

Application Server Report Pack

Software Version: 1.0

HP OpenView Performance Insight

User Guide

June 2005



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1 Overview

This chapter covers the following topics:

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

OVPI and Application Server Reporting

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

The Application Server Report Pack installs on OVPI. The reports in this package reveal how BEA WebLogic servers and IBM WebSphere servers are performing. Use reports to:

- Verify that a server is executing requests
- Monitor availability
- Compare availability to the transaction rate
- Measure EJP pool utilization
- Measure connection pool utilization
- Measure servlet request rate
- Measure servlet response time

The Application Server Report Pack consists of a main package and two sub-packages. Reports in the main package are generic, reports in the sub-packages are customized for the brand. The following table provides a list of the reports in each package.

Package	Reports
Main/Generic	<ul style="list-style-type: none">• Server Availability — Throughput• EJB Pool Utilization• JDBC Throughput — Utilization• Near Real Time Server Availability — Throughput• Servlet Request Rate — Response Time

Package	Reports
WebLogic	<ul style="list-style-type: none"> • EJB Cache Utilization • EJB Transactions • Execute Queue Throughput — Utilization • JMS Throughput — Utilization • Near Real Time Execute Queue Throughput — Utilization • Server Transaction Rollback
WebSphere	<ul style="list-style-type: none"> • EJB Load-Stores Rate • EJB Method Calls Rate • EJB Top 20 • JDBC Connection Pool Details • Servlet Sessions • Thread Pool Activity • Transaction Throughput

Smart Plug-ins (SPIs)

In order to use this report pack, you must have one of the following Smart Plug-ins (SPIs) installed on each application server you want to monitor:

- OpenView SPI for BEA WebLogic Server
- OpenView SPI for IBM WebSphere Server

Data Collection

When you install the Application Server Report Pack, you will also install at least one of the following datapipes:

- AppServer WebLogic SPI Datapipe 1.0
- AppServer WebSphere SPI Datapipe 1.0

Both datapipes have the same collection interval, 45 minutes, and both datapipes collect data from EPC, the Embedded Performance Component of OVO.

Database Software

Version 1.0 of the Application Server Report Pack supports Oracle® database software only. Future releases will support database software from additional vendors, including Sybase.

Ways to Customize 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, anyone can edit a constraint or modify table and graph view options. For details about table and graph view options, see [Appendix A, Editing Tables and Graphs](#).

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 how to create filters for group accounts, 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. For example, if you edit the Customer parameter, data for all customers except the customer you typed in the Customer field drops from the report.

You can apply multiple constraints at once. Application Server supports these parameters:

- Customer
- Device
- Location
- Vendor
- Server Name

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 Application Server 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. Like real reports, demo reports are interactive. Unlike real reports, demo reports are static.

The following documents are related to this manual:

- *Application Server Report Pack 1.0 Release Statement*
- *AppServer WebLogic SPI Datapipe 1.0 Release Statement*
- *AppServer WebSphere SPI Datapipe 1.0 Release Statement*
- *Common Property Tables 3.5 User Guide*
- *OVPI Report Packs, RNS 8.0: Release Notes, June 2005*
- *Thresholds Module 5.0 User Guide*

Manuals for the core product (OVPI) and manuals for the reporting solutions that run on the core product are posted to the following web site:

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

Select **Support > Product Manuals** to reach the **Product Manuals Search** page. The user guides for the core product are listed under **Performance Insight**. The user guides for OVPI report packs, NNM correlators, and NNM SPIs are listed under **Performance Insight Reporting Solutions**.

The entries under **Performance Insight Reporting Solutions** indicate the month and year of publication. If a manual is revised and reposted, the date of publication will change even if the software version number does not 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 Installing Packages

This chapter covers the following topics:

- [Guidelines for a Smooth Installation](#)
- [Installing Application Server Report Pack 1.0](#)
- [Accessing Deployed Reports](#)
- [Seeing Performance Data in Reports](#)
- [Package Removal](#)

Guidelines for a Smooth Installation

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 performance data collected by the datapipe.

The report pack CD contains shared packages, report packs, and datapipes. If you or someone else extracted packages from the report pack CD, every package, including the Application Server Report Pack, was copied to the Packages directory on your system and is ready to install. If you have not extracted packages from the report pack CD, see the package extract procedure later in this chapter.

OVO Prerequisites

The OVO prerequisites are:

- [OV Operations for Windows 7.21](#)
- [OV Operations for UNIX 8.1](#)

The application servers monitored by OVO must have one of the following SPIs:

- [OpenView Smart Plug-in for BEA WebLogic Server \(WebLogic SPI\)](#)
 - for Windows, version B.02.09
 - for UNIX, version A.03.50
- [OpenView Smart Plug-in for IBM WebSphere Server \(WebSphere SPI\)](#)
 - for Windows, version B.02.09
 - for UNIX, version A.03.50

OVPI Prerequisites

- OVPI 5.0 or 5.1
- All service packs available for the version of OVPI you are running
- Common Property Tables 3.5 or higher
- OVPA Collection Datapipe 1.0

Upgrading Common Property Tables

If you are running an older version of Common Property Tables, you must upgrade that package to version 3.5 or higher. If you are not running any version of Common Property Tables, Package Manager will install the latest version of Common Property Tables for you, automatically.

