the pending requests for a specific user.

For a given request, you can drill down to the Requests Waited On Chart on page A-12. You can also cancel or toggle hold the request by selecting Cancel Request or Toggle Request Hold from the drill-down menu.

Running Requests for User Chart

The Running Requests for User chart lists the running requests for a specific user.

For a given request you can drill down to the following charts:

- Session Details Chart on page A-15
- Session Statistics Chart on page A-15

You can terminate the request by selecting Terminate Request from the drill-down menu.

Active Requests per Application Chart

The Active Requests per Application chart shows the count of the active requests for each application. An application will not appear in the chart unless that application has at least one active request.

For a given application, you can drill down to the following charts:

- Active Requests Detail for Application Group on page A-8
- Standby Requests for Application Chart on page A-8
- Pending Requests for Application Chart on page A-8
- Running Requests for Application Chart on page A-8

Active Requests Detail for Application Group

This group contains the following charts:

- Standby Requests for Application Chart on page A-8
- Pending Requests for Application Chart on page A-8
- Running Requests for Application Chart on page A-8

Standby Requests for Application Chart

The Standby Requests for Application chart lists the standby requests for a specific application.

For a given request, you can drill down to the Requests Waited On Chart on page A-12. You can also cancel or toggle hold the request by selecting Cancel Request or Toggle Request Hold from the drill-down menu.

Pending Requests for Application Chart

The Pending Requests for Application chart lists the pending requests for a specific application.

For a given request, you can drill down to the Requests Waited On Chart on page A-12. You can also cancel or toggle hold the request by selecting Cancel Request or Toggle Request Hold from the drill-down menu.

Running Requests for Application Chart

The Running Requests for Application chart lists the running requests for a specific application.

For a given request, you can drill down to the following charts:

- Session Details Chart on page A-15
- Session Statistics Chart on page A-15

You can terminate the request by selecting Terminate Request from the drill-down menu.

Active Requests per Responsibility Chart

The Active Requests per Responsibility chart shows the count of the active requests for a responsibility.

For a given responsibility, you can drill down to the following charts:

- Active Requests Detail for Responsibility Group on page A-9
- Standby Requests for Responsibility Chart on page A-9
- Pending Requests for Responsibility Chart on page A-9
- Running Requests for Responsibility Chart on page A-10

Active Requests Detail for Responsibility Group

This group contains the following charts:

- Standby Requests for Responsibility Chart on page A-9
- Pending Requests for Responsibility Chart on page A-9
- Running Requests for Responsibility Chart on page A-10

Standby Requests for Responsibility Chart

The Standby Requests for Responsibility chart lists the standby requests for a specific responsibility.

For a given request, you can drill down to the Requests Waited On Chart on page A-12. You can also cancel or toggle hold the request by selecting Cancel Request or Toggle Request Hold from the drill-down menu.

Pending Requests for Responsibility Chart

The Pending Requests for Responsibility chart lists the pending requests for a specific responsibility.

For a given request, you can drill down to the Requests Waited On Chart on page A-12. You can also cancel or toggle hold the request by selecting Cancel Request or Toggle Request Hold from the drill-down menu.

Running Requests for Responsibility Chart

The Running Requests for Responsibility chart lists the running requests for a specific responsibility.

For a given request, you can drill down to the following charts:

- Session Details Chart on page A-15
- Session Statistics Chart on page A-15

You can terminate the request by selecting Terminate Request from the drill-down menu.

Top Running Requests Chart

The Top Running Requests chart shows running requests consuming the greatest amounts of a specified resource. You can choose from the following resources in the collection options: Session UGA Memory, Session PGA Memory, CPU Used by this Session, Physical Reads, Physical Writes, Open Cursors, User Commits, and User Rollbacks. Also, the number of rows displayed by this chart can be limited in the collection options.

For a particular request, you can drill down to the following charts:

- Session Details Chart on page A-15
- Session Statistics Chart on page A-15

You can terminate the request by selecting Terminate Request from the drill-down menu.

Longest Running Requests Chart

The Longest Running Requests chart lists the longest running request on a system. The number of rows that are displayed by this chart can be limited in the collection options.

