

IP QoS Statistics Report Pack

Software Version: 3.30

HP Performance Insight 5.40

User Guide

February 2009



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1 Overview

This chapter covers the following topics:

- [Introduction to HP Performance Insight](#)
- [Processing Traffic According to Priority](#)
- [IP QoS Statistics Report Pack](#)
- [Options for Customizing Reports](#)
- [Sources for Additional Information](#)

HP Performance Insight

Performance Insight is a performance management application that collects data from many sources, performs in-depth trend analysis, maintains performance baselines, and provides users with convenient, web-based reporting. Following is a partial list of product features:

- Distributed architecture
- Easy to scale (supports data collection from thousands of agents)
- CODA/PA agent support
- Multi-company security model
- Data warehousing
- Near Real Time reporting
- Forecasting
- Extensive aggregation (by day, week, month; by location, by customer)
- Thresholding and alerting
- Easy identification of bottlenecks
- Easy assessment of capacity trends
- Accurate and timely documentation for management
- Integration with NNM
- Integration with HP Operations/OM

The reporting solutions created for Performance Insight cover many areas of business technology optimization. For a list of reporting solutions organized by technology, see [Appendix B, PI Report Packs](#).

Processing Traffic According to Priority

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.

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 this data, you need to poll byte and packet counters in the IP Statistics MIB and process the data you collect.

IP QoS Statistics Report Pack

The IP QoS Statistics Report Pack polls the IP Statistics MIB, issues processing directives to PI, 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.

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 User Guide*.

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

Version	Release Date	Features/Enhancements
1.00	May 2003	3 reports Sybase support Cisco IPQoSStat Datapipe 1.00
2.00	October 2003	PI Object Manager support
3.00	April 2004	PI 5.00 support Oracle support Cisco IPQoSStat Datapipe 2.00
3.00	August 2004	UPGRADE_IP_QoS_Statistics_to_30.ap
3.10	April 2007	Location Independent Reporting (LIR) SQL modified to support IR node/interface delete Cisco IPQoSStat Datapipe 3.10 UPGRADE_IP_QoS_Statistics_to_31.ap
3.20	October 2007	Prerequisites: <ul style="list-style-type: none"> • PI 5.30 • Common Property Tables 3.70 UPGRADE_IP_QoS_Statistics_to_32.ap <ul style="list-style-type: none"> • QXCR1000439333: IP_QoS_Statistics defect in create_IPQoSStat_ObjMan.sql
3.30	February 2008	Copy Policy Enhancement UPGRADE_IP_QoS_Statistics_to_33.ap
3.30	February 2009	Prerequisites: <ul style="list-style-type: none"> • PI 5.40 • Common Property Tables 3.90



The “to_33.ap” upgrade package is not available on CD-ROM. The “to_33.ap” upgrade package is available as a download only. The next chapter, the installation chapter, contains several references to a report pack CD-ROM. Ignore those references. If you need help downloading or installing this upgrade package, refer to release notes.

Options for Customizing 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 PI 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 *PI 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 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 Release Notes*
- *PI Report Packs, CD-ROM Release Notes, February 2009*

For details about Interface Reporting and its datapipes, refer to:

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

Manuals for the core product and manuals for the reporting solutions that run on Performance Insight can be downloaded from this site:

<http://h20230.www2.hp.com/selfsolve/manuals>

The user guides for PI are listed under **Performance Insight**. The user guides for report packs and datapipes are listed under **Performance Insight Report Packs**. You will see a date next to each manual. If a manual is revised and reposted, the date will change. Since we post revised manuals on a regular basis, you should check this site for updates.

2 Package Installation

This chapter covers the following topics:

- [Guidelines for a Smooth Install](#)
- [Upgrading to Version 3.30](#)
- [Installing IP QoS Statistics 3.30 for the First Time](#)
- [Accessing Deployed Reports](#)
- [Setting Up a Distributed System](#)
- [Package Removal](#)

Guidelines for a Smooth Install

The 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 PI 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:

- [Performance Insight 5.40](#)
- [All Service Packs available for the version of PI 5.40](#)

The package-level prerequisites are:

- [Common Property Tables 3.90](#)
- [Interface Reporting Report Pack 5.50](#)

Upgrading Common Property Tables

If you are running an earlier version of Common Property Tables, version 3.70 or earlier, upgrade to the latest version by installing the 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 Statistic as a distributed system across multiple servers, the central server, every satellite server, and every remote poller must be running the same version of PI and all available service packs for that version of PI. 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 [Setting Up a Distributed System](#) on page 21.

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 PI install directory and run 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`, run 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 PI install directory and run 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, causing the upgrade 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.

