# RMON2 Traffic Profiling Report Pack

Software Version: 3.1

HP Performance Insight

## User Guide

October 2007

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# Contents

# 1 Overview

This chapter covers the following topics

- OVPI and RMON2 Probes
- Enhancements in version 3.1
- Objects, reports, and groups
- Ways to customize reports
- Sources for additional information

## OVPI and RMON2 Probes

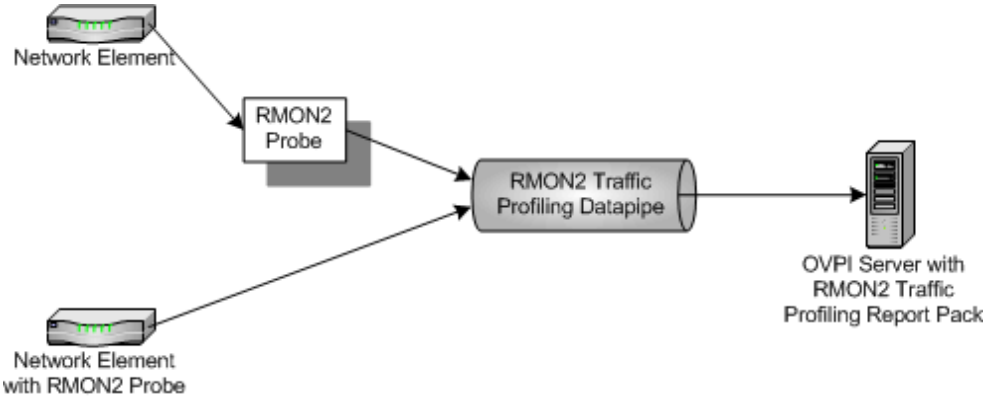
HP Performance Insight is a performance management application that collects data from many sources, performs in-depth trend analysis, maintains performance baselines, and provides users with convenient, web-based reporting. Following is a partial list of product features:

- Distributed architecture
- Easy to scale (supports data collection from thousands of agents)
- CODA/OVPA 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
- Bottlenecks easy to spot; capacity trends easy to review
- Accurate and timely documentation for management

The RMON2 Traffic Profiling Report Pack installs on OVPI. Using processing directives supplied by this 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 supports the following RMON2 probes:

- Agilent
- Cisco NAM
- NetScout

## Enhancements in Version 3.1

Version 3.1 includes new features, a revised datapipe, a new upgrade package, and defect fixes. For details about the enhancements made to previous releases, see Appendix A, Version History.

### New Features

- LIR Configuration
- Copy Policies modified for LIR
- SQL modified for node delete

### New Release of the Datapipe

- RMON2 Traffic Profiling Datapipe 3.2

### New Upgrade Package

- UPGRADE_RMON2_Traffic_Profiling_to_31.ap

### Defect Fixes

- QXCR1000219262
- QXCR1000221988

## 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:

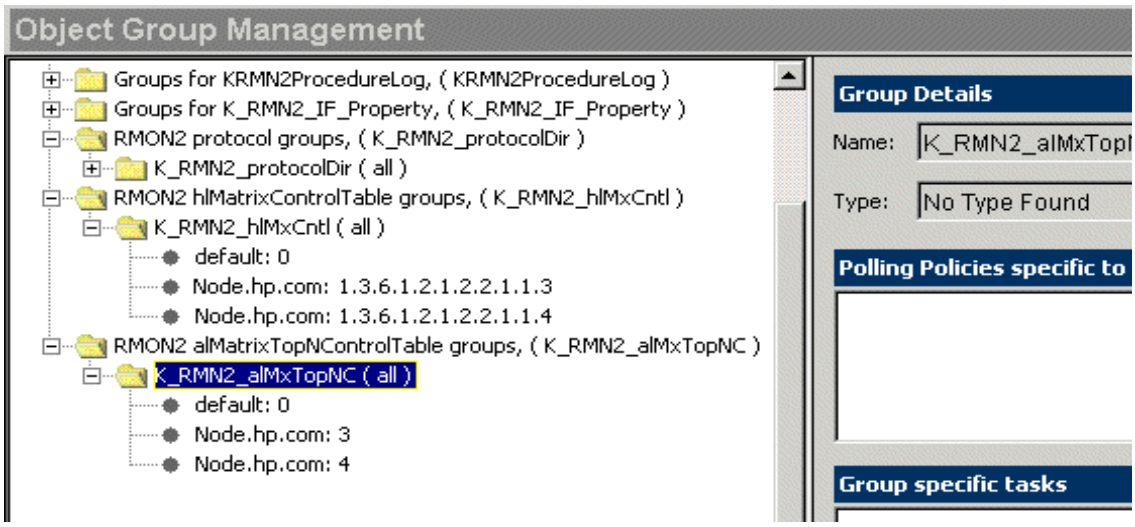
- Daily Top Ten
- Hourly Top Ten
- Monthly Top Ten

**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 adds the following groups to the object tree:




# Options for Customizing 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 Administration Guide*.

## Editing Parameters

When you edit a parameter, you apply a constraint to the report. The constrain 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 3.6 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 Release Notes*
- *Interface Reporting Report Pack User Guide*
- *Common Property Tables User Guide*
- *Interface Discovery Datapipe User Guide*
- *OVPI Report Packs, Release Notes, April 2007*

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

**http://ovweb.external.hp.com/lpe/doc_serv/**

User guides for OVPI are listed under **Performance Insight**. User guides for report packs and datapipes are listed under **Performance Insight Report Packs**. Each manual indicates a date. If a manual is revised and reposted, the date will change. Since we post revised manuals on a regular basis, you should compare the date of your PDF against the date of the PDF on the this web site and download the web edition if it is newer.

# 2 Package Installation

This chapter covers the following topics:



## 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 has the following prerequisites:

- Performance Insight 5.3
- Any and all available service packs for PI 5.3
- Common Property Tables 3.7
- Interface Reporting Report Pack 5.3
- Interface Discovery Datapipe 2.5

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.

If you are running earlier versions of Common Property Tables, version 3.6 or earlier, upgrade to version 3.7. Installing the upgrade package is no different from installing other upgrade packages; however, do not install the 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 on the central server.
4. Install RMON2 Traffic Profiling and the RMON2 Traffic Profiling Datapipe on each satellite server.
5. Re-enable trendcopy on the central server.
6. Configure the central server and each satellite server. For details, see Chapter 4, Setting Up a Distributed System.

## Upgrading Common Property Tables

If you are running version 3.6 or earlier of Common Property Tables, upgrade to version 3.7 by installing the "to 3.7" upgrade package. Do not install other packages at the same time. Install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables.

## Datapipes and Remote Pollers

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

- Single polling policy for a emote 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.

