HP OpenView Performance Insight

Interface Reporting Report Pack User Guide

Software Version: 4.6

Reporting and Network Solutions 7.0

January 2005

Legal Notices

Warranty

Hewlett-Packard makes no warranty of any kind with regard to this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be held liable for errors contained herein or direct, indirect, special, incidental or consequential damages in connection with the furnishing, performance, or use of this material.

A copy of the specific warranty terms applicable to your Hewlett-Packard product can be obtained from your local Sales and Service Office.

Restricted Rights Legend

Use, duplication, or disclosure by the U.S. Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause in DFARS 252.227-7013.

Hewlett-Packard Company
United States of America

Rights for non-DOD U.S. Government Departments and Agencies are as set forth in FAR 52.227-19(c)(1,2).

Copyright Notices

Trademark Notices

OpenView is a U.S. registered trademark of Hewlett-Packard Development Company, L.P.

Java™ is a U.S. trademark of Sun Microsystems, Inc.

Oracle® is a registered U.S. trademark of Oracle Corporation, Redwood City, California.

UNIX® is a registered trademark of The Open Group.

Windows® and Windows NT® are U.S. registered trademarks of Microsoft Corporation.

Support

Please visit the HP OpenView web site at:

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

This site provides contact information and details about the products, services, and support that HP OpenView offers. To reach the Support site, click **Support**. The Support site provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valuable support customer, you can benefit by using the support site to:

- Search for documents of interest
- Submit and track progress on support cases
- Manage a support contract
- Look up HP support contacts
- Review information about available services
- Join online discussions with other software customers
- Research and register for software training

Most of the support areas require you to register as an HP Passport user and log in. You may also require a support contract.

To find more information about access levels, go to the following URL:

http://support.openview.hp.com/access_level.jsp

To register for an HP Passport ID, go to:

https://passport.hp.com/hpp2/newuser.do

contents

1

Overview

This overview covers the following topics:

- OVPI and interface performance; data collection
- Package version history
- Package contents; folders and reports
- Rules and actions for thresholds
- Ways to customize reports
- Sources for additional information

OVPI and Interface Performance

Interface Reporting will help you maintain service levels, assess capacity issues, and spot problem areas before they become serious. Following is a partial list of what you can accomplish using these reports:

- Monitor exceptions (discard exceptions, error exceptions, utilization exceptions)
- Spot the extremes — trunks, locations, protocols that rank in the top ten
- Find hot spots — interfaces and devices with high exception counts
- Sort interfaces by rate of growth over the rolling baseline period
- Identify devices that are expected to exceed utilization thresholds in the near future
- Estimate future utilization based on past behavior during the rolling baseline period
- Correlate future performance by day-of-week
- See how a device, trunk, or EtherChannel is performing in near real time
- Compare today's activity to historic trends

Data Collection

Following is a list of the datapipes available for use with Interface Reporting:

- Interface Reporting ifEntry Datapipe 2.1

- Interface Discovery Datapipe 2.1
- Interface Reporting Duplex Datapipe 1.0
- Interface Reporting Cisco VLAN Datapipe 2.1
- Interface Reporting OPNET Export Datapipe 2.0

The following table describes the function of each datapipe.

Datapipe	Function
IR ifEntry Datapipe 2.1	Collects data from the MIB-II ifTable.
Interface Discovery Datapipe 2.1	Discovers and tracks MIB-II ifTable interface identifiers and configuration data.
IR Duplex Datapipe 1.0	Polls the RFC2665 MIB for OID 1.3.6.1.2.1.10.7.2.1.19. This OID indicates the full or half duplex status of an interface. The value pulled from the MIB overrides the default for that protocol type.
Cisco VLAN Datapipe 2.1	Collects VLAN configuration information for the VLAN reports in the IR VLAN package.
OPNET Export Datapipe 2.0	Exports MIB-II ifTable data in a format compatible with OPNET.

Version History

The following table outlines recent enhancements to Interface Reporting.

Version	RNS/Date	Features/Enhancements
2.0	RNS 1.0 - Jan 2002	Sybase support
2.1	RNS 2.0 - Jan 2003	Minor fixes and changes
3.0	RNS 3.0 - May 2003	OVPI Object Manager support *new change forms:* • Change Protocol Defaults • Update Interface • Change Interface Customer • Change Interface Description • Administer Interface Poll Flag • Administration
3.0	RNS 4.0 - Oct 2003	*new sub-packages:* • Etherchannel • VLAN Cisco VLAN Datapipe 2.0

Version	RNS/Date	Features/Enhancements
4.0	RNS 5.0 - April 2004	Oracle support
4.5	RNS 6.0 - Aug 2004	• *new form:* Assign Priority • *new folder:* Vendor • *new reports:* — Top Level Inventory [Admin folder] — Priority Customer [multiple] • *new packages:* UPGRADE_Interface_Reporting_4_to_45.ap UPGRADE_Interface_Reporting_Device_4_to_45.ap UPGRADE_Interface_Reporting_Location_4_to_45.ap UPGRADE_Interface_Reporting_Protocol_4_to_45.ap UPGRADE_Interface_Reporting_Vlan_3_to_45.ap
4.6	RNS 7.0 - Nov 2004	• Constraints on exception reports removed • Default for Ethernet changed to full duplex • Cisco 806 added to vendor table • VLAN report statistics refreshed • Cisco VLAN Datapipe 2.1 • *new packages:* UPGRADE_Interface_Reporting_45_to_46.ap UPGRADE_Interface_Reporting_Device_45_to_46.ap UPGRADE_Interface_Reporting_Location_45_to_46.ap UPGRADE_Interface_Reporting_Protocol_45_to_46.ap UPGRADE_Interface_Reporting_Vlan_45_to_46.ap

Package Contents

The Interface Reporting Report Pack includes the following report folders:

• Admin

• Device

• EtherChannel

• Interface

• Location

• Protocol

• VLAN

Reports in the Device, Location, Protocol, and Vendor folders have a customer orientation. Your first step is to select a customer. Selecting a customer displays a list of devices, locations, protocols, or vendors that belong to the customer.

The only data in a customer-oriented report is aggregated data. The Device folder aggregates data by device, which means that data for all enabled interfaces (*administratively up interfaces*) has been rolled up to the device level. Similarly, the reports in the Location folder roll up data for enabled interfaces by location, while reports in the Protocol folder roll up data for enabled interfaces by protocol.

Reports in the Interface folder have an interface orientation. Each report begins with a table containing a list of devices in column 1 and a list of interfaces in column 2.

Folder Contents

Folder	Folder Contents
Admin	• Configuration & Logging • Inventory • System Performance • Top Level Inventory
Interface	• Availability Detail • Capacity Planning • Discard Exceptions • Error Exceptions • Exception Hot Spots • Grade of Service • Near Real Time • Near Real Time Snapshot • Service Level Management • Simple NRT • Top Ten • Unreachable • Utilization Exceptions
Device	• Capacity Planning • Exception Hot Spots • Priority Customer • Service Level Management • Top Ten
VLAN	• Exception Hot Spots • Near Real Time • Top Ten • Traffic Utilization
Etherchannel	• Exception Hot Spots • Near Real Time

Folder	Folder Contents
Location	• Capacity Planning • Executive Summary • Priority Customer • Service Level Management • Top Ten
Protocol	• Capacity Planning • Executive Summary • Service Level Management • Top Ten • Priority Customer
Vendor	• Capacity Planning • Executive Summary • Make and Model Top Ten • Priority Customer • Service Level Management • Top Ten

Types of Reports

See below for a brief description of each type of report in the package.

Availability Detail. Displays a list of interfaces that were unavailable for at least part of the previous day.

Capacity Planning. Forecasts busy-hour utilization and sorts interfaces, devices, locations, protocols, or vendors by rate of growth.

Configuration and Logging. Displays configuration settings that determine how collections are performed; displays an entry for each transfer from the datapipe to the report pack, indicating when the transfer took place and the number of rows that were mapped to the report pack.

Exceptions. Identifies the interfaces with the highest number of discard exceptions, error exceptions, or utilization exceptions.

Exception Hot Spots. Identifies the trunks, interfaces, VLAN interfaces, and devices with the highest number of exceptions.

Executive Summary. Aggregates volume, exception counts, and utilization by protocol, location, or vendor.

Grade of Service. Identifies the ten worst performing interfaces and assigns a grade to each interface based on utilization, error, and discard exceptions.

Inventory. Shows which devices are provisioned and property data associated with devices and interfaces. Top Level Inventory shows the total number of devices for each customer, the total number of interfaces for each customer, and a breakdown by make and model.

Near Real Time. Provides utilization, error, and discard data for active interfaces, trunks, and EtherChannels; the time period begins with the most recent poll and goes back six hours; drill-down to daily and monthly data.

NRT Snapshot. Provides utilization, error, and discard data for one device, multiple devices, or specific interfaces on one device; same time period as Near Real Time.

Priority Customer. These reports provide availability, exception and volume metrics for selected high priority customers and their managed elements. They are suitable for wall board displays with an hourly refresh, allowing management and staff to see the current state of their network from a customer perspective at a high level. No data will appear in these reports unless you assign *Priority* to the customer/device, customer/location, customer/protocol or customer/vendor combinations using the Assign Priority forms under **General Tasks** in the Property/Object Manager window.

Service Level Management. Identifies interfaces, devices, locations, protocols, and vendors with lowest availability and highest response time.

Simple Near Real Time. A subset of Near Real Time; provides statistics for the previous six hours and an hourly view of utilization, discards, and errors. Intended for easy integration with the NMS.

System Performance. Measures duration, in seconds, for groups of related tasks performed by the report pack.

Top Ten. Identifies interfaces, VLAN interfaces, trunks, devices, locations, protocols, and vendors with the highest volume and the lowest volume.

Unreachable. Provides a list interfaces for which no data has been received for 35 minutes; excludes interfaces for which no data has been received for more than six hours.

Rules and Actions for Thresholds

If you use NNM for fault management, you have the option of using the NNM/OVPI Integration Module to integrate NNM and OVPI. Once NNM and OVPI are integrated, the NNM operator will be able to launch any report in Interface Reporting by opening the Report Launchpad window.

Installing the optional thresholds sub-package that comes with Interface Reporting configures OVPI to send threshold traps to NNM. Traps from OVPI will appear as alarms in the NNM alarm browser. The thresholds sub-package contains:

*   Rules that define thresholds specific to Interface Reporting
*   Actions to take in response to threshold breaches

The thresholds sub-package has a prerequisite, the Thresholds Module. The Thresholds Module monitors conditions and takes actions when necessary. When a threshold is breached, the Thresholds Module generates a breach event; when the condition returns to normal, the Thresholds Module generates a clear event.

The following table shows the category, name, data type, and severity of each threshold.

Category	Threshold	Data Type	Description	Severity
InterfaceReporting	InDiscards	NRT	In Discards percentage exceeds discard exception level.	Warning
InterfaceReporting	OutDiscards	NRT	Out Discards percentage exceeds discard exception level.	Warning

Category	Threshold	Data Type	Description	Severity
InterfaceReporting	InErrors	NRT	In Errors percentage exceeds error exception level.	Minor
InterfaceReporting	OutErrors	NRT	Out Errors percentage exceeds error exception level.	Minor
InterfaceReporting	InUtilization	NRT	In Utilization percentage exceeds utilization exception level.	Warning
InterfaceReporting	OutUtilization	NRT	Out Utilization percentage exceeds utilization exception level.	Warning
InterfaceReporting	Availability	NRT	Availability less than exception level.	Warning
InterfaceReporting	UtilException	Hourly	Utilization exceeds threshold in more than 45% of samples.	Warning
InterfaceReporting	DiscardsException	Hourly	Discards exceed threshold in more than 45% of samples.	Warning
InterfaceReporting	ErrorsException	Hourly	Errors exceed threshold in more than 45% of samples.	Minor
InterfaceReportingForecast	InUtilForecast	Daily	30 day forecast In Utilization exceeds utilization exception level.	Warning
InterfaceReportingForecast	OutUtilForecast	Daily	30 day forecast Out Utilization exceeds utilization exception level.	Warning

Although the thresholds in the preceding table are set to defaults, you can easily modify the defaults on a per-interface basis by using the Change Interface Properties form. For details about this form, see Chapter 6, Using Change Forms.

Ways to Customize Reports

Reports can be customized by applying group filters, by apply constraints, by editing tables and graphs, by importing properties (customers and locations), and by adding details about interface attributes. Group filters are used by service providers, or any organization that wants to share reports with customers. Any user looking at a report can apply constraints or edit tables and graphs. For details about view options for tables and graphs, see Chapter 13, Editing Tables and Graphs.

Group Filters

If you want to share reports with customers, you must produce customer-specific reports. To produce customer-specific, perform these tasks:

- Use Common Property Tables to import properties (customer names and device locations)

- Create a group account for all of the users affiliated with each customer

- Create a group filter for the group account

For more information about creating filters for group accounts, refer to the *Performance Insight 5.0 Administration Guide.*

Applying Constraints

Editing a parameter applies a constraint. The constraint eliminates the data you are not interested in seeing. For example, if you edit the Customer Name parameter, data for every customer except the customer you typed in the Customer Name field drops from the report. You can apply multiple constraints at the same time. Interface Reporting supports the following parameters:

- Customer Name

- Customer ID

- Location Name

- Location ID

- Device Name

- Make

- Model

If you are using the Web Access Server to view reports, edit parameters 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 Report Viewer, select **Edit > Parameter Values** from the menu bar. When the Modify Parameter Values window opens, click the **Current Value** field. Type a new value and click **OK**.

Importing Properties

You have the option of populating reports with node-level properties and interface-level properties. Node-level properties are sourced from Common Property Tables. Interface-level properties can be sourced from the network, or read from a property import file that you create yourself from scratch. If you prefer, you can also export existing property data from OVPI, modify what you get from OVPI, and then re-import this file with your changes. The following forms are available for updating properties:

- Change Protocol Defaults

- Change Interface Properties

- Change Interface Customer

- Change Interface Location

- Change Interface Description

- Administer Interface Poll Flag

The Administer Interface Reporting form does not pertain to object properties. Use it to modify the behavior of the package itself.

Sources for Additional Information

This user guide includes samples of some of the reports in the package. The demo package that comes with Interface Reporting contains samples 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.

For information regarding the latest enhancements to Interface Reporting and any known issues affecting it, refer to the *Interface Reporting Report Pack 4.6 Release Statement*. You may also be interested in the following documents:

* *Cisco VLAN Datapipe 2.1 Release Statement*

* *Common Property Tables 3.5 User Guide*

* *Executive Summaries Report Pack 1.0 User Guide*

* *Interface Discovery Datapipe 2.1 User Guide*

* *Interface Reporting ifEntry Datapipe 2.1 User Guide*

* *NNM / Performance Insight Integration Module 2.0 User Guide*

* *RNS 7.0 Release Notes, November 2004*

* *Thresholds Module 5.0 User Guide*

The user guides for the core product, OVPI, and the user guides for the reporting solutions that run on OVPI can be downloaded from this site:

http://www.hp.com/managementsoftware

Select **Support** > **Product Manuals** to open the **Product Manual Search** page. Manuals for OVPI are listed under **Performance Insight**. Manuals for report packs, datapipes, and NNM components (SPIs and correlators) are listed under **Reporting and Network Solutions**.

The manuals listed under **Reporting and Network Solutions** indicate the month and year of publication. If a user guide is revised and reposted, the date of publication will change even if the software version number does not change. Since we post updated user guides on a regular basis, you should search this site for updates before using an older manual that might not be the latest manual available.

The Upgrade Install

This chapter covers the following topics:

- Guidelines for a smooth upgrade
- Upgrading to Interface Reporting 4.6 from version 4.5
- Package removal

Guidelines for a Smooth Upgrade

After you insert the RNS 7.0 CD, launch the package extraction interface, and select OVPI packages for extraction, the install script extracts every OVPI package on the CD and copies the results to the Packages directory on your system. When the extraction process finishes, the install script prompts you to launch Performance Insight and start Package Manager.

Upgrading from version 4.5 to version 4.6 involves installing and removing multiple packages. Some of the packages you install are required and some are optional. Due to the dependent relationship that exists between some packages, you have to install packages in the correct sequence.

Prerequisites

Make sure the following software is already installed before upgrading Interface Reporting:

- OVPI 5.0
- Any available Service Pack for OVPI 5.0

If you need help installing a Service Pack, refer to the release notes.

Upgrading Common Property Tables

If you are running an older version of Common Property Tables, you must upgrade to version 3.5. Do this by installing the version 3.0-to-3.5 upgrade package. When you install this package, do not install other packages at the same time. Install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables.

Distributed Environments

If you are running OVPI as a distributed system, every server must be running OVPI 5.0 and all the Service Packs available for OVPI 5.0. Here is an overview of the installation procedure for distributed environments:

1 Disable trendcopy on the central server.

2 For the central server:

- Upgrade to Interface Reporting 4.6; deploy reports.

- Upgrade the device, location, protocol and VLAN sub-packages; deploy reports.

- Re-edit the process files containing trend_copy directives for Device, Location and Protocol; these files were overwritten during the upgrade process.

3 For each satellite server:

- Upgrade to Interface Reporting 4.6; deploy reports.

- Upgrade the device and thresholds sub-packages.

> If reports are currently deployed from satellite servers, you would also want to upgrade the location, protocol and VLAN sub-packages.

- Remove these datapipes:

  — Interface Discovery Datapipe 1.1/2.0

  — Interface Reporting ifEntry Datapipe 1.1/2.0

  — Interface Reporting Duplex Datapipe 1.0

  — Cisco VLAN Datapipe 1.0

  — Cisco VLAN Datapipe 2.0

- Install these datapipes:

  — Interface Discovery Datapipe 2.1

  — Interface Reporting ifEntry Datapipe 2.1

  — Interface Reporting Duplex Datapipe 2.0

  — Cisco VLAN Datapipe 2.1 (optional)

  — OPNET Export Datapipe 2.0 (optional)

4 Re-enable trendcopy on the central server.

If you installed Interface Reporting 4.0 on servers running OVPI 4.6, you had to configure the servers in your system. You did this by running DS EDIT to set up connections with satellite server databases, configuring trendcopy pull commands, and switching off aggregations on each satellite server. If you recently upgraded from OVPI 4.6 to OVPI 5.0, you must repeat the following tasks:

- Set up connections with satellite server databases (using the Add Database Wizard)

- Configure trendcopy pull commands

These tasks must be repeated because the way that connections are set up changed in OVPI 5.0. For details, see Chapter 4, Distributed Systems.

Upgrading Version 4.5 to Version 4.6

Perform the following tasks to upgrade to Interface Reporting 4.6:

- Task 1: Stop OVPI Timer and extract packages from the RNS CD
- Task 2: Upgrade to Common Property Tables 3.5
- Task 3: Install the Interface Reporting 4.5-to-4.6 upgrade package
- Task 4: Install sub-packages
- Task 5: Remove old datapipes
- Task 6: Install new datapipes
- Task 7: Restart OVPI Timer

> If you are using the "Poll Flagged Interfaces Only" polling rule, you have to re-provision the poll flag after this upgrade. Refer to the *Interface Reporting ifEntry Datapipe 2.1 User Guide* for details.

Task 1: Stop OVPI Timer and extract packages from the RNS 7.0 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: Select **Settings > Control Panel** > **Administrative Tools > Services**

UNIX: As root, type one of the following:

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

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

3 Insert the RNS 7.0 CD. On Windows, a Main Menu displays automatically; on UNIX, mount the CD if the CD does not mount automatically, navigate to the top level directory on the CD, and run the **./setup** command.

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.

If you navigate to the Packages directory, you will see the following folders under the Interface Reporting folder:

- Interface_Reporting.ap
- Interface_Reporting_Demo.ap
- Interface_Reporting_Device.ap
- Interface_Reporting_Location.ap
- Interface_Reporting_Protocol.ap
- Interface_Reporting_Thresholds.ap
- Interface_Reporting_Vlan.ap
- UPGRADE_Interface_Reporting_4_to_45.ap
- UPGRADE_Interface_Reporting_45_to_46.ap

- UPGRADE_Interface_Reporting_Device_4_to_45.ap
- UPGRADE_Interface_Reporting_Device_45_to_46.ap
- UPGRADE_Interface_Reporting_Location_4_to_45.ap
- UPGRADE_Interface_Reporting_Location_45_to_46.ap
- UPGRADE_Interface_Reporting_Protocol_4_to_45.ap
- UPGRADE_Interface_Reporting_Protocol_45_to_46.ap
- UPGRADE_Interface_Reporting_Vlan_3_to_45.ap
- UPGRADE_Interface_Reporting_Vlan_45_to_46.ap

Task 2: **Upgrade to Common Property Tables 3.5**

If you have not already upgraded to Common Property Tables 3.5, do this now. Observe these rules:

- Do not install other packages at the same time; install the upgrade package for CPT and *only* the upgrade package for CPT.
- When the Report Deployment window opens, accept the default to Deploy Reports. In this context, deploying reports means deploying the forms that come with CPT.
- When the install completes, click **Done** to return to the Management Console.

