# System Resource Report Pack

Software Version: 4.1

HP OpenView Performance Insight

## User Guide

May 2006

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# Contents

# 1 Overview

This chapter covers the following topics:

- OVPI and system resources
- New features
- Folders and reports
- Integration with HP OpenView Operations (OVO)
- Ways to customize reports
- Sources for additional information

## OVPI and System Resources

HP OpenView Performance Insight (OVPI) is a performance management and reporting application. Long-term data collection, in-depth analysis, and interactive web-based reporting are this application's primary strengths. If desired, you can integrate OVPI with network management or system management applications. Integration enhances fault isolation, problem diagnosis, and capacity planning.

The System Resource Report Pack installs on OVPI. The reports in System Resource will help you anticipate resource issues before they become serious. You will know whether resources are plentiful, limited, or somewhere in between, and you will be able to compare yesterday's utilization to weekly and monthly trends. For a system that is seeing higher utilization, the forecast report will let you know when a performance threshold will be reached.

Our approach to system resource performance management uses a main package, multiple sub-packages, and multiple datapipes. The main package and the sub-packages do not use the same datapipe. There are actually three datapipes for the main package—one that discovers OpenView agents, one that polls OpenView agents, and one that collects data from any system that supports the Host Resources MIB. Each sub-package has its own built-in datapipe. For more information about datapipes, see Chapter 4, Data Collection.

## New Features

System Resource is one of three enhanced report packs released in June 2005. The other two enhanced report packs are Device Resource and Interface Reporting. Enhanced report packs incorporate the following improvements:

- Report linking
- Launch Point page
- Ad hoc selector reports

- Color-coded graphics in selection tables

The links in reports allow you to move immediately from one report to another without having to close the report you are viewing, return to a report directory, and then open another report in the directory. Navigating reports is now more like navigating a website—numerous links are available and investigating a specific area of interest is easier and more efficient. In addition to moving from one report to another report within the same report pack, you can also link to reports in a different report pack. For example, from a report in System Resource you can link to a report in Interface Reporting.

The Launch Point page provides an overview of package contents by grouping reports into logical categories, for example, Near Real Time reports, forecasting reports, and ad hoc selector reports. The ad hoc selector option opens an abbreviated report that lets you select specific elements from a set of drop-down menus. The drop-down menus make it easy to pin-point an item of interest. In addition, response time is especially good. Since this report launches just a few queries against the database, you won't be waiting for data to appear.

The following table describes recent enhancements to System Resource.

| **Version** | **Release Date** | **Features/Enhancements** |
|---|---|---|
| 3.0 | May 2003 | OVPI Object Manager support<br>*new change forms:*<br>• Update System<br>• Update Filesystem<br>*new datapipe:*<br>• SysRes OVPA Datapipe 1.0 |
| 3.0 | October 2003 | *new datapipe:*<br>SysRes OVPA Datapipe 2.0 |
| 4.0 | April 2004 | Oracle support<br>*new reports:*<br>• CPU Resource Utilization Forecast<br>• CPU Performance QuickView<br>• Disk Details QuickView<br>• Logical Volume Details QuickView<br>• Network Interface Details QuickView<br>• Process Details QuickView<br>• Top Ten Transactions<br>• Transactions per System Snapshot<br>• System Availability (downtime/uptime)<br>• System Inventory<br>• Systems Performing Each Application/Snapshot |

| Version | Release Date | Features/Enhancements |
|---|---|---|
| 4.0 | April 2004 | *changes to existing reports:*<br>1. SLM—Executive Summary Report<br>• Customer selection table: added Total Exceptions<br>• Location table: removed Total Vol + Avg Daily Volume<br>• Total Exceptions graph: added daily and monthly tabs<br>• Total Exceptions graph: removed references to volume<br>2. System Volume and CPU Utilization Top Ten Report<br>• Highest CPU table: added Queue Length<br>• Highest Volume table: added Total Network Util<br>3. Memory Resource Optimization Report<br>• Overutilized Sys Memory table: added Avg Page Outs<br>4. CPU Forecast Report<br>• DTT selection table: added 30 and 60 day forecast<br>5. Memory Forecast Report<br>• DTT selection table: added 30 and 60 day forecast<br>6. Filesystem Forecast Report<br>DTT selection table: added 30 and 60 day forecast |
| 4.0 | August 2004 | *new upgrade packages:*<br>• UPGRADE_SR_3.0_to_4.0.ap<br>• UPGRADE_SR_CPU_1.0_to_1.5.ap<br>• UPGRADE_SR_DISK_1.0_to_1.5.ap<br>• UPGRADE_SR_PROC_1.0_to_1.5.ap<br>• UPGRADE_SR_NetIf_1.0_to_1.5.ap<br>• UPGRADE_SR_LV_1.0_to_1.5.ap |
| 4.0 | November 2004 | *new datapipes:*<br>• SysRes OVPA Collection Datapipe 1.0<br>• SysRes OVPA Datapipe 2.6 |
| 4.1 | June 2005 | Report linking<br>Launch Point page<br>Ad hoc selector reports<br>Color-coded graphics in selection tables<br>*new upgrade packages:*<br>• UPGRADE_SR_to_4.1<br>• UPGRADE_SR_CPU_to_4.1<br>• UPGRADE_SR_DISK_to_4.1<br>• UPGRADE_SR_PROC_to_4.1<br>• UPGRADE_SR_NetIf_to_4.1<br>• UPGRADE_SR_LV_to_4.1<br>*new datapipe:*<br>• SysRes OVPA Datapipe 2.8 |

| Version | Release Date | Features/Enhancements |
|---|---|---|
| 4.1 | March 2006 | No changes |
| 4.1 | May 2006 | *sub-packages with new version numbers:*<br>• SR_DISK 4.2<br>• SR_LV 4.2<br>• SR_NetIf 4.2<br>*upgrade packages and defect fixes:*<br>• UPGRADE_SR_LV_to_4.2<br>— QXCR1000329115: defective view (RSRV_OVPA_LOGICALVOLUME)<br>• UPGRADE_SR_DISK_to_4.2<br>— QXCR1000239305: size of prop_disk_name column changed from 32 to 255<br>• UPGRADE_SR_NetIf_to_4.2<br>— QXCR1000235473: size of prop_netif_name column changed from 32 to 255<br>*datapipe defect fix:*<br>• SysRes OVPA Datapipe 3.0<br>— QXCR1000247763: config file defect |

# Folders and Reports

Following is an alphabetical list of reports in the main package:

1. CPU Utilization Resource Forecast
2. Filesystem Utilization Resource Forecast
3. Filesystem Resource Optimization
4. Memory Utilization Resource Forecast
5. Memory Resource Optimization
6. System CPU, Memory, and Swap Utilization Exception Hot Spots
7. System CPU, Memory, and Swap Utilization QuickView
8. System CPU, Memory, and Swap Utilization QuickView - Snapshot
9. System CPU, Memory, and Swap Utilization QuickView - Near Real Time
10. System CPU, Memory, and Swap Utilization QuickView - Near Real Time - Snapshot
11. Service Level Management Executive Summary
12. System Availability
13. System Inventory
14. Systems Performing Each Application — Snapshot
15. System Volume and CPU Utilization Top Ten
16. Top Ten Transaction

17 Transactions per System — Snapshot

## Generic Reports

System Resource includes the following generic report types:

- Top Ten
- Hot Spots
- QuickView
- Near Real Time
- Executive Summary
- Forecast

If you want to find out where volume and utilization are the heaviest, open the **Top Ten** report. This report sorts systems by volume (highest to lowest), by CPU utilization (highest to lowest), and by filesystem utilization (highest to lowest), allowing you to see which systems, if any, are experiencing unusual activity.

If you see a system in the Top Ten report that needs further investigation, open the **Snapshot** version of the **QuickView** and select the system or systems that interest you. This report provides utilization averages for yesterday, shows you what the exception thresholds are, and provides graphs that track utilization levels on an hourly basis.

If you want to see recent performance data that has not been aggregated into hourly averages, open the **Near Real Time** version of the QuickView. By looking at actual sample data collected over the previous six hours, you can find out whether a bad condition is improving or worsening. If the QuickView is showing over-utilization, use the **Optimization** reports to see whether simple load balancing might be the easiest way to improve service quality.

If you suspect that utilization levels are high and getting worse, use the **Forecast** reports to pinpoint systems that may be headed toward high utilization. Forecast reports provide the following details:

- Days to Threshold (DTT)
- Estimated utilization 30, 60, and 90 days from today
- Grade of Service scores for the previous 24 hours
- CPU, memory, swap, and filesystem utilization trends over the previous 24 hours

# Integration with OVO

You can isolate faults and diagnose problems faster by integrating System Resource with HP OpenView Operations (OVO). To do that, install the thresholds sub-package that comes with System Resource. The thresholds sub-package contains a thresholds policy used by the Thresholds Module to monitor the database for threshold breaches. When the Thresholds Module detects a breach, it takes one of several possible actions. The default action is to send a breach trap to Network Node Manager (NNM). When the condition clears, the default action is to send a clear trap to NNM.

Because NNM is the default destination for traps, you must configure the Thresholds Module to send traps to OVO. You will make this change by opening the SNMP Trap Action Definition form, filling in the necessary information, and saving your changes. In addition, your OVO administrator will have to prepare a trap template definition for OVO. *The Thresholds Module 5.0 User Guide* contains the information needed to prepare the template.

# Ways to Customize Reports

You can customize reports by importing properties, by applying group filters, by applying constraints, and by editing tables and graphs. Service providers use group filters to produce customer-specific reports. Any user can apply a constraint to report, and any user can edit tables and graphs. For details about editing tables and graphs (selecting view options), see Appendix A, Editing Tables and Graphs.

## Group Filters

You can share reports with customers by configuring OVPI to generate customer-specific reports. You configure OVPI to generate customer-specific report by creating and applying group filters. Creating group filters involves the following tasks:

- Importing custom property information (customers, locations, IP addresses for nodes, and host names for nodes) using Common Property Tables
- Creating a group account for all of the users affiliated with a particular customer
- Creating a group filter for the group account

For more information about group filters, refer to the *OVPI Administration Guide*.

## Applying Constraints

When you edit a parameter, you apply a constraint. The constraint removes data you are not interested in seeing. If you edit the Customer_Name parameter, data for every customer except the customer you typed in the Customer_Name field will drop from the report. If you edit the Location_Name parameter, data for all locations except the location you typed in the Location_Name field will drop from the report.

You can apply multiple constraints at the same time. System Resource supports the following parameters:

- Customer_Name
- Location_Name
- Device

If you are using the Web Access Server to view reports, apply a constraint by clicking the Edit Parameters icon at the bottom right-hand corner of the report. When the Edit Parameters window opens, enter the constraint in the field and click **Submit.**

If you are using the Report Viewer application, apply a constraint by selecting **Edit > Parameter Values** from the menu bar. When the Modify Parameter Values window opens, click **Current Value**. Enter a new value and click **OK**.

## Adding Customized Property Data

The reports in System Resource 4.1 can be populated with the following properties:

- IP address for the device
- Host name for the device
- Name of the customer associated with the device
- Location associated with the device

When this information appears in a report, the report is reading database tables maintained by the Common Property Tables package. If you are about to install Common Property Tables for the first time, you can import properties by using the batch-mode property import utility that comes with Common Property Tables. Once you import properties in batch mode, you have two ways to modify existing properties:

- Use the batch-mode property import utility (edit a file, then import the edited file)
- Use the change forms that come with Common Property Tables

For details about both approaches, refer to the *Common Property Tables 3.5 User Guide*.

# Sources for Additional Information

This user guide includes samples of some of the reports in System Resource. The demo package that comes with System Resource contains a sample of every report in the package. If you have access to the demo package and you want to know what fully-populated reports look like, install the demo package. Like real reports, demo reports are interactive; unlike real reports, demo reports are static.

The following documents are related to this manual:

- *System Resource Report Pack 4.1 Release Notes*
- *Understanding the SysRes OVPA Datapipe 3.0, May 2006*
- *SysRes OVPA Datapipe 3.0 Release Statement*
- *SysRes OVPA Collection Datapipe 1.0 Release Statement*
- *SysRes RFC1514 Datapipe 4.0 Release Statement*
- *Metrics for HP OV Performance Agent and Operations Agent*
- *OVPI Report Packs, CD-ROM Release Notes, May 2006*

The document about OVPA and EPC metrics, as well as the other documents listed above, can be downloaded from this site:

**http://www.managementsoftware.hp.com**

Select **Support** > **Product Manuals** to reach the **Product Manuals Search** page. The user guides for OVPI are listed under **Performance Insight**. The user guides for report packs and datapipes are listed under **Performance Insight Reporting Solutions**. Each document indicates the date. If a document is revised and reposted, the date will change. Since we post revised manuals on a regular basis, you should search this site for updates before using any PDF that was pulled from the Docs directory on the report pack CD-ROM.

# 2 The Upgrade Install

This chapter covers the following topics:

- Guidelines for a smooth upgrade
- Upgrading to System Resource 4.1
- Post-installation steps
- Uninstalling System Resource 4.1

## Guidelines for a Smooth Upgrade

The report pack CD contains datapipes, report packs, and several shared packages. When you insert the report pack CD in the CD-ROM drive and launch the package extraction program, the install script extracts every package from the CD and copies the results to the Packages directory on your system. After the extract finishes, the install script prompts you to start Package Manager. Before using Package Manager, become familiar with the following topics:

- Software prerequisites for System Resource
- Datapipes and remote pollers
- Deleting custom table view

### Software Prerequisites

System Resource 4.1 has the following prerequisites:

- OVPI 5.1
- All service packs available for OVPI 5.1
- Common Property Tables 3.5

If you are running an earlier version of Common Property Tables, upgrade to Common Property Tables 3.5 by installing the “to_3.5” upgrade package. Upgrade Common Property Tables before upgrading the System Resource Report Pack.

### Datapipes and Remote Pollers

Datapipes cannot be upgraded. You must remove the existing datapipe, then re-install the latest version of the datapipe after the upgrade is complete. When you uninstall an existing datapipe, the following information will be lost:

- The polling policy for a single remote poller
- Cloned polling policies for multiple remote pollers

- Polling groups you created yourself

To export existing polling policy configurations and customized polling group, use the collection_manager and group_manager commands.

### Exporting Polling Policy Configurations

If your environment contains polling policies for remote pollers, use the collection_manager command to export exiting policy configurations to a file.

*UNIX:* As user trendadm, run the following command:

```
cd $DPIPE_HOME

./bin/collection_manager -export -file /tmp/savePollingPolicy.lst
```

*Windows:* As Administrator, launch a command window. Navigate to the OVPI install directory and execute the following command:

```
bin\collection_manager -export -file \temp\savePollingPolicy.lst
```

### Exporting Customized Polling Groups

If your environment contains customized polling groups, use the group_manager command to export groups to individual .xml files.

*UNIX:* As user trendadm, execute the following command:

```
cd $DPIPE_HOME

./bin/group_manager -export_all -outfile /tmp/savePollingGroups
```

*Windows:* As Administrator, launch a command window, then navigate to the OVPI install directory and execute the following command:

```
bin\group_manager -export_all -outfile \temp\savePollingGroups
```

## Custom Table Views

If you created custom table views, the views you created may interfere with the report pack upgrade, causing the upgrade to fail. Whether or not your custom table views interfere with the upgrade depends on how you created them. If you created them using SQL, the upgrade will succeed but your custom views will not be available once the upgrade is complete. If you created them using Datapipe Manager, the upgrade is likely to fail. To prevent the upgrade from failing, delete your custom table views before upgrading the report pack, then recreate these views after the upgrade is complete.

# Upgrading to Version 4.1

Follow these steps to upgrade the System Resource Report Pack. Since your existing datapipes cannot be upgraded, they must be uninstalled before you upgrade the report pack, then reinstalled after the report pack is upgraded.

1. Log in to the system. On UNIX systems, log in as root.
2. Stop OVPI Timer and wait for processes to stop running.

*Windows NT:*

a. Select **Control Panel > Administrative Tools > Services**

b. Select OVPI Timer from the list of services.

c. From the Action menu, select **Stop**.

*UNIX:* As root, do one of the following:

— HP-UX: **`sh /sbin/init.d/ovpi_timer stop`**

— Sun: **`sh /etc/init.d/ovpi_timer stop`**

3. If necessary, upgrade Common Property Tables by installing the "to_3.5" upgrade package.
4. Uninstall the datapipes you installed when you installed your current version of System Resource.

> The SysRes RFC 1514 Datapipe has not changed since System Resource 4.0 was released. If this is the *only* datapipe you are using, there is no need to uninstall it before upgrading the report pack.

> If you are running OVPI on UNIX and using Sybase for database management, you have an extra step to perform but *only* if you are uninstalling version 1.0 of the SysRes OVPA Datapipe and upgrading to version 3.0. After uninstalling version 1.0, you must remove several .bcpg files manually.
>
> - Navigate to: `{COLLECT_HOME}/collect/SR/`
> - Remove the following files:
>   - `xSR_OVPA_config.bcpg`
>   - `xSR_OVPA_filesystem.bcpg`
>   - `xSR_OVPA_global.bcpg`

5. Install this package: *UPGRADE_System_Resource_to_4.1*
6. Upgrade existing sub-packages; install one or more of the following sub-packages:
   - *UPGRADE_SR_CPU_to_4.1*
   - *UPGRADE_SR_DISK_to_4.2*
   - *UPGRADE_SR_PROC_to_4.1*
   - *UPGRADE_SR_NetIf_to_4.2*
   - *UPGRADE_SR_LV_to_4.2*
7. Install datapipes:
   - *SysRes OVPA Datapipe 3.0* **and**
   - *SysRes OVPA Collection Datapipe 1.0*

   **or**
   - *SysRes RFC 1514 Datapipe 4.0*

8 Restart OVPI Timer.

*Windows NT*: Select **Settings > Control Panel** > **Administrative Tools > Services**

*UNIX*: As root, type one of the following:

HP-UX: **`sh /sbin/init.d/ovpi_timer start`**

Sun: **`sh /etc/init.d/ovpi_timer start`**

# Post-Installation Steps

Reconfigure any polling policies and customized group definitions that need to be restored. Do not re-import the configurations you exported. Because the old datapipe may be incompatible with the new datapipe you just installed, re-importing the configurations you exported could lead to data corruption. In addition, if you dropped any custom table views, you may recreate those custom views now.

# Package Removal

Uninstalling System Resource also uninstalls any datapipe that depends on System Resource. Follow these steps to uninstall the System Resource Report Pack:

1 Log in to the system. On UNIX systems, log in as root.

2 Stop OVPI Timer and wait for processes to stop running.

*Windows NT:*

a Select **Control Panel > Administrative Tools > Services**

b Select OVPI Timer from the list of services.

c From the Action menu, select **Stop**.

*UNIX:* As root, do one of the following:

— HP-UX: **`sh /sbin/init.d/ovpi_timer stop`**

— Sun: **`sh /etc/init.d/ovpi_timer stop`**

3 Launch Performance Insight and start Package Manager. The Package Manager welcome window opens.

4 Follow the on-screen instructions for uninstalling packages. When the Selection Summary window opens, select *System Resource 4.1*. When the uninstall process finishes, a package removal complete message appears.

5 Click **Done** to return to the Management Console.

6 Restart OVPI Timer.

*Windows NT*: Select **Settings > Control Panel** > **Administrative Tools > Services**

*UNIX*: As root, type one of the following:

HP-UX: **`sh /sbin/ovpi_timer start`**

Sun: **`sh /etc/init.d/ovpi_timer start`**

# 3 The New Install

This chapter covers the following topics:

- Guidelines for a smooth install
- Installing System Resource 4.1
- Accessing deployed reports
- Seeing performance data in reports
- Package removal

## Guidelines for a Smooth Install

An OVPI reporting solution has at least two ingredients, a report pack and a datapipe. Some OVPI reporting solutions include multiple datapipes. When you install the datapipe, you are configuring OVPI to collect a specific type of performance data at a specific interval. When you install the report pack, you are configuring OVPI to summarize and aggregate the data that was collected by the datapipe.

The report pack CD-ROM contains report packs, datapipes, and shared packages. When you insert the CD in the CD-ROM drive and launch the package extraction program, the install script extracts every package from the CD and copies the results to the Packages directory on your system. After the extract finishes, the install script prompts you to start Package Manager and follow the on-screen instructions. Before using Package Manager, review the following guidelines.

### Software Prerequisites

System Resource 4.1 has the following prerequisites:

- OVPI 5.1
- All service packs available for OVPI 5.1
- Common Property Tables 3.5

If you are not running any version of Common Property Tables, let Package Manager install Common Property Tables for you. If you are running an earlier version of Common Property Tables, upgrade to the latest version by installing the “to_3.5” upgrade package. Upgrade Common Property Tables *before* installing the System Resource Report Pack.

The datapipes that collect data for System Resource are not prerequisites. You may install the datapipes when you install System Resource or you may install the datapipes after you install System Resource. Installing at least one datapipe is mandatory. These are your choices:

- SR OVPA Datapipe
- RFC 1514 Datapipe (host resources MIB)
- OVPA Collection Datapipe [for agent discovery]

## Thresholding and Integration with OpenView Operations (OVO)

If you want to implement thresholding for this package, install SystemResource_Thresholds, a sub-package that comes with System Resource. The thresholds sub-package contains customized thresholds. Installing the thresholds sub-package configures OVPI to monitor the database for threshold conditions and respond to a breach condition by taking one of several possible actions.

The thresholds sub-package requires the Thresholds Module. If you select the thresholds sub-package for installation, Package Manager will select and install the Thresholds Module for you, automatically. Because the Thresholds Module includes defaults designed for Network Node Manager (NNM), you must configure the Thresholds Module to send breach traps to OpenView Operations for Windows (OVOW) or OpenView Operations for UNIX (OVOU). For details about the procedure for modifying category, severity, and destination parameters, refer to the *Thresholds Module 5.0 User Guide*.