Upgrading to Version 3.30

Perform the following tasks to upgrade to version 3.30:

- Task 1: [Stop OVPI Timer and extract packages from the report pack CD](#)
- Task 2: [Upgrade to Common Property Tables 3.90](#)
- Task 3: [Upgrade to Interface Reporting 5.50](#)
- Task 4: [Install IP_QoS_Statistics_Upgrade_to_33](#)
- Task 5: [Remove Cisco IPQoSStat Datapipe 3.00](#)
- Task 6: [Install Cisco IPQoSStat Datapipe 3.10](#)
- Task 7: [Restart OVPI Timer](#)

Task 1: [Stop OVPI Timer and extract packages from the report pack CD](#)

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

On Windows, do the following:

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

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

HP-UX: **sh /sbin/init.d/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 opens 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 on your system, you will see the following folders under the IP_QoS_Statistics folder:

- Docs
- IP_QoS_Statistics.ap
- IP_QoS_Statistics_Demo.ap
- UPGRADE_IP_QoS_Statistics_to_33.ap

Task 2: Upgrade to Common Property Tables 3.90

Follow these rules:

- Do not install any other package with the Common Property Tables upgrade package; install the Common Property Tables upgrade package and *only* the Common Property Tables upgrade package.
- When prompted to accept or disable the option to Deploy Reports, accept the default. If you do not deploy reports, you will not deploy the change forms that come with Common Property Tables.
- When the install finishes, click **Done** to return to the Management Console.

If you need more help with this task, refer to the *Common Property Tables User Guide*.

Task 3: Upgrade to Interface Reporting 5.50

- 1 If you have not already upgraded to IR 5.50, install `Interface_Reporting_Upgrade_to_55`.
- 2 Upgrade the Interface Reporting datapipes. If necessary, see the *Interface Reporting Report Pack User Guide* for more information about the upgrade procedure.
- 3 Once the install of the new datapipes is complete, click **Done** to return to the Management Console.

Task 4: Install IP_QoS_Statistics_Upgrade_to_33

- 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 defaults for Deploy Reports, Application Server, and Port. Type your user name and password for the PI Application Server.
- 5 Click **Next**. The Package Selection window opens.
- 6 Click the check box next to the following package: `IP_QoS_Statistics_Upgrade_to_33`
- 7 Click **Next**. The Type Discovery window opens. Disable the default.
- 8 Click **Next**. The Selection Summary window opens
- 9 Click **Install**. The Installation Progress window opens and the install begins. When the install finishes, a package install complete message appears.
- 10 Click **Done**.

Task 5: Remove Cisco IPQoSStat Datapipe 3.00

The Cisco IPQoSStat Datapipe cannot be upgraded. You must remove Cisco IPQoSStat Datapipe 3.00. Start Package Manager and follow the on-screen instructions for package removal. When Package Manager tells you that removal is complete, click **Done** to return to the Management Console.

Task 6: Install Cisco IPQoSStat Datapipe 3.10

- 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 package:
Cisco IPQoSStat Datapipe 3.1
- 7 Click **Next**. The Type Discovery window opens.
- 8 Click **Next**. The Selection Summary window opens.
- 9 Click **Install**. The Installation Progress window opens and the install begins. When the install finishes, the package installation complete message appears.
- 10 Click **Done**.

Task 7: Restart OVPI Timer

On Windows, do the following:

- 1 Select **Control Panel > Administrative Tools > Services**.
- 2 Select OVPI Timer from the list of services.
- 3 From the Action menu, select **Start**.

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

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

Installing IP QoS Statistics 3.30 for the First Time

Follow these steps to install the IP QoS Statistics Report Pack:

- Task 1: Stop OVPI Timer and extract packages from the report pack CD
- Task 2: If necessary, upgrade to Common Property Tables 3.70
- Task 3: Install the following packages:
 - *IP_QoS_Statistics 3.30*
 - *Cisco_IPQoSStat_Datapipe 3.10*

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/init.d/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_3.3.ap*

You can ignore the upgrade package. 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 requires Common Property Tables. If you have not already upgraded to Common Property Tables 3.90, do this now. If you need help with the upgrade, refer to the *Common Property Tables 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 PI 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 PI Application Server. Once reports reside on the PI Application Server, you have two ways to view them:

- PI 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 *PI 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 *PI Administration Guide*.

Setting Up a Distributed System

Before Location Independent Reporting (LIR) was available, our recommendation to anyone setting up a distributed system was to deploy reports on satellite servers, keep rate data on satellite servers, copy hourly data to the central server, and disable summarizations above the hourly level on satellite servers. This approach had two benefits. It kept a lot of rate data off the network, and it decreased the processing load on the central server. The problem with this approach is that the central server could not display a Near Real Time (NRT) report. The only NRT report was a local NRT report, on a satellite server.

LIR fixes this problem. If you enable LIR, you can open an NRT report on the central server and drill-down on table selections. The selections you make cause the central server to query a satellite server for locally aggregated data. Of course, if you would rather copy rate data to the central server, you can. If you do, then enabling LIR is not necessary.