If you need help with the upgrade, refer to the *Common Property Tables 3.5 User Guide*.

Task 3: **Install the Interface Reporting 4.5-to-4.6 upgrade package**

1 Start Package Manager. The Package Manager welcome window opens.

2 Click **Next.** The Package Location window opens.

3 Click **Install**. Approve the default installation directory or select a different directory if necessary.

4 Click **Next.** The Report Deployment window opens. Accept the default for Deploy Reports; accept the defaults for application server name and port; type your user name and password for the OVPI Application Server.

5 Click **Next.** The Package Selection window opens.

6 Click the check box next to the following package:

   UPGRADE Interface Reporting 4.5-to-4.6

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

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

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

Task 4: **Install Location, Device, Protocol, VLAN and Thresholds**

Installing the Interface Reporting Thresholds sub-package is optional. If you install Interface Reporting Thresholds, Package Manager will install the Thresholds Module, a prerequisite package, for you.

1 Start Package Manager. The Package Manager welcome window opens.

2 Click **Next.** The Package Location window opens.

3 Click **Install**.

4 Click **Next.** The Report Deployment window opens. Accept the default for Deploy Reports; accept the defaults for application server name and port; type your user name and password for the application server.

5 Click **Next.** The Package Selection window opens.

6 Click the check box next to the following packages:

a *UPGRADE Interface Reporting Device 45-to-46*

b *UPGRADE Interface Reporting Location 45-to-46*

c *UPGRADE Interface Reporting Protocol 45-to-46*

d *UPGRADE Interface Reporting VLAN 45-to-46*

e *Interface Reporting Thresholds*

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

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

9 Click **Done**.

> Do not be surprised if the UPGRADE packages you just installed seem to have disappeared from view. Package Manager will display what you just installed as *Interface Reporting 4.6*. This is not an error.

Task 5: Remove old datapipes

> If you are using the "Poll Flagged Interfaces Only" polling rule, you must reprovision the poll flag after this upgrade. Refer to the *Interface Reporting ifEntry Datapipe 2.1 User Guide* for details.

1 Start Package Manager. The Package Manager welcome window opens.

2 Click **Next.** The Package Location window opens.

3 Click **Uninstall**.

4 Click **Next.** The Report Undeployment window opens. Accept the default for Undeploy Reports; accept the defaults for application server name and port; type your user name and password for the OVPI Application Server.

5 Click **Next.** The Package Selection window opens.

6 Click the check box next to the following packages:

a *IFEntry_Disc_Datapipe 1.1* (or *IFEntry_Disc_Datapipe 2.0*)

b *IRifEntry_Datapipe 1.1* (or *IRifEntry_Datapipe 2.0*)

c *CiscoVLAN_Datapipe 1.0* (or *CiscoVLAN_Datapipe 2.0*)

d *Interface_Reporting_Duplex Datapipe 1.0*

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

8 Click **Uninstall.** The Progress window opens and the removal process begins. When removal finishes, a package removal complete message appears.

9 Click **Done.**

Task 6: Install new datapipes

1 Start Package Manager. The Package Manager welcome window opens.

2 Click **Next.** The Package Location window opens.

3 Click **Install**.

4 Click **Next.** The Report Deployment window opens. Disable the default for Deploy Reports.

5 Click **Next.** The Package Selection window opens.

6 Click the check box next to the following packages:

    a *IFEntry_Disc_Datapipe 2.1*

    b *Interface_Reporting_ifEntry_Datapipe 2.1*

    c *Cisco_VLAN_Datapipe 2.1*

    d *Interface_Reporting_Duplex_Datapipe 2.0*

    e *OPNET Export Datapipe 2.0*

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

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

9 Click **Done.**

Task 7: Restart OVPI Timer.

Windows: 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`

Package Removal

If you uninstall (remove) the Interface Reporting package, the Interface Reporting ifEntry Datapipe will be removed automatically. Uninstalling the Interface Reporting package does not affect the Interface Discovery Datapipe.

Follow these steps to uninstall Interface Reporting 4.6:

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

2 Stop OVPI Timer and wait for processes to terminate.

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

4 Click **Next.** The Package Location window opens.

5 Click **Uninstall**.

6 Click **Next.** The Report Undeployment window opens.

7 If you deployed the reports in Interface Reporting from this server, accept the defaults for Undeploy Reports, Application Server Name, and Port. Otherwise, clear the check box and skip to step 9.

8 Type the username and password for the OVPI Application Server.

9 Click **Next.** The Package Selection window opens. Click the check box next to the following packages:

  a *Interface Reporting*

  b *Interface Reporting Device*

  c *Interface Reporting Location*

  d *Interface Reporting Protocol*

  e *Interface Reporting Thresholds*

  f *Interface Reporting VLAN*

  g *Interface Reporting Demo*

10 Click **OK.**

11 Click **Next.** The Selection Summary window opens.

12 Click **Uninstall.** The Progress window opens and the removal process begins. When the uninstall process is complete, a package removal complete message appears.

13 Click **Done**.

14 Restart OVPI Timer.

The New Install

This chapter covers the following topics:

- Guidelines for a smooth install
- Installing Interface Reporting 4.6
- Accessing deployed reports
- New object categories in the object model
- Seeing performance data in reports
- Package removal

Guidelines for a Smooth Install

Each reporting solution that runs on OVPI consists of a report pack and one datapipe, or sometimes a report pack and multiple datapipes. When you install the datapipe, you configure OVPI to collect a specific type of performance data at a specific polling interval. When you install the report pack, you configure OVPI to summarize and aggregate the data collected by the datapipe.

If the report packs on the RNS 7.0 CD have already been extracted, then Interface Reporting 4.6 is already in the Packages directory on your system and available for installation. If you have not extracted packages from the RNS 7.0 CD, follow the procedure in this chapter. As soon as the extraction step completes, you can install Interface Reporting 4.6 by starting Package Manager and following the on-screen instructions.

Prerequisites

Make sure the following software is already installed before installing Interface Reporting:

- OVPI 5.0
- Any available Service Pack for OVPI 5.0

If you need help installing a Service Pack, refer to the release notes for the Service Pack.

Upgrading Common Property Tables

If you are running an older version of Common Property Tables, you must upgrade your current version to version 3.5. If you are not running any version of Common Property Tables, let Package Manager install Common Property Tables for you.

Do not install the upgrade for Common Property Tables *and* other packages at the same time. Install the upgrade for Common Property Tables and *only* the upgrade for Common Property Tables. For more information about installing and using Common Property Tables, refer to the *Common Property Tables 3.5 User Guide*.

Distributed Environments

If you intend to run Interface Reporting as a distributed system, every server must be running OVPI 5.0 and all available Service Packs for OVPI 5.0. An outline of the installation procedure follows.

Central Server

Install the following packages on the central server:

- Interface Reporting 4.6
- Device sub-package
- Location sub-package
- Protocol sub-package
- VLAN sub-package

When installing these packages on the central server, deploy reports.

Satellite Servers

Install the following packages on each satellite server:

- Interface Reporting 4.6
- Device sub-package
- Location sub-package (optional)
- Protocol sub-package (optional)
- VLAN sub-package (optional)
- Interface Reporting Thresholds (optional)
- Interface Discovery Datapipe 2.1
- Interface Reporting ifEntry Datapipe 2.1
- Cisco VLAN Datapipe 2.1 (optional)
- OPNET Export Datapipe 2.0 (optional)

When installation is complete, your next step is to set up connections with satellite server databases, configure trendcopy pull commands, and switch off daily and monthly aggregations at each satellite server. For details, see Chapter 4, Distributed Systems.

Installing Interface Reporting 4.6

This section covers the following tasks:

- Task 1: Extract packages from the RNS 7.0 CD

- Task 2: If necessary, upgrade to Common Property Tables 3.5

- Task 3: Install Interface Reporting and optional sub-packages

Task 1: Stop OVPI Timer and extract packages from the RNS 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: Select **Settings > Control Panel > Administrative Tools > Services**

UNIX: As root, type one of the following:

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

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

3   Insert the RNS 7.0 CD. On Windows, a Main Menu displays automatically; on UNIX, mount the CD manually if the CD does not mount automatically, then run the setup command.

4   Select OVPI report packs by typing **1** in the choice field and pressing Enter. The install script displays a percentage complete bar. When extraction is complete, the install script starts Package Manager. The Package Manager welcome window opens.

If you navigate to the Packages directory on your system, you will see the following folders under the Interface Reporting folder:

- Interface_Reporting.ap

- Interface_Reporting_Demo.ap

- Interface_Reporting_Device.ap

- Interface_Reporting_Location.ap

- Interface_Reporting_Protocol.ap

- Interface_Reporting_Thresholds.ap

- Interface_Reporting_Vlan.ap

- UPGRADE_Interface_Reporting_4_to_45.ap

- UPGRADE_Interface_Reporting_45_to_46.ap

- UPGRADE_Interface_Reporting_Device_4_to_45.ap

- UPGRADE_Interface_Reporting_Device_45_to_46.ap

- UPGRADE_Interface_Reporting_Location_4_to_45.ap

- UPGRADE_Interface_Reporting_Location_45_to_46.ap

- UPGRADE_Interface_Reporting_Protocol_4_to_45.ap

- UPGRADE_Interface_Reporting_Protocol_45_to_46.ap

- UPGRADE_Interface_Reporting_Vlan_3_to_45.ap

- UPGRADE_Interface_Reporting_Vlan_45_to_46.ap

You can ignore the upgrade packages. Installing the demo package is optional.

Task 2:   Upgrade Common Property Tables

This task is necessary if you are currently running an older version of Common Property Tables. Upgrade to version 3.5 by installing the 3.0-to-3.5 upgrade package. Observe these rules:

- Install the upgrade by itself; install no other packages.

- When the Report Deployment window opens, accept the default to Deploy Reports. By deploying reports, you will deploy the forms that come with Common Property Tables.

- When the install finishes, click **Done** to return to the Management Console.

If you need help with the upgrade, refer to the *Common Property Tables 3.5 User Guide*.

Task 3:   Install Interface Reporting 4.6 and restart OVPI Timer

1   Start Package Manager. The Package Manager welcome window opens.

2   Click **Next.** The Package Location window opens.

3   Click **Install**. Approve the default installation directory or use the browse feature to select a different directory if necessary.

4   Click **Next.** The Report Deployment window opens. Accept the default for Deploy Reports; accept the default for application server name and port; type the username and password for the OVPI Application Server.

5   Click **Next.** The Package Selection window opens.

6   Click the check box next to the following packages:

a   *Common Property Tables 3.5*

b   *Interface Discovery Datapipe 2.1*

c   *Interface Reporting ifEntry Datapipe 2.1*

d   *Interface Reporting Duplex Datapipe 2.0*

e   *Cisco VLAN Datapipe 2.1* (optional)

f   OPNET Export Datapipe 2.0 (optional)

g   *Interface Reporting*

h   *Interface Reporting Device*

i   *Interface Reporting Location* (optional)

j   *Interface Reporting Protocol* (optional)

k   *Interface Reporting Thresholds* (optional)

l   *Interface Reporting VLAN* (optional)

m   *Interface Reporting Demo*

7   Click **Next.** The Type Discovery window opens. To run Type Discovery immediately after package installation, accept the default.

8   Click **Next.** The Selection Summary window opens.

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

10 Click **Done**.

11 Restart OVPI Timer.

Windows: 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**

Accessing Deployed Reports

When you installed Interface Reporting, you enabled the Deploy Reports option. As a result, the reports in this package (as well as any forms that come with reports) were deployed to the OVPI Application Server. Once reports reside on the OVPI Application Server, you have two ways to view them:

• OVPI clients

• Web browser

If the client components are installed on your system, you have access to Report Viewer, Report Builder, and the Management Console. If the client components are not installed on your system, using a web browser is the only way you can view reports.

For more information about the client components, refer to the *Performance Insight 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, refer to the *Performance Insight Administration Guide*.

New Object Categories in the OVPI Object Model

The OVPI object model allows you to navigate to an object, perform tasks that pertain to the object, or open reports that pertain to the object. Installing a new report pack modifies the object model, adding one or more object categories. Installing Interface Reporting adds one object category to the object model: *interface*.

Selecting any object in the object model, including an interface, causes the right side of the Object/Property Management window to refresh. Look for the forms that pertain to the object under **General Tasks** and **Object Specific Tasks.** Look for the reports that pertain to the object under **Object Specific Reports**.

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. Data begins to appear in this report after three polling cycles. Other reports, including 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.

Until data has been collected for several days, the daily charts will be sparsely populated; likewise, monthly charts will not have much to offer until data has been collected for several months. Because the Capacity Planning report cannot function without maximum busy-hour averages derived from data in the baseline period (42 days long), you will have to wait about six weeks for reliable forecasting data.

Package Removal

If you uninstall the Interface Reporting package, the Interface Reporting ifEntry Datapipe will be removed automatically. However, uninstalling the Interface Reporting package will not affect the Interface Discovery Datapipe.

> ➤ If you remove a report pack, the associated tables and all the data in those tables will be deleted. If you want to preserve the data in those tables, archive the data before removing the report pack.

Follow these steps to uninstall Interface Reporting 4.6:

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

2   Stop OVPI Timer and wait for processes to terminate.

3   Start Package Manager. The Package Manager welcome window opens.

4   Click **Next.** The Package Location window opens.

5   Click **Uninstall**.

6   Click **Next.** The Report Undeployment window opens. If the reports in Interface Reporting were deployed from this server, accept the defaults for Undeploy Reports, Application Server Name, and Port. Otherwise, clear the check box and skip to step 8.

7   Type your username and password for the OVPI Application Server.

8   Click **Next.** The Package Selection window opens. Click the check box next to the following packages:

   a   *Interface Reporting*

   b   *Interface Reporting Device*

   c   *Interface Reporting Location*

   d   *Interface Reporting Protocol*

   e   *Interface Reporting Thresholds*

   f   *Interface Reporting VLAN*

   g   *Interface Reporting Demo*

9   Click **OK.**

10   Click **Next.** The Selection Summary window opens.

11   Click **Uninstall.** The Progress window opens and the removal process begins. When the uninstall process is complete, a package removal complete message appears.

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

13   Restart OVPI Timer.

Windows: 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`

4

Distributed Systems

This chapter covers the following topics:

- Checking for proper package installation
- Avoiding duplicate polling
- Central server configuration
- Satellite server configuration
- System clocks

Checking for Proper Package Installation

Before configuring the servers, make sure that package installation is correct. The following table shows which packages belong on the central server and which packages belong on each satellite server.

Central Server	Satellite Server
Interface Reporting 4.6	Interface Reporting 4.6
Interface_Reporting_Device	Interface_Reporting_Device
Interface_Reporting_Location	Interface_Reporting_Location
Interface_Reporting_Protocol	Interface_Reporting_Protocol
Interface_Reporting_Vlan (optional)	Interface_Reporting_Vlan (optional)
	Thresholds sub-package (optional)
	Interface Discovery Datapipe 2.1
	Interface Reporting ifEntry Datapipe 2.1
	Cisco VLAN Datapipe 2.1 (optional)
	OPNET Export Datapipe 2.0 (optional)

Avoiding Duplicate Polling

You must decide how polling will take place, and then split the device groups accordingly. These are your options:

- Split polling between the central server, satellite servers, and remote pollers
- Split polling between satellite servers and remote pollers
- Split polling between multiple remote pollers

The situation you must avoid is *duplicate polling*, which arises when the device groups assigned to one server happen to be the same device groups assigned to a different server, or to a remote poller. To avoid this problem, make sure that you split the polling function properly. The polling function is split properly when:

- No two servers have the same polling policies and device group lists
- No two remote pollers have the same polling policies and device group lists
- Servers and remote pollers do not share polling policies and device group lists

For more information about polling policies and how to create them, refer to the *Interface Reporting ifEntry Datapipe 2.1 User Guide*.

Central Server Configuration

To configure the central server, perform the following tasks:

- Task 1: Set up connections with satellite server databases
- Task 2: Configure trendcopy pull commands and modify the entry in OVPI Timer

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   When you are done adding databases, click **Finish**.

Task 2: Configure trendcopy pull commands and modify the entry in OVPI Timer

1   Open this file:

    $DPIPE_HOME/scripts/IR_DevPort_Hourly_Process.pro

2   Modify the trendcopy commands so that each command includes the correct name of each satellite server.

3   If necessary, add more commands.

4   *Optional*. If you want to look at Near Real Time reports on the central server, you must have rate data available to the central server. To copy rate data to the central server, change **SH***IRDevPorts* in copy commands to **S***RIRDevPorts*.

> ▶   If you copy polled rate data from each satellite server every hour, you will increase the amount of traffic between the satellites and the central server and you will increase the processing load on the central server.

If you do not want to open NRT reports from the central, you can undeploy the Unreachable report and the three NRT reports. The NRT reports require rate data and will not display correctly if the SRIRDevPorts table is not populated.

5   Modify the hourly IR trendtimer entry. The default is 20 minutes after the hour. If you make the start time 10 minutes later, the central server will not attempt to copy data from satellite servers when satellite servers are running their summarizations.

Satellite Server Configuration

A satellite server can perform local reporting from the satellite database without the Location and Protocol modules. However, if you want a satellite server to perform full reporting, make sure that these modules are installed. If the Location and Protocol modules are installed, begin this procedure at step 5.

Follow these steps to configure each satellite server.

1   Switch off interface aggregations above the hourly level. Navigate to this file:

    $DPIPE_HOME/lib/trendtimer.sched

    Comment out the line referencing:

    IR_DevPort_DMF_Process.pro

2   Switch off **all** IR_Device aggregations. Comment out lines referencing:

    IR_Device_DMF_Process.pro

3   Navigate to this directory:

    Interface_Reporting.ap

    Remove unnecessary daily, monthly, and forecasting tables. Run the following command:

    trend_proc -f IR_remove_DMF_tables.pro

4   Using Table Manager, reduce the retention period of the SHIRDevPorts table from 4 days to 2 days.

5   Configure any protocols that should not be monitored to *unmonitored*.

6   Configure polling policies for the IR ifEntry Datapipe, taking care that each node is polled from one system only. Follow these guidelines:

    •   If remote pollers are being used, avoid duplicate polling by remote pollers, and duplicate polling by the satellite server and remote pollers.

    •   If a satellite server has two or more remote pollers, create separate polling policies for each poller and use view groups to separate the devices.

    •   Each poller must have 13 polling policies associated with it:

— 1 for the RIRRouterSystem table

— 8 for the Interface Discovery Datapipe

— 4 for the Interface Reporting ifEntry Datapipe

If you need help configuring polling policies, refer to the *Interface Reporting ifEntry Datapipe 2.1 User Guide*. See especially Chapter 3, Datapipe Configuration.

System Clocks

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

5

Importing Property Information

This chapter covers the following topics:

- Static property information
- Protocol-specific monitoring
- The batch-mode property import
- Adding details about vendors and models

Static Property Information

Interface Reporting has the ability to store and process static property information as well as rapidly changing performance data. Following is an alphabetical list of the properties that can appear in reports:

1. Country
2. Customer
3. Description
4. Device Name
5. Device Type
6. Discard Threshold
7. Error Threshold
8. Full or Half Duplex
9. Group ID
10. Group Name
11. Interface Description
12. Interface Speed
13. Interface Speed In
14. Interface Speed Out
15. Interface Type
16. Location ID

17 Location Name

18 Model Details

19 Model Number

20 Protocol

21 Utilization Threshold

22 Vendor Details

23 Vendor Name

Property information comes from the following sources:

- Protocol Configuration Table (update this using a form)

- Automatic feed from the network

- Common Property Tables batch-mode property import

- Common Property Tables "add new" and "update" forms

- Interface Reporting batch-mode property import

- Interface Reporting change forms:

  — Change Protocol Defaults

  — Update Interface

  — Change Interface Customer

  — Change Interface Description

  — Administer Interface Poll Flag

  — Administration (Logging, Data Filtering, Provisioning)

If you have customers associated with specific devices or specific interfaces, or if you have locations associated with specific devices, use Common Property Tables to import this information. Think of Common Property Tables as the *node level* property import, while the forms and the batch-mode import process available from Interface Reporting function as the *interface level* property import.

When an interface is discovered, various attributes associated with that interface (speed, type and description) are sourced from the network. However, attributes sourced from the network are not always correct. The following properties may be incorrect:

- ifType

- ifSpeed

- ifDescr

To make correct a property that is incorrect, you can either update a property import file, then import the file, or you can open a form, modify the contents of the form, and save your changes.

Protocol-Specific Monitoring

The monitoring status parameter allows you to enable or disable interface monitoring based on the protocol. By default, all active (administratively up) interfaces with monitored protocols are polled, and all the polled data is stored, summarized, and reported. You can configure OVPI to disable collection for certain protocols. For example, if a device has ATM ports and frame relay ports and you are not interested in the frame relay ports, you can disable collection for the frame relay ports.

