

# RMON2 Traffic Profiling Report Pack

Software Version: 3.1

HP OpenView Performance Insight

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## User Guide

May 2006



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# 1 Overview

This chapter covers the following topics

- OVPI and RMON2 Probes
- Objects, reports, and groups
- Ways to customize reports
- Sources for additional information

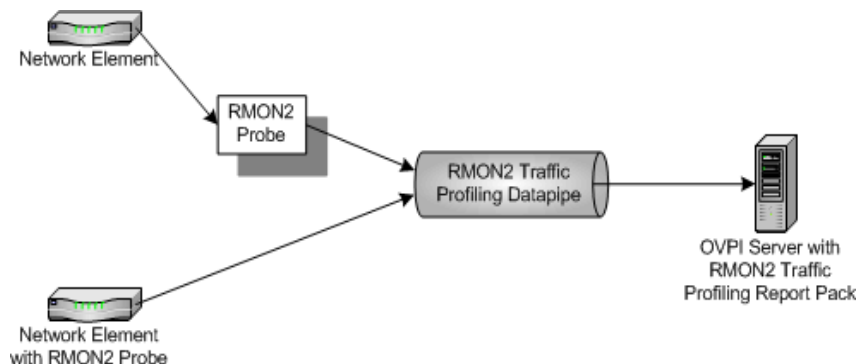
## OVPI and RMON2 Probes

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, you can integrate OVPI with network management and system management applications, including NNM and OVO. Integration enhances fault isolation, problem diagnosis, and capacity planning.

The RMON2 Traffic Profiling Report Pack installs on OVPI. Using processing directives supplied by the report pack, OVPI generates the following statistics:

- Utilization host-by-host
- Utilization application-by-application
- Percentage of total interface traffic associated with each host and each application
- Bytes
- Average bytes per packet

In the figure below, an RMON2 probe queries network elements for information about network traffic and stores the results in an SNMP MIB. The data in the SNMP MIB indicates where network traffic is going, traffic volume, and which protocols are involved. The RMON2 Traffic Profiling Datapipe collects data from the SNMP MIB and populates database tables maintained by OVPI.



RMON2 Traffic Profiling 3.1 supports the following RMON2 probes:

- Agilent
- Cisco NAM
- NetScout

## Version History

The following table outlines recent enhancements to RMON2 Traffic Profiling.

Package Version	Release Date	Features/Enhancements
1.0	May 2003	15 reports RMON2 Traffic Profiling Datapipe 1.0 Sybase support
2.0	October 2003	OVPI Object Manager support <i>new datapipe:</i> RMON2 Traffic Profiling Datapipe 2.0
2.0	April 2004	No changes
2.0	August 2004	No changes
3.0	November 2004	Oracle support <i>new datapipe:</i> RMON2 Traffic Profiling Datapipe 3.0
3.0	June 2005	<i>new upgrade package:</i> UPGRADE_RMON2_Traffic_Profiling_to_3.0
3.0	December 2005	No changes
3.1	May 2006	<i>defect fix:</i> QXCR1000243590 (map procedure appending “4”)

## Objects, Reports, and Groups

If you have access to the Management Console, you can display the reports in this package by opening the Object/Property Management window and navigating to the following object:

- RMON2 Probe Interface

Look for a list of reports under **Report Specific Tasks**. If you log in to the OVPI Application Server, you will see three folders:

- ALMATRIX
- HOST
- TOP\_TEN

The ALMATRIX folder contains the following reports:

- Daily ALMATRIX Details
- Daily ALMATRIX Summary



- Hourly ALMATRIX Details
- Hourly ALMATRIX Summary
- Monthly ALMATRIX Detail
- Monthly ALMATRIX Summary

The HOST folder contains the following reports

- Daily Host Detail
- Daily Host Summary
- Hourly Host Detail
- Hourly Host Summary
- Monthly Host Detail
- Monthly Host Summary

The TOP\_TEN folder contains the following reports:

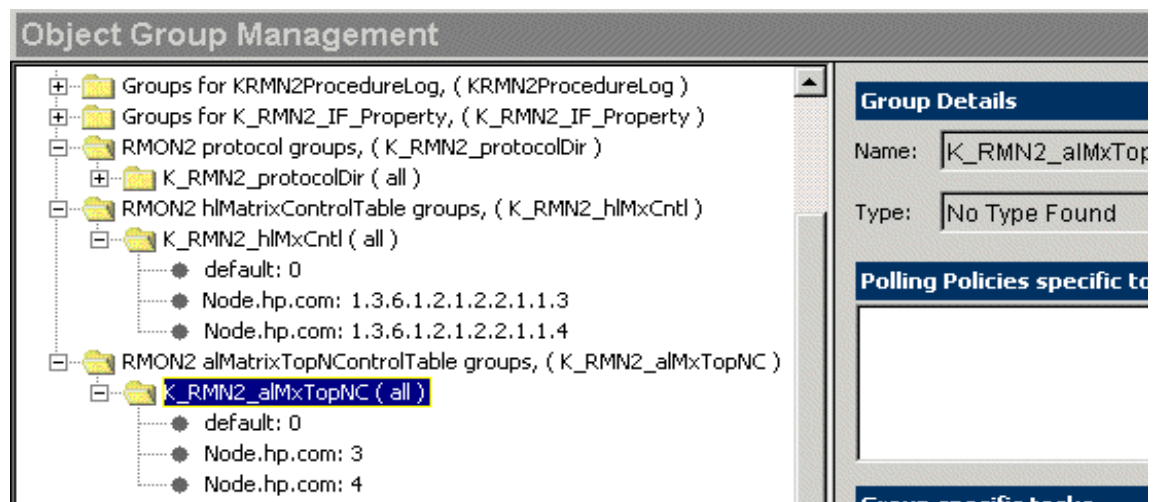
- Daily Top Ten
- Hourly Top Ten
- Monthly Top Ten

**Summary** reports aggregate data by application and host devices and display hourly, daily, and monthly trending analysis. Use these reports to find out whether recent excess traffic was a short-lived anomaly or a long-standing trend that requires corrective action.

**Detail** reports drill down on Summary reports, allowing you to see which source/destination combinations and host/protocol combinations are contributing to excess traffic.

**Top Ten** reports indicate which protocols had the greatest impact on interface utilization, and which hosts had the greatest impact on interface utilization.

RMON2 Traffic Profiling 3.0 adds the following groups to the object tree:



# Ways to Customize Reports

The contents of a report can be customized by importing location data, by applying group filters, by editing parameters, and by editing tables and graphs. While service providers use group filters to produce customer-specific reports, any user can import locations, edit parameters, or change view options for tables and graphs.

## Group Filters

If you intend to share your reports with customers, or let divisions within your enterprise see division-specific performance data, you must produce customer-specific reports by filtering the database. Creating customer-specific reports involves the following tasks:

- Importing customer names and device locations using Common Property Tables
- Creating a group account for all of the users affiliated with a particular customer
- Creating a group filter for the group account

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

## Editing Parameters

When you edit a parameter, you apply a constraint to the report. The constraint eliminates the data you are not interested in seeing. For example, if you edit the RMON2 Probe parameter, the only data that appears in the report is data for the probe you typed in the RMON2 Probe field.

You can apply multiple constraints at the same time. RMON2 Traffic Profiling supports the following parameter edits:

- IF\_Customer\_Name
- IF\_Customer\_ID
- Start\_Time
- End\_Time
- Client\_Name (of source)
- Server\_Name (of destination)
- Application\_Name (of protocol)
- RMON2 Probe Interface
- RMON2 Probe

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

If the client component of OVPI is installed on your system, you have access to Report Viewer. To edit a parameter, select **Edit > Parameter Values** from the menu bar. The Modify Parameter Values window opens. Click the **Current Value** field, enter a new value, and click **OK**.

## Importing Locations

Although RMON2 Traffic Profiling operates without importing custom property information, none of the location-oriented reports will contain useful information unless you add locations. To add locations to reports, use the property import utility bundled with Common Property Tables. For details, refer to the *Common Property Tables 3.5 User Guide*.

## Sources for Additional Information

This user guide contains samples of some of the reports in the RMON2 package. The demo package that comes with RMON2 is complete, containing a sample of every report in the package. If you have access to the demo package and you want to know what fully-populated reports look like, install the demo package. Like real reports, demo reports are interactive. Unlike real reports, demo reports are static and do not change over time.

The following documents are related to this manual:

- *RMON2 Traffic Profiling Report Pack 3.1 Release Statement*
- *Interface Reporting Report Pack 5.1 User Guide*
- *Common Property Tables 3.5 User Guide*
- *Interface Discovery Datapipe 2.3 User Guide*
- *OVPI Report Packs, Release Notes, May 2006*

Manuals for OVPI and the reporting solutions that run on OVPI are posted to the following website:

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

Select **Support > Product Manuals** to open the **Product Manuals Search** page. User guides for OVPI are listed under **Performance Insight**. User guides for report packs and datapipes are listed under **Performance Insight Reporting Solutions**. The manuals listed 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. Since we post revised manuals on a regular basis, you should search this site for updates before using any PDF that was shipped with the report pack CD-ROM.