## Upgrading to Version 3.1

If you are currently running RMON2 Traffic Profiling version 3.0 or earlier 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:

- Task 1: Stop OVPI Timer and extract packages from the report pack CD
- Task 2: Upgrade to Common Property Tables 3.7
- Task 3: Upgrade to Interface Reporting 5.3
- Task 4: Install the UPGRADE_RMON2_Traffic_Profiling_to_31 upgrade package
- Task 5: Remove RMON2 Traffic Profiling Datapipe
- Task 6: Install RMON2 Traffic Profiling Datapipe 3.2
- 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 ATM folder:

- Docs
- RMON2_Traffic_Profiling.ap
- RMON2_Traffic_Profiling_Demo.ap
- UPGRADE_RMON2_Traffic_Profiling_31.ap

### Task 2: Upgrade to Common Property Tables 3.7

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 5.3

1 If you have not already upgraded to Interface Reporting 5.2, install the UPGRADE_Interface_Reporting_to_52 package.

2 Upgrade the Interface Reporting datapipes.

- If you have one of the following versions of datapipes installed, you must remove this version of the datapipe and install the new datapipe (version 2.5):
  - Interface Discovery Datapipe 1.1 / 2.0 / 2.1 / 2.2
- If you have the following version of a datapipe installed, you must upgrade to the new version of the datapipe (version 2.5):
  - Interface Discovery Datapipe 2.4

Refer to the *Interface Reporting Report Pack User Guide* for more information about the upgrade procedure.

When the new datapipes are installed, click **Done** to return to the Management Console.

### Task 4: Install the UPGRADE_RMON2_Traffic_Profiling_to_31 upgrade package

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:

   *UPGRADE_RMON2_Traffic_Profiling_to_31*
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 RMON2 Traffic Profiling Datapipe

The RMON2 Traffic Profiling Datapipe cannot be upgraded. You must remove the existing datapipe and then install RMON2 Traffic Profiling Datapipe 3.2. 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 RMON2 Traffic Profiling Datapipe 3.2

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:

   *RMON2 Traffic Profiling Datapipe 3.2*
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 RMON2 Traffic Profiling

Complete the following tasks to install RMON2 Traffic Profiling:

- Stop OVPI Timer and extract OVPI packages from the report pack CD
- If necessary, upgrade to Common Property Tables 3.7
- 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/init.d/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 3.7

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

If you have not already upgraded to Common Property Tables 3.7, install the 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 3.2*
   - *Interface Discovery Datapipe 2.5* (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/init.d/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 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 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/init.d/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 Datapip*e
   - *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/init.d/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]`**

| | | |
|---|---|---|
| -a *ProbeHost* | Required | The name of the RMON2 probe. |
| -c *CommunityString* | Optional | Default: private.<br>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. |
| -f *ConfigFile* | Optional | Default: `\OVPI\packages\RMON2_Traffic_Profiling_Datapipe\RMON2_Traffic_Profiling_Datapipe.ap\alMatrixConfig.xml`.<br>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

These are the steps to follow when setting up a distributed system:

- Decide whether or not you want local reporting
- Install the right set of packages on each server (a central server that is not polling will not need datapipes; the satellite servers will need datapipes)
- Verify that the system clocks in your environment are synchronized
- Register your satellite servers
- If you are not copying rate data to the central server, enable LIR on the central server
- If you enable LIR, add LIR mapping with the time type set to rate
- Verify that you have all the copy policies you need
- Configure the central server (manual edits to trendtimer.sched and .pro files)
- Configure each satellite server (manual edits to trendtimer.sched and .pro files)

If you want to set up a distributed system, you can implement local reporting or you can implement centralized reporting. If you want local reporting, you need to deploy reports when you install the report pack on each satellite server, and you need to allow summarizations to run on each satellite server. If you do not want local reporting, then you do not need to deploy reports when you install a report pack on a satellite server and you can disable the scripts that run summarizations on each satellite server.

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. The advantage to this approach was that it kept a large volume of rate data off the network and it decreased the processing load on the central server. The disadvantage 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 overcomes this disadvantage. 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 that, then enabling LIR is not necessary.

## 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 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: 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: 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 **RMON2 Traffic Profiling** 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 to list** 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 that is defined in the generated copy policy (the type of data copied that is defined in the generated copy policy is for one greater than the data type selected in the LIR mapping). For example, if you select an hourly data type, a daily data copy policy is generated.

### Task 4: Verify the automatically generated copy policies

Verify that a copy policy has been generated for the SHRMN2 table 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 SHRMN2 table and verify the copy type is set to Property and Data.

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 SHRMN2 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**.

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 OVPI is installed.

Make the following change:

- Find and change the following line (modify the daily processing time):

  ```
  1:00+10 - - {DPIPE_HOME}/bin/trend_proc -f
  {DPIPE_HOME}/scripts/RMN2_Hourly.pro
  ```

  to

  ```
  1:00+15 - - {DPIPE_HOME}/bin/trend_proc -f
  {DPIPE_HOME}/scripts/RMN2_Hourly.pro
  ```

# Configuring a Satellite Server

Follow these steps to configure each satellite server.

1. Modify the `trendtimer.sched` file (found in the *`{DPIPE_HOME}`*`/lib/` directory where *`{DPIPE_HOME}`* is the directory in which OVPI is installed).

Find and comment out the following line:

```
24:00+3:00+30 - - {DPIPE_HOME}/bin/trend_proc -f
{DPIPE_HOME}/scripts/RMN2_Daily.pro
```

2 Modify the `RMN2_Hourly.pro` file (found in the *`{DPIPE_HOME}`*`/scripts/` directory where *`{DPIPE_HOME}`* is the directory in which OVPI is installed). Do the following:

- Uncomment the `RMN2` block (uncomment the `begin:RMN2 wait` and `end:RMN2` lines).
- Comment out the `block1`, `block3`, `block4`, `block6` and `block7` blocks (comment out the `begin:blockx` and `end:blockx` lines).

# 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 contributers 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

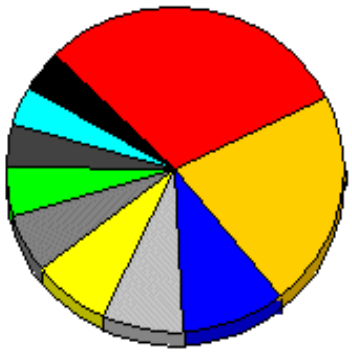
| | Host | Busy Hour Utilization | % of Traffic |
|---|---|---|---|
| 1 | 15.0.73.147 | 0.10 | 8.81 |
| 2 | 15.0.73.150 | 0.07 | 6.24 |
| 3 | 15.0.73.141 | 0.03 | 2.88 |
| 4 | 15.0.73.148 | 0.03 | 2.30 |
| 5 | 15.244.20.169 | 0.02 | 2.22 |
| 6 | 15.244.81.51 | 0.02 | 1.72 |
| 7 | 15.244.60.116 | 0.02 | 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