## Distributed Environments

Central server software requirements are different from satellite server software requirements. Install the following packages on the central server:

- System Resource 4.1
- Optional sub-packages (SR_CPU, SR_DISK, etc.)
- Common Property Tables 3.5

Install the following packages on each satellite server:

- System Resource 4.1
- Optional sub-packages (SR_CPU, SR_DISK, etc.)
- Common Property Tables 3.5
- Datapipes:
  - SysRes OVPA Datapipe 3.0 *and*
  - SysRes OVPA Collection Datapipe 1.0

    *or*
  - SysRes RFC 1514 4.0
- SystemResource_Thresholds (optional)
- Thresholds Module 5.0 (optional)

The thresholds sub-package reports exceptions on aggregated data, or hourly data, or both aggregated data and hourly data. If you are only interested in seeing alarms on hourly data, installing the thresholds sub-package on the central server is not necessary. If you want to set thresholds on aggregated data, you must install the thresholds sub-package on the central server.

When you finish installing packages, use the Add Database Wizard to set up connections with satellite server databases. After those connections are set, configure trendcopy pull commands and switch off higher-level aggregations at each satellite server. For details, see Chapter 5, Setting Up a Distributed System.

# Installing System Resource 4.1

Follow these steps to install System Resource:

- Task 1: Stop OVPI Timer and extract packages from the report pack CD.
- Task 2: Install System Resource, optional sub-packages, and at least one datapipe
- Task 3: Restart OVPI Timer.

### Task 1: Stop OVPI Timer and extract packages from the report pack CD

1. Log in to the system. On UNIX systems, log in as root.
2. Stop OVPI Timer and wait for processes to terminate.

   *Windows:* Do the following:

   a. Select **Control Panel > Administrative Tools > Services**

   b. Select OVPI Timer from the list of services.

   c. From the Action menu, select **Stop**.

   *UNIX:* As root, do one of the following:

   — HP-UX: **`sh /sbin/ovpi_timer stop`**

   — Sun: **`sh /etc/init.d/ovpi_timer stop`**
3. Insert the report pack CD in the CD-ROM drive.

   *Windows:* A menu displays automatically.

   *UNIX:*

   a. Mount the CD (if the CD does not mount automatically).

   b. Navigate to the top level directory on the CD.

   c. Run **`./setup`**
4. Type **`1`** in the choice field and press **Enter**.

   The install script displays a percentage complete bar. When the copy is complete, the install script starts Package Manager. The Package Manager welcome window opens.

### Task 2: Install System Resource and at least one datapipe

1. Click **Next.** The Package Location window opens.
2. Click **Install.** Approve the default destination directory or browse to a different directory if necessary.
3. Click **Next.** The Report Deployment window opens. Type your username and password for the OVPI Application Server.
4. Click **Next.** The Package Selection window opens. Click the check box next to:
   - *System Resource 4.1*

- *SR_LV sub-package 4.2* (optional)
- *SR_PROC sub-package 4.1* (optional)
- *SR_NetIf sub-package 4.2* (optional)
- *SR_CPU sub-package 4.1* (optional)
- *SR_DISK sub-package 4.2* (optional)
- Datapipes:
  - *SysRes OVPA Datapipe 3.0*
  - *SysRes OVPA Collection Datapipe 1.0*

  or
  - *SysRes RFC1514 Datapipe 4.0*
- *SystemResource_Thresholds* (optional)

Installing the thresholds sub-package is optional. If you install the thresholds sub-package, Package Manager will install Thresholds Module 5.0 for you.

If you are not currently running any version of Common Property Tables, Package Manager will select and install Common Property Tables 3.5 for you, automatically.

The demo package is optional. You can install the demo package and nothing else, or you can install the demo package along with everything else.

5 Click **Next.** The Type Discovery window opens. Disable the default and click **Next**. The Selection Summary window opens.

6 Click **Install.** The Installation Progress window opens and the install begins. When the install finishes, a package installation complete message appears.

7 Click **Done** to return to the Management Console.

### Task 3: Restart OVPI Timer

*Windows NT*: Select **Settings > Control Panel** > **Administrative Tools > Services**

*UNIX*: As root, type one of the following:

HP-UX: **`sh /sbin/init.d/ovpi_timer start`**

Sun: **`sh /etc/init.d/ovpi_timer start`**

## Accessing Deployed Reports

When you installed this report pack, you enabled the Deploy Reports option. As a result, the reports in this package (as well as any forms that come with this package) are now deployed to the OVPI Application Server. Once reports reside on the OVPI Application Server, you can view them on the web or you can view them using the OVPI client applications.

The OVPI application clients are Report Viewer, Report Builder, and the Management Console. If the client components are not installed on your system, you must use a web broswer to view reports. For more information about the OVPI appliation clients, see the

*OVPI Installation Guide*. For more information about the Management Console, including how to use the Object/Property Management view to launch reports specific to a selected object, see the *OVPI Administration Guide*.

## Seeing Performance Data in Reports

Some reports populate with data sooner than others. The first report to populate with data is the Near Real Time report. You will begin to see data in this report immediately after the first data collection completes.

Any report that begins with an analysis of yesterday's performance will need at least one full day's worth of data before results are viewable. You will begin to see forecast data soon, within a few days. However, reliable forecast data will not be available until the baseline is complete, and this will take several weeks.

# Package Removal

Uninstalling System Resource removes any datapipe that depends on System Resource. Follow these steps to uninstall System Resource from OVPI.

1. Log in to the system. On UNIX systems, log in as root.
2. Stop OVPI Timer and wait for processes to stop running.

   On Windows, do the following:

   a. Select **Control Panel > Administrative Tools > Services**
   b. Select OVPI Timer from the list of services.
   c. From the Action menu, select **Stop**.

   On UNIX, as root, do one of the following:

   — HP-UX: **`sh /sbin/ovpi_timer stop`**
   — Sun: **`sh /etc/init.d/ovpi_timer stop`**
3. Launch Performance Insight and start Package Manager. The Package Manager welcome window opens.
4. Follow the on-screen instructions for uninstalling packages. When the Selection Summary window opens, select *System Resource 4.1*. When the uninstall process finishes, a package removal complete message appears.
5. Click **Done** to return to the Management Console.
6. Restart OVPI Timer.

   *Windows NT*: Select **Settings > Control Panel > Administrative Tools > Services**

   *UNIX*: As root, type one of the following:

   HP-UX: **`sh /sbin/init.d/ovpi_timer start`**

   Sun: **`sh /etc/init.d/ovpi_timer start`**

# 4 Data Collection

This chapter covers the following topics:

- SysRes RFC 1514 Datapipe 4.0
- SysRes OVPA Collection Datapipe 1.0
- SysRes OVPA Datapipe 3.0
- Collections performed by the sub-packages

## SysRes RFC 1514 Datapipe

The SysRes RFC 1514 Datapipe collects the following data from the Host Resources MIB:

- CPU utilization
- Memory utilization
- Number of page outs
- Run queue length
- Swap utilization

## SysRes OVPA Collection Datapipe

The SysRes OVPA Collection Datapipe performs the following tasks:

- Discovers OVPA or EPC performance agents
- Inserts pa_collect statements into the trendtimer.sched file
- Populates the OVPA type group for use in the collection process

The discovery process runs once a day. In accordance with directives in the OVPA_Collection_Daily.pro file, the discovery process attempts to check all of the nodes in ksi_managed_node table. Since SNMP discovery can only discover SNMP-pollable devices, you may want to add OVPA or EPC systems using the create node tool.

Once the discovery process starts, it writes to the pa_discovery.data file in the DPIPE_HOME/data directory. The pa_discovery.data file contains the systems the discovery process finds. Once the discovery process is complete, ee_collect loads the pa_discovery.data file into OVPI. The data is placed in the K_padatasources table.

# SysRes OVPA Datapipe

The SysRes OVPA Datapipe collects metrics from the following classes:

- Global
- Filesystem
- Application
- Transaction
- Configuration

Metrics in the configuration class are collected once daily. The other classes are collected hourly. The metrics collected for System Resource by the SysRes OVPA Datapipe come from two agents:

- HP OpenView Performance Agent (OVPA)
- Embedded Performance Component of OpenView Operations (OVOA)

OVOA, also known as EPC, ships with OVOU 7.0 and OVOW 7.0. If you are using OVOU 7.0 (or later) or OVOW 7.0 (or later), the SysRes OVPA Datapipe collects metrics from EPC. If you are using an earlier version of OVO, the SysRes OVPA Datapipe collect metrics from OVPA.

The metrics gathered by OVPA are different from the metrics gathered by EPC. For details about how the metrics vary, refer to *Metrics for HP OV Performance Agent and Operations Agent.* You can download this document from the Product Manuals website. Look for it in one of two places, under *Operations for Windows* and under *Operations for UNIX*.

For more information about the SysRes OVPA Datapipe, including information about tables, metrics, and mapping, refer to *Understanding the OVPA Datapipe*.

# Collections Performed by Sub-Packages

The following sub-packages can be installed with the System Resource Report Pack:

- CPU
- Process
- Disk
- Logical Volume
- Network Interface

Each sub-package provides a built-in data collection. Each collection takes place hourly. In addition, each collection is a history-styled collection. When the system is polled, the datapipe returns multiple rows, with each row having a distinct ta_period. The first time the collection runs, all rows from midnight of the previous day will be returned. Each collection thereafter will only return data that has not already been collected.

Limiting subsequent collections to data that has not already been collected is accomplished using history property tables. These tables contain the last *ta_sysuptime* value in the *lastPoll* column. Each collection after the first collection asks for data with a time stamp value greater than the value in *lastPoll*.

## CPU Sub-Package

The CPU sub-package collects data from the CPU class. All systems in the OVPA type group will be collected for the CPU collection.

### Data Table Matrix

| Table/File | Name |
|---|---|
| Raw Table | xSR_OVPA_CPU |
| Rate Table | RSR_OVPA_CPU |
| Property Table | K_OVPA_CPU |
| Teel File | SysResOVPA_CPU.teel |

### Property Table Matrix

| Table/File | Name |
|---|---|
| Property Table | K_OVPA_CPU |
| Teel File | prop_OVPA_CPU.teel |

### History Property Table Matrix

| Table/File | Name |
|---|---|
| Property Table | K_OVPA_CPU_History |
| History Property Table | K_OVPA_CPU_History |
| History Teel File | prop_OVPA_CPU_history.teel |

### Collected CPU Metrics

The collection table is RSR_OVPA_CPU. Supported metrics vary from platform to platform and from OVPA to EPC agents.

| Metric | Description |
|---|---|
| BYCPU_ID | CPU ID |
| BYCPU_CPU_SYS_MODE_UTIL | The percent of time CPU was in System Mode. |
| BYCPU_CPU_USER_MODE_UTIL | The percent of time CPU was in User Mode. |
| BYCPU_CPU_TOTAL_UTIL | The percent CPU utilization. |
| BYCPU_STATE | CPU State |
| BYCPU_INTERRUPT_RATE | Average number of device interrupts. |
| BYCPU_CSWITCH_RATE | Context switch rate |

### Daily Processing

The SR_Daily_CPU.pro file is invoked at 2:00 every morning. The daily processing consists of running the SD_SR_CPU.sum file.

### Hourly Processing

The SR_Hourly_CPU.pro file is invoked every hour.

The hourly processing handles new systems, updates the CPU property table, and data mapping from the datapipe rate table to the System Resource CPU Report Pack base table.

When new systems are found they need to be added to K_Node before the summaries take place. This is done using the stored procedure ppSR_OVPACPU_SetIDs. The stored procedure is invoked using the SQL script execute_SR_OVPACPU_SetIDs.sql. The stored procedure populates K_Node with the new system and populates the node_fk column in the datapipe property table with the dsi_key_id value for that system from K_Node.

The CPU update populates the K_System_CPU property table with the CPU state.

### Mapping RSR_OVPA_CPU to SH_SR_CPU

Purpose: Map system metrics from RSR_OVPA_CPU to the System Resource CPU base table SH_SR_CPU.

File: SH_SR_CPU.sum
source table: RSR_OVPA_CPU
destination table: SH_SR_CPU
by variable: node_fk
by variable: CPUid
by variable: hour

column: CPUSystemMode=BYCPU_CPU_SYS_MODE_UTIL:avg
column: CPUUserMode=BYCPU_CPU_USER_MODE_UTIL:avg
column: CPUUtil=BYCPU_CPU_TOTAL_UTIL:avg
column: CSRate=BYCPU_CSWITCH_RATE:avg
column: IntRate=BYCPU_INTERRUPT_RATE:avg

| Source Metric | Destination Metric | Summary Type |
|---|---|---|
| BYCPU_CPU_SYS_MODE_UTIL | AVGCPUSystemMode | avg |
| BYCPU_CPU_USER_MODE_UTIL | AVGCPUUserMode | avg |
| BYCPU_CPU_TOTAL_UTIL | AVGCPUUtil | avg |
| BYCPU_CSWITCH_RATE | AVGCSRate | avg |
| BYCPU_INTERRUPT_RATE | AVGIntRate | avg |

## Logical Volume Sub-Package

The Logical Volume sub-package collects data from the Logical Volume class. All systems in the OVPA type group will be collected for the Logical Volume collection.

## Data Table Matrix

| Table/File | Name |
|---|---|
| Raw Table | xSR_OVPA_LV |
| Rate Table | RSR_OVPA_LV |
| Property Table | K_OVPA_LogicalVolue |
| Teel File | SysResOVPA_LogicalVolume.teel |

## Property Table Matrix

| Table/File | Name |
|---|---|
| Property Table | K_OVPA_LogicalVolume |
| Teel File | prop_OVPA_LogicalVolume.teel |

## History Property Table Matrix

| Table/File | Name |
|---|---|
| Property Table | K_OVPA_LV_History |
| History Property Table | K_OVPA_LV_History |
| History Teel File | prop_SysResOVPA_LV_history.teel |

## Collected Logical Volume Metrics

The collection table is RSR_OVPA_LogicalVolume. Supported metrics vary from platform to platform and are supported on the OVPA agent only.

| Metric | Description |
|---|---|
| LV_DIRNAME | The absolute path name of Logical volume on HP OS. |
| LV_READ_RATE | Number of physical reads per second for this logical volume during the interval. |
| LV_WRITE_RATE | Number of physical writes per second for this logical volume during the interval. |
| LV_SPACE_UTIL | Percent of the logical volume file system space in use during the interval. |

## Daily Processing

The SR_Daily_LogicalVolume.pro file is invoked at 2:00 every morning. The daily processing consists of running the SD_SR_LogicalVolume.sum file.

### Hourly Processing

The SR_Hourly_LogicalVolume.pro file is invoked every hour.

The hourly processing handles new systems and data mapping from the datapipe rate table to the System Resource Logical Volume Report Pack base table.

When new systems are found, they need to be added to K_Node before the summaries take place. This is done using the stored procedure ppSR_OVPALogicalVolume_SetIDs. The stored procedure is invoked using the SQL script execute_SR_OVPALogicalVolume_SetIDs.sql. The stored procedure populates K_Node with the new system and populates the node_fk column in the datapipe property table with the dsi_key_id value for that system from K_Node.

### Mapping RSR_OVPA_LogicalVolume to SH_SR_LogicalVolume

Purpose: Map metrics from RSR_OVPA_LogicalVolume to the LogicalVolume base table SH_SR_LogicalVolume.

| File: SH_SR_LogicalVolume.sum<br>source table: RSRV_OVPA_LogicalVolume<br>destination table: SH_SR_LogicalVolume<br>by variable: node_fk<br>by variable: LV_DIRNAME<br>by variable: hour | | |
|---|---|---|
| **Source Metric** | **Destination Metric** | **Summary Type** |
| LV_READ_RATE | AVGReadRate | avg |
| LV_WRITE_RATE | AVGWriteRate | avg |
| LV_SPACE_UTIL | AVGSpaceUtil | avg |

## Network Interface Sub-Package

The Network Interface sub-package collects data from the Network Interface class. All systems in the OVPA type group will be collected for the Network Interface collection.

### Data Table Matrix

| **Table/File** | **Name** |
|---|---|
| Raw Table | xSR_OVPA_NetIf |
| Rate Table | RSR_OVPA_NetIf |
| Property Table | K_OVPA_NetInterface |
| Teel File | SysResOVPA_NetInterface.teel |

## Property Table Matrix

| Table/File | Name |
|---|---|
| Property Table | K_OVPA_NetInterface |
| Teel File | prop_OVPA_NetInterface.teel |

## History Property Table Matrix

| Table/File | Name |
|---|---|
| Property Table | K_OVPA_NetInterface_History |
| History Property Table | K_OVPA_NETIF_History |
| History Teel File | prop_SysResOVPA_NetIf_history.teel |

## Collected Network Interface Metrics

The collection table is RSR_OVPA_NetIf. Supported metrics vary from platform to platform and from OVPA to EPC agents.

| Metric | Description |
|---|---|
| BYNETIF_COLLISION_RATE | The name of the network interface. |
| BYNETIF_IN_PACKET_RATE | The number of physical collisions per second on the network interface during the interval. |
| BYNETIF_OUT_PACKET_RATE | The number of successful physical packets per second received through the network interface during the interval. |
| BYNETIF_IN_BYTE_RATE | The number of successful physical packets per second sent through the network interface during the interval. |
| BYNETIF_OUT_BYTE_RATE | The number of KBs per second received to the network via this interface during the interval. |
| BYNETIF_ERROR_RATE | Number of KBs per second sent to the network via this interface during the interval. |
| BYNETIF_NET_SPEED | Number of physical errors per second on the network interface during the interval. |
| BYNETIF_COLLISION_RATE | The speed of this interface. |

## Daily Processing

The SR_Daily_NetInterface.pro file is invoked at 2:00 every morning. The daily processing consists of running the SD_SR_NetInterface.sum file.

### Hourly Processing

The SR_Hourly_NetInterface.pro file is invoked every hour.

The hourly processing handles new systems and data mapping from the datapipe rate table to the System Resource Network Interface Report Pack base table.

When new systems are found, they need to be added to K_Node before the summaries take place. This is done using the stored procedure ppSR_OVPANetIf_SetIDs. The stored procedure is invoked using the SQL script execute_SR_OVPANetIf_SetIDs.sql. The stored procedure populates K_Node with the new system and populates the node_fk column in the datapipe property table with the dsi_key_id value for that system from K_Node.

### Mapping RSR_OVPA_NetIf to SH_SR_NetInterface

Purpose: Map system metrics from RSR_OVPA_NetIf to the Network Interface base table SH_SR_NetInterface.

File: SH_SR_NetInterface.sum
source table: RSR_OVPA_NetIf
destination table: SH_SR_NetInterface
by variable: node_fk
by variable: prop_netif_name
by variable: hour

column: CollisionRate=BYNETIF_COLLISION_RATE:avg
column: InPackets=BYNETIF_IN_PACKET_RATE:avg
column: OutPackets=BYNETIF_OUT_PACKET_RATE:avg
column: InBytes=BYNETIF_IN_BYTE_RATE:avg
column: OutBytes=BYNETIF_OUT_BYTE_RATE:avg
column: ErrorRate=BYNETIF_ERROR_RATE:avg
column: NetSpeed=BYNETIF_NET_SPEED:avg

| Source Metric | Destination Metric | Summary Type |
|---|---|---|
| BYNETIF_COLLISION_RATE | AVGCollisionRate | avg |
| BYNETIF_IN_PACKET_RATE | AVGInPackets | avg |
| BYNETIF_OUT_PACKET_RATE | AVGOutPackets | avg |
| BYNETIF_IN_BYTE_RATE | AVGInBytes | avg |
| BYNETIF_OUT_BYTE_RATE | AVGOutBytes | avg |
| BYNETIF_ERROR_RATE | AVGErrorRate | avg |
| BYNETIF_NET_SPEED | AVGNetSpeed | avg |

## Disk Sub-Package

The Disk sub-package collects data from the Disk class. All systems in the OVPA type group will be collected for the Disk collection.

## Data Table Matrix.

| Table/File | Name |
|---|---|
| Raw Table | xSR_OVPA_Disk |
| Rate Table | RSR_OVPA_Disk |
| Property Table | K_OVPA_Disk |
| Teel File | SysResOVPA_Disk.teel |

## Property Table Matrix

| Table/File | Name |
|---|---|
| Property Table | K_OVPA_Disk |
| Teel File | prop_OVPA_Disk.teel |

## History Property Table Matrix

| Table/File | Name |
|---|---|
| Property Table | K_OVPA_Disk |
| History Property Table | K_OVPA_DISK_History |
| History Teel File | prop_SysResOVPA_Disk_history.teel |

## Collected Disk Metrics

The collection table is RSR_OVPA_Disk. Supported metrics vary from platform to platform and from OVPA to EPC agents.

| Metric | Description |
|---|---|
| BYDSK_DEVNAME | Name identifying the specific disk. |
| BYDSK_DIRNAME | Name of the file system directory mounted on this disk device. Displays Multiple FS if more than one exists. |
| BYDSK_AVG_SERVICE_TIME | Average time, in milliseconds, that this disk spent in processing each disk request during the interval |
| BYDSK_PHYS_IO_RATE | Average number of physical IO requests per second for this disk device during the interval. |
| BYDSK_UTIL | Utilization, or percent of the time busy servicing requests for this device. |
| BYDSK_FS_READ_RATE | Number of physical file system reads per second from this disk device during the interval. |

| Metric | Description |
|---|---|
| BYDSK_FS_WRITE_RATE | Number of physical file system writes per second from this disk device during the interval. |
| BYDSK_VM_IO_RATE | Number of virtual memory IOs per second to this disk device during the interval. |
| BYDSK_RAW_READ_RATE | Number of raw reads per second from this disk device during the interval. |
| BYDSK_RAW_WRITE_RATE | Number of raw writes per second to this disk device during the interval. |
| BYDSK_SYSTEM_IO_RATE | Number of physical system reads or writes per second to this disk device during the interval. |

## Daily Processing

The SR_Daily_Disk.pro file is invoked at 2:00 every morning. The daily processing consists of running the SD_SR_Disk.sum  file.

## Hourly Processing

The SR_Hourly_Disk.pro file is invoked every hour. Hourly processing handles new systems and data mapping from the datapipe rate table to the Disk Sub-Package base table.

When new systems are found, they need to be added to K_Node before the summaries take place. This is done using the stored procedure ppSR_OVPADisk_SetIDs. The stored procedure is invoked using the SQL script execute_SR_OVPADisk_SetIDs.sql. The stored procedure populates K_Node with the new system and populates the node_fk column in the datapipe property table with the dsi_key_id value for that system from K_Node.

### Mapping RSR_OVPA_Disk to SH_SR_Disk

Purpose: Map metrics from RSR_OVPA_Disk to the SH_SR_Disk base table.