Do not install an upgrade for Common Property Tables *and* other packages at the same time. Install the upgrade package for Common Property Tables and *only* the upgrade package 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 Systems

If your system is distributed, the installation procedure is more complicated. Following is a summary of the installation procedure for a distributed system:

- 1 Verify that every server is running OVPI 5.0 or 5.1 and all available service packs for the installed version of OVPI.
- 2 On the central server:
 - a Disable trendcopy.
 - b Upgrade Common Property Tables to version 3.5.
 - c Install Application Server Report Pack 1.0; deploy reports.
 - d Install the Thresholds sub-package.
- 3 For each satellite server:
 - a Upgrade Common Property Tables to version 3.5.
 - b Install these packages:
 - Application Server Report Pack 1.0
 - One or both of the following sub-packages, depending on the server type(s) you want to monitor.
 - Application Server WebLogic sub-package 1.0
 - Application Server WebSphere sub-package 1.0
 - One or both of the following datapipes, depending on the server type(s) you want to monitor.
 - AppServer WebLogicSPI Datapipe
 - AppServer WebSphereSPI Datapipe
- 4 Re-enable trendcopy on the central server.

When installation is complete, you must set up connections with satellite server databases, configure trendcopy pull commands, and switch off aggregations at each satellite server. These steps are covered in [Chapter 3, Setting Up a Distributed System](#).

Installing Application Server Report Pack 1.0

This section covers the following tasks:

- Task 1: Extract packages from the report pack CD
- Task 2: If necessary, upgrade Common Property Tables
- Task 3: Install these packages:
 - Application Server Report Pack
 - One or both of the following sub-packages:
 - Application Server WebLogic sub-package
 - Application Server WebSphere sub-package
 - One or both of the following datapipes:
 - AppServer WebLogicSPI Datapipe
 - AppServer WebSphereSPI Datapipe

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 **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 report pack CD in the CD-ROM drive. On Windows, a Main Menu displays automatically; on UNIX, mount the CD, navigate to the top-level directory for the CD drive, and type 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 finishes, 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 Application Server folder:

- ApplicationServer.ap
- ApplicationServer_Threshold.ap
- ApplicationServer_WebLogic.ap
- ApplicationServer_WebSphere.ap
- ApplicationServer_Demo.ap

Installing the demo package is optional. You may install the demo package and only the demo package, or you can install the demo package along with everything else.

Task 2: Upgrade to Common Property Tables 3.5

When performing this upgrade, observe these rules:

- Do not install any other package with the upgrade package; install the upgrade package and *only* the 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 have access to 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 the report pack and the datapipe

- 1 From the Management Console select **Tools > 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 your 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 *ApplicationServer 1.0*
 - b One or both of the following:
 - *ApplicationServer_WebLogic 1.0*
 - *ApplicationServer_WebSphere 1.0*
 - c One or both of the following:
 - *AppServerWebLogicSPI_Datapipe*
 - *AppServerWebSphereSPI_Datapipe*
 - d *ApplicationServer_Thresholds* (optional)
 - e *ApplicationServer_Demo* (optional)
- 7 Click **Next**. The Type Discovery window opens.
- 8 Disable the default to run Type Discovery immediately after package installation.
 - ▶ The Application Server package does not require Type Discovery. However, if you are installing other report packs in addition to Application Server, you may need to run Type Discovery for those packages.
- 9 Click **Next**. The Selection Summary window opens.
- 10 Click **Install**. The Installation Progress window opens and the install process begins. When the install finishes, a package install complete message appears.
- 11 Click **Done** to return to the Management Console.

12 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 the Application Server package, you enabled the Deploy Reports option. As a result, the reports in this package (as well as any forms that come 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 your system, you have access to Report Viewer, Report Builder, and the Management Console. If the client applications are not installed on your system, using a web browser is the only way you 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*.

Seeing Performance Data in Reports

Some reports populate with data sooner than others. The first report to populate with data are the Near Real Time (NRT) reports. You will begin to see data in this report immediately after the first data collection completes. Any report that begins with an analysis of yesterday's performance will need at least one full day's worth of data before results are viewable.

All the reports other than the NRT reports have graphs that display data on an hourly, daily, and monthly basis. If the data you collected includes data for any part of the previous calendar month, the monthly graphs will be populated. If the data you collected has no data for the previous month, the graphs will remain empty until you begin collecting data on the first day of the next month.

Package Removal

Follow these steps to uninstall the Application Server Report Pack. Removing this package automatically removes the associated datapipe and sub-packages. You can also use this procedure to remove a sub-package only.