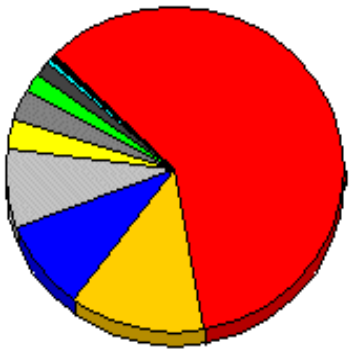
### Top Ten Hosts



: 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.tcp.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.tcp.sunrpc :
3: sniffer : 3 : wildcard.ip.tcp.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 ar 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

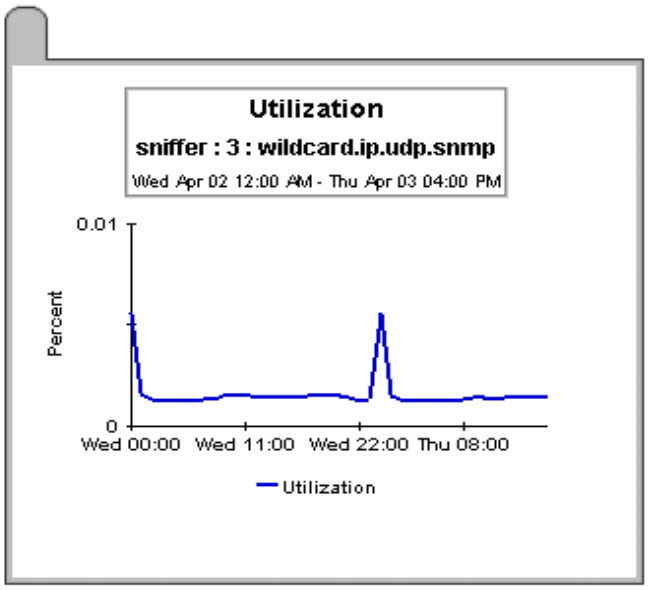
| Probe | Interface | Utilization |
|---|---|---|
| sniffer | 3 | 0.00 |

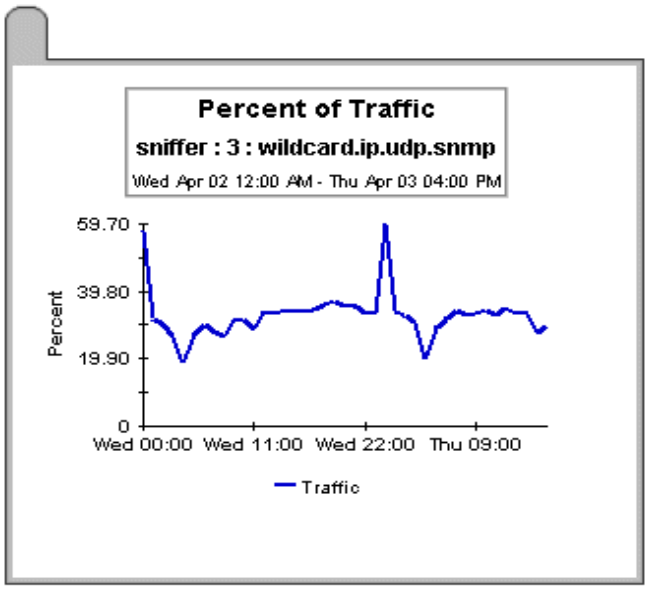
### Hourly Utilization

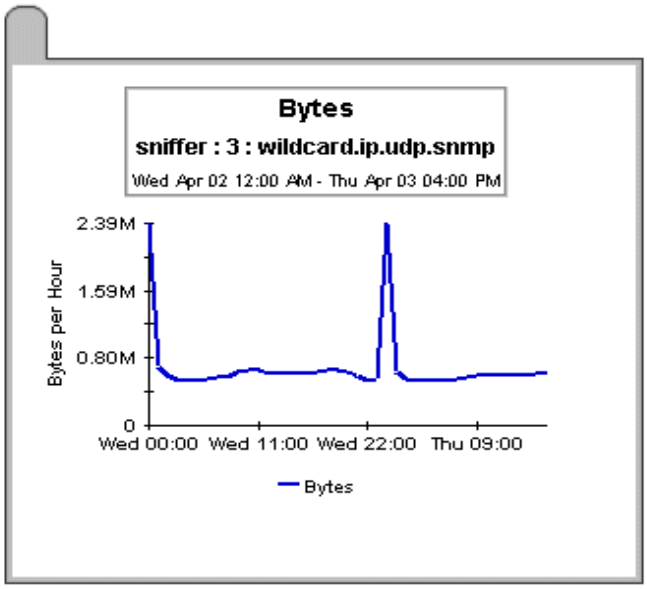
| Hour | Utilization |
|---|---|
| 4:00 PM, April 3, 2003 | 0.00 |
| 3:00 PM, April 3, 2003 | 0.01 |
| 2:00 PM, April 3, 2003 | 0.00 |
| 1:00 PM, April 3, 2003 | 0.00 |
| 12:00 PM, April 3, 2003 | 0.00 |
| 11:00 AM, April 3, 2003 | 0.00 |
| 10:00 AM, April 3, 2003 | 0.00 |

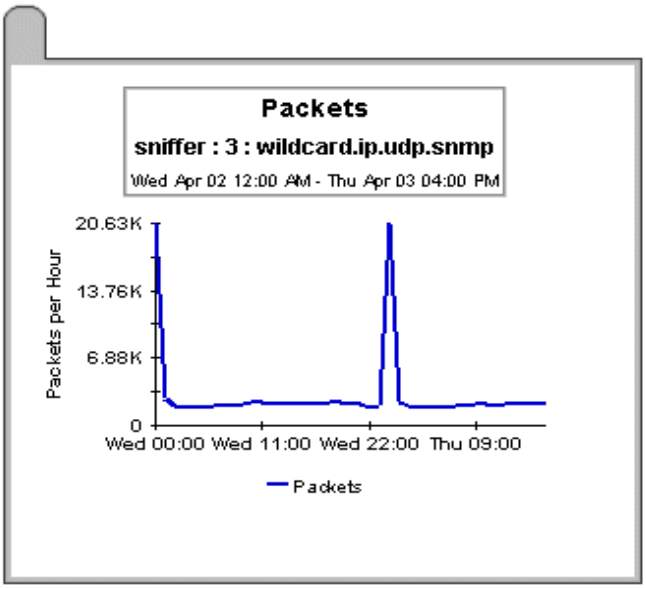
### Top Talking Protocols / Applications

| Protocol | Utilization | % of Traffic | Bytes | Average Bytes per Packet |
|---|---|---|---|---|
| wildcard.ip.udp.snmp | 0.00 | 29.73 | 637.70 k | 286.35 |
| wildcard.ip.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 |


Utilization
sniffer : 3 : wildcard.ip.udp.snmp
Wed Apr 02 12:00 AM - Thu Apr 03 04:00 PM
0.01
Percent
0
Wed 00:00 Wed 11:00 Wed 22:00 Thu 08:00
Utilization


