

IP QoS Statistics Report Pack

Software Version: 3.0

HP OpenView Performance Insight

User Guide

December 2005



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1 Overview

This chapter covers the following topics:

- [End-to-End QoS](#)
- [OVPI and QoS Reporting](#)
- [Ways to Customize QoS Reports](#)
- [Sources for Additional Information](#)

End-to-End QoS

When a network that includes Cisco routers or Cisco Catalyst switches provides end-to-end Quality of Service (QoS), the routers and switches are able to distinguish higher-priority traffic from lower-priority traffic and process higher-priority traffic ahead of lower-priority traffic. End-to-end QoS offers the following benefits:

- Bandwidth can be dedicated to particular types of traffic
- Problems affecting real-time, interactive traffic (jitter and latency) can be controlled
- Loss characteristics can be improved

You can implement end-to-end QoS by using a router configuration interface to control the second byte in the header of the IP packet. The first three bits of the second byte indicate the level of precedence. There are eight precedence levels to choose from. The lowest level of precedence is 0 and the highest level of precedence is 7.

OVPI and QoS Reporting

Although QoS allows you to dedicate bandwidth to particular types of traffic, control jitter and latency, and improve loss characteristics, QoS will not tell you how much traffic of each service class is traversing the network, nor will it provide the hourly and daily information needed to design efficient QoS schemes. To find out how much traffic of each service class is traversing the network, and when, you need to poll byte and packet counters in the IP Statistics MIB and process the collected data.

The IP QoS Statistics Report Pack polls the IP Statistics MIB, issues processing directives to OVPI, and displays reports that show the distribution of traffic on a per-precedence basis. The IP QoS Statistics Report Pack contains three reports:

- Near Real Time Interface Activity
- Historical Interface Activity
- Inventory

The **Near Real Time** report contains rate data for the previous 24 hours. Use this report to see byte and packet totals for each precedence level, in each direction, for every poll cycle during the previous six hours.

The **Historical Interface Activity** report provides details about yesterday's traffic volume per IP precedence level and displays hourly, daily, and monthly aggregations for any interface that has had traffic during the previous six hours.

The **Inventory** report provides a list of all the ToS-enabled interfaces in your network. This report is refreshed after every poll cycle; the list of customers is updated once a day.

Applying Thresholds to Counters

The IP QoS Statistics Report Pack does not contain a thresholds sub-package. However, if you want to be notified when traffic of a particular IP-precedence is traversing the network, you can configure the Thresholds Module to generate the appropriate notification. Configuring the Thresholds Module involves modifying action and configuration files. This procedure is documented in the *Thresholds Module 5.0 User Guide*.

Version History

The following table provides details about recent enhancements to IP QoS Statistics.

Version	Release Date	Features/Enhancements
1.0	May 2003	3 reports Sybase support Cisco IPQoSStat Datapipe 1.0
2.0	October 2003	OVPI Object Manager support
3.0	April 2004	OVPI 5.0 support Oracle support Cisco IPQoSStat Datapipe 2.0
3.0	August 2004	Upgrade package (to_3.0)
3.0	November 2004	No changes
3.0	June 2005	No changes
3.0	December 2005	No changes

Ways to Customize QoS Reports

You can change the contents of reports by applying group filters, by editing parameters, and by changing view options for tables and graphs. While service providers use group filters to produce customer-specific reports, any user can apply a constraint to a report or edit tables and graphs. For details about view options for tables and graphs, see [Appendix A, Editing Tables and Graphs](#).

Adding customers and locations is another way to customize reports. However, unlike other reporting solutions you may be familiar with, there is no separate property import for IP QoS Statistics, and there are no property update forms. There is no separate property import because all of the property information associated with an interface (interface speed, customer, location, device name) is inherited from the Interface Reporting Report Pack.

Group Filters

If you want to share reports with your customers, you must configure OVPI to produce customer-specific reports. Here is an overview of the steps involved:

- Use Common Property Tables to import customer names and device locations
- Create a group account for all the users affiliated with each customer
- Create a group filter for each group account

For more information about group filters, refer to the *OVPI 5.1 Administration Guide*.

Editing Parameters

When you edit a parameter, you apply a constraint that eliminates the data you are not interested in seeing. If you edit the Customer Name parameter, data for all customers except the customer you typed in the Customer Name field drops from the report. If you edit the Source Location, data for all locations except the location you typed in the Source Location field drops from the report.

You can apply multiple constraints at once. IP QoS Statistics supports these parameters:

- Customer Name
- Customer ID
- Device Name
- Interface Name
- Admin Status

If you are viewing the report on the web, 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**.

Sources for Additional Information

The demo package that comes with IP QoS Statistics 3.0 contains a sample of each 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. Demo reports are interactive and you can use them to experiment with parameters and view options. For information about recent enhancements to this package, refer to:

- *IP QoS Statistics Report Pack 3.0 Release Statement*
- *OVPI Report Packs, Version 8.0: Release Notes, June 2005*

For details about Interface Reporting and the datapipes used by Interface Reporting, refer to:

- *Interface Reporting 5.0 User Guide*
- *Interface Reporting ifEntry Datapipe 2.2 User Guide*
- *Interface Discovery Datapipe 2.2 User Guide*

Manuals for the core product, OVPI, and manuals for the reporting solutions and shared packages that run on OVPI can be downloaded from this site:

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

Select **Support > Product Manuals** to reach the **Product Manuals Search** page. The user guides for OVPI are listed under **Performance Insight**. The user guides for report packs and datapipes are listed under **Performance Insight Reporting Solutions**.