Switching off monitoring of a previously monitored protocol does not remove data from the database, but switching off monitoring will prevent new data for that protocol from being collected or inserted. If you switch off monitoring of a previously monitored protocol, previously collected data will eventually age out. To find out whether any interface data is being deliberately ignored as the result of marking a protocol *unmonitored*, look at the Configuration and Logging report in the Admin folder.

For information about polling rules and how to stop the system from collecting data for ports with unmonitored protocols, refer to the *Interface Reporting ifEntry Datapipe User Guide*.

Using the Batch-Mode Property Import

The purpose of the property data interface is to import property data into OVPI as a batch process and export property data from OVPI as a batch process. Batch mode would typically be used instead of forms when large numbers of interfaces need to be updated.

When OVPI imports property data, the file that gets imported needs to adhere to a particular format; when OVPI exports property data, the file it produces is already in the proper format for you to modify and re-import. You can create an import file by:

- Building it from scratch using a spreadsheet application

- Exporting the required data, in the required format, from your provisioning database

- Letting OVPI collect property data, then exporting this data from OVPI

Since building a property import file from scratch is not easy, we recommend that you follow these steps:

1   Add devices to the system.

2   Allow the system to discover the interfaces on those devices.

3   Export existing property data from OVPI by typing this command:

   trend_proc -f IR_exportdata.pro

4   Use the results as a starting point for your own modified property import file.

5   Store your modified file in the correct directory (where OVPI expects to find it) and import the file by typing this command:

   trend_proc -f IR_importdata.pro

The import command will import data from—and the export command will export data to—the following directory:

   {$DPIPE_HOME}/data/PropertyData

Property Import File

The following table describes the format of the property file. If you are creating this file yourself, make sure that your file adhere to this format. Your sequence of fields left to right must follow this sequence of attributes top to bottom and your attributes must be delimited by tabs, not spaces. If you are exporting this file from OVPI, the format will be correct.

Attribute	Type	Default	Description
Device	char_string,64	N/A	Name of the device. A value for this attribute is required.
Interface	char_string,128	N/A	A unique identifier for the interface. A value for this attribute is required.
full_half	integer	2	Denotes half duplex or full duplex: 1 =half duplex 2 = full duplex Automatically populated from the Protocol Configuration Table if the value is NULL. Not automatically overwritten unless set to NULL.
ifType	integer	N/A	The ifType as given by the ifTable on the managed device. Used as a cross-reference into the Protocol Configuration Table to determine the protocol and its properties.
ifSpeed	gauge	N/A	The ifSpeed as given by the ifTable on the managed device.
ifSpeedIn	gauge	N/A	The ifSpeed as given by the ifTable on the managed device. Can be changed to reflect the inbound speed on a dual speed interface. Used only for full-duplex interfaces.
ifSpeedOut	gauge	N/A	The ifSpeed as given by the ifTable on the managed device. Can be changed to reflect the outbound speed on a dual speed interface. Used only for full-duplex interfaces.
ifDescr	char_string,255	N/A	The ifDescr as reported in the ifTable.

Attribute	Type	Default	Description
cust_id	seq_key	-2	The customer identifier used to group interfaces by associated customer.
customer_name	char_string,128	"Unknown Customer"	The customer name used to group interfaces by associated customer.
group_id	seq_key	-2	The group identifier for this interface. Not used explicitly.
group_name	char_string,128	"Unknown Group"	The group name for this interface. Not used explicitly.
location_id	seq_key	-2	The location identifier used to group interfaces by physical location.
location_name	char_string,128	"Unknown Location"	The location name used to group interfaces by physical location.
country_code	seq_key	-2	The country code for this interface. Not used explicitly.
country_name	char_string,128	"Unknown Country"	The country name for this interface. Not used explicitly.
UtilThreshold	integer	10000	Utilization threshold. A percentage of available bandwidth, calculated as an average over the polling interval. Will auto-update from the Protocol Configuration Table only when this value is defaulted to 10000 and the KIR_protocol_config value is > 0.
ErrorThreshold	integer	10000	Error threshold. Percentage of traffic with errors, calculated as an average over the polling interval. Will auto-update from the Protocol Configuration Table when the value is defaulted to 10000 and the KIR_protocol_config value is > 0.

Attribute	Type	Default	Description
DiscardThreshold	integer	10000	Discard threshold. Percentage of traffic with discards, calculated as an average over the polling interval, at which an exception is counted. Will auto-update from the Protocol Configuration Table only when this value is at the default of 10000 and the KIR_protocol_config value is > 0.
AvailabilityThreshold	integer	98	Availability threshold. A percentage of availability, calculated as an average over the polling interval, at which an exception is counted. Will auto-update from the Protocol Configuration Table only when this value is at the default of 10000 and the KIR_protocol_config value is > 0.

Changing the Default Directory for PropertyData

The default directory for data property files, the location where the import utility will look for your edited files, is specified by the SourceDirectory path. This path appears in the following TEEL file:

• `IR_Property.teel`

If you change the default directory before you install the Interface Reporting package, the task is easier, since you only have to change the path once, by finding the TEEL files in the Interface_Reporting.ap directory. If you want to change the default directory after installing Interface Reporting, you must make the path change in two places, namely:

• `Interface_Reporting.ap`

• `{DPIPE_HOME}/lib`

Changing the location of the PropertyData directory is **not** recommended. However, if you needed to change the directory location, these are the steps you would follow:

1 Create the new source directory.

2 Navigate to the appropriate directory (see the discussion above regarding which directories are involved) and open the directory.

3 Edit the `IR_Property.teel` file:

   • Locate the SourceDirectory default path; look for the line beginning with **`SourceDirectory =`**

- Change the path, replacing the existing path with the complete path name to the new directory; begin the new path name just after the equal sign (=).

    ➤ Leave the file filter as specified in the original SourceDirectory.

Adding Details about Vendors and Models

The Devices sub-package can recognize vendors and models based on the sysObjectId. You can add or modify the list using an import procedure that is similar to interface provisioning. Vendor details are stored in the following files inside the `Interface_Reporting_Device.ap` directory:

- `vendor.txt`
- `vendor_model.txt`

Add rows, or modify existing rows, and then call this process:

```
trend_proc -f IR_Import_Vendor.pro
```

Vendor Properties

The following table lists the available fields.

Column	Type	Default	Comments
Vendor Name	char_string,128	Required Field	The name of the vendor. Example: "Cisco"
Vendor Details	char_string,128	Required Field	Additional details about all equipment from this vendor. Example: "Cisco Inventory"
Vendor sysObjectId	char_string,128	Required Field	The SNMP sysObjectId from the system group on the device.

Model Properties

The available fields are listed in the following table.

Column	Type	Default	Comments
Vendor Name	char_string,128	Required Field	The vendor name.
Model Details	char_string,128	Required Field	Additional details about this model.
Model sysObjectId	char_string,128	Required Field	The SNMP sysObjectId from the system group on the device.

Using Change Forms

Interface Reporting 4.6 includes multiple forms. Use these forms to modify:

- Protocol defaults
- Interface speed and associated thresholds
- Customer, location, and interface description
- Directed-instance polling
- Logging level
- Data filtering
- Provisioning mode

Keep in mind that you cannot assign interfaces to customers or locations that are not already recognized by Common Property Tables. To add customers and locations to Common Property Tables, use the **Create New Customer** or **Create New Location** forms, or use the batch-mode property import that comes with Common Property Tables. For details, refer to the *Common Property Tables 3.5 User Guide*.

Changing Protocol Defaults

If you have not pre-provisioned new interfaces to configure specific thresholds and indicate whether they are full or half duplex, values for those variables will be pulled from the protocol configuration file as new interfaces are discovered and added to the system. You can add a new protocol to this file or you can modify the characteristics of an existing protocol.

Follow these steps to change the monitoring status or the default protocol thresholds:

1   Select **HP OpenView > Performance Insight > Management Console**.

2   Click **Objects** and select any managed object. Forms appear under General Tasks.

3   Double-click **Change Protocol Defaults**. The form opens.

4   Select the protocol you want to change, then update Protocol Name, Monitor status, or Threshold percentage values as required.

5   Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

The system will use defaults from the protocol table when:

- A just-discovered interface is inserted into the interface property table

- An existing interface has NULL values for protocol-related properties

- An existing interface has NULL values for protocol-related properties

Changing Interface Properties

You can use the Change Interface Properties form to modify the following properties:

- Customer assignment
- Location assignment
- Utilization threshold
- Error thresholds
- Discard threshold
- Availability threshold
- Speed [In/Out]

This form is especially helpful when you want to change multiple properties for a single interface, or when you want to update multiple interfaces on a single device. If desired, you may use the Change Interface Properties form to update *all* the interfaces on one device in one operation; however, don't forget that *every* interface will be updated to the same set of values, including speed and threshold settings. To access the form:

1   Select **HP OpenView > Performance Insight > Management Console**.

2   Click **Objects**, then navigate to and select the interface you want to update. (Or, to update all the interfaces on a device, select the device.) You will see the Change Interface Properties form listed under **Object Specific Tasks**.

3   Double-click **Change Interface Properties**. The form opens.

4   Select an interface, then update assignments, thresholds, speeds, or duplex values as required.

5   Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

📑 /admin/Interface_Reporting_Forms/change_interface.frep   ▬ ▢

Interface Reporting
Update Interface

This form allows interface information to be updated. Select the interface(s) you want to change, and update the property values. Click the Apply button to save any changes. Click the Cancel button to cancel any changes. Click the OK button to save any changes and close the form.

Device	Interface	ifIndex	Description	Speed	Protocol	Cus
router2	BRI0	2.00	BRI0	In: 16.0 Kb/s Out: 16.0 Kb/s	lapd	
router2	BRI0-Physical	8.00	BRI0-Physical	In: 144.0 Kb/s Out: 144.0 Kb/s	isdnu	
router2	BRI0-Signaling	9.00	BRI0-Signaling	In: 16.0 Kb/s Out: 16.0 Kb/s	isdn	
router2	BRI0:1	3.00	BRI0:1	In: 64.0 Kb/s Out: 64.0 Kb/s	ppp	
router2	BRI0:1-Bearer Channel	10.00	BRI0:1-Bearer Channel	In: 64.0 Kb/s Out: 64.0 Kb/s	ds0	
router2	BRI0:2	4.00	BRI0:2	In: 64.0 Kb/s Out: 64.0 Kb/s	ppp	
router2	BRI0:2-Bearer Channel	11.00	BRI0:2-Bearer Channel	In: 64.0 Kb/s Out: 64.0 Kb/s	ds0	
router2	FastEthernet0	5.00	FastEthernet0	100.0 Mb/s	ethernet-csmacd	
router2	Null0	6.00	Null0	In: 4.3 Gb/s Out: 4.3 Gb/s	other	
router2	Serial0	1.00	Serial0	In: 1.5 Mb/s Out: 1.5 Mb/s	frameRelay	
router2	Serial0.1	7.00	Serial0.1	In: 1.5 Mb/s Out: 1.5 Mb/s	frameRelay	

Description   Serial0

Customer   HP ▼   **Location**   Washington ▼

Thresholds   **Utilization %**   **Error %**   **Discard %**   **Availability %**

Thresholds define the levels where Exceptions are   70.00   1.00   1.00   98.00

Speed   **Speed (bps)**   **Speed In (bps)**   **Speed Out (bps)**

Interface speed initially set from network.   1,544,000   1,544,000   1,544,000   **Duplex**   Full ▼

Warning: When you press OK or Apply, all the settings above will be applied to all selected interfaces.

[OK]   [Apply]   [Cancel]

Changing Customer and Location

The Change Interface Customer and Change Interface Location forms allow you to assign interfaces to a customer or a location. These forms can be used to update a single interface, or to assign all the interfaces on a device to single customer or location.

To change the customer or location assignments, follow these steps:

1 Select **HP OpenView > Performance Insight > Management Console**.

2 Click **Objects**, then navigate to the interface you want to update, and select it. You may also select a device, if you want to update all the interfaces on that device. The forms appear under **Object Specific Tasks**.

3 Double-click **Change Interface Customer** or **Change Interface Location**. The form opens.

4 Use the selection list to update the assignment.

5 Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

Changing the Interface Description

If you want to change the description of an interface, you can use a form to do that. Follow these steps:

1. Select **HP OpenView > Performance Insight > Management Console**.

2. Click **Objects**, then navigate to and select the interface you want to update or the device for which you want to update one or more interfaces. The Change Interface Description form is listed under **Object Specific Tasks**.

3. Double-click **Update Interface Description**. The form opens.

4. Select the interface you want to change, then update the description as required.

5. If you selected a device and opened this form, all the interfaces on the device will appear in the table. You can update the descriptions for multiple interfaces by selecting one, updating the description and clicking **Apply**, and then repeating.

6. Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

Interface Reporting
Update Interface Description

This form allows the interface Description to be updated. Click the Apply button to save any changes. Click the Cancel button to cancel any changes. Click the OK button to save any changes and close the form.

Device	Interface	Description	Protocol	Speed
router1	FastEthernet1/0	FastEthernet1/0	ethernet-csmacd	100.0 Mb/s
router1	Null0	Null0	other	4.3 Gb/s
router1	Serial0/0	Serial0/0	frameRelay	1.5 Mb/s
router1	Serial0/0.40	Atlanta	frameRelay	1.5 Mb/s
router1	Serial0/0.41	Serial0/0.41	frameRelay	1.5 Mb/s

Description   Atlanta

Warning: When you press OK or Apply, all the settings above will be applied to all selected interfaces.

OK   Apply   Cancel

Configuring Directed-Instance Polling

The Interface Reporting ifEntry Datapipe supports five polling rules. One of the supported rules, *Poll Flagged Interfaces Only*, permits collection from selected interfaces only, namely, interfaces that have a poll flag set. There are several methods to set the interface poll flag. One method is to use the Administer Interface Poll Flag form.

Follow these steps to set the interface poll flag using the Administer Interface Poll Flag form:

1. Select **HP OpenView > Performance Insight > Management Console**.

2. Click **Objects**, navigate to the device you want to update, and select it. The Administer Interface Poll Flag form appears under **Object Specific Tasks**.

3. Double-click **Administer Interface Poll Flag**. The form opens.

4. Select the interfaces you want to change, then update the description as required. You can select multiple interfaces by using the CTRL or SHIFT keys.

5. Select the required poll flag setting, **On** or **Off**.

6. Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

Data Filtering, Provisioning, and Logging Level

Data Filtering

The default setting is **0**. When data filtering is set to **0**, the data for all collected interfaces is transferred from the datapipe to the report pack.

If new devices or interfaces are discovered in the network and polled, property rows for those devices and interfaces will be added in the report pack.

When data filtering is set to **1**, only data is transferred to the report pack. If data is collected for interfaces that are not already provisioned in the report pack, it will be discarded.

Provisioning Mode

The default setting is **0**. When provisioning mode is set to **0**, interface Speed, Type and Description values collected from the network do not overwrite provisioned settings.

These attributes are set once from collected data if a new interface is discovered that is not provisioned in the report pack (and if Data Filtering is set to **0**).

If Provisioning is set to **1**, interface Speed, Type, and Description collected from the network overwrite the provisioned settings.

Logging Level

The logging level can be set to:

- **0** - Errors only
- **1** - Standard, the default
- **2** - Maximum

Changing Settings

To change settings for data filtering, provisioning, or logging level follow these steps:

1. Select **HP OpenView > Performance Insight > Management Console**.

2. Click **Objects** and select any managed object. Forms will appear in the General Tasks window.

3. Double-click **Administer Interface Reporting**. The form opens.

4. Select the administration setting you want to change, then select the new setting.

5. Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

Interface Reporting

Administration

Use this form to update the Provisioning, Data Filtering and Logging settings
for Interface Reporting. Select the Configuration setting you want to change
and enter the new value in the Change setting box below. Click the Apply
button to save any changes. Click the Cancel button to cancel any changes.
Click the OK button to save changes and close the form.

Logging: The number and detail of messages sent to the
             Configuration and Logging Report.
             0 = high level only, 1 = informational, 2 = all / debug

Data Filtering : Create new ports in the ReportPack property
             tables as they are discovered during polling.
             0 = Yes, 1 = No

Provisioning : Determines whether Property values for ifSpeed, ifType and
             ifDescr will not be overwritten by collected values.
             0 = Only overwrite if current is NULL,
             1 = Always overwrite

Description	Setting
Logging Level	1
Data Filtering	0
Provisioning	0

Change setting   1

0
1
2 - Max Logging

OK   Apply   Cancel

Spotting High Exception Counts

Interface Reporting provides five reports that help you focus on high exception counts:

- Exception Hot Spots (Exceptions sub-folder)
- Device Exception Hots Spots (Device folder)
- Trunk Exception Hot Spots (VLAN folder)
- VLAN Exception Hots Spots (VLAN folder)
- EtherChannel Exception Hot Spots (EtherChannel folder)

The Exceptions Hot Spots sorts interfaces by exception count, highest to lowest. The selection table is followed by three graphs:

- Exception counts (hourly / daily / monthly)
- For each exception type, the average, maximum, and threshold for the previous 30 days
- Daily averages for each exception type, for each traffic direction

The first graph will tell you whether the exception activity is relatively static, caused by one type of exception, or variable, caused by multiple types of exceptions. The second graph makes it easy to compare exception activity to the threshold. The third graph looks at utilization, discard, and error exceptions as a percentage of available bandwidth. When the interface is full duplex, you can view data for inbound traffic and data for outbound traffic.

The device version of the report is similar. It sorts initially by customer, then by device, and aggregates data at the device level. Use this report to identify the devices that are generating the most exceptions. The selection table is followed by three graphs:

- Exception counts (hourly / daily / monthly)
- For each exception type, the average, maximum, and threshold for the previous 30 days
- Daily averages by exception type

Samples of the following reports follow:

- Exception Hot Spots
- Device Hots Spots
- Trunk Exception Hot Spots

Interface Reporting

Exception Hot Spots

This report has one entry for each monitored interface that experienced threshold exceptions yesterday. An exception occurs when inbound or outbound utilization, % discard rate or % error rate exceeds the threshold set for that interface. U = Utilization, D = Discards, E = Errors. F/H indicates full or half Duplex.