Percent of Traffic
sniffer : 3 : wildcard.ip.udp.snmp
Wed Apr 02 12:00 AM - Thu Apr 03 04:00 PM
59.70
39.80
19.90
Percent
0
Wed 00:00 Wed 11:00 Wed 22:00 Thu 09:00
Traffic


Bytes
sniffer : 3 : wildcard.ip.udp.snmp
Wed Apr 02 12:00 AM - Thu Apr 03 04:00 PM
2.39M
1.59M
0.80M
Bytes per Hour
0
Wed 00:00 Wed 11:00 Wed 22:00 Thu 09:00
Bytes


Packets
sniffer : 3 : wildcard.ip.udp.snmp
Wed Apr 02 12:00 AM - Thu Apr 03 04:00 PM
20.63K
13.76K
6.88K
Packets per Hour
0
Wed 00:00 Wed 11:00 Wed 22:00 Thu 09:00
Packets

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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.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 |

### 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 |

**Source Owner**

Unassigned

**Source Location**

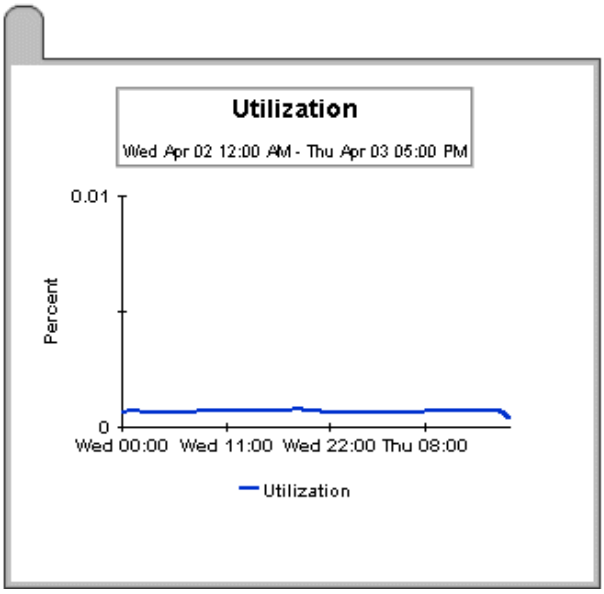
Unassigned

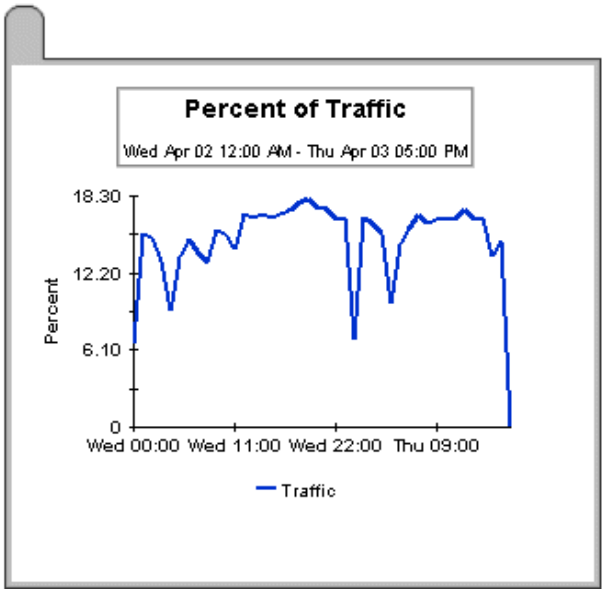
**Destination Owner**

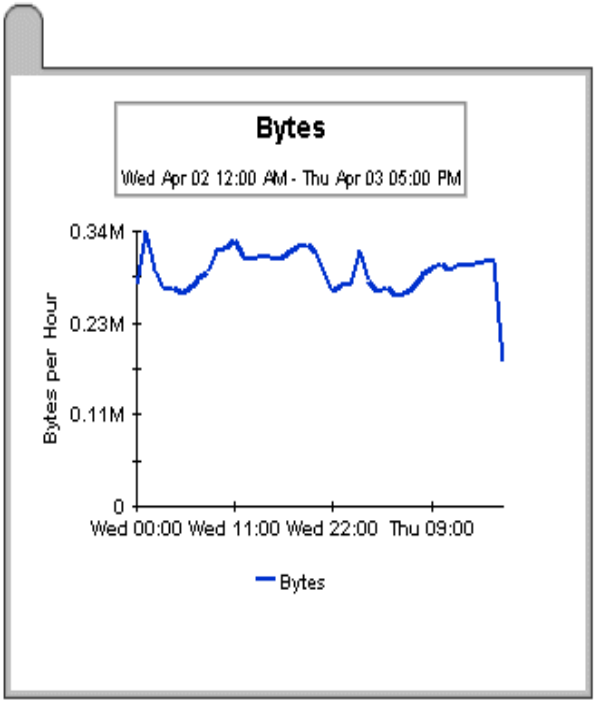
Unassigned

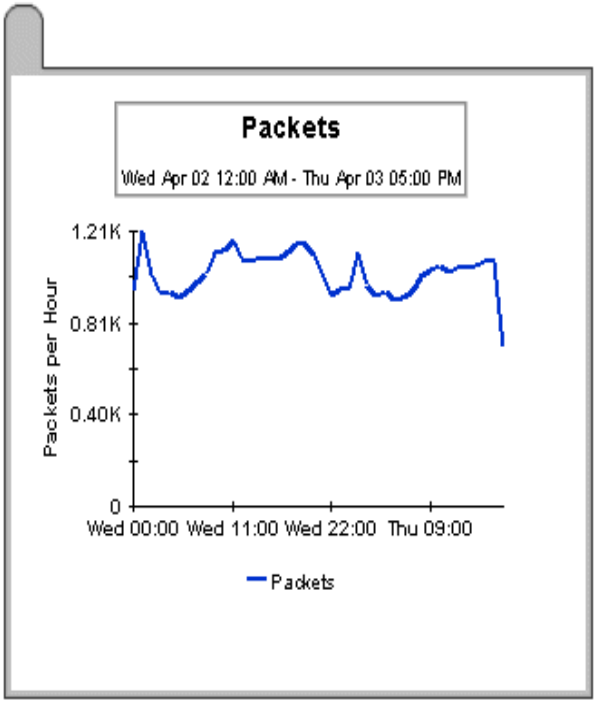
**Destination Location**

Unassigned

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# RMON2 Traffic Profiling

## Daily Host Summary

The Host Summary Report presents a breakdown of the host devices 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 graphs of its historical traffic patterns.