The manuals listed under **Performance Insight Reporting Solution** indicate the month and year of publication. If a manual is revised and reposted, the date of publication will change. Since we post revised manuals on a regular basis, we recommend searching this site for updates before using an older manual that might not be the latest version available.

2 Package Installation

This chapter covers the following topics:

- [Guidelines for a Smooth Install](#)
- [Upgrading from Version 2.0 to Version 3.0](#)
- [Installing IP QoS Statistics 3.0](#)
- [Accessing Deployed Reports](#)
- [Configuring Distributed Systems](#)
- [Package Removal](#)

Guidelines for a Smooth Install

The December 2005 report pack CD has the latest report packs and datapipes. When you insert the CD in the CD-ROM drive and launch the package extraction program, the install script on the CD extracts every package from the CD and copies the results to the Packages directory on your system. When the extract finishes, the install script prompts you to launch OVPI and start Package Manager. Before using Package Manager, review the following guidelines.

Prerequisites for Installation

IP QoS Statistics has a combination of core-product requirements and package level requirements. The core-product requirements are:

- OVPI 5.0 or higher
- All Service Packs available for the version of OVPI (5.0 or 5.1) you are running

For details about service pack installation, see the release notes produced for the service pack. The package-level prerequisites are:

- Common Property Tables 3.5
- Interface Reporting Report Pack 4.0 or higher

Upgrading Common Property Tables

If you are running an earlier version of Common Property Tables, version 2.2 or version 3.0, upgrade to the latest version by installing the “to_3.5” upgrade package. Installing this upgrade package is no different from installing other upgrade packages; however, you cannot install other packages when you install the upgrade package for Common Property Tables. Install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables.

Distributed Environments

If you are running IP QoS Statistics as a distributed system across multiple servers, the central server, every satellite server, and every remote poller must be running the same version of OVPI and all available service packs for that version of OVPI. When you install IP QoS Statistics on the central server, deploy reports. When you are done installing packages, you must configure each server by following the steps under [Configuring Distributed Systems](#).

Upgrading from Version 2.0 to Version 3.0

If you are currently running IP QoS Statistics 2.0, you can upgrade to version 3.0 by installing the “to_3.0” upgrade package. Because datapipes cannot be upgraded, you have to delete the existing datapipe before installing the new datapipe. Here is the recommended sequence of events:

- 1 Start Package Manager; delete IP QoSStat Datapipe 2.0; exit Package Manager.
- 2 Start Package Manager; install UPGRADE_IP_QoS_Statistics_to_3.0 (by itself, no other packages); exit Package Manager.
- 3 Start Package Manager; install IP QoSStat Datapipe 3.0; exit Package Manager.

Polling Policies for Remote Pollers

When you uninstall an existing datapipe, the following information will be lost:

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

You can export existing polling policy configurations and customized polling groups by using the `collection_manager` and `group_manager` commands.

Exporting Polling Policy Configurations

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

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

```
cd $DPIPE_HOME
./bin/collection_manager -export -file /tmp/savePollingPolicy.lst
```

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

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

Exporting Polling Group Configurations

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

UNIX: As user trendadm, execute the following command:

```
cd $DPIPE_HOME
./bin/group_manager -export_all -outfile /tmp/savePollingGroups
```

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

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

Deleting Custom Views of Data or Property Tables

If you created custom views for data or property tables, the view you created may interfere with the report pack upgrade process, causing the process to fail. Whether or not your views interfere with the upgrade process depends on how you created them. If you created them using SQL, the upgrade will succeed but your views will not be available once the upgrade is complete. If you created them using Datapipe Manager, the upgrade is likely to fail. To prevent the upgrade from failing, be sure to delete your views prior to upgrading the report pack. Once the report pack has been upgraded, you can use Datapipe Manager to recreate custom views.

Installing IP QoS Statistics 3.0

Perform the following tasks to install IP QoS Statistics 3.0:

- Task 1: Stop OVPI Timer and extract packages from the report pack CD
- Task 2: If necessary, upgrade to Common Property Tables 3.5
- Task 3: Install the following packages:
 - *IP_QoSStat 3.0*
 - *Cisco_IPQoSStat_Datapipe 3.0*

Task 1: Extract packages from the report pack CD

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

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

UNIX: As root, do one of the following:

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

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

- 3 Insert the report pack CD in the CD-ROM drive. On Windows, a Main Menu displays automatically. On UNIX, the CD may or may not mount automatically; if it 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 install wizard opens.

You have the option of navigating to the Packages directory to see the results. The Packages directory contains separate folders for IP QoS Statistics and the Cisco IPQoSStat Datapipe. The following folders appear under the IP QoS Statistic folder:

- *IP_QoS_Statistics.ap*
- *IP_QoS_Statistics_Demo.ap*
- *UPGRADE_IP_QoS_Statistics_to_3.0.ap*

The following folder appears under Cisco_IPQoSStat_Datapipe:

- *Cisco_IPQoSStat_Datapipe.ap*

Installing the demo package is optional. You may install the demo package by itself, with no other packages, or you may install the demo package along with other packages.

Task 2: Upgrade to Common Property Tables

IP QoS Statistics 3.0 requires Common Property Tables. If you have not already upgraded to Common Property Tables 3.5, do this now. If you need help with the upgrade, refer to the *Common Property Tables 3.5 User Guide*. When the install finishes, click **Done** to return to the Management Console.