The IP QoS Report Pack comes with a copy policy import file. When you install the report pack, PI uses this file to generate copy policies. Creating these policies yourself, using the Management Console, is no longer necessary. Your only task is to verify that you have the copy policies you need.

Because you are likely to have multiple satellite servers, we designed the hourly process files to be satellite-server friendly. This means that most of the time, most of the defaults are correct. But some defaults will be incorrect, or less than optimal, and to improve performance, you should change them. These manual edits, as well as the other steps listed above, are spelled out below.

Configuring the Central Server

To configure the central server, perform the following tasks:

- Task 1: Register the satellite server by setting the database role
- Task 2: If you are not copying rate data from satellites to the central server, enable LIR
- Task 3: If you enable LIR, add LIR mappings

- Task 4: Verify the automatically generated copy policies
- Task 5: Modify the `trendtimer.sched` file

Task 1: Register the satellite server by setting the database role

- 1 Start the Management Console (log on with Administrator privileges).
- 2 Click the **Systems** icon in the navigation pane.
- 3 Navigate to the OVPI Databases folder and select the database system.
- 4 Click **Database Properties**.
- 5 From the Database Role list, select the Satellite Server role.
- 6 Enter any information necessary to configure the Satellite Server role.



To add a new database reference, you can use the Add Database Reference Wizard in the System and Network Administration application.

Task 2: If you are not copying rate data from the satellites to the central server, enable LIR

- 1 Start the Management Console (log on with Administrator privileges).
- 2 Click the **Systems** icon in the navigation pane.
- 3 Navigate to the OVPI Databases folder and select the central server.
- 4 Click **LIR Configuration**.
- 5 Select the **LIR enabled** check box.

Task 3: If you enable LIR, add LIR mappings

- 1 Start the Management Console (log on with Administrator privileges).
- 2 Click the **Systems** icon in the navigation pane.
- 3 Navigate to the OVPI Databases folder and select the central server.
- 4 Click **LIR Configuration**.
- 5 Click **Add Mapping**.
- 6 From the Select Satellite Server list, select a satellite server to which to add a mapping.
- 7 Select the **Category** data table option.
- 8 Select **IP QoS Statistics** from the drop down list.
- 9 Select the **rate** data type.
- 10 Click **Add to List**.
- 11 If you want to add additional LIR mappings, click **Add Mapping** and repeat [step 6](#) through [step 10](#).
- 12 Click **OK**.
- 13 Click **Apply**.

A copy policy is automatically generated for the hourly data and for each LIR mapping that you add. The data type selected when adding an LIR mapping (in [step 9](#) above) determines the type of data copied (defined in the generated copy policy). The type of data copied (defined in the generated copy policy) is one summarization level greater than the data type selected in the LIR mapping. For example, if you select an hourly data type, you will generate a daily data copy policy.

Task 4: Verify the automatically generated copy policies

Verify that a copy policy has been generated for the following tables and that the copy type is set correctly (to Property and Data):

- 1 Start the Management Console (log on with Administrator privileges).
- 2 Click the **Copy Policy** icon in the navigation pane to start the Copy Policy Manager.
- 3 Find the following tables and verify the copy type is set to **Property and Data** for each table:
 - RIPStatData
 - SHIPStatData
 - SHIPStatInterfaceData

If a copy policy has not been generated for a table, do the following:

- 1 Click the **New Copy Policy** icon or select **File > New Copy Policy** from the Copy Policy Manager. The Copy Policy Wizard displays.
- 2 Click **Next**. The Satellite Server and Copy Policy Selection Page displays.
- 3 Select a satellite server from the pull down list. This is the satellite server from which data is copied to the central server.
- 4 Select **Single Table** and select the table from the pull down list.
- 5 Click **Next**. The Copy Type Selection Page displays.
- 6 Select **Property and Data**.
- 7 Click **Next**. The Summary page displays.
- 8 Verify the information in the summary window. If the information is not correct, you can modify it by clicking Back.
- 9 Click **Finish**.
- 10 Repeat [step 4](#) - [step 9](#) for all missing tables.

If the copy type is not set to **Property and Data**, do the following:

- 1 Double-click the copy policy.
- 2 Select the **Property and Data** copy type.
- 3 Click **OK**.

Task 5: Modify the trendtimer.sched file

The `trendtimer.sched` file is found in the `{DPIPE_HOME}/lib/` directory where `{DPIPE_HOME}` is the directory in which PI is installed.

Make the following change to this file:

- Find and comment out the following line:

```
1:00+30 - - {DPIPE_HOME}/bin/trend_proc -f
{DPIPE_HOME}/scripts/IPStat_Hourly_Process.pro
```

Configuring Satellite Servers

Follow these steps to configure each satellite server.