### Probe List

| Probe | Interface | Busy Hour Utilization |
|---|---|---|
| sniffer | 3 | 0.01 |

### Peak Hourly Utilization

| Day | Busy Hour Utilization |
|---|---|
| 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

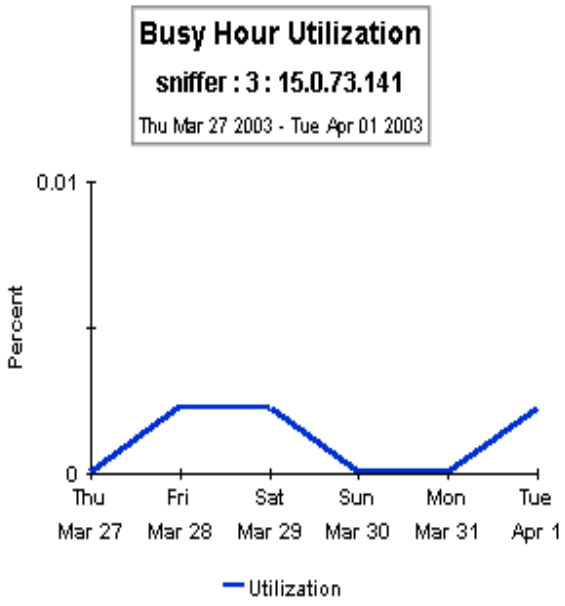
| Host | Busy Hour Utilization | % of Daily Traffic | Bytes | Average Bytes per Packet |
|---|---|---|---|---|
| 15.0.73.141 | 0.00 | 2.62 | 1392.39 k | 103.06 |
| 15.243.128.51 | 0.00 | 8.37 | 4449.27 k | 255.90 |
| 15.0.73.150 | 0.00 | 19.71 | 10.47 M | 195.72 |
| 15.8.155.228 | 0.00 | 14.26 | 7574.20 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 |

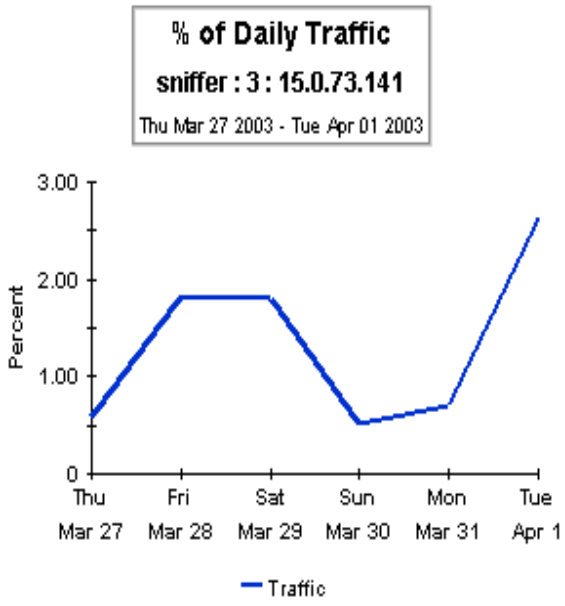
### Host Owner

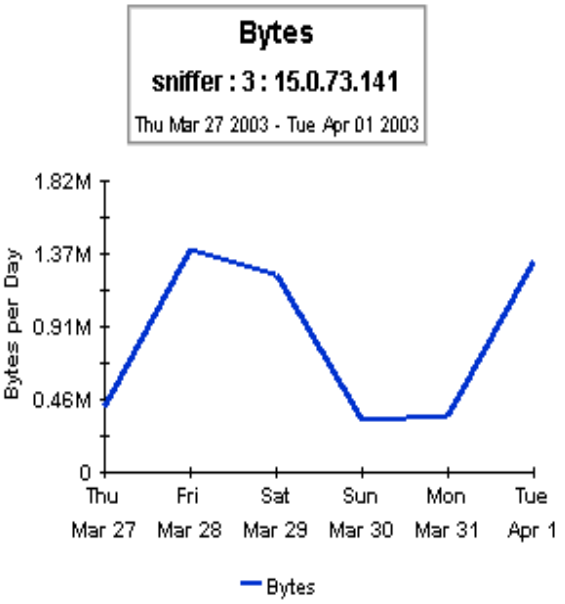
Unassigned

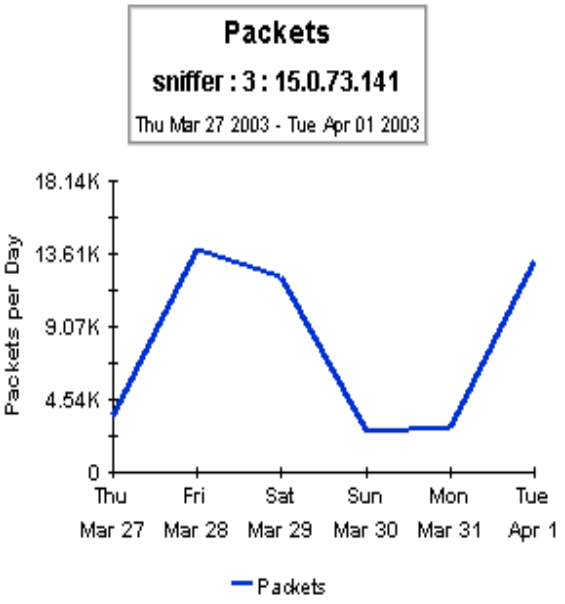
### Host Location

Unassigned


Busy Hour Utilization
sniffer : 3 : 15.0.73.141
Thu Mar 27 2003 - Tue Apr 01 2003
0.01
0
Percent
Thu Mar 27
Fri Mar 28
Sat Mar 29
Sun Mar 30
Mon Mar 31
Tue Apr 1
Utilization


% of Daily Traffic
sniffer : 3 : 15.0.73.141
Thu Mar 27 2003 - Tue Apr 01 2003
3.00
2.00
1.00
0
Percent
Thu Mar 27
Fri Mar 28
Sat Mar 29
Sun Mar 30
Mon Mar 31
Tue Apr 1
Traffic


Bytes
sniffer : 3 : 15.0.73.141
Thu Mar 27 2003 - Tue Apr 01 2003
1.82M
1.37M
0.91M
0.46M
0
Bytes per Day
Thu Mar 27
Fri Mar 28
Sat Mar 29
Sun Mar 30
Mon Mar 31
Tue Apr 1
Bytes


Packets
sniffer : 3 : 15.0.73.141
Thu Mar 27 2003 - Tue Apr 01 2003
18.14K
13.61K
9.07K
4.54K
0
Packets per Day
Thu Mar 27
Fri Mar 28
Sat Mar 29
Sun Mar 30
Mon Mar 31
Tue Apr 1
Packets

Back to top.