Task 3: Install IP QoS Statistics and the IP QoSStat Datapipe

- 1 Log in to the system. On UNIX systems log in as root.
- 2 Start Package Manager. The Package Manager welcome window opens.
- 3 Click **Next**. The Package Location window opens.
- 4 Click **Install**. Approve the default installation directory or select a different directory, if necessary.
- 5 Click **Next**. The Report Deployment window opens. Accept the default for Deploy Reports; accept the defaults for application server name and port; and type your user name and password for the OVPI Application Server.
- 6 Click **Next**. The Package Selection window opens.
- 7 Click the check box next to the following packages:
IP_QoS_Statistics
IP_QoS_Statistics_Demo
Cisco_IPQoSStat_Datapipe
- 8 Click **Next**. The Type Discovery window opens. Keep the default and click **Next**. The Selection Summary window opens.
- 9 Click **Install**. The Install Progress window opens. When installation finishes, an install complete message appears.
- 10 Click **Done** to return to the Management Console.

Accessing Deployed Reports

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

- OVPI client applications
- Web browser

If the client applications are installed on the user's system, the user has access to Report Viewer, Report Builder, and the Management Console. If the client applications are not installed on the user's system, using a web browser to view reports is the only way the user can view reports.

For more information about the clients, refer to the *OVPI 5.1 Installation Guide*. For details about the Management Console, including how to use the Object/Property Management view to launch reports specific to a selected object, refer to the *OVPI 5.1 Administration Guide*.

Configuring Distributed Systems

If you are running OVPI as a distributed system, you installed IP QoS Statistics at least twice, once on the central server and once on each satellite server. You also installed the Cisco IPQoSStat Datapipe on each server that polls. When you finish installing packages, you have to configure the servers in your system. Configuration entails setting up connections with satellite server databases, configuring trendcopy pull commands, and switching off aggregations at each satellite server.

Task 1: Set up connections with satellite server databases

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

Task 2: Configure trendcopy pull commands for hourly data

- 1 Open the following file:

```
$DPIPE_HOME/scripts/IPStat_Hourly_Process.pro
```

Comment out block1 by adding the comment sign ("#") before the word **begin** and the word **end**.

- 2 Open the following file:

```
$DPIPE_HOME/scripts/IPStat_Hourly_Process.pro
```

Modify block2 as follows:

- Remove "#" before the word **begin** and before the word **end**
 - Replace *SATELLITE_SERVER_1_DATABASE* with the satellite server name
 - Replace *THIS_MACHINE_DATABASE* with the central server name
- 3 If there is more than one satellite server, create a copy of block2 for each satellite server and repeat step 2 for each copy of block2.
 - 4 If you want to copy rate data from satellite servers to the central server, configure trendcopy pull commands from the central server for each satellite server. Open the following file:


```
$DPIPE_HOME/scripts/IPStat_Hourly_Process.pro
```

 Modify block3 as follows:
 - Remove "#" before the word **begin** and before the word **end**.
 - Replace the *SATELLITE_SERVER_1_DATABASE* with the satellite server name.
 - Replace *THIS_MACHINE_DATABASE* with the central server name.
 - 5 If there is more than one satellite server, create one copy of block3 for each satellite server and repeat step 4 for each copy of block3.

Task 3: Switch off daily aggregations at each satellite server

- 1 Comment out the lines referencing *IPStat_DMF_Process.pro* in the `$DPIPE_HOME/lib/trendtimer.sched` file.
- 2 Modify the *IPStat_Hourly_Process.pro* trendtimer entry in the `$DPIPE_HOME/lib/trendtimer.sched` file. By default, this process starts at 40 minutes after the hour. To make sure the satellite server completes hourly summarizations before the central server begins hourly summarizations, change the start time from 1:00+40 to 1:00+25.
- 3 Configure polling policies for the Cisco IPQoSStat Datapipe, making sure that each Interface is polled by one satellite server only.
- 4 Make sure that the system clocks on each satellite server are synchronized with the system clock on the central server.

Package Removal

Follow the steps below to uninstall the IP QoS Statistics. Removing the report pack automatically removes the datapipe.

- 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 **Control Panel > Administrative Tools > Services**

UNIX: As root, do one of the following:

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

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

- 3 Start Package Manager. The Package Manager welcome window opens.
- 4 Click **Next**. The Package Location window opens.
- 5 Click **Uninstall**. Keep the defaults.

- 6 Click **Next**. The Package Selection window opens.
- 7 Click the check box next to the following packages:
IP_QoS_Statistics
IP_QoS_Statistics_Demo
- 8 Click **Next**. The Selection Summary window opens.
- 9 Click **Uninstall**. The Progress window opens. When the removal finishes, a removal complete message appears.
- 10 Click **Done** to return to the Management Console.
- 11 Restart OVPI Timer.

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

UNIX: As root, do one of the following:

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

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

3 Sample Reports from the Demo Package

Inventory Report

The Inventory report provides a list of all the interfaces in the network enabled for IP QoS Statistics and provides basic provisioning information for each interface. Use this report to keep track of interfaces on a customer-by-customer basis and to compare interfaces on different devices. Interface details are updated after every poll cycle, while the list of customers is refreshed once a day. The data in this report is inherited from the Interface Reporting Report Pack.

Near Real Time Interface Activity

Near Real Time Interface Activity contains recent sample data as opposed to hourly or daily averages. All of the interfaces appearing in the pick-list at the top of the report had at least some IP QoS accounting traffic during the previous six hours. This report populates with data before the other two reports populate with data. Data will begin to appear in this report after three polling cycles.