File: SH_SR_Disk.sum
source table: RSR_OVPA_Disk
destination table: SH_SR_Disk
by variable: node_fk
by variable: prop_disk_name
by variable: hour

column: ServiceTime=BYDSK_AVG_SERVICE_TIME:avg
column: DiskUtil=BYDSK_UTIL:avg
column: PhysicalIORate=BYDSK_PHYS_IO_RATE:avg
column: FSReadRate=BYDSK_FS_READ_RATE:avg
column: FSWriteRate=BYDSK_FS_WRITE_RATE:avg
column: RawReadRate=BYDSK_RAW_READ_RATE:avg
column: RawWriteRate=BYDSK_RAW_WRITE_RATE:avg
column: c=BYDSK_VM_IO_RATE:avg
column: SystemIORate=BYDSK_SYSTEM_IO_RATE:avg

| Source Metric | Destination Metric | Summary Type |
|---|---|---|
| BYDSK_AVG_SERVICE_TIME | AVGServiceTime | avg |
| BYDSK_UTIL | AVGDiskUtil | avg |
| BYDSK_PHYS_IO_RATE | AVGPhysicalIORate | avg |
| BYDSK_FS_READ_RATE | AVGFSReadRate | avg |
| BYDSK_FS_WRITE_RATE | AVG FSWriteRate | avg |
| BYDSK_RAW_READ_RATE | AVGRawReadRate | avg |
| BYDSK_RAW_WRITE_RATE | AVGRawWriteRate | avg |
| BYDSK_VM_IO_RATE | AVGVMIORate | avg |
| BYDSK_SYSTEM_IO_RATE | AVGSystemIORate | avg |

## Process Sub-Package

The Process sub-package performs an hourly collection. The Process collection collects all systems in the OVPA type group.

## Data Table Matrix.

| Table/File | Name |
|---|---|
| Raw Table | xSR_OVPA_process |
| Rate Table | RSR_OVPA_process |
| Property Table | K_ProcOVPA_proc |
| Teel File | SysResOVPA_Process.teel |

## Property Table Matrix

| Table/File | Name |
|---|---|
| Property Table | K_ProcOVPA_proc |
| Teel File | prop_ProcOVPA_proc.teel |

## History Property Table Matrix

| Table/File | Name |
|---|---|
| Property Table | K_OVPA_proc |
| History Property Table | K_OVPA_PROC_HISTORY |
| History Teel File | prop_ProcOVPA_proc_history.teel |

## Collected Process Metrics

The collection table is RSR_OVPA_process. Supported metrics vary from platform to platform and are only supported by the OVPA agent.

| Metric | Description |
|---|---|
| PROC_CPU_TOTAL_TIME | Total CPU Time consumed in seconds. |
| PROC_PROC_NAME | Process name. |
| PROC_CPU_TOTAL_UTIL | Percentage of CPU Time Consumed. |
| PROC_THREAD_COUNT | Total number of threads. |
| PROC_MEM_VIRT | Sum of virtual memory used. |

## Daily Processing

The SR_Daily_Process.pro file is invoked at 2:00 every morning. The daily processing consists of running the SD_SR_proc.sum  file.

## Hourly Processing

The SR_Hourly_Process.pro file is invoked every hour.

The hourly processing handles new systems and data mapping from the datapipe rate table to the System Resource Disk Report Pack base table.

When new systems are found, they need to be added to K_Node before the summaries take place. This is done using the stored procedure ppSR_OVPAProc_SetIDs. The stored procedure is invoked using the SQL script execute_SR_OVPAProc_SetIDs.sql. The stored procedure populates K_Node with the new system and populates the node_fk column in the datapipe property table with the dsi_key_id value for that system from K_Node.

## Mapping RSR_OVPA_process to SH_SR_Process

Purpose: Maps metrics from RSR_OVPA_process to the SH_SR_Process base table.

File: SH_SR_proc.sum
source table: xSR_OVPA_process
destination table: SH_SR_Process
by variable: node_fk
by variable: Process_Name
by variable: hour

column: CPUTime=PROC_CPU_TOTAL_TIME:tot
column: CPUUtil=PROC_CPU_TOTAL_UTIL:avg
column: ThreadCount=PROC_THREAD_COUNT:tot
column: VirtualMem=PROC_MEM_VIRT:tot

| Source Metric | Destination Metric | Summary Type |
|---|---|---|
| PROC_CPU_TOTAL_TIME | TOTCPUTime | tot |
| PROC_CPU_TOTAL_UTIL | AVGCPUUtil | avg |
| PROC_THREAD_COUNT | TOTThreadCount | tot |
| PROC_MEM_VIRT | TOTVirtualMem | tot |

# 5 Setting Up a Distributed System

This chapter covers the following topics:

- Installing System Resource on multiple servers
- Central server configuration
- Satellite server configuration
- System clocks

## Installing System Resource on Multiple Servers

If you intend to run System Resource as a distributed system across multiple servers, each server must be configured. Before configuring the servers, verify that everything is installed where it needs to be installed. As shown in the following table, the datapipes belong on the satellite servers, otherwise package installation is the same.

| **Central Server** | **Satellite Server** |
|---|---|
| System Resource 4.1 | System Resource 4.1 |
| SystemResource_Thresholds | SystemResource_Thresholds |
| Thresholds Module 5.0 | Thresholds Module 5.0 |
| Common Property Tables 3.5 | Common Property Tables 3.5 |
| | SysRes RFC1514 Datapipe 4.0 |
| | SysRes OVPA Datapipe 3.0 |
| | SysRes OVPA Collection Datapipe 1.0 |

Where you install the optional thresholds sub-package depends on how you want thresholding to work. If you want to set thresholds on hourly data, install the thresholds sub-package on satellite servers. If you want to set thresholds on aggregated data, install the thresholds sub-package on the central server.

## Central Server Configuration

Perform the following tasks:

- Set up connections between the central server and satellite server databases
- Configure trendcopy pull commands on the central server for hourly data
- Configure trendcopy pull commands on the central server for rate data (optional)

### Task 1: Set up connections with satellite server databases

1. Select **HP OpenView > Performance Insight > Management Console**.
2. Click the **Systems** icon on the lower left. The **System/Network Administration** pane opens.
3. Right-click the **Databases** folder. When prompted, select **Add OVPI Database**. The Add Database Wizard opens.
4. Click **Next**.
5. Type the hostname and port number for the database you want to add; click **Next**.
6. Review the Summary. Repeat Steps 4 and 5 for each additional database.
7. Click **Finish** when you are done.

### Task 2: Configure trendcopy pull commands for hourly data

1. Open this file: `$DPIPE_HOME/scripts/SR_Hourly_Reporting.pro`
2. Uncomment the copy commands in the hourly_copy block and modify them as follows:
   - Replace *SATELLITE_SERVER_1_DATABASE* with the satellite server name
   - Replace *THIS_MACHINE_DATABASE* with the central server name
3. If there is more than one satellite server, create and configure new hourly copy commands for each additional machine.
4. Open this file: `SystemResourceReporting_Hourly.pro file.`
5. Comment out the hourly trendsums.

### Task 3: Configure trendcopy pull commands for rate data (optional)

If you want to view Near Real Time reports on the central server, rate data must be available on the central server. Follow these steps to pull rate data from satellite servers:

1. Open this file: `$DPIPE_HOME/scripts/SR_Hourly_Reporting.pro`
2. Uncomment the copy commands in the rate_copy block and modify them as follows:
   - Replace *SATELLITE_SERVER_1_DATABASE* with the satellite server name
   - Replace *THIS_MACHINE_DATABASE* with the central server name
3. If there is more than one satellite server, create and configure new hourly copy commands for each additional machine.

Copying polled rate data from each satellite has two consequences. The amount of traffic between satellite servers and the central server increases, and the processing load on the central server increases.

# Satellite Server Configuration

Follow these steps to configure a satellite server:

Do not follow these steps if you want the satellite server to perform local reporting, or if the thresholds sub-package is not installed on the satellite server.

1. Switch off daily aggregations by commenting out the lines referencing `SR_Server_Reporting.pro` in the `$DPIPE_HOME/lib/trendtimer.sched` file.
2. Modify the `SR_Hourly_Reporting.pro` trendtimer entry in the `$DPIPE_HOME/lib/trendtimer.sched` file. By default, this process starts at 40 minutes after the hour. To make sure the satellite server completes hourly summarizations before the central server begins hourly summarizations, change the start time from 1:00+40 to 1:00+25.
3. Configure datapipe polling policies, making sure that each system is polled by one satellite server only.
4. If the satellite server has two or more pollers, create separate polling policies for each poller and use views and types to separate the devices.

If remote pollers are being used, be sure to avoid duplicate polling across the pollers and duplicate polling between the satellite and the pollers.

# System Clocks

Make sure the system clock on each satellite server is synchronized with the system clock on the central server.

# 6 Thresholds and Change Forms

This chapter covers the following topics:

- Default thresholds set by the thresholds sub-package
- Using change forms to:
  - Update system properties (including multiple threshold settings)
  - Update filesystem properties (including one threshold setting)

## Default Settings for Thresholds

The thresholds sub-package imposes a sets of thresholds for systems and filesystems. When performance reaches a default, OVPI sends a trap to the network management system. The following tables indicates the threshold and severity level.

| Metric | Default Threshold | Severity |
|---|---|---|
| cpuutil_threshold | 80% | MEDIUM |
| swaputil_threshold | 70% | MEDIUM |
| memutil_threshold | 70% | MEDIUM |
| runq_threshold | 3 | MEDIUM |
| pageout_threshold | 5 | MEDIUM |
| FSutil_threshold | 70% | MEDIUM |

The first 5 threshold values are defined in the `K_SR_System.teel` file. The last threshold value is defined in the `K_SR_FileSystem.teel` file. Every system that is discovered will be initialized to the default values shown here.

No intervention on your part is required to implement these defaults. Simply install the thresholds sub-package. If you want to change one or more default settings, use the change forms described later in this chapter. If you want to modify the action that OVPI takes in response to an exception condition, configure the Thresholds Module. For details, see the *Thresholds Module 5.0 User Guide*.

# Change Forms

The system and filesystem objects maintained for System Resource 4.1 can be modified using two change forms. These forms do not allow you to create new objects, only to modify existing objects. The forms are context-sensitive, which means they will modify every object that you selected before you launched the form. So be sure to use forms carefully. Know in advance whether you intend to change one object or multiple objects.

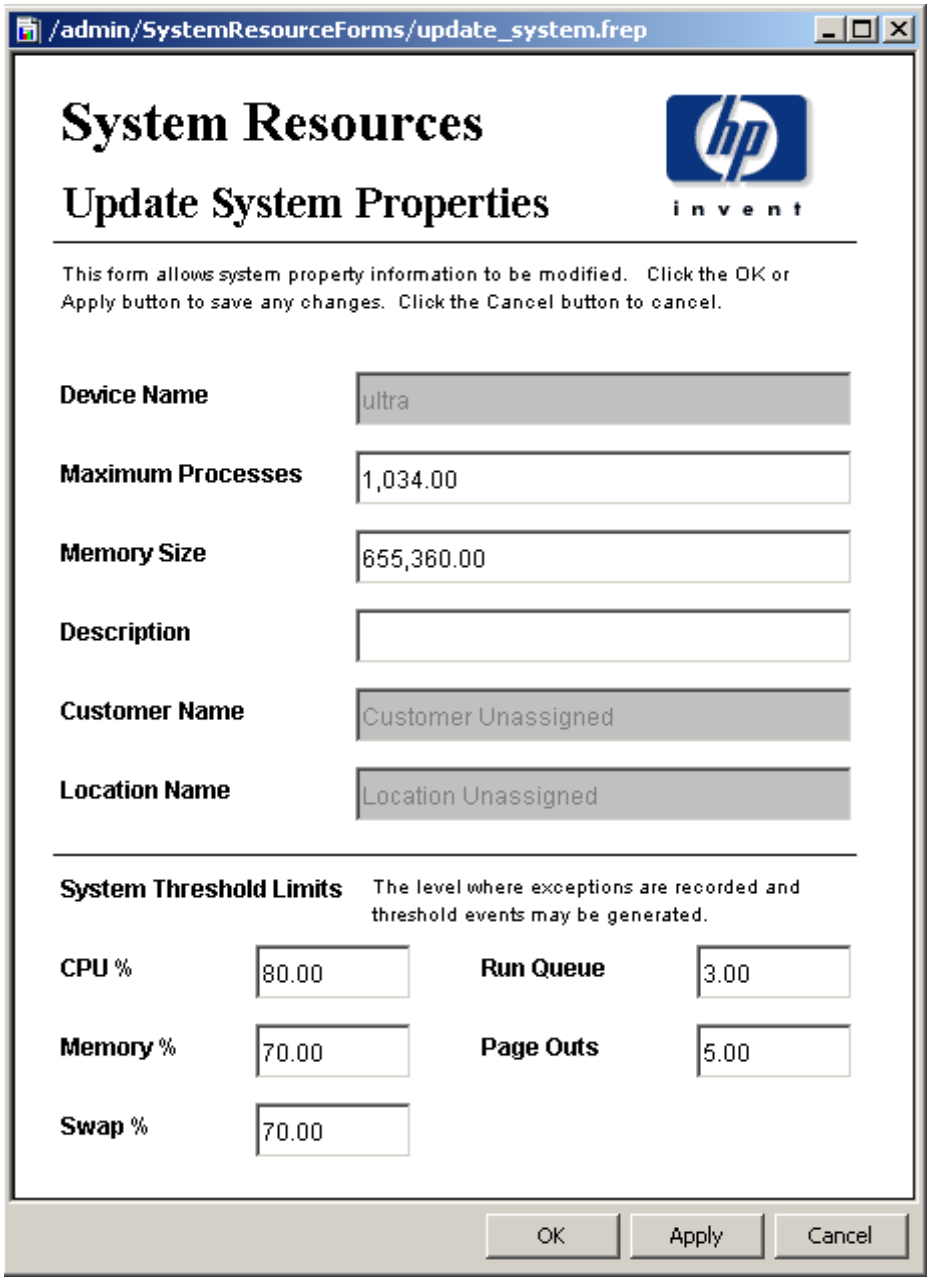
To create new nodes, locations or customers, or modify existing nodes, locations, or customers, use the forms in Common Property Tables.

## Update System Properties

To launch the Update System Properties form, click the **Objects** icon in the panel on the left side of the Management Console window. The Object/Property Management view opens. Object Manager will present a list of objects. The type of object presented depends on which Object Manager View is open.

The default view is the Device view, showing a list of devices. The Customer view shows a list of customers, and the Location view shows a list of locations. To change the view, select **View** > **Change View** and use the pop-up window to select a different view.

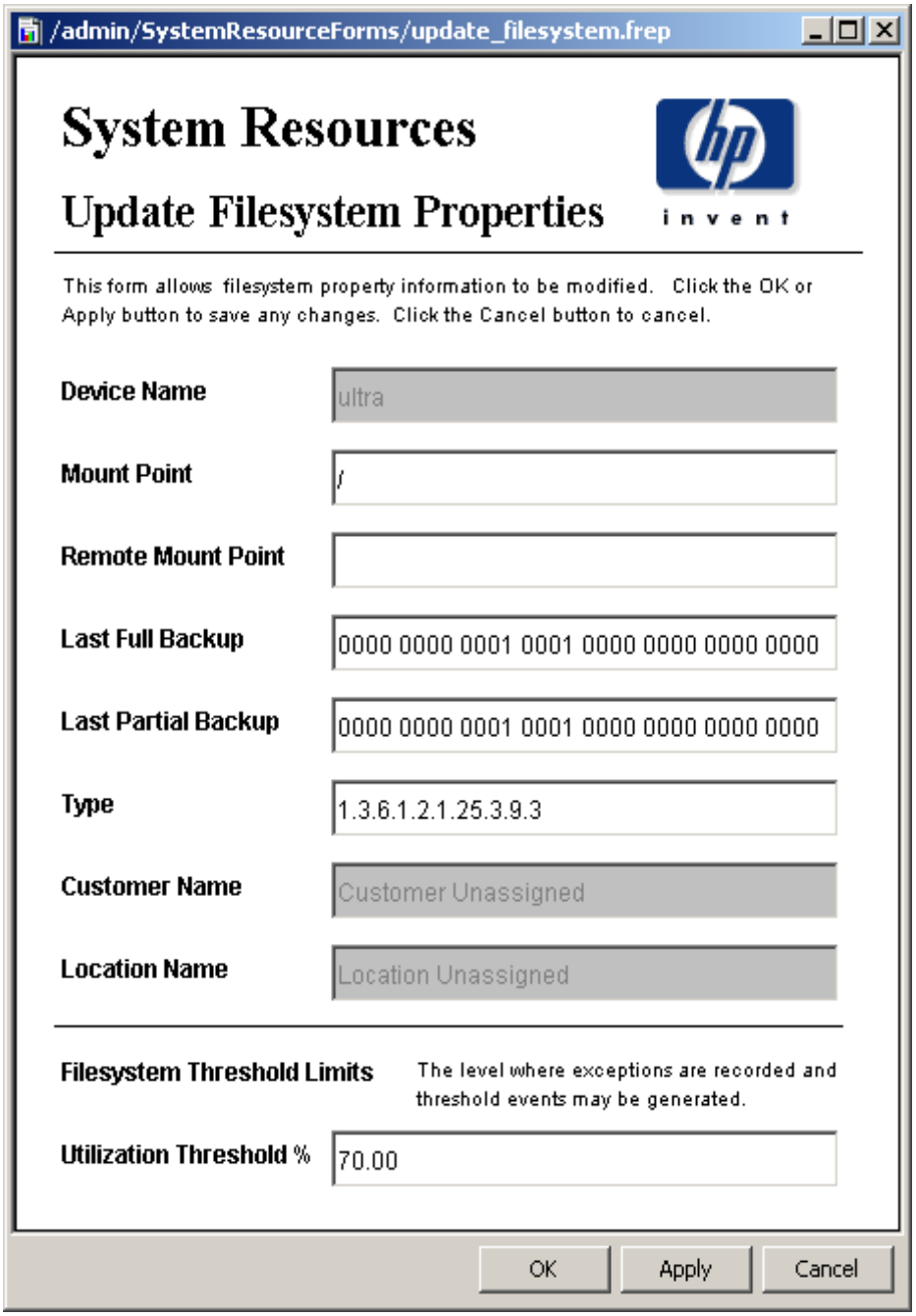
Once the type of object you are interested in updating appears, select the particular object you would like to update. When you select the object, **Update <Object Type> Information** will appear under **Object Specific Tasks**. Double-click the update task to open Update System Properties, shown below.




To update system information, type the changes in the fields provided. Note that the customer name field and the location name field are disabled. The other fields can be modified. To save your changes, click **Apply**. When you finish making changes, click **OK** to save your changes and close the form.

## Update Filesystem Properties

To update filesystem properties, type the changes in the fields provided. The customer name field and the location name field are disabled. The other fields can be modified. To save your changes, click **Apply**. When you finish making changes, click **OK** to save your changes and close the form.



# 7 Optimizing Resources

**Filesystems Resource Optimization** brings into focus the most overutilized and the most underutilized filesystems. Use this report to see where load balancing, as opposed to investing in additional resources, might be the easiest way to improve service quality.

The selection table at the top of the report provides a list of systems that are expected to reach 90% utilization within 90 days. The grade of service bar chart beneath the selection table provides a picture of utilization over the last few days, allowing you to track recent increases and decreases and determine whether a critical situation is getting better or worse. The plot beneath the grade of service chart tracks daily ups and downs in utilization (CPU, memory, swap, filesystem, page outs, and run queue length).

Information about underutilized filesystems comes next. This time the selection table includes filesystems that are expected to be less than 30% utilized within 90 days.

**Memory Resource Optimization** pinpoints the most overutilized and underutilized system memory, indicating opportunities where service levels could be improved through better load balancing. Select a system from the top table to display detailed information for that system.

All aggregation for this report occurs at the daily level. The top selection table lets you see which systems will have a memory utilization greater than 90% in 90 days. You can also see an estimate for memory utilization 30, 60 and 90 days from now. The table directly below the top selection table provides provisioning details for the selected system:

- Customer
- Location
- Vendor
- Model
- Operating system
- Memory utilization threshold

A grade of service stacking bar chart details the overall health of the system, including CPU utilization, memory utilization, swap utilization and run queue length. A linked, tabbed plot pinpoints daily CPU utilization, memory utilization, swap utilization, filesystem utilization, number of page outs, and run queue length for the selected system. The top selection table and linked drill downs are repeated for systems that are projected to have less than 30% memory utilization in 90 days.

# System Resource

## Filesystems Resource Optimization

The System Resource Filesystems Resource Optimization Report details the most over- and under-utilized filesystems, indicating opportunities for load balancing to improve service levels without additional investment. Select a system from the top table to display detailed information for that system.