# 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

| Probe | Interface | Busy Hour Utilization |
|---|---|---|
| sniffer | 3 | 0.01 |

### Peak Hourly Utilization

| Day | Busy Hour Utilization |
|---|---|
| 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

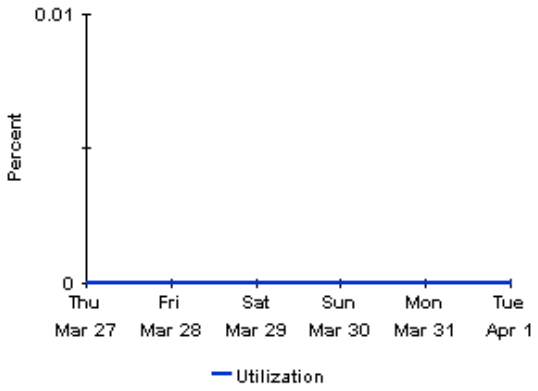
Unassigned

## Destination Host Location

Unassigned

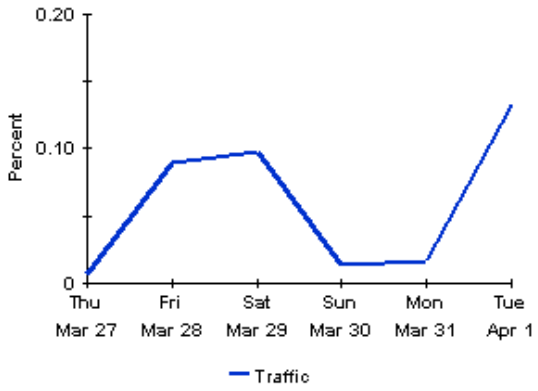
### Busy Hour Utilization

Thu Mar 27 2003 - Tue Apr 01 2003



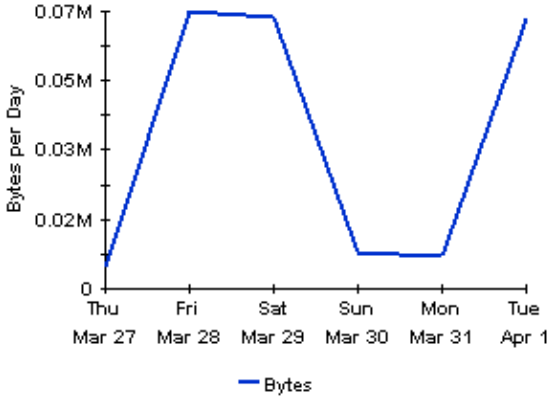

### % of Daily Traffic

Thu Mar 27 2003 - Tue Apr 01 2003



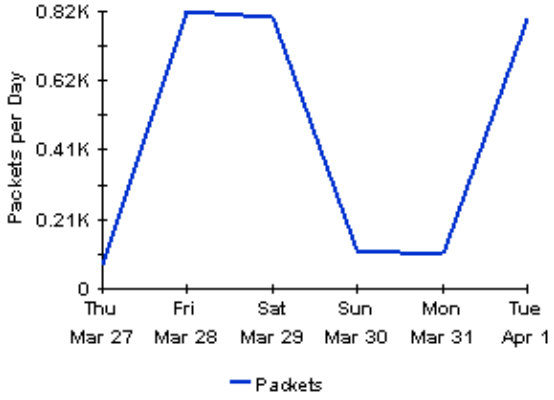

### Bytes

Thu Mar 27 2003 - Tue Apr 01 2003




### Packets

Thu Mar 27 2003 - Tue Apr 01 2003

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# A Version History

| Package Version | Release Date | Features/Enhancements |
|---|---|---|
| 1.0 | May 2003 | 15 reports<br>RMON2 Traffic Profiling Datapipe 1.0<br>Sybase support |
| 2.0 | October 2003 | OVPI Object Manager support<br>RMON2 Traffic Profiling Datapipe 2.0 |
| 3.0 | November 2004 | Oracle support<br>RMON2 Traffic Profiling Datapipe 3.0 |
| 3.0 | June 2005 | UPGRADE_RMON2_Traffic_Profiling_to_3.0 |
| 3.1 | May 2006 | QXCR1000243590 (map procedure appending “4”) |
| 3.1 | April 2007 | *new features:*<br>• LIR Configuration<br>• Copy Policies modified for LIR<br>• SQL modified for node delete<br>*new release of the datapipe:*<br>RMON2 Traffic Profiling Datapipe 3.2<br>*new upgrade package:*<br>UPGRADE_RMON2_Traffic_Profiling_to_31.ap<br>*defect fixes:*<br>• QXCR1000219262<br>• QXCR1000221988 |
| 3.1 | October 2007 | *new prerequisites:*<br>• PI 5.3<br>• Common Property Tables 3.7 |

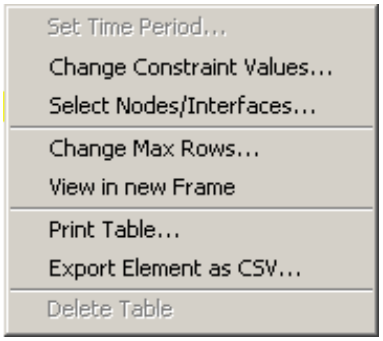
# B Editing Tables and Graphs

Any table or graph can be viewed in several ways. Although 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.