When you select an interface from the list, the two hourly graphs and the table below refresh to show traffic volume on a per-precedence basis over the previous 24 hours. The input and output graphs show traffic volume for each precedence level. The table below shows volume data for each precedence level on a per-poll basis. In this example, polling is taking place every 15 minutes.

Historical Interface Activity

Historical Interface Activity is similar to the NRT report. But the graphs show data at the daily level, while the table below lets you choose among three time periods—hourly, daily, and monthly. Like the NRT report, Historical Interface Activity provides an easy way to find out when each class of traffic is traversing the network. Unlike the NRT report, Historical Interface Activity reveals trends, week to week and month to month. In the selection table you have a list of every interface that had at least some traffic during the previous six hours. For each interface, you also have device, customer, ifSpeed, and location details.

The color-coded bar charts, one for each direction, track daily ups and down in traffic volume, and show the distribution of traffic by precedence level. The data tables provide hourly, daily, and monthly views of traffic volume by precedence level in each direction. The hourly tab shows data for the previous day; the daily tab shows data for the previous 90 days; the monthly tab shows data for the last few months.

IP QoS Statistics Inventory



The IP QoS Statistics Inventory report provides a list of all interfaces on the network with IP QoS Statistics accounting enabled. Use the report to examine the configurations for entire customers or to compare individual interfaces on different devices. The interface details are updated after every poll cycle while the Customer list is refreshed every evening.

Customer	Customer Id
Customer Unassigned	-2

Rate Limiting Interfaces

Device	Interface	ifSpeed	Admin Status	Protocol
65.212.180.1	FastEthernet0/0	100 Mb/s	Up	ethernet-csmacd

IP QoS Statistics

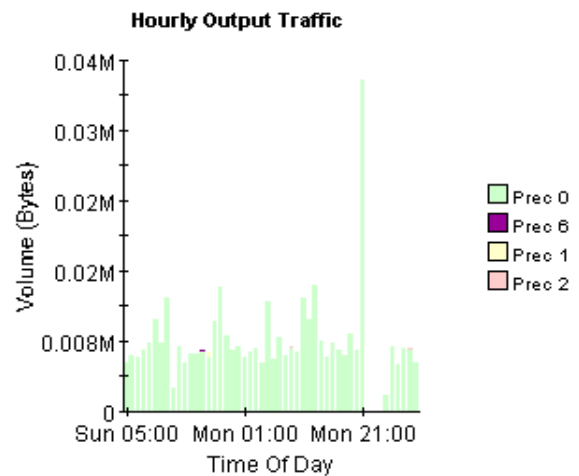
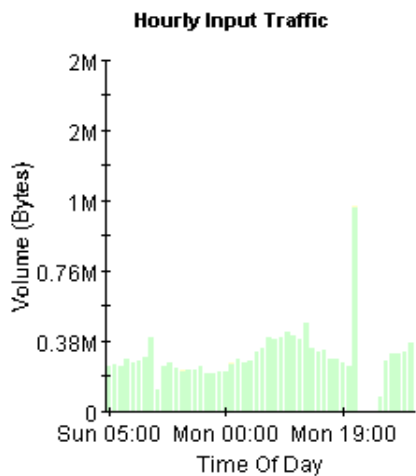
Near Real Time Interface Activity



The IPStat Near Real Time report provides a detailed look at the performance of individual interfaces and the accounting of TOS marked traffic on them. Select an interface from the list to see switched traffic counts per IP Precedence over the previous 6 hours.

IP QoS Statistics Interfaces Active Interfaces With IP QoS Statistics Data Over Previous 6 Hours

Customer	Device	Interface	ifSpeed	Location	Admin Status	Switched Pkts	Switched Bytes
Customer Unassigned	65.212.180.1	FastEthernet0/0	100 Mb/s	Location Unassigned	Up	11,964	1,891,336



Rate Input | Rate Output

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

IP QoS Statistics

Historical Interface Activity

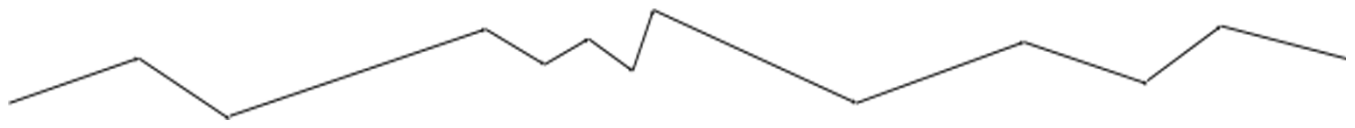
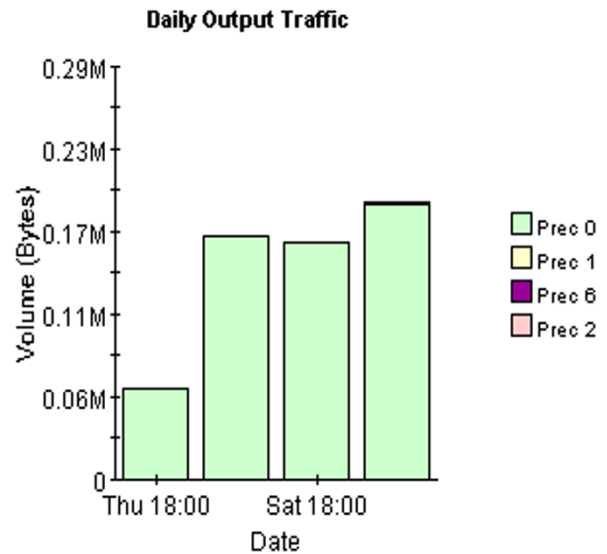
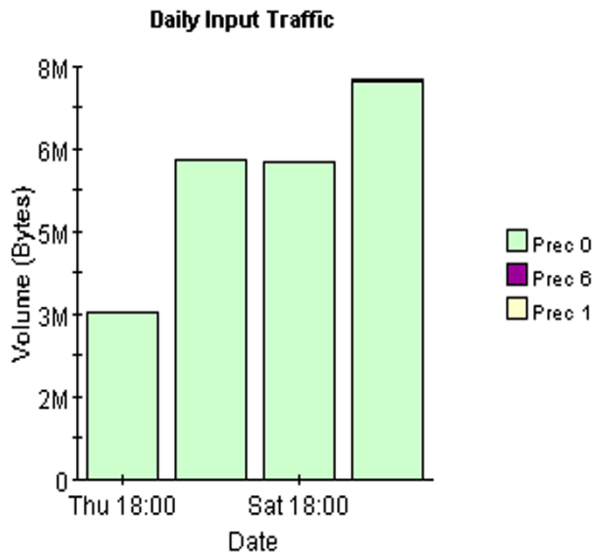


