



# Sun Management Center 3.0 Performance Reporting Manager User's Guide

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Sun Microsystems, Inc.  
4150 Network Circle  
Santa Clara, CA 95054  
U.S.A.

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# Preface

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The *Sun Management Center 3.0 Performance Reporting Manager User's Guide* provides instructions on how to use Performance Reporting Manager to create system management reports.

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## Who Should Use This Book

This document is intended for users familiar with the Sun Management Center product. Therefore, many terms and concepts specific to the Sun Management Center are not explained here. For more information about Sun Management Center, refer to the *Sun Management Center 3.0 User's Guide*.

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## How This Book Is Organized

This document describes all services offered by Performance Reporting Manager. It includes the following chapters:

- Chapter 1 provides an introduction to Performance Reporting Manager.
- Chapter 2 includes installation and setup instructions.
- Chapter 3 includes instructions for using standard reports.
- Chapter 4 includes instructions for using custom reports.
- Chapter 5 includes instructions for using report options.
- Appendix A provides reference information for Performance Reporting Manager.

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## Access to Latest Information on Sun Management Center

For the latest information on the Sun Management Center 3.0 software and the Performance Reporting Manager add-on product, refer to: <http://www.sun.com/solaris/sunmanagementcenter>

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## Using UNIX Commands

This document might not contain information on basic UNIX<sup>®</sup> commands and procedures such as shutting down the system, booting the system, and configuring devices.

See one or more of the following documents for this information:

- *Solaris Handbook for Sun Peripherals*
- Online documentation for the Solaris<sup>™</sup> operating environment
- Other software documentation that you received with your system

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## Typographic Conventions

Typeface	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>% You have mail.</code>
<b>AaBbCc123</b>	What you type, when contrasted with on-screen computer output	<code>% <b>su</b></code> <code>Password:</code>

Typeface	Meaning	Examples
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this. To delete a file, type <code>rm filename</code> .

## Shell Prompts

Shell	Prompt
C shell	<i>machine-name%</i>
C shell superuser	<i>machine-name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#

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# Introduction to Performance Reporting Manager

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This chapter discusses the following topics:

- “About Performance Reporting Manager” on page 11
- “Data Collection” on page 12
- “Report Manager” on page 14
- “Report Requests” on page 15
- “Categories and Subcategories” on page 15
- “Report Output Format Options” on page 16

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## About Performance Reporting Manager

Performance Reporting Manager is an add-on to Sun Management Center 3.0 that enables you to create reports detailing the status of your machines. Performance data is gathered by the history logging capability that is part of Sun Management Center 3.0. Performance reports generated with Performance Reporting Manager use the data collected in this manner.

The product includes 12 standard reports for which the report options are predefined. History logging of the data properties used in standard reports is automatically started by the software. You can also create your own custom reports by selecting options from the report templates that are provided. Performance Reporting Manager can generate the following types of reports:

- Performance
- Hardware system
- Hardware configuration
- Packages
- Patches
- Alarms

Reports can either provide information about one host, or all hosts, or a set of hosts that you designate. In general, data is collected on the agent machines and is then transferred to a database on the server machine. You can request a report for any agent machine for which data has been collected. A host must be in the Sun Management Center 3.0 server context to be included in a report. For more information about how the data in reports is collected, see “Data Collection” on page 12.

The host name in a report usually refers to the agent machine. One exception is in the case of alarm reports. Alarms resulting from an agent machine that is down or is otherwise not responding will list the name of the server machine.

To use Performance Reporting Manager, the first step is to install and set up the add-on software. For information about the installation and setup of Performance Reporting Manager, see Chapter 2.

After the Performance Reporting Manager add-on is installed and set up, you can generate any of the standard reports that are included with the software. For more information about standard reports, see Chapter 3.

You can also create your own custom reports. You select the format for your report from the available report formats given. Performance Reporting Manager includes four possible format options for viewing reports. For information about creating custom report requests, see Chapter 4.

Any standard or custom report can be scheduled to generate automatically at a regular interval. Additionally, you can save reports in other file formats for either viewing in a web browser, or for using tools to analyze data. For more information regarding these report options, see Chapter 5.

Performance Reporting Manager automatically logs a number of data properties. These are predefined for you. For more information regarding this feature, and for other reference information, see Appendix A.

---

## Data Collection

Before installing and using the software to generate reports, you should have an understanding of how data collection occurs. The Performance Reporting Manager add-on uses the history logging capability for agent machines that is provided by the Sun Management Center 3.0 software. A data collection service is created on the server layer. The following types of data are collected:

- Hardware system data
- Hardware configuration data
- Software package data
- Software patch data

- Performance (`history.log`) data
- Process data

The data is logged on the agent machines. The data collection service on the server layer collects this data from the agent machines and then stores it. The data returned in reports comes from the data stored on the server or stored on the agent machine.

## Raw Data

*Raw data* is the term given to data that is logged in the history log files located on the agent machines. The ability to log raw data is a feature contained of Sun Management Center 3.0 base product. This data can be logged either on a single machine, or on a group of machines by using the grouping capability. If you use the grouping capability, the data is logged at the time interval you specify in the Property Logging dialog box for the data property. The grouping capability is a feature of the Premier Management Applications add-on to Sun Management Center 3.0. For more information about the grouping capability, see “Data Properties” on page 47 and *Sun Management Center 3.0 User’s Guide*.

Raw data is retained on the agent machine for eight days. This limit is necessary because the total volume of raw data is very large. Data will start purging after eight days. For example, on the ninth day, the first day of raw data is purged from the agent machine. At any given time on the agent machine, the last eight days of raw data is available. Before this data is purged, summary records are preserved. For more information regarding this process, see “Roll-up Process” on page 13.

## Roll-up Process

Before the raw data is purged, the data is summarized, or “rolled-up”, at predefined intervals. *Roll-up data* is the term given to the data that has been summarized. Before any raw data is purged, the minimum, maximum, and average values are calculated and can be preserved in several ways.

*Hourly data* is the term given to data that is summarized, or rolled-up, every hour. The raw data for each hour is processed to create a summary record for that hour. For example, if raw data is logged every five minutes, a total of twelve raw records are available in one hour. When this data is rolled-up after one hour, the twelve raw records are processed in order to find the minimum, maximum, and average values during that hour. One summary record is generated for the twelve raw records. The hourly data is first computed on the agent machine, and is then brought over to the server machine where it is added to the database.

This method is the way raw data is rolled-up into hourly data at the end of each hour.

The daily, weekly, and monthly values are calculated in a similar manner. The maximum, minimum, and average values are also calculated for each period.

## Report Data

Polling starts after the Performance Reporting Manager software is installed and set up, and once the server is started. The Sun Management Center 3.0 server starts polling the agent machines every hour to collect the data logged on those machines. Logged data is available for reports at the following intervals:

- Hardware system data: 90 minutes after the server is started
- Patch and package data: 30 minutes after the server is started
- Hardware configuration data: 90 minutes after the server is started
- Performance data: 90 minutes after the server is started

Data on the agent machines is collected at different times. Data is logged on an agent machine after the following time intervals:

- Hardware system and hardware configuration data: Every 12 hours
- Patch and package data: Every 12 hours
- Performance data: According to the logging interval specified in the Property Logging Setting dialog box. This data is stored in the circular `history.log` file.
- Process data: Every 15 minutes

The data collection service on the server layer collects the data in the following manner:

- Agent machines: Data is collected from those machines that are in the current server context and have the Performance Reporting Manager software installed.
- Performance data: Roll-up data is collected every hour.

---

## Report Manager

The Report Manager GUI is linked to the Sun Management Center 3.0 Java™ console only, and is opened from the Tools menu. You manage all report activity through the Report Manager GUI. For example, from Report Manager you can generate a report, or create a new custom report, or schedule a report to generate at regular intervals.

For more information, see “Report Manager GUI” on page 32.

---

## Report Requests

You can either use any of the standard reports included with Performance Reporting Manager, or create your own custom system management reports. For all standard reports, the report specifications and report format are already predefined and saved for your repeated use.

A custom report enables you to specify the content you want included in your reports, as well as the report output format. The saved report specifications are called a *report request*. The report request is based on one of several report templates. A report request is used to generate either a standard or a custom report. The report request is also used to schedule reports to run regularly.

For more information about using standard report requests, see Chapter 3. For more information about creating custom report requests, see Chapter 4.

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## Categories and Subcategories

The reports in the Report Manager GUI are organized by category and subcategory name. The left pane of Report Manager displays the hierarchy view that shows all the reports by name, both for standard and custom reports.

The first level of the hierarchy contains the category names. The second level of the hierarchy contains the subcategory names. The report requests themselves are found at the third level of the hierarchy. All standard reports are organized in the hierarchy view under predefined categories and subcategories.

You can place any type of custom report under the category or subcategory of your choosing. This ability enables you to control the organization of your reports.

Performance Reporting Manager has the following predefined categories and subcategories:

- Alarm
  - Alarms
- Hardware
  - System
  - Configuration
- Performance
  - CPU

- Swap
  - Memory
  - Software
    - Packages
    - Patches
- 

## Report Output Format Options

Performance Reporting Manager provides four possible output formats for its reports:

- Tabular
- Line graph
- Bar chart
- Pie chart

All four format options are not available for every report. The type of report determines the format options available. Certain formats do not make sense for particular reports, so they are not always given as an option. When creating a custom report request, you choose from the available format options given at that time.

Once a report request is saved, an icon depicting the report format option that is selected appears in the hierarchy view in the Report Manager GUI. Each icon is representative of the format chosen for the report. A lock symbol is added to the icon when the request is for a standard report that comes with Performance Reporting Manager. Standard reports have predefined reporting options that you cannot change.

### Tabular

The tabular report option returns data in table format. The distinctive icon for the tabular option is a table. The table icon is a grid with rows and columns. The cells of the table contain the numerical values for the data properties specified in the report request. You change the column sizing by dragging either edge of the column heading. If the title to a column heading appears truncated, or is followed by several dots, you can resize the column in order to view all information. Tabular reports can be sorted by clicking on a column, except for performance reports. Performance reports are presorted according to the time field.