Interfaces with Exceptions Yesterday
Sorted by Exception Count

Device	Interface	F/H	Speed	Customer	Total Exceptions	Threshold %
15.140.11.216	sc0	H	10.0 Mb/s	HP	96	U:30 D:1 E
15.27.0.190	me1	H	10.0 Mb/s	Customer Unassigned	96	U:30 D:1 E
15.144.195.0	1	H	10.0 Mb/s	Customer Unassigned	96	U:30 D:1 E
15.17.191.48	16777221	H	10.0 Mb/s	Customer Unassigned	96	U:90 D:2 E
15.7.208.117	1	H	10.0 Mb/s	Customer Unassigned	96	U:30 D:1 E
15.62.32.255	1	H	10.0 Mb/s	Customer Unassigned	95	U:30 D:1 E
15.140.11.63	Serial0	F	In: 1.5 Mb/s Out: 1.5 Mb/s	Customer Unassigned	In:84 Out:84	U:70 D:1 E
15.140.11.63	Serial0.1	F	In: 1.5 Mb/s Out: 1.5 Mb/s	Customer Unassigned	In:84 Out:84	U:70 D:1 E
15.3.208.119	sc0	H	10.0 Mb/s	Customer Unassigned	56	U:30 D:1 E
15.23.227.5	24	H	10.0 Mb/s	Customer Unassigned	54	U:30 D:1 E

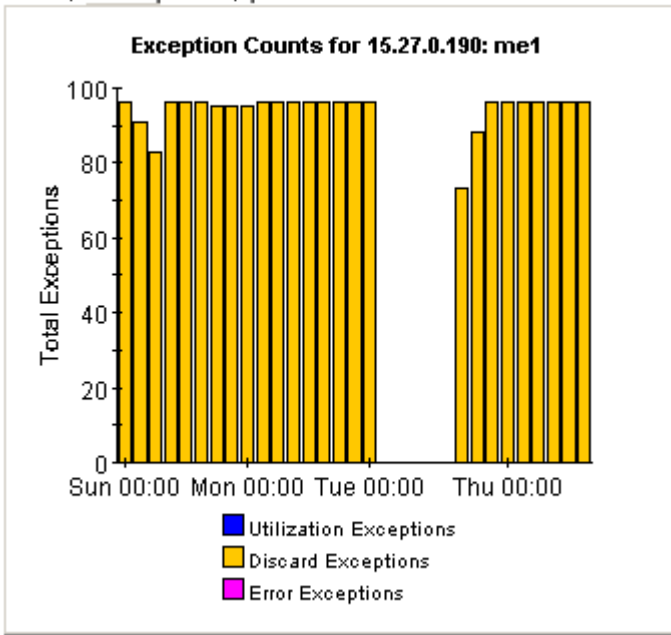| Details	Protocol	Group	Location	Country
me1	ethernet-csmacd	Unknown Group	Location Unassigned	Unknown Country

Hourly | **Daily** | Monthly

Utilization | **Discards** | Errors

Exception Counts for 15.27.0.190: me1

- Utilization Exceptions
- Discard Exceptions
- Error Exceptions

% Discard Rate for 15.27.0.190: me1
% of Actual Traffic Discarded

- Max Discard Rate (H)
- Avg Discard Rate (H)
- Discard Threshold
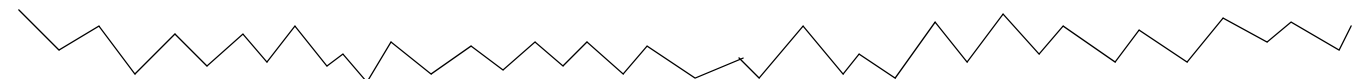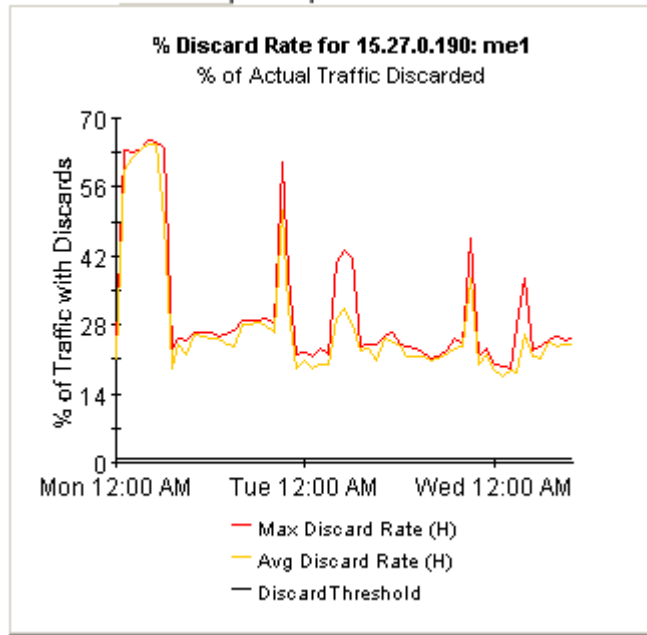
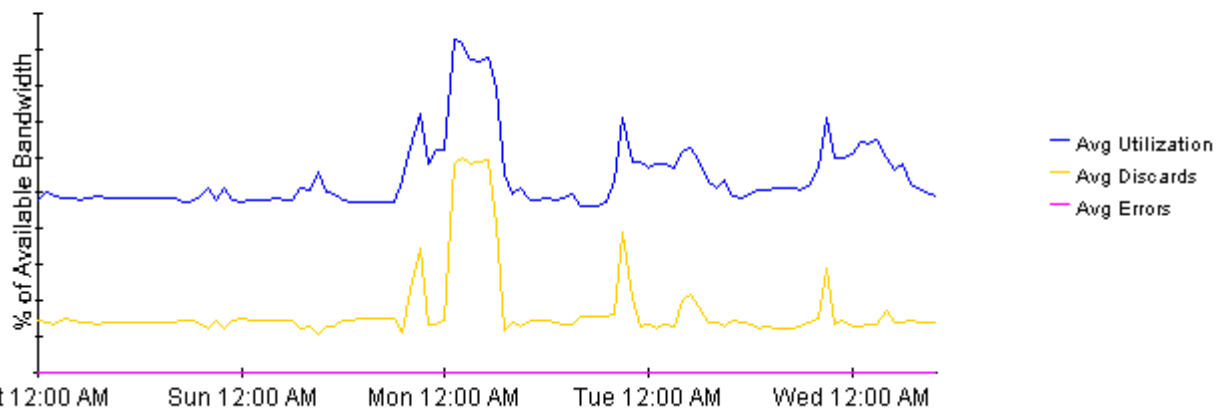Inbound | Outbound | Both (Half Duplex Only)

Average Inbound Utilization, Discards and Errors for 15.27.0.190: me1
% of Available Bandwidth

— Avg Utilization
— Avg Discards
— Avg Errors

Interface Reporting

Device Exception Hot Spots

This report provides exception counts and related information aggregated by device and customer groupings. The number of interfaces (# Int) does not include those interfaces with protocols explicitly set to unmonitored. All metrics are for administratively up interfaces. Select a grouping from the list on the left.

Customer

Entire Network
Acme
Customer Unassigned
HP

Devices with Exceptions Yesterday

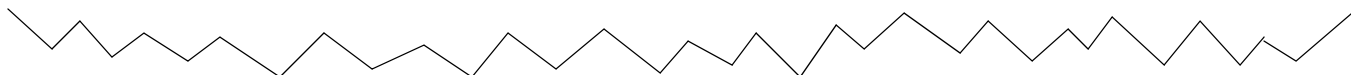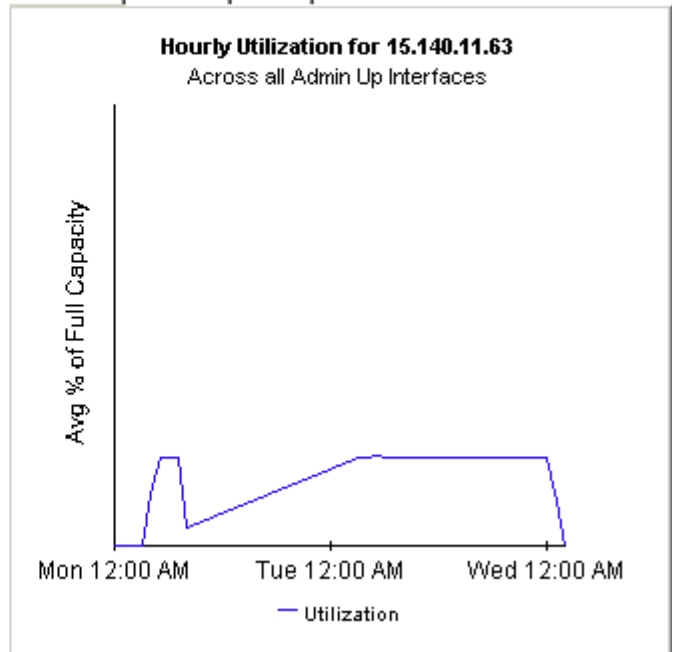| Device	# Exceptions	Make	Model	# Int
All Nodes	1,163			2,126
15.140.11.63	336	Cisco	1605	7
15.27.0.190	96	Cisco	WS-C4006	47
15.144.195.0	96	Allen-Bradely Company		1
15.17.191.48	96	Centillion Networks	Centillion 100	11
15.7.208.117	96	Allen-Bradely Company		1
15.62.32.255	95	Allen-Bradely Company		1
15.23.227.5	80	Cisco	WSC2820	28
15.3.208.119	57	Cisco	WS-C5000	59
15.12.151.159	47	Allen-Bradely Company		1
15.12.151.160	42	Allen-Bradely Company		1

System Contact   **System Name**   **System Location**

Hourly | Daily | Monthly

Utilization | Discards | Errors

Exception Counts for 15.140.11.63

- Utilization Exceptions
- Discard Exceptions
- Error Exceptions

Hourly Utilization for 15.140.11.63
Across all Admin Up Interfaces

Avg % of Full Capacity
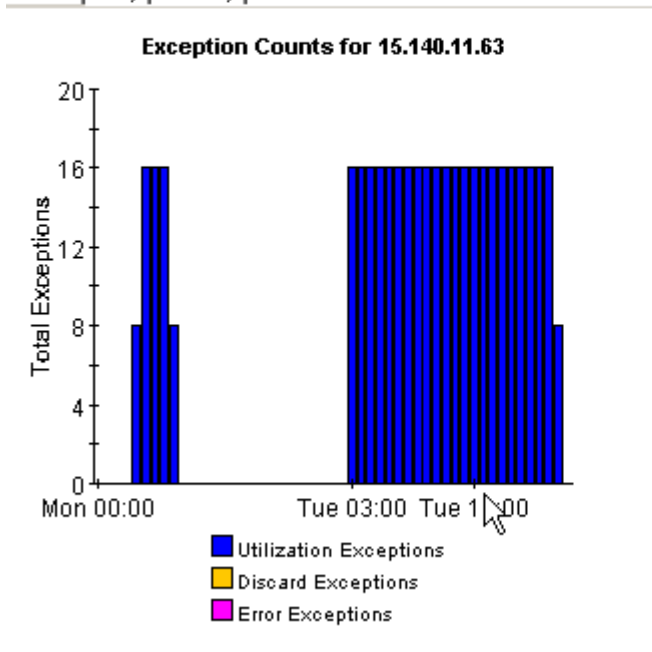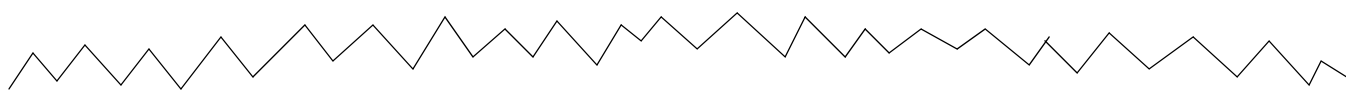
— Utilization

Utilization | Discards | Errors

Daily Utilization for 15.140.11.63
Across all Admin Up Interfaces

Avg % of Full Capacity

Wed 12:00 AM   Wed 12:00 AM   Wed 12:00 AM   Wed 12:00 AM
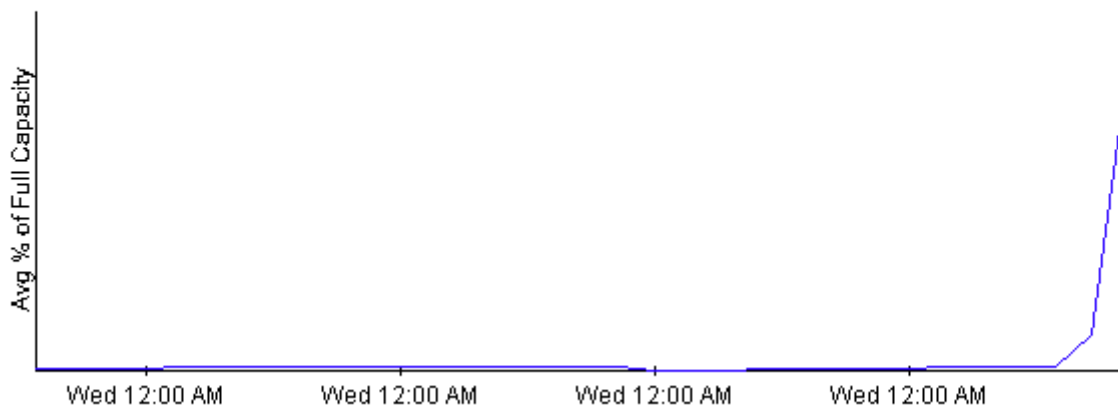
Interface Reporting

Exception Hot Spots Trunks

This report has one entry for each monitored interface that experienced threshold exceptions yesterday. An exception occurs when inbound or outbound utilization, % discard rate or % error rate exceeds the threshold set for that interface. U = Utilization, D = Discards, E = Errors. F/H indicates full or half Duplex.

Interfaces with Exceptions Yesterday
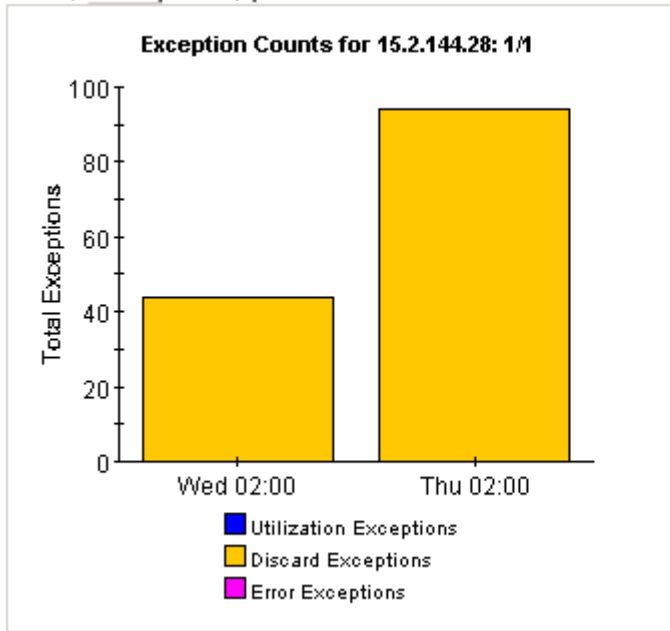#### Sorted by Exception Count

Device	Interface	F/H	Speed	Customer	Total Exceptions	Thresholds %	Description
15.2.144.28	1/1	H	100.0 Mb/s	Customer Unassigned	94	U:30 D:1 E:1	utp fast ethernet (cat 5)
15.2.144.27	4/12	H	100.0 Mb/s	Customer Unassigned	77	U:30 D:1 E:1	10/100 utp ethernet (cat 3/5)

Details	Protocol	Group	Location	Country
utp fast ethernet (cat 5)	ethernet-csmacd	Unknown Group	Location Unassigned	Unknown Country

Hourly | **Daily** | Monthly

Utilization | **Discards** | Errors

Exception Counts for 15.2.144.28: 1/1

- Utilization Exceptions
- Discard Exceptions
- Error Exceptions

% Discard Rate for 15.2.144.28: 1/1
% of Actual Traffic Discarded

- Max Discard Rate (H)
- Avg Discard Rate (H)
- Discard Threshold

Average Inbound Utilization, Discards and Errors for 15.2.144.28: 1/1
% of Available Bandwidth
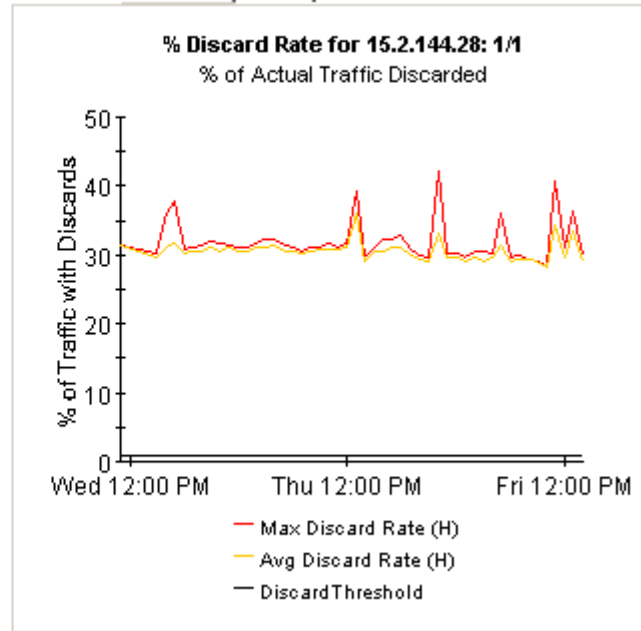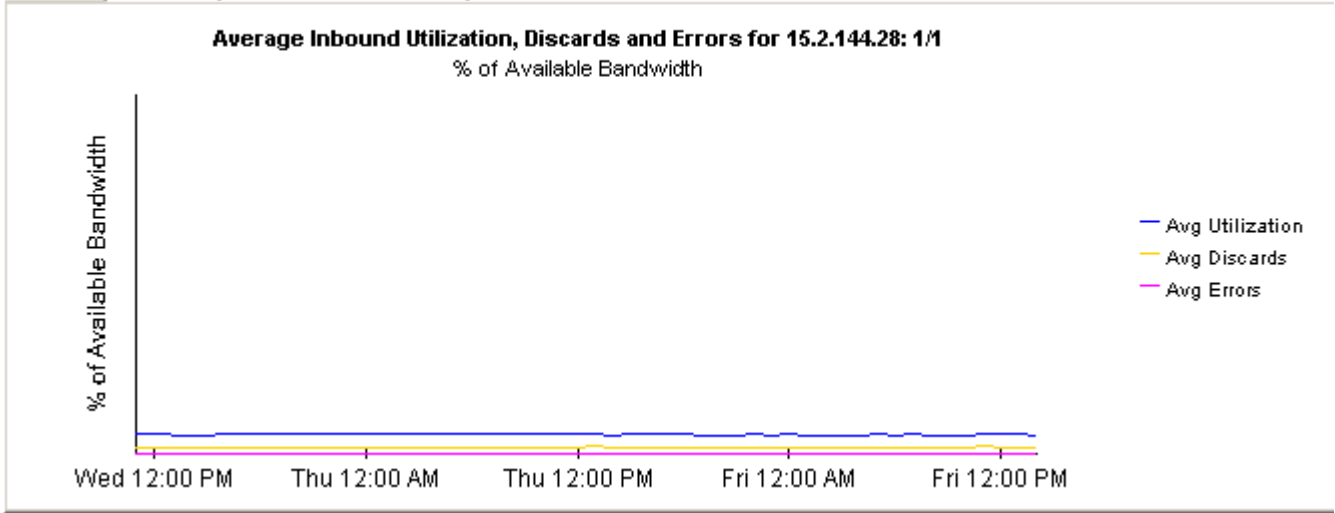
Investigating Exceptions by Type

Interface Reporting looks at exceptions in two ways, by count and by type. You can look for interfaces and devices with the highest exception counts for yesterday, or you can look for interfaces that produced a particular type of exception. If the exception count is what interests you, use the Hot Spots reports. If the type of exception is what interests you, you have three choices:

- Discard Exceptions
- Error Exceptions
- Utilization Exceptions

The format for all three reports is similar:

- Selection table that ranks interfaces by exception count
- Bar chart showing total exceptions (hourly/ daily/ monthly)
- Line graph comparing maximum, average, and threshold
- List of recent maximum rates, with date and time stamp

The selection table looks at yesterday's activity and shows the exception count, the speed of the interface, and threshold setting for each type of exception. (Threshold values are set to defaults; these values can be changed by modifying a form or by importing a property file that contains updated threshold values.)

The first graph tracks exception counts; the hourly graph covers the previous two days, while the daily graph covers the previous 30 days. If yesterday's exception count seems abnormal, compare it to the daily graph to get a sense of what has been normal in the past. The second graph allows you to compare average and maximum values to the threshold.

Below the graphs is a list of recent maximum rates, date stamped so that you know exactly when the maximum was recorded. Use this list to compare yesterday's total to previous totals and to see whether the maximum rate has been occurring at the same time of day.