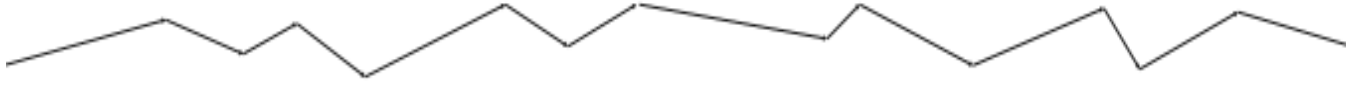
This 'Historical' report provides a detailed look at the performance of individual interfaces and the accounting of TOS marked traffic on them over the last several months. Select an interface from the list to see switched traffic counts per IP Precedence over the previous 6 hours.

IP QoS Statistics Interfaces

Active Interfaces With IP QoS Statistics Data Over Previous 6 Hours

Customer	Device	Interface	ifSpeed	Location	Admin Status
Customer Unassigned	65.212.180.1	FastEthernet0/0	100 Mb/s	Location Unassigned	Up






Hourly | Daily | Monthly

Hourly Aggregate Data for 65.212.180.1: FastEthernet0/0

Time Period	0 In	1 In	2 In	3 In	4 In	5 In	6 In	7 In	0 Out	1 Out	2 Out	3 Out	4 Out	5 Out	6 Out	7 Out
Tue Oct 29 06:00 AM	390,392	0	0	0	0	0	120	0	5,512	0	0	0	0	0	0	0
Tue Oct 29 05:00 AM	335,655	0	0	0	0	0	720	0	7,061	0	0	0	0	0	102	0
Tue Oct 29 04:00 AM	324,204	0	0	0	0	0	283	0	7,249	0	0	0	0	0	0	0
Tue Oct 29 03:00 AM	331,896	0	0	0	0	0	480	0	5,428	0	0	0	0	0	0	0
Tue Oct 29 02:00 AM	285,461	0	0	0	0	0	830	0	7,323	0	0	0	0	0	0	0
Tue Oct 29 01:00 AM	78,642	0	0	0	0	0	0	0	1,794	0	0	0	0	0	0	0
Mon Oct 28 09:00 PM	1,154,381	0	0	0	0	0	12,430	0	37,684	0	0	0	0	0	119	0
Mon Oct 28 08:00 PM	261,345	0	0	0	0	0	120	0	7,026	0	0	0	0	0	0	0
Mon Oct 28 07:00 PM	280,334	0	0	0	0	0	523	0	8,799	0	0	0	0	0	0	0
Mon Oct 28 06:00 PM	292,606	0	0	0	0	0	120	0	6,446	0	0	0	0	0	0	0
Mon Oct 28 05:00 PM	295,977	0	0	0	0	0	728	0	6,911	0	0	0	0	0	0	0
Mon Oct 28 04:00 PM	344,292	0	0	0	0	0	744	0	7,885	0	0	0	0	0	0	0
Mon Oct 28 03:00 PM	333,442	50	0	0	0	0	512	0	6,194	0	0	0	0	0	0	0
Mon Oct 28 02:00 PM	356,423	0	0	0	0	0	0	0	8,091	0	0	0	0	0	0	0
Mon Oct 28 01:00 PM	504,321	0	0	0	0	0	643	0	14,316	0	0	0	0	0	0	0
Mon Oct 28 12:00 PM	408,226	0	0	0	0	0	240	0	10,379	120	0	0	0	0	0	0

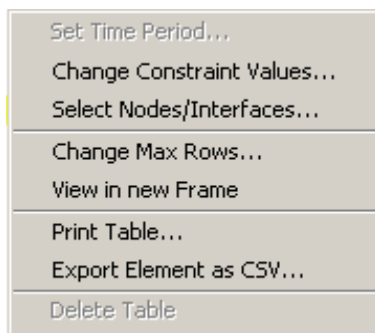
A Editing Tables and Graphs

Any table or graph can be viewed in several ways. While the default view is usually adequate, you can easily change to a different view. If you are using Report Viewer, right-click the object to 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.



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.