- 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, 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**.
- 6 Click **Next**. The Report Undeployment window opens.
- 7 If Application Server reports were deployed from this server, accept the defaults for Undeploy Reports, Application Server Name, and Port. If Application Server reports were **not** deployed from this server, 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.
- 10 Click the check boxes next to the following packages, if they appear in the list:
 - a *Application Server 1.0*
 - b *ApplicationServer_WebLogic 1.0*
 - c *ApplicationServer_WebSphere 1.0*
 - d *Application Server Thresholds 1.0*
- 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** to return to the Management Console.
- 14 Restart OVPI Timer.

Windows: Select **Settings > 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 Setting Up a Distributed System

This chapter covers the following topics:

- [Verifying Correct Package Installation](#)
- [Configuring the Central Server](#)
- [Configuring Satellite Servers](#)

Verifying Correct Package Installation

If you intend to run Application Server as a distributed system, you must configure all of the servers in the system. Before doing that, verify that you have the right packages installed on each server.

Packages on the Central Server

- Application Server Report Pack 1.0, with reports deployed
- Application Server WebLogic sub-package, with reports deployed
- Application Server WebSphere sub-package, with reports deployed
- Common Property Tables 3.5, with forms deployed

Packages on Each Satellite Server

- Application Server Report Pack 1.0
- Application Server WebLogic sub-package 1.0
- Application Server WebSphere sub-package 1.0
- Common Property Tables 3.5

Typically, the central server does not poll. If you want the central server in your system to poll, install the datapipe on the central server.

If you wish, you may view reports on satellite servers, which we refer to as local reporting. If you want local reporting, accept the Deploy Reports option when you install report packs at each satellite server. If central server reporting is the only reporting you want, you do not need to deploy reports and forms when you install report packs at satellite servers.

Configuring the Central Server

To configure the central server, perform the following tasks:

- Task 1: Set up connections with satellite server databases
- Task 2: Configure trendcopy pull commands

Task 1: Set up connections with satellite server databases

- 1 Start the 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 finish adding databases.

Task 2: Configure trendcopy pull commands

- 1 Open this file:
`$DPIPE_HOME/scripts/AppServer_Reporting_Hourly.pro`
- 2 For block2, remove the “#” from the `begin` and `end` lines.
- 3 Modify the trendcopy commands so that each command includes the correct server name for the central server and for each satellite server.
- 4 If necessary, add more commands.

Configuring Satellite Servers

Switching off higher-level aggregations on a satellite server disables all reports except Near Real Time (NRT) reports. If you want access to the full set of Application Server reports at the local level, do not switch off the higher-level aggregations. If you need only the NRT reports, follow these steps to turn off higher-level aggregations:

- 1 Open the `$DPIPE_HOME/lib/trendtimer.sched` file.
- 2 Comment out the lines that reference the following files:
 - `AppServer_Reporting_DMF.pro`
 - `WLS_Reporting_DMF.pro`
 - `WBS_Reporting_DMF.pro`

4 Thresholds for OpenView Operations

This chapter covers the following topics:

- [Modifying Thresholds](#)
- [Update Server Details](#)
- [Integration with OVO](#)

Modifying Thresholds

If you install the optional thresholds sub-package (`ApplicationServer_Thresholds`), the Thresholds Module will monitor your application servers for threshold conditions and send threshold traps to your OVO management station as needed.

The default threshold is the following:

Server availability = 50%

Update Server Details

You can use the Update Server Details form ([Figure 1](#) on page 20) to modify the default threshold and to assign Customer/Location properties.

Figure 1 Update Server Details form



Integration with OVO

You can improve your ability to isolate faults and diagnose problems by integrating the Application Server Report Pack with HP OpenView Operations (OVO). To do that, install the thresholds sub-package that comes with Application Server. The thresholds sub-package supplies default thresholds to the Thresholds Module, which uses the defaults to monitor the OVPI database for threshold conditions. When the Thresholds Module detects a threshold condition, it takes one of several possible actions. The default action is to send breach and clear traps to Network Node Manager (NNM).

Because NNM is the default destination for traps, and because Application Server is not currently integrated with NNM, you must configure the Thresholds Module to send traps to OVO. Setting up OVO as a trap destination is easy. From the Management Console, open the SNMP Trap Action Definition form, fill in the necessary information, and save your changes. In addition to using the form to configure a new destination for traps, someone (probably the OVO administrator) will need to prepare a trap template definition for OVO. The *Thresholds Module User Guide* contains the information needed to prepare the template.