When the Real Time range is selected for a tabular report, the information is updated by clicking the Refresh button located on the right top of the table. The new data is added to the top of the table.

## Line Graph

The line graph report option returns data as graphs with line plots. The line graph icon is a graph with a climbing, jagged line. The number of graphs contained in each report depends on the Graph Orientation option selected in the report request.

When the Real Time range is selected for a report, the graph refreshes according to the refresh interval of the properties being logged. For Real Time reports only the last hour of data is visible on the graph at any point in time.

Each line graph report has several viewing options. For example, you can use the Zoom button to highlight a particular point on a data line. Zoom enables you to view finer, more granular data for any point on a line. The Alarms button enables you to obtain the alarm detail for any host included in the report. The Processes button similarly enables you to obtain the top ten CPU processes and the top ten memory processes for any host in the report. For more information, see “Line Graph Report Viewing Options” on page 60.

The following figure shows a sample line graph report. The results returned after running a standard performance report are shown. The report title is at the top, which in this example is CPU Utilization For Last 24 Hours. The host name included in this report is below the report title. The eight lines contained in the report are plotted in a graph with both an X-axis and Y-axis defined. Each line is marked with symbols that represent data points. The legend at the bottom of the graph identifies the characteristics of each line. The legend further identifies what each line represents. The Zoom radio button is activated. Once a point on the graph is selected, detail about that point will be displayed.

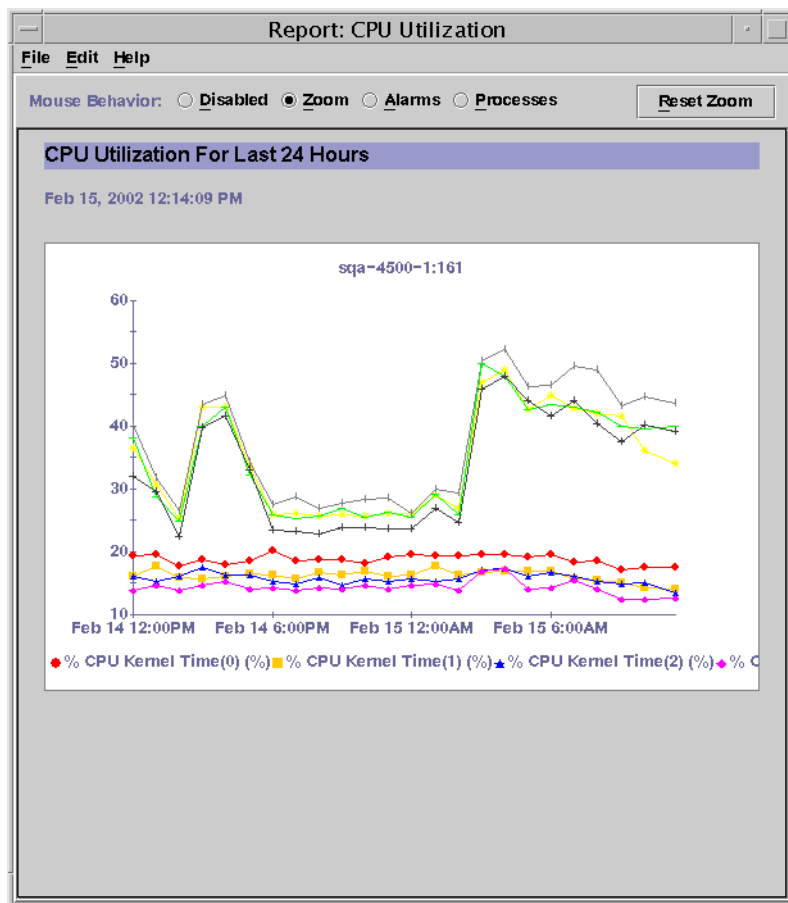


FIGURE 1-1 Sample Line Graph from a Standard Performance Report

## Bar Chart

The bar chart report option returns data as one or more graphs with bar lines. The bar chart icon is a graph that contains three horizontal bar lines. The number of graphs contained in each bar chart report is controlled by the Graph Orientation option selected in the report request. This format enables you to create a report that provides a visual comparison of data values.

Each bar chart graph has the same viewing options as discussed for the line graph report option.

## Pie Chart

The number of pie chart reports returned depends upon whether or not the data property `hostname` is included in the report request. The report returns data as one pie chart per host, if `hostname` is specified in the report request. If the data property `hostname` is not specified in the report request, only one pie chart is generated in the report. Pie chart reports are not available for performance and hardware configuration reports when the Level of Detail:Summary option is selected. The pie chart icon is a circle with a single line that depicts the radius.

For more information about the selection of data properties in a report request, see “Data Properties” on page 41.



## Performance Reporting Manager Installation and Setup

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This chapter discusses the following topics:

- “Performance Reporting Manager Software” on page 21
- “Installing Performance Reporting Manager” on page 23
- “Setting Up Performance Reporting Manager” on page 25
- “Before Generating Reports” on page 26
- “Backup and Restore” on page 27
- “Removing Performance Reporting Manager” on page 28

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## Performance Reporting Manager Software

Performance Reporting Manager is installed as an add-on to the Sun Management Center 3.0 software. The software runs on the Solaris™ 2.5.1, Solaris 2.6, Solaris 7, Solaris 8, and Solaris 9 operating environment, all the platforms that the Sun Management Center 3.0 agent can run on, and that are supported by Sun Management Center 3.0.

The Performance Reporting Manager server layer requires that you have 1 Gbyte RAM and 1 Gbyte swap space available on the machine.

The following disk space requirements are needed before installing the Performance Reporting Manager software and running the `setup` script.

- Server: The disk space requirement for the server layer can vary based on the size of the configuration you choose during setup.
  - Small configuration: The disk space requirement is 4 Gbytes. This configuration supports up to 100 agent machines that are monitoring 500 properties each.

- Medium configuration: The disk space requirement is 12 Gbytes. This configuration supports up to 400 agent machines that are monitoring 600 properties each.
- Large configuration: The disk space requirement is 22 Gbytes. This configuration supports up to 750 agents that are monitoring 650 properties each.
- Agent: The disk space requirement for the agent layer can vary based on the number of properties being logged and their log interval. For 1000 properties logged at five-minute intervals, the disk space requirement is approximately 80 MBytes.
- Console: 3 MBytes is the disk space requirement.

Before installing Performance Reporting Manager, you must have the following already installed and set up:

- Sun Management Center 3.0 software
- Premier Management Applications add-on software
- Config-Reader add-on software specific to your platform
- The minimum recommended Sun Management Center 3.0 patch level

For any late-breaking information, please see the README file for Performance Reporting Manager.

You can obtain the latest Sun Management Center 3.0 patches either at [http://www.sun.com/solaris/sunmanagementcenter/support\\_services.html](http://www.sun.com/solaris/sunmanagementcenter/support_services.html), or <http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/patch-access>.

If necessary, download the patch ID specific to your operating environment and Sun Management Center 3.0 release version, as listed in the following table.

**TABLE 2-1** Minimum Recommended Patch Level

Operating Environment	Sun Management Center 3.0 RR Version (Build 39)	Sun Management Center 3.0 GA Version (Build 41)
Solaris 2.5.1	110861-05	110862-05
Solaris 2.6	110971-06	110936-06
Solaris 7	110972-06	110937-06
Solaris 8	110973-06	110938-06
Solaris 9	110973-06	110938-06
Microsoft Windows	110863-05	110863-05

If you are not sure which version of Sun Management Center 3.0 you have installed on your system, type the following command to verify your particular build number:

```
# pkgparam SUNWescom VERSION
```

The Performance Reporting Manager add-on consists of the following packages:

- SUNWescrg: Performance Reporting Manager add-on package for Sun Management Center console layer
- SUNWessrg: Performance Reporting Manager add-on package for Sun Management Center server layer
- SUNWesarg: Performance Reporting Manager add-on package for Sun Management Center agent layer
- SUNWesdrg: Performance Reporting Manager add-on package for Sun Management Center database layer
- SUNWeslrg: Performance Reporting Manager add-on package for Sun Management Center server and console layer
- SUNWeshrg: Performance Reporting Manager online help package

---

## Installing Performance Reporting Manager

Installation of Performance Reporting Manager follows the standard Sun Management Center 3.0 add-on installation procedures. For more information about add-on installation, refer to the *Sun Management Center 3.0 Installation Guide*.

Performance Reporting Manager must be installed on the following layers of Sun Management Center 3.0:

- Console layer
- Server layer
- Agent layer, on all hosts for which you want to generate reports

The interactive `es-inst` installation script installs the correct Performance Reporting Manager packages on the console, server, and agent layers. For the agent package, the module configuration files and libraries are installed in standard Sun Management Center 3.0 locations.

### ▼ To Install Performance Reporting Manager

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**Note** – You must stop all Sun Management Center 3.0 agent and server components before beginning the installation procedure.

---

1. **Confirm you have the minimum recommended Sun Management Center 3.0 patch level installed.**

See Table 2–1 for a list of patches.

2. **Confirm you have the Premier Management Applications add-on for Sun Management Center 3.0 installed.**

For more information about this add-on software, see *Sun Management Center 3.0 Installation Guide*.

3. **As superuser, run the installation script by typing:**

```
# /opt/SUNWsymon/sbin/es-inst
```

/opt is usually the directory where Sun Management Center 3.0 is installed. Substitute the name of the actual directory if it is different on your system.

4. **Provide the source directory of the Performance Reporting Manager files when prompted.**

The source directory is usually: */Performance Reporting Manager directory/disk1/image*

5. **To install the Performance Reporting Manager, answer “Yes” when prompted.**

The *es-inst* script installs Performance Reporting Manager.

The *es-inst* script then automatically proceeds to *setup* prompt.