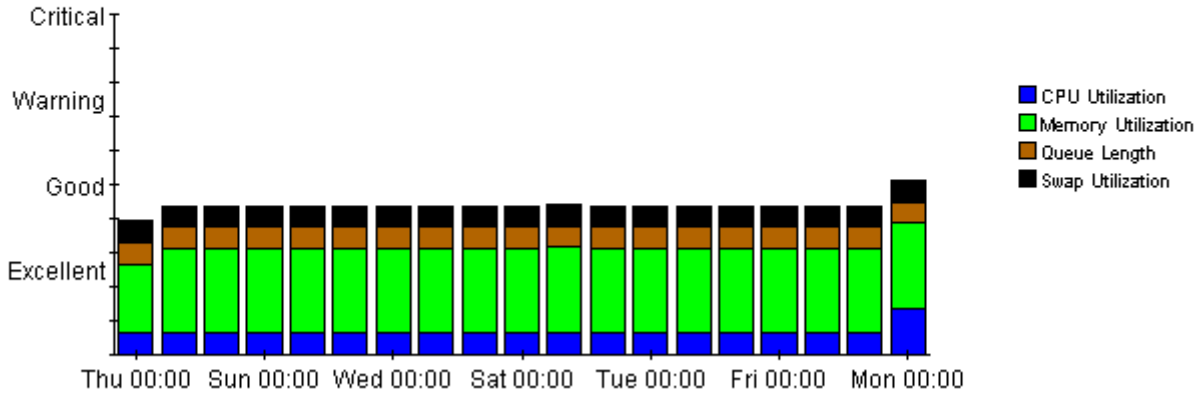
### Overutilized Filesystems
**Projected to Exceed 90% Utilization within 90 Days**

| System | Filesystem | Current Utilization | Projected Utilization 30 | Projected Utilization 60 | Projected Utilization 90 |
|---|---|---|---|---|---|
| System4 | /usr | 94.62 | 94.62 | 94.63 | 94.63 |
| System24 | / | 94.23 | 103.90 | 111.17 | 118.44 |
| System1 | /export/home3 | 90.62 | 92.45 | 93.70 | 94.96 |
| System1 | /export/home4 | 89.30 | 97.03 | 102.21 | 107.40 |
| System4 | /var | 50.86 | 151.83 | 220.29 | 288.75 |
| System25 | /opt | 42.31 | 111.83 | 164.06 | 216.29 |

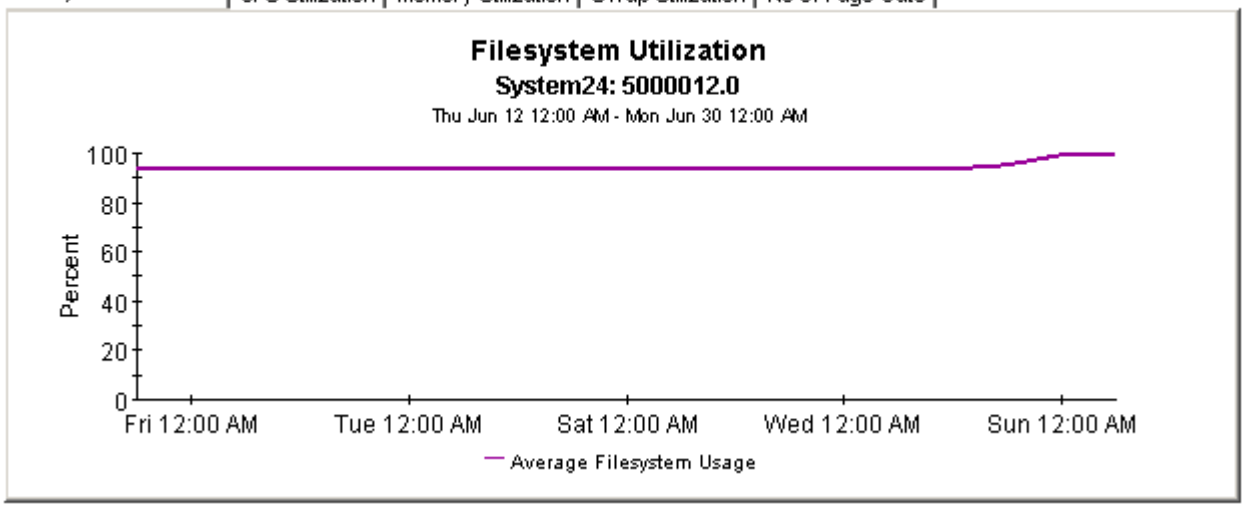
| Vendor | Model | O/S | Customer | Location | Filesystem Utilization Threshold |
|---|---|---|---|---|---|
| Unassigned | i686 | Linux 2.4.2-2 #1 Sun Apr | Customer Unassigned | Location Unassigned | 70.00 |

### Grade of Service (GOS)
**System24**

Thu Jun 12 2003 - Mon Jun 30 2003



Filesystem Utilization | CPU Utilization | Memory Utilization | Swap Utilization | No of Page Outs

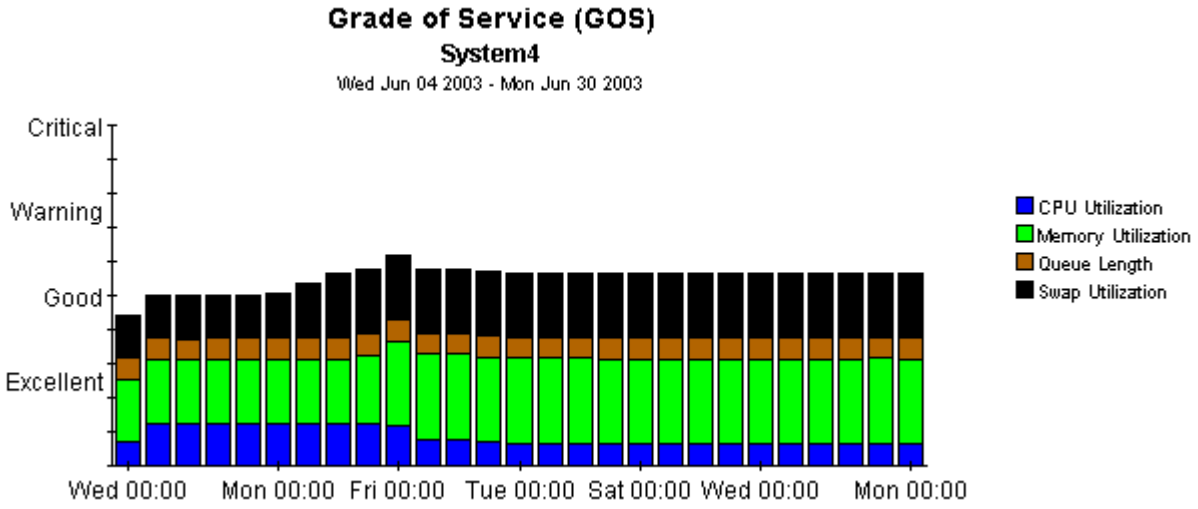


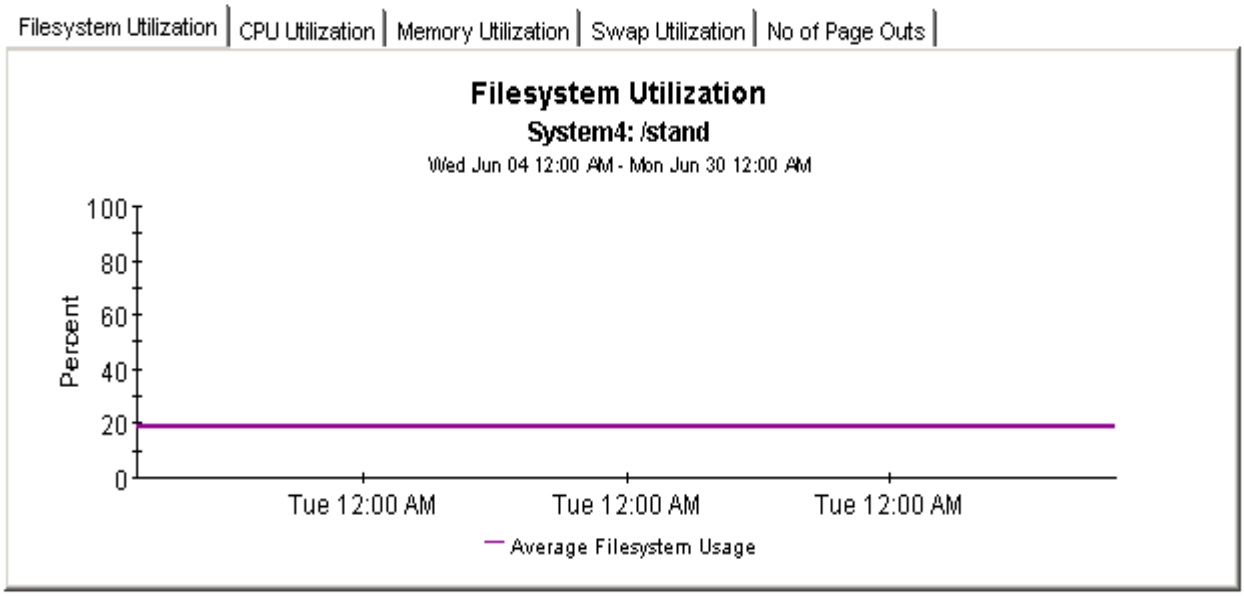

## Underutilized Filesystems

### Projected to be Utilized Less than 30% within 90 Days

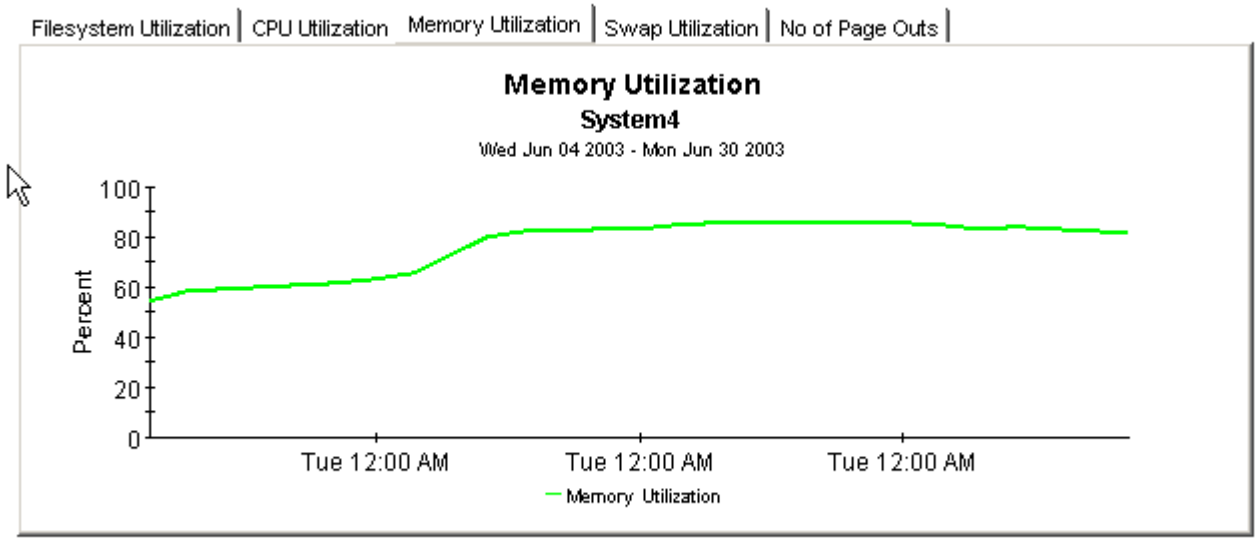
| System | File System | Current Utilization | Projected Utilization 30 | Projected Utilization 60 | Projected Utilization 90 |
|---|---|---|---|---|---|
| System23 | /home | 12.76 | 12.76 | 12.76 | 12.76 |
| System7 | /stand | 13.72 | 13.96 | 14.11 | 14.27 |
| System7 | / | 16.13 | 6.30 | 0.00 | 0.00 |
| System8 | / | 17.97 | 17.97 | 17.97 | 17.97 |
| System23 | / | 17.97 | 17.97 | 17.97 | 17.97 |
| System4 | /stand | 18.53 | 18.51 | 18.50 | 18.49 |
| System27 | /boot | 19.87 | 19.87 | 19.87 | 19.87 |
| | C:\ | 20.34 | 19.48 | 18.84 | 18.21 |
| System11 | C:\ Label: Serial Number 58ae8b0d | 22.54 | 22.54 | 22.54 | 22.54 |
| System13 | C:\ Label: Serial Number 58ae8b0d | 22.54 | 22.54 | 22.54 | 22.54 |

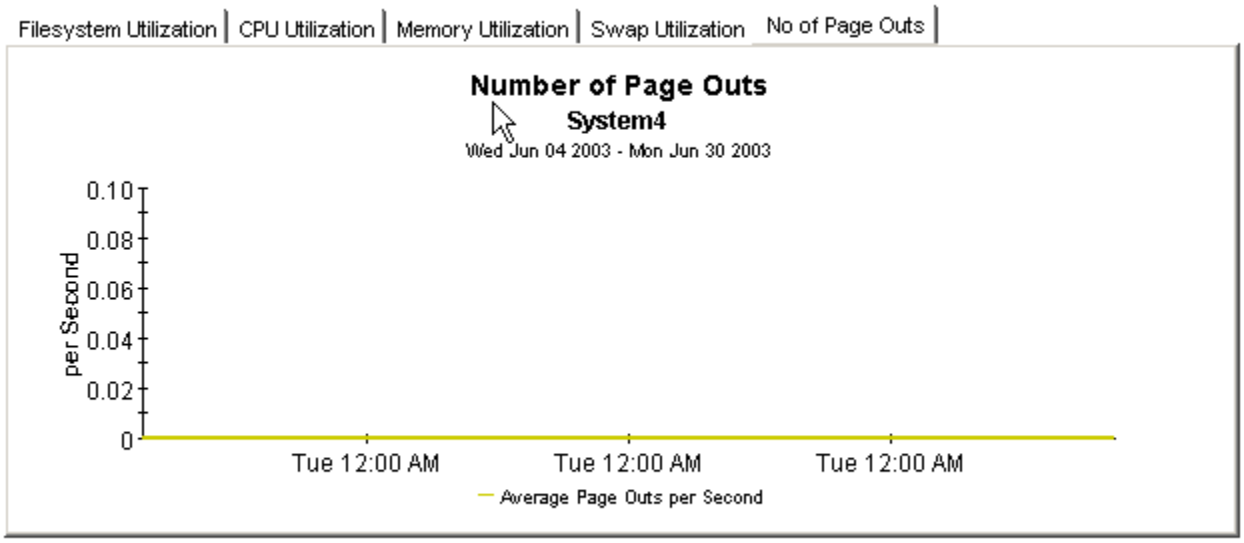
| Vendor | Model | O/S | Customer | Location | Filesystem Threshold |
|---|---|---|---|---|---|
| Hewlett Packard | 9000/893 | HP-UX B.11.11 U | Customer Unassigned | Location Unassigned | 70.00 |




continues on next page


Filesystem Utilization
CPU Utilization
Memory Utilization
Swap Utilization
No of Page Outs
Memory Utilization
System4
Wed Jun 04 2003 - Mon Jun 30 2003
Percent
100
80
60
40
20
0
Tue 12:00 AM
Tue 12:00 AM
Tue 12:00 AM
Memory Utilization


Filesystem Utilization
CPU Utilization
Memory Utilization
Swap Utilization
No of Page Outs
Number of Page Outs
System4
Wed Jun 04 2003 - Mon Jun 30 2003
per Second
0.10
0.08
0.06
0.04
0.02
0
Tue 12:00 AM
Tue 12:00 AM
Tue 12:00 AM
Average Page Outs per Second

# System Resource

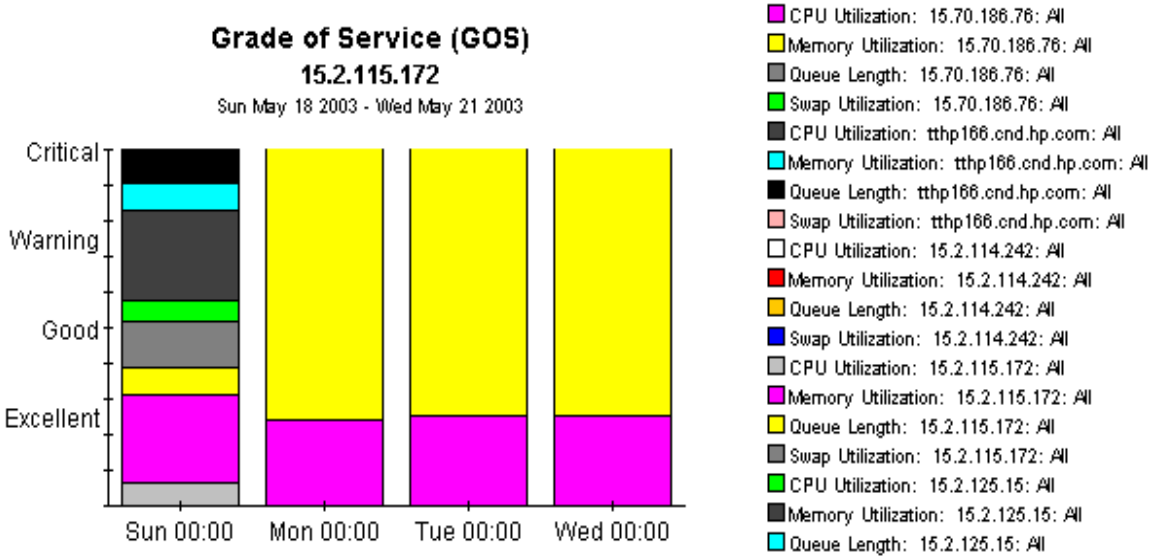
## Memory Resource Optimization

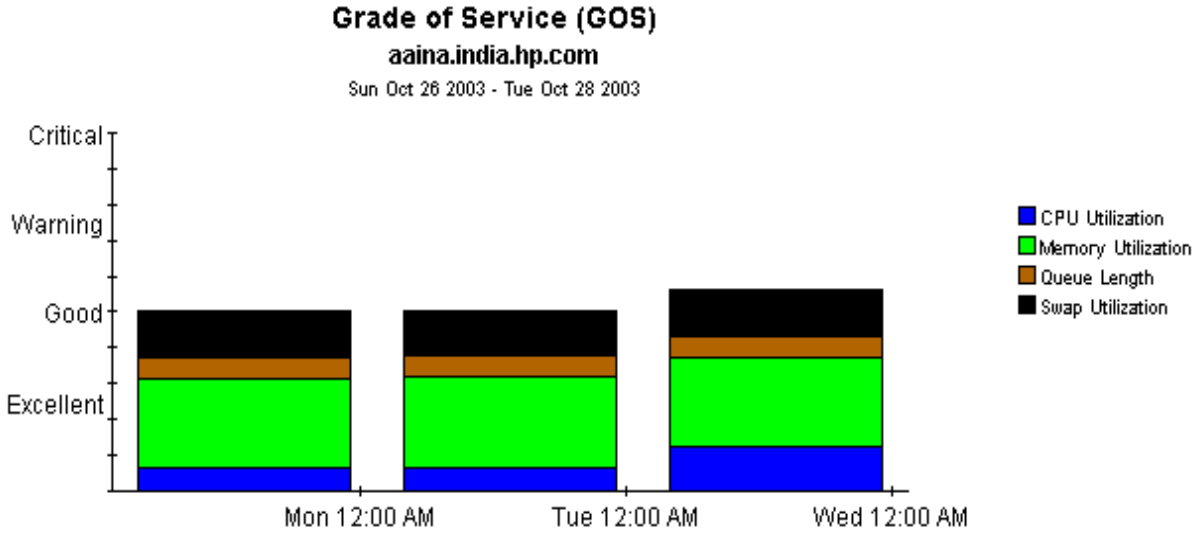
The System Resource Memory Resource Optimization Report details the most over- and under-utilized filesystems, indicating opportunities for load balancing to improve service levels without additional investment. Select a system from the top table to display detailed information for that system.

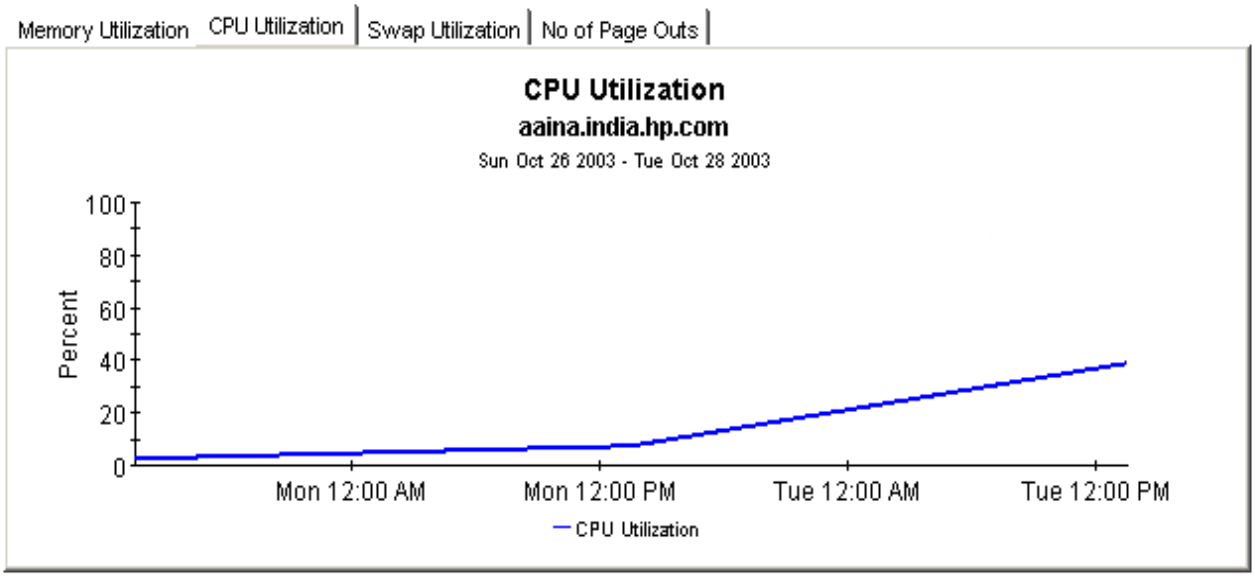
### Overutilized System Memory
**Projected to Exceed 90% Utilization within 90 Days**