- 1 Modify the `{DPIPE_HOME}/lib/trendtimer.sched` file (where `{DPIPE_HOME}` is the directory in which PI is installed). Do the following:
 - Find and comment out the following line (to switch off interface aggregations above the hourly level):

```
24:00+3:00 - - {DPIPE_HOME}/bin/trend_proc -f
{DPIPE_HOME}/scripts/IPStat_DMF_Process.pro
```
 - ▶ If you want the server to perform a local reporting function, do not switch off the higher aggregations. Switching off the higher aggregations disables everything except the NRT reports.
 - Modify the `IPStat_Hourly_Process.pro` trendtimer entry in the `{DPIPE_HOME}/lib/trendtimer.sched` file. By default, this process starts at 30 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+30` to `1:00+15`
- 2 Modify the `IPStat_Hourly_Process.pro` file (found in the `{DPIPE_HOME}/scripts/` directory where `{DPIPE_HOME}` is the directory in which PI is installed):
Uncomment the `IPStat_2` block (uncomment the `begin:IPStat_2 wait` and `end:IPStat_2` lines).
- 3 Configure polling policies for the Cisco IPQoSStat Datapipe, making sure that each Interface is polled by one satellite server only.

System Clocks

Make sure that the system clock on each satellite server is 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/init.d/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/init.d/ovpi_timer start`

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

3 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. However, 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

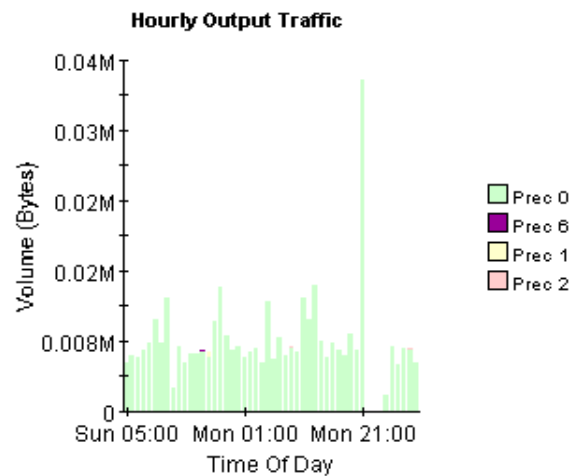
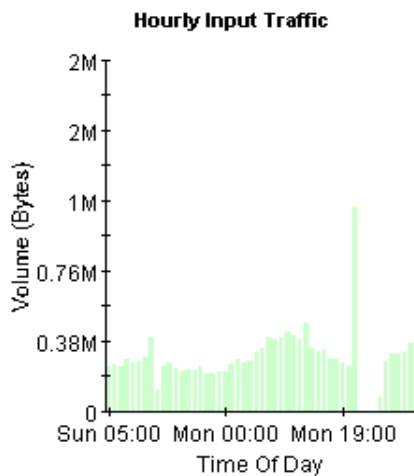
Near Real Time Interface Activity



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

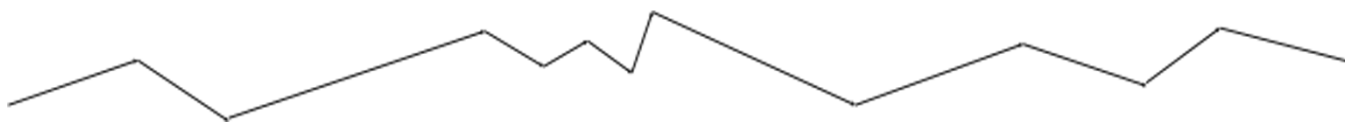
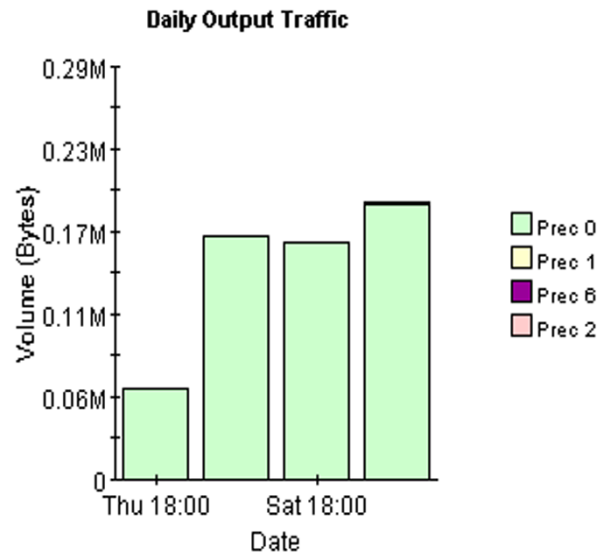
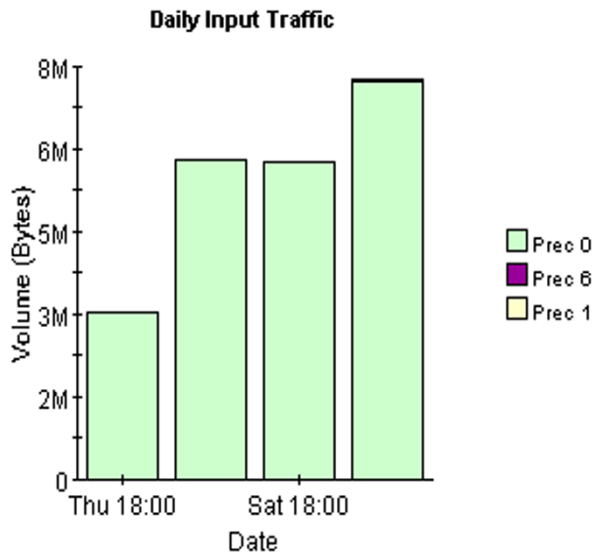