5 Generic Application Server Reports

The generic application server reports provide information that is not specific to the type of server that is being monitored. The reports are the following:

- **Server Availability — Throughput**

The server availability chart plots the availability status of the application server on an hourly, daily, and monthly basis. The transaction throughput chart displays the number of transactions processed by the application server per second.
- **EJB Pool Utilization**

When the maximum pool size is reached, the server passivates (transfers from memory to secondary storage) some EJBs (Enterprise Java Beans) that have not been recently used by a client. This could result in performance degradation. This report shows the percentage of EJB pool utilization.
- **JDBC Throughput — Utilization**

This report shows the percentage of available JDBC (Java Database Connectivity) connections in a connection pool (utilization) and the number of clients serviced by this connection pool per second (throughput). Without available connections, the system cannot service requests that require access to a database. If this report indicates that there are not enough available JDBC connections and if the database can support additional connections, the administrator should add more database connections.
- **Near Real Time Server Availability — Throughput**

This report portrays the server status for the last six hours.
- **Servlet Request Rate — Response Time**

The servlet request rate measures the number of requests for a servlet per second. System administrators can analyze this value over time to help with capacity planning. The servlet response time chart shows the average execution time for an individual servlet. Analysis over time will give administrators clear indications of how each servlet is performing under different loads.











6 WebLogic Application Server Reports

The WebLogic Application Server reports provide information that is specific to WebLogic servers. The reports are the following:

- EJB Cache Utilization

When the maximum cache size is reached, the WebLogic Server passivates (transfers from memory to secondary storage) some EJBs that have not been recently used by a client. This could result in performance degradation. The EJB Cache Utilization report gives the percentage of the EJBs in the cache in use.

- EJB Transaction Reports

The EJB Free Pool Wait Rate measures the number of times per minute that no stateless session beans were available from the free pool. This means the client must wait for an available bean, impacting response time.

The EJB Load Timeout Rate measures the number of times a client timed out waiting for an EJB. This could result in new clients requesting the EJB class being blocked until an active EJB completes a method call.

The EJB Transaction Throughput measures the number of EJB transactions per second.

- Execute Queue Throughput — Utilization

The Execute Queue Throughput rate measures the number of requests serviced by an execute queue per second. The Queue Utilization chart shows the percentage of threads used for a server's execute queue. At 100% utilization, the WebLogic server will not have any threads available to service incoming requests. System administrators can increase the total number of execute threads via the administrator's console.

- JMS Throughput — Utilization

The JMS Throughput report indicates the number of messages/bytes that have passed through this JMS (Java Message Service) Server per second.

The JMS Utilization report indicates what percentage of a JMS queue is filled based on the number of messages/bytes. If the value reaches the threshold, the administrator should consider increasing the size of the queue so that users will still be able to deliver messages.

- Near Real Time Execute Queue Throughput — Utilization

This report provides the throughput/utilization trend of execute queues for the last six hours.

- Server Transaction Rollback

This report plots, using a stacked bar graph, the percentage of transactions that are rolled back due to Resource error/Application error/Timeout error/System error.













7 WebSphere Application Server Reports

The WebSphere Application Server reports provide information that is specific to WebSphere servers. The reports are the following:

- EJB Load-Stores Rate

The EJB Load-Stores Rate report displays the number of all entity EJB loads and stores to and from the database per minute for the top 20 servers. For the selected server it lists the top 20 EJBs; the EJB is shown along with the number of all EJB loads and stores to and from the database per minute.

- EJB Method Calls Rate

The EJB Method Calls Rate report displays the number of all EJB method calls per minute for the top 20 servers. The EJB is shown along with the number of all EJB method calls per minute. The top 20 EJBs are selected based on the highest average method calls per minute over the reporting period.

- EJB Top 20

The EJB Top 20 report shows the following in 3 separate tables:

- the percentage of EJB retrievals that were not successful during the collection interval for the top 20 EJBs
- average pool size for the top 20 EJBs
- average response time in milliseconds for the top 20 EJBs

- JDBC Connection Pool Details

The JDBC Connection Pool Details report displays, in table form, the average number of connections allocated per day for the top 20 servers. The top 20 servers are selected based on the highest average number of connections allocated over the reporting period. The DB Pool is shown along with Clients Waiting, Client Timeout Rate, Average Pool Size, and Average Wait Time.

- Servlet Sessions

The Servlet Sessions report shows the total number of servlet sessions being handled by the top 20 servers.

