

Monitor Tab Reference

The following topics describe the pages in the Monitor tab. Topics are organized according to the following Monitor tab options:

- [Real Time Status, page D-1](#)
- [Historical Trends Page, page D-13](#)
- [Thresholds Configuration, page D-29](#)

Real Time Status

The following topic describes the fields in the page that is accessed from the Real Time Status option:

- [QoS Report Card Page, page D-2](#)
- [Real Time Charts Page, page D-3](#)
- [Snapshot Event Browser Properties Page, page D-8](#)
- [Live Event Browser Properties Page, page D-11](#)

QoS Report Card Page

Use this page to view the details about a device, the interfaces contained in the device, and the policies assigned to the interfaces.

To open this page, select **Monitor > Real Time Status > QoS Report Card**.

The QoS Report Card page allows you to select devices only from the active device group. To view the QoS Report Card of a device, select the device from the tree view by selecting the radio button next to the device name. The QoS Report Card appears on the right area of the pane.

Device Identity Area

Table D-1 QoS Report Card - Device Identity Area

Field	Description
Device Name	Displays the device name.
Device Type	Displays the device type.
OS Version	Displays the device's operating system (OS) version.

Interfaces Area

Table D-2 QoS Report Card - Interfaces Area

Field	Description
Number of Interfaces	Displays the number of interfaces on the selected device.
Number of Interfaces with QoS Policies	Displays the number of interfaces that have been assigned policies.
Number of Threshold-enabled interfaces	Displays the number of interfaces on which Threshold Sets are assigned.

Monitorable Policy Assignments Area

This area displays the number of monitorable QoS policies assigned to the interfaces of the selected device.

The message `This device has no monitorable policies attached` appears if no monitorable policies are assigned to the device.

Table D-3 QoS Report Card - Policy Assignments Area

Field	Description
QoS Policies	Displays the number of monitorable QoS policies on the selected device.
Interface	Displays the interface name. If you click the interface name, you can view the Real Time Chart of the traffic through the interface.
Policy	Displays the Traffic Rule(s) assigned to the interface.
Direction	Displays the direction of the Traffic Rule.
Threshold Enabled	Displays 'Yes' or 'No' depending on whether Threshold Sets are assigned on the interface or not

Related Topics

- [Real Time Charts Page, page D-3](#)

Real Time Charts Page

Use this page to view the real-time chart for a selected device interface.

To open this window, go to **Monitor > Real Time Status** and select **Real Time Charts** from the TOC.

The Real Time Charts page allows you to select devices only from the active device group. To view the real-time chart for a device interface, select the interface from the Select Device Interface pane and click **Show Real Time Chart**. The [Show Real Time Chart Window](#) page is displayed.

Show Real Time Chart Window

Use this window to view a real-time monitoring report on a device interface.

To open this window, select a device interface from the Select Device Interface pane, and click **Show Real Time Chart** in the [Real Time Charts Page](#) page.

The real-time policy analysis charts do not show the effect of traffic dropping for reasons other than QoS policy actions, such as dropping because of full queues.

Therefore, it is possible that the traffic volume shown for an interface will be greater than the capacity of the interface. In this case, if you set the vertical axis to percentage, the traffic volume for the interface will exceed 100% of the interface's capacity.

If a device is not successfully polled (for example, when a device is unreachable, or the SNMP community string has been changed on the device directly while being polled), a red triangle appears along the X axis at the point where the device data could not be collected.

The graph uses the last collected data values in the graph, which will appear as straight lines until the device is successfully polled. For bar graphs, a red triangle indicates there was at least one unsuccessful polling period in the bar.

Table D-4 Show Real Time Chart Page

Field	Description
Graph Type	Select the graph type to display: <ul style="list-style-type: none"> • Line—Presents data in a line chart format. • Bar—Presents data in a bar chart format.
Units	Select the units to display in the graphs: <ul style="list-style-type: none"> • Packets/second—Displays data flow rates in packets per second. • Bits/second—Displays data flow rates in bits per second.
Vertical Axis	Select the vertical scale for graphs: <ul style="list-style-type: none"> • Linear—Displays the vertical scale of charts in linear format (the distance between units remains constant). • Logarithmic—Displays the vertical scale of charts in logarithmic format (the distance between units gets smaller as the total gets higher). • Percentage—Displays the vertical scale of charts as a percentage of the total bandwidth available on the interface.
Task Name	Displays the name of the task.
Task Start Time	Displays the start time of the task (when the report was run).
Device	Displays the IP address of the device that is monitored in the report.