6. **At the *setup* prompt, answer *n* for “No”. When you are ready to do the set up, see “To Set Up Performance Reporting Manager Post-Install” on page 25.**



---

**Caution** – You must answer “No” at the *setup* prompt at this point, before proceeding to the next procedure.

---

## ▼ To Install on the Microsoft Windows Platform

1. **Download the *PRMWin.tar* file from disk1 of the software image, or place the CD containing this file in the CD-ROM drive.**
2. **Extract all the files and place them in a directory.**
3. **Set the *CLASSPATH* environmental variable to the directory where you placed the extracted files.**

4. **Set the path by typing:**

```
# PATH=C:\Progra~1\SunMC3.0\javasoft\bin
```

5. **Change to the directory where you placed the extracted files.**

6. Start the installation script by typing:

```
# java PRMWinInst
```

The installation GUI appears.

7. Click on Install.

---

## Setting Up Performance Reporting Manager

After installation is complete, you must run the Performance Reporting Manager setup script to configure the server and agent layers. You must already have set up the Sun Management Center 3.0 core server layer before running the setup script for Performance Reporting Manager.

### ▼ To Set Up Performance Reporting Manager Post-Install

---

**Note** – You must stop all Sun Management Center 3.0 agent and server components before beginning the setup procedure.

---

● Run the setup script as superuser by typing:

```
# /opt/SUNWsymon/sbin/es-setup -p PRM
```

/opt is usually the directory where Sun Management Center 3.0 is installed. Substitute the name of the actual directory if it is different on your system.

During the server setup, you are given three different configuration choices based on the number of agent machines and data properties you will monitor. You are prompted three times for data file locations. While you can enter the same directory three times, try to use three different directories located on three different filesystems. This separation will reduce disk I/O contention and results in better product performance. Depending upon the size of the configuration you choose during setup, the data file locations you specify will require space as listed in the following table.

**TABLE 2-2** Data Directory Sizes For Server Layer

Configuration Size	First Directory Size	Second Directory Size	Third Directory Size
Small	2048 MB	1536 MB	512 MB
Medium	5120 MB	4096 MB	3072 MB
Large	8192 MB	7168 MB	7168 MB

At the end, the `es-setup` script asks you if you want to start a backup of Sun Management Center 3.0. If you answer `y` for “Yes”, the Sun Management Center 3.0 server processes will start automatically at the end of set up. You do not need to start the server at this time. See “Backup and Restore” on page 27 for more information.

If you need to run the Performance Reporting Manager `setup` script again at any time, use this procedure to start the script.

---

**Note** – Once you have completed installing and setting up Performance Reporting Manager and you answer “No” to preserve the data, you must run the Performance Reporting Manager `setup` script again using `es-setup -p PRM`.

---

## Before Generating Reports

Once you have completed the installation and setup, you must start the Sun Management Center 3.0 server. For more information about starting the server, see *Sun Management Center 3.0 Installation Guide*.

Until data is being logged and collected, you cannot generate reports. For more information about how data is collected, see “Data Collection” on page 12.

Report scheduling and server side generation of reports requires the use of an X server. Before starting the Sun Management Center 3.0 server, you must first verify that your environment is set correctly. Do this after you have run the Performance Reporting Manager `setup` script, but before you start the server. Once done, leave the Terminal window connected to the server at all times.

### ▼ To Set the Environment

1. Check to see if an X server session is running on the Sun Management Center 3.0 server machine by typing in a Terminal window:

```
% ps -ef | grep Xsession
```

2. If a session is already running, type the following:

```
% /usr/openwin/bin/xhost +
```

3. Start the Sun Management Center 3.0 server.

4. If a X server session is not already running, from a machine that has a terminal attached, type:

```
% /usr/openwin/bin/xhost +
```

5. Remotely log into the server machine by typing:

```
% rlogin server-machine-name
```

6. On the server machine, set your environment by typing:

```
% setenv DISPLAY machine-name-with-terminal:0.0
```

Leave this window open at all times.

7. Start the Sun Management Center 3.0 server.

---

## Backup and Restore

The Sun Management Center 3.0 backup and restore scripts can be used to backup or restore all Sun Management Center 3.0 data, including Performance Reporting Manager. For information, see “Database Backup and Recovery” in *Sun Management Center 3.0 Installation Guide*.

The last step of the Performance Reporting Manager setup procedure ask you if you want to start a backup of the Sun Management Center 3.0 data, including Performance Reporting Manager. It is suggested that you answer “Yes” to the backup question. The first backup of Performance Reporting Manager completed after set up replaces any previous backup performed before running the `es-setup` script.

Performing frequent backups of your entire system will ensure the ability to recover the most current data possible, in the event of a system failure. Frequent backups will help to minimize any data loss.

---

**Note** – If you attempt to restore from a backup that was performed before the Performance Reporting Manager add-on is setup, you will lose your Performance Reporting Manager data.

---



---

**Caution** – Do not attempt to restore a backup from a medium or large configuration if the machine has been converted to a small configuration. Problems might result from having insufficient disk space to restore the data, and you might experience performance degradation. This type of restoration is not supported.

---

---

## Removing Performance Reporting Manager

You cannot remove an add-on through Sun Management Center 3.0. A removal script is provided for Performance Reporting Manager. This script removes both the Performance Reporting Manager packages and all the Performance Reporting Manager data and configuration changes that were made during setup. A separate removal script is included if you have installed only the console layer on a machine. This script removes the console packages from the machine.

A removal script for the software from a PC is not provided. Uninstallation of the Performance Reporting Manager software from a PC is not currently supported.

### ▼ To Remove the Performance Reporting Manager Add-on

1. **Become superuser.**
2. **Uninstall the layers you installed.**

- If you have installed only the console layer, remove the console packages from the machine by typing:

```
# /opt/SUNWsymon/addons/PRM/sbin/console-uninst.sh
```

/opt is usually the directory where Sun Management Center 3.0 is installed. Substitute the name of the actual directory if it is different on your system.

- If you have installed any combination of console, server, and agent layers on the machine, remove the add-on packages, the data, and the configuration files by typing:

```
# /opt/SUNWsymon/addons/PRM/sbin/es-uninst.sh
```

/opt is usually the directory where Sun Management Center 3.0 is installed. Substitute the name of the actual directory if it is different on your system.

## Standard Reports

---

This chapter discusses the following topics:

- “Standard Reports Overview” on page 29
- “Report Manager GUI” on page 32
- “Generating Reports” on page 34

---

### Standard Reports Overview

Performance Reporting Manager includes 12 standard reports with predefined options that you cannot edit. A standard report has predefined report options that generate a report that is generally useful to anyone monitoring a system. The report output format is also predefined and cannot be changed.

Standard reports are organized by category and subcategory in the left pane of the Report Manager GUI. Standard report requests are identified by the lock symbol that appears on the report request icon. The lock reminds you that you cannot change the predefined report options.

All standard reports generated by Performance Reporting Manager are classified as being either a *performance report* or a *system configuration report*. A performance report is designed to track properties that are numerical and change over time. An example of a performance report is a graph that shows the percentage of CPU kernel usage on a host over the last 24 hours. For more information about standard performance reports, see “Standard Performance Reports” on page 30.

A standard system configuration report is designed to provide data detailing the state of the configuration on that machine. An example of a system configuration report is a table that summarizes all the patches currently installed on a particular machine or machines. For more information about standard system configuration reports, see “Standard System Configuration Reports” on page 31.

Once generated, the output from all standard reports can be viewed in the Sun Management Center 3.0 console, or in a web browser as an HTML file, or in a comma-separated value (CSV) ASCII text file. The text file can be used with other tools to analyze the data. See “Options for Viewing Report Output” on page 57 for more information.

You must have the Kernel Reader Simple module loaded before you can run any standard report. For a detailed list of properties that each standard report incorporates, see “Standard Performance Reports” on page 30, “Standard System Configuration Reports” on page 31, or Appendix A.

## Standard Performance Reports

Performance data logging on agent machines is provided by the history logging capability included with Sun Management Center 3.0. Performance Reporting Manager only collects the data logged in the circular `history.log` file. The data then is transferred to the Sun Management Center 3.0 server machine and loaded into the database. Report data is obtained by making queries to the database to determine trends in the performance statistics over a specified time period.

The report options are predefined in the report request. The report output format for all standard performance reports is a graph. The following three standard performance reports are included with Performance Reporting Manager. They are organized by their category and subcategory names:

- Performance
  - CPU
    - CPU Utilization: This report lists the CPU utilization for the last 24 hours using the Maximum function. The report data includes the % CPU kernel time, and % CPU kernel user. The host name and port are entered when the report is run.
  - Swap
    - Swap Available: This report lists the swap space available on each host over time. The report data includes the available memory in Kbytes (anon memory not provided). The host name and port are entered when the report is run.
  - Memory
    - Memory Free: This report lists the amount of physical memory free in megabytes on each host over time. The report data includes the amount of physical memory free in Mbytes. The host name and port are entered when the report is run.

## Standard System Configuration Reports

System configuration data is logged on the agent machines by the Performance Reporting Manager logging component. This logging component is added to the agent machine during installation. The data is then transferred to the Sun Management Center 3.0 server machine and loaded into the database. Report data is obtained by making queries to the database located on the Sun Management Center 3.0 server machine. This method is similar to the way the data for standard performance reports is obtained.