## 2 Package Installation

This chapter covers the following topics:

- [Guidelines for a Smooth Install](#)
- [Installing RMON2 Traffic Profiling 3.1](#)
- [Accessing Deployed Reports](#)
- [Package Removal](#)

### Guidelines for a Smooth Install

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

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

### Software Prerequisites

RMON2 Traffic Profiling 3.1 has the following prerequisites:

- OVPI 5.0 or higher
- All available service packs for the version of OVPI (5.0 or 5.1) you are running
- Common Property Tables 3.5
- Interface Reporting Report Pack 5.1
- Interface Discovery Datapipe 2.3

If you are not currently running any version of the Interface Discovery Datapipe, or any version of Common Property Tables, you can install these packages when you install RMON2 Traffic Profiling 3.1.

If you are running earlier versions of Common Property Tables, version 2.2 or 3.0, upgrade to version 3.5. Installing the “to\_3.5” upgrade package is no different from installing other upgrade packages; however, do not install the “to\_3.5” upgrade package and other packages at the same time. Install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables.

## Install Procedure for Distributed Systems

Installation is more complex if you intend to run this package as a distributed system across multiple servers. Here is an overview of the installation procedure:

- 1 Verify that all servers are running the same version of OVPI and all available service packs for that version.
- 2 Disable trendcopy on the central server.
- 3 Install RMON2 Traffic Profiling 3.1 on the central server.
- 4 Install RMON2 Traffic Profiling 3.1 and the RMON2 Traffic Profiling Datapipe on each satellite server.
- 5 Re-enable trendcopy on the central server.

When the installation is complete, set up connections with satellite server databases, configure trendcopy pull commands, and switch off hourly and daily aggregations at each satellite server. For details, see [Chapter 4, Setting Up a Distributed System](#).

## Upgrading from Version 2.0 or Version 3.0 to Version 3.1

If you are currently running version 2.0 or version 3.0 and you are familiar with Package Manager, you should have no difficulty upgrading to the latest release. Keep in mind that you must delete certain packages that cannot be upgraded. Here is an outline of the upgrade procedure:

- 1 Stop OVPI Timer and extract OVPI packages from the report pack CD.
- 2 If necessary, upgrade to Common Property Tables 3.5.
- 3 If necessary, upgrade to Interface Reporting 5.1.
- 4 If necessary, install `UPGRADE_RMON2_Traffic_Profiling_to_3`.
- 5 Datapipes cannot be upgraded. Uninstall these datapipes:
  - Interface Discovery Datapipe 1.1 / 2.0 / 2.1
  - RMON2 Traffic Profiling Datapipe 2.0
- 6 Install Interface Discovery Datapipe 2.3.
- 7 Install `UPGRADE_RMON2_Traffic_Profiling_3.1`
- 8 Install RMON2 Traffic Profiling Datapipe 3.0.
- 9 Restart OVPI Timer.

### Datapipes and Remote Pollers

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

- Single polling policy for a remote pollers
- Clone polling policies for multiple remote pollers
- Type and group information associated with a modified polling policy

You can export existing configurations by using the `collection_manager` and `group_manager` commands.

## Exporting Polling Policy Configurations

If your environment contains polling policy assignments to remote pollers, use the `collection_manager` command to export polling policies 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 Custom Polling Groups

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

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

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

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

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

## Custom Table Views

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

# Installing RMON2 Traffic Profiling 3.1

Complete the following tasks to install RMON2 Traffic Profiling 3.0:

- Stop OVPI Timer and extract OVPI packages from the report pack CD
- If necessary, upgrade to Common Property Tables 3.5
- Install RMON2 Traffic Profiling

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

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

On Windows, do the following:

- a From the Control Panel, select **Administrative Tools > Services**.

- b** Select OVPI Timer from the list of services.
  - c** From the Action menu, select **Stop**.
- On UNIX, as root, do one of the following:
- HP-UX: **sh /sbin/ovpi\_timer stop**
  - Sun: **sh /etc/init.d/ovpi\_timer stop**
- 3** Insert the report pack CD in the CD-ROM drive.
- Windows:* The Main Menu automatically displays.
- UNIX:*
- a** Mount the CD (if the CD does not mount automatically)
  - b** Navigate to the top level directory on the CD
  - c** Run **./setup**.
- 4** Type **1** in the choice field and press **Enter**. The install script displays a percentage complete bar. When the copy is complete, the install script starts Package Manager. The Package Manager welcome window opens.

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



If you are not running any version of Common Property Tables, skip this task and let Package Manager install Common Property Tables for you

RMON2 Traffic Profiling 3.0 requires Common Property Tables. If you have not already upgraded to Common Property Tables 3.5, install the “to\_3.5” upgrade package now. Do not install other packages at the same time. Install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables. When the upgrade install is complete, click **Done** to return to the Management Console.

**Task 3: Install RMON2 Traffic Profiling**

- 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 select a different directory if necessary.
- 4** Click **Next**. The Report Deployment window opens. Accept the default for Deploy Reports. Type your user name and password for the OVPI Application Server.
- 5** Click **Next**. The Package Selection window opens.
- 6** Click the check box next to the following packages:
  - *RMON2 Traffic Profiling 3.1*
  - *RMON2 Traffic Profiling Demo*



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 everything else.



- *RMON2 Traffic Profiling Datapipe 3.0*
  - *Interface Discovery Datapipe 2.3* (if not already installed)
  - *Common Property Tables 3.5* (if not already installed)
- 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. When installation finishes, a package installation complete message appears.
  - 10 Click **Done** to return to the Management Console.
  - 11 Restart OVPI Timer.
    - On Windows, do the following:
      - a From the Control Panel, select **Administrative Tools > Services**
      - b Select OVPI Timer from the list of services.
      - c From the Action menu, select **Start**.
    - On UNIX, as root, enter one of the following commands:
      - HP-UX: **sh /sbin/ovpi\_timer start**
      - Sun: **sh /etc/init.d/ovpi\_timer start**

## Accessing Deployed Reports

When you installed this report pack, you enabled the Deploy Reports option. As a result, the reports in this package (as well as any forms that come with this package) 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 OVPI client applications are installed on your system, you have access to Report Viewer, Report Builder, and the Management Console. If the clients are not installed on your system, using a web browser to log into the Web Access Server is the only way you can view reports.

For more information about OVPI 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*.

## Package Removal

Follow these steps to uninstall the RMON2 Traffic Profiling Report Pack and RMON2 Traffic Profiling Datapipe:

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

On Windows, do the following:

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

On UNIX, as root, enter one of the following commands:

— HP-UX: **sh /sbin/ovpi\_timer stop**

— Sun: **sh /etc/init.d/ovpi\_timer stop**

- 3 From the Management Console, 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. Accept the default for Undeploy Reports, application server name, and port.
- 7 Click **Next**. The Package Selection window opens.
- 8 Click the check box next to the following packages:
  - *RMON2 Traffic Profiling*
  - *RMON2 Traffic Profiling Datapipe*
  - *RMON2 Traffic Profiling Demo* (if installed)
- 9 Click **Next**. The Selection Summary window opens.
- 10 Click **Uninstall**. The Progress window opens. When the uninstall process is complete, a package removal complete message appears.
- 11 Click **Done** to return to the Management Console.
- 12 Restart OVPI Timer.

On Windows, do the following:

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

On UNIX, as root, enter one of the following commands:

— HP-UX: **sh /sbin/ovpi\_timer start**

— Sun: **sh /etc/init.d/ovpi\_timer start**



Uninstalling the RMON2 Traffic Profiling Report Pack automatically uninstalls the datapipe even if you do not select the datapipe for removal.

# 3 Polling Groups and MIB Values

This chapter covers the following topics:

- How to add RMON2 probes to polling groups
- How to set MIB values
- Command line options for configAlMatrix.pl

## Adding Probes and Setting MIB Values

Follow these steps to add probes to Polling Groups:

- 1 Using Polling Policy Manager, do the following:
  - a Add each RMON2 probe node to the RMON2 polling group.
  - b Specify the Community String Profile for each node added to the RMON2 polling group. Typically, you use the default settings (Read: public; Write: private). However, if you configured an RMON2 probe to use a non-default community string profile, you must configure this non-default community string profile for each node.
- 2 Using the OVPI SNMP Tool `ConfigAlMatrix.pl` command (click the **Set Table** button), or a tool of your own choice, set the following MIB objects:

**Table 1 Variables Under hlMatrixControlTable**

MIB Object	OID	Value
hlMatrixControlNIMaxDesiredEntries	.1.3.6.1.2.1.16.15.1.1.6	6,000
hlMatrixControlAIMaxDesiredEntries	.1.3.6.1.2.1.16.15.1.1.10	12,000
hlMatrixControlStatus	.1.3.6.1.2.1.16.15.1.1.12	active

**Table 2 Variables under alMatrixTopNControlTable**

MIB Object	OID	Value
alMatrixTopNControlRateBase	.1.3.6.1.2.1.16.17.3.1.3	alMatrixTopNTerminalsPkts
alMatrixTopNControlTimeRemaining	.1.3.6.1.2.1.16.17.3.1.4	900
alMatrixTopNControlRequestedSize	.1.3.6.1.2.1.16.17.3.1.7	400
alMatrixTopNControlStatus	.1.3.6.1.2.1.16.17.3.1.11	active

## Command Line Options for ConfigAlMatrix.pl

ConfigAlMatrix.pl is a tool supplied with the RMON2 Traffic Profiling Datapipe. You can use this tool to create the RMON2 data source to MIB-2 ifIndex and set all the MIB objects to the values listed in Table 2 for a specified RMON2 probe.