Table D-4 Show Real Time Chart Page

Field	Description
Interface	Displays the interface name of the interface that is monitored in the report.
Actual Polling Interval	Displays the polling interval at which the task polls for data. This interval might be different than the polling interval configured for the task. If QPM is not able to poll at the interval configured for the task (due to network congestion, for example), it will determine the shortest interval at which it can poll, which is displayed in this field.
Policy selection controls	To select which policies to display in the report, click the check box corresponding to the policies you want to view, and then click Show Graphs .
Show Graphs button	Click to display the real-time chart for policies you selected in the policy selection controls.
Close Window button	Click to close the report window.
Matching Traffic Per Class Prior to QoS Actions graph	Displays the traffic that matched each policy's filters, before any traffic rule actions were performed. This data is obtained from the cbQosCMPrePolicyPkt and cbQosCMPrePolicyByte MIB variables.
Matching Traffic Per Class After QoS Actions graph	Displays the traffic that matched each policy group's filters and was transmitted (not dropped) by the configured QoS policies. This data is obtained as follows: <ul style="list-style-type: none"> • The bits data is obtained from the cbQosCMPostPolicyByte MIB variable. • The packets data is obtained by subtracting the cbQosCMDropPkt MIB variable from the cbQosCMPrePolicyPkt MIB variable.
Per Class Traffic Discarded By All QoS Drop Actions graph	Displays the traffic that matched each policy group's filters and was dropped (not transmitted) by QoS policy drop actions. This data is obtained from the cbQosCMDropPkt and cbQosCMDropByte MIB variables.

Table D-4 Show Real Time Chart Page

Field	Description
Filters graphs	<p>Displays how much traffic in each class matched each of the class' filters.</p> <p>Each graph includes a legend that shows the time period represented by each point on the poll time (horizontal) axis.</p> <p>The correlation between the filters shown in this graph and the filter rules configured in the policy is not exact. Whenever possible, QPM translates the filter rules configured in QPM to modular CLI match statements.</p> <p>However, there are cases in which only ACL translation can reflect the filter definition, resulting in multiple filter rules being combined into one match statement.</p> <p>Rules combined by OR become separate match statements and rules combined by AND are combined into one match statement.</p> <p>This data is obtained from the <code>cbQosMatchPrePolicyPkt</code> and <code>cbQosMatchPrePolicyByte</code> MIB variables.</p>
Actions graphs	See Policy Actions Graphs, page D-6 .

Policy Actions Graphs

Policy actions graphs display information about the effect of policy actions. Only actions that are configured in a policy will appear in this page.

For example, if a policy has queuing and policing actions assigned, only actions graphs for queuing and policing will appear.

The following actions can appear in the graphs:

- Policing—Displays the following traffic amounts:

- Conformed—Traffic conformed to rate limit.

This data is obtained from the `cbQosPoliceConformedPkt` and `cbQosPoliceConformedByte` MIB variables.

- Exceeded—Traffic exceeded rate limit.

This data is obtained from the `cbQosPoliceExceededPkt` and `cbQosPoliceExceededByte` MIB variables.