Samples of all three exception reports follow.
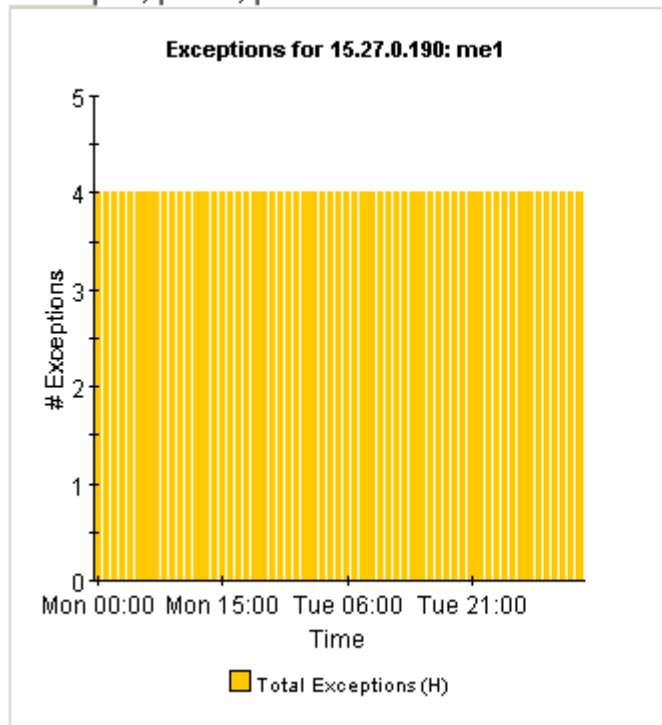
Interface Reporting

Discard Exceptions

This report has one entry for each monitored interface that experienced discard exceptions yesterday. An exception occurs when inbound or outbound discard traffic (with respect to total traffic) exceeds the threshold set for that individual interface. F/H indicates full or half Duplex.
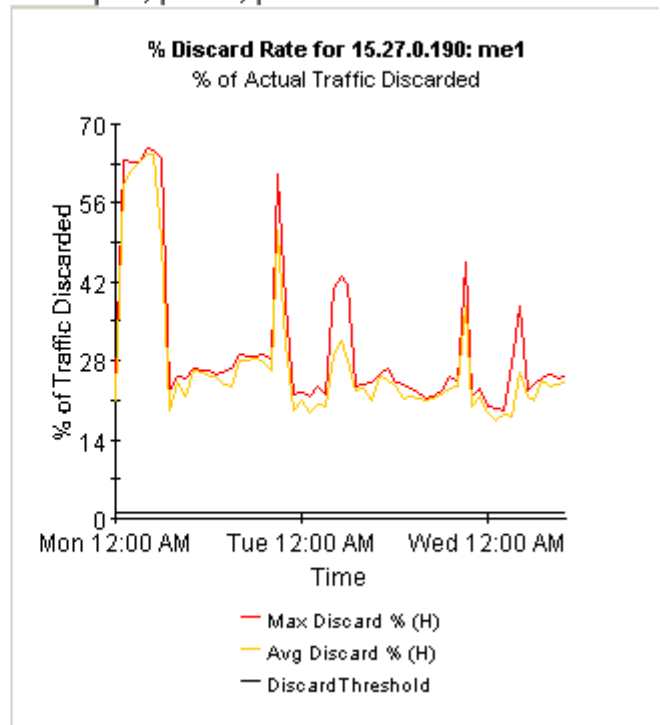
Interfaces with Discard Exceptions Yesterday
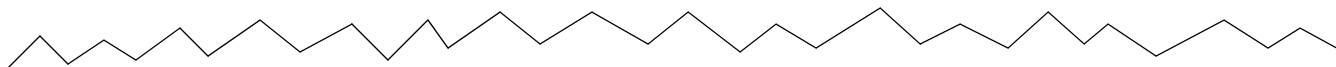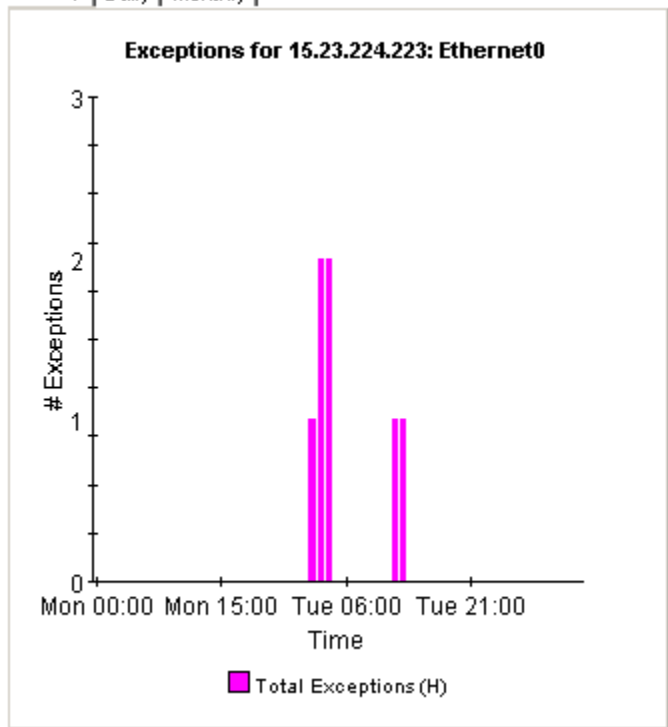#### Sorted by Exception Count

Device	Interface	F/H	Customer	Speed	# Exceptions	Threshold %	Descri
15.140.11.216	sc0	H	HP	10.0 Mb/s	96	1	sc0
15.27.0.190	me1	H	Customer Unassigned	10.0 Mb/s	96	1	me1
15.144.195.0	1	H	Customer Unassigned	10.0 Mb/s	96	1	lan
15.17.191.48	16777221	H	Customer Unassigned	10.0 Mb/s	96	2	mcp1
15.7.208.117	1	H	Customer Unassigned	10.0 Mb/s	96	1	lan
15.62.32.255	1	H	Customer Unassigned	10.0 Mb/s	95	1	se
15.3.208.119	sc0	H	Customer Unassigned	10.0 Mb/s	56	1	sc0
15.23.227.5	24	H	Customer Unassigned	10.0 Mb/s	53	1	24
15.12.151.159	1	H	Customer Unassigned	10.0 Mb/s	47	1	se

Hourly | Daily | Monthly

Exceptions for 15.27.0.190: me1

Total Exceptions (H)

Hourly | Daily | Monthly

% Discard Rate for 15.27.0.190: me1
% of Actual Traffic Discarded

— Max Discard % (H)
— Avg Discard % (H)
— DiscardThreshold

Recent Daily Max Discard Rates and Times

The maximum discard rates, as measured over the polling interval, and the hour during which they occurred.

Maximum Discard Rate and Time

28 Discards per second on Jul 22 2003 9:00PM
63 Discards per second on Jul 21 2003 1:00AM
36 Discards per second on Jul 20 2003 9:00PM
 8 Discards per second on Jul 19 2003 3:00AM
66 Discards per second on Jul 18 2003 5:00AM
69 Discards per second on Jul 17 2003 9:00PM
 8 Discards per second on Jul 16 2003 9:00PM
72 Discards per second on Jul 15 2003 4:00AM
34 Discards per second on Jul 14 2003 11:00PM
58 Discards per second on Jul 8 2003 2:00AM
54 Discards per second on Jul 7 2003 5:00AM

Interface Reporting

Error Exceptions

This report has one entry for each monitored interface that experienced error exceptions yesterday. An exception occurs when inbound or outbound error traffic (with respect to total traffic) exceeds the threshold set for that individual interface. F/H indicates full or half duplex.

Interfaces with Error Exceptions Yesterday
Sorted by Exception Count

Device	Interface	F/H	Speed	Customer	# Exceptions	Thresho %
15.129.22.187	4/1	H	10.0 Mb/s	Customer Unassigned	11	1
15.23.224.223	Ethernet0	H	10.0 Mb/s	Customer Unassigned	7	1
15.252.8.40	2	F	In: 11.0 Mb/s Out: 11.0 Mb/s	Customer Unassigned	In:10 Out:4	2
15.128.164.163	Ethernet0	H	10.0 Mb/s	Customer Unassigned	3	1
server1	2	H	10.0 Mb/s	Customer Unassigned	3	1
15.9.72.8	3/7	H	10.0 Mb/s	Customer Unassigned	2	1
15.16.122.32	FastEthernet0/17	H	10.0 Mb/s	Customer Unassigned	1	1
15.23.227.5	25	H	10.0 Mb/s	Customer Unassigned	1	1
15.140.11.216	1/1	F	In: 100.0 Mb/s Out: 100.0 Mb/s	HP	In:1 Out:0	1

Details	Protocol	Group	Location	Country
Ethernet0	ethernet-csmacd	Unknown Group	Location Unassigned	Unknown Country

Hourly | Daily | Monthly

Exceptions for 15.23.224.223: Ethernet0

Hourly | Daily | Monthly

% Error Rate for 15.23.224.223: Ethernet0
% of Actual Traffic with Errors
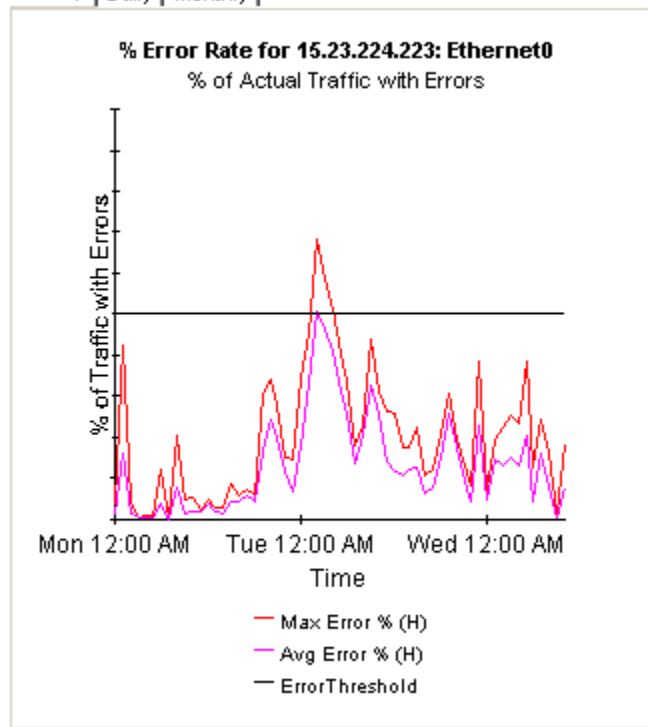
Recent Daily Max Error Packet Rates and Times

The maximum error packet rate, in packets per second, for each of the last 31 days

Maximum Error Rate and Time

1 Errors per second on Jul 22 2003 2:00AM
0 Errors per second on Jul 21 2003 9:00PM
1 Errors per second on Jul 20 2003 9:00PM
1 Errors per second on Jul 19 2003 9:00AM
1 Errors per second on Jul 18 2003 4:00PM
1 Errors per second on Jul 17 2003 1:00PM
1 Errors per second on Jul 16 2003 12:00AM
2 Errors per second on Jul 15 2003 11:00PM
1 Errors per second on Jul 14 2003 9:00AM
1 Errors per second on Jul 8 2003 7:00AM
0 Errors per second on Jul 7 2003 9:00PM
1 Errors per second on Jul 6 2003 9:00AM

Interface Reporting

Utilization Exceptions

This report has one entry for each monitored interface on the network which experienced utilization exceptions yesterday. An exception occurs when inbound or outbound utilization exceeds the threshold set for the protocol or the threshold for the individual

Interfaces with Utilization Exceptions Yesterday
Sorted by Exception Count

Device	Interface	Full/Half	Speed	Customer	# Exceptions	Threshold %	De
15.140.11.63	Serial0	F	In: 1.5 Mb/s Out: 1.5 Mb/s	Customer Unassigned	In:84 Out:84	70	Se
15.140.11.63	Serial0.1	F	In: 1.5 Mb/s Out: 1.5 Mb/s	Customer Unassigned	In:84 Out:84	70	Se
15.25.40.21	2/8	H	10.0 Mb/s	Customer Unassigned	10	30	10
server1	2	H	10.0 Mb/s	Customer Unassigned	8	30	hr
15.9.72.9	3/11	H	10.0 Mb/s	Customer Unassigned	3	30	10
15.9.72.9	3/18	H	10.0 Mb/s	Customer Unassigned	2	30	10
15.25.40.19	2/34	H	10.0 Mb/s	Customer Unassigned	2	30	10
15.23.227.5	1	H	10.0 Mb/s	Customer Unassigned	1	30	1
15.23.227.5	10	H	10.0 Mb/s	Customer Unassigned	1	30	10
15.23.227.5	11	H	10.0 Mb/s	Customer Unassigned	1	30	11

Details	Protocol	Group	Location	Country
Serial0.1	frameRelay	Unknown Group	Location Unassigned	Unknown Country

Hourly | Daily | Monthly

Hourly | Daily | Monthly

Exceptions for 15.140.11.63: Serial0.1

Utilization for 15.140.11.63: Serial0.1
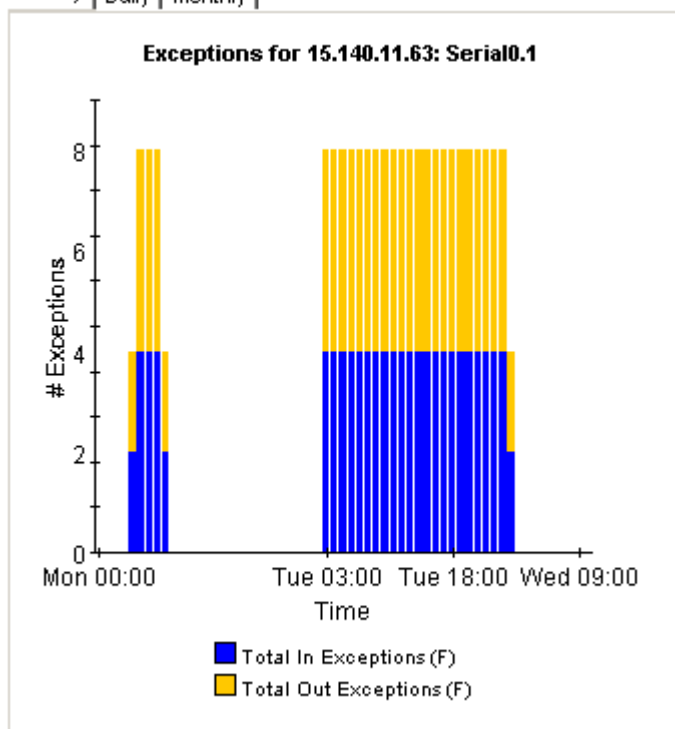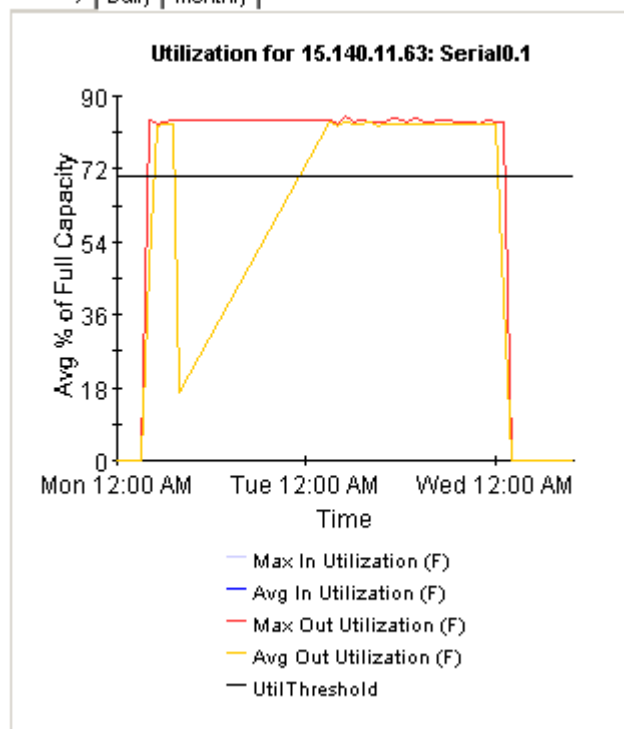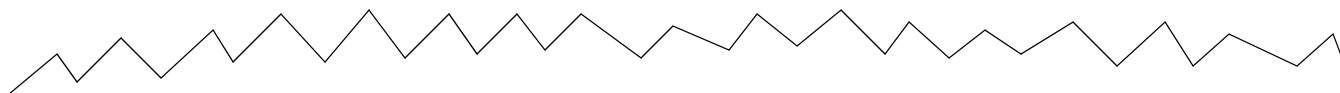
Recent Daily Max Utilization and Times

The maximum percentage utilization, as measured over the polling interval, and the hour during which it occurred.

Maximum Utilization and Time

84.92% Input Util on Jul 22 2003 5:00AM	84.93% Output Util on Jul 22 2003 5:00AM
84.13% Input Util on Jul 21 2003 8:00AM	84.14% Output Util on Jul 21 2003 8:00AM
0.00% Input Util on Jul 20 2003 7:00PM	0.00% Output Util on Jul 20 2003 6:00AM
0.00% Input Util on Jul 19 2003 1:00PM	0.00% Output Util on Jul 19 2003 3:00AM
0.00% Input Util on Jul 18 2003 6:00PM	0.01% Output Util on Jul 18 2003 5:00AM
0.00% Input Util on Jul 17 2003 11:00PM	0.00% Output Util on Jul 17 2003 3:00AM
0.00% Input Util on Jul 16 2003 9:00AM	0.00% Output Util on Jul 16 2003 2:00AM
0.00% Input Util on Jul 15 2003 2:00PM	0.00% Output Util on Jul 15 2003 2:00AM
0.00% Input Util on Jul 14 2003 8:00AM	0.00% Output Util on Jul 14 2003 9:00AM
0.00% Input Util on Jul 8 2003 8:00AM	0.00% Output Util on Jul 8 2003 9:00AM
0.00% Input Util on Jul 7 2003 1:00PM	0.00% Output Util on Jul 7 2003 2:00AM
0.00% Input Util on Jul 6 2003 6:00PM	0.00% Output Util on Jul 6 2003 1:00AM

9

Investigating Locations and Protocols

Interface Reporting includes two summary reports. One offers a location perspective on performance, rolling up performance data by location, and the other offers a protocol perspective on performance, rolling up performance data by protocol. The key metrics in both reports are volume, exceptions, and utilization.

Summary reports provide aggregated data across multiple systems. The location summary report provides the following information:

* Number of active, monitored interfaces by location

* Volume for one customer by location

* Volume for all customers by location

* Hourly, daily, and monthly analysis of exception counts by location

* Hourly, daily, and monthly utilization by location

The protocol summary report provides the following information:

* Number of active, monitored interfaces by protocol

* Volume for one customer by protocol

* Volume for all customers by protocol

* Hourly, daily, and monthly analysis of exception counts by protocol

* Hourly, daily, and monthly utilization by protocol

You may investigate a location customer-by-customer, or you may investigate a location by looking at performance data for every customer at that location simultaneously. Similarly, you may look at the performance of a protocol for one customer, or for all customers.

Use summary reports to find out how the number of actively monitored interfaces compares location to location, or protocol to protocol, and to compare exception counts location to location or protocol to protocol. If a customer needs an upgrade, or if a location needs an upgrade, the summary reports should make that clear. In addition, if a recent upgrade at one location was expected to lower the exception count for that location, the location summary report should provide the evidence you need to verify that the situation has improved.

Both summary reports are reproduced below.
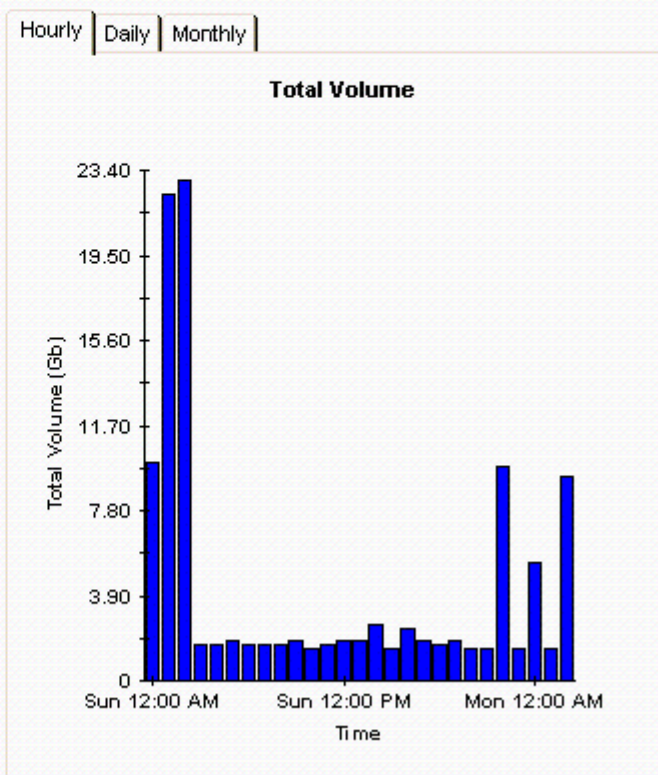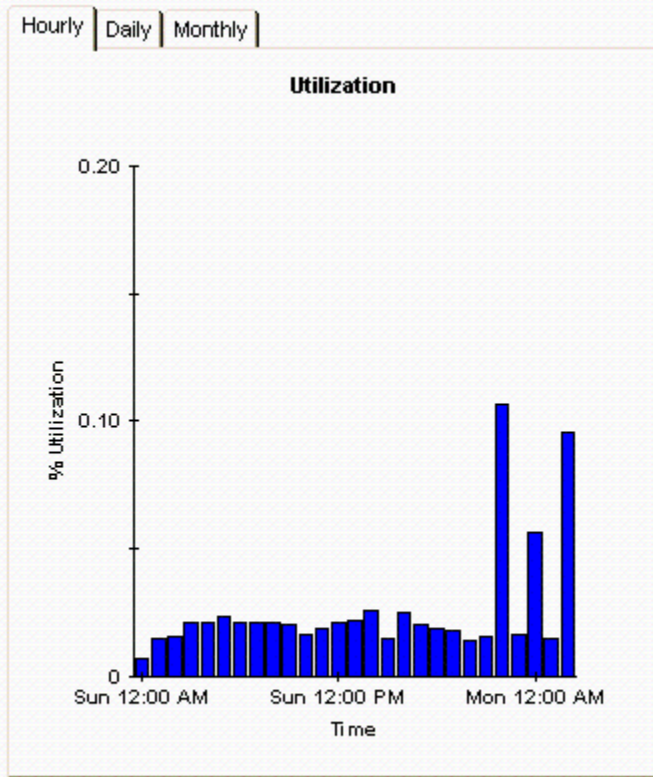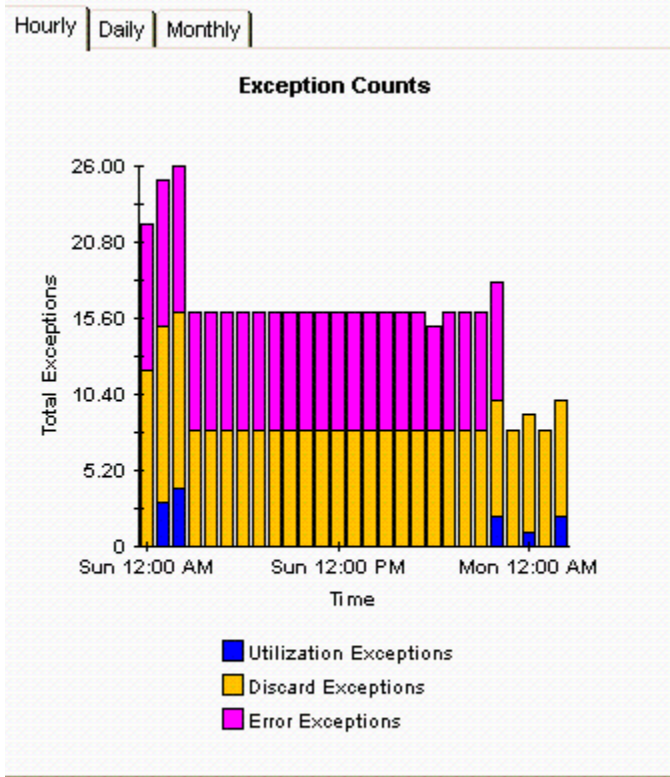
Interface Reporting

Location Executive Summary

This report has one entry for each Customer and Location combination on the network. This report only contains metrics for ports that are administratively up.