If you are using these MIB objects for other purposes, and if you do not want them set to these values, do not run this tool; instead, use the OVPI SNMP Tool or some other tool of your choice.

The following command line options are available:

```
ConfigAlMatrix.pl -a ProbeHost [-c CommunityString -f ConfigFile]
```

<i>-a ProbeHost</i>	Required	The name of the RMON2 probe.
<i>-c CommunityString</i>	Optional	Default: private.  The write community string profile of the RMON2 probe. If the write community string profile of the RMON2 probe is set to something other than private, then you must use this option to specify the probe's write community string profile.
<i>-f ConfigFile</i>	Optional	Default: \\OVPI\packages\RMON2_Traffic_Profiling_Datapipe\RMON2_Traffic_Profiling_Datapipe.ap\alMatrixConfig.xml.  XML configuration file for the RMON2 probe. This file contains the MIB objects that can be modified. By default, MIB objects are set to the values listed in the preceding table. Modifying MIB objects will change the amount of data collected.

## 4 Setting Up a Distributed System

If you intend to run RMON2 Traffic Profiling in a distributed environment, and if you followed the instructions in the installation chapter, your central server is running the report pack, and each of your satellite servers is running the report pack and the datapipe.

Your next task is to set up connections with satellite server databases, configure trendcopy pull commands for hourly data, and switch off hourly and daily aggregations at each satellite server. In addition, make sure that the system clock on each satellite server is synchronized with the system clock on the central server.

### Configuring the Central Server

Follow these steps to configure the central server:

- 1 Set up the connection with the satellite server databases:
  - a Start the Management Console.
  - b Click the **Systems** icon on the lower left. The System/Network Administration pane opens.
  - c Right-click the **Databases** folder. When prompted, select **Add OVPI Database**. The Add Database Wizard opens.
  - d Click **Next**.
  - e Type the hostname and port number for the database you want to add; click **Next**.
  - f Review the Summary. Repeat steps **d** and **e** for each additional database.
  - g When you are done adding databases, click **Finish**.
- 2 Edit the file `$DPIPE_HOME/scripts/RMN2_Hourly.pro`:
  - a For each satellite server, configure trendcopy pull commands from the central server by modifying the trendcopyblock:
    - Remove “#” before each line in trendcopyblock, including the begin and end lines.
    - Replace *SATELLITE\_SERVER\_1\_DATABASE* with the satellite server name.
    - Replace *THIS\_MACHINE\_DATABASE* with the central server name.If there is more than one satellite server, copy and modify the trendcopyblock for each satellite server.
  - b Save and close `$DPIPE_HOME/scripts/RMN2_Hourly.pro`.

## Configuring a Satellite Server

Switch off hourly and daily aggregations. Follow these steps:



This procedure assumes that the satellite server is not performing local reporting and that the `RMON2_Traffic_Profiling` module is installed.

- 1 Navigate to `$DPIPE_HOME/lib/trendtimer.sched`:
- 2 Comment out the lines referencing *RMN2\_Hourly.pro* and *RMN2\_Daily.pro*.
- 3 Save and close `$DPIPE_HOME/lib/trendtimer.sched`.

## System Clocks

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

## 5 Sample Reports

RMON2 Traffic Profiling includes 15 reports. The following reports are reproduced below:

- 1 Monthly Top Ten Summary
- 2 Hourly AlMatrix Summary
- 3 Hourly AlMatrix Detail
- 4 Daily Host Summary
- 5 Daily Host Detail

Top Ten reports serve as a starting point for in-depth analysis of traffic problems. They contain the following information:

- Hourly utilization (in the hourly report only)
- Busy hour utilization (daily and monthly reports)
- A list of applications generating the most traffic, sorted from most to least
- A list of hosts generating the most traffic, sorted from most to least

ALMATRIX reports display traffic information by protocol and by source/destination host. RMON2 Traffic Profiling includes summary reports for ALMATRIX and detail reports for ALMATRIX. The summary reports aggregate data by protocol and by host devices; the detail reports contain information about the traffic between specific source and destination nodes for a selected protocol.

Host reports display traffic information by source. RMON2 Traffic Profiling includes summary reports for hosts and detail reports for hosts. The summary reports display traffic information for source nodes (listed by IP address) that generate the most traffic on the probe; the detail reports display traffic information sent by a protocol/application to a destination node for a selected source node.

# RMON2 Traffic Profiling




## Monthly Top Ten Summary

The Top Ten Summary report lists the top contributors to the total traffic on an interface. Select an interface and a time period to see the top ten hosts and protocols values with the greatest impact on the interface utilization for the time period selected.

### Probe List

Probe	Interface	Busy Hour Utilization
sniffer	3	1.17

### Peak Hourly Utilization

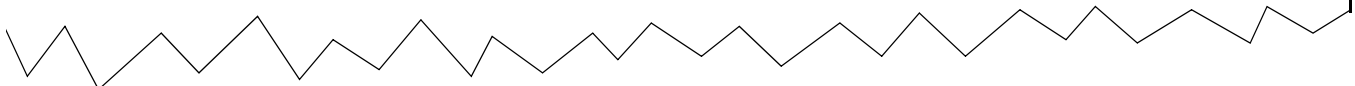
Month	Busy Hour Utilization
April, 2003	1.17
March, 2003	0.69 

### Top Ten Hosts

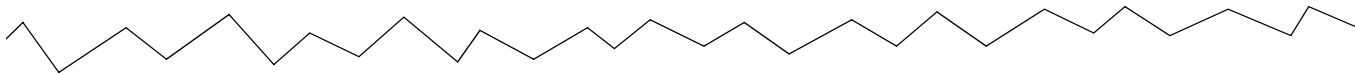
	Host	Busy Hour Utilization	% of Traffic
1	15.0.73.147	0.10	8.81
2	15.0.73.150	0.07	6.24
3	15.0.73.141	0.03	2.88
4	15.0.73.148	0.03	2.30
5	15.244.20.169	0.02	2.22
6	15.244.81.51	0.02	1.72
7	15.244.60.116	0.02	1.48
8	15.0.73.146	0.01	1.02
9	15.244.60.182	0.01	0.99
10	15.244.60.188	0.01	0.99

### Top Ten Protocols

	Protocol	Busy Hour Utilization	% of Traffic
1	wildcard.ip.udp.netbios-dgm	0.70	59.21
2	wildcard.ip.icmp	0.14	12.97
3	wildcard.ip.tcp.netbios-ssn	0.10	8.87
4	wildcard.ip.udp.netbios-ns	0.09	7.76
5	wildcard.ip.udp.ntp	0.04	2.96
6	wildcard.ip.udp.sunrpc	0.04	2.95
7	wildcard.ip.udp.dns	0.03	1.99
8	wildcard.ip.udp.bootp-client	0.02	1.32
9	wildcard.ip.tcp.sunrpc	0.01	0.66
10	wildcard.ip.tcp.dns	0.01	0.33





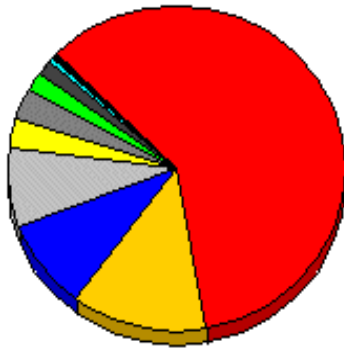


### Host Distribution Top Ten Hosts



- : 15.0.73.147 :
- : 15.0.73.150 :
- : 15.0.73.141 :
- : 15.0.73.148 :
- : 15.244.20.169 :
- : 15.244.81.51 :
- : 15.244.60.116 :
- : 15.244.16.185 :
- : 15.8.156.1 :
- : 15.0.73.146 :

### Protocol Distribution Top Ten Protocols



- 3: sniffer : 3 : wildcard.ip.udp.netbios-dgm :
- 3: sniffer : 3 : wildcard.ip.icmp :
- 3: sniffer : 3 : wildcard.ip.top.netbios-ssn :
- 3: sniffer : 3 : wildcard.ip.udp.netbios-ns :
- 3: sniffer : 3 : wildcard.ip.udp.ntp :
- 3: sniffer : 3 : wildcard.ip.udp.sunrpc :
- 3: sniffer : 3 : wildcard.ip.udp.dns :
- 3: sniffer : 3 : wildcard.ip.udp.bootp-client :
- 3: sniffer : 3 : wildcard.ip.top.sunrpc :
- 3: sniffer : 3 : wildcard.ip.top.http :