The report options are predefined in the report request. The report output format for all standard system configuration reports is a table. The following nine standard system configuration reports are included with Performance Reporting Manager. They are organized by their category and subcategory names:

- Alarm
  - Alarms
    - Alarm Details: This report lists the all open alarms for each host. The report data includes host name, operating system, alarm severity, alarm status, open date, and alarm message. The host name and port is entered when the report is run.
    - Alarm Summary: This report lists the alarm status and alarm count for each host. The report data includes the host name and alarm status. The report provides detail for all hosts in the server context.
    - Alarm Severity Count By Host: This report lists the alarm severity count for each host. The report data includes the host name, alarm severity, and alarm status. The report provides detail for all hosts in the server context.
- Hardware
  - System
    - System Details: This report lists the system details, for each host name, of all hosts in the server context that have both the Config-Reader add-on and Performance Reporting Manager installed. The report data includes the host name, operating system, system clock frequency, platform type, total disks, total memory, total processors, and total tape devices.
    - Platform Summary: This report lists the platform type, for each host, for all hosts in the server context that have the Config-Reader add-on and Performance Reporting Manager installed. The report data includes platform.
    - OS Summary: This report lists the operating system, for each host, for all hosts in the server context that have the Config-Reader add-on and Performance Reporting Manager installed. The report data includes the operating system.
  - Configuration
- Software

- Packages
  - Hosts with SUNWcsr package: This report lists, for each host, those that have the SUNWcsr package installed. The report data includes the host name, package instance, package name, category, version, package description, and install date. The report provides detail for all hosts in the server context.
  - Package Details: This report lists, for each host, all the software packages installed on that host. The report data includes the host name, package instance, package name, category, version, package description, and install date. The host name and port is entered when the report is run.
- Patches
  - Patch Details: This report lists, for each host, all the software patches installed on that host. The report data includes host name, operating system, patch id, packages, obsoletes, requires, and incompatibles. The host name and port is entered when the report is run.

You can resize the columns in any tabular report by dragging the sides of the column header. Additionally, you can sort any tabular report by double-clicking the column headers. The report then sorts according to the header selected.

---

## Report Manager GUI

You manage all report activity through the Report Manager GUI. For example, from Report Manager you can generate a report from a report request, or create a new custom report request, or schedule a report to generate at regular intervals. The Report Manager GUI is linked to the Sun Management Center 3.0 Java™ console only. The GUI is opened from the Tools menu.

Report Manager displays information in two panes. The left pane contains the hierarchy view of the report requests. The report requests are organized by category and subcategory. For more information about categories and subcategories, see “Categories and Subcategories” on page 15.

The right pane in Report Manager contains three summary fields. These summaries help you to quickly identify the important distinguishing characteristics of each report request. After selecting a request name from the hierarchy view in the left pane, the following information is displayed in the right pane:

- Report Request: The name and description of the report request
- Data Properties: The list of data properties selected for the report request
- Hosts: The host names included in the report

## ▼ To Start Report Manager

1. **Start the Sun Management Center 3.0 console.**

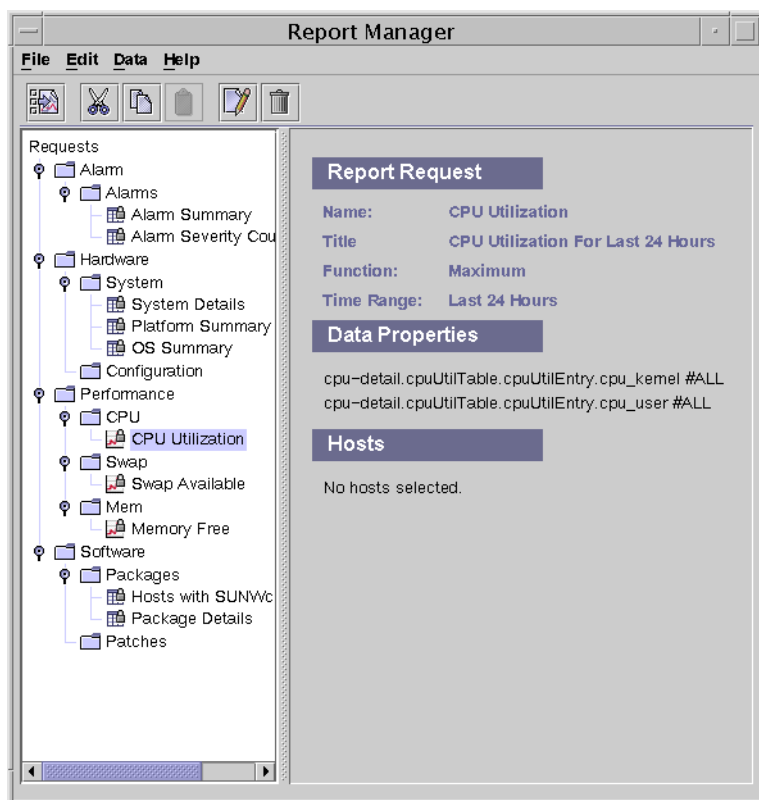
2. **Choose Report Manager from the Tools menu.**

The Report Manager GUI appears. The hierarchy view is in the left pane, and the report request summary is in the right pane.

3. **Click the key symbol next to a category name to expand the hierarchy view.**

The hierarchy view expands one level to display the subcategory name. The report requests are identified by the report request name, and are located under the subcategory name.

The following figure shows a sample of what the Report Manager GUI contains when a standard performance report is selected from the hierarchy view. The left pane shows that the CPU Utilization report request is selected in the hierarchy view. The right pane displays a summary of some of the report options for the CPU Utilization report request. The detail fields include Report Request, Data Properties, and Hosts. The detail for each field provides a summary of the options that are predefined in the report request.



**FIGURE 3-1** Sample of Report Manager With Details Showing for a Standard Report

## Generating Reports

You can generate a standard report in one of three ways:

- By choosing Generate from the File menu in Report Manager.
- By double-clicking the name of the report request from the left pane in Report Manager.
- By clicking the Generate icon in the menu. This is the first icon located under the menu options.

Each time you generate a standard performance report, you must provide the host name and corresponding port if this information is not predefined. The host name, if entered when you generate the report, is not saved to the report request. You can specify a different host name each time you generate a standard performance report.

For standard system configuration reports, a report is generated for all hosts identified in the Sun Management Center 3.0 server context that also have the Performance Reporting Manager software installed.

For more information about standard performance and system configuration report requests, see “Standard Reports Overview” on page 29.

Any report, whether it is a standard or a custom report, is generated this way. For information about scheduling reports to run at regular intervals, see “Scheduling Reports” on page 56.

## ▼ To Generate a Standard Report

---

**Note** – You must have the Kernel Reader Simple module loaded in order to run any standard report.

---

1. **Start Report Manager.**
2. **Select the name of the desired report request from the hierarchy view.**  
Verify that this report request is correct by reviewing the summary information contained in the right pane.
3. **Choose Generate from the File menu.**  
The standard report is generated. A second window opens that contains the report output.
4. **If a dialog box appears, type the host name and corresponding port.**



## Custom Reports

---

This chapter discusses the following topics:

- “Custom Reports Overview” on page 37
- “Adding a New Category or Subcategory” on page 38
- “Custom Report Templates” on page 39
- “Data Properties” on page 47
- “Filtering Reports” on page 52
- “Customizing the Appearance of Reports” on page 53
- “Composite Report Requests” on page 53

---

### Custom Reports Overview

Performance Reporting Manager enables you to create your own custom reports. You use one of the report templates provided to create custom reports. The correct template is displayed automatically for you, depending upon the report request type selected from the menu. The report templates contain similar options, but there are differences between them. For more information about the fields contained in the report templates, see “Custom Report Templates” on page 39.

Unlike a standard report in which the report output format is predefined, you can specify the output format when creating a custom report. The possible output options are a table, a line graph, a bar chart, or a pie chart. At the time you complete the report template, you are offered only the valid output options for the type of report request you are creating. For more information about report format options, see “Report Output Format Options” on page 16.

Before creating a custom report, you should be familiar with how Performance Reporting Manager collects the data that is polled for reports. For more information, see “Data Collection” on page 12.

---

## Adding a New Category or Subcategory

You can add a new category and subcategory to the report hierarchy. You can then place your custom reports under a category and subcategory you create. Or, you can choose to place the reports under one of the predefined categories. For more information about the predefined options, see “Categories and Subcategories” on page 15.

New categories are added to the bottom of the list in the hierarchy view. Each new subcategory is added to the bottom of its corresponding category.

### ▼ To Create a New Category

1. **Start Report Manager**

For the detailed steps, see “To Start Report Manager” on page 33.

2. **From the File menu, choose New, then select Category.**

The Create Category dialog box appears. It contains two text fields.

3. **Type the new category name in the Name field.**

4. **(Optional) Type the description of the category in the Description field.**

5. **Click OK to finish adding the category to the hierarchy view.**

When the category name is selected, the name and description appear in the Report Category summary in the right pane.

### ▼ To Create a New Subcategory

1. **Start Report Manager.**

For the detailed steps, see “To Start Report Manager” on page 33.

2. **From the File menu, choose New, then select Subcategory.**

The Create Subcategory dialog box appears. It contains two text fields.

3. **Select the desired Category from the drop-down menu.**

4. **Type the new subcategory name in the Name field.**

5. **(Optional) Add a description of the subcategory in the Description field.**

The new subcategory name will appear at the second level in the hierarchy view, beneath the category name.

6. Click OK to finishing adding the subcategory.

When the subcategory name is selected, the name and description appear in the Report Subcategory summary in the right pane.

---

## Custom Report Templates

A *report template* guides you through the choices when creating your own custom report. The report fields displayed are predefined in the report template according to the type of report you want. A saved report template containing the options you selected for your custom report is called a *report request*. All custom report requests are based on one of the report templates that are included with Performance Reporting Manager.

Small differences exist between the report templates, depending upon the type of request you want to create: a custom *performance report* or a custom *system configuration report*. Performance reports are based on properties that yield numerical results and that change over time. The data returned can be plotted over time in a graph, for example. This graph can then be used to determine trends in performance of the machines. The system configuration reports provide data regarding the details of the hardware and software configuration of the host.

When you choose a report request from the File menu in Report Manager, a report template is automatically launched in a dialog box. The template displayed depends upon the type of report request you choose. The following report templates are available:

- New Performance Report Request: Use to create reports that provide information regarding system resource utilization, such as, the amount of disk space or processor used.
- System Report Request: Use to create reports that provide basic information on system capacity, such as, the number of disks or processors on a host.
- Hardware Configuration Report Request: Use to create reports that provide detailed information on the host. For example, the report might detail the specifics about each processor or each disk on a host.
- Package Report Request: Use to create reports that provide information about the software packages installed on a host.
- Patch Report Request: Use to create reports that provide information about the software patches installed on a host.
- Alarms Report Request: Use to create reports that provide information about the status of alarms on a host.