For a given request, the user can drill down to the following charts:

- Session Details Chart on page A-15
- Session Statistics Chart on page A-15

You can terminate the request by selecting Terminate Request from the drill-down menu.

Requests Waiting on Locks Chart

The Requests Waiting on Locks chart shows the running requests waiting on database locks. You can set the collection options for this chart to limit the number of rows returned.

You can drill down to the following charts for both the waiting and the locking sessions:

- Session Details Chart on page A-15
- Session Statistics Chart on page A-15

Longest Pending Requests Chart

The Longest Pending Requests chart lists the requests that have been pending or on standby for the longest time. The number of rows that are displayed by this chart can be limited in the collection options.

For a given request, you can drill down to the Requests Waited On Chart on page A-12. You can also cancel or toggle hold the request by selecting Cancel Request or Toggle Request Hold from the drill-down menu.

Completed Requests by Status Chart

The Completed Requests by Status chart shows the numbers of requests that completed with success, warning, and error.

You can drill down to the Completed with Warning Chart on page A-11 or the Completed with Error Chart on page A-11.

Completed with Warning Chart

The Completed with Warning chart lists the requests that have completed with warnings. The number of rows that are displayed by this chart can be limited in the collection options.

Completed with Error Chart

The Completed with Error chart lists the requests that have completed with errors. The number of rows that are displayed by this chart can be limited in the collection options.

All Standby Requests Chart

The All Standby Requests chart lists all standby requests. You can set the collection options for this chart to limit the number of rows returned.

You can drill down to the Requests Waited On Chart on page A-12. You can also cancel or toggle hold the request by selecting Cancel Request or Toggle Request Hold from the drill-down menu.

All Pending Requests Chart

The All Pending Requests chart lists all pending requests.You can set the collection options for this chart to limit the number of rows returned.

You can drill down to the Requests Waited On Chart on page A-12. You can also cancel or toggle hold the request by selecting Cancel Request or Toggle Request Hold from the drill-down menu.

All Running Requests Chart

The All Running Requests chart lists all running requests. You can set the collection options for this chart to limit the number of rows returned.

You can drill down to the Session Details Chart on page A-15 or the Session Statistics Chart on page A-15. You can terminate the request by selecting Terminate Request from the drill-down menu.

Requests Waited On Chart

For a given pending or standby concurrent request *X*, the Requests Waited On chart lists all the requests that must complete before request *X* can begin. For each request that appears in this chart, a reason is given for its appearance. Valid reasons include:

- Incompatible with request *X*
- Single-threaded with request *X*
- Parent waiting for child request *X*
- Run-alone ahead of request *X*

You can also cancel or toggle hold the request by selecting Cancel Request or Toggle Request Hold from the drill-down menu.

Concurrent Managers Charts and Chart Group

The Concurrent Manager charts and chart group provide information about the status of the concurrent managers on the system.

Concurrent Managers Status Group

The Concurrent Managers Status chart group gives an overview of the status of the concurrent managers. The charts in this group deal with requests that are currently being processed by the system. They filter out scheduled requests and requests that are on hold.

This group contains the following charts:

- Pending Requests per Manager Chart on page A-13
- Standby Requests per Manager Chart on page A-13
- Running Requests per Manager Chart on page A-14
- Processes per Manager Chart on page A-14

Pending Requests per Manager Chart

The Pending Requests per Manager chart shows the number of requests pending for each manager. It does not include standby requests or requests on hold.

For a given manager, you can drill down to the Pending Request Details for Manager Chart on page A-13.

Pending Request Details for Manager Chart

The Pending Request Details for Manager chart lists the pending requests for a particular manager. You can set the collection options for this chart to limit the number of rows returned.

For a given request, you can drill down to the Requests Waited On Chart on page A-12. You can also cancel or toggle hold the request by selecting Cancel Request or Toggle Request Hold from the drill-down menu.

Standby Requests per Manager Chart

The Standby Requests per Manager chart shows the number of standby requests for each manager.

For a given manager, you can drill down to the Running Requests Details for Manager Chart on page A-14.