# RMON2 Traffic Profiling

## Hourly ALMATRIX Summary

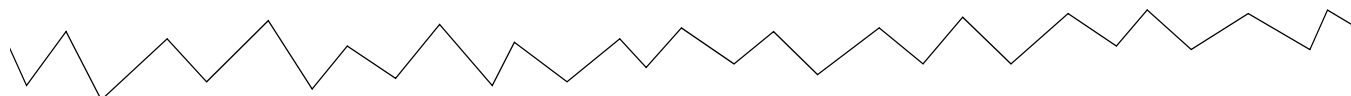


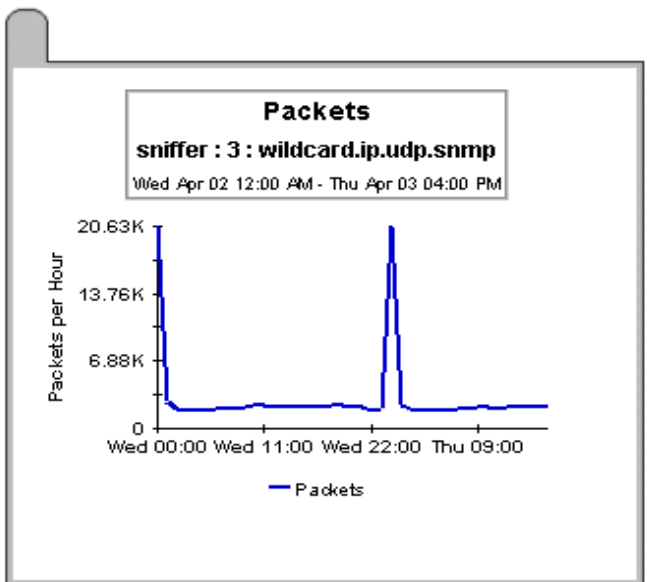
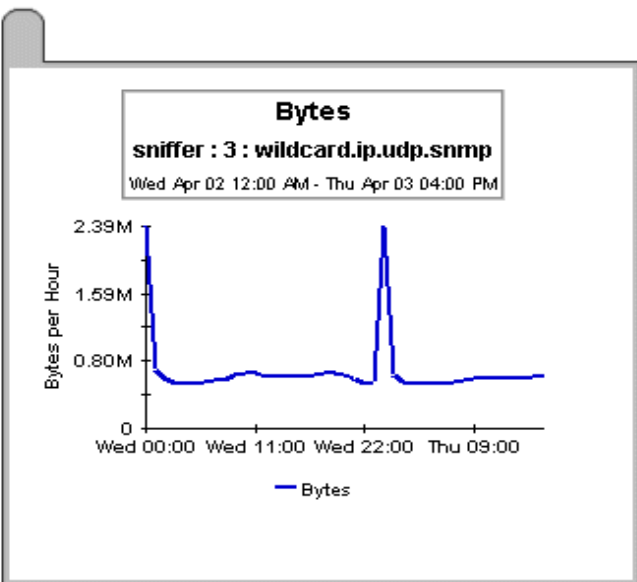
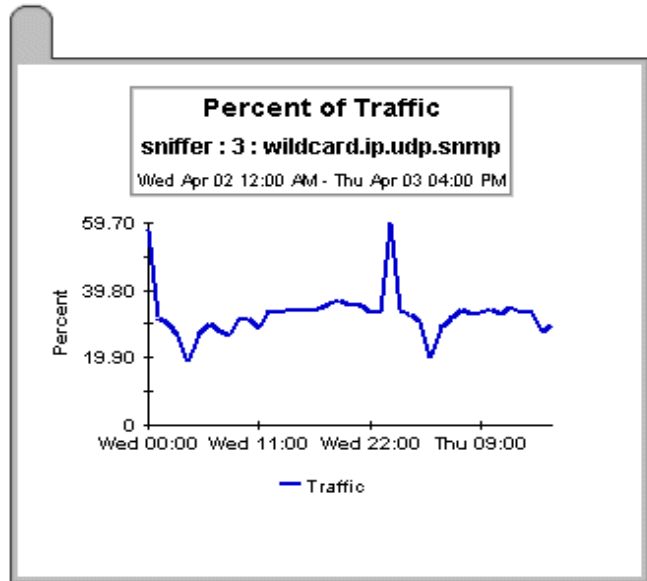
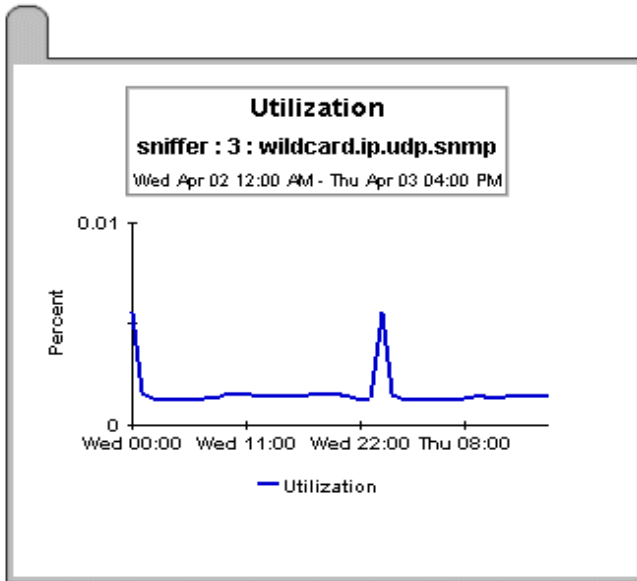
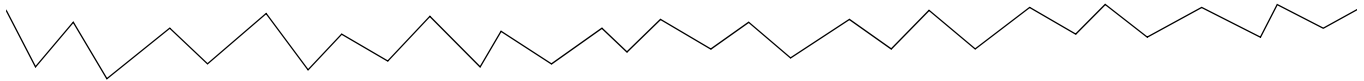
The ALMATRIX Summary Report presents a breakdown of the protocols which contribute to the total traffic on an interface. Select an interface and a time period to see a list of protocols that had the most impact on the interface utilization for the time period selected. Select a protocol to see graphs of its historical traffic patterns.

Probe List			Hourly Utilization	
Probe	Interface	Utilization	Hour	Utilization
sniffer	3	0.00	4:00 PM, April 3, 2003	0.00
			3:00 PM, April 3, 2003	0.01
			2:00 PM, April 3, 2003	0.00
			1:00 PM, April 3, 2003	0.00
			12:00 PM, April 3, 2003	0.00
			11:00 AM, April 3, 2003	0.00
			10:00 AM, April 3, 2003	0.00

### Top Talking Protocols / Applications

Protocol	Utilization	% of Traffic	Bytes	Average Bytes per Packet
wildcard.ip.udp.snmp	0.00	29.73	637.70 k	286.35
wildcard.ip.tcp.netbios-ssn	0.00	19.34	414.95 k	366.56
wildcard.ip.udp.netbios-dgm	0.00	13.56	290.94 k	254.99
wildcard.ip.tcp.telnet	0.00	11.39	244.37 k	87.27
wildcard.ip.udp.netbios-ns	0.00	11.38	244.08 k	103.82
wildcard.ip.icmp	0.00	5.09	109.22 k	218.88
wildcard.ip.udp.dns	0.00	3.76	80.69 k	261.97
wildcard.ip.udp.bootp-client	0.00	2.11	45.23 k	297.55
wildcard.ip.ospfigp	0.00	1.38	29.52 k	82.00





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# RMON2 Traffic Profiling

## Hourly ALMATRIX Detail



The ALMATRIX Detail Report presents a breakdown of the protocols, sources and destinations which contribute to the total traffic on an interface(data source). Select an interface and a time period to see a list of protocols that had the most impact on the interface utilization for the time period selected. Select a protocol to see a list of sources / destinations utilizing the protocol source through the selected interface. Select a source / destination combination to see graphs of its historical traffic patterns.

### Probe List

Probe	Interface	Utilization
sniffer	3	0.00

### Hourly Utilization

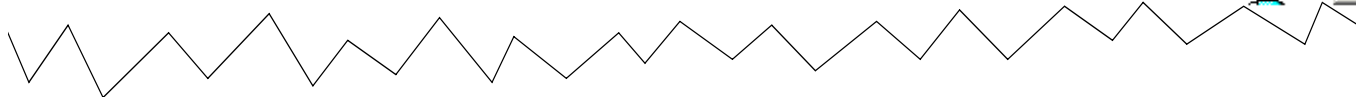
Hour	Utilization
4:00 PM, April 3, 2003	0.00
3:00 PM, April 3, 2003	0.01
2:00 PM, April 3, 2003	0.00
1:00 PM, April 3, 2003	0.00
12:00 PM, April 3, 2003	0.00
11:00 AM, April 3, 2003	0.00
10:00 AM, April 3, 2003	0.00