- Thread Pool Activity

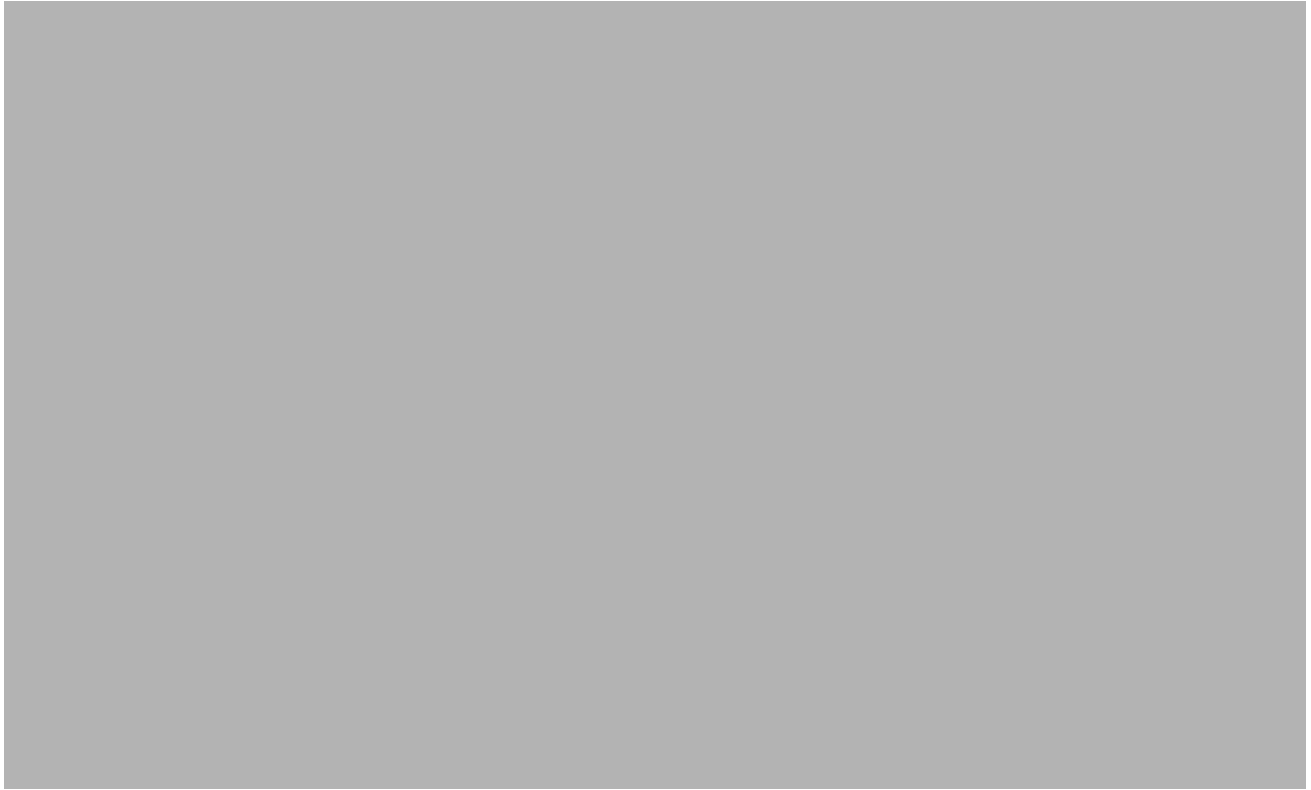
The Thread Pool Activity report compares the average size of thread pools with the average number of active threads on the selected server.

- Transaction Throughput

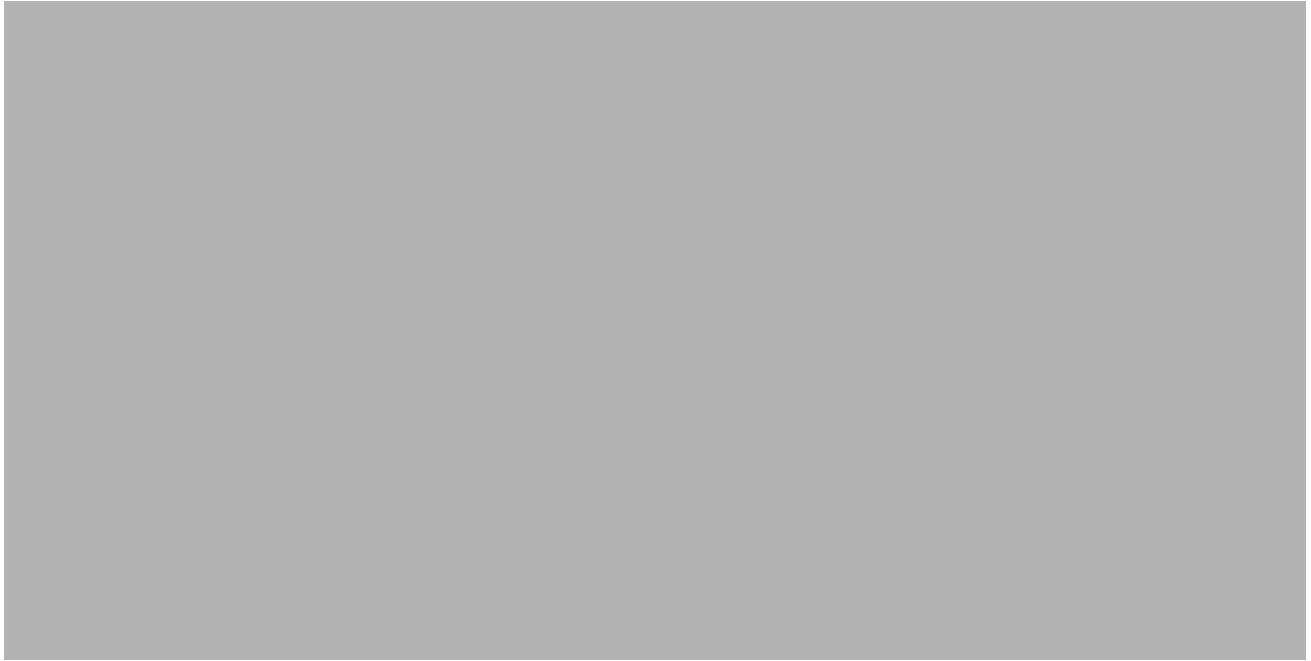
The Transaction Throughput report displays, in table form, the average number of transactions processed per second by the top 20 servers for the previous day. The top 20 servers are selected based on the highest average number of transactions processed per second over the reporting period. For the selected server it displays hourly data points representing the average number of transactions processed; this extends back 7 days and forward up to the last hour for which data was summarized.