The fields possible in a report template are described below. They are grouped according to those that can be found in both types of reports, those that are found only in performance reports, and those that are found only in system configuration reports.

## Common Custom Report Fields

Many fields in the report template can be found in either a custom performance template or a custom system configuration template. You build all your custom report requests by completing the fields in the report template. Your selections define the nature and scope of the report. Not all fields will be found in every report template. The template automatically launched after your selection from the File menu in Report Manager determines what fields are displayed. The fields that can be common to both performance and system configuration reports are:

- Category
- Subcategory
- Report Request
- Report Title
- Data Properties
- Selected Hosts
- Output Mode
- Customize

### Category

Select the desired category from the Category drop-down menu. New categories you create also appear in the drop-down menu. This field determines where in the hierarchy view the saved report request appears.

### Subcategory

The Subcategory field is optional. Select the desired subcategory from the drop-down menu. New subcategories you create also appear in the drop-down menu. If used, the report request appears under the subcategory in the hierarchy view.

### Report Request

Provide the name of the report request. This name appears as the title in the report request. The name also appears both in the report summary and the hierarchy views in Report Manager.

## Report Title

The Report Title field is optional. This field provides a description of the report that then appears as the title. This description appears in the report summary of Report Manager. The report summary is displayed when the name of the report is selected in the hierarchy view.

## Data Properties

Select the data properties to be included in the report in the Data Properties field. Click Edit to make your selections from the Property Chooser dialog box. There are some differences between the Property Chooser dialog box that is displayed in the performance or system configuration report templates. The correct dialog box automatically launches for you. Only the data properties currently being logged on the hosts will return data. For more information, see “Data Properties” on page 47.

## Selected Hosts

Specify the hosts and corresponding port that you want to include in the report. Only agent machines that are linked to the server context will return data. If no port is specified for a host, the default port 161 is assigned. The choices are:

- Enter Hosts at Run Time: You must provide each host and corresponding port when you run the report request. A separate dialog box for this purpose is displayed at runtime. The host and corresponding port are not saved to the report request, and can be changed each time the report is run.
- Select Hosts From Main Console Window (Then Click Update): The hosts and corresponding ports you provide are saved to the report request. Each time the report is run, data is returned regarding the hosts originally saved. To select the desired hosts, go to the Sun Management Center 3.0 Main Console window. Make your selections either by using Shift+Click, or by drawing a lasso around the icons that represent the desired hosts. Click Update in the report template to add the hosts.
- Enter Hosts as Hostname:Port (Comma Delimited): If selected, you enter the host and the corresponding port. The proper form is to use a comma delimiter without a space. You can add as many valid hosts and ports as wanted.

## Output Mode

Choose the desired format of the report from the Output Mode drop-down menu. The available options given depend on the type of report request you are creating. The possible options are:

- Line Graph

- Bar Chart
- Pie Chart
- Tabular

For more information about the report formats available, see “Report Output Format Options” on page 16.

## Customize

The Customize field is optional. You can further customize the look of a graph report through the Customize dialog box. This option is available for Line Graph or Bar Chart report formats only. For more information, see “Customizing the Appearance of Reports” on page 53.

## Performance Report Fields

There are three report fields that are found only in a performance report template. These report fields are:

- Function
- Time Range
- Graph Orientation

The other fields possible for this type of report are as described in “Common Custom Report Fields” on page 40.

## Function

The Function field controls the type of data that appears in the report. Select the type of data you want from the drop-down menu. For more information about how data is collected, see “Data Collection” on page 12. The choices are:

- Raw: If this choice is selected, the raw data logged on the agent machine is returned. Raw data is logged according to the time interval specified in the Property Logging Setting dialog box for each data property. The Raw option is available only for these standard time ranges: Last 4 Hours, Last 24 Hours, Last 3 Days, and Real Time. If the Raw option is chosen for a custom time range, a maximum of three days of raw data is available.
- Maximum: The maximum value of the most granular level of data available in the database is returned.
- Average: The average value of the most granular level of data available in the database is returned.
- Minimum: The minimum value of the most granular level of data available in the database is returned.

## Time Range

The time the report spans is selected here. The choices for a time range are:

- **Standard:** Select a predefined time range from the drop-down menu. Choose from the following time ranges:
  - **Last 4 Hours:** The range starts from the current hour to minus four hours.
  - **Last 24 Hours:** The range starts from the current hour to minus 24 hours.
  - **Last 3 Days:** The range starts from 12:00 a.m. three days before the current date to 11:59 p.m. the day before the current date.
  - **Last 7 Days:** The range starts from 12:00 a.m. seven days before the current date to 11:59 p.m. the day before the current date.
  - **Last Calendar Week:** The range starts from 12:00 a.m. Sunday of the previous week to 11:59 p.m. of the following Saturday.
  - **Last Calendar Month:** The range starts from 12:00 a.m. of the first day of the last month to 11:59 p.m. of the last day of the last month.
  - **Real Time:** The range starts from the current day and time and goes forward. This option is only available when the Function selection is Raw.
- **Custom:** Use this option to define your own time range. First click Edit, then type a Date and Time Range in the Time Range dialog box. The From and To fields contain drop-down menus from which you make your selections.

## Graph Orientation

If you selected Line Graph or Bar Chart as the output mode, you must choose the desired orientation of the graphs in the report. The options are:

- **One Host, Many Data Properties:** A separate graph for each host included in the report is displayed. Each graph shows all the data properties for that host. Each data property is shown as a separate line or bar on the graph. Each line or bar is distinguished by either its color, or its symbol, or both. The legend for the graph identifies which color or symbol is being used for each data property in the report. The host name is listed at the top of each graph.
- **One Data Property, Many Hosts:** A separate graph for each data property included in the report is displayed. Each graph includes a separate line or bar for every host in the report. Each line is distinguished by either its color, or its symbols, or both. The legend for the graph identifies which color or symbol is being used for each host in the report. The data property is listed at the top of each graph.
- **All Hosts and Data Properties on One Graph:** Only one graph is displayed. All hosts and data properties in the report are included. Each line or bar is distinguished by either its color, or its symbol, or both. The legend for the graph identifies which color or symbol is being used to identify each host and data property in the report.

## Custom System Configuration Report Fields

The report template for creating a custom system configuration report has two fields that are only found in this type of report.

- Level of Detail
- Filter

The other fields possible for this type of report are as described in “Common Custom Report Fields” on page 40.

### Level of Detail

Use the Level of Detail field to determine the amount of detail wanted in the report. Accept either the default, Detailed, or select Summary. If you select Summary, the following information is returned:

- Alarm Reports: The number of alarms
- Hardware Reports: The number of hosts
- Packages Reports: The number of packages
- Patch Reports: The number of patches

### Filter

The Filter field is optional. Click Set Filter to select the desired filter options from the Filter dialog box. Use the drop-down menus to build an expression that creates the report filter wanted. The filtering options are case sensitive. For more information, see “Filtering Reports” on page 52.

## Creating or Modifying a Report Request

You can create your own custom report request by one of the following methods:

- Copying a standard report request, and then modifying the predefined report options in the copy
- Completing the desired report options in a new report request template

Once a custom report request is saved after using either option, you can later make changes by using the Modify dialog box. You cannot modify a standard report request directly, as the report options are predefined and cannot be changed.

### ▼ To Create a New Report Request by Modifying a Standard Report Request

#### 1. Start Report Manager.

For more information, see “To Start Report Manager” on page 33.

2. **Select the name of the standard report request from the hierarchy view.**
3. **From the Edit menu, choose Copy.**
4. **Select the category or subcategory name from the hierarchy view under which you want the new report icon to appear.**
5. **From the Edit menu, choose Paste.**  
The copied report icon appears at the bottom of the selected category or subcategory. The name of the report is “Untitled” followed by a number.
6. **From the Edit menu, choose Modify.**  
A report request dialog box appears with the options of the original standard report already completed.
7. **Type the new name of the report request in the Report Request field.**
8. **Make the desired changes to the report option. Click OK to save your changes.**  
The new report name replaces “Untitled” in the hierarchy view.

## ▼ To Create a New Report Request

1. **Start Report Manager.**  
For the detailed steps, see “To Start Report Manager” on page 33.
2. **From the File menu, choose New, then select the desired report request type.**  
The report template specific to the type of report that you selected opens.
3. **Complete the fields of the report template.**  
For more information about the report template options, see “Custom Report Templates” on page 39.
4. **(Optional) Click Preview to see a preview of the report.**  
A preview of the report output is displayed in a new window. The data that has already been collected is used for a report preview.
5. **Click OK to save the report request.**  
The report request is now saved. The title of the report request appears, with the corresponding report format icon, in the hierarchy view under the category and subcategory selected. This report request is available until it is deleted.

## ▼ To Modify a Report Request

1. **Start Report Manager.**  
For the detailed steps, see “To Start Report Manager” on page 33.
2. **Select the name of the report request you want to modify.**

3. From the Edit menu, choose Modify.

The Modify dialog box opens. The fields contain the current values for Data Properties, Time Range, Filter, and Selected Hosts.

4. Make your changes to the fields.

5. Click OK to save your changes to the report request.

The following figure is a sample of a New Performance Report Request template.

**New Performance Report Request**

Category: Performance Subcategory: CPU

Report Request: My Report

Report Title: CPU

Data Properties: Load Average Over Last 1 Minute  
Load Average Over Last 5 Minutes  
Number of Interfaces Edit...

Function: Raw

Time Range: ☒ Standard: Last 3 Days ☐ Custom: Edit...

Select Hosts: ☐ Enter Hosts at Run Time  
☒ Select Hosts from Main Console Window (Then Click Update)  
smtg-dev37:161  
design:161 Update Remove

☐ Enter Hosts as Hostname:Port (Comma Delimited)

Output Mode: Line Graph Customize...