Locations with Traffic Yesterday

Location	Customer	# Int
Location Unassigned	All Customers	368
Washington	HP	116
Washington	Cust	70
Washington	Cust1	21
Washington	Cust2	18
Washington	Cust3	15
Washington	All Customers	240
New York	HP	46
New York	Cust	48
New York	Cust1	115
New York	Cust2	87
New York	Cust3	48
New York	All Customers	344
Chicago	HP	28
Chicago	Cust	87
Chicago	Cust1	39
Chicago	Cust2	38
Chicago	Cust3	36
Chicago	All Customers	228
Denver	HP	33

Hourly | Daily | Monthly

Total Volume

Hourly | Daily | Monthly

Exception Counts

Total Exceptions

26.00

20.80

15.60

10.40

5.20

0

Sun 12:00 AM   Sun 12:00 PM   Mon 12:00 AM

Time

■ Utilization Exceptions
■ Discard Exceptions
■ Error Exceptions

Hourly | Daily | Monthly

Utilization

% Utilization

0.20

0.10

0

Sun 12:00 AM   Sun 12:00 PM   Mon 12:00 AM

Time

Interface Reporting

Protocol Executive Summary

This report has one entry for each Customer and Protocol combination on the network. Utilization across a protocol is calculated using the total traffic generated by administratively up interfaces (# Int) of that protocol type, divided by the total available speed from those interfaces.

Customers with Traffic Yesterday

Customer	Protocol	# Int	Volume
All Customers	ifType=0 ?	1	N/A
HP	ifType=0 ?	1	N/A
All Customers	other	35	8.1 Gb
HP	other	7	1.6 Gb
Cust	other	6	1.6 Gb
Cust1	other	7	1.6 Gb
Cust2	other	7	1.6 Gb
Cust3	other	8	1.6 Gb
Cust	gigabitEthernet	3	0 bytes
All Customers	gigabitEthernet	3	0 bytes
Cust1	ds1	2	N/A
All Customers	ds1	2	N/A
HP	propPointToPointSerial	19	3.3 Mb
Cust	propPointToPointSerial	18	3.3 Mb
Cust1	propPointToPointSerial	24	8.3 Mb
Cust2	propPointToPointSerial	19	3.3 Mb
Cust3	propPointToPointSerial	19	3.3 Mb
All Customers	propPointToPointSerial	99	21.6 Mb
HP	softwareLoopback	4	0 bytes
Cust	softwareLoopback	3	0 bytes
Cust1	softwareLoopback	3	0 bytes

Hourly | Daily | Monthly

Traffic Volume

Total Volume (GB)

100.10
85.80
71.50
57.20
42.90
28.60
14.30
0

Mon 12:29 PM   Mon 12:30 PM

Time

Hourly | Daily | Monthly

Exception Counts

Total Exceptions

0.01 ⊤

0 ⊥
Sun 12:00 AM   Mon 12:00 AM   Tue 12:00 AM
Time

■ Utilization Exceptions

Hourly | Daily | Monthly

Utilization

% Utilization

100.10 ⊤

85.80

71.50

57.20

42.90

28.60

14.30

0 ⊥
Mon 12:29 PM   Mon 12:30 PM
Time
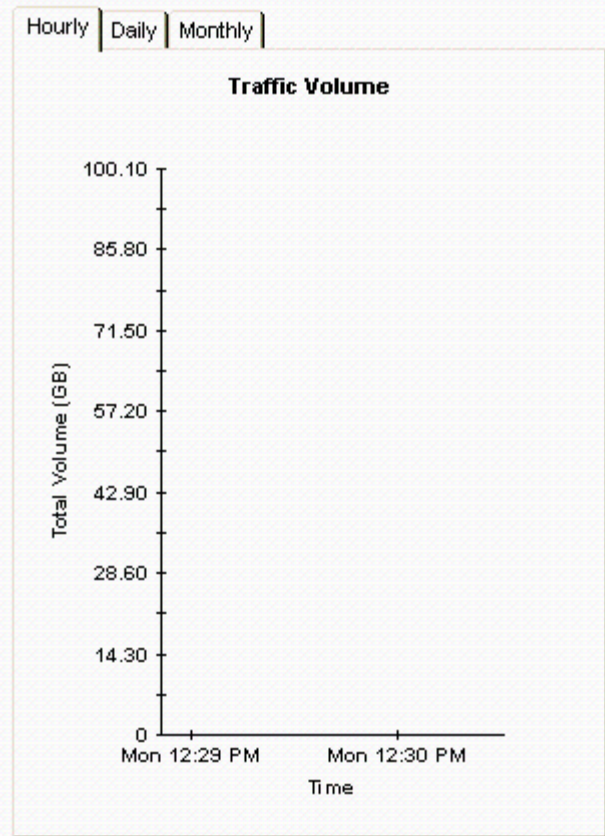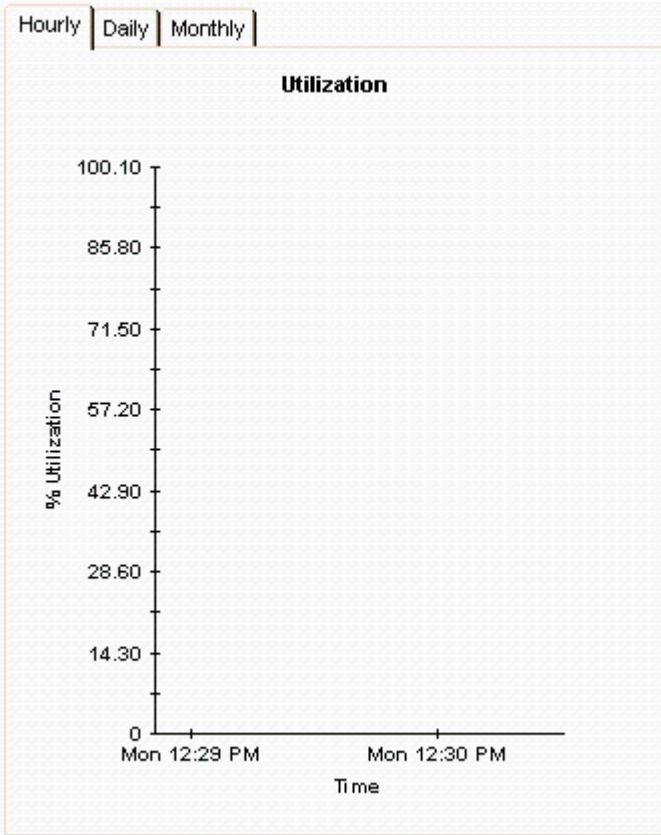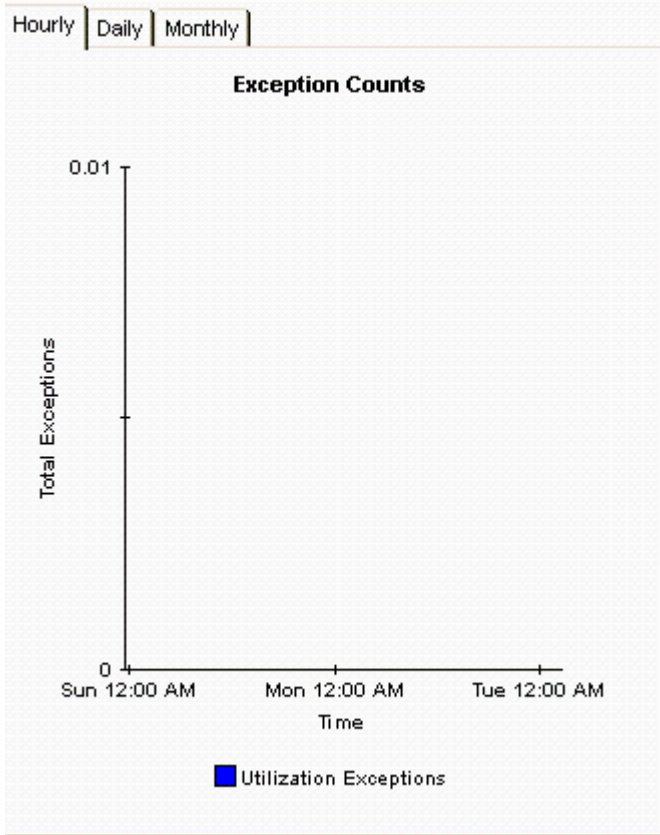
Predicting Future Utilization

In addition to monitoring the exceptions created by occasional spikes in traffic, Interface Reporting is concerned with gradual increases in utilization and the resulting capacity problems that may arise a few months from now. Interface Reporting includes the following capacity planning reports:

* Capacity Planning by Interface (Busy Hour)

* Capacity Planning by Device

* Capacity Planning by Location

* Capacity Planning by Protocol

The interface version of the report focuses on the baseline busy hour average (a rolling average of 42 busy hours) and projected increases or decreases in the baseline busy hour average. The selection table sorts interfaces by the F30 forecast for the baseline busy hour and allows you to compare the following statistics for each interface:

* Baseline busy hour

* F30 forecast for baseline busy hour

* Utilization threshold

The baseline busy hour will change slightly every day, since, each day, the oldest busy hour value will be dropped from the average, while a new busy hour (for yesterday) will be added to the average. Note that the value for each busy hour is itself an average (based on four samples) and should not be confused with peak usage. For a portion of that busy hour, actual usage may have been much higher (or much lower) than the average.

The other three capacity planning reports are customer-oriented, so your first step is to select a customer. The selection table will then rank the elements (devices, locations, or protocols) belonging to that customer. The ranking is done according to rate of growth and the rate of growth is calculated by dividing the F30 forecast by the baseline busy hour. In all four capacity planning reports, the graphs beneath the selection table provide additional forecast data (baseline details, the F60 value, the F90 value, and day-of-week values) and a Grade of Service score that assesses the impact of discard, error, and utilization exceptions.

Samples of two capacity planning reports follow; the first report is from the Interface folder, the second report is from the Device folder.

Interface Reporting

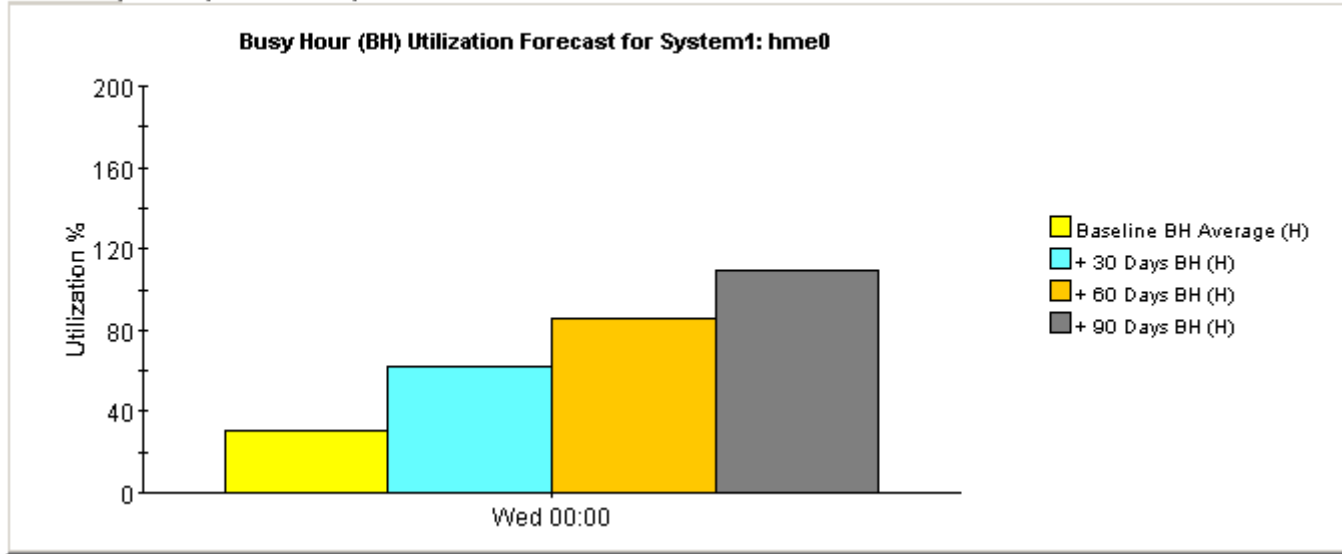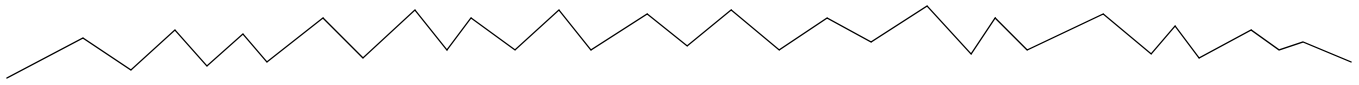## Busy Hour Capacity Planning

This report provides details about the interfaces whose 30 day forecasted busy hour utilization is greater than their utilization threshold. The busy hour (BH) utilization is the maximum average utilization across a complete hour during the day. F/H = Full or Half Duplex.

Interfaces Where Forecasted Utilization Exceeds Threshold
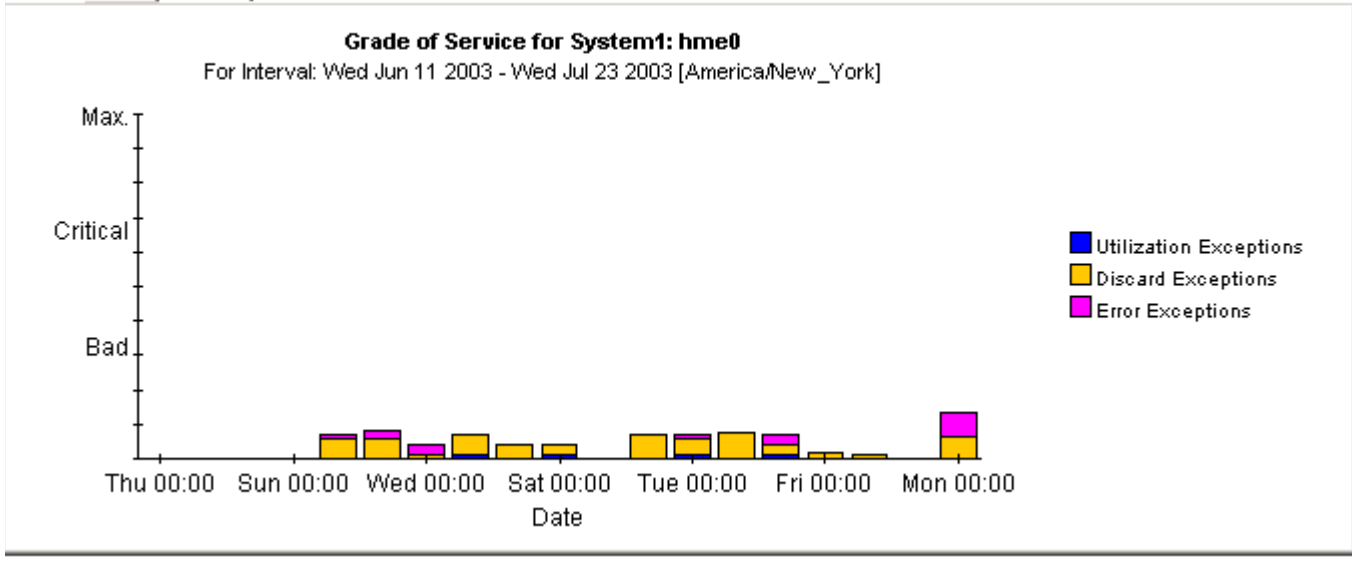#### Sorted by Forecasted Utilization

Device	Interface	F/H	Customer	BH Avg. Util.	F30 BH Util.	Util. Threshold	Descr.
server1	2	H	Customer Unassigned	57	187	30	hme0
System1	2	H	Acme	31	62	30	hme0
15.140.11.63	Serial0.1	F	Customer Unassigned	In:11 Out:11	In:91 Out:91	70	Serial0.1
15.140.11.63	Serial0	F	Customer Unassigned	In:11 Out:11	In:91 Out:91	70	Serial0
15.68.184.2	Serial0	F	Customer Unassigned	In:220 Out:136	In:40 Out:173	90	Serial0

Standard | History | Day of Week

Busy Hour (BH) Utilization Forecast for System1: hme0

Legend:
- Baseline BH Average (H)
- + 30 Days BH (H)
- + 60 Days BH (H)
- + 90 Days BH (H)

Wed 00:00

Hourly | Daily | Monthly

Grade of Service for System1: hme0

For Interval: Wed Jun 11 2003 - Wed Jul 23 2003 [America/New_York]

■ Utilization Exceptions
■ Discard Exceptions
■ Error Exceptions

Max.

Critical

Bad

Thu 00:00   Sun 00:00   Wed 00:00   Sat 00:00   Tue 00:00   Fri 00:00   Mon 00:00

Date

Interface Reporting

Device Capacity Planning

This report provides utilization forecasts and related information aggregated by device and customer groupings. All metrics are for administratively up interfaces unless otherwise stated. % Growth represents the expected 30 day busy hour utilization growth. Select a grouping from the list on the left.

Customer	Device	Avg BH Util.	F30 Util.	Avg. Volume	F30 Volume	% Growth
Entire Network						
Acme	15.24.176.154	0.0	0.0	61.7 Mb	0 bytes	1,161
Customer Unassigned	tshp18.cnd.hp.com	0.4	2.7	1.3 Gb	2.8 Gb	630
HP	15.140.11.63	0.0	0.0	2.1 Gb	14.3 Gb	569
	System8	0.2	1.2	1.4 Gb	1.6 Gb	373
	server1	16.8	68.1	4.8 Gb	19.0 Gb	304
	System18	0.3	1.2	2.3 Gb	3.2 Gb	303
	15.12.151.159	0.2	0.6	43.6 Mb	159.8 Mb	227
	gold.rose.hp.com	1.4	4.5	5.8 Gb	13.4 Gb	219
	15.12.151.160	0.2	0.6	42.4 Mb	166.5 Mb	213
	15.252.8.45	0.1	0.3	526.7 Mb	669.1 Mb	209
	hpat617.atl.hp.com	0.1	0.2	2.5 Gb	3.0 Gb	196
	biotite.cnd.hp.com	0.1	0.2	739.1 Mb	1.1 Gb	173
	15.10.47.253	0.4	1.0	460.9 Mb	665.9 Mb	164
	tshp19.cnd.hp.com	0.0	0.0	691.5 Mb	365.8 Mb	163
	ROS59042MOR2	0.3	0.9	697.7 Mb	1.1 Gb	151
	15.95.132.169	0.3	0.6	68.0 Mb	119.2 Mb	136

System Contact   **System Name**   **System Location**

Standard | History | Day of Week

Utilization Forecast for 15.24.176.154

Hourly | Daily | Monthly |

Exception Counts for 15.24.176.154

Total Exceptions

■ Utilization Exceptions
□ Discard Exceptions
■ Error Exceptions

Sun 00:00
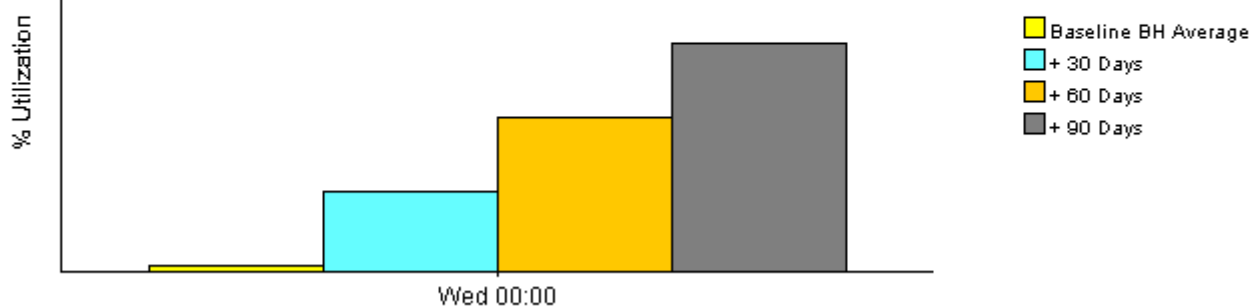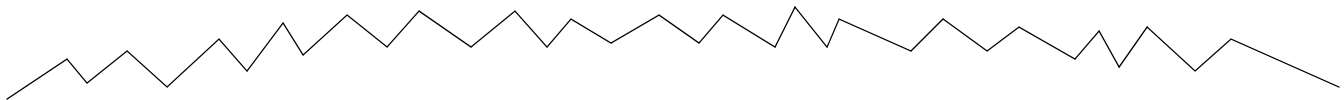
Month
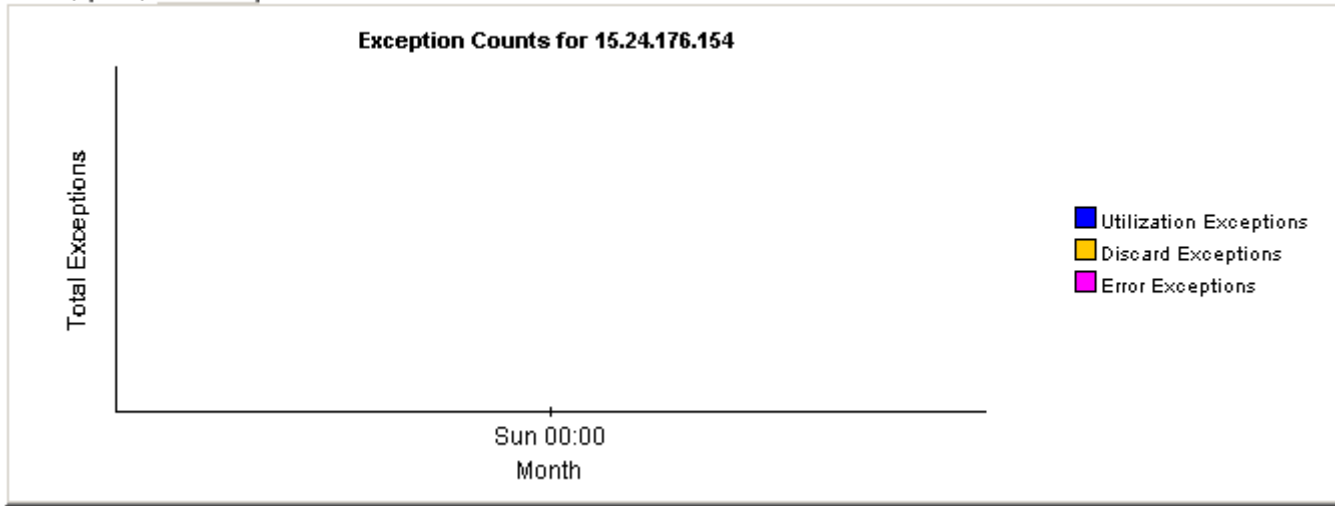
Managing Service Levels

Service level agreements between service providers and customers commonly stipulate a minimum response time and minimum availability. The purpose of the Service Level Management (SLM) reports is to improve service level monitoring for both parties, enhancing precision and making violations easier to spot.