- Violated—Traffic violated rate limit.
This data is obtained from the cbQosPoliceViolatedPkt and cbQosPoliceViolatedByte MIB variables.
- Queuing—Displays the amount of traffic dropped due to queuing.
This data is obtained from the cbQosQueueingDiscardByte and cbQosQueueingDiscardPkt MIB variables.
- WRED—Displays counts of the following per precedence level:
 - Random drop—Traffic exceeded minimum but was less than maximum count.
This data is obtained from the cbQosREDRandomDropPkt and cbQosREDRandomDropByte MIB variables.
 - Tail drop—Traffic exceeded maximum count.
This data is obtained from the cbQosREDTailDropPkt and cbQosREDTailDropByte MIB variables.
 - Transmit counter—Traffic was transmitted.
This data is obtained from the cbQosREDTransmitPkt and cbQosREDTransmitByte MIB variables.
- Traffic Shaping—Displays counts of the following:
 - Delayed traffic.
This data is obtained from the cbQosTSSStatsDelayedByte and cbQosTSSStatsDelayedPkt MIB variables.
 - Traffic drop due to traffic shaping.
This data is obtained from the cbQosTSSStatsDropByte and cbQosTSSStatsDropPkt MIB variables.
- CAR action (non modular QoS)—Displays counts of the following:
 - Bytes/packets that conformed to rate limit.
 - Packets/bytes that exceeded rate limit.

Snapshot Event Browser Properties Page

Use this page to select a device and specify a time period to view a snapshot of events on the device in the specified event filter.

To open this page, go to **Monitor > Real Time Status** and select **Event Browser > Snapshot** from the TOC.

Table D-5 **Snapshot Event Browser Properties Page**

Field	Description
Start Time and End Time	Select the time period for which you want to view in the report: <ul style="list-style-type: none"> • Enter dates in the first fields in the format <i>mm/dd/yyyy</i>, or click the calendar icons to select dates from the Calendar dialog box. • Enter times in the second fields in 24-hour format.
Devices	This area consists of two tab screens: <ul style="list-style-type: none"> • All—Select to open a tab screen with all the devices under the active device group displayed. You can select the devices by clicking the corresponding check boxes. • Selection—Select to open a tab screen with all the devices you selected under the All tab screen. You can deselect the devices by clicking the corresponding check boxes. <p>If no device is selected, the result will show the events for all devices.</p>
Submit button	Click to view the snapshot event browser for the selected device, or all devices.

Related Topics

- [Snapshot Event Browser Page, page D-9](#)

Snapshot Event Browser Page

Use this page to view the events that have occurred on a device in a specified time interval.

To open this page, select a device and a time interval, and click **Submit** in the Snapshot Event Browser Properties page.

Table D-6 **Snapshot Event Browser Page**

Field	Description
Timestamp	The timestamp of snapshot event occurrence for threshold crossing or falling event
Device	The device for which the snapshot event capture is applied
Interface	The interface of the device for which snapshot event capture is applied
Metric	The CBQoS metric defined as part of threshold configuration
Value	The actual value of the metric for a particular device/interface that caused the threshold crossing or falling alarm event to be generated.
Threshold	The threshold level that was set to the interface and the metric (it would be high or low watermark value) during Threshold Configuration. You can compare this with the entry in the Value column.
Properties icon	Click this icon (at the top of the page) go back to the Snapshot Event Browser Properties page to select more devices or deselect the devices.
Export icon	Click this icon (at the top of the page) to export a report of Snapshot Events, in PDF or CSV format. The Exporting Report dialog box opens.
Printer icon	Click this icon (at the top of the page) to print a report of Snapshot Events. The Printing Report dialog box opens.

Related Topics

- [Exporting Report Dialog Box, page D-10](#)
- [Printing Report Dialog Box, page D-10](#)

Exporting Report Dialog Box

Use this dialog box to export the report of Snapshot Events in PDF or CSV format.

To open this dialog box, click the Export icon in the Snapshot Event Browser or Live Event Browser.

Table D-7 *Exporting Report dialog box*

Field	Description
Select a format	Click one of the radio buttons—PDF or CSV—to select the format in which you want the report to be exported.
Rows	Enter the row numbers (which represent the Snapshot Events) for which you want to generate report. You can mention the row numbers separated by commas (like 2,5,8) or as a range (like 3-7)

Related Topics

- [Printing Report Dialog Box, page D-10](#)

Printing Report Dialog Box

Use this dialog box to print a report of Snapshot Events.

To open this dialog box, click the Print icon in the Snapshot Event Browser or Live Event Browser.

Table D-8 *Printing Report dialog box*

Field	Description
Rows	Enter the row numbers (which represent the Snapshot Events) for which you want to generate report. You can mention the row numbers separated by commas (like 2,5,8) or as a range (like 3-7).