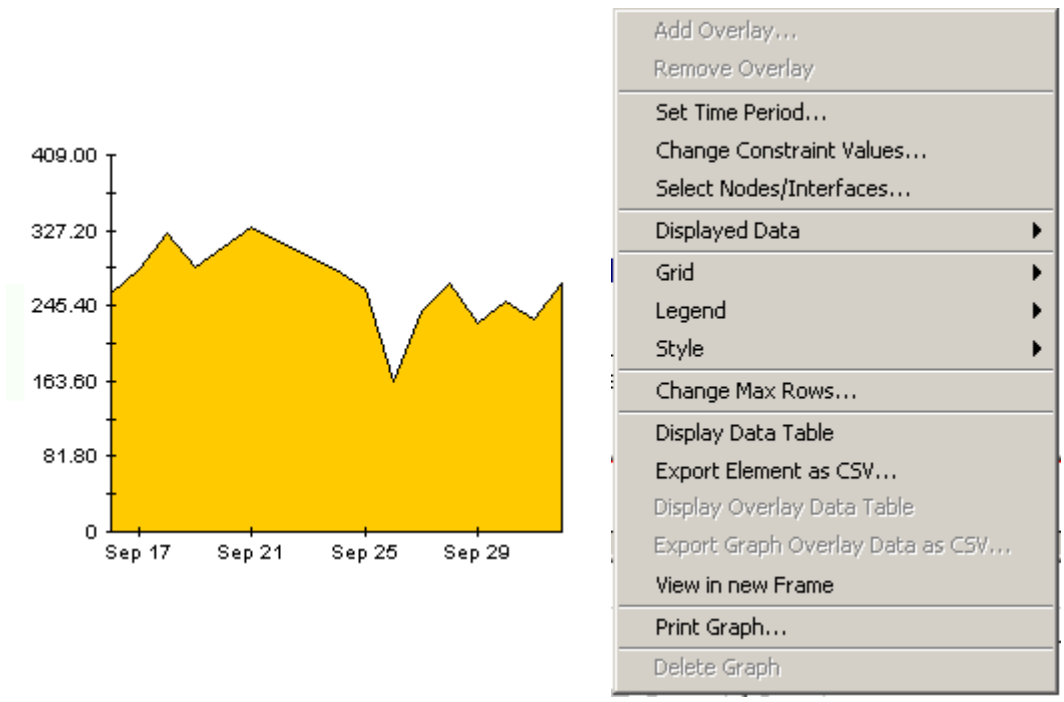
Table Viewer

**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 |

# 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.

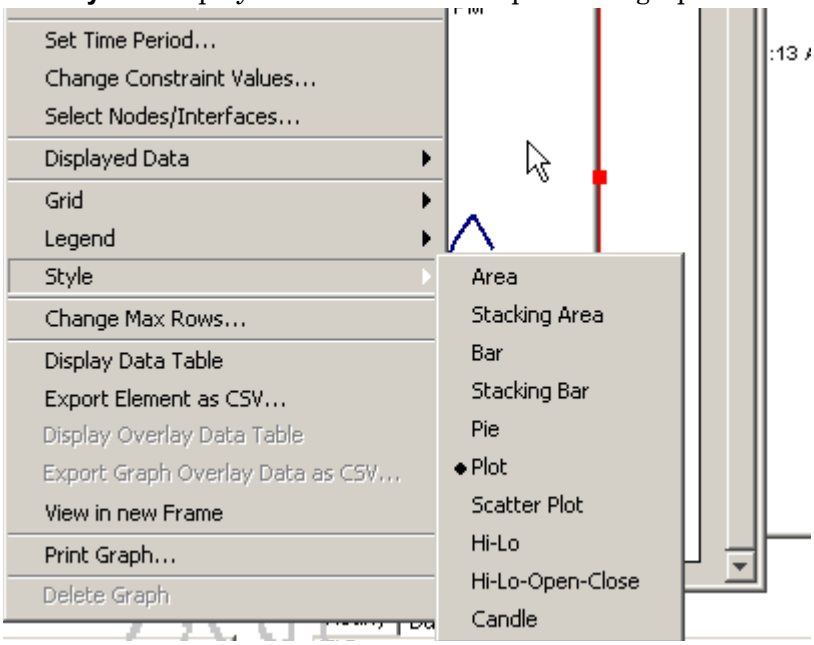


The following table provides details about each option.

| 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:<br>X axis grid lines<br>Y axis grid lines<br>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. |

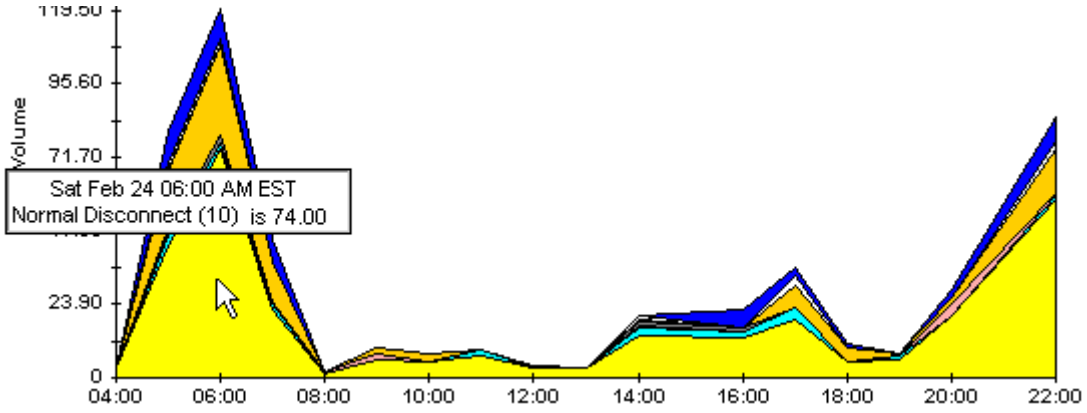
## Style Options

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



## Style > Area

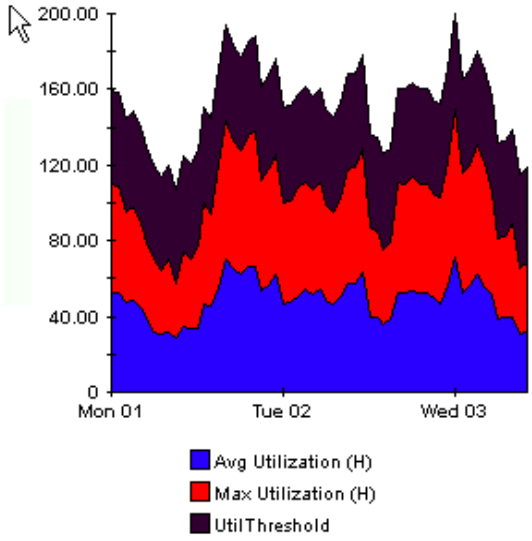
The plot or bar chart changes to an area graph. While relative values and total values are easy to view in this format, absolute values for smaller data types may be hard to see. Click anywhere within a band of color to display the exact value for that location




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.

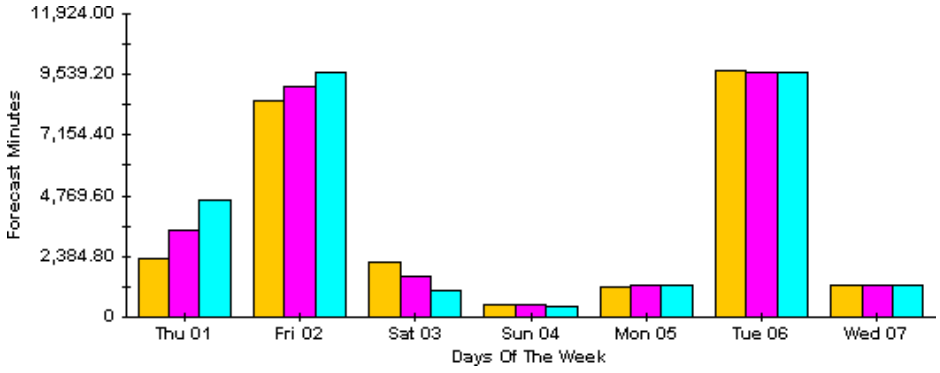
## Style > Stacking Area

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



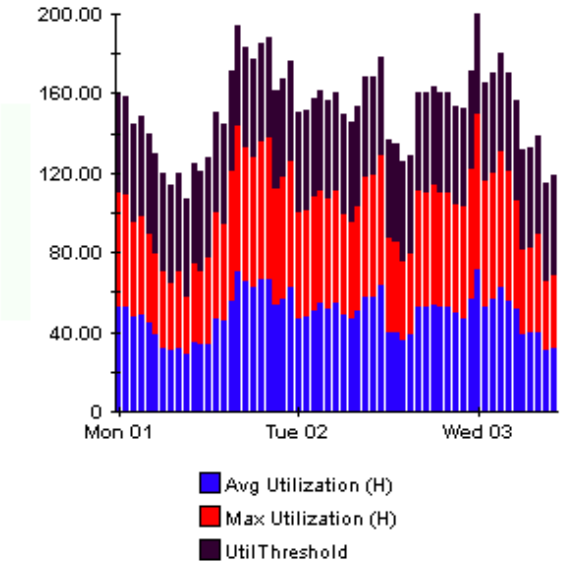
## Style > Bar

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.