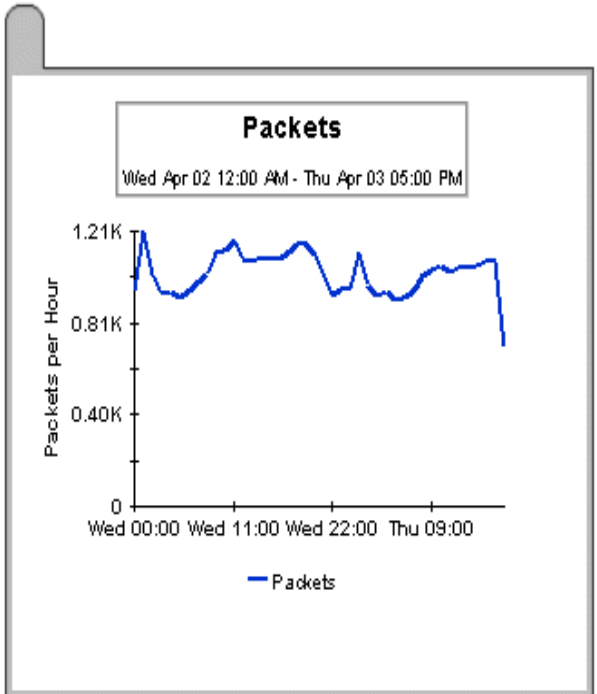
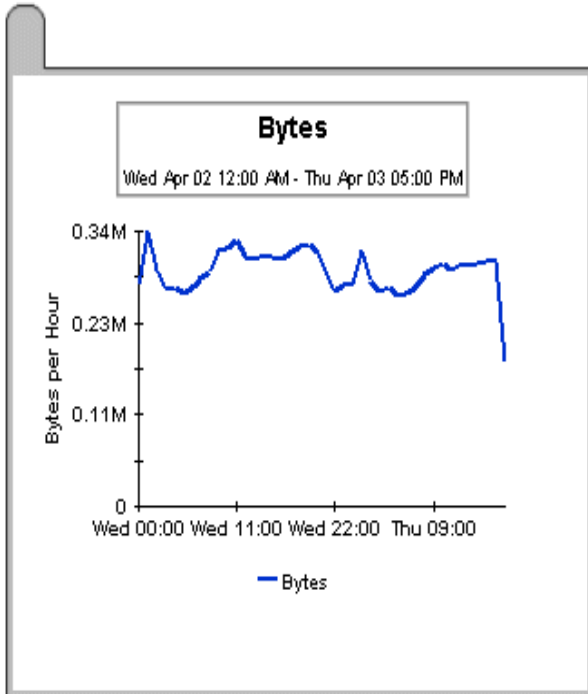
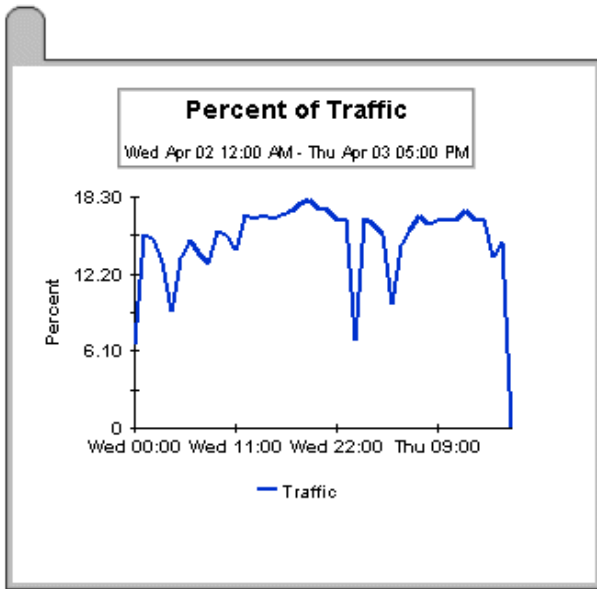
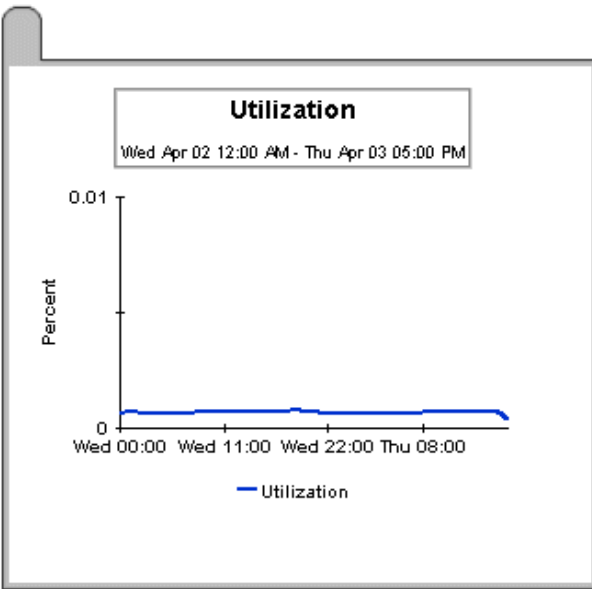
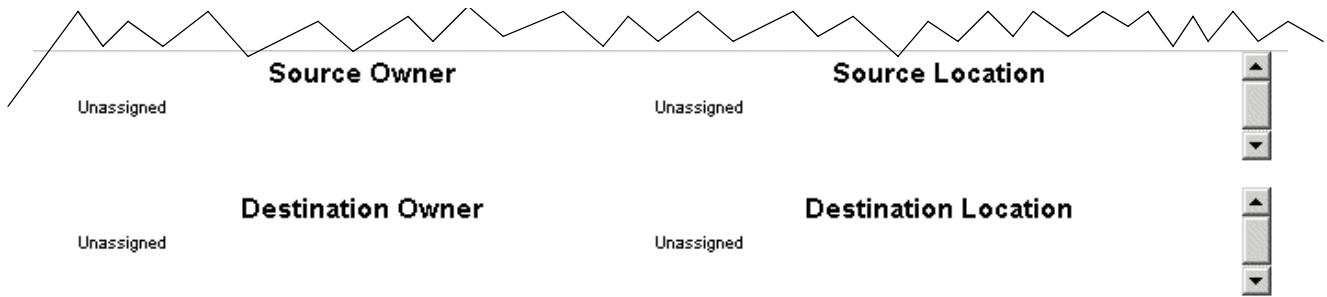
### Top Talking Protocols / Applications

Protocol	Utilization	% of Traffic	Bytes	Average Bytes per Packet
wildcard.ip.udp.snmp	0.00	29.73	637.70 k	286.35
wildcard.ip.top.netbios-ssn	0.00	19.34	414.95 k	366.56
wildcard.ip.udp.netbios-dgm	0.00	13.56	290.94 k	254.99
wildcard.ip.top.telnet	0.00	11.39	244.37 k	87.27
wildcard.ip.udp.netbios-ns	0.00	11.38	244.08 k	103.82
wildcard.ip.icmp	0.00	5.09	109.22 k	218.88
wildcard.ip.udp.dns	0.00	3.76	80.69 k	261.97
wildcard.ip.udp.bootp-client	0.00	2.11	45.23 k	297.55
wildcard.ip.ospfigp	0.00	1.38	29.52 k	82.00

### Top Talking Source / Destination Pairs

Source	Destination	Utilization	% of Traffic	Bytes	Average Bytes per Packet
15.1.158.148	15.0.73.150	0.00	14.74	316.08 k	287.35
15.0.73.150	15.1.158.148	0.00	14.72	315.75 k	287.05
15.0.73.150	15.24.115.12	0.00	0.11	2264	283.00
15.24.115.12	15.0.73.150	0.00	0.11	2264	283.00
15.244.16.185	15.244.63.9	0.00	0.05	1098	122.00

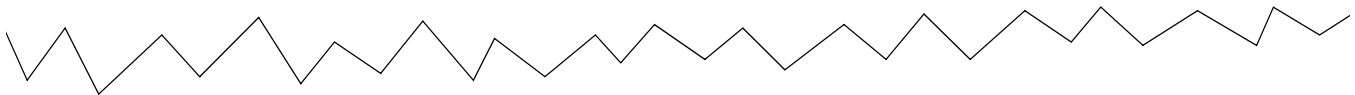




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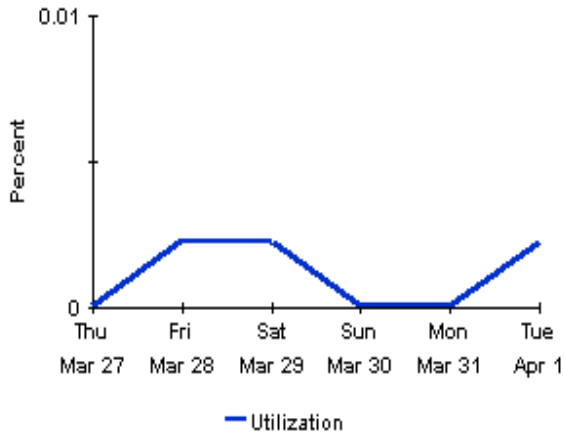