Related Topics

- [Exporting Report Dialog Box, page D-10](#)

Live Event Browser Properties Page

The Live Event Browser displays events as they occur on the server.

To open this page, go to **Monitor > Real Time Status** and select **Event Browser > Live** from the TOC.

Table D-9 *Live Event Browser Properties Page*

Field	Description
Maximum Events	Select the maximum number of events to be displayed from the list.
Refresh Rate	Select a page refresh rate from the list. The refresh rate determines how often the page refreshes with updated information.
Devices	<p>This area consists of two tab screens:</p> <ul style="list-style-type: none"> • All—click this tab to open a tab screen with all the devices under the active device group displayed. You can select the devices by clicking the corresponding check boxes. • Selection—click this tab to open a tab screen with all the devices you selected under the All tab screen. You can deselect the devices by clicking the corresponding check boxes. <p>If no device is selected, the result will show the events for all devices.</p>
Submit button	Click to view the live event browser for the selected device.

Related Topics

[Live Event Browser Page, page D-12](#)

Live Event Browser Page

Use this page to view the events as they occur on a device at the current time.

To open this page, select a device and the number of events to be displayed, and click **Submit** in the Live Event Browser Properties page.

Table D-10 **Live Event Browser Page**

Field	Description
Timestamp	The timestamp of live event occurrence for threshold crossing or falling event
Device	The device for which the live event capture is applied
Interface	The interface of the device for which live event capture is applied
Metric	The CBQoS metric defined as part of threshold configuration
Value	The actual value of the metric for a particular device/interface that caused the threshold crossing or falling alarm event to be generated.
Threshold	The threshold level that was set to the interface and the metric (it would be high or low watermark value) during threshold configuration.
Maximum Events To Show	Select the maximum number of events to be displayed from the list.
Refresh Rate	Select a page refresh rate from the list. The refresh rate determines how often the page refreshes with updated information.
Properties icon	Click this icon (at the top of the page) go back to the Live Event Browser Properties page to select more devices or deselect the devices.
Export icon	This icon appears (at the top of the page) only if you selected any of the two options—Now or Never—among the options available for Refresh Rate. Click this icon to export a report of Live Events, in PDF or CSV format. The Exporting Report dialog box opens.
Printer icon	This icon appears (at the top of the page) only if you selected any of the two options—Now or Never—among the options available for Refresh Rate. Click this icon to print a report of Snapshot Events. The Printing Report dialog box opens.

Related Topics

- [Exporting Report Dialog Box, page D-10](#)
- [Printing Report Dialog Box, page D-10](#)

Historical Trends Page

The following topics describe the fields in the pages that are accessed from the Historical Trends option:

- [Monitoring Task Wizard, page D-15](#)
- [Historical Reports Pages, page D-19](#)

Historical trends collect data for historical monitoring reports.

Use this page to:

- View historical monitoring reports.
- View, create, edit, delete, and stop historical monitoring tasks.
- Export collected data from tasks.

To open this page, select **Monitor > Historical Trends**.

When the historical QoS analysis data collected by QPM reaches the configured disk space limit, the following happens:

- All running monitoring tasks are stopped automatically, and are set to the status “Stopped due to out of disk space.”
- The next time you open the Historical Trends page, a message notifies you that the disk space limit was reached and provides recover instructions. This message only appears on the Historical Trends page.

You will not receive notification that the disk space limit was reached until you open this page.

All data collected before the tasks were stopped is available for display in reports. To free the necessary disk space and continue monitoring, you must delete the stopped tasks and run the database rebuild utility.

Then you can recreate the deleted tasks to resume running them.

Table D-11 *Historical Trends Page*

Field	Description
Check box column	Select check box to select its row.
Name	Displays the task name.
Description	Displays the task description.
Status	Displays the task status. The following are the possible statuses: <ul style="list-style-type: none"> • Processing—The initial status for tasks, indicating the task is being created. • Running—Task is running correctly and collecting data. • Stopped—Task was stopped by user request. • Stopped due to disk space limit—The amount of collected data reached the configured disk space limit. • Collector Error—Task could not be created because of a data collection error. One possible reason of this error is that the SNMP community string has been changed directly on the device while the device is undergoing a monitoring task. • In Edit—The task is disabled, and has not started yet. • Finished—The task successfully finished. It will not collect any more data.