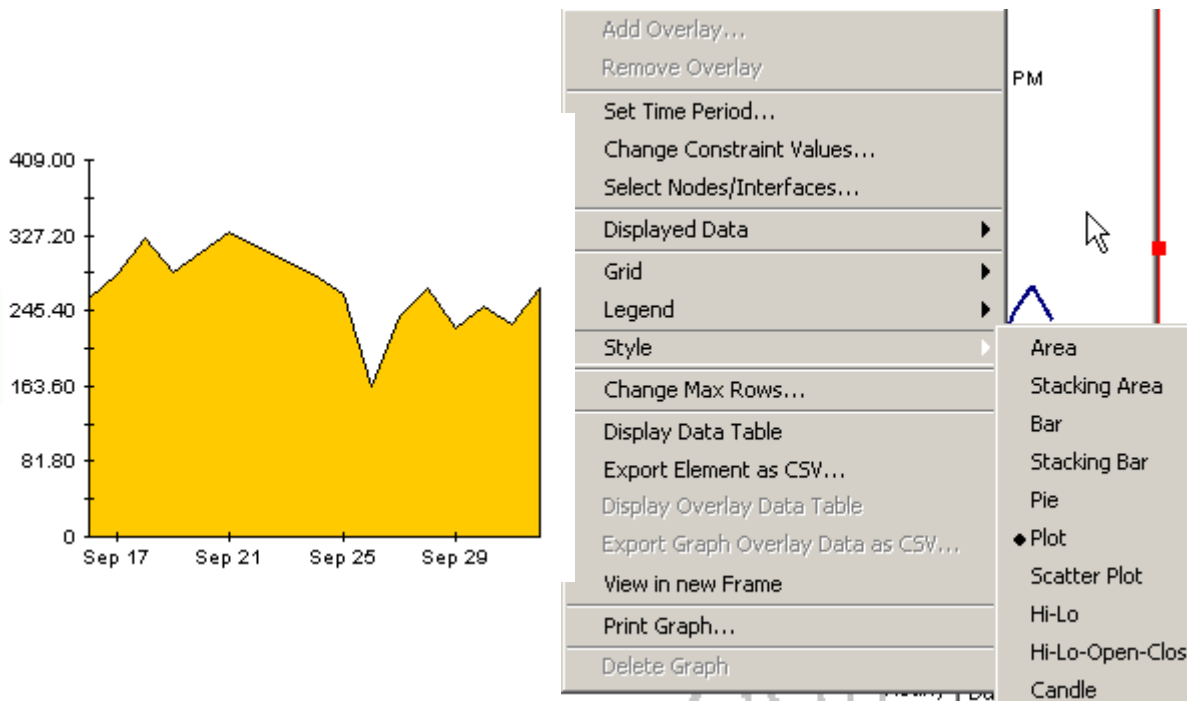
Change Max Rows increases or decreases the number of rows in a table. The default is 50. If you expand the default, the table may take more time to open. If you are trending a large network, using the default ensures that the table opens as quickly as possible.

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

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.

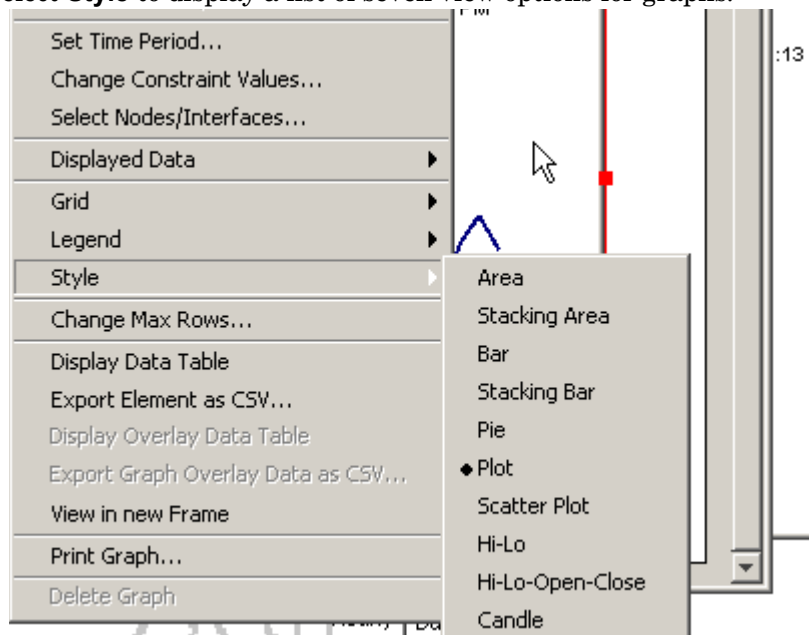


The following table provides details about each option.

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.
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.