SLM reports focus on SNMP response time and availability. Response time measures delay within the management infrastructure, that is, delay between the datapipe and the device being polled, not delay between clients and servers. While you would not want to infer from a high SNMP response time that users are seeing the same delay, the response time that users are seeing could be similar if the device is the source of the delay.

Availability measures the percentage of time a device has been operational. This metric provides insight into device outages as reported through the SNMP *sysUpTime* attribute. To calculate the availability of individual interfaces, OVPI combines the *sysUpTime* value for the device with two interface attributes, *ifOperStatus* and *ifLastChange*.

Use the SLM reports to identify specific interfaces, devices, protocols, and locations that are experiencing availability or response time problems. The report in the Interface folder is interface-oriented, beginning with a list of device/interface combinations; the other SLM reports are customer-oriented, allowing you to select a customer/element combination.

The initial selection table looks at yesterday's availability, and ranks items by availability, lowest to highest. Use the graph to the right to view availability on an hour by hour basis, then compare the hourly graph to the daily graph to find out whether yesterday's activity was an isolated incident, not likely to occur again, or part of an ongoing trend. The second table, response time, looks at yesterday's response time and ranks items by response time, highest to lowest.

Interface Reporting includes four Service Level Management reports. Two samples follow, one from the Interface folder and one from the Device folder.

Interface Reporting

Service Level Management

The Service Level Management report indicates whether interfaces are meeting contracted service levels for availability and response time. Select an interface from the table to see performance over time. Only interfaces with less than 100% availability will be listed. Use the AvailabilityPct parameter to constrain which interfaces are displayed.

Availability
Interfaces with Lowest Availability for Yesterday
Tue Jul 22 2003

Device	Interface	Availability	Desc
.235.20	A3	0	
.235.20	A4	0	
.115.2	Serial0	0	Seria
.115.2	Serial0.1	0	Seria
.117.60	Serial0.1	0	Seria
.117.60	Serial0.2	0	Seria
.117.60	Serial0.3	0	Seria
.117.60	Serial0.4	0	Seria
.117.60	Serial0.5	0	Seria
.117.60	Serial0.6	0	Seria
.117.60	Serial0.7	0	Seria
.117.60	Serial0.8	0	Seria
.117.60	Serial0.9	0	Seria
.117.60	Serial0.10	0	Seria
.117.60	Serial1.1	0	Seria
.117.60	Serial1.2	0	Seria

Hourly | Daily

Availability
For: 15.43.235.20: A4
Mon Jul 21 12:00 AM - Wed Jul 23 10:00 AM
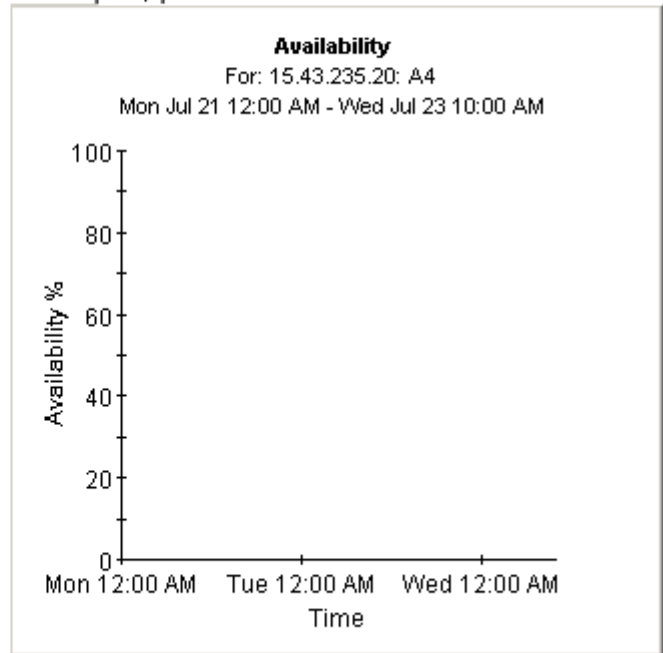
Max Response Time
Highest SNMP Response Time by Interface
Tue Jul 22 2003

Device	Interface
40.11.216	2/4
40.11.216	1/2
40.11.216	2/8
40.11.216	2/2
40.11.216	2/1
40.11.216	2/11
40.11.216	2/5
40.11.216	2/6
40.11.216	2/7
40.11.216	2/3
40.11.216	2/9
6.122.32	FastEthernet0/16
40.11.216	2/10
40.11.216	2/12

Hourly | Daily

Response Times
For: 15.140.11.216: 10/100 utp ethernet (cat 3/5)
Mon Jul 21 12:00 AM - Wed Jul 23 10:00 AM

— Max Response Time
— Avg Response Time
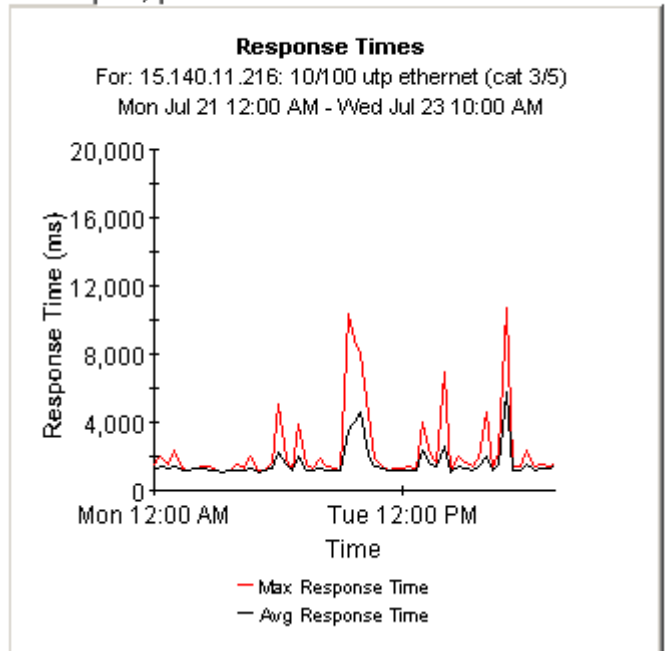
Interface Reporting

Device Service Level Management

The Service Level Management report shows whether groups of interfaces are meeting contracted service levels for availability and response time based on Customers and Device. The number of interfaces (# Int.) includes only those interfaces which are administratively up. Select a device from the tables on the left to see performance over time.

Availability %
Ordered by Lowest Availability for the Day
Tue Jul 22 2003

Device	Customer	# Int.	Availability
4.117.60	Customer Unassigned	41	2
ose.hp.com	Customer Unassigned	52	4
40.241.3	Customer Unassigned	27	7
3.235.20	Customer Unassigned	34	9
9.72.10	Customer Unassigned	88	11
2.112.253	Customer Unassigned	4	15
25.40.27	Customer Unassigned	88	18
27.0.95	Customer Unassigned	4	20
7.atl.hp.com	Customer Unassigned	11	27
1.53.129	Customer Unassigned	11	27
24.115.2	Customer Unassigned	11	27
cnd.hp.com	Customer Unassigned	7	29
27.0.190	Customer Unassigned	47	32
25.40.25	Customer Unassigned	88	32
9.72.28	Customer Unassigned	88	35
9.72.11	Customer Unassigned	88	36
7.187.59	Customer Unassigned	16	37
25.40.6	Customer Unassigned	88	37
40.11.216	HP	16	37
25.40.19	Customer Unassigned	88	38
6.122.32	Customer Unassigned	28	39

Daily | Hourly

Availability % (from sysUpTime)
Sun Jun 22 2003 - Tue Jul 22 2003
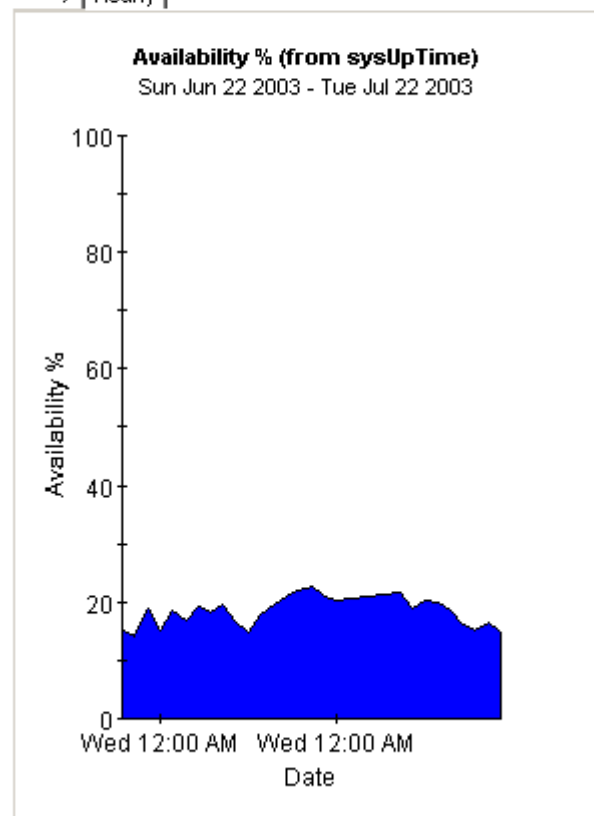
Response Times Greater than 200 (ms)
Ordered by Highest SNMP Response Time
Tue Jul 22 2003

Device	Customer	# Int.	Max	Avg
0.11.216	HP	16	12,812	1,628
.144.2	Customer Unassigned	46	8,672	629
3.227.5	Customer Unassigned	28	7,969	396
.188.16	Customer Unassigned	3	7,750	516
.186.76	Customer Unassigned	2	6,938	1,308
8.9.130	Customer Unassigned	1	6,468	1,019
se.hp.com	Customer Unassigned	52	6,329	361
8.9.128	Customer Unassigned	2	5,750	828
.47.253	Customer Unassigned	2	5,687	1,057
e.hp.com	Customer Unassigned	4	5,359	227
atl.hp.com	Customer Unassigned	11	5,296	294
.112.253	Customer Unassigned	4	5,188	835
8.9.129	Customer Unassigned	2	4,781	738
208.119	Customer Unassigned	59	4,766	652
9.72.6	Customer Unassigned	88	3,531	365
9.72.9	Customer Unassigned	88	3,390	393
9.72.8	Customer Unassigned	88	3,328	395
5.40.27	Customer Unassigned	88	3,266	378
5.40.25	Customer Unassigned	88	3,110	371
5.40.21	Customer Unassigned	88	3,094	371
.72.10	Customer Unassigned	88	3,062	371
.72.23	Customer Unassigned	88	2,984	380

Daily | Hourly

Response Times
Thu Jul 17 2003 - Tue Jul 22 2003

Max Response Time
Avg Response Time

12
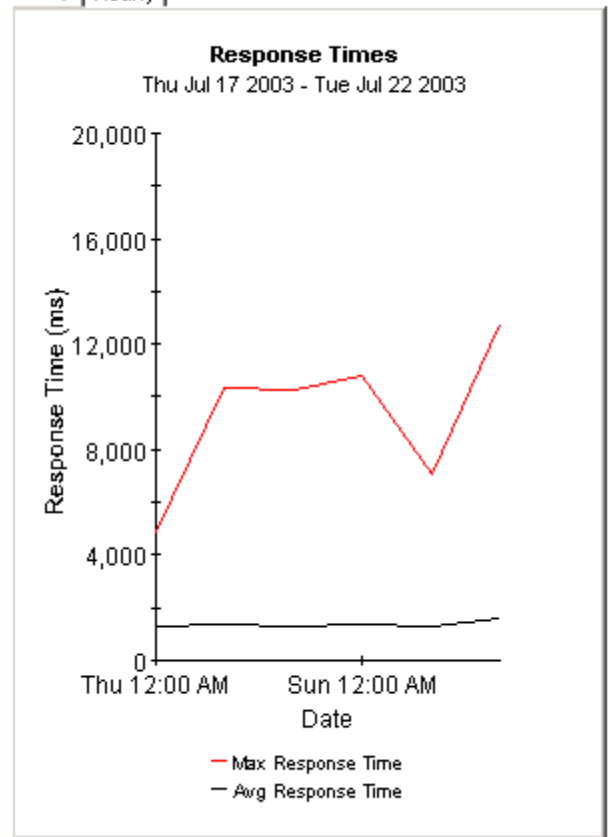
Admin Reports

The following table outlines the scope of each admin report.

Admin Report	Information Provided
Configuration and Logging	• Configuration settings for: — Logging level — Data filtering — Provisioning. • List of recent log entries • Entries are listed by component • Each entry is time-stamped • Each entry indicates duration in seconds • IR_map_p is the most common component • The number of entries per poll (two entries per poll in the sample report) is related to number of index types
Inventory	• List of customers • List of devices for each customer • IP address, make, model, description • List of interfaces on each device • Attributes for each interface: — AdminStatus — Protocol — Full/Half — Speed — Threshold — Description
Top Level Inventory	• Total number of devices for each customer • Total number of interfaces for each customer • List of devices by make and model

Admin Report	Information Provided
System Performance	Processes that took place during the last 2 hours: • Name • Start time • Duration • Rating • Bar chart showing duration of each process in seconds Processes that took place since yesterday: • Name • Start time • Duration • Rating • Bar chart showing duration of each process in seconds

See below for samples of these reports:

• Configuration and Logging

• Inventory

• System Performance

Report Pack Administration

Configuration and Logging

This report displays configuration information relating to Interface Reporting collections, and lists the most recent log table entries for report rack internal procedures. Logging to this report is open to all installed report packs. Use the 'Component' parameter to filter the displayed data.

IR Mapping Procedure Configuration

Configuration Parameter	Current Value	Meaning
Logging Level	1	High Level and Errors Only
Data Filtering	0	Report on all interfaces
Provisioning	0	Use provisioned data only

ReportPack Log Entries

Time	Component	Message
Ved Jul 23 11:09 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 2 seconds.
Ved Jul 23 11:08 AM	IR_map_p	Info: 1725 polled rows were mapped to SRIRDevPorts in 5 seconds.
Ved Jul 23 10:52 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 0 seconds.
Ved Jul 23 10:52 AM	IR_map_p	Info: 1734 polled rows were mapped to SRIRDevPorts in 5 seconds.
Ved Jul 23 10:37 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 0 seconds.
Ved Jul 23 10:37 AM	IR_map_p	Info: 1734 polled rows were mapped to SRIRDevPorts in 4 seconds.
Ved Jul 23 10:22 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 0 seconds.
Ved Jul 23 10:22 AM	IR_map_p	Info: 1734 polled rows were mapped to SRIRDevPorts in 4 seconds.
Ved Jul 23 10:09 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 0 seconds.
Ved Jul 23 10:08 AM	IR_map_p	Info: 1727 polled rows were mapped to SRIRDevPorts in 10 seconds.
Ved Jul 23 09:52 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 0 seconds.
Ved Jul 23 09:51 AM	IR_map_p	Info: 1734 polled rows were mapped to SRIRDevPorts in 11 seconds.
Ved Jul 23 09:37 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 0 seconds.
Ved Jul 23 09:37 AM	IR_map_p	Info: 1735 polled rows were mapped to SRIRDevPorts in 6 seconds.
Ved Jul 23 09:22 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 1 seconds.
Ved Jul 23 09:22 AM	IR_map_p	Info: 1733 polled rows were mapped to SRIRDevPorts in 5 seconds.
Ved Jul 23 09:09 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 2 seconds.
Ved Jul 23 10:09 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 0 seconds.
Ved Jul 23 10:08 AM	IR_map_p	Info: 1727 polled rows were mapped to SRIRDevPorts in 10 seconds.
Ved Jul 23 09:52 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 0 seconds.
Ved Jul 23 09:51 AM	IR_map_p	Info: 1734 polled rows were mapped to SRIRDevPorts in 11 seconds.
Ved Jul 23 09:37 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 0 seconds.
Ved Jul 23 09:37 AM	IR_map_p	Info: 1735 polled rows were mapped to SRIRDevPorts in 6 seconds.
Ved Jul 23 09:22 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 1 seconds.
Ved Jul 23 09:22 AM	IR_map_p	Info: 1733 polled rows were mapped to SRIRDevPorts in 5 seconds.
Ved Jul 23 09:09 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 2 seconds.
Ved Jul 23 09:09 AM	IR_map_p	Info: 1727 polled rows were mapped to SRIRDevPorts in 7 seconds.
Ved Jul 23 08:52 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 0 seconds.
Ved Jul 23 08:52 AM	IR_map_p	Info: 1734 polled rows were mapped to SRIRDevPorts in 5 seconds.
Ved Jul 23 08:37 AM	IR_map_p	Info: 411 polled rows were mapped to SRIRDevPorts in 0 seconds.
Ved Jul 23 09:37 AM	IR_map_p	Info: 1733 polled rows were mapped to SRIRDevPorts in 5 seconds.

Interface Reporting

Inventory Report

This report has one entry for each customer and provides inventory information for the devices assigned to that customer and the interfaces on those devices. Modify the report constraints to limit the number of interfaces displayed. Only interfaces that were polled yesterday will be displayed.

Customer	Id
Acme	1
Customer Unassigned	-2
HP	2

Devices Associated with the Chosen Customer

Device	Make	Model	Description
15.6.96.4	Cisco	2522	15.6.96.4

Interfaces on 15.6.96.4
Change Constraints to Modify the List

Interface	AdminStatus	Protocol	Full/Half	Speed	Threshold %	Description
Ethernet0	Up	ethernet-csmacd	H	10.0 Mb/s	U:30 D:1 E:1	Ethernet0
Serial0	Up	frameRelay	F	In: 1.5 Mb/s Out: 1.5 Mb/s	U:70 D:1 E:1	Serial0
Serial1	Up	frameRelay	F	In: 1.5 Mb/s Out: 1.5 Mb/s	U:70 D:1 E:1	Serial1
Serial2	Up	frameRelay	F	In: 115.0 Kb/s Out: 115.0 Kb/s	U:70 D:1 E:1	Serial2

Interface Reporting

Reporting System Performance

This report provides total duration details in seconds for groups of related tasks in the report pack. The information can be used to assess if the system is approaching its processing limits.