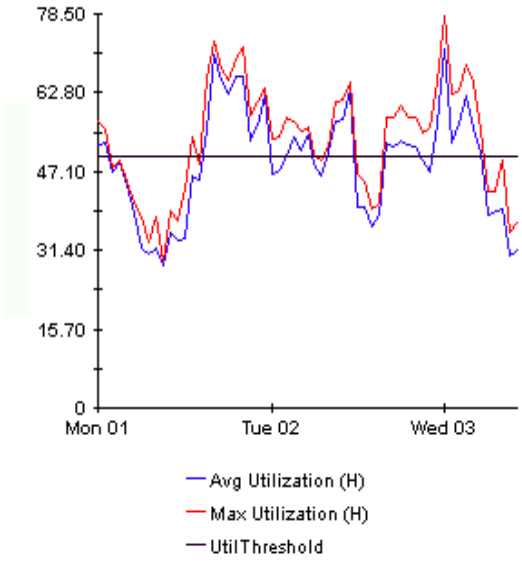

## Style > Stacking Bar

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.



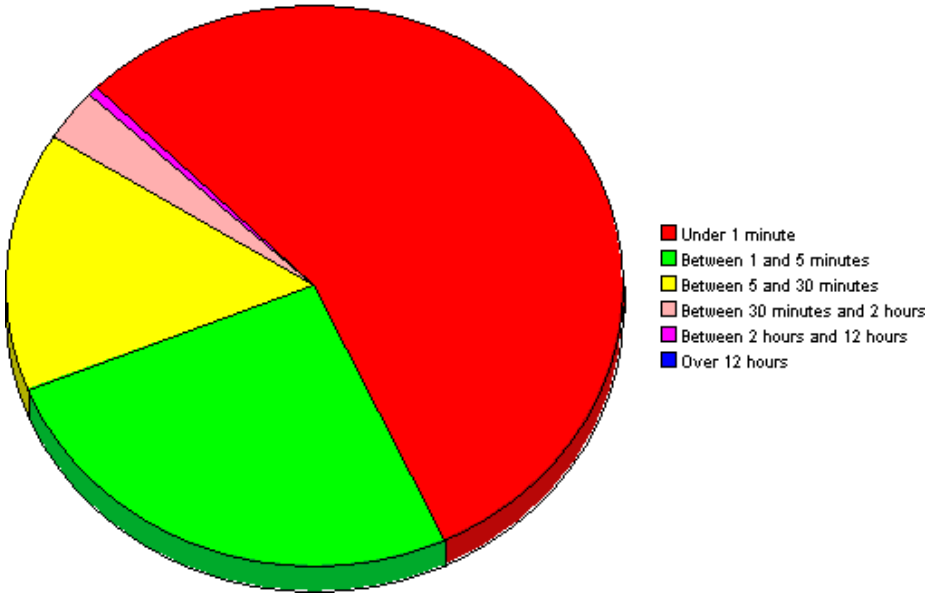
## Style > Plot

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

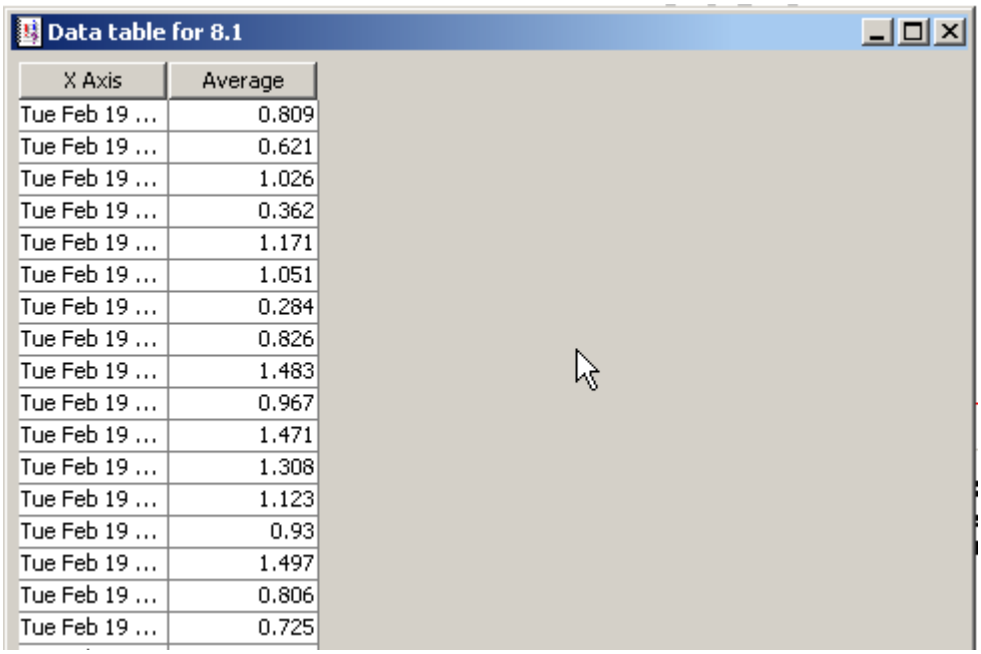
An area graph becomes a pie chart. Bands in an area graph convert to slices of a pie and the pie constitutes a 24-hour period. This view is helpful when a small number of data values are represented and you are looking at data for one day.




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

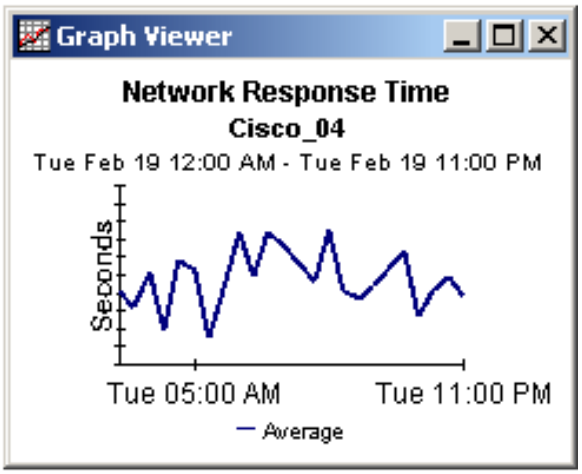
## Display Data Table

This option changes a graph into a spreadsheet.




## View in New Frame

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



# 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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