Standby Request Details for Manager Chart

The Standby Request Details for Manager chart lists the standby requests for a particular manager. You can set the collection options for this chart to limit the number of rows returned.

For a given request, you can drill down to the Requests Waited On Chart on page A-12. You can also cancel or toggle hold the request by selecting Cancel Request or Toggle Request Hold from the drill-down menu.

Running Requests per Manager Chart

The Running Requests per Manager chart shows the number of running requests for each manager.

For a given manager, you can drill down to the Running Requests Details for Manager Chart on page A-14.

Running Requests Details for Manager Chart

The Running Requests Details for Manager chart lists the running requests for a particular manager. You can set the collection options for this chart to limit the number of rows returned.

For a given request, you can drill down to the Session Details Chart on page A-15 or the Session Statistics Chart on page A-15. You can terminate the request by selecting Terminate Request from the drill-down menu.

Processes per Manager Chart

The Processes per Manager chart shows the number of "worker" processes or "slots" that each manager has to run requests.

For a given manager, you can drill down to the Process Details for Manager Chart on page A-14.

Process Details for Manager Chart

The Process Details for Manager chart lists the concurrent processes for a particular manager. You can set the collection options for this chart to limit the number of rows returned.

For a given process, you can drill down to the Session Details Chart on page A-15 or the Session Statistics Chart on page A-15.

Sessions Blocking CRM/ICM Activity Chart

Because there is only one Internal Concurrent Manager (ICM) process and one Conflict Resolution Manager (CRM) process, system performance is reduced when either of these processes is blocked. The Sessions Blocking CRM / ICM Activity chart shows the sessions currently blocking ICM and CRM activity.

You can drill down to the Session Details Chart on page A-15 or the Session Statistics Chart on page A-15.

Database Session Charts

The Database Session charts described in this section provide information about database sessions from the V$SESSION, V$SESSTAT, and V$SQLTEXT tables. These charts are only accessible as drill-downs from other charts which provide the context for the session.

Session Details Chart

The Session Details chart gives information about a single database session from the V$SESSION table. For a given session, you can drill down to the Current SQL for Session Chart on page A-16 or you can delete the session by selecting Kill Session from the drill-down menu.

Session Statistics Chart

The Session Statistics chart gives the statistics from V$SESSTAT for a given database session.

Note: To collect certain session statistics, such as session CPU time, the TIMED_STATISTICS database parameter must be set to true in the init.ora file. Some overhead may be incurred if the TIMED_STATISTICS parameter is set to false, then certain statistics, such as session CPU time, will always be 0. Refer to the Oracle database documentation for more information about timed statistics.

Current SQL for Session Chart

The Current SQL for Session chart gives the SQL statement from V$SQLTEXT for a given session.

B

Remote Data Gatherer Configuration

The full functionality of the Management Pack for Oracle Applications is only available for Concurrent Managers running on Windows NT 4.0, Solaris 2.6, and other platforms where the Agent Extensions for Oracle Applications are available. (See the *Oracle Management Pack for Oracle Applications Readme* for a full list of supported platforms.) However, an alternative is available for using Performance Manager, Capacity Planner, and Concurrent Processing Tuning Assistant against Concurrent Managers running on platforms where the Agent Extensions are not available. The alternative is to install the Intelligent Agent and Agent Extensions on the Enterprise Manager console machine, and then configure the Data Gatherer component of this agent to capture data from the remote machine where you are running the Concurrent Processing Server.

> **Note:** The use of any Concurrent Manager or node-related jobs and events are not supported under this configuration. These instructions are only for using Performance Manager, Capacity Planner, and Concurrent Processing Tuning Assistant against platforms where the Agent Extensions for Oracle Applications are not available.

To install the Intelligent Agent Extensions and Data Gatherer on the Enterprise Manager console machine, follow the instructions in the *Oracle 8i Installation Guide* then do the following:

1. Locate the oapps.ora file in Intelligent Agent Oracle home and add the Net8 alias name for the Oracle Applications database. The syntax of the oapps.ora file is:

   ```
   cmanager <apps_db> <apps env file> <apps startup info>
   ```

Variable	Definition
<apps_db>	Fully qualified tns alias name for the Applications database.
<apps env file>	Fully qualified path and file name of the Applications environment file.
<apps startup info>	For Windows NT, name of the ICM service in the NT Services panel. For UNIX, fully qualified path to the ICM startup script (oemstart.sh).