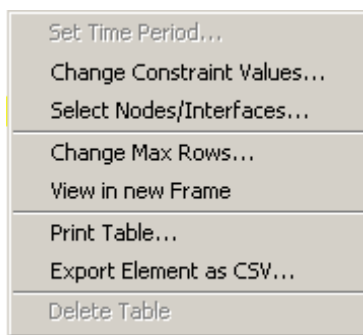
A Editing Tables and Graphs

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

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

View Options for Tables

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



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

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

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

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

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

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

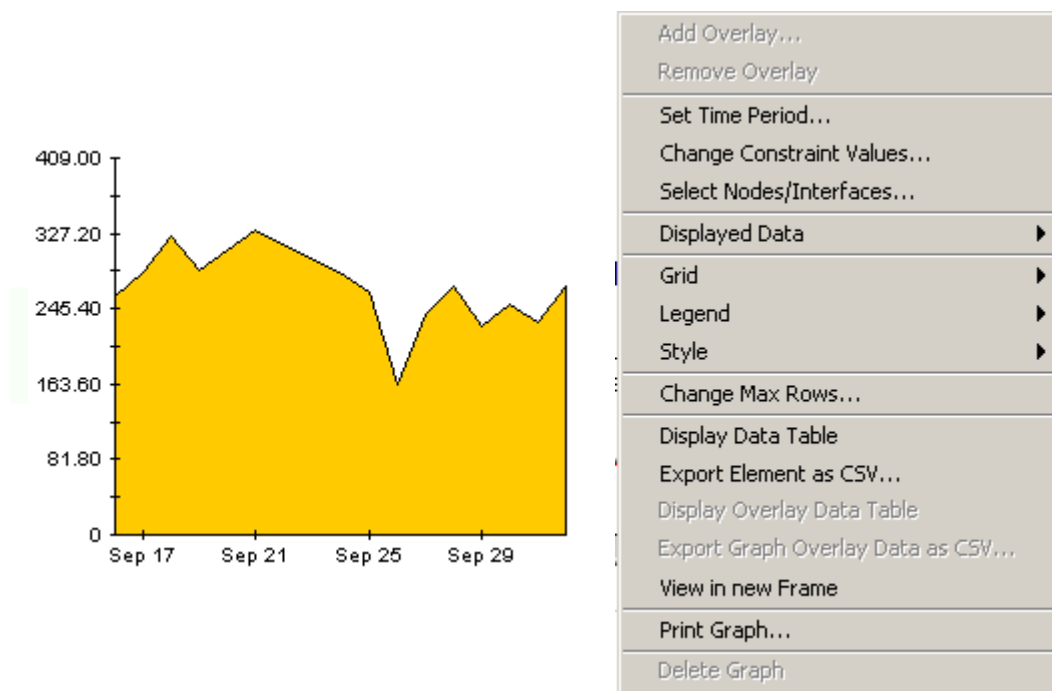
Print Table lets you print the displayed table.

Export Element as CSV exports table data as a .csv file, suitable for importing into a spreadsheet program.

Polled IP QoS Statistics Data - Input Over Previous 6 Hours					
Direction	IpPrecedence	Switched Bytes	Switched Pkts		Time Period
Input	0	105,888	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

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.