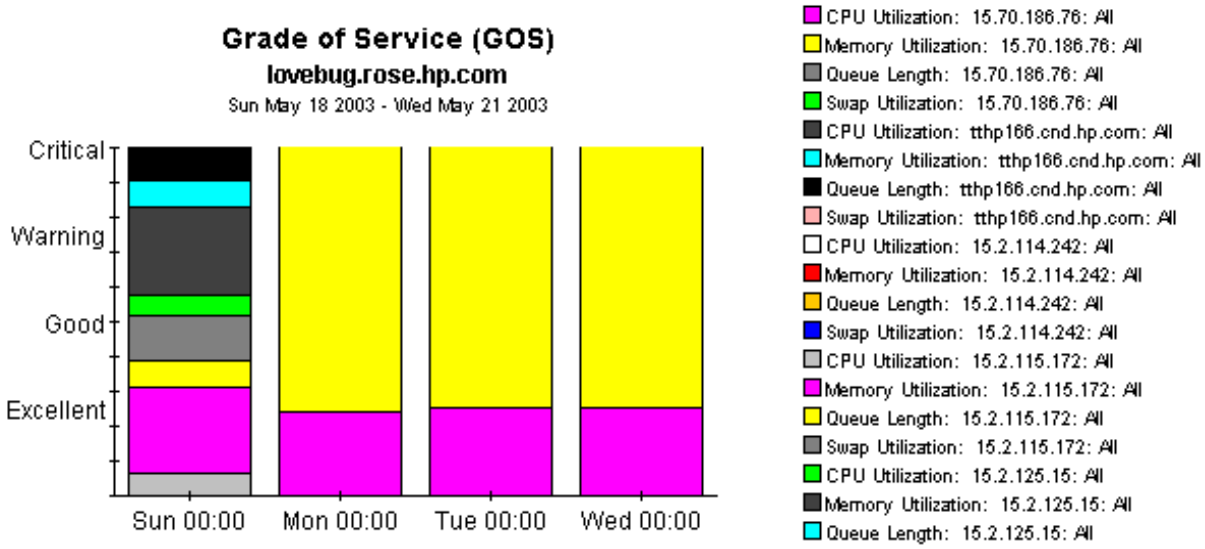
| System | Current Utilization | Projected Utilization 30 | Projected Utilization 60 | Projected Utilization 90 |
|---|---|---|---|---|
| 15.2.115.172 | 98.74 | 101.18 | 103.51 | 105.83 |
| 15.2.125.15 | 89.92 | 110.65 | 130.39 | 150.14 |
| solcent | 82.74 | 102.99 | 122.58 | 142.18 |
| tshp39.cnd.hp.com | 79.04 | 88.78 | 98.05 | 107.32 |
| biotite.cnd.hp.com | 74.05 | 89.64 | 104.49 | 119.34 |
| hpcb.rose.hp.com | 65.38 | 103.12 | 139.06 | 175.00 |
| hpfcjjm.cnd.hp.com | 53.36 | 98.15 | 140.81 | 183.47 |

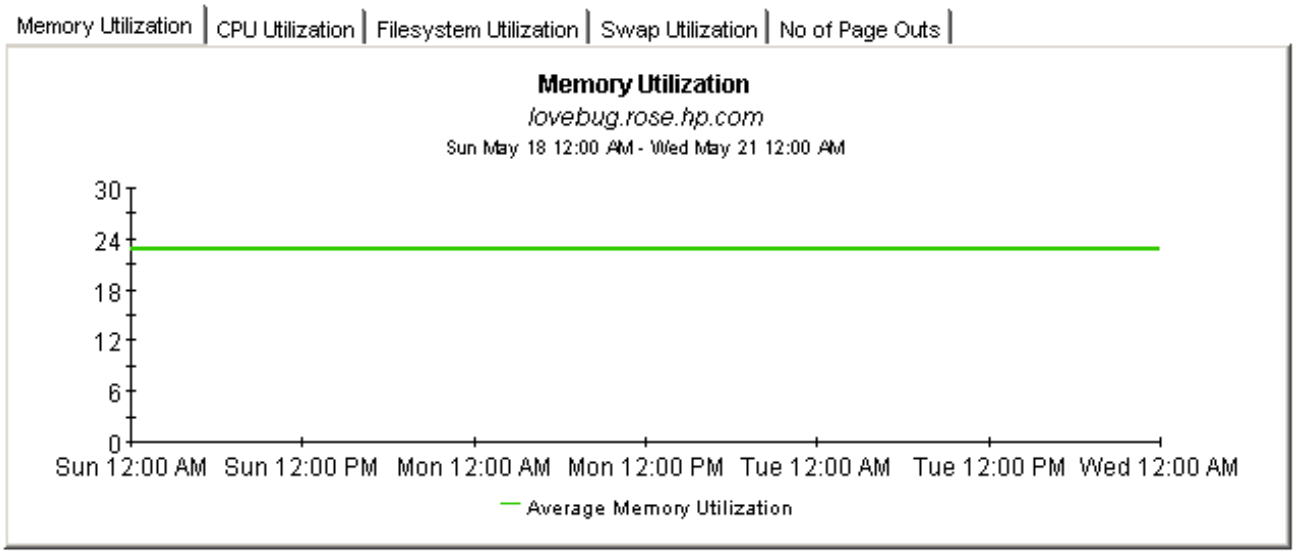
| Vendor | Model | O/S | Location | Customer | Memory Utilization Threshold |
|---|---|---|---|---|---|
| Hewlett-Packard | Unassigned | | Location Unassigned | Customer Unassigned | 70.00 |




Grade of Service (GOS)
aaina.india.hp.com
Sun Oct 26 2003 - Tue Oct 28 2003
Critical
Warning
Good
Excellent
Mon 12:00 AM
Tue 12:00 AM
Wed 12:00 AM
CPU Utilization
Memory Utilization
Queue Length
Swap Utilization


Memory Utilization
CPU Utilization
Swap Utilization
No of Page Outs
CPU Utilization
aaina.india.hp.com
Sun Oct 26 2003 - Tue Oct 28 2003
Percent
100
80
60
40
20
0
Mon 12:00 AM
Mon 12:00 PM
Tue 12:00 AM
Tue 12:00 PM
CPU Utilization


Grade of Service (GOS)
lovebug.rose.hp.com
Sun May 18 2003 - Wed May 21 2003
Critical
Warning
Good
Excellent
Sun 00:00
Mon 00:00
Tue 00:00
Wed 00:00
CPU Utilization: 15.70.186.76: All
Memory Utilization: 15.70.186.76: All
Queue Length: 15.70.186.76: All
Swap Utilization: 15.70.186.76: All
CPU Utilization: tthp166.cnd.hp.com: All
Memory Utilization: tthp166.cnd.hp.com: All
Queue Length: tthp166.cnd.hp.com: All
Swap Utilization: tthp166.cnd.hp.com: All
CPU Utilization: 15.2.114.242: All
Memory Utilization: 15.2.114.242: All
Queue Length: 15.2.114.242: All
Swap Utilization: 15.2.114.242: All
CPU Utilization: 15.2.115.172: All
Memory Utilization: 15.2.115.172: All
Queue Length: 15.2.115.172: All
Swap Utilization: 15.2.115.172: All
CPU Utilization: 15.2.125.15: All
Memory Utilization: 15.2.125.15: All
Queue Length: 15.2.125.15: All


Memory Utilization
CPU Utilization
Filesystem Utilization
Swap Utilization
No of Page Outs
Memory Utilization
lovebug.rose.hp.com
Sun May 18 12:00 AM - Wed May 21 12:00 AM
30
24
18
12
6
0
Sun 12:00 AM
Sun 12:00 PM
Mon 12:00 AM
Mon 12:00 PM
Tue 12:00 AM
Tue 12:00 PM
Wed 12:00 AM
Average Memory Utilization

# 8 Service Level Management

The **Service Level Management - Executive Summary** looks at yesterday's Grade of Service and yesterday's exception counts. This report analyzes performance data for multiple systems, aggregated by customer and location, hence the term *summary*.

Use the SLM report to verify whether service quality is meeting expectations. The top selection table provides a list of customers ranked by number of exceptions, highest to lowest. The data for each customer provides exceptions statistics all of the systems owned by that customer. The second selection table provides a list of locations ranked by number of exceptions, highest to lowest. The location selection table is linked to the top selection table, and separates out the total exceptions for each location.

This report allows you to drill down from information about yesterday's distribution of exceptions to a stacked bar chart showing hourly, daily, and monthly views of exceptions and how they are distributed. The stacked bar chart shows total exceptions for all systems at the location selected above. At the end of the report, a grade of service chart provides an hourly assessment of health. This chart is aggregating data from all of the systems at the location highlighted in the location table.

# System Resource

## Executive Service Level Management Summary

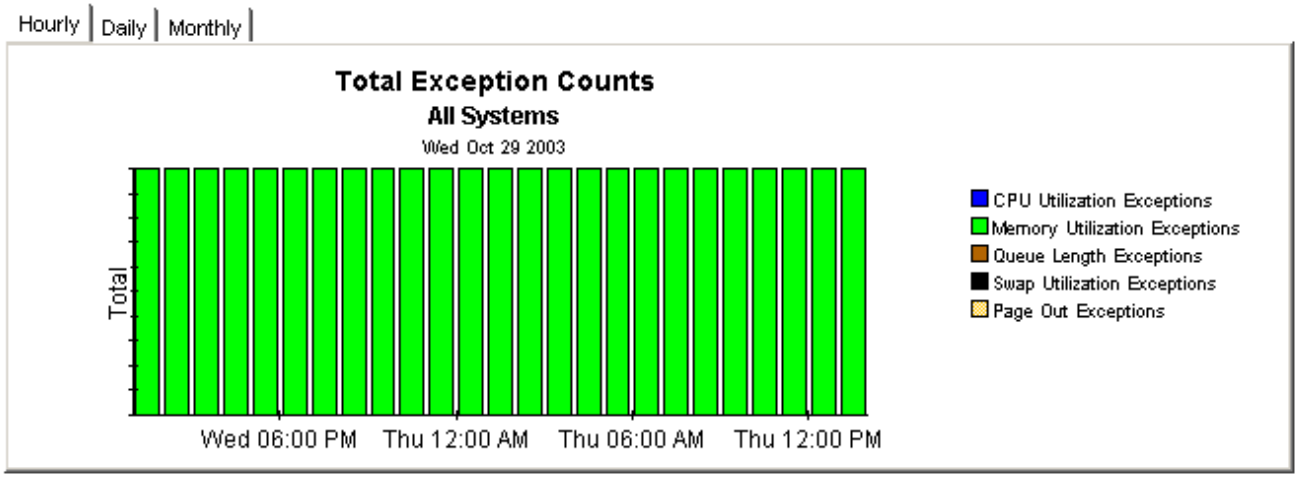
The Executive Service Level Management Summary Report provides an overview of system performance. Each chart details key metrics aggregated for all systems. Key indicators of performance are shown individually and combined into a Grade of Service chart to reveal system health at a glance.

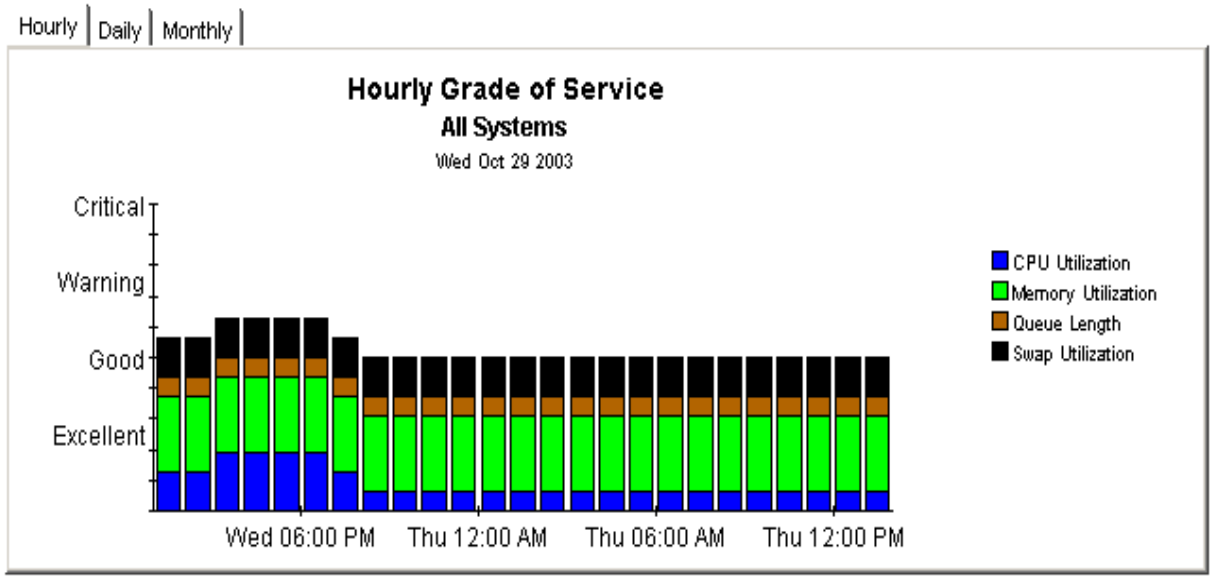
### Customers
**Wed Oct 29 2003**

| Customer Name | Total Exceptions | Queue Length Exceptions | CPU Utilization Exceptions | Memory Utilization Exceptions | Swap Utilization Exceptions | Page Out Exceptions |
|---|---|---|---|---|---|---|
| All Customers | 24.00 | 0.00 | 0.00 | 24.00 | 0.00 | 0.00 |
| Customer Unassigned | 24.00 | 0.00 | 0.00 | 24.00 | 0.00 | 0.00 |

### Locations
**Wed Oct 29 2003**

| location_name | Total Exceptions | Queue Length Exceptions | CPU Utilization Exceptions | Memory Utilization Exceptions | Swap Utilization Exceptions | Page Out Exceptions |
|---|---|---|---|---|---|---|
| All Locations | 24.00 | 0.00 | 0.00 | 24.00 | 0.00 | 0.00 |
| Location Unassigned | 24.00 | 0.00 | 0.00 | 24.00 | 0.00 | 0.00 |




Hourly
Daily
Monthly
Hourly Grade of Service
All Systems
Wed Oct 29 2003
Critical
Warning
Good
Excellent
Wed 06:00 PM
Thu 12:00 AM
Thu 06:00 AM
Thu 12:00 PM
CPU Utilization
Memory Utilization
Queue Length
Swap Utilization

# 9 Resource Forecasting

You have two reports in the resource forecasting area:

- Filesystem Forecast
- Memory Forecast

Both reports have very similar formats. The **Filesystem Forecast** begins with a selection table that provides a list of all the filesystems that are headed towards 100% utilization and are expected to reach this level within 90 days. The entries in the table sort by Days to Threshold (DTT). Filesystems nearest to the threshold sort at the top of the table.

In addition to indicating the value for DTT, the selection table shows:

- Current utilization (the rolling baseline average)
- Projected utilization 90 days from today

Select an entry in the table to display the following provisioning details:

- Vendor
- Model
- O/S
- Customer
- Location
- Filesystem utilization threshold level

From the selection table you may drill down to a daily Grade of Service chart that shows increases and decreases in a composite score based on individual scores for utilization (CPU, memory, and swap) and queue length. The series of tabbed line graphs below the GOS chart track utilization levels and the number of page outs. These graphs track utilization for the following resources:

- Filesystem
- CPU
- Memory
- Swap

The **Memory Forecast** begins with a selection table that provides a list of all the systems headed towards 100% utilization and projected to reach this level within the next 90 days. The entries in the table sort by DDT, lowest number to highest number, or nearest to threshold at the top, furthest from threshold at the bottom. In addition to indicating DDT, the selection table shows:

- Current utilization (the rolling baseline average)
- Projected utilization 90 days from today

Select an entry in the table to display the following details for the system:

- Vendor
- Model
- Operating system
- Customer
- Location
- Memory utilization threshold

From the selection table you may drill down to a daily Grade of Service chart that shows increases and decreases in an overall score throughout the baseline period. The overall score is a composite based on individual scores for CPU utilization, memory utilization, swap utilization, and run queue length.

The tabbed charts below the GOS chart provide daily analysis of trends. These charts show how the following variables have behaved over the baseline period:

- Memory utilization
- CPU utilization
- Swap utilization
- Number of page outs

See below for a sample of the Filesystem Forecast report followed by a sample of the Memory Forecast report.

# System Resource

## Filesystem Forecast

The System Resource Filesystem Forecast report lists all filesystems within 90 days of a utilization threshold, those closest to a threshold listed first. The report arms the system manager with the information required to assess performance and take preventive action. Select a system from the top table to display detailed information for that system.

### Estimated Days To Threshold (DTT)

**Filesystems Projected to be within 90 Days of 100% Utilization**

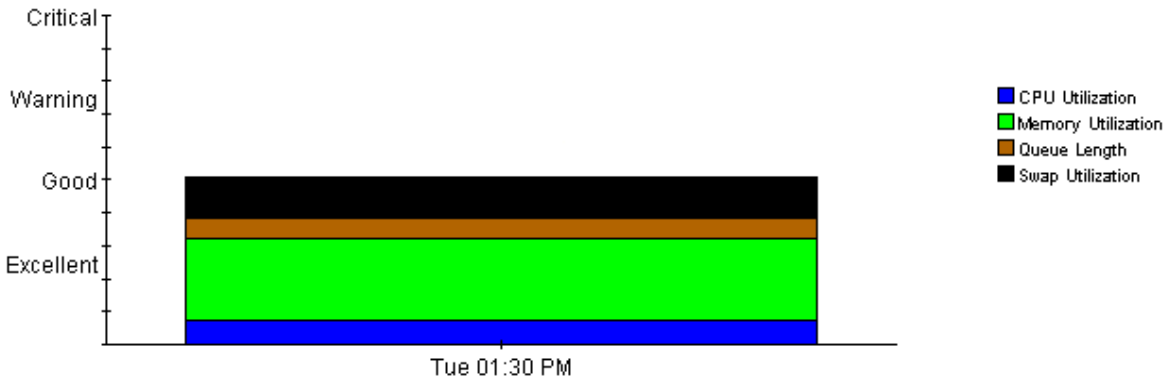
| System | Filesystem | DTT Utilization | Current Utilization | Projected Utilization 30 | Projected Utilization 60 | Projected Utilization 90 |
|---|---|---|---|---|---|---|
| dollar.india.hp.com | /home | 0 | 90.60 | 120.61 | 149.87 | 179.14 |

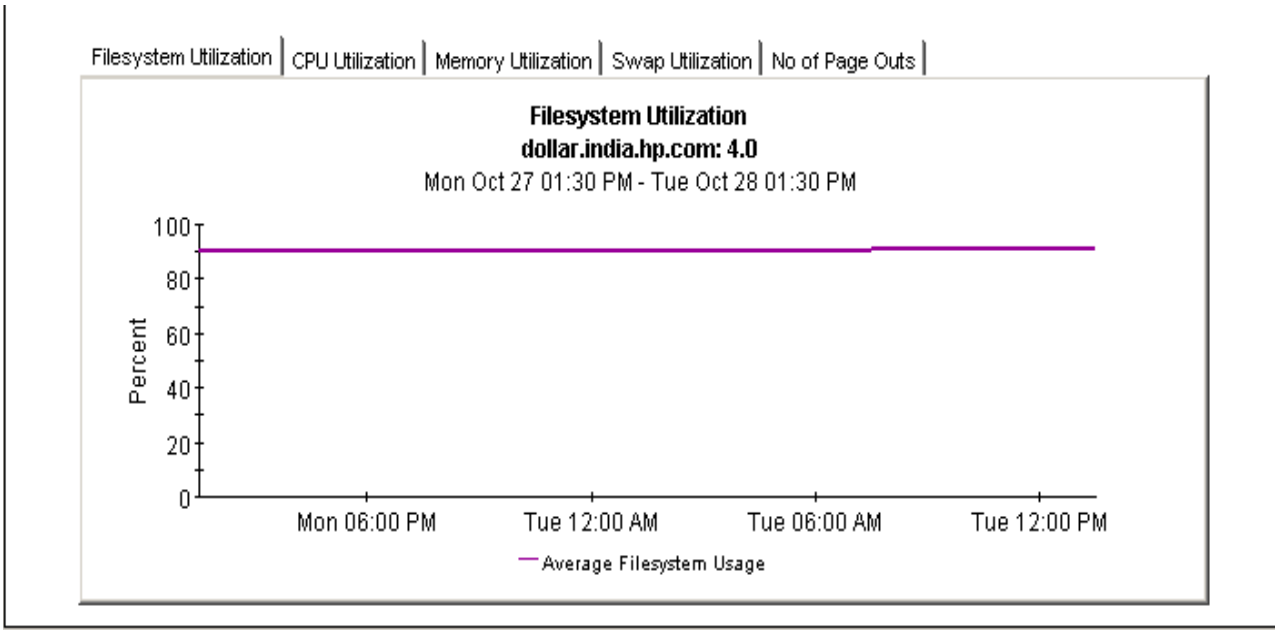
| Vendor | Model | O/S | Customer | Location | Filesystem Utilization Threshold |
|---|---|---|---|---|---|
| Hewlett Packard | 9000/879 | HP-UX B.11.00 A | Customer Unassigned | Location Unassigned | 70.00 |

### Grade of Service (GOS)

**dollar.india.hp.com**

Tue Oct 28 2003 - Tue Oct 28 2003




Filesystem Utilization
CPU Utilization
Memory Utilization
Swap Utilization
No of Page Outs
Filesystem Utilization
dollar.india.hp.com: 4.0
Mon Oct 27 01:30 PM - Tue Oct 28 01:30 PM
Percent
100
80
60
40
20
0
Mon 06:00 PM
Tue 12:00 AM
Tue 06:00 AM
Tue 12:00 PM
Average Filesystem Usage

# System Resource

## Memory Forecast

The System Resource System Memory Forecast report lists all systems within 90 days of a memory utilization threshold, those closest to a threshold listed first. The report arms the system manager with the information required to assess performance and take preventive action. Select a system from the top table to display detailed information for that system.