Table D-11 **Historical Trends Page (continued)**

Field	Description
View Report button	Click to view a report of the selected task. The Matching and Dropped Traffic for Policies page appears.
Create button	Click to create a new task. The Task Definition page appears.
Edit button	Click to edit a task that is in an error status. The Task Definition page appears. You can edit tasks in the following statuses: <ul style="list-style-type: none"> • Collector Error • In Edit
Delete button	Click to delete the selected task. A confirmation dialog box opens.
Stop button	Click to stop a running task.
Export Data button	Click to export a task's collected monitoring data to a zip file that contains a set of XML data files. The browser file download process starts. Ensure that you have the unzip application to recreate the folder structure of the zipped files when unzipping them. Each interface has a separate folder. Within each folder is a separate file for each policy defined on the interface.
Refresh Rate	Select a page refresh rate from the list. The refresh rate determines how often the page refreshes with updated information.

Monitoring Task Wizard

Use the Monitoring Task wizard to create and edit historical monitoring tasks.

The Monitoring Task wizard contains the following pages:

- [Monitoring Task Wizard - Task Definition Page, page D-16](#)
- [Monitoring Task Wizard - Select Devices Page, page D-17](#)
- [Monitoring Task Wizard - Select Interfaces Page, page D-17](#)
- [Monitoring Task Wizard - Select Policies Page, page D-18](#)
- [Monitoring Task Wizard - Summary Page, page D-19](#)

Monitoring Task Wizard - Task Definition Page

Use this page to define the basic properties of a monitoring task.

To open this page, select **Monitor > Historical Trends**. The Historical Trends page appears. Then do one of the following:

- To create a new task, click **Create**.
- To edit a task that is in an error status, select the check box next to the task name, then click **Edit**.

Table D-12 *Monitoring Task Wizard - Task Definition Page*

Field	Description
Name	Enter a task name. Valid characters are alphanumeric, space, hyphen, and underscore.
Polling Interval	Select a polling interval, which is the frequency at which the task will poll data, in minutes.
Start Time and End Time	<p>Enter task start and end times using the date and time fields. Optionally, select the calendar tool to select a date. Enter dates in mm/dd/yyyy format. Enter times in 24-hour format (for example, 06:00 is 6:00 a.m.).</p> <p>Each task has a maximum running duration that is based on the polling interval you select. These duration limits are listed in Performing Historical QoS Analysis, page 10-7.</p> <p>You cannot configure an end time that exceeds the maximum running duration of the polling interval you have selected.</p>
Enabled	<p>Select to enable the job immediately after finishing the task definition. Deselect to disable the task.</p> <p>The task will not begin collecting data until the configured start time, regardless of the status of the Enabled check box. If the Enabled check box is not selected, the task will not begin collecting data, even if the configured start time passes.</p>
Enter a comment or description	Enter a description of the task or a comment about it.
Back button	Click to return to the previous step.
Next button	Click to proceed to the next step.
Cancel button	Click to cancel task creation and exit the wizard.

Monitoring Task Wizard - Select Devices Page

Use this page to select the devices that contain the interfaces that you want to monitor.

Only devices that can be monitored are listed. Although QPM might support the creation and deployment of policies to a device, that device might not collect sufficient data for QPM to monitor QoS on the device, or you might not have create supported policy types on any of the device's interfaces.

To open this page, do one of the following:

- Click **Next** in the [Monitoring Task Wizard - Task Definition Page](#).
- Select **Select Devices** from the wizard Navigation list.

Table D-13 **Monitoring Task Wizard - Select Devices Page**

Field	Description
Check box column	Select the check box to select its row.
Sys Name	Displays the device's sys name.
IP Address	Displays the device's IP address.
Model	Displays the device's model.
OS Version	Displays the device's OS version.
Mapped OS Version	Displays the mapped OS version that QPM assigned to the device.
Device Folder	Displays the device folder that contains the device.
Back button	Click to return to the previous step.
Next button	Click to proceed to the next step.
Cancel button	Click to cancel task creation and exit the wizard.