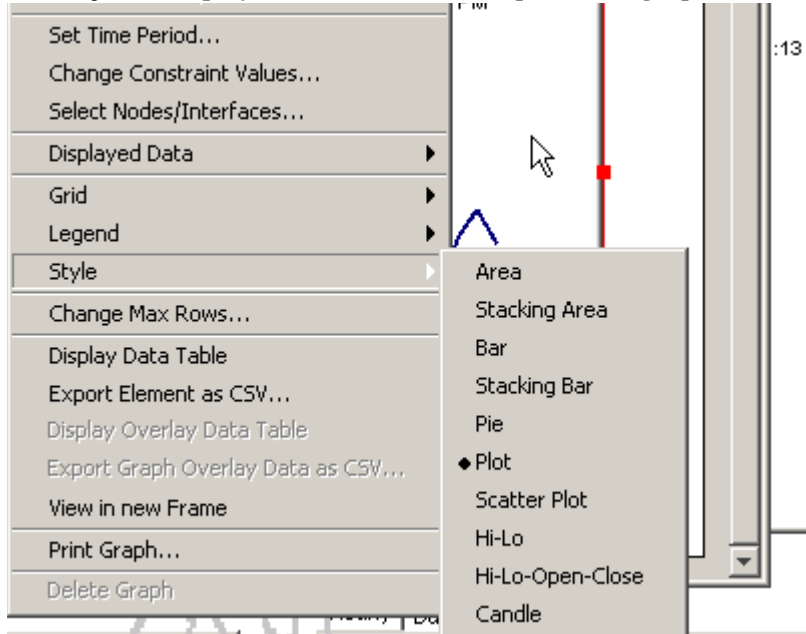
The following table provides details about each option.

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 Style Options on page 46.
Change Max Rows...	Same as the table option shown above.
Display Data Table	See Display Data Table on page 49.

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.

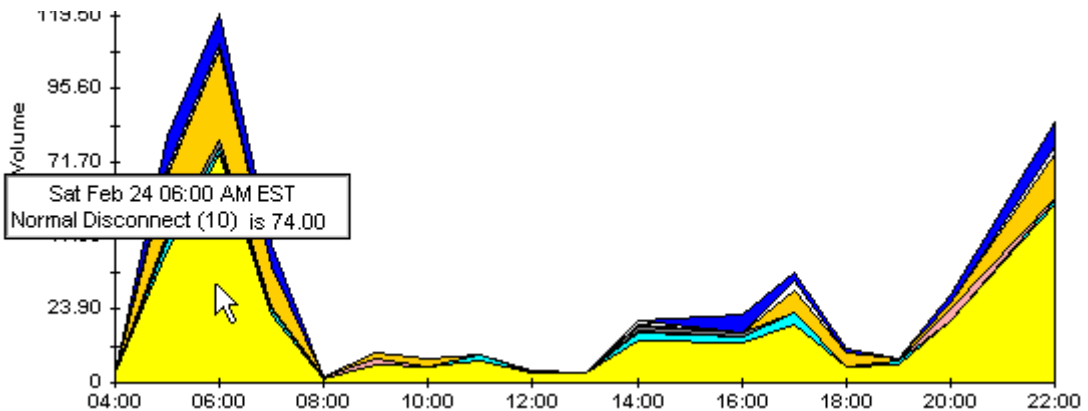
Style Options

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



Style > Area

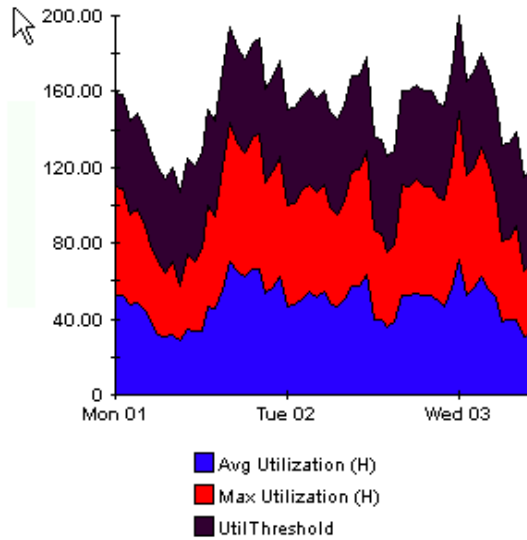
The plot or bar chart changes to an area graph. While relative values and total values are easy to view in this format, absolute values for smaller data types may be hard to see. Click anywhere within a band of color to display the exact value for that location



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.