### Busy Hour Utilization

sniffer : 3 : 15.0.73.141

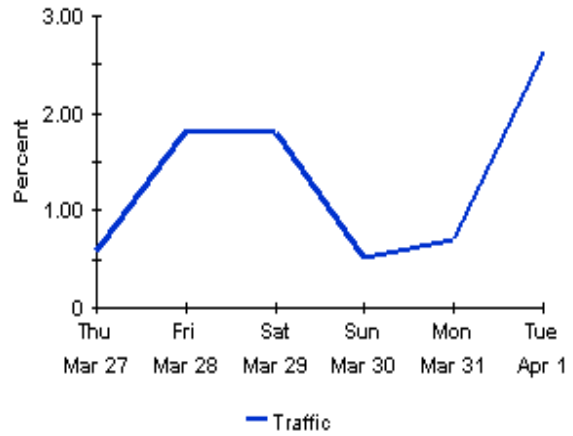
Thu Mar 27 2003 - Tue Apr 01 2003



### % of Daily Traffic

sniffer : 3 : 15.0.73.141

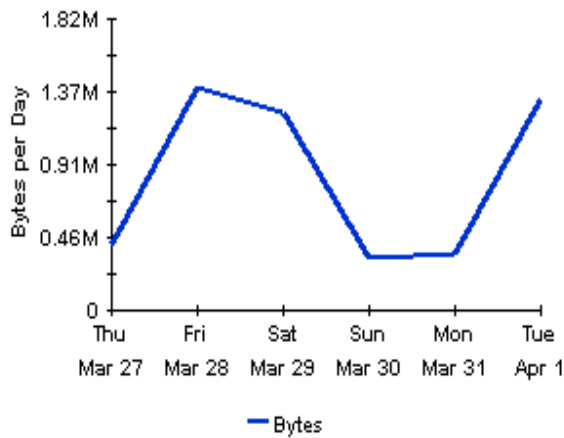
Thu Mar 27 2003 - Tue Apr 01 2003



### Bytes

sniffer : 3 : 15.0.73.141

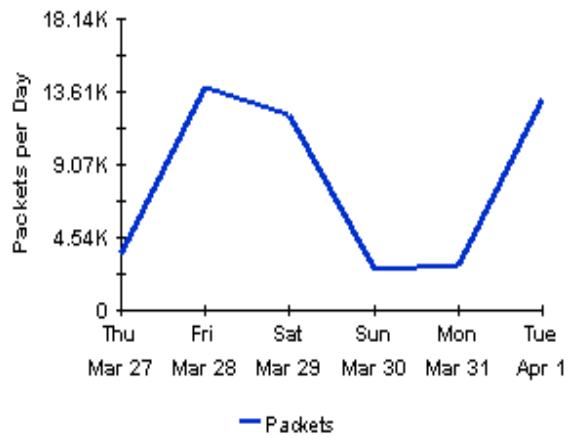
Thu Mar 27 2003 - Tue Apr 01 2003




### Packets

sniffer : 3 : 15.0.73.141

Thu Mar 27 2003 - Tue Apr 01 2003



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# RMON2 Traffic Profiling



## Daily Host Detail

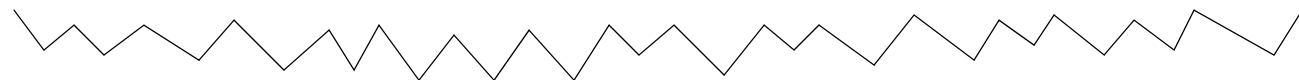
The Host Detail Report presents a breakdown of the hosts and protocols which contribute to the total traffic on an interface. Select an interface and a time period to see a list of hosts that had the most impact on the interface utilization for the time period selected. Select a host device to see a list of hosts / protocols accessed by the host through the selected interface. Select a host / protocol combination to see graphs of its historical traffic patterns.

Probe List			Peak Hourly Utilization		
Probe	Interface	Busy Hour Utilization	Day	Busy Hour Utilization	
sniffer	3	0.01	April 1, 2003	0.01	
			March 31, 2003	0.01	
			March 30, 2003	0.01	
			March 29, 2003	0.01	
			March 28, 2003	0.01	
			March 27, 2003	0.01	

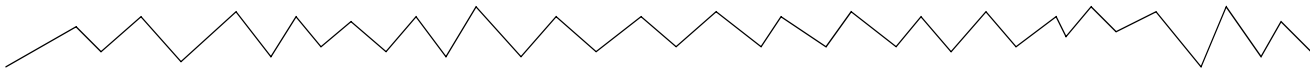
Top Talking Hosts					
Host	Busy Hour Utilization	% of Daily Traffic	Bytes	Average Bytes per Packet	
15.0.73.141	0.00	2.62	1392.39 k	103.06	
15.243.128.51	0.00	8.37	4449.27 k	255.90	
15.0.73.150	0.00	19.71	10.47 M	195.72	
15.8.155.228	0.00	14.26	7574.20 k	731.81	
15.1.158.148	0.00	13.96	7416.62 k	288.33	
15.244.60.106	0.00	0.55	294.47 k	130.18	
15.244.60.239	0.00	0.46	242.46 k	116.62	
15.0.73.2	0.00	0.45	236.80 k	115.23	
15.0.73.146	0.00	7.43	3945.02 k	106.39	

Host Owner: Unassigned      Host Location: Unassigned

Top Talking Host / Protocol Pairs					
Destination Host	Protocol	Busy Hour Utilization	% of Daily Traffic	Bytes	Average Bytes per Packet
15.243.128.51	wildcard.ip.udp.dns	0.00	0.13	70.12 k	85.30
15.13.218.121	wildcard.ip.udp.snmp	0.00	0.04	21.53 k	97.00
15.61.226.191	wildcard.ip.udp.snmp	0.00	0.03	15.71 k	97.00
15.244.37.53	wildcard.ip.udp.snmp	0.00	0.02	11.05 k	98.67
15.244.36.67	wildcard.ip.udp.snmp	0.00	0.02	11.05 k	98.67







### Destination Host Owner

Unassigned

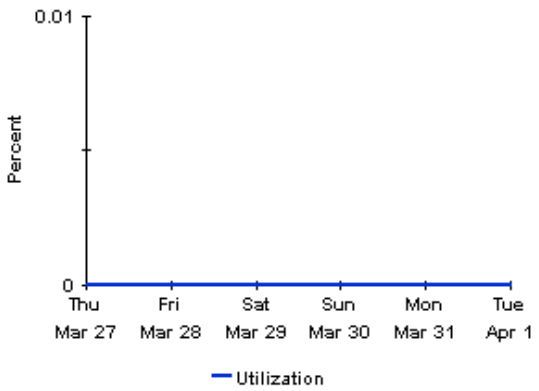
### Destination Host Location

Unassigned



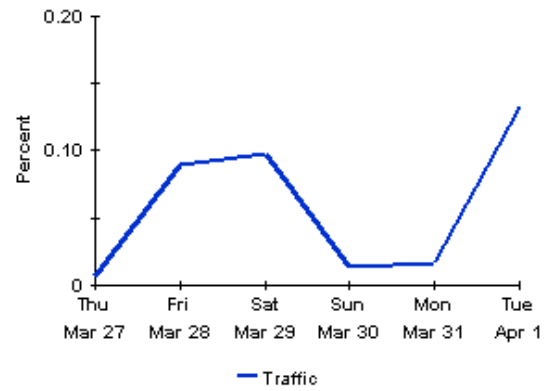
#### Busy Hour Utilization

Thu Mar 27 2003 - Tue Apr 01 2003



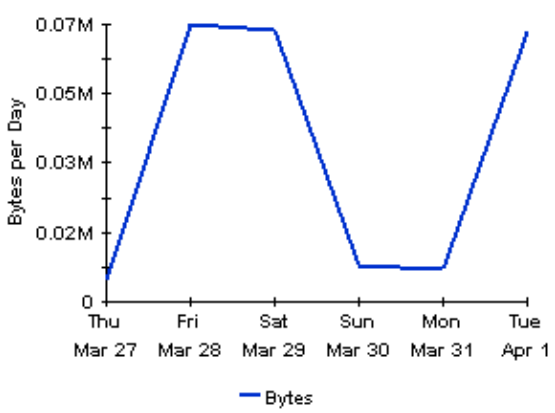
#### % of Daily Traffic

Thu Mar 27 2003 - Tue Apr 01 2003



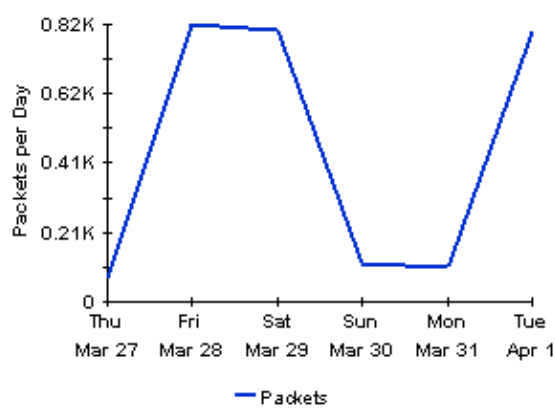
#### Bytes

Thu Mar 27 2003 - Tue Apr 01 2003



#### Packets

Thu Mar 27 2003 - Tue Apr 01 2003




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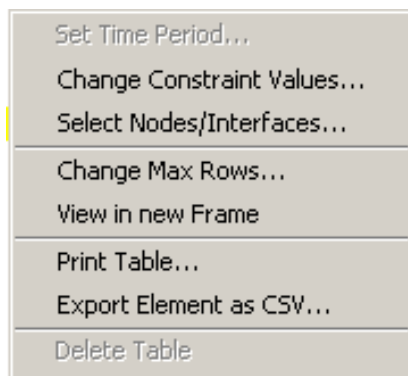
# A Editing Tables and Graphs

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 the Report Viewer application, right-click the object to display a list of view options. If you are looking at a report using the Web Access Server, follow these steps to change the default view of a table or graph:

- 1 Click **Preference** 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.