Graph Orientation: One Host, Many Data Properties

OK Preview Cancel Help

FIGURE 4-1 Sample New Performance Report Request Template Showing Fields Completed

---

## Data Properties

The ability to log data is included with the Sun Management Center 3.0 base product. Performance Reporting Manager uses this logged data in the reports. Only data that is logged to the circular `history.log` file on the agent machine is collected for reporting purposes. Data cannot be included in any report until logging of the data property is first enabled. Certain data properties are automatically logged for you. If a property is not being logged, you will not receive any data for that property until logging is first enabled.

You can use the Data Availability option to determine if a property is already being logged on the machine. To either enable or disable the logging of a data property, you can use the history logging capability of Sun Management Center 3.0 or use the group logging task. For more information about history logging, see *Sun Management Center 3.0 User's Guide*. For more information about the group logging task, see "Group Logging" on page 50

If you receive a No Data Found error message when running a report, first check to see if the data property is being logged on the agent machine specified in your report.

## Data Availability

Only those data properties that are being logged on the agent machine can return data for reports. The Data Availability dialog box enables you to check what properties are currently being logged. The information is updated every hour. If you have just installed Performance Reporting Manager, the data might take an hour to first appear in the Data Availability dialog box.

---

**Note** – The data properties being logged are used for performance reports only.

---

### ▼ To See the Properties Being Logged

1. **From the Report Manager file menu, choose Data, and then select Data Availability.**

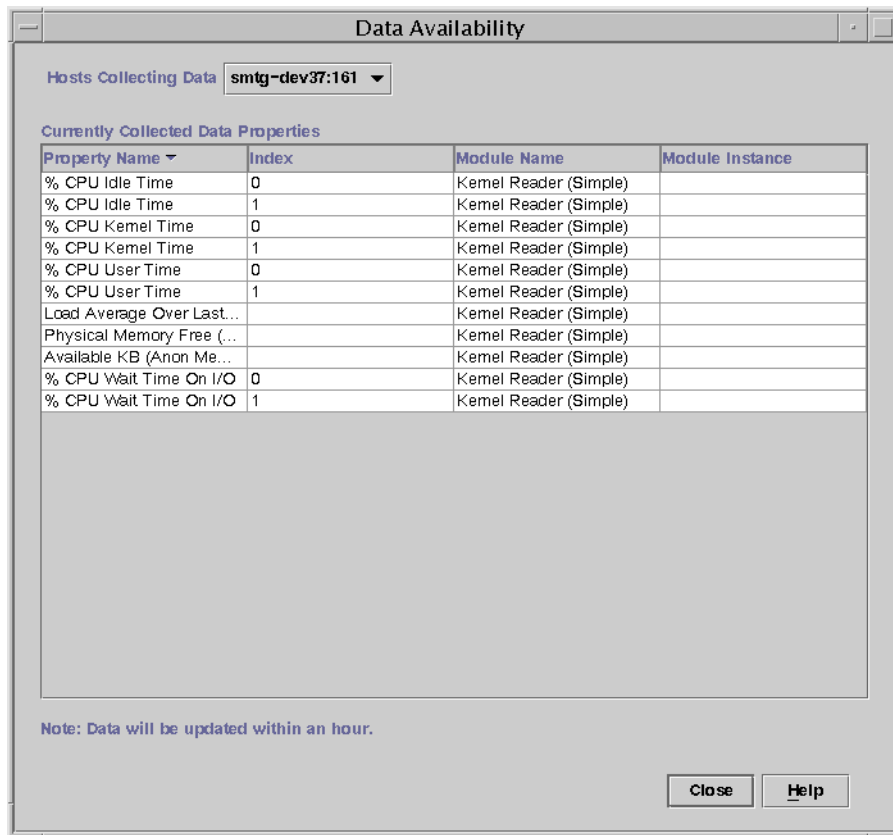
The Data Availability dialog box opens. All agent machines for which data was collected in the last hour appear in the Hosts Collecting Data drop-down menu.

2. **Select the desired host name from the drop-down menu.**

The table expands to list all the data properties collected for that host. You can resize the columns by dragging the cell borders in the column title. You can sort the table by double-clicking the column headings.

3. **Click Close to dismiss the dialog box.**

The following figure shows a sample of the Data Availability dialog box. A note at the bottom of the dialog box reminds you that data in this table refreshes within an hour.



**FIGURE 4-2** Sample of Data Availability Dialog Box with Data Properties Showing

## Data Properties Selection

When creating your custom report request, the report template requires that you select the data properties to include in the report.

The addition of certain properties requires that you provide an entry for either the *module instance* or *property instance*, or both. The module instance is needed only for multi-instance modules. Examples of a multi-instance module includes File Monitoring or Directory Monitoring. Each instance can be used for monitoring a different file or directory. The property instance typically refers to an instance name given to the property being logged. For example, in a machine with four CPUs, the CPUs can be numbered 0, 1, 2, and 3. If you are only interested in the performance of

CPU number 3, you specify 3 as the property instance for the CPU property included in the report. You specify All as the property instance when you want a report that includes all instances that exist for the host. For more information, see *Sun Management Center 3.0 User's Guide*.

## ▼ To Add Data Properties

1. **From the Data Properties field in the New Report Request template, click Edit.**

The Property Chooser dialog box appears. It contains two panes. The left pane is titled Properties to Choose From. The right pane is titled Selected Properties.

2. **Expand the hierarchy view in the left pane by clicking the key symbols.**

The data properties are located at the third level of the hierarchy.

3. **Select the desired property, and click Add.**

The property moves to the right pane. If required, the Module Instance or Specific Property Index fields become active in the lower left-hand corner of the dialog box.

4. **(Optional) Provide the Module Instance and Specific Property Index in their respective text fields.**

If module is a multiple instance module, provide the module instance wanted.

5. **When you finish adding all desired properties, click OK.**

The Property Chooser dialog box closes. Continue completing the report template.

The figure below shows a sample of the Property Chooser dialog box for performance reports.

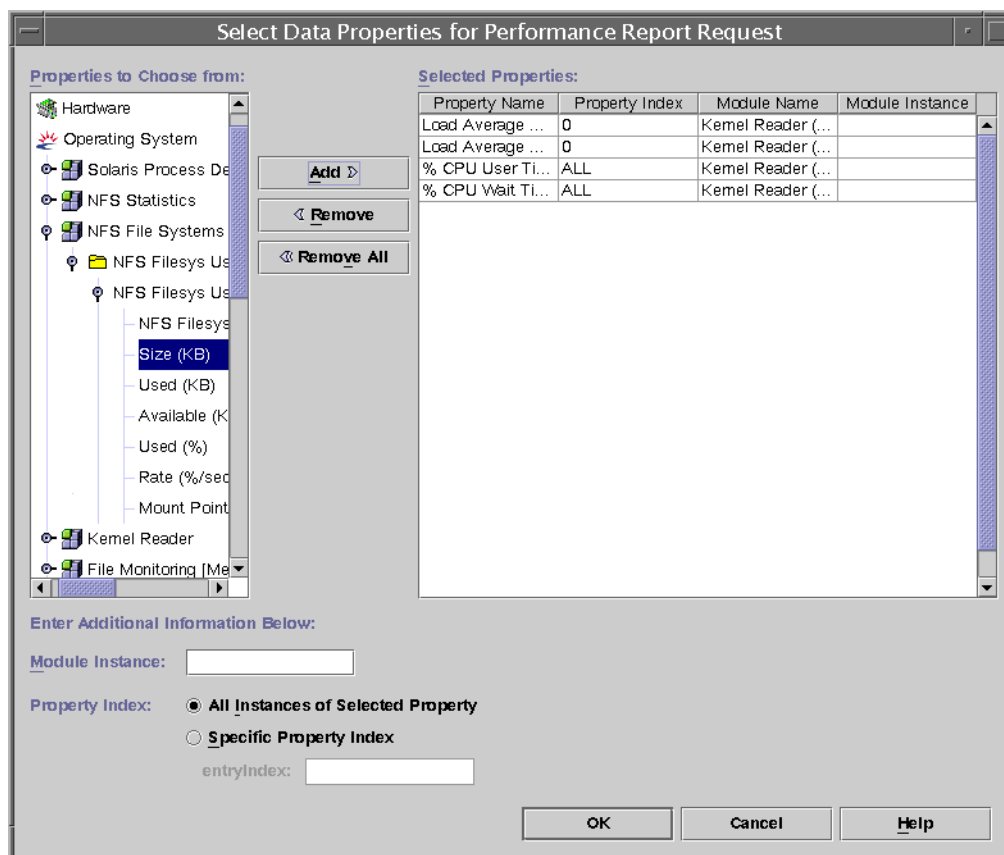


FIGURE 4-3 Sample of the Property Chooser Dialog Box for a Performance Report Request

## Group Logging

When you want to log the same data properties on a group of agent machines, you can use the Group Operation features of the Premier Management Applications add-on to Sun Management Center 3.0. Instead of adding the same set of data properties to be logged on each machine individually, you can save time with the group logging feature. For more information about all the Group Operation features, see *Sun Management Center 3.0 User's Guide*.

### ▼ To Add Data Properties to a Group Task

1. From the Sun Management Center 3.0 Main Console File menu, choose Tools, then select Group Operation.

The Group Operation dialog box appears.

2. **From the File menu, choose New, and then choose Task.**  
The Create/Edit Tasks dialog box appears.
3. **Create a new group task by typing the task name in the text field, and then pressing Return.**  
If needed, for more information see *Sun Management Center 3.0 User's Guide*.
4. **From the Type drop-down list, select Data Logging.**
5. **Click Add Properties.**  
The Property Chooser dialog box appears.
6. **From the hierarchy view in the left panel, select the data properties one at a time, and click Add after each one.**  
The data properties are contained in the third-level in the hierarchy. Each data property added moves to the right pane.
7. **Click OK when done.**  
The data properties are added to the group task.
8. **From the Create/Edit Task dialog box, select the data property.**  
If you added more than one data property to the group task, you must do this one at a time.
9. **Click Logging Setting.**  
The Property Logging Setting dialog box launches.
10. **If the box next to Logging does not have a check mark, add one.**  
Logging for the data property is now enabled.
11. **Type the desired time interval, in seconds, in the Interval text field.**  
The default is 300 seconds. The data property is logged at the interval specified.
12. **Click OK to save the task and close the dialog box.**

## ▼ To Run a Group Task

1. **From the Sun Management Center 3.0 Main Console File menu, choose Tools, then select Group Operation.**  
The Group Operation dialog box appears.
2. **Launch the Create/Edit Groups dialog box.**
3. **From the dialog box, select objects from the domain.**
4. **From the Sun Management Center 3.0 Main Console, select the names of the servers, and then click Update.**

You can select the server names either by using Shift+Click, or by drawing a lasso around each individually, or as a consecutive group.