2. Start the Intelligent Agent and the Data Gatherer as described in Chapter 2 "Post-Installation Configuration" on page 2-1. If the Intelligent Agent is already started, stop the Intelligent Agent and restart it.
3. In the Enterprise Manager console, select **Navigator=>Discover Node**. Enter the name of the local machine. If the local machine already appears in the Navigator, right-mouse click the node and select refresh.
4. Enterprise Manager now thinks that there is a concurrent manager on the local machine even if there is none. You can now start Performance Manager or Capacity Planner against this concurrent manager instance as if the instance actually resides on your local machine.

   Keep in mind, however, that this is not a supported configuration for running concurrent manager related jobs and events. While the jobs and events will appear as being available in the Enterprise Manager console, they will not behave correctly. The Enterprise Manager Job and Event system only works when the Intelligent Agent resides on the same node as the service being managed.

   Note: For this configuration to work, you must have a valid tns alias for the Applications database defined in the tnsnames.ora file for both the Enterprise Manager Oracle Home and the Intelligent Agent Oracle Home (the two could be one and the same).

C

Troubleshooting

This appendix lists some of the problems you might encounter while using the Management Pack for Oracle Applications, along with some possible solutions and workarounds. Sections include:

- Managed Node (Concurrent Manager Node)
- Oracle Management Server Node (OMS)
- Client Node

Note: To expand the Intelligent Agent messages related to the Management Pack for Oracle Applications, at the system prompt from the Agent's Oracle home, type: oerr <*facility*> <*message number*> where <*facility*> is **smamp**.

For example: oerr smamp 6001

Cause: Failed to open a cursor.

Action: Verify that the maximum cursors limit has not been exceeded.

Before running any program from the command line (UNIX or Windows NT), verify that all the correct values are present in the necessary environment variables, for example, ORACLE_HOME, LD_LIBRARY_PATH, and PATH.

Table C–1 lists symptoms the Management Pack for Oracle Applications may exhibit and refers you to the appropriate section for information. The table is also divided into sections which reflect the nodes where the problems may occur.

Table C–1 Possible Problems Encountered While Using the Management Pack for Oracle Applications

Managed Node (Concurrent Manager Node)

This section describes problems related to the Data Gatherer and the Intelligent Agent and possible solutions.

Data Gatherer Crashes While User Is Attempting to View Node Statistics

Summary

The Data Gatherer crashes when the user attempts to access nodes in Oracle Performance Manager.

Reason

The problem occurs on nodes that have Agent Extensions for Oracle Applications installed with the Oracle Intelligent Agent release 8.1.5.

Action

Install the patch Agent Extensions for Oracle Applications release 2.0.4.0.1 or perform the following steps.

1. Locate the Data Gatherer's Oracle Home and edit the file

   ```
   $ORACLE_HOME/odg/lib/ins_odg.mk
   ```

2. Locate the line that starts with `EXOSLIBS=`. It is probably the first line after the comments and probably looks like `EXOSLIBS=-lthread`.

3. The line needs to include the -lkstat command. If the line does not include `-lkstat`, add `-lkstat` at the end of the line. The line will now read:

   ```
   EXOSLIBS=-lthread -lkstat
   ```

   Note: if there is no line in the file which starts with EXOSLIBS=, add the line shown above to the top of the file but after the comments.

4. Save the changes to the file.

5. Verify that your ORACLE_HOME environment variable is set to this Oracle home.

6. In the $ORACLE_HOME/odg/lib directory, type:

   ```
   make -f ins_odg.mk install
   ```

Cannot Start the Data Gatherer - Oracle Performance Utility Conflict

Summary

The user cannot start the Data Gatherer on Windows NT. The user gets a message stating: "The Oracle Performance Utility has been found. Please disable or deinstall in order to start the Oracle Data Gatherer".