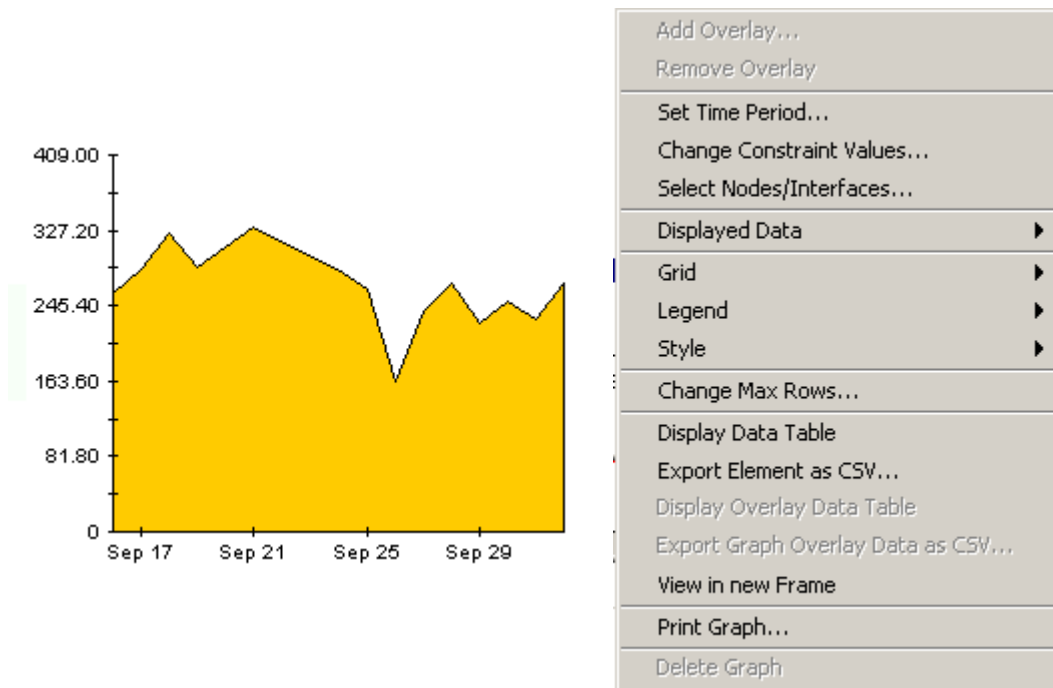
**Change Max Rows** increases or decreases the number of rows in a table. The default is 50. If you expand the default, the table may take more time to open. If you are trending a large network, using the default ensures that the table opens as quickly as possible.

**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.

Polled IP QoS Statistics Data - Input Over Previous 6 Hours					
Direction	IpPrecedence	Switched Bytes	Switched Pkts	Time Period	
Input	0	105,688	675	Tue Oct 29 07:00 AM	
Input	1	0	0	Tue Oct 29 07:00 AM	
Input	2	0	0	Tue Oct 29 07:00 AM	
Input	3	0	0	Tue Oct 29 07:00 AM	
Input	4	0	0	Tue Oct 29 07:00 AM	
Input	5	0	0	Tue Oct 29 07:00 AM	
Input	6	600	5	Tue Oct 29 07:00 AM	
Input	7	0	0	Tue Oct 29 07:00 AM	
Input	0	98,334	638	Tue Oct 29 06:45 AM	
Input	1	0	0	Tue Oct 29 06:45 AM	
Input	2	0	0	Tue Oct 29 06:45 AM	
Input	3	0	0	Tue Oct 29 06:45 AM	
Input	4	0	0	Tue Oct 29 06:45 AM	

## View Options for Graphs

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

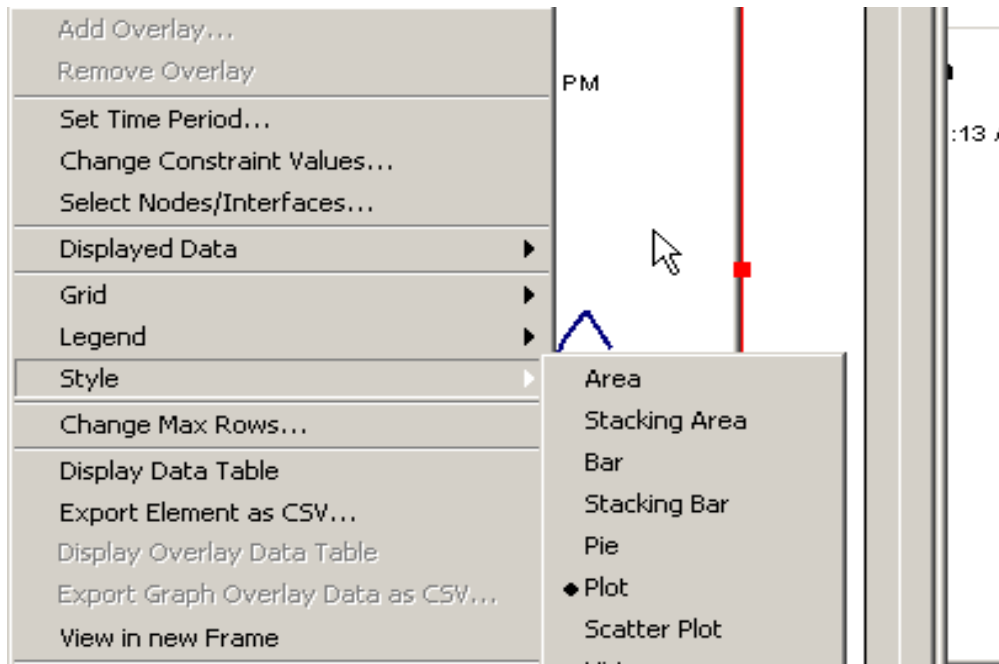


The following table provides details about each option.

Option	Function
Set Time Period	Same as the table option shown above.
Change Constraint Values	Same as the table option shown above.
Select Nodes/Interfaces	Same as the table option shown above.
Displayed Data	For every point on a graph, display data in a spreadsheet.
Grid	Add these to the graph: 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.

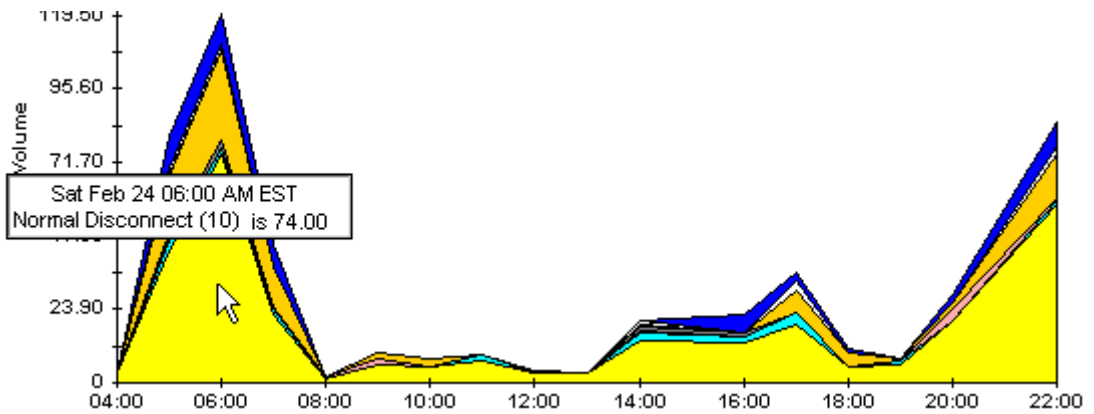
## Style Options

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



## Style > Area

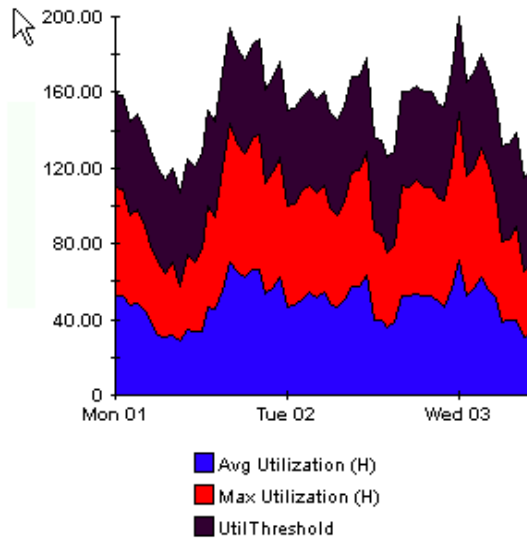
The plot or bar chart changes to an area graph. While relative values and total values are easy to view in this format, absolute values for smaller data types may be hard to see. Click anywhere within a band of color to display the exact value for that location



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.

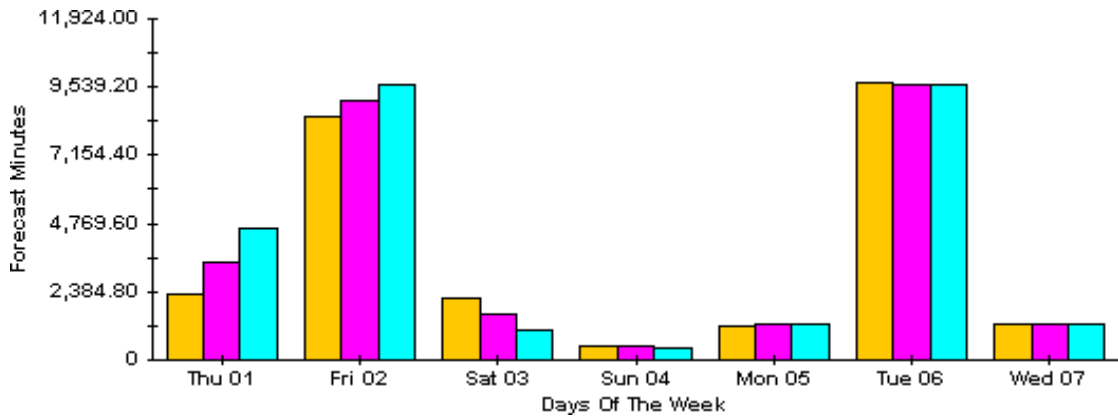
## Style > Stacking Area

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



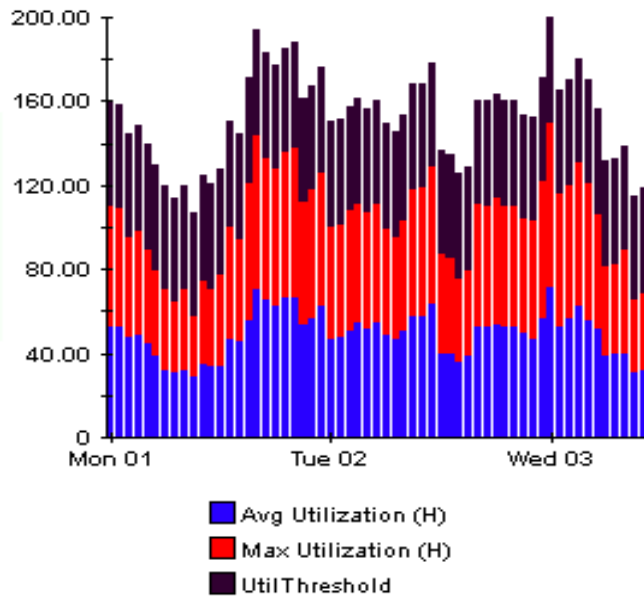
## Style > Bar

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.