Hourly Process Durations
For the Last 2 Hours

Process Name	StartTime	Duration (s)	Rating
DevPort_Summary	Wed Jul 23 11:20 AM		
DevPort_Summary	Wed Jul 23 10:20 AM	34	Excellent
DevPort_Summary	Wed Jul 23 09:20 AM	40	Excellent

Hourly Durations
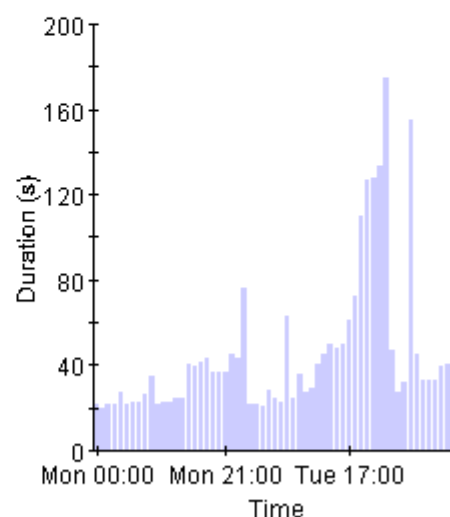
Daily Process Durations
Since Yesterday

Process Name	StartTime	Duration (s)	Rating
DevPort_DMF_Summary	Wed Jul 23 04:00 AM	585	Good
DevPort_DMF_Summary	Tue Jul 22 04:00 AM	510	Good
Device_DMF_Summary	Wed Jul 23 04:06 AM	94	Excellent
Device_DMF_Summary	Tue Jul 22 04:06 AM	97	Excellent
Property_Import	Wed Jul 23 04:00 AM	18	Excellent
Property_Import	Tue Jul 22 04:00 AM	17	Excellent

Daily Durations
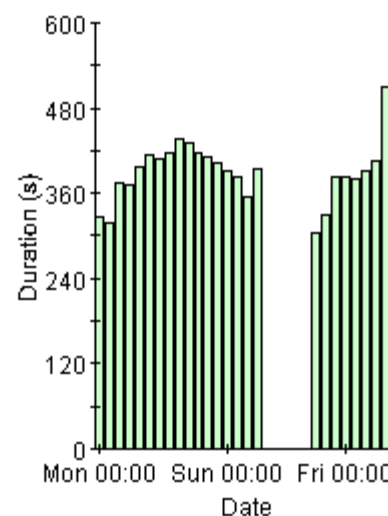
Editing Tables and Graphs

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 display 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.

| Set Time Period... |
| Change Constraint Values... |
| Select Nodes/Interfaces... |
| Change Max Rows... |
| View in new Frame |
| Print Table... |
| Export Element as CSV... |
| Delete Table |
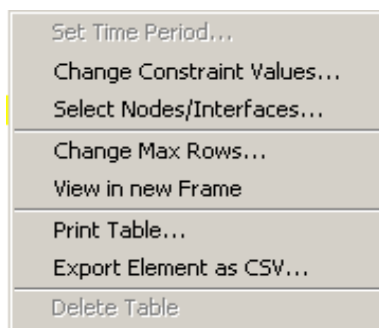
Select **Set Time Period** to alter the relative time period (relative to now) or set an absolute time period. The Set Time Period window opens.

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
Input	5	0	0	Tue Oct 29 06:45 AM
Input	6	0	0	Tue Oct 29 06:45 AM
Input	7	0	0	Tue Oct 29 06:45 AM
Input	0	97,539	648	Tue Oct 29 06:30 AM
Input	1	0	0	Tue Oct 29 06:30 AM
Input	2	0	0	Tue Oct 29 06:30 AM
Input	3	0	0	Tue Oct 29 06:30 AM
Input	4	0	0	Tue Oct 29 06:30 AM
Input	5	0	0	Tue Oct 29 06:30 AM
Input	6	120	1	Tue Oct 29 06:30 AM
Input	7	0	0	Tue Oct 29 06:30 AM
Input	0	90,744	564	Tue Oct 29 06:15 AM
Input	1	0	0	Tue Oct 29 06:15 AM
Input	2	0	0	Tue Oct 29 06:15 AM
Input	3	0	0	Tue Oct 29 06:15 AM
Input	4	0	0	Tue Oct 29 06:15 AM
Input	5	0	0	Tue Oct 29 06:15 AM
Input	6	0	0	Tue Oct 29 06:15 AM
Input	7	0	0	Tue Oct 29 06:15 AM
Input	0	103,775	656	Tue Oct 29 06:00 AM
Input	1	0	0	Tue Oct 29 06:00 AM
Input	2	0	0	Tue Oct 29 06:00 AM
Input	3	0	0	Tue Oct 29 06:00 AM
Input	4	0	0	Tue Oct 29 06:00 AM
Input	5	0	0	Tue Oct 29 06:00 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.
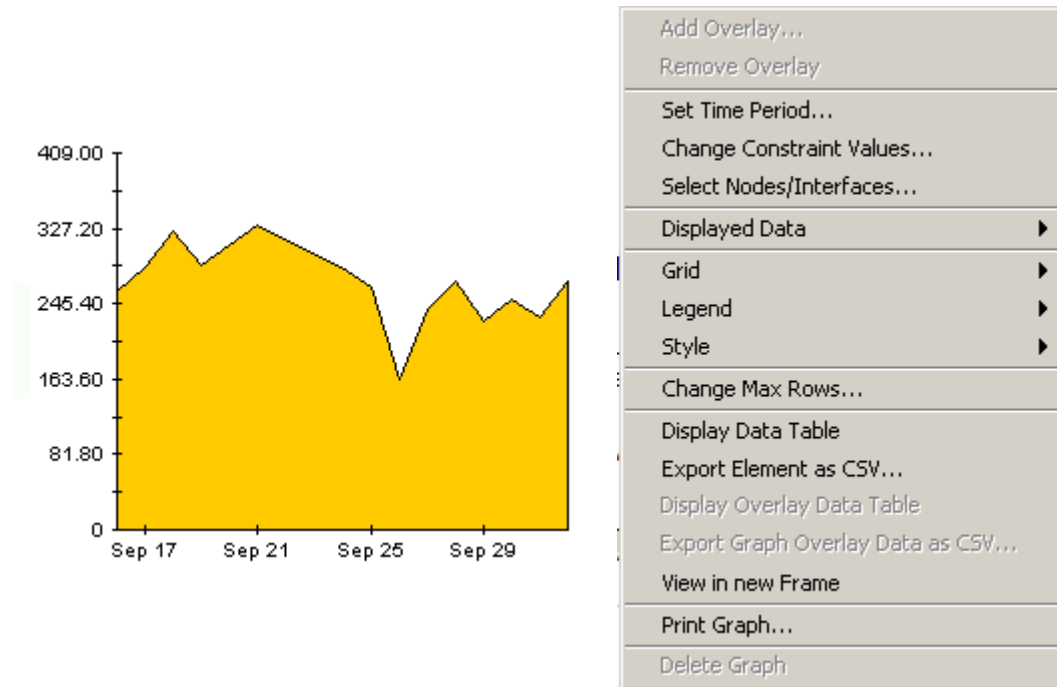
The following table provides details about each option.

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: X axis grid lines Y axis grid lines 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.

Option	Function
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.
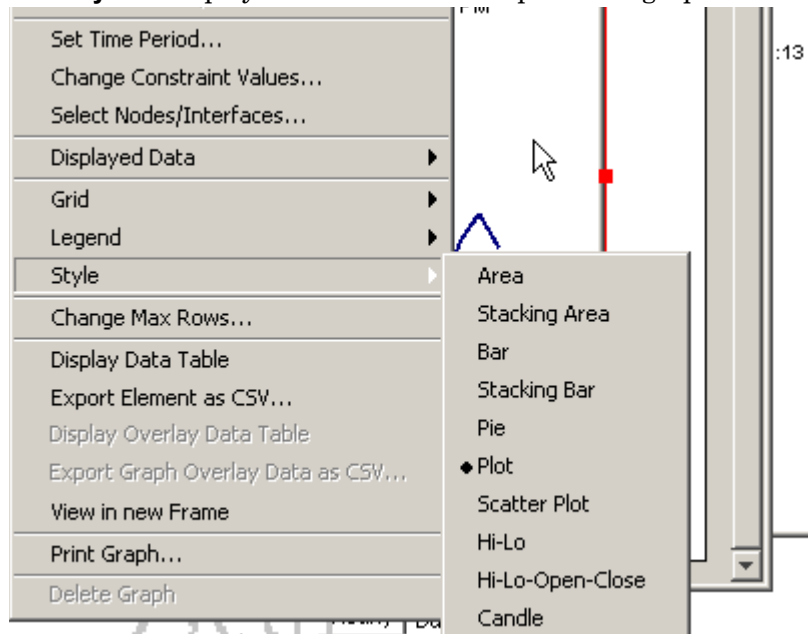
Style > Area

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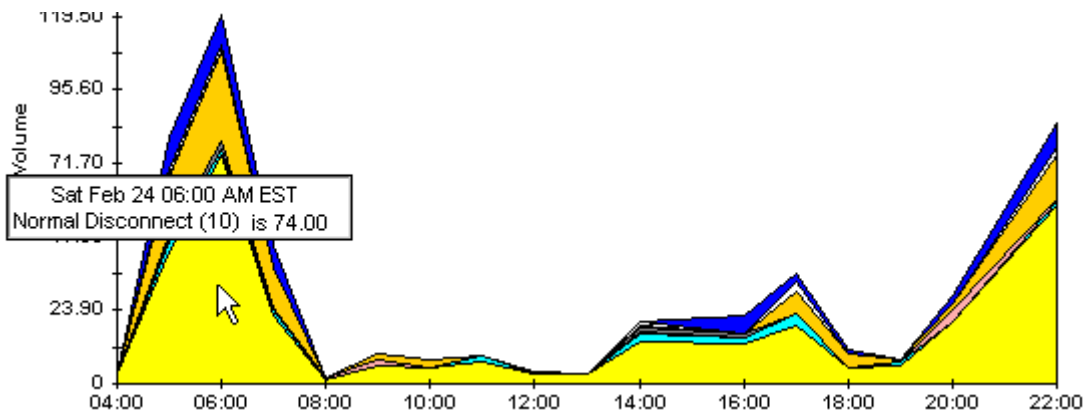
To shorten the time span of a graph, press SHIFT+ALT and use the left mouse button to highlight the time span you want to focus on. Release the mouse button to display the selected time span.

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.
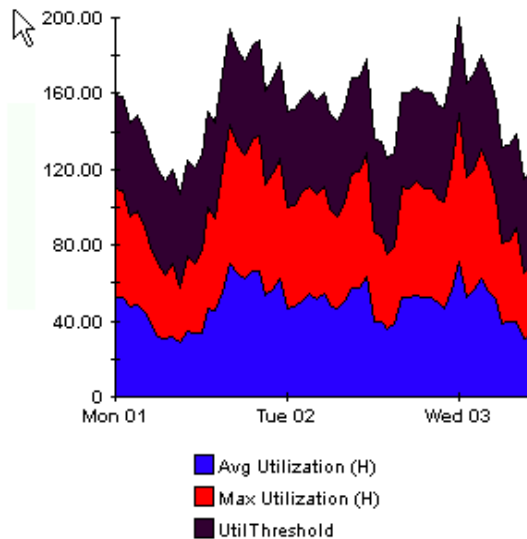
Style > Bar

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.
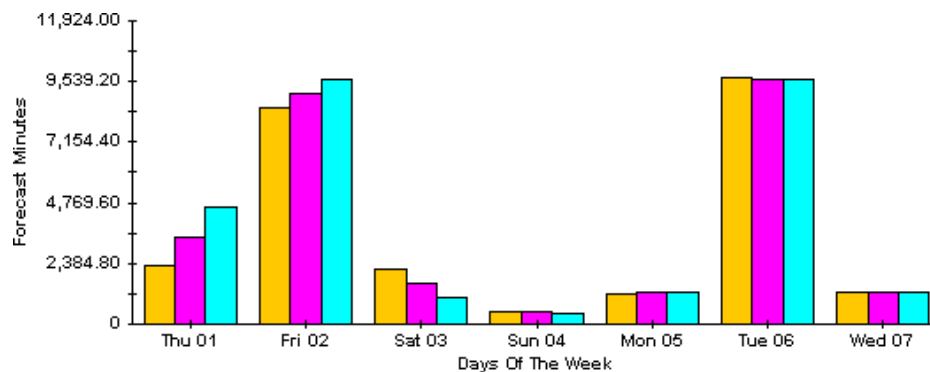
Style > Stacking Bar

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.
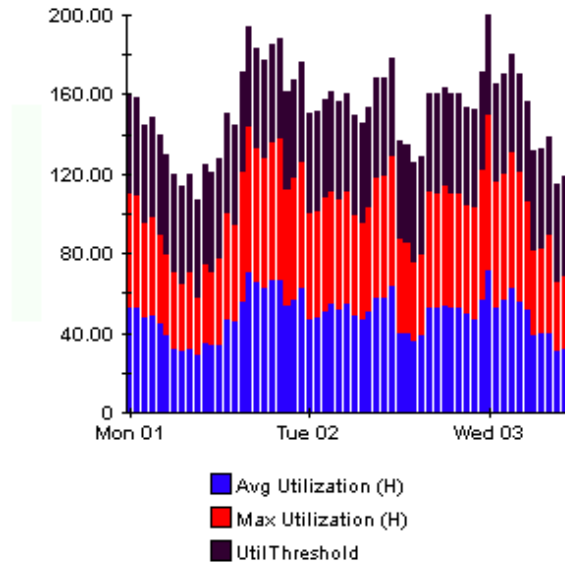
Style > Plot

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.
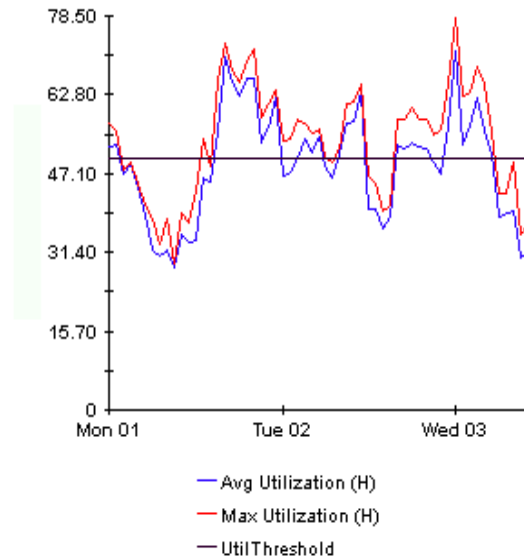
Style > Pie

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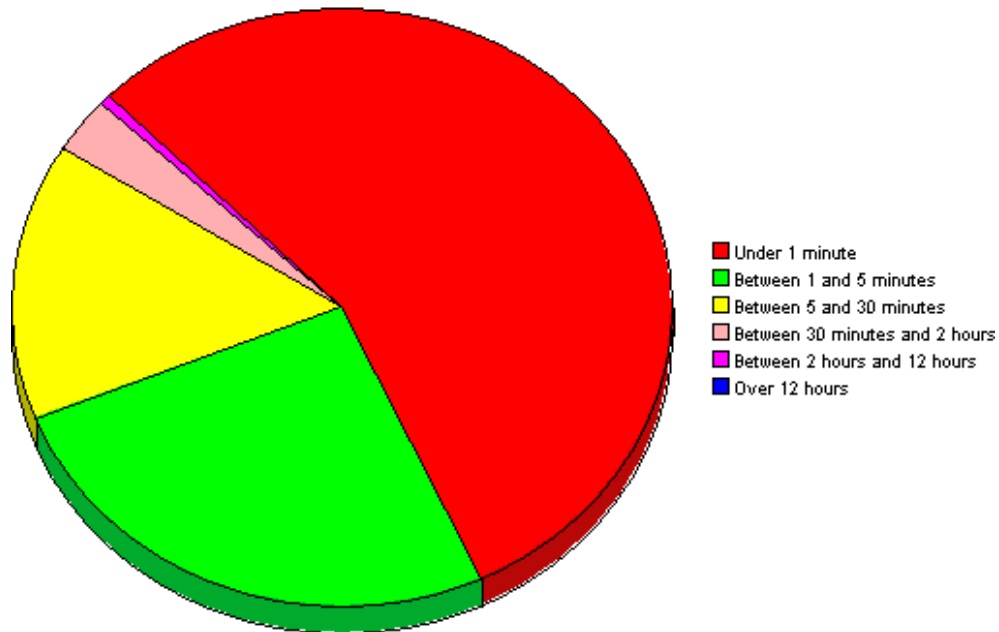
If you are looking at data for more than one day, you will see multiple pie graphs, one for each day.

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.
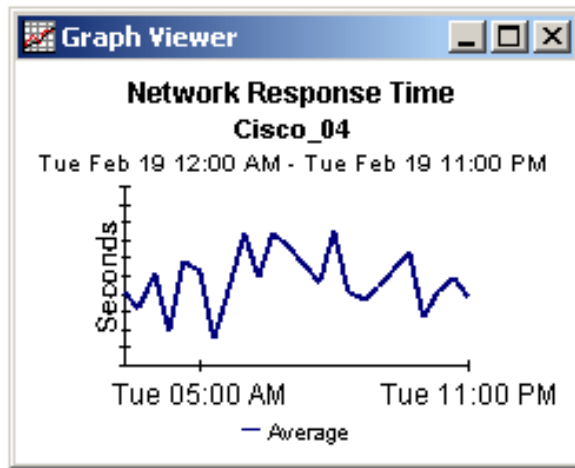
availability

The percentage of time a device has been operational. Identifies device outages as reported through the sysUpTime variable. Calculated by combining device sysUpTime with interface ifOperStatus and interface ifLastChange.

avg volume

This metric is found in capacity planning reports. It refers to average daily volume during the baseline period.

baseline busy-hour

This value is the average of 42 busy-hour values recorded during the rolling baseline period. This value is static for one day only. It will be different tomorrow, when yesterday's busy hour is factored into the calculation that determines average Busy Hour. Baseline busy hour and forecasts for future baseline busy hour values appear in capacity planning reports.

busy-hour

This value reflects a relatively persistent phenomenon and, when combined with multiple busy-hour values over the baseline, is used to predict future performance. The busy hour value is an average of multiple samples taken during the hour. Do not confuse busy-hour with peak. During the busy hour, actual utilization can be significantly higher than the busy-hour average.

country

This value is imported by the provisioning interface. If not provisioned, the field reads *unknown*.

daily

A view showing daily performance for the previous 31 days. The most recent day in this view is yesterday.

day of week

A forecast, derived from baseline data, that assigns a growth rate to each day of the week.

discard rate

The percentage of packets discarded by the interface. Data about discards is sampled during each poll cycle (by default this is four times an hour); based on those samples, OVPI calculates an average and a maximum discard rate.

discard threshold

The point at which an acceptable percentage of discarded traffic becomes an abnormal percentage and possibly impacts response time. If the interface is full duplex, the same threshold value is applied to both in and out packets separately.

error rate

The percentage of packets with errors as reported by the interface. Data about errors is sampled during each poll cycle (by default this is four times an hour); based on those samples, OVPI calculates an average and a maximum error rate.

error threshold

The point at which an acceptable percentage of errored traffic becomes an abnormal percentage and possibly impacts response time. If the interface is full duplex, the same threshold value is applied to both in and out packets separately.

F30 / F60 / F90

The level where utilization (or volume) is expected to be 30, 60, and 90 days from now. Calculated by applying linear regression to busy-hour levels over the baseline period.

group

This value is imported by the provisioning interface. If not provisioned, the field displays *unknown*.

growth rate

F30 utilization divided by average busy-hour.

hourly

A view showing performance for the last two days and whatever portion of today has elapsed. The minimum time range is 48 hours; the maximum is 72 hours.

interface

An entry in the SNMP ifTable for the device, representing a physical or a logical interface.

location

This value imported by the provisioning interface. If not provisioned, the field reads unknown.

monthly

A view showing performance for each month over the last two years. Blank until data collection has been functioning for at least one month.

protocol

The textual name associated with the enumerated ifType of the interface.

response time

Delay within the network management structure, specifically, delay between the datapipe and the device. If the device is causing the delay, this value may point to device resource issues.

threshold

The line between normal and abnormal performance. When this line is crossed, an exception is recorded. Thresholds are set to default values that are easily changed to reflect individual needs.

utilization

The total number of octets traversing the interface as a percentage of the total *possible* number of octets, using the ifSpeed property. If an interface is full duplex, the table displays utilization in each direction. Groups of interfaces have their utilization calculated by taking the total traffic on all administratively up interfaces in the group and dividing that by the total possible bandwidth. Utilization for a group of interfaces is more reliable when all the interfaces in the group use the same protocol.

utilization threshold

The point at which the number of octets traversing the interface is considered detrimental to the service level required by network users. In the case of full duplex interfaces, the same threshold value is applied to in and out packets separately.

Index