Reason

The Oracle Performance Utility is not compatible with the Oracle Data Gatherer.

The Oracle Performance Utility is a service that allows Windows NT users to monitor their Oracle instance using the Microsoft NT Performance Monitor tool. This utility is not compatible with the Oracle Data Gatherer.

Action

Deinstall the Oracle Performance Utility using the Oracle Installer you used to install the local database. Alternatively, rename or delete the registry key for Oracle Performance Utility. For example, rename the following key from:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\OracleOHOME80\Performance
to
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\OracleOHOME80\RENAMED_Performance
```

Note: You will not be able to run the Oracle Performance Utility after this key has been renamed or deleted. To run the Oracle Performance Utility, restore the registry key to its original state.

Cannot Start the Data Gatherer - Reason Unknown

Summary

The user cannot start the Data Gatherer.

Reason

Unknown

Action

First, look at the $ORACLE_HOME/odg/log/alert_dg.log file for information. Then run the Data Gatherer in debug mode and look for output messages

indicating the problem. Use the following command to run the Data Gatherer in debug mode:

```
vppdc -console -debug
```

Data Gatherer Not Responding or Not Running

Summary

The Data Gatherer is either not responding or not running. The user is seeing the following diagnostic messages:

> VTM-0005: Error connecting to server
> Make sure Data Gatherer is running and reconnect
> Time-out while reading from Data Gatherer, connection lost for services <service_name>

This state may be further determined by running "vppcntl -ping" on the agent node; if the Data Gatherer is not running, or is hung, this command will hang indefinitely.

Reason

Unknown

Action

Determine whether the Data Gatherer is suspended or not running at all. Use the appropriate operating system mechanism to locate the vppdc process, for example, Task Manager on Windows NT or the `ps` command on UNIX.

If the vppdc process is suspended, kill the process. Start the Data Gatherer in debug mode using the command:

```
vppdc -console -debug
```

If a particular action is causing the Data Gatherer to exit, the diagnostic messages will help you identify the problem. You can capture debug output to a file using the redirection operator:

```
vppdc -console -debug > debug.txt
```

You could also kill the vppdc process, delete the alert_dg.log file, and restart the Data Gatherer using the `vppcntl -start` command. Information about any

current problems will display in the alert_dg.log file located in the $ORACLE_HOME/odg/log directory.

Cannot Determine Which Version of the Intelligent Agent Is Running

Summary

If you have multiple Oracle homes on Solaris, it is difficult to determine which Intelligent Agent is being started because the version banner of the `lsnrctl` command does not necessarily reflect the version of the Intelligent Agent the command is starting.

Reason

Any version of the `lsnrctl` command can be used to start any version of the Intelligent Agent. The $ORACLE_HOME/network/agent/dbsnmp.ver file, which is written at startup of the Intelligent Agent, contains the banner for the Intelligent Agent. You can verify the time that the associated Intelligent Agent was started by looking at the creation date for the dbsnmp.ver file.

Action

The version of the Intelligent Agent that is started is determined by the $ORACLE_HOME environment variable. Before invoking the `lsnrctl` command, set the ORACLE_HOME environment variable to correspond to the environment variable of the Intelligent Agent you want to launch.

Refer to the *Oracle Intelligent Agent User's Guide* for additional information.

Intelligent Agent Is Hung or Not Responding

Summary

Typing `lsnrctl dbsnmp_status` either hangs or reports that the Intelligent Agent is not running, though the execution of the `ps -ef | grep dbsnmp` command shows one or more dbsnmp processes running.

Reason

Unknown

Action

Terminate the two dbsnmp processes and restart the Agent. After terminating the dbsnmp process, all `lsnrctl dbsnmp_*` commands should work correctly.

However, in extreme cases, the Intelligent Agent may still not restart properly. If the Agent will not run normally, kill the dbsnmp processes, remove all of the .q files in the $ORACLE_HOME/network/agent directory, and then restart the Agent.

> **Warning: If you perform the steps outlined in the previous sentence, you will lose all existing states for the Agent relating to outstanding jobs and events. You must then manually deregister these orphaned events from the Oracle Enterprise Manager console. You can reregister these events if you want.**

Examine the Agent log files (dbsnmpw.log and dbsnmpc.log) in the $ORACLE_HOME/network/log directory for additional diagnostic information. The dbsnmpw.log file is the log file for the Agent worker process and the dbsnmpc.log is the log file for the Agent communication process.

Oracle Management Server Node (OMS)

Problems Connecting to Oracle Management Server

Summary

User cannot connect to the Oracle Management Server.

Reason

Unknown

Action

Verify that the maximum number of sessions on the Oracle Management Server repository (database) has not been exceeded. If needed, increase the "processes = " init.ora parameter for this database, and then stop and restart the database.

Use SQL*Plus or another tool to verify that you can connect from the Oracle Management Server ORACLE_HOME to the database being used as the Oracle Management Server repository.

Client Node

Unable to Connect to Repository When Using Performance Manager or Capacity Planner

Summary

The user cannot connect to the repository when using either the Performance Manager or Capacity Planner applications.

Reason

An empty connect string was given when the Oracle Management Server repository was created. Alternatively, an unqualified DNS hostname was given at the time of creation and you are trying to connect from a separate DNS domain.

Action

Modify the repository credentials and specify the connect string even though you want to use the local database. If you are connecting to the Oracle Management Server from outside the DNS domain in which the Oracle Management Server repository was created, use a fully qualified hostname when creating the repository (for example, use *omshost.acme.com* not *omshost*).

Unable to Start Performance Manager in Context of the Console

Summary

The user cannot start Performance Manager in the context of the Oracle Enterprise Manager console.

Reason

Performance Manager makes a direct connection to the Oracle Enterprise Manager repository based on a connect string Performance Manager retrieves from the Oracle Management Server. This process fails when invoked from hosts in external DNS domains if you do not specify a fully qualified connect string during the repository creation process (in the Configuration Assistant). Also, this process fails if the local tnsnames.ora file does not have an entry for the database being used for the Oracle Management Server repository.

Action

Modify the repository credentials with a connect string to the repository database. This also includes the situation where the repository and the database are on the same machine.

Verify that the local tnsnames.ora file contains the correct Net8 connect alias by using SQL*Plus or another tool to connect to the Oracle Management Server repository database.

Error Connecting to Repository When Using Performance Manager

Summary

The user receives the following messages when attempting to connect to the repository when using Performance Manager:

```
VTD-0057: Error connecting to repository.
Exception VdbLostConnectionException{wstring reason = "ORA-12203: TNS:unable to
connect to destination"; long oracleError=12203;}
```

When the user continues, the following message appears:

```
VTD-0058: Repository-based operations will not be available.
```

Reason

Unknown

Action

Use the `vtm -debug` command from the command line to run Performance Manager in tracing mode. Then connect to the Oracle Management Server and search the trace output for the service Performance Manager is using to connect to the repository.

This symptom may be caused by incorrect Net8 configuration on the client node where you are experiencing this behavior. This symptom can occur if you used a Net8 connect alias (for example, mydatabase.world), instead of the colon-separated (for example, myhost.acme.com:1521:mySID) syntax when you created the Oracle Management Server repository.

Use SQL*Plus or another tool to verify that you can connect from this node to the database being used as the Oracle Management Server repository. Use the exact Net8 connect alias (for example, foo.world) you used when creating the repository.

Cannot Save Current Performance Manager Work

Summary

User cannot save work performed in Performance Manager.

Reason

If you start Performance Manager in standalone mode and Performance Manager is connected to a database directly without using the Oracle Management Server, you are not able to save your work.

Action

You can save your work to the repository by starting Performance Manager in the context of the Oracle Enterprise Manager console. Follow the menu path Tools=>Application Management=>Performance Manager.

Errors Occur When Attempting to Connect to Oracle Applications Instances

Summary

User is attempting to connect to an Oracle Applications instance using Performance Manager or Capacity Planner and receives the following error message:

```
Error: A required patch has not been applied to this Oracle Applications
instance
```

Reason

The patch for Oracle Applications bug #1302931 was not applied to the Applications instance.

Action

Apply the patch for bug #1302931 to the Applications instance.

The Solaris version of these patches is shipped on this CD-ROM in the top-level directory "Applications Patches" for your convenience. A listing of the ARU patch number corresponding to this bug for other platforms is attached to the release note for this product.

Invalid Credentials When Logging into Management Pack for Oracle Applications

Summary

When starting Management Pack for Oracle Applications tools, user receives errors stating that the credentials are invalid, even though the user verified that the credentials were correct.

Reason

The "invalid credentials" error may be misleading. This error may be returned if there are no available process slots for the database to establish a new connection, or if there are Net8 configuration problems.

Action

Increase the number of DB sessions to at least 200 (more if needed) by changing the "processes =" init.ora parameter of the database. Stop and restart the database.

Verify that Net8 connectivity is working correctly.

Unable to Connect to a Service

Summary

While viewing charts from a service, the following message appears indicating that the connection to the service has been lost.

```
VTM-0002: Error displaying chart Pending Requests per Manager
Make sure Data Gatherer is running and reconnect
Error reading response from Data Gatherer, connection lost for service NT110
```

Attempts to reconnect to the service fail.

Reason

The Data Gatherer has stopped running.

Action

Restart the Data Gatherer.

Version of Agent Is Not Compatible with Event or Job

Summary

While scheduling either an event or a job, user sees the following error:

```
Agent version on the node is incompatible.
```

Reason

Events and jobs are specific to a certain version of the Agent, for example, version 8.1.7 of the Agent, or version 8.1.6 or earlier of the Agent.

Action

Use the correct version of the event/job with the associated version of the Agent.

Advanced Events Do Not Display in the Browser

Summary

The Enterprise Manager console does not display the Management Pack for Oracle Applications advanced events in the browser.

Reason

The Management Pack for Oracle Applications was not installed in the Oracle home in which the Oracle Management Server is running.

Action

Install the Management Pack for Oracle Applications in the same Oracle home as the Oracle Management Server. Stop and restart the Oracle Management Server.

'Failed to Authenticate User Error' When Running a Job

Summary

User has encountered the 'Failed to authenticate user' error message while running a job.

Reason

A Windows NT user account does not exist that has the **log on as batch job** privilege.

Action

For the Intelligent Agent to execute jobs on a managed node (Windows NT only), a Windows NT user account must exist that has the **log on as batch job** privilege. The privilege can be assigned to an existing local or domain user (starting with Oracle Server release 7.3.3) or a new Windows NT user. The preferred credentials for the node must be set for that user in the Enterprise Manager console. Refer to the *Oracle Enterprise Manager Configuration Guide* for information on setting preferences. The user must have permission to write to the $ORACLE_HOME/network or $ORACLE_HOME\Net80 directories.

1. Create a Windows NT user account. Refer to the Windows NT documentation for information.

   Note: This user account does not need to be an administrator account, although the administrator privilege is needed for starting Windows NT services, for example, the listener and database.

   You can use an existing Windows NT administrator account or create a new account.

2. Because the Intelligent Agent must first logon to Windows NT to execute any command, the account which logs into the NT operating system must have the Windows NT system privilege **Log on as a batch job**. Refer to "Configuring Windows NT Security for the Enterprise Manager Job System" on page 2-3 for information on how to grant this privilege.

Multiple Instances of the Same Concurrent Managers in the Console

Summary

The user sees the same Concurrent Manager instance listed more than once in the Oracle Enterprise Manager Console.

Reason

The database alias name in the oapps.ora file was modified after the instance was discovered.

Action

In the Oracle Enterprise Manager Console, right-mouse click on the old concurrent manager instance and select **Remove**.

Chart Recording Stops When Enterprise Manager Console Is Closed

Summary

When the user starts recording a Performance Manager chart then closes the Enterprise Manager console window, the recording stops.

Reason

The Performance Manager application runs in the same process space as the Enterprise Manager console. This is a restriction of the console.

Action

Keep the Enterprise Manager console window open or minimize the window.

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