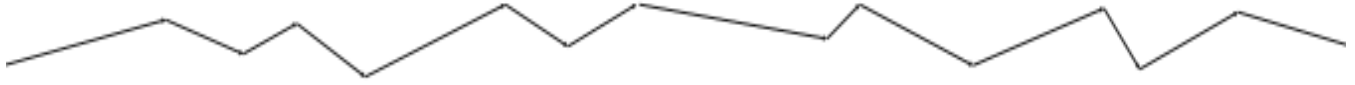
This 'Historical' report provides a detailed look at the performance of individual interfaces and the accounting of TOS marked traffic on them over the last several months. Select an interface from the list to see switched traffic counts per IP Precedence over the previous 6 hours.

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

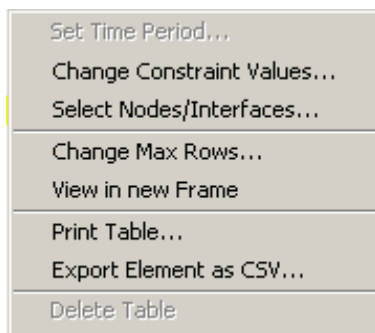
A Editing Tables and Graphs

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.

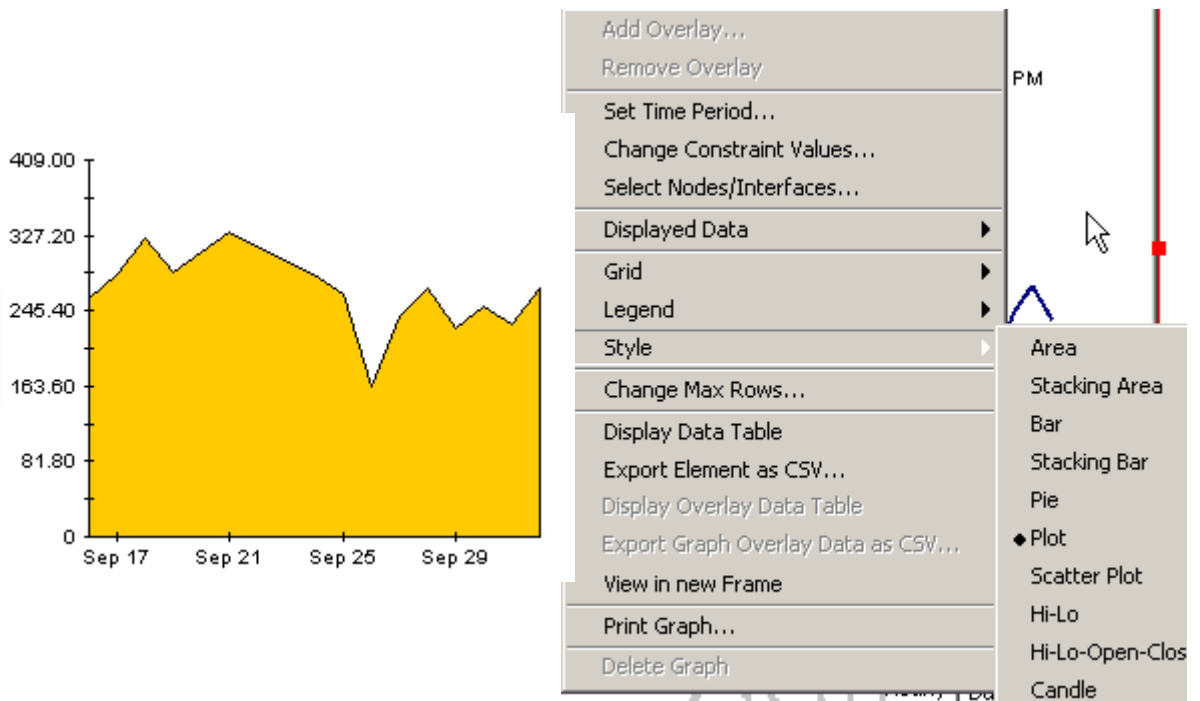
Change Max Rows increases or decreases the number of rows in a table. The default is 50. If you expand the default, the table may take more time to open. If you are trending a large network, using the default ensures that the table opens as quickly as possible.