5. **Click OK to save the server names.**
6. **From the Group Operations window, type the Name, then select the group name from the drop-down list.**  
The group name is the one you provided when you created the group task.
7. **Select the group task name from the drop-down list.**  
The group task name is the one you provided when you created the group task.
8. **Click the Save/Run icon from the menu.**  
This is the last icon on the menu. Logging of the data properties chosen earlier starts.

---

## Filtering Reports

You can further modify the type of information that your custom report contains by using the Filter dialog box. The Filter dialog box is an option contained in some of the report templates and is used when creating a custom system configuration report request.

The Filter dialog box contains several drop-down menus and text fields that are used to build an expression. This expression defines the report parameters to include the filter criteria wanted. The expression operators provided are common to the C programming language. Filter options are case sensitive.

For example, you can create a custom system configuration report request for a report that contains data only on machines that are running the Solaris 7 or Solaris 8 operating environments. To do this, you would create the following expression using the Filter dialog box:

```
Operating System = SunOS 5.7  
OR  
Operating System = SunOS 5.8
```

As another example, you can create a custom system configuration report request for a report that includes only the machines that have the SyMON packages installed. To do this, you would create the following expression:

```
Category contains SyMON
```

In order to include only those machines that have the Sun Management Center 3.0 SyMon packages installed, you can modify the above example this way:

```
Category contains SyMON AND Version contains 3.0
```

---

## Customizing the Appearance of Reports

Some custom report templates have an option that enables you to customize the appearance of your Line Graph, Bar Chart, and Pie Chart reports. You can either add these customizing features when you are initially creating the report request, or you can later modify the report request to include the desired appearance customization.

After you click the Customize button in the report template, the Customize Graph dialog box appears. The dialog box contains the following three tabs, from which you can specify these appearance changes:

- **Titles & Legend:** You can add a Footer and change the Legend Text. From the drop-down menus, you can choose the placement of the Footer or Legend on the graph. You can change the X-Axis and Y-Axis Labels using the text fields.
- **Line Attributes:** Use the All Lines options to change the appearance of the Line Thickness or Line Style, and Symbol Size. Use the drop-down menus to make your selections. Use the Specific Line options to change the appearance of a line you select from the drop-down menu.
- **Size & Spacing:** Use the text fields to control the size of the graph width and height, or the X-Axis and Y-Axis scale. You enable grid lines on the graph by selecting Show Grid. The value range for grid spacing is 0 to 100.

---

**Note –** Some of the options in the Customize Graph dialog box are not available for Pie Chart reports.

---

Once you have finished selecting all the customizing options, click OK to dismiss the dialog box. You must also click OK from the report template for these options to be saved to the report request.

---

## Composite Report Requests

Performance Reporting Manager enables you to combine two or more existing report requests to create a new report request. The resulting report request is called a *composite report request*. To create a composite report request, you can use existing standard or custom report requests, or a combination of both types. A composite report request combines the options of the report requests used. You specify a new name for the composite report request, and then the report is identified in the hierarchy view under the category and subcategory selected.

If the host name is not defined in any report request, you cannot select that request to become part of a composite report request. For example, you cannot select any report request for which the option Add Hosts at Runtime was specified.

You cannot delete or rename any existing standard or custom report request once it is referenced by a composite report request, unless you first delete the composite report request.

## ▼ To Create a Composite Report Request

1. **From the Report Manager File menu, choose New, then select Composite Request Request.**

The Composite Report Request dialog box opens.

2. **Select the desired category and subcategory from the drop-down menus, and type a name for the report in the Name field.**

3. **Select the desired reports from the left pane. Use the Add button to move the reports to the right pane that is titled Selected Report Requests.**

Use the Remove button if you select a report you do not want. The Remove All button will clear all selections from the right pane.

4. **(Optional) Click Preview to see a preview of the report.**

A preview of the report output is displayed in a new window. The data that has already been collected is used for a preview of a report request.

5. **Click OK to save the report request.**

The composite report request is now saved. The title of the composite report request appears in the hierarchy view under the category and subcategory selected. This report is available until it is deleted.

## Report Options

---

This chapter discusses the following topics:

- “Report Options Overview” on page 55
- “Scheduling Reports” on page 56
- “Options for Viewing Report Output” on page 57
- “Accessing Reports From the Sun Management Center Web Server” on page 58
- “Line Graph Report Viewing Options” on page 60
- “Stopping Data Collection” on page 61

---

## Report Options Overview

Performance Reporting Manager includes several options that enable you to tailor the reporting capabilities to meet your specific needs. For example:

- You can schedule reports to automatically generate as needed.
- If you decide that you no longer need to monitor a particular host for a report, you can stop collecting data on that host.
- The report output can be saved in HTML for viewing in a web browser.
- Reports can be saved in comma-separated values (CSV) ASCII text form, in addition to using other delimiters of choice.

For more information about viewing reports in a web browser, see “Options for Viewing Report Output” on page 57.

---

## Scheduling Reports

You can schedule any standard or custom report request to automatically generate at a regular interval, as long as the host names are saved in the report request. The output from all scheduled reports is posted to the Sun Management Center 3.0 server machine. The reports are saved in a directory on the server machine. You access these reports by typing in a browser: **http://server-machine-name/reports**.

The scheduling of reports and the server side generation of reports requires the use of an X server. You must first ensure that your environment is set correctly before scheduling reports.

### ▼ To Schedule a Report

1. **Verify that an X server session is running on the Sun Management Center 3.0 server machine.**

For the detailed steps, see “To Set the Environment” on page 26.

2. **From the Report Manager File menu, choose Schedule, and then select Schedule Report Generation.**

The Schedule Report Generation dialog box opens.

3. **Select the name of the desired report request from the hierarchy view contained in the left pane.**

The report requests are located at the third level in the hierarchy view.

4. **Click the Add button.**

The name of the report request moves to the right pane.

5. **(Optional) Select Multiple Report Requests if have more than one report to schedule for the same time.**

Select this option only if you want all the reports to run at the same time.

6. **Complete the Date, Time and Repeat Interval fields.**

The date format is specific to the locale. Provide the date as specified in the date label. Make your selections for the Time and Repeat Interval fields from the drop-down menu.

7. **Click OK to schedule the report.**

The report is now scheduled to generate according to your selections. The report will continue to generate at the interval specified, until the request is deleted.

## ▼ To Remove a Scheduled Report

1. **From the Report Manager File menu, choose Schedule, and then select View Scheduled Report Status.**

A new window opens with a table containing a status of all currently scheduled reports. You can resize the table columns by dragging the cell border of the header title.

2. **Select the row that contains the name of the report to be removed.**

3. **Click Remove.**

The report is removed from the table.

4. **Click OK.**

The report is no longer scheduled to be generated

---

## Options for Viewing Report Output

After a report is generated, you have several options for viewing and saving the output. These options include the following outputs:

- View a report as an HTML file in a browser
- Post any saved reports as HTML files to a Sun Management Center server for others to view
- Save the report in a tab-separated or comma-separated value (CSV) ASCII text file that can be used with other tools to analyze the data

Reports saved as an HTML file can be viewed using Netscape Navigator™ 4.5.1, or higher, or Internet Explorer 5.0, or higher.

## ▼ To View a Report as HTML in a Browser

1. **Generate the desired report.**

The report output is shown in a separate window. For the detailed steps, see “To Generate a Standard Report” on page 35.

2. **Choose Show in Web Browser from the File menu in the report window.**

The web browser launches and the report is displayed as HTML.

## ▼ To Post to a Sun Management Center Web Server

1. **Generate the desired report request.**

The report output is shown in a separate window. For the detailed steps, see “To Generate a Standard Report” on page 35.

2. **Choose Post to a Web Server from the File menu in the report window.**

The report is posted to the Sun Management Center 3.0 server you to which are connected , which acts as a web server.

## ▼ To Export Data

1. **Generate the desired report.**

The report output is shown in a separate window. For the detailed steps, see “To Generate a Standard Report” on page 35.

2. **Choose Export Data from the File menu in the report window.**

The Export Data dialog box appears.

3. **Select either Comma or Tab as the delimiter.**

4. **Choose the directory in which to save the file.**

5. **Type a name in the File Name text field.**

6. **Select the File Type from the drop-down menu.**

7. **Click Save.**

---

## Accessing Reports From the Sun Management Center Web Server

Once a report has been saved and posted to a Sun Management Center 3.0 web server, you can view the report as HTML in a browser. All scheduled reports are posted to the Sun Management Center 3.0 server machine. You can also post an individual report by using the Post to a Web Server option from the report’s menu. A list of all reports ever posted appears in the browser window that is opened from the server. All reports will continue to appear until the report is deleted.

## ▼ To Access a Posted Report

1. **Launch the Sun Management Center 3.0 web server by typing in a browser:**

`http://server-machine-name/reports`

2. **Login by typing the Login and Password in the text fields.**

Use the same Login name and Password that are required for the Sun Management Center 3.0 server.

A table is displayed in the browser window that lists all the reports that have been posted to the web server. The name of the Report Request, the report Category and Subcategory, the Report Title, and the Create Time are displayed in the table.

3. **To view a report, click on the name contained in the Report Title field.**

The report is displayed in the browser window.

4. **(Optional) To print the report, use the Print option from the browser's menu.**

5. **Close the browser from the browser's menu.**

## ▼ To Delete a Posted Report

1. **Log in to the Sun Management Center 3.0 web server.**

For the detailed steps, see steps 1 and 2 in "To Access a Posted Report" on page 59.