Monitoring Task Wizard - Select Interfaces Page

Use this page to select the interfaces that you want to monitor.

To open this page, do one of the following:

- Click **Next** in the [Monitoring Task Wizard - Select Devices Page](#).
- Select **Select Interfaces** from the wizard Navigation list.

Table D-14 **Monitoring Task Wizard - Select Interfaces Page**

Field	Description
Check box column	Select the check box to select its row.
Device Name	Displays the device name.
Interface Name	Displays the interface name.
Interface Type	Displays the interface type.
Interface Description	Displays the interface description.
Back button	Click to return to the previous step.
Next button	Click to proceed to the next step.
Cancel button	Click to cancel task creation and exit the wizard.

Monitoring Task Wizard - Select Policies Page

Use this page to select the policies that you want to monitor. Do not select more than 12 policies, and do not select policies that have more than 12 match statements per policy filter.

To open this page, do one of the following:

- Click **Next** in the [Monitoring Task Wizard - Select Interfaces Page](#).
- Select **Select Policies** from the wizard Navigation list.

Table D-15 **Monitoring Task Wizard - Select Policies Page**

Field	Description
Check box column	Select the check box to select its row.
Device Name	Displays the device name.
Interface Name	Displays the interface name.
Policy Group Name	Displays the policy group name.
Policy Name	Displays the policy name.
Direction	Displays the direction of the policy (in or out).
Policy Description	Displays the policy description.
Back button	Click to return to the previous step.

Table D-15 **Monitoring Task Wizard - Select Policies Page (continued)**

Field	Description
Next button	Click to proceed to the next step.
Cancel button	Click to cancel task creation and exit the wizard.

Monitoring Task Wizard - Summary Page

Use this page to view a summary of the monitoring task and determine whether to edit, finish, or cancel it.

To open this page, do one of the following:

- Click **Next** in the [Monitoring Task Wizard - Select Policies Page](#).
- Select **Summary** from the wizard Navigation list.

Table D-16 **Monitoring Task Wizard - Summary Page**

Field	Description
Device Name	Displays the device name.
Interface Name	Displays the interface name.
Policy Group Name	Displays the policy group name.
Policy Name	Displays the policy name.
Direction	Displays the direction of the policy (in or out).
Policy Description	Displays the policy description.
Back button	Click to return to the previous step.
Finish button	Click to finish the wizard and create the task.
Cancel button	Click to cancel task creation and exit the wizard.

Historical Reports Pages

The following pages are accessible by launching a historical monitoring report:

- [Policies Graphs: Matching and Dropped Traffic for Policies Page](#), page D-20
- [Filters Graphs: Matching Traffic for Filter Conditions Page](#), page D-23

- [Actions Graphs: Policy Actions on Matching Traffic Page](#), page D-26

The historical policy analysis graphs do not show the effect of traffic dropping for reasons other than QoS policy actions, such as dropping because of full queues.

Therefore, it is possible that the traffic volume shown for an interface will be greater than the capacity of the interface. In this case, if you set the vertical axis to percentage, the traffic volume for the interface will exceed 100% of the interface's capacity.

Policies Graphs: Matching and Dropped Traffic for Policies Page

Use this page to view data that shows how much traffic matched the policies and whether it was transmitted or dropped. You can customize the page with the customization controls.

To open this page, do any of the following:

- Click **View Report** in the [Historical Trends Page](#) page.
- Click **Policies Graphs** in any historical monitoring report page.

You will not see data on the historical graphs immediately after the task starts. Depending on when you start the task, the length of the polling interval, and how many other tasks are being run concurrently, it can take up to several hours to see graphed data, due to how QPM collects the data and writes it to the QPM database.

To see any data in the graphs, your task must include at least three polling periods.

For example, if you use a polling period of 30 minutes, and run the task for only one hour, you will not see any graphed data for the task. If you need to see data immediately, as it is collected, use real-time monitoring.