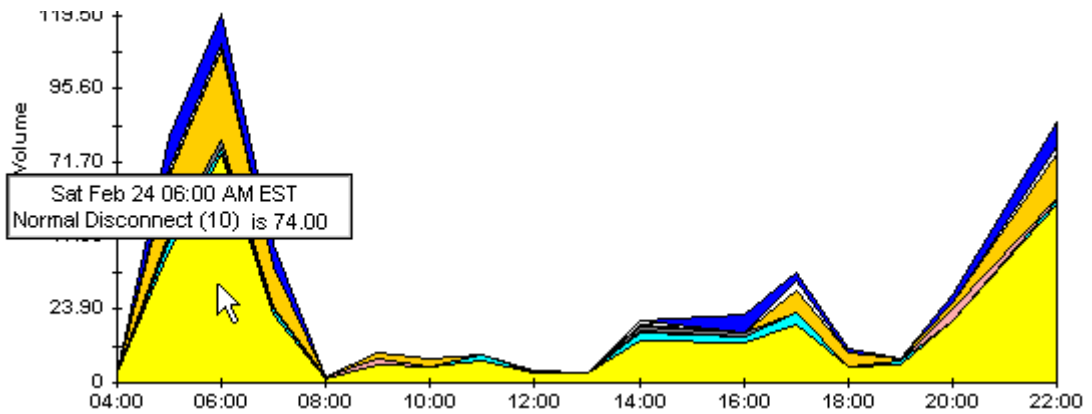
Style Options

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



Style > Area

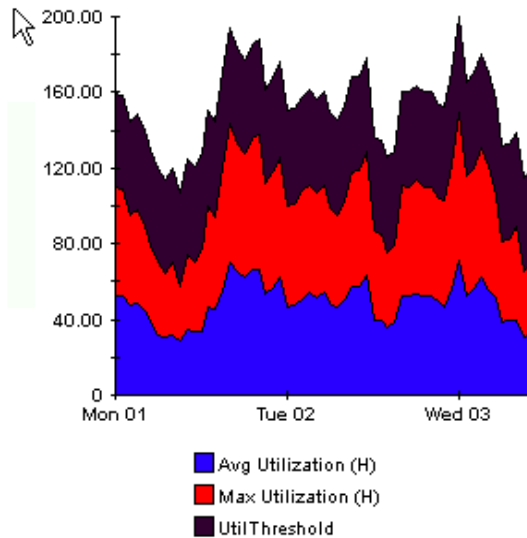
The plot or bar chart changes to an area graph. While relative values and total values are easy to view in this format, absolute values for smaller data types may be hard to see. Click anywhere within a band of color to display the exact value for that location



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.

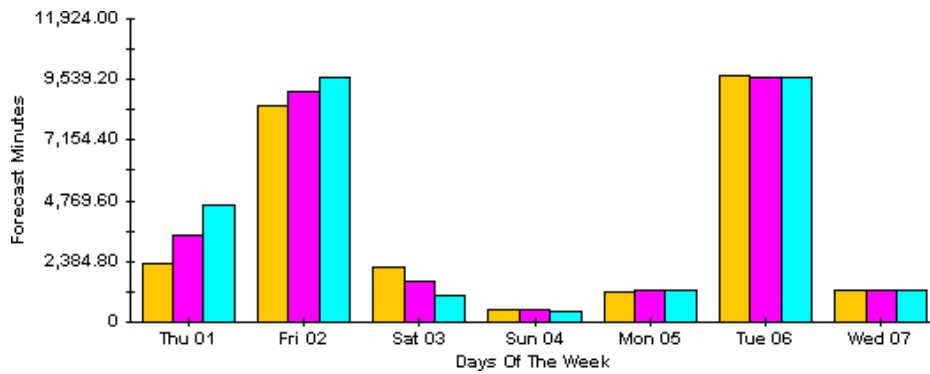
Style > Stacking Area

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



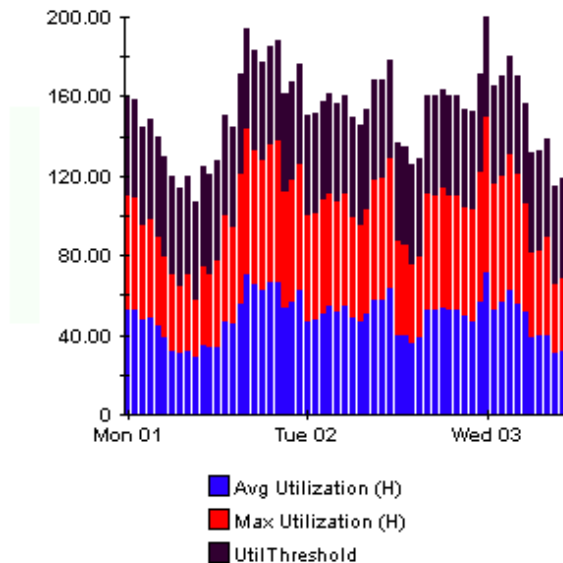
Style > Bar

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.



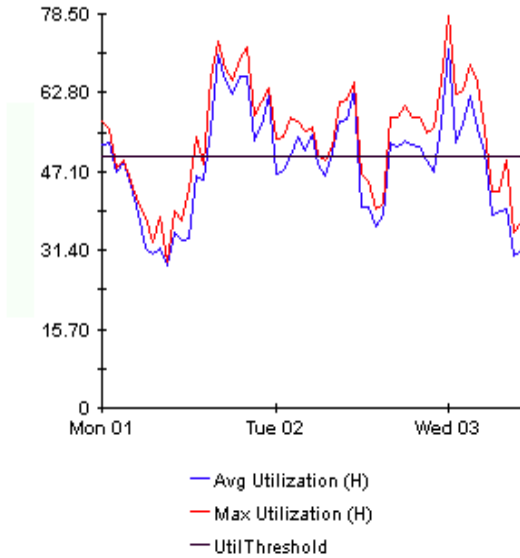
Style > Stacking Bar

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.