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.

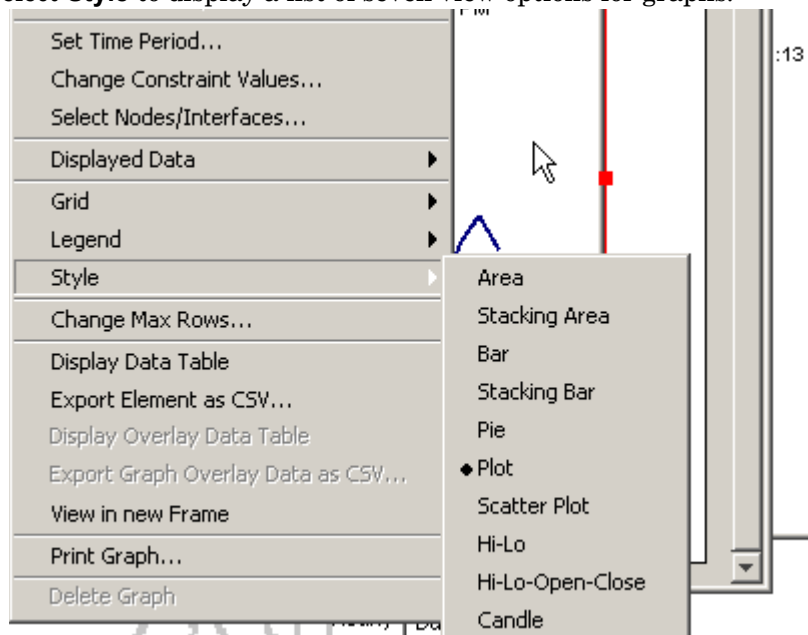


The following table provides details about each option.

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.

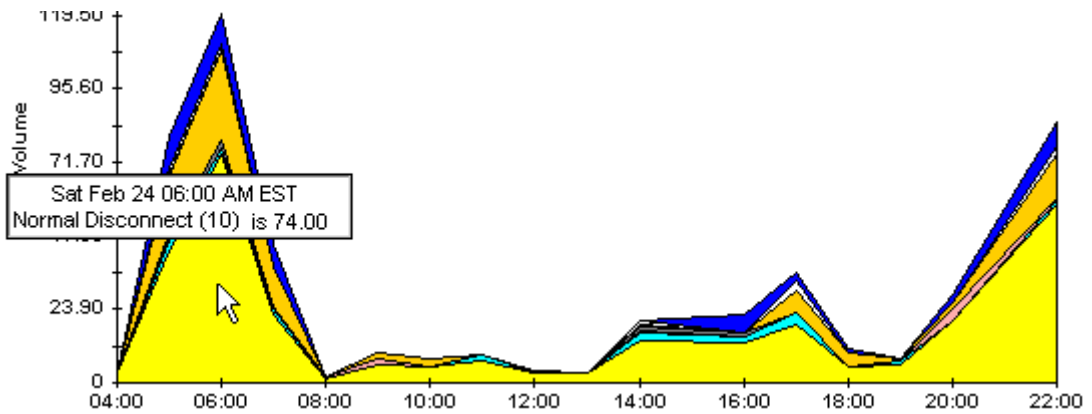
Style Options

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



Style > Area

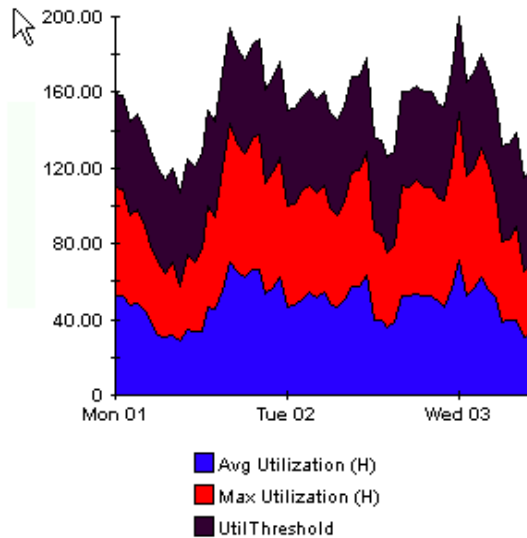
The plot or bar chart changes to an area graph. While relative values and total values are easy to view in this format, absolute values for smaller data types may be hard to see. Click anywhere within a band of color to display the exact value for that location



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.