If a device is not successfully polled (for example, when a device is unreachable), a red triangle appears along the X axis at the point where the device data could not be collected.

The graph uses the last collected data values in the graph, which will appear as straight lines until the device is successfully polled. For bar graphs, a red triangle indicates there was at least one unsuccessful polling period in the bar.

Table D-17 Policies Graphs - Matching and Dropped Traffic for Policies Page

Field	Description
Graph Type	Select the graph type to display: <ul style="list-style-type: none"> • Line—Presents data in a line chart format. • Bar—Presents data in a bar chart format.
Units	Select the units to display in the graphs: <ul style="list-style-type: none"> • Packets/second—Displays data flow rates in packets per second. • Bits/second—Displays data flow rates in bits per second.
Vertical Axis	Select the vertical scale for graphs: <ul style="list-style-type: none"> • Linear—Displays the vertical scale of charts in linear format (the distance between units remains constant). • Logarithmic—Displays the vertical scale of charts in logarithmic format (the distance between units gets smaller as the total gets higher). • Percentage—Displays the vertical scale of charts as a percentage of the total bandwidth available on the interface.
Group	Select how to group the objects that are displayed in the graphs: <ul style="list-style-type: none"> • Policy—Organizes the report according to policy groups. • Interface—Organizes the report according to interfaces.
From Time and To Time	Select the period of time you want to view in the report: <ul style="list-style-type: none"> • Enter dates in the first From Time and To Time fields in the format <i>mm/dd/yyyy</i>, or click the calendar icons to select dates from the Calendar dialog box. • Enter times in the second From Time and To Time fields in 24-hour format.
Apply button	Click to view only data collected during the period defined by the From Time and To Time controls.
Reset button	Click to reset the time period displayed in the From Time and To time controls to the collection period defined for the analysis task.

Table D-17 Policies Graphs - Matching and Dropped Traffic for Policies Page (continued)

Field	Description
Policy/Interface selection table	Select which policies or interfaces (depending on the selection in the Group list box) to display in the report by selecting the check box next to the policies or interfaces you want to view in the right pane of the report, then click Show Graphs .
Show Graphs button	Click to update the graphs to display the policies and interfaces selected using the policy-interface selection table
Matching Traffic Per Class Prior to QoS Actions graphs	Displays the traffic that matched each policy group's filters, before any policy actions were performed. This data is obtained from the cbQosCMPrePolicyPkt and cbQosCMPrePolicyByte MIB variables.
Matching Traffic Per Class After QoS Actions	Displays the traffic that matched each policy group's filters and was transmitted (not dropped) by the configured QoS policies. This data is obtained as follows: <ul style="list-style-type: none"> • The bits data is obtained from the cbQosCMPostPolicyByte MIB variable. • The packets data is obtained by subtracting the cbQosCMDropPkt MIB variable from the cbQosCMPrePolicyPkt MIB variable.
Matching Traffic Per Class Discarded by QoS Drop Actions	Displays the traffic that matched each policy group's filters and was dropped (not transmitted) by QoS policy drop actions. This data is obtained from the cbQosCMDropPkt and cbQosCMDropByte MIB variables.
Policies Graphs button	Click to open the Policies Graphs: Matching and Dropped Traffic for Policies Page .
Filters Graphs button	Click to open the Filters Graphs: Matching Traffic for Filter Conditions Page
Actions Graphs button	Click to open the Actions Graphs: Policy Actions on Matching Traffic Page
Back to Task List button	Click to open the Historical Trends Page page.

Filters Graphs: Matching Traffic for Filter Conditions Page

Use this page to view data that shows how matching traffic was distributed among the policy filter conditions. You can customize the page with the customization controls.

To open this page, click **Filters Graphs** in any historical monitoring report page.

You will not see data on the historical graphs immediately after the task starts. Depending on when you start the task, the length of the polling interval, and how many other tasks are being run concurrently, it can take up to several hours to see graphed data, due to how QPM collects the data and writes it to the QPM database.

To see any data in the graphs, your task must include at least three polling periods. For example, if you use a polling period of 30 minutes, and run the task for only one hour, you will not see any graphed data for the task.