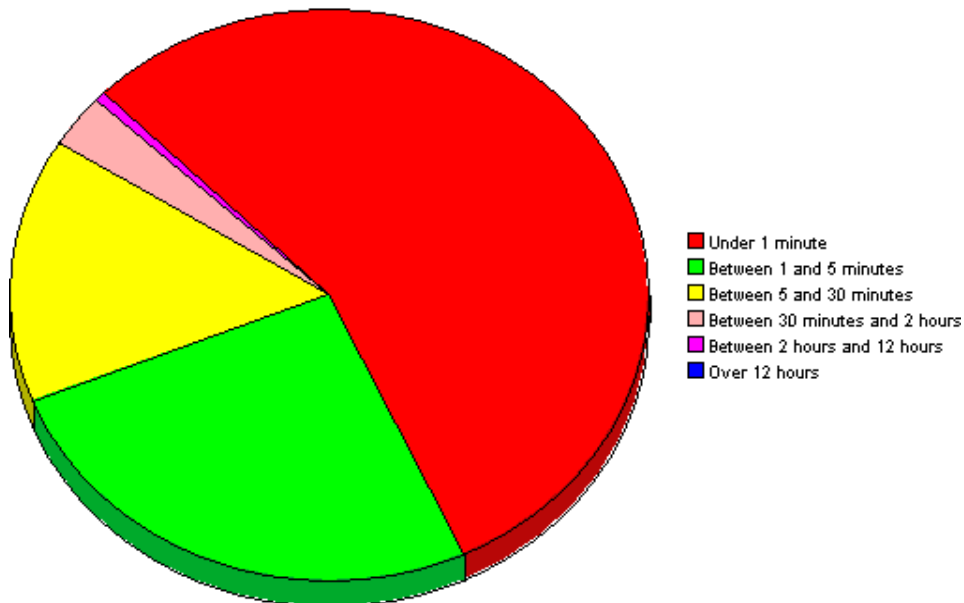
Style > Plot

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

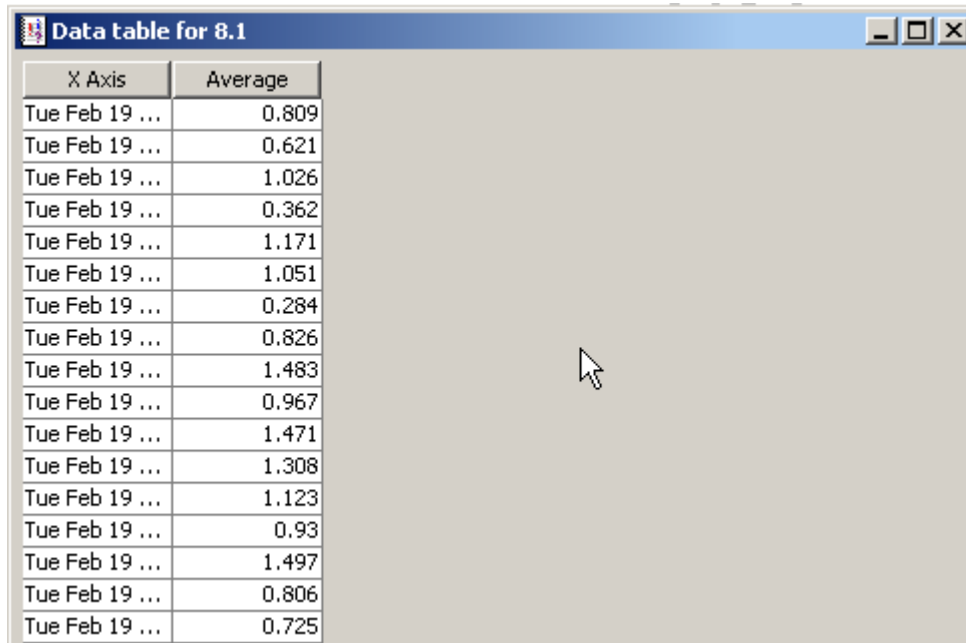
An area graph becomes a pie chart. Bands in an area graph convert to slices of a pie and the pie constitutes a 24-hour period. This view is helpful when a small number of data values are represented and you are looking at data for one day.



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

Display Data Table

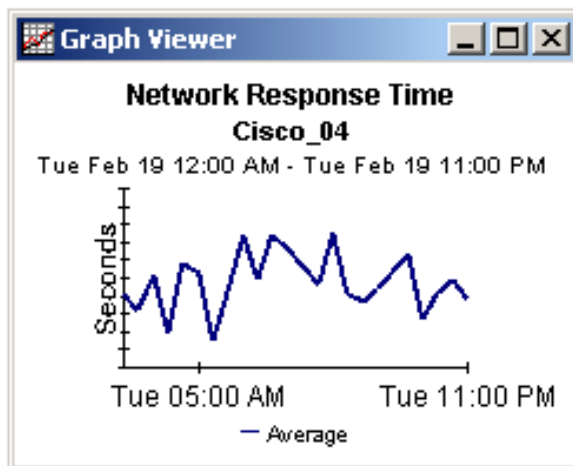
This option changes a graph into a spreadsheet.



X Axis	Average
Tue Feb 19 ...	0.809
Tue Feb 19 ...	0.621
Tue Feb 19 ...	1.026
Tue Feb 19 ...	0.362
Tue Feb 19 ...	1.171
Tue Feb 19 ...	1.051
Tue Feb 19 ...	0.284
Tue Feb 19 ...	0.826
Tue Feb 19 ...	1.483
Tue Feb 19 ...	0.967
Tue Feb 19 ...	1.471
Tue Feb 19 ...	1.308
Tue Feb 19 ...	1.123
Tue Feb 19 ...	0.93
Tue Feb 19 ...	1.497
Tue Feb 19 ...	0.806
Tue Feb 19 ...	0.725

View in New Frame

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



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