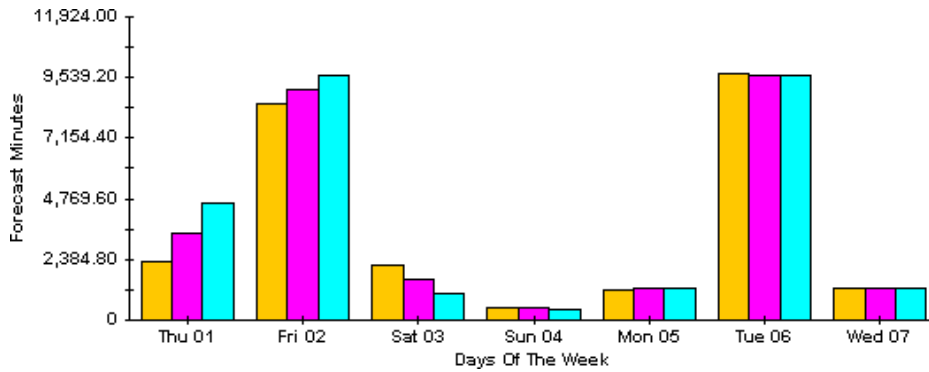
Style > Stacking Area

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



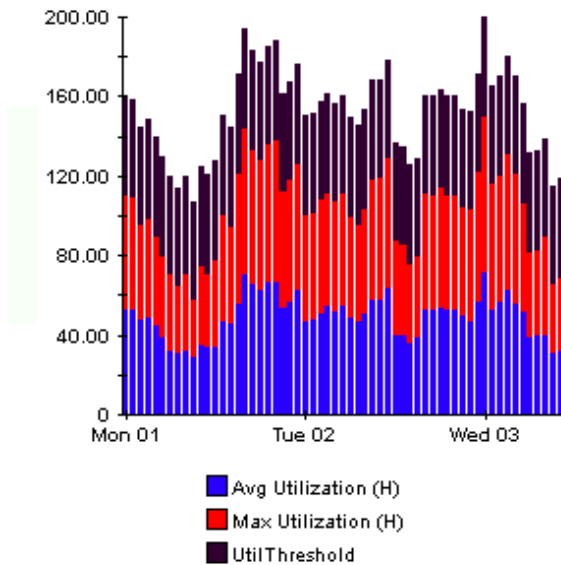
Style > Bar

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.



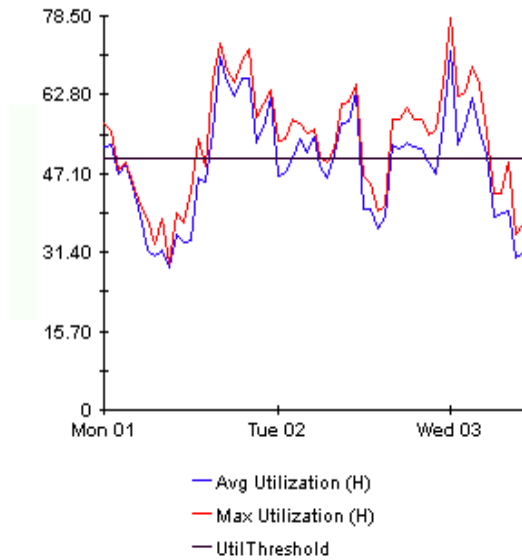
Style > Stacking Bar

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.