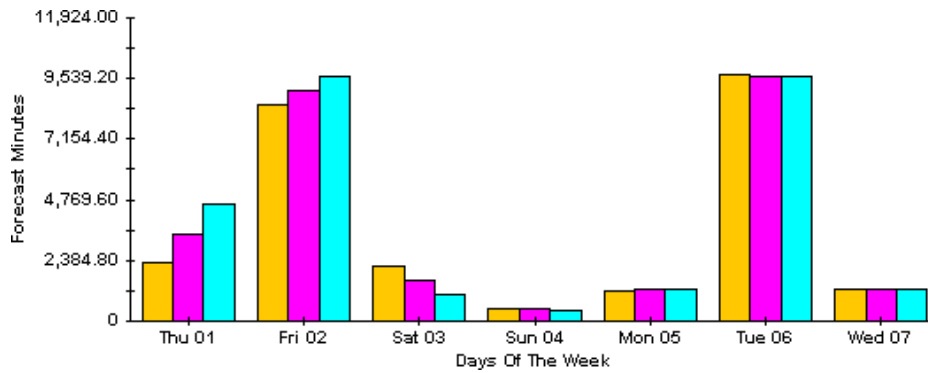
Style > Stacking Area

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



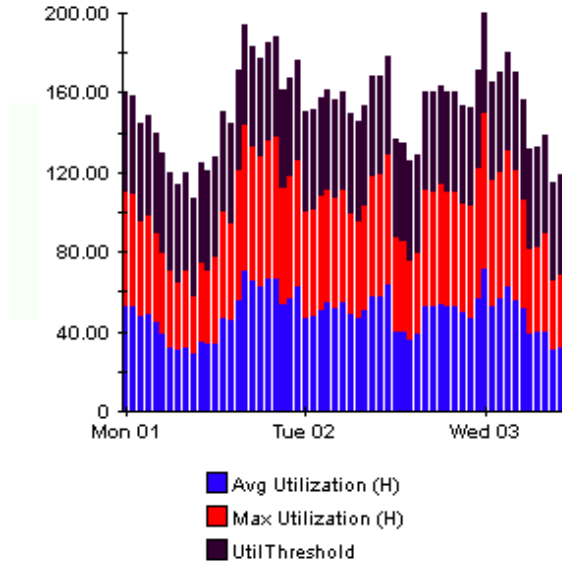
Style > Bar

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.



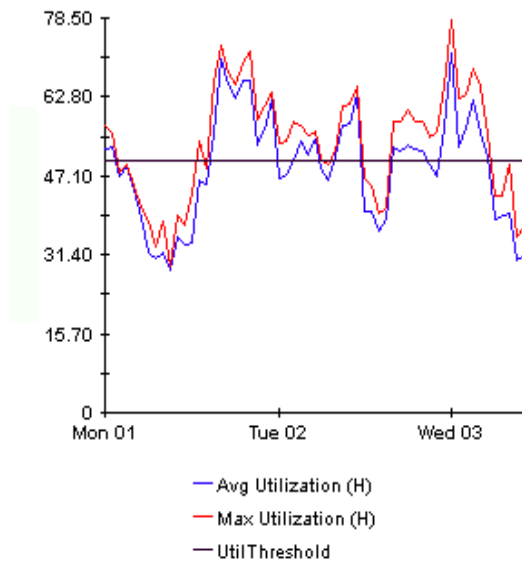
Style > Stacking Bar

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 10.



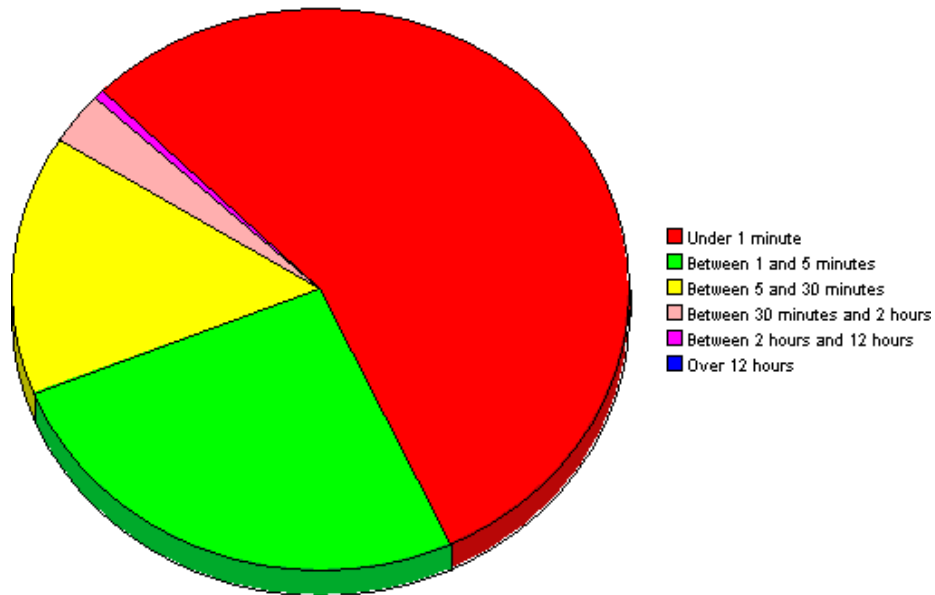
Style > Plot

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.

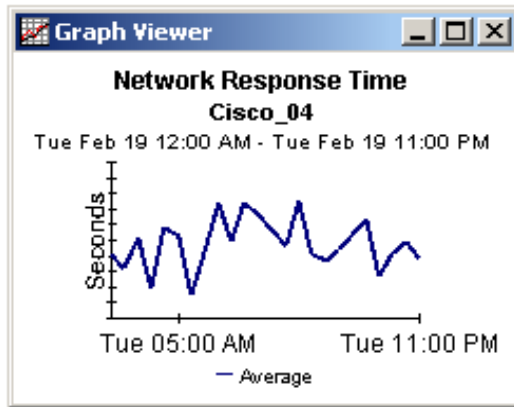
Display Data Table

This option changes a graph into a spreadsheet.

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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