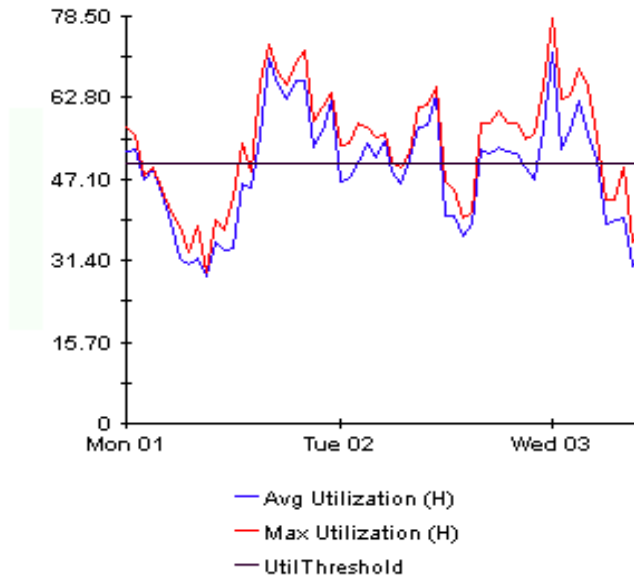
## Style > Stacking Bar

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.



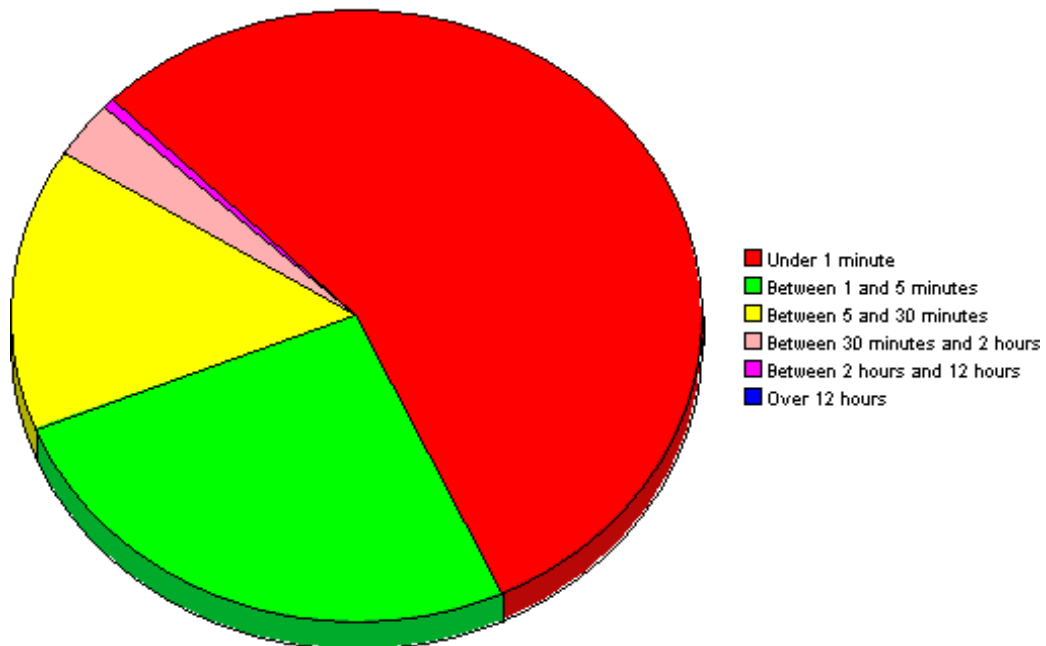
## Style > Plot

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

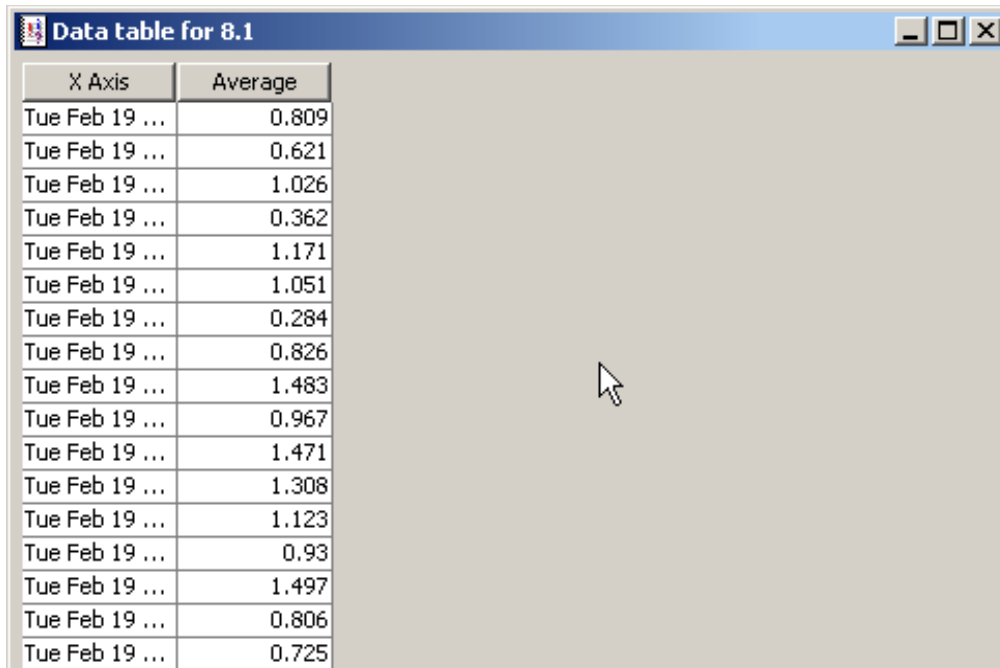
An area graph becomes a pie chart. Bands in an area graph convert to slices of a pie and the pie constitutes a 24-hour period. This view is helpful when a small number of data values are represented and you are looking at data for one day.





## Display Data Table

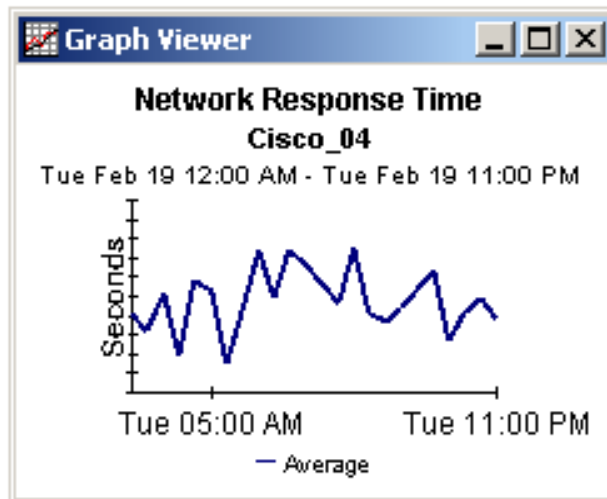
This option changes a graph into a spreadsheet.



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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# Glossary

## **average bytes per packet**

The average number of bytes per packet passed by the host or application or passed between the source/destination.

## **busy hour utilization**

The maximum hourly average for the day. Unlike the average for the day, this value does not smooth out daily peaks and valleys. Unlike daily maximum, or peak, this value represents a relatively persistent phenomenon, not a momentary condition. Note that since busy hour is an average, actual utilization may have been well above the average for a portion of that hour.

## **bytes**

The number of bytes passed by the host or application or passed between the source/destination.

## **day**

The day of the year for which the information was collected.

## **destination**

Where the application/protocol traffic is going.

## **host**

Where the application/protocol traffic is coming from.

## **hour**

The hour for which the information was collected.

## **interface**

The network interface number of the probe.

## **month**

The month for which the information is collected.

## **packets**

The total number of packets passed by the host or application or passed through the source/destination.

## **percentage of traffic**

The percentage of traffic attributed to the host, application, or source/destination in relation to the total traffic passing through the interface.

**probe**

The name of an RMON2 probe.

**protocol**

The name of the protocol through which the network traffic is being routed.

**source**

See **host**.

**utilization**

The percentage of system resources used for one hour, beginning at the listed time.

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