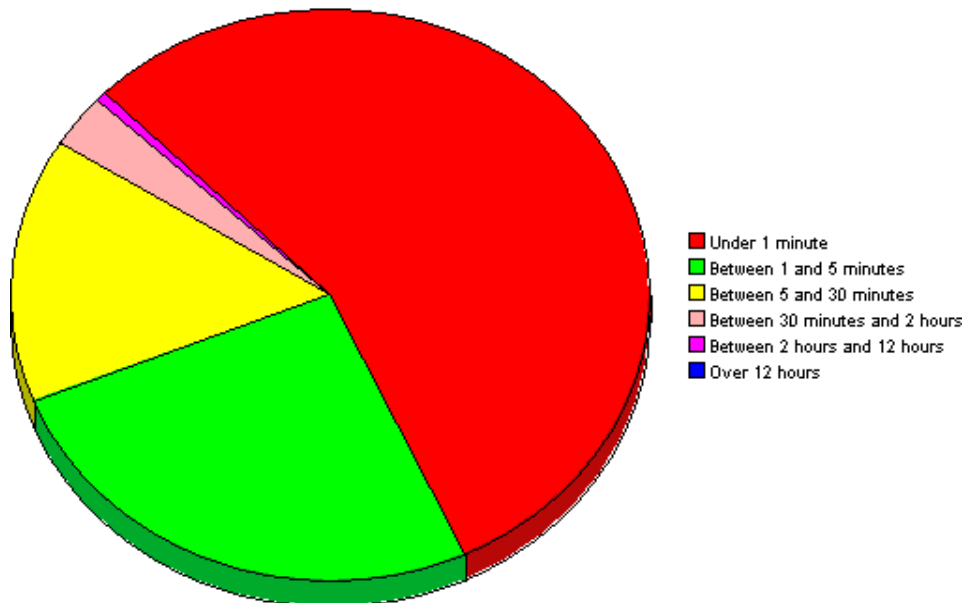
Style > Plot

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

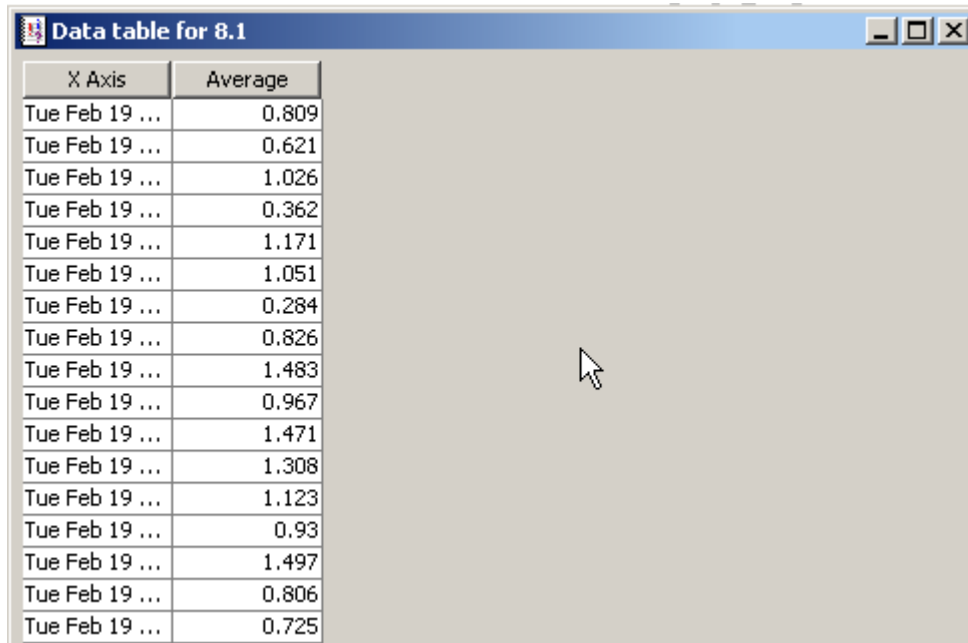
An area graph becomes a pie chart. Bands in an area graph convert to slices of a pie and the pie constitutes a 24-hour period. This view is helpful when a small number of data values are represented and you are looking at data for one day.



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

Display Data Table

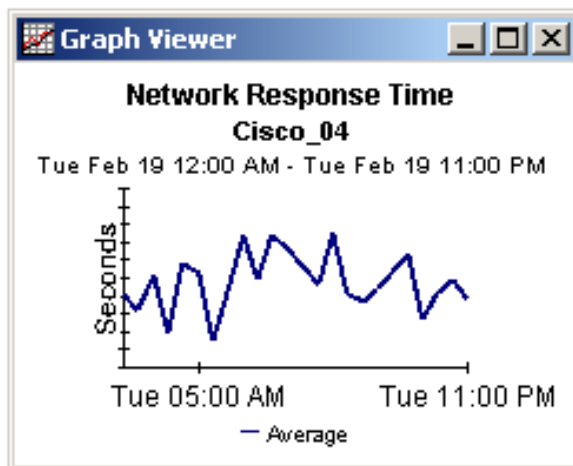
This option changes a graph into a spreadsheet.



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.



B PI Report Packs

Business Technology	Reporting Solution
Application	Application Report Pack: <ul style="list-style-type: none"> • WebLogic SPI • WebSphere SPI
Database	Database SPI Report Pack
HP Business Process Insight	BPI Report Pack
HP Internet Services	Internet Services Report Pack
HP Network Node Manager	NNM Event & Availability Report Pack
HP Operations	OVO Report Pack
HP Service Desk	Help Desk Report Pack Change Management Report Pack SLM Integration Report Pack
IP Telephony	<ul style="list-style-type: none"> • Cisco IP Telephony Call Detail • Cisco IP Telephony Gateway Statistics
MPLS VPN	MPLS VPN Report Pack
Networking	<p>Infrastructure Usage</p> <ul style="list-style-type: none"> • Interface Reporting • Device Resource Report Pack <p>LAN/WAN Edge</p> <ul style="list-style-type: none"> • Frame Relay (SNMP only) • ATM (SNMP only) <p>WAN Core</p> <ul style="list-style-type: none"> • Frame Relay (multiple switch vendors) • ATM (multiple switch vendors)

Business Technology	Reporting Solution
Networking (continued)	<p>Traffic Profiling</p> <ul style="list-style-type: none"> • RMON II • NetFlow Interface • NetFlow Global View • IP QoS Report Pack • Class-Based QoS <p>Quality Assurance</p> <ul style="list-style-type: none"> • Cisco Ping Report Pack • Service Assurance • IP Access Rate
System Resources	<ul style="list-style-type: none"> • System Resource Report Pack

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