### Estimated Days to Threshold (DTT)

**Systems Projected to be within 90 Days of 100% Utilization**

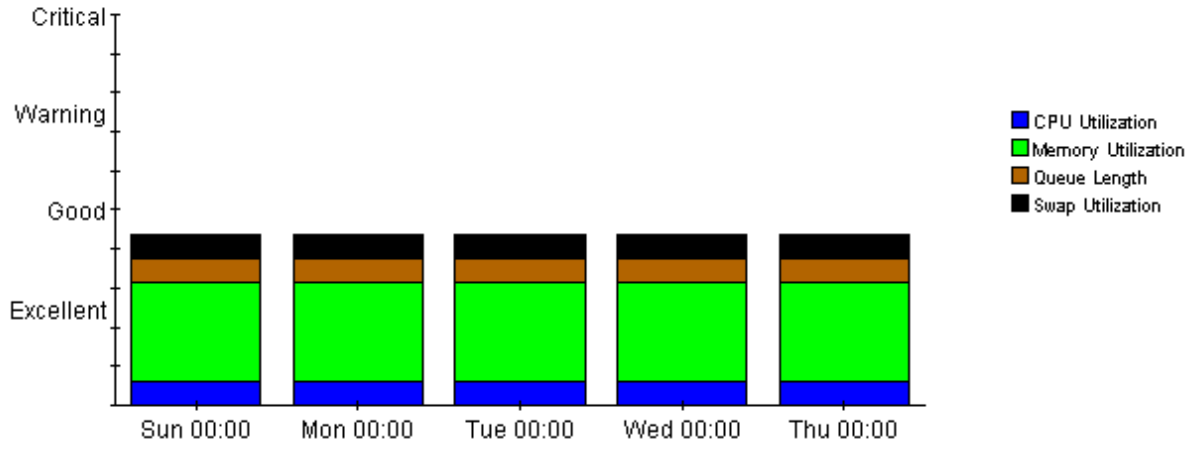
| System | DTT Utilization | Current Utilization | Projected Utilization 90 |
|---|---|---|---|
| 15.2.125.15 | 12.00 | 90.32 | 156.74 |
| biotite.cnd.hp.com | 60.00 | 74.22 | 113.05 |
| hpcb.rose.hp.com | 57.00 | 65.38 | 119.65 |
| tshp39.cnd.hp.com | 32.00 | 79.49 | 135.06 |
| gorilla.cnd.hp.com | 6.00 | 50.83 | 650.40 |
| hpfcjjm.cnd.hp.com | 29.00 | 54.17 | 194.47 |
| solcent | 53.00 | 82.79 | 112.10 |

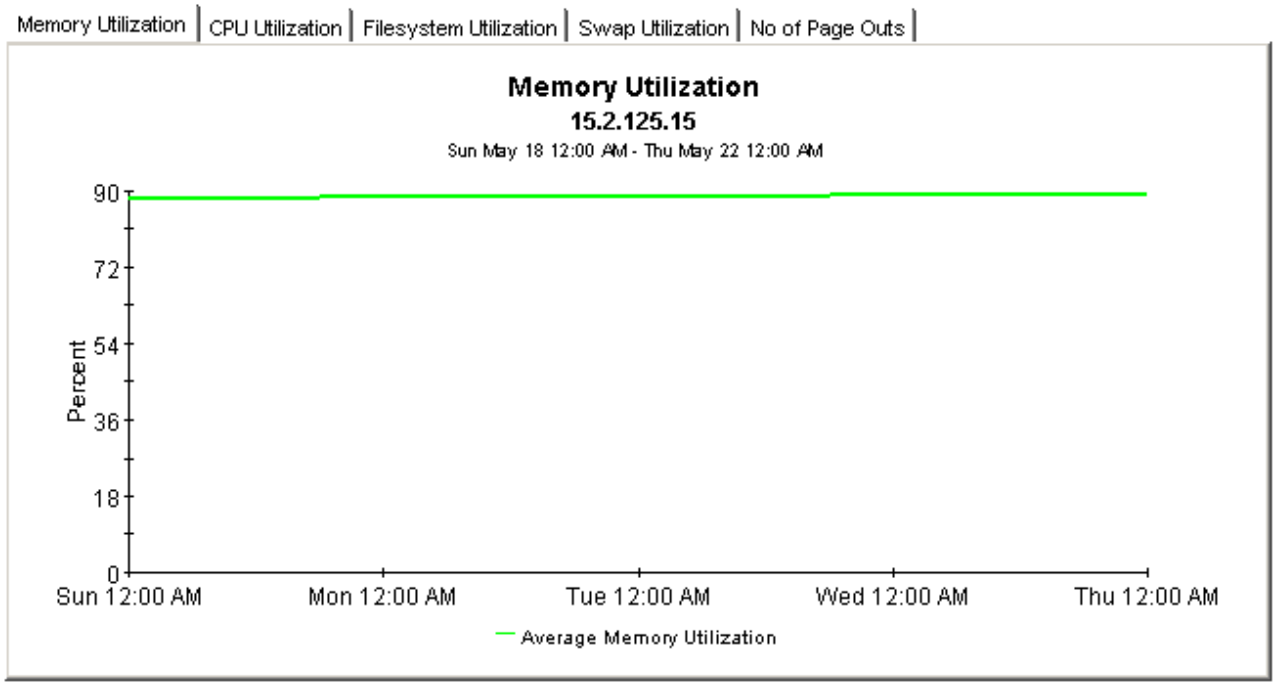
| Vendor | Model | O/S | Location | Customer | Memory Utilization Threshold |
|---|---|---|---|---|---|
| Sun | sun4u | SunOS 5.8 Generic_108528-16 | Location Unassigned | Customer Unassigned | 70.00 |

### Grade Of Service (GOS)

**15.2.125.15**

Sun May 18 2003 - Thu May 22 2003




Memory Utilization
CPU Utilization
Filesystem Utilization
Swap Utilization
No of Page Outs
Memory Utilization
15.2.125.15
Sun May 18 12:00 AM - Thu May 22 12:00 AM
90
72
54
36
18
0
Percent
Sun 12:00 AM
Mon 12:00 AM
Tue 12:00 AM
Wed 12:00 AM
Thu 12:00 AM
Average Memory Utilization

# 10 Exception Hot Spots and QuickViews

This chapter covers the following reports:

- Exception Hot Spots
- QuickView
- QuickView — Near Real Time

## Exception Hot Spots

The Hot Spots report provides a list of the systems that exceeded at least one threshold condition at some time yesterday. Systems that did not exceed any thresholds will not appear in this report. This report is particularly useful for identifying systems with the most exceptions and looking at exceptions in more detail. The selection table indicates which exceptions took place, and how many of each type took place during the 24-hour period that ended last night at midnight. Select an entry to display the following data:

- System-level provisioning details (vendor, model, customer, location, and o/s)
- Exception thresholds for each resource

Beneath the selection table is a series of charts that track yesterday's resource utilization levels on an hour-by-hour basis, allowing you to see exactly when exceptions took place. Near the bottom of the report you have an Exception Details chart and a Grade of Service chart. The first chart shows the data that was captured by each poll, throughout the day. The second chart provides an overall grade of service score for each poll. The overall score is a composite based on CPU utilization, memory utilization, and queue length.

## QuickView

The QuickView has a broader scope than Hot Spots. This report includes every system, whether or not the system recorded exceptions yesterday. (By default, the selection table is limited to 50 rows.) The selection table provides utilization averages for yesterday, covering run queue, CPU, memory, swap, and page outs per second. The default sort order is CPU utilization. Select an entry in the table to display the following data:

- System-level provisioning details (vendor, model, customer, location, and o/s)
- The exception threshold for each resource

The line graphs below the exception threshold information provide hourly data for each resource, allowing you to track increases and decreases throughout the day.

## QuickView - Near Real Time

The format of the QuickView - Near Real Time is exactly the same as the QuickView:

- Selection table that sorts all systems by CPU utilization
- System-level provisioning details
- Exception thresholds for each resource
- Line graphs for each resource

In the QuickView, you are looking at data for yesterday. In the Near Real Time, you are looking at data for the previous six hours. Use the Near Real Time version of the QuickView to spot problem areas before the condition begins to affect your users.

## QuickView - Near Real Time - Snapshot

The format of the QuickView - Near Real Time - Snapshot is exactly the same as the QuickView - Near Real Time:

- Selection table that sorts entries by CPU utilization over the last six hours
- System-level provisioning details
- Exception thresholds for each resource
- Line graphs for each resource covering the last six hours

In the QuickView - Near Real Time, you are looking at data for the last six hours. In the Snapshot version of the Near Real Time you are looking at the same data, but only for the specific systems you specify when you open the report. Use the Snapshot version of the Near Real Time report whenever you know in advance exactly which system or systems you are interested in.

# System Resource

## Hot Spots

The System Resource Hot Spots Report provides a listing of systems that have exceeded threshold conditions during the previous day. Offending systems are ranked by total number of exceptions. Select a system from the top table to display detailed information for that system.

### Problem Summary for the Day

**Systems with Most Exceptions for the Day**

Thu May 22 2003

| System | Total Exceptions | Queue Length Exception | CPU Utilization Exceptions | Memory Utilization Exceptions | Swap Utilization Exceptions | Page Out Exceptions |
|---|---|---|---|---|---|---|
| solcent | 96 | 0 | 0 | 96 | 0 | 0 |
| ultra | 94 | 0 | 11 | 83 | 0 | 0 |
| 15.2.118.118 | 72 | 24 | 24 | 24 | 0 | 0 |
| 15.70.186.76 | 44 | 22 | 0 | 22 | 0 | 0 |
| 15.2.114.242 | 24 | 0 | 0 | 24 | 0 | 0 |
| 15.2.125.15 | 24 | 0 | 0 | 24 | 0 | 0 |
| biotite.cnd.hp.com | 24 | 0 | 0 | 24 | 0 | 0 |
| tshp18.cnd.hp.com | 24 | 0 | 0 | 24 | 0 | 0 |
| tshp39.cnd.hp.com | 24 | 0 | 0 | 24 | 0 | 0 |

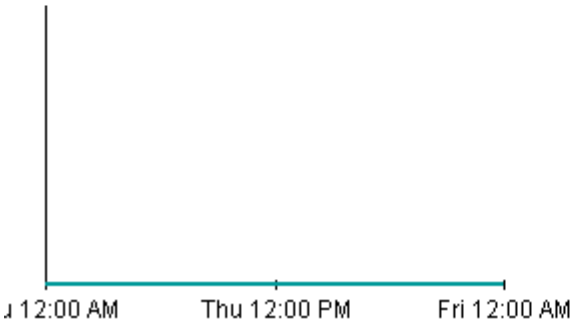
| Vendor | Model | O/S | Location | Customer |
|---|---|---|---|---|
| Cisco | Unassigned | | Location Unassigned | Customer Unassigned |

| CPU Utilization Threshold | Memory Utilization Threshold | Swap Utilization Threshold | Run Queue Threshold | Pageout Threshold |
|---|---|---|---|---|
| 80.00 | 70.00 | 70.00 | 3.00 | 5.00 |

**Run Queue**

**solcent**

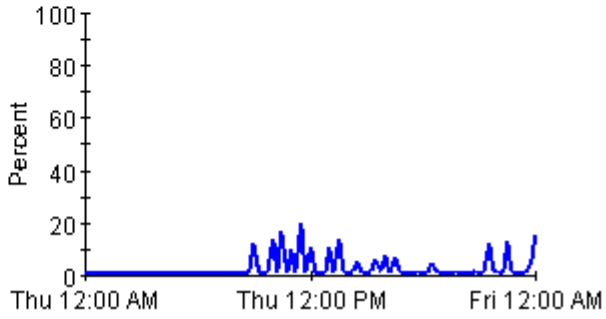
Thu May 22 12:00 AM - Fri May 23 12:00 AM

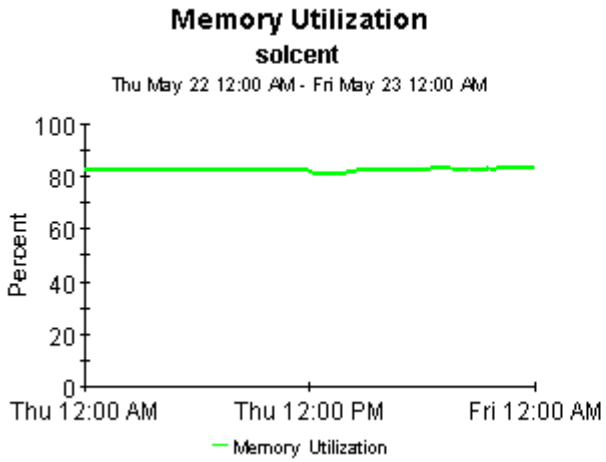


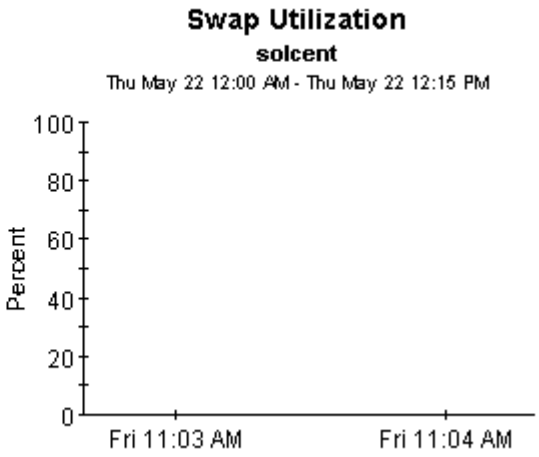

**CPU Utilization**

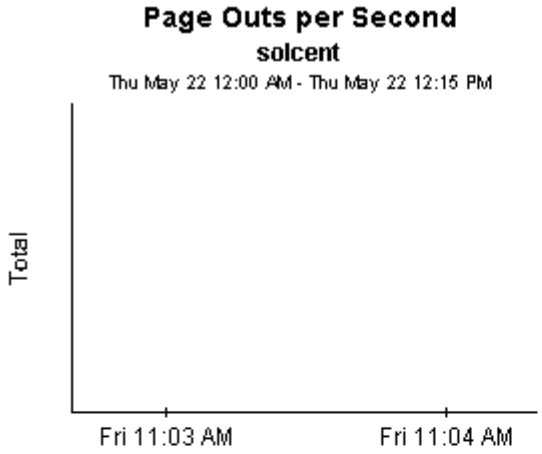
**solcent**

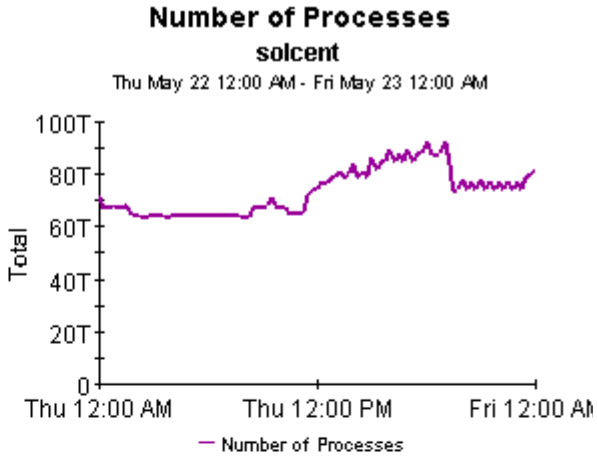
Thu May 22 12:00 AM - Fri May 23 12:00 AM





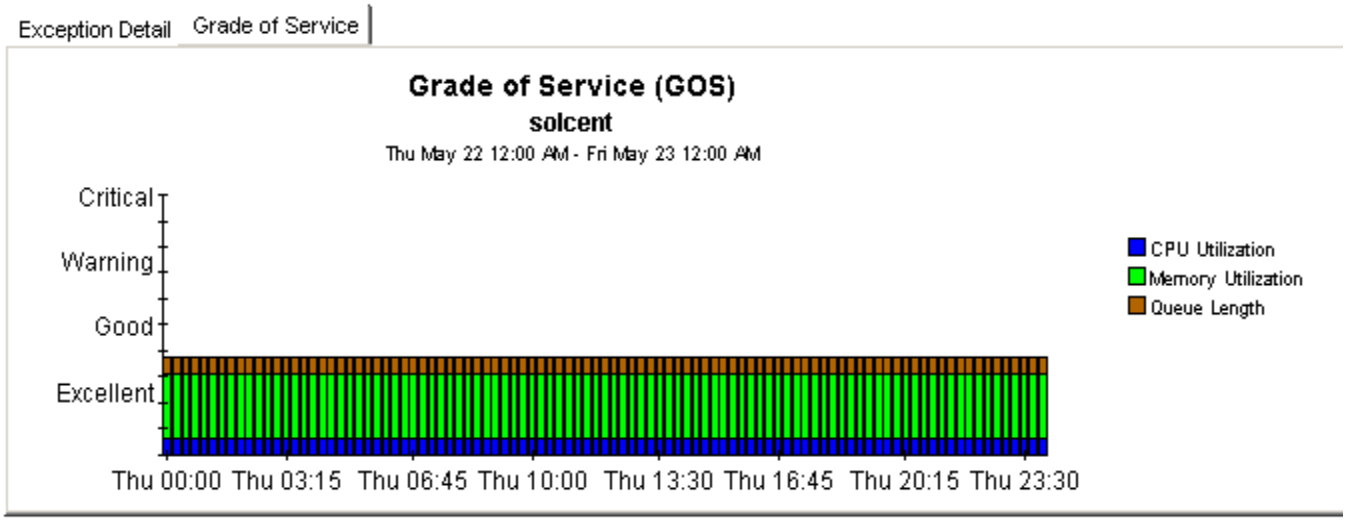




Exception Detail | Grade of Service

**Exception Details**
**solcent**

| Time of the Exception | CPU Utilization | Memory Utilization | Queue Length | Swap Utilization |
|---|---|---|---|---|
| Thu May 22 12:00 AM | 1.00 | 82.38 | 0.00 | |
| Thu May 22 12:15 AM | 0.75 | 82.34 | 0.00 | |
| Thu May 22 12:30 AM | 0.50 | 82.34 | 0.00 | |
| Thu May 22 12:45 AM | 1.00 | 82.34 | 0.00 | |
| Thu May 22 01:00 AM | 1.00 | 82.34 | 0.00 | |
| Thu May 22 01:15 AM | 0.75 | 82.34 | 0.00 | |
| Thu May 22 01:30 AM | 1.00 | 82.35 | 0.00 | |
| Thu May 22 01:45 AM | 0.75 | 82.33 | 0.00 | |


Exception Detail
Grade of Service
Grade of Service (GOS)
solcent
Thu May 22 12:00 AM - Fri May 23 12:00 AM
Critical
Warning
Good
Excellent
CPU Utilization
Memory Utilization
Queue Length
Thu 00:00
Thu 03:15
Thu 06:45
Thu 10:00
Thu 13:30
Thu 16:45
Thu 20:15
Thu 23:30

# System Resource

## Quickview

The System Resource QuickView Report gives the system management staff a detailed look at the performance of individual systems. Select a system from the top chart to display detailed information for that system.

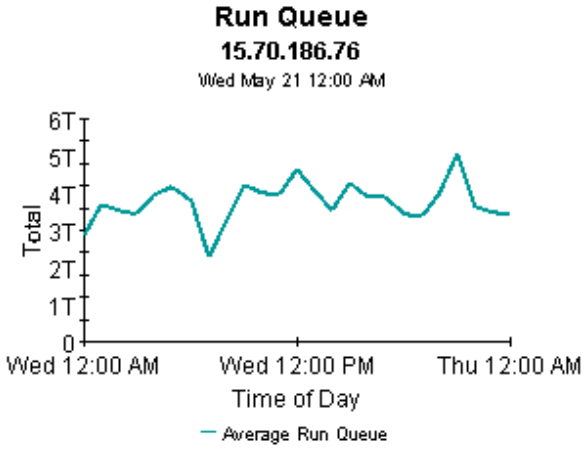
### Quickview Selection

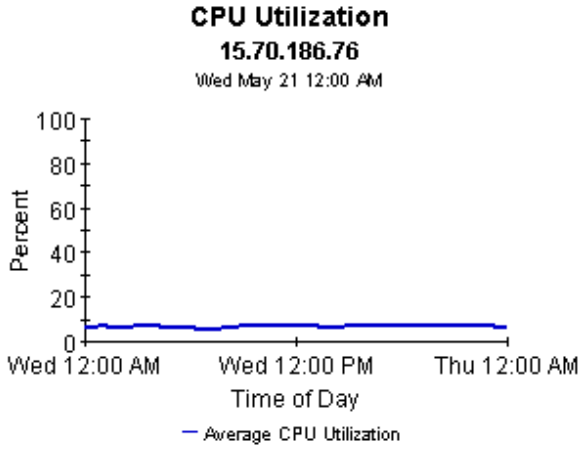
**Thu May 22 2003**

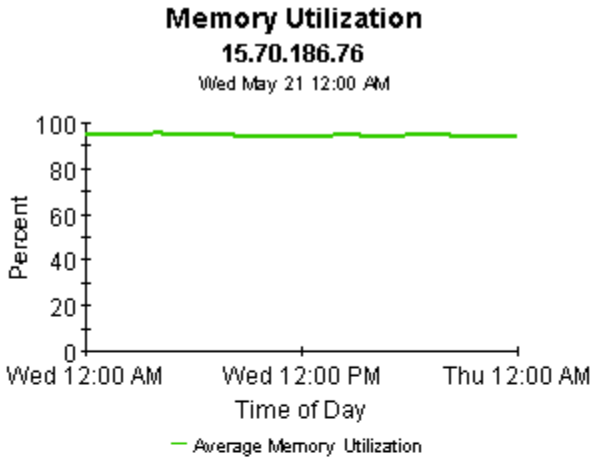
| System | Average Run Queue | Average CPU Utilization | Average Memory Utilization | Average Swap Utilization | Number of Page Outs Per Second | Number of Processes |
|---|---|---|---|---|---|---|
| lovebug.rose.hp.com | 0.15 | 10.43 | 22.75 | 6.00 | 0.00 | 1,674.00 |
| tthp166.cnd.hp.com | 1.82 | 9.94 | 87.46 | 61.00 | 0.00 | 3,289.00 |
| 15.70.186.76 | 3.77 | 6.59 | 94.46 | 26.10 | 0.20 | 1,974.00 |

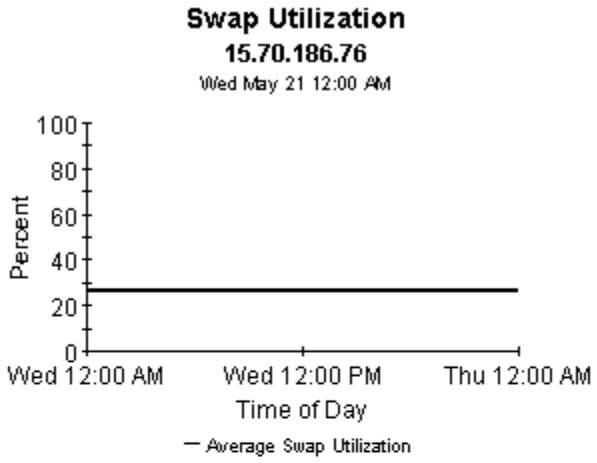
| Vendor | Model | O/S | Location | Customer |
|---|---|---|---|---|
| Hewlett-Packard | Unassigned | | Location Unassigned | Customer Unassigned |

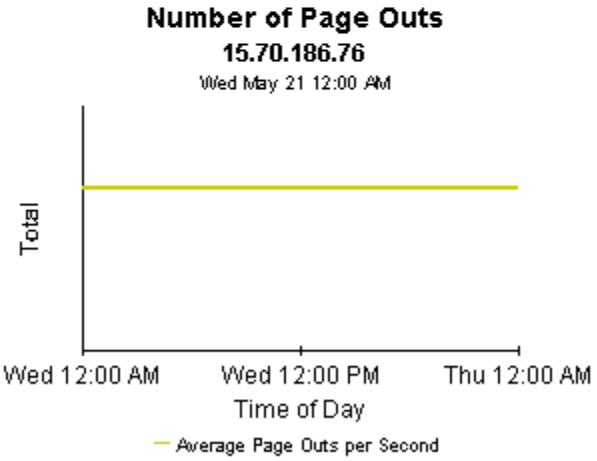
| Run Queue Threshold | CPU Utilization Threshold | Memory Utilization Threshold | Swap Utilization Threshold | Pageout Threshold |
|---|---|---|---|---|
| 3.00 | 80.00 | 70.00 | 70.00 | 5.00 |

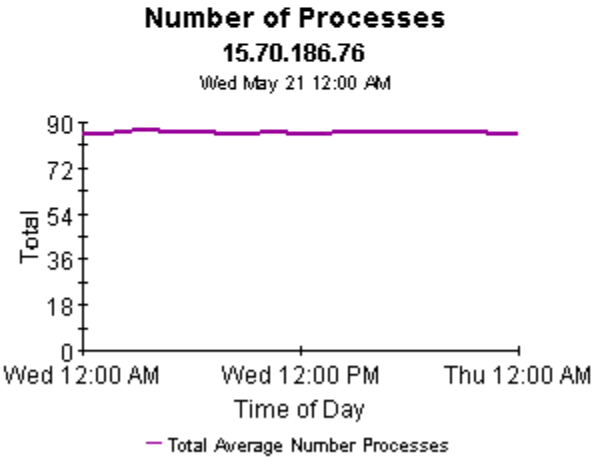



Memory Utilization
15.70.186.76
Wed May 21 12:00 AM
100
80
60
40
20
0
Percent
Wed 12:00 AM
Wed 12:00 PM
Thu 12:00 AM
Time of Day
Average Memory Utilization


Swap Utilization
15.70.186.76
Wed May 21 12:00 AM
100
80
60
40
20
0
Percent
Wed 12:00 AM
Wed 12:00 PM
Thu 12:00 AM
Time of Day
Average Swap Utilization


Number of Page Outs
15.70.186.76
Wed May 21 12:00 AM
Total
Wed 12:00 AM
Wed 12:00 PM
Thu 12:00 AM
Time of Day
Average Page Outs per Second


Number of Processes
15.70.186.76
Wed May 21 12:00 AM
90
72
54
36
18
0
Total
Wed 12:00 AM
Wed 12:00 PM
Thu 12:00 AM
Time of Day
Total Average Number Processes

# System Resource

## Quickview - Near Real Time

The System Resource Near Real Time QuickView gives the system management staff an up to date view of the performance of individual systems. By selecting a system from the top table, current system performance (up to the most recent data collection) can be investigated in detail.