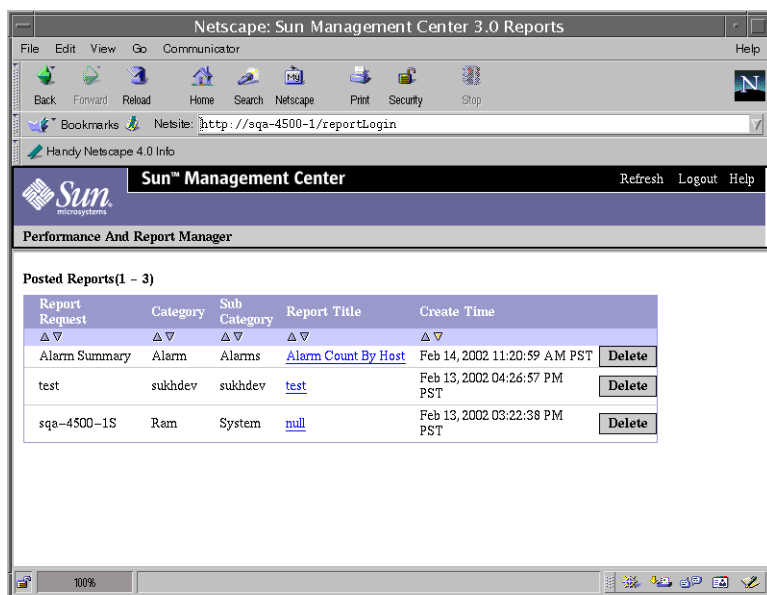
2. **Located the name of the report in the table, then click the corresponding Delete button.**

A second dialog box appears that asks you to confirm the deletion request.

3. **Click OK to confirm the deletion request.**

The report is deleted from the list in the table, and is removed from the web server.

The figure below shows a sample of the list of posted reports as it appears in a browser window.



**FIGURE 5-1** Sample of a Browser Window With a List of Reports That Are Posted to a Web Server

## Line Graph Report Viewing Options

If your report is in Line Graph format, you have several options for viewing the data. At the top of the report window are several buttons used for accessing the options. First, click the desired point on a graph, then click one of the following buttons:

- **Disabled:** Deactivates the mouse so a click on any line in the graph will not register.
- **Zoom:** Enlarges, or zooms, the area selected on any line. Either click the desired point, or draw a lasso around a series of points for which you want more detail. The area selected will appear in enlarged detail.
- **Alarms:** A second window appears that contains a tabular report providing alarm details for the date range specified in the report request.
- **Processes:** A second window appears that contains two tabular reports providing detail about processes. One report is titled the Top 10 CPU Processes, and the other is titled Top 10 Memory Processes. The report information is for the time represented by the data point nearest to the point selected on the line. Process data is logged every 15 minutes and is only available for the last 8 days.
- **Reset Zoom:** Resets the graph orientation back to the initial starting point.

## Customizing Line Graph Reports

Once you have run a report in line graph format, you can further customize the appearance of the report. From the Edit menu, choose Customize Graph. The options are the same as when completing a new custom report template. The difference is that the customizing options you select after running a report apply only to that report. You cannot save the changes, but you can post the customized report to a Sun Management Center web server for viewing or printing.

For more detail about the Customize Graph options, see “Customizing the Appearance of Reports” on page 53.

---

## Stopping Data Collection

You can stop data collection on any agent machine that you no longer need to include in reports.

### ▼ To Stop Data Collection

1. **From the Report Manager File menu, choose Data, and then select Data Collection.**

The Data Collection dialog box opens. All hosts for which data is not currently being collected are listed in the left pane. All hosts for which data is currently being collected are listed in the right pane.

2. **Select the name of the host.**
3. **Use the Add, Add All, Remove, and Remove All buttons to move the host names as needed.**

You must change the status of collection on the hosts one at a time.

4. **Click OK to save the changes.**



## Reference

---

This appendix contains reference information for the Performance Reporting Manager add-on software.

---

### Prerequisite Packages

The following Solaris operating environment packages are required on the Sun Management Center 3.0 server layer. If you have already installed and set up the Sun Management Center 3.0 server layer, the presence of these Solaris packages will be checked by the Sun Management Center 3.0 installation script.

- SUNWspot: Solaris Bundled tools
- SUNWtoo: Programming Tools
- SUNWbtool: CCS tools bundled with SunOS

---

### Default Logging Properties

The following lists contain the properties that are logged by default on the Sun Management Center 3.0 agent machines that have the Performance Reporting Manager software installed. You will have either the `kernelReader (simple)` module or the `kernelReader` module on your system.

The `kernelReader (simple)` module default properties are:

Load Average Over Last 5 Minutes

Physical Memory Free (MB)  
 Available KB (Anon Memory Not Reserved)  
 CPU User Time %  
 CPU Idle Time %  
 CPU Kernel Time %  
 CPU Wait Time On I/O %

The kernelReader module default properties are:

Load Average Over Last 5 Minutes  
 Physical Memory Free (MB)  
 Available KB (Anon Memory Not Reserved)  
 CPU User Time %  
 CPU Idle Time %  
 CPU Kernel Time %  
 CPU Wait Time On I/O %

## Predefined Options for Standard Reports

Each standard report included in Performance Reporting Manager contains predefined report options that you cannot edit. The following table lists these predefined options.

**TABLE A-1** Standard Report Options

Report Request Name	Category	Subcategory	Data Properties	Host and Port	Report Format
CPU Utilization	Performance	CPU	% CPU Kernel Time #ALL, % CPU User Time #ALL	Enter at runtime	Line Graph
Swap Available	Performance	Swap	Available KB (Anon Memory Not Reserved)	Enter at runtime	Line Graph
Memory Free	Performance	Memory	Physical Memory Free (MB)	Enter at runtime	Line Graph
Alarm Details	Alarm	Alarms	Hostname, OS, Alarm Severity, Alarm Status, Open Date, Alarm Message	Enter at runtime	Table

**TABLE A-1** Standard Report Options *(Continued)*

<b>Report Request Name</b>	<b>Category</b>	<b>Subcategory</b>	<b>Data Properties</b>	<b>Host and Port</b>	<b>Report Format</b>
Alarm Summary	Alarm	Alarms	Hostname, Alarm Status	All hosts in the server context	Table
Alarm Severity Count By Host	Alarm	Alarms	Hostname, Alarm Severity, Alarm Status	All hosts in the server context	Table
System Details	Hardware	System	Hostname, Operating System, System Clock Frequency, Platform Type, Total Disks, Total Memory, Total Processors, Total Tape Devices	All hosts in the server context that have the Config-Reader add-on installed	Table
Platform Summary	Hardware	System	Platform	All hosts in the server context that have the Config-Reader add-on installed	Table
OS Summary	Hardware	System	Operating System	All hosts in the server context that have the Config-Reader add-on installed	Table
Hosts with SUNWcsr Package	Software	Packages	Hostname, Package Instance, Package Name, Category, Version, Package Description, Install Date	All hosts in the server context	Table
Package Details	Software	Packages	Hostname, Package Instance, Package Name, Category, Version, Package Description, Install Date	Enter at runtime	Table

**TABLE A-1** Standard Report Options (Continued)

Report Request Name	Category	Subcategory	Data Properties	Host and Port	Report Format
Patch Details	Software	Patches	Hostname, Operating System, PatchID, Packages, Obsoletes, Requires, Incompatibles	Enter at runtime	Table

For more information about standard reports, see “Standard Reports Overview” on page 29.

# Glossary

---

<b>custom report</b>	A report you create by choosing the report specifications from the options given in the report template. The choices are saved to a report request, which is used to generate the report when needed.
<b>data collection service</b>	This service exists on the server layer. It collects data from the agent machines and stores the data in the database on the server.
<b>generate</b>	To run a report request, creating a viewable report.
<b>group logging</b>	The ability to log the same set of data properties on a group of agent machines. Group logging is part of the Group Operation features of the Premier Management Applications add-on that Performance Reporting Manager uses.
<b>history logging</b>	The ability to log data that is part of Sun Management Center 3.0. Logged data is collected and stored in the circular <code>history.log</code> file that is located on the agent machine. This data is used in reports created with Performance Reporting Manager.
<b>hourly data</b>	Data that has been summarized, or rolled-up, every hour.
<b>lock icon</b>	The lock symbol that is added to all standard report icons to remind you that the report specifications are predefined and cannot be changed.
<b>logging component</b>	This component exists on agent machines. It is added as part of the Performance Reporting Manager installation to perform logging of system data properties.
<b>module instance</b>	An entry in the Property Chooser dialog box when adding data properties to a custom performance report request. The module instance is required only for multi-instance modules, for example, File Monitoring or Directory Monitoring.
<b>performance report</b>	A report that is designed to track properties that are numerical and that change over time.

<b>property instance</b>	An instance name given to the data property that is being logged. A property instance can be a required entry in the Property Chooser dialog box when adding data properties to a custom performance report request.
<b>raw data</b>	Data that is logged in the history log ( <code>history.log</code> ) files located on the agent machines. Raw data is retained on the agent machine for eight days. The data is summarized, or rolled-up, before it is purged.
<b>Report Manager</b>	The graphical user interface in Performance Reporting Manager from which you manage all report activity. Report Manager is linked to the Sun Management Center 3.0 Java console only.
<b>report request</b>	Contains the saved report specifications that define the scope and nature of the report. A report request is used to generate any report.
<b>report template</b>	A form included with Performance Reporting Manager that guides you through the choices when creating your own custom report request. Several report templates are provided, each specific to the type of report request being created. The correct template is automatically displayed, depending upon the report type selected from the File menu.
<b>roll-up data</b>	Data that has been summarized. All data is summarized, or rolled-up, before it is purged.
<b>standard report</b>	A report whose report request is included with the product and has the report specifications predefined. The report specifications in a standard report request cannot be changed.
<b>system configuration report</b>	A report designed to provide data that details the state of the configuration on a machine.

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