### System Selection List

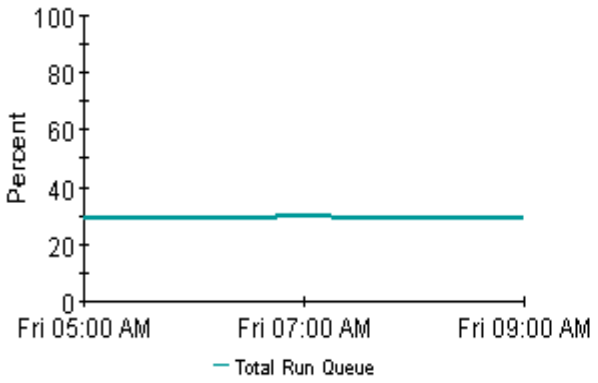
**Select System to See Near Real Time Information**

| System | Total Run Queue | Total CPU Utilization | Total Memory Utilization | Total Swap Utilization | Average Page Outs per Second | Number of Processes |
|---|---|---|---|---|---|---|
| 15.2.118.118 | 29.32 | 99.99 | 98.14 | 54.53 | 0.00 | 188.00 |
| tthp10.cnd.hp.com | 1.28 | 16.16 | 89.89 | 20.00 | 0.00 | 128.20 |
| gorilla.cnd.hp.com | 5.45 | 13.90 | 64.65 | 22.00 | 0.00 | 188.60 |
| tshp39.cnd.hp.com | 0.37 | 12.35 | 81.60 | 61.00 | 0.00 | 461.00 |
| tthp25.cnd.hp.com | 0.16 | 12.00 | 31.95 | 7.00 | 0.00 | 122.00 |

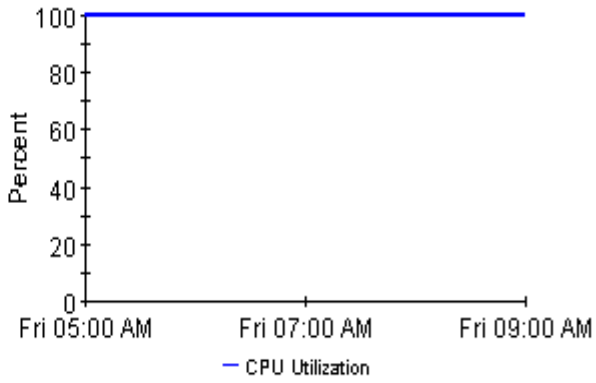
| Vendor | Model | O/S | Location | Customer |
|---|---|---|---|---|
| Hewlett-Packard | Unassigned | | Location Unassigned | Customer Unassigned |

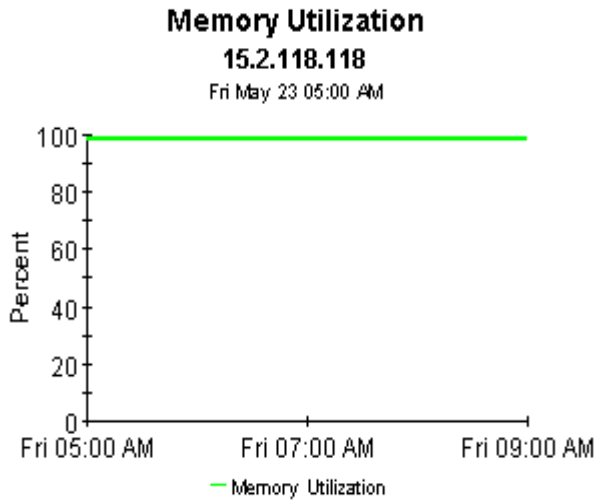
| Run Queue Threshold | CPU Utilization Threshold | Memory Utilization Threshold | Swap Utilization Threshold | Pageout Threshold |
|---|---|---|---|---|
| 3.00 | 80.00 | 70.00 | 70.00 | 5.00 |

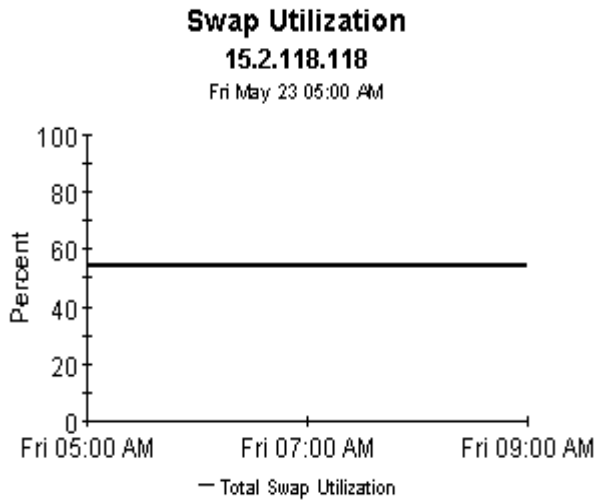
**Run Queue**
**15.2.118.118**
Fri May 23 05:00 AM

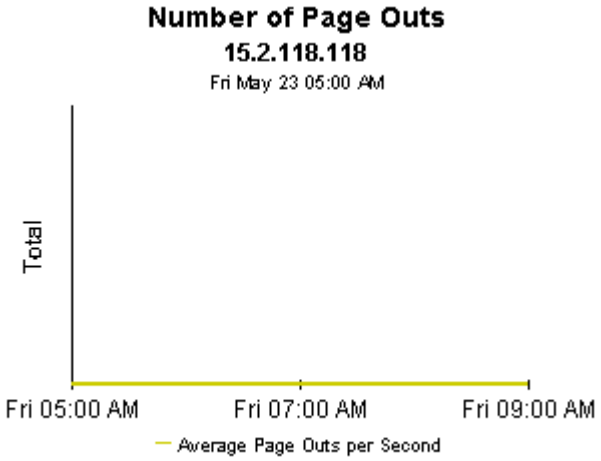


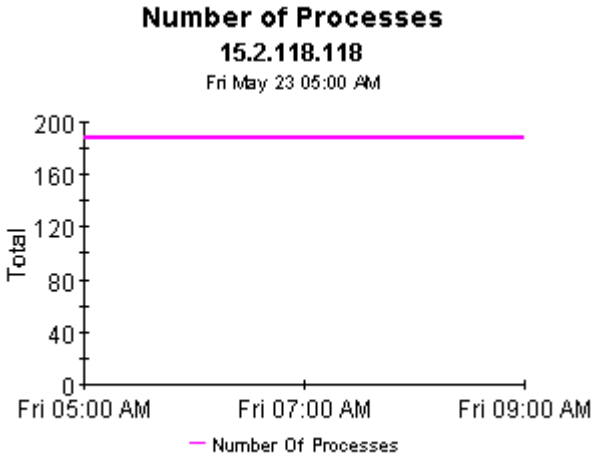

**CPU Utilization**
**15.2.118.118**
Fri May 23 05:00 AM




Memory Utilization
15.2.118.118
Fri May 23 05:00 AM
Percent
100
80
60
40
20
0
Fri 05:00 AM
Fri 07:00 AM
Fri 09:00 AM
Memory Utilization


Swap Utilization
15.2.118.118
Fri May 23 05:00 AM
Percent
100
80
60
40
20
0
Fri 05:00 AM
Fri 07:00 AM
Fri 09:00 AM
Total Swap Utilization


Number of Page Outs
15.2.118.118
Fri May 23 05:00 AM
Total
Fri 05:00 AM
Fri 07:00 AM
Fri 09:00 AM
Average Page Outs per Second


Number of Processes
15.2.118.118
Fri May 23 05:00 AM
Total
200
160
120
80
40
0
Fri 05:00 AM
Fri 07:00 AM
Fri 09:00 AM
Number Of Processes

# System Resource

## Snapshot - Near Real Time

The System Resource Near Real Time Snapshot Report gives the system management staff an up to date view of the performance of individual systems. By selecting a system from the top table, current system performance (up to the most recent data collection) can be investigated in detail.

### System Selection List

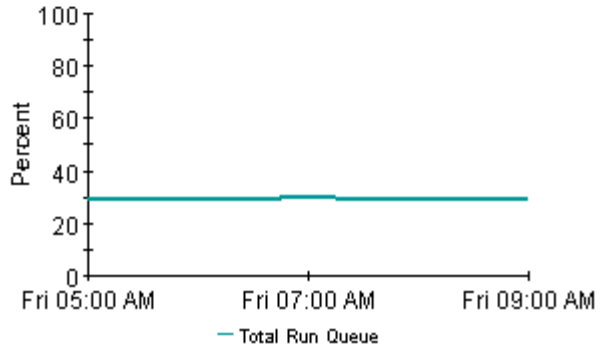
**Select System to See Near Real Time Information**

| System | Total Run Queue | Total CPU Utilization | Total Swap Utilization | Total Memory Utilization | Average Page Outs per Second | Number of Processes |
|---|---|---|---|---|---|---|
| 15.2.118.118 | 29.32 | 99.99 | 54.53 | 98.14 | 0.00 | 188.00 |
| tthp10.cnd.hp.com | 1.28 | 16.16 | 20.00 | 89.89 | 0.00 | 128.20 |
| gorilla.cnd.hp.com | 5.45 | 13.90 | 22.00 | 64.65 | 0.00 | 188.60 |
| tshp39.cnd.hp.com | 0.37 | 12.35 | 61.00 | 81.60 | 0.00 | 461.00 |
| tthp25.cnd.hp.com | 0.16 | 12.00 | 7.00 | 31.95 | 0.00 | 122.00 |

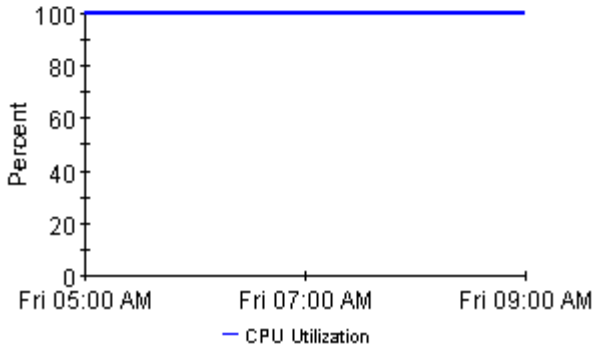
| Vendor | Model | O/S | Location | Customer |
|---|---|---|---|---|
| Hewlett-Packard | Unassigned | | Location Unassigned | Customer Unassigned |

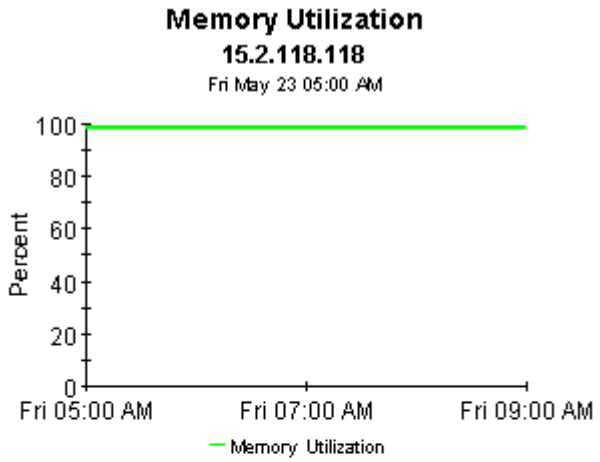
| Run Queue Threshold | CPU Utilization Threshold | Memory Utilization Threshold | Swap Utilization Threshold | Pageout Threshold |
|---|---|---|---|---|
| 3.00 | 80.00 | 70.00 | 70.00 | 5.00 |

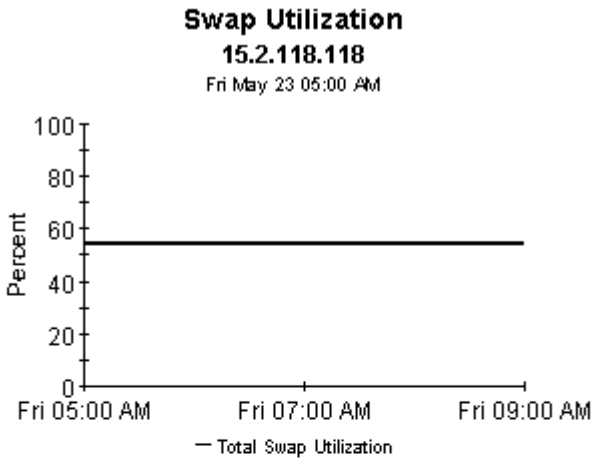
**Run Queue**
**15.2.118.118**
Fri May 23 05:00 AM

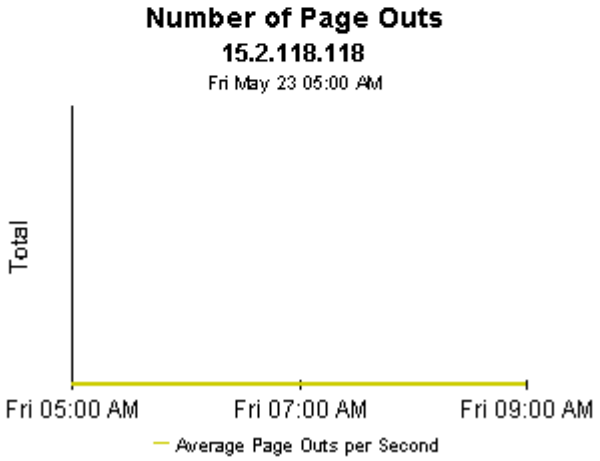


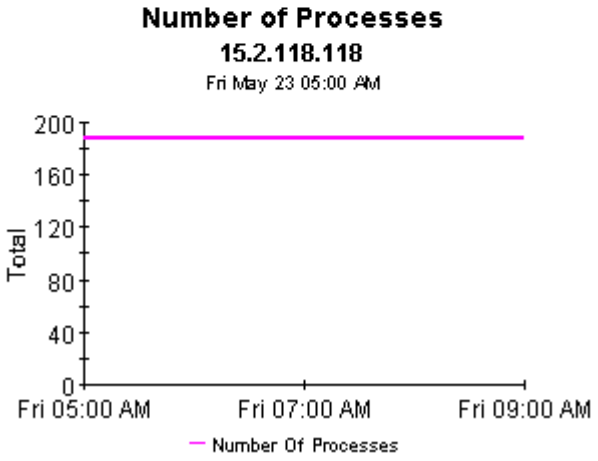

**CPU Utilization**
**15.2.118.118**
Fri May 23 05:00 AM




Memory Utilization
15.2.118.118
Fri May 23 05:00 AM
100
80
60
40
20
0
Percent
Fri 05:00 AM
Fri 07:00 AM
Fri 09:00 AM
Memory Utilization


Swap Utilization
15.2.118.118
Fri May 23 05:00 AM
100
80
60
40
20
0
Percent
Fri 05:00 AM
Fri 07:00 AM
Fri 09:00 AM
Total Swap Utilization


Number of Page Outs
15.2.118.118
Fri May 23 05:00 AM
Total
Fri 05:00 AM
Fri 07:00 AM
Fri 09:00 AM
Average Page Outs per Second


Number of Processes
15.2.118.118
Fri May 23 05:00 AM
200
160
120
80
40
0
Total
Fri 05:00 AM
Fri 07:00 AM
Fri 09:00 AM
Number Of Processes

# 11 Top Ten Reports

System Resource 4.1 contains two Top Ten reports:

- Top Ten (Exception Volume, CPU Utilization, Filesystem Utilization)
- Top Ten Transactions

Both reports perform a ranking function. The first one contains three tables and no graphs or charts. This report brings into focus yesterday's exception volume, yesterday's CPU utilization, and yesterday's filesystem utilization. Use this report to spot systems with high exception volume, systems with high CPU utilization, and systems with high filesystem utilization.

In addition to ranking systems, each table in this report provides the following provisioning details:

- Customer
- Location
- Make
- Model
- Operating system

The systems that appear in this report may not be exceeding thresholds and generating exceptions. The volume and utilization levels that appear in this report may be over threshold levels, or they may be well under threshold levels. If you are interested in knowing which systems are producing the most exceptions, use the Hot Spots report.

# System Resource

## Top Ten

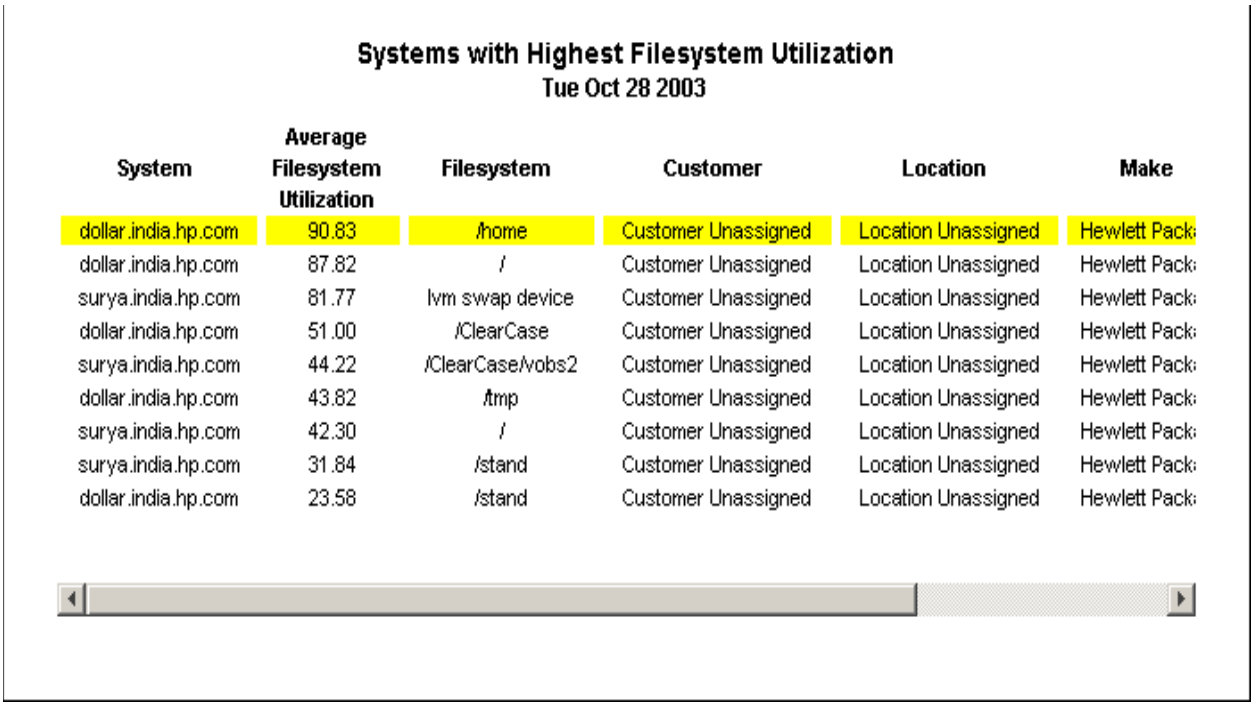
The System Resource Top Ten Report lists up to ten top volume contributors and ten systems exhibiting the poorest health for the day. Servers with the largest change in volume or health from the previous day are also listed, indicating unstable conditions that warrant further investigation. Select a system from the top chart to display detailed information for that system.

### Systems with Highest Volume
Tue Oct 28 2003

| System | Total InPackets | Total OutPackets | Average Collision Rate per min | Average Error Rate per min | Customer | Locatio |
|---|---|---|---|---|---|---|
| surya.india.hp.com | 22,551,950.00 | 22,559,202.00 | 2,267.71 | | Customer Unassigned | Location Una |
| aaina.india.hp.com | 6,442,713.00 | 9,018,749.00 | 428.95 | | Customer Unassigned | Location Una |
| dollar.india.hp.com | 1,131,713.00 | 998,315.00 | 1.77 | | Customer Unassigned | Location Una |

### Systems with Highest CPU Utilization
Tue Oct 28 2003

| System | Average CPU Utilization | Average Queue Length | Customer | Location | Make | Moc |
|---|---|---|---|---|---|---|
| aaina.india.hp.com | 38.35 | 0.80 | Customer Unassigned | Location Unassigned | Hewlett Packard | 9000 |
| surya.india.hp.com | 17.79 | 0.28 | Customer Unassigned | Location Unassigned | Hewlett Packard | 9000 |
| dollar.india.hp.com | 9.75 | 0.35 | Customer Unassigned | Location Unassigned | Hewlett Packard | 9000 |



**Systems with Highest Filesystem Utilization**
Tue Oct 28 2003

| System | Average Filesystem Utilization | Filesystem | Customer | Location | Make |
|---|---|---|---|---|---|
| dollar.india.hp.com | 90.83 | /home | Customer Unassigned | Location Unassigned | Hewlett Packa |
| dollar.india.hp.com | 87.82 | / | Customer Unassigned | Location Unassigned | Hewlett Packa |
| surya.india.hp.com | 81.77 | lvm swap device | Customer Unassigned | Location Unassigned | Hewlett Packa |
| dollar.india.hp.com | 51.00 | /ClearCase | Customer Unassigned | Location Unassigned | Hewlett Packa |
| surya.india.hp.com | 44.22 | /ClearCase/vobs2 | Customer Unassigned | Location Unassigned | Hewlett Packa |
| dollar.india.hp.com | 43.82 | /tmp | Customer Unassigned | Location Unassigned | Hewlett Packa |
| surya.india.hp.com | 42.30 | / | Customer Unassigned | Location Unassigned | Hewlett Packa |
| surya.india.hp.com | 31.84 | /stand | Customer Unassigned | Location Unassigned | Hewlett Packa |
| dollar.india.hp.com | 23.58 | /stand | Customer Unassigned | Location Unassigned | Hewlett Packa |

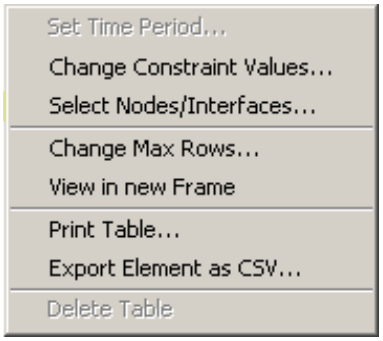
# A Editing Tables and Graphs

Any table or graph can be viewed in several ways. While the default view is usually adequate, you can easily change to a different view. If you are using Report Viewer, right-click the object to open a list of view options. If you are using the Web Access Server, follow these steps to change the default view of a table or graph:

1. Click **Preferences** on the links bar.
2. Expand **Reports** in the navigation frame.
3. Click **Viewing**.
4. Select the **Allow element editing** box.
5. Click **Apply**.
6. Click the Edit icon next to the table or graph.

## View Options for Tables

Right-clicking a table, or selecting the Edit Table icon if you are using the Web Access Server, opens a list of table view options.




Select **Set Time Period** to alter the relative time period (relative to now) or set an absolute time period. The Set Time Period window opens.

You may shorten the period of time covered by the table from, for example, 42 days to 30 days or to 7 days. If you are interested in a specific period of time that starts in the past and stops *before* yesterday, click **Use Absolute Time** and select a Start Time and an End Time.

Select **Change Constraint Values** to loosen or tighten a constraint, thereby raising or lowering the number of elements that conform to the constraint. The Change Constraint Values window opens. To loosen a constraint, set the value lower; to tighten a constraint, set the value higher.

The **Select Nodes/Interfaces** allows you to change the scope of the table by limiting the table to specific nodes, specific interfaces, or a specific group of nodes or interfaces. The Select Node Selection Type window opens.

**Change Max Rows** increases or decreases the number of rows in a table. The default is 50. If you expand the default, the table may take more time to open. If you are trending a large network, using the default ensures that the table opens as quickly as possible.

**View in new Frame** opens the table in a Table Viewer window, shown below. If necessary, make the data in the table more legible by resizing the window.

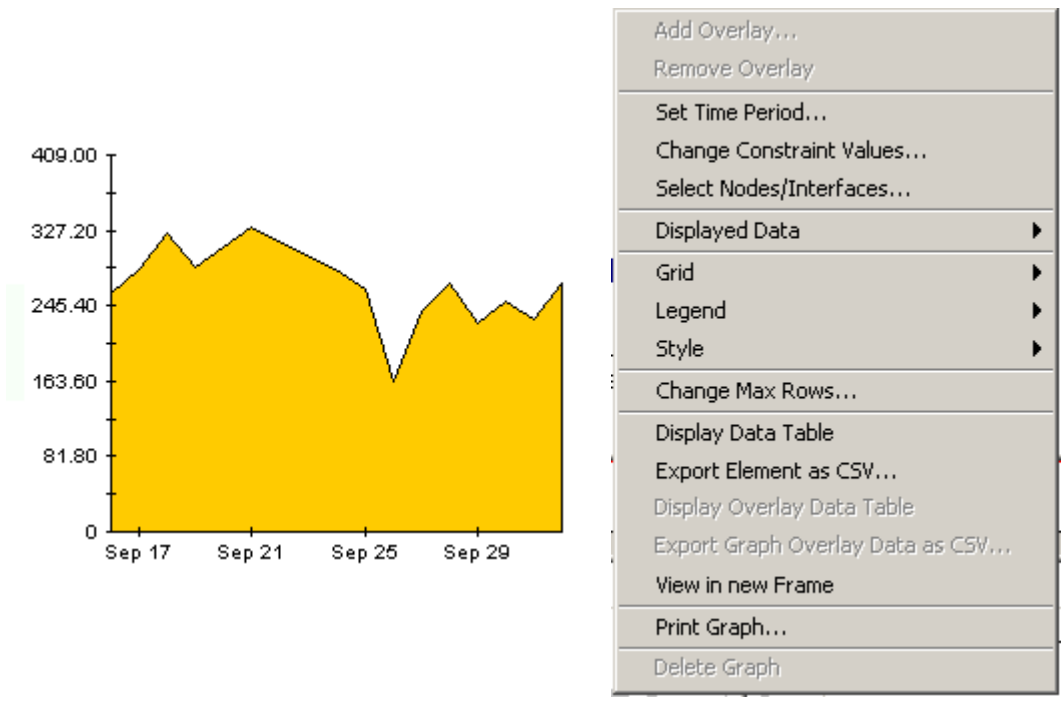
Table Viewer

**Polled IP QoS Statistics Data - Input**
**Over Previous 6 Hours**

| Direction | IpPrecedence | Switched Bytes | Switched Pkts | Time Period |
|---|---|---|---|---|
| Input | 0 | 105,688 | 675 | Tue Oct 29 07:00 AM |
| Input | 1 | 0 | 0 | Tue Oct 29 07:00 AM |
| Input | 2 | 0 | 0 | Tue Oct 29 07:00 AM |
| Input | 3 | 0 | 0 | Tue Oct 29 07:00 AM |
| Input | 4 | 0 | 0 | Tue Oct 29 07:00 AM |
| Input | 5 | 0 | 0 | Tue Oct 29 07:00 AM |
| Input | 6 | 600 | 5 | Tue Oct 29 07:00 AM |
| Input | 7 | 0 | 0 | Tue Oct 29 07:00 AM |
| Input | 0 | 98,334 | 638 | Tue Oct 29 06:45 AM |
| Input | 1 | 0 | 0 | Tue Oct 29 06:45 AM |
| Input | 2 | 0 | 0 | Tue Oct 29 06:45 AM |
| Input | 3 | 0 | 0 | Tue Oct 29 06:45 AM |
| Input | 4 | 0 | 0 | Tue Oct 29 06:45 AM |

# View Options for Graphs

Right-clicking a graph, or clicking the Edit Graph icon if you are using the Web Access Server, opens the following list of view options.

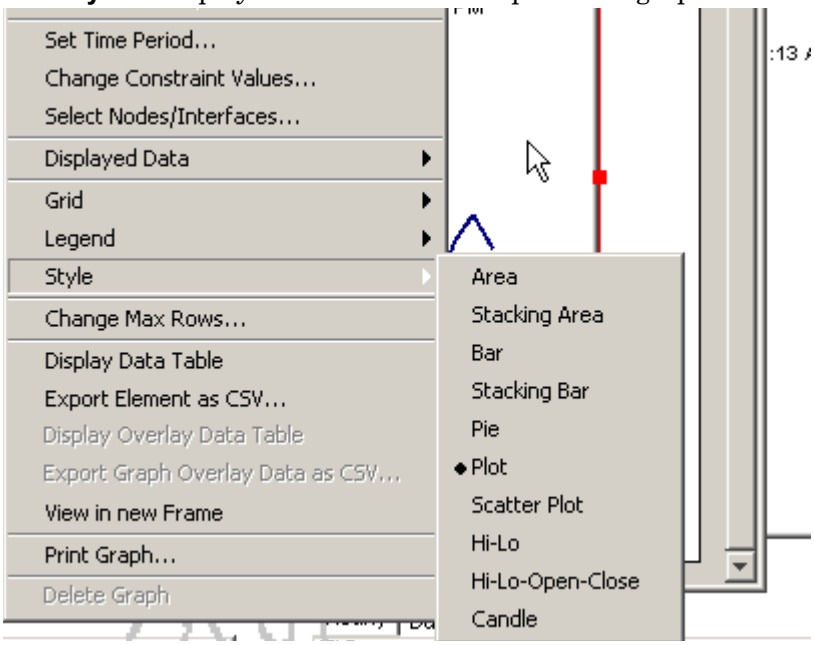


The following table provides details about each option.

| Option | Function |
|---|---|
| Set Time Period | Same as the table option shown above. |
| Change Constraint Values | Same as the table option shown above. |
| Select Nodes/Interfaces | Same as the table option shown above. |
| Displayed Data | For every point on a graph, display data in a spreadsheet. |
| Grid | Add these to the graph:<br>X axis grid lines<br>Y axis grid lines<br>X and Y axis grid lines |
| Legend | Delete or reposition the legend. |
| Style | See the illustrations below. |
| Change Max Rows... | Same as the table option shown above. |
| Display Data Table | See below. |
| Export Element as CSV... | Same as the table option shown above. |
| View in New Frame | Opens graph in a Graph Viewer window. |
| Print Graph | Same as the table option shown above. |

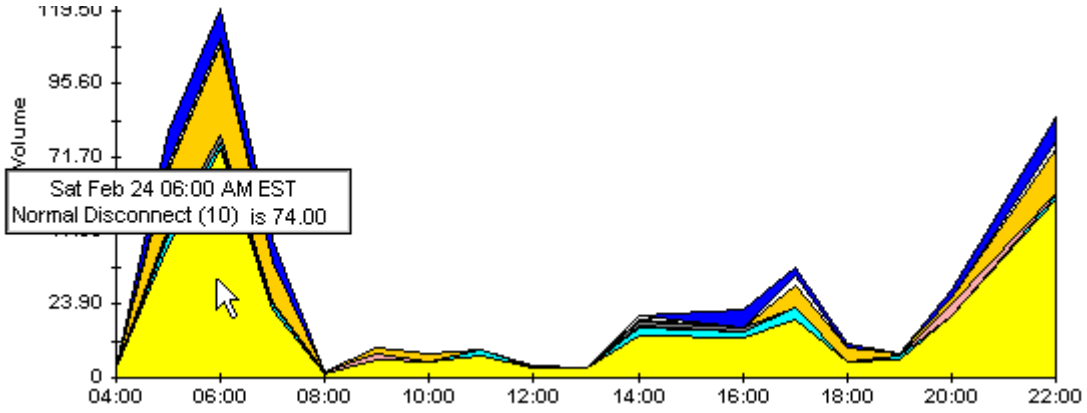
## Style Options

Select **Style** to display a list of seven view options for graphs.



## Style > Area

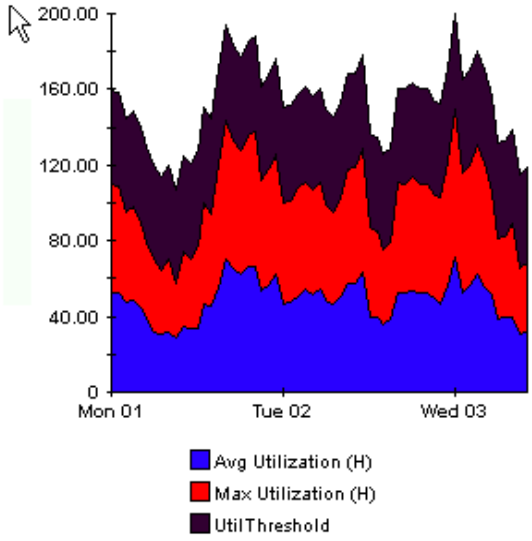
The plot or bar chart changes to an area graph. While relative values and total values are easy to view in this format, absolute values for smaller data types may be hard to see. Click anywhere within a band of color to display the exact value for that location




To shorten the time span of a graph, press SHIFT+ALT and use the left mouse button to highlight the time span you want to focus on. Release the mouse button to display the selected time span.

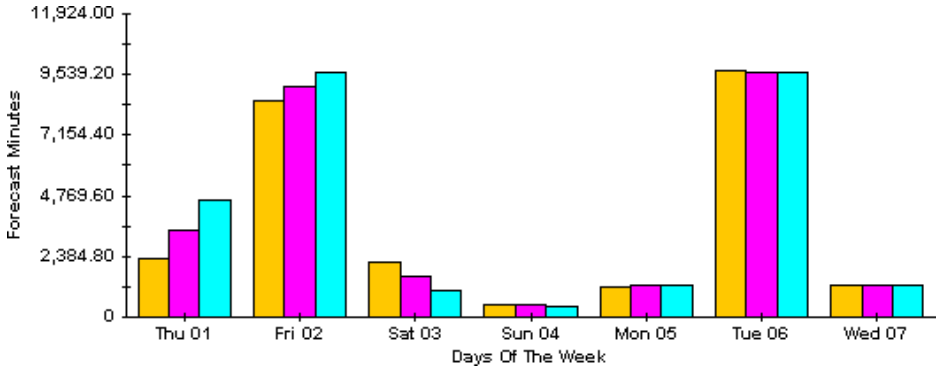
## Style > Stacking Area

The area or plot graph changes to a stacking area graph. This view is suitable for displaying a small number of variables.



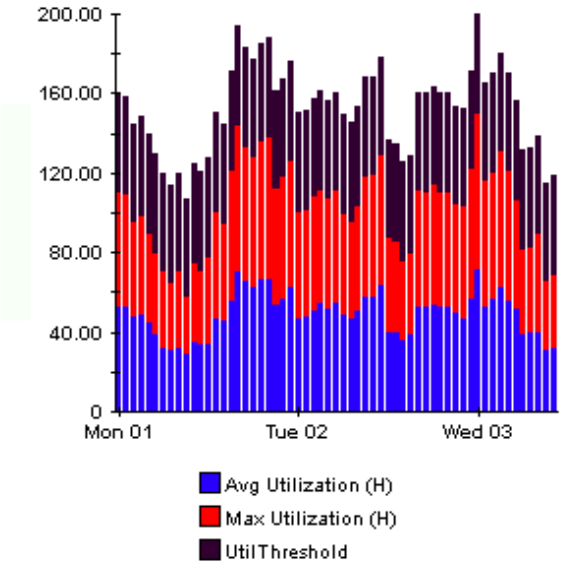
## Style > Bar

The graph changes to a bar chart. This view is suitable for displaying relatively equal values for a small number of variables. There are three variables in the graph below.



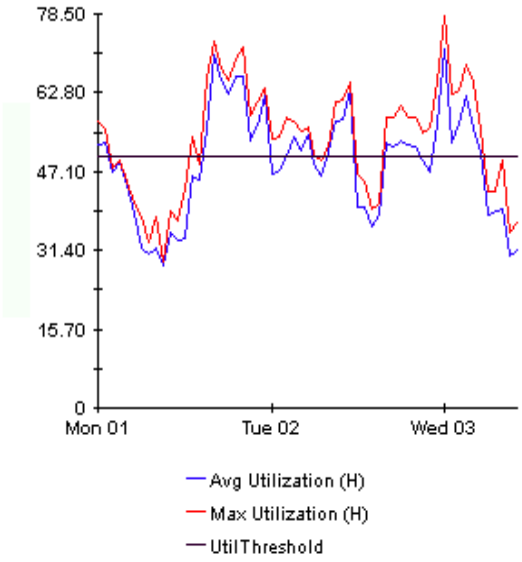

## Style > Stacking Bar

The plot or area graph changes to a stacking bar chart. If you increase the width of the frame, the time scale becomes hourly. If you increase the height of the frame, the call volume shows in units of ten.



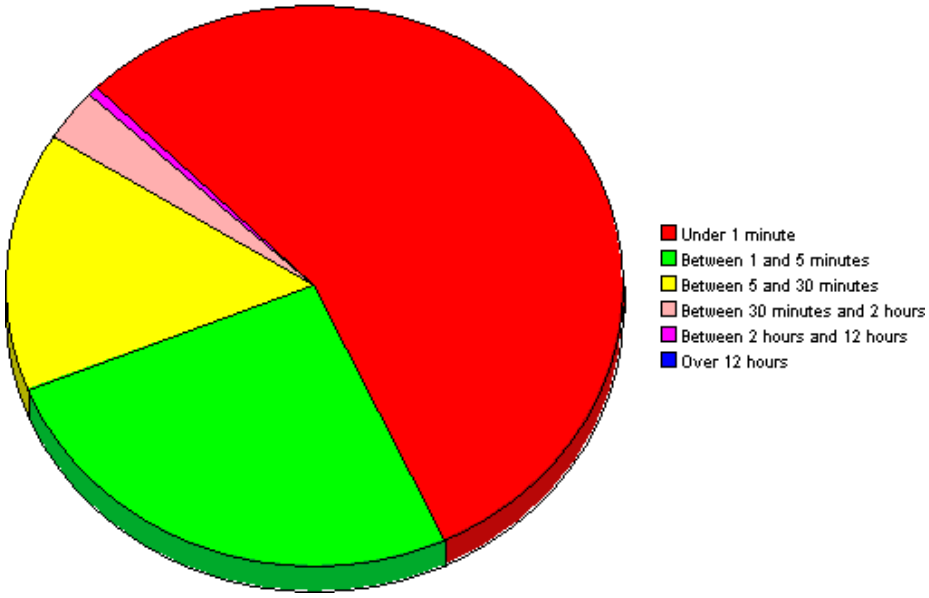
## Style > Plot

Bands of color in an area graph change to lines. If you adjust the frame width, you can make the data points align with hour; if you adjust the frame height, you can turn call volume into whole numbers.




## Style > Pie

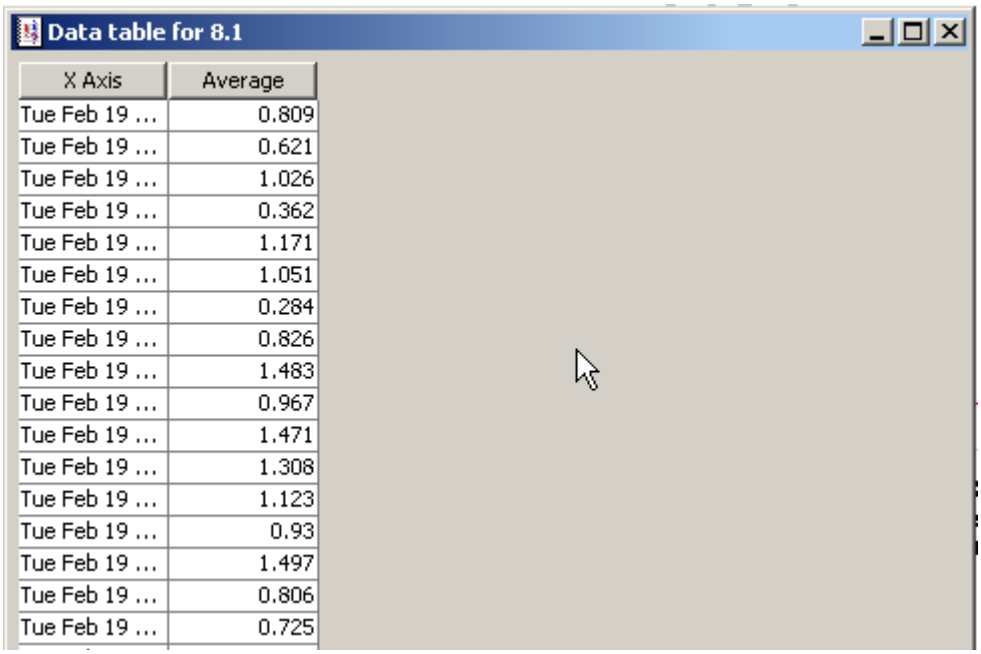
An area graph becomes a pie chart. Bands in an area graph convert to slices of a pie and the pie constitutes a 24-hour period. This view is helpful when a small number of data values are represented and you are looking at data for one day.




If you are looking at data for more than one day, you will see multiple pie graphs, one for each day.

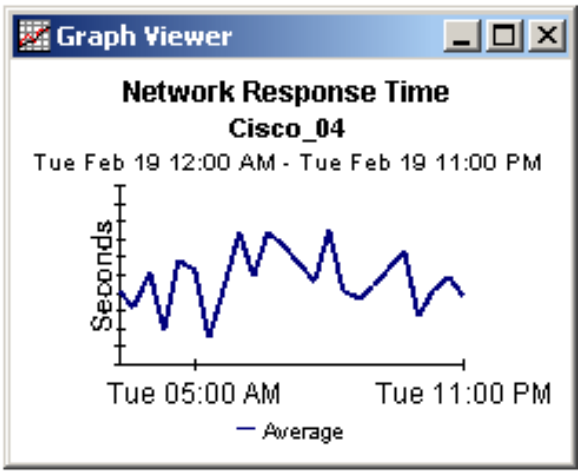
## Display Data Table

This option changes a graph into a spreadsheet.




## View in New Frame

The graph opens in a Graph Viewer window. Improve legibility by resizing the window.



# Index

## S



## T



## U



## V