If you need to see data immediately, as it is collected, use real-time monitoring.

If a device is not successfully polled (for example, when a device is unreachable), a red triangle appears along the X axis at the point where the device data could not be collected.

The graph uses the last collected data values in the graph, which will appear as straight lines until the device is successfully polled. For bar graphs, a red triangle indicates there was at least one unsuccessful polling period in the bar.

Table D-18 *Filters Graphs - Matching Traffic for Filter Conditions Page*

Field	Description
Graph Type	Select the graph type to display: <ul style="list-style-type: none"> • Line—Presents data in a line chart format. • Bar—Presents data in a bar chart format.
Units	Select the units to display in the graphs: <ul style="list-style-type: none"> • Packets/second—Displays data flow rates in packets per second. • Bits/second—Displays data flow rates in bits per second.

Table D-18 Filters Graphs - Matching Traffic for Filter Conditions Page (continued)

Field	Description
Vertical Axis	<p>Select the vertical scale for graphs:</p> <ul style="list-style-type: none"> • Linear—Displays the vertical scale of charts in linear format (the distance between units remains constant). • Logarithmic—Displays the vertical scale of charts in logarithmic format (the distance between units gets smaller as the total gets higher). • Percentage—Displays the vertical scale of charts as a percentage of the total bandwidth available on the interface.
Group	<p>Select how to group the objects that are displayed in the graphs:</p> <ul style="list-style-type: none"> • Policy—Organizes the report according to policy groups. • Interface—Organizes the report according to interfaces.
From Time and To Time	<p>Select the period of time you want to view in the report:</p> <ul style="list-style-type: none"> • Enter dates in the first From Time and To Time fields in the format <i>mm/dd/yyyy</i>, or click the calendar icons to select dates from the Calendar dialog box. • Enter times in the second From Time and To Time fields in 24-hour format.
Apply button	Click to view only data collected during the period defined by the From Time and To Time controls.
Reset button	Click to reset the time period displayed in the From Time and To time controls to the collection period defined for the analysis task.

Table D-18 **Filters Graphs - Matching Traffic for Filter Conditions Page (continued)**

Field	Description
Filters graphs	<p>Displays how much traffic in each class matched each of the class' filters.</p> <p>Each graph includes a legend that shows the time period represented by each point on the poll time (horizontal) axis.</p> <p>The correlation between the filters shown in this graph and the filter rules configured in the policy is not exact. Whenever possible, QPM translates the filter rules configured in QPM to modular CLI match statements.</p> <p>In some cases, only ACL translation can reflect the filter definition, resulting in multiple filter rules being combined into one match statement (rules combined by OR become separate match statements; rules combined by AND are combined into one match statement).</p> <p>This data is obtained from the cbQosMatchPrePolicyPkt and cbQosMatchPrePolicyByte MIB variables.</p>
Policies Graphs button	Click to open the Policies Graphs: Matching and Dropped Traffic for Policies Page .
Filters Graphs button	Click to open the Filters Graphs: Matching Traffic for Filter Conditions Page
Actions Graphs button	Click to open the Actions Graphs: Policy Actions on Matching Traffic Page
Back to Task List button	Click to open the Historical Trends Page page.

Actions Graphs: Policy Actions on Matching Traffic Page

Use this page to view data that shows the policy actions that were taken on matching traffic. You can customize the page with the customization controls.

To open this page, click **Actions Graphs** in any historical monitoring report page.

You will not see data on the historical graphs immediately after the task starts. Depending on when you start the task, the length of the polling interval, and how many other tasks are being run concurrently, it can take up to several hours to see graphed data, due to how QPM collects the data and writes it to the QPM database. To see any data in the graphs, your task must include at least three polling periods.

For example, if you use a polling period of 30 minutes, and run the task for only one hour, you will not see any graphed data for the task. If you need to see data immediately, as it is collected, use real-time monitoring.

If a device is not successfully polled (for example, when a device is unreachable), a red triangle appears along the X axis at the point where the device data could not be collected.

The graph uses the last collected data values in the graph, which will appear as straight lines until the device is successfully polled. For bar graphs, a red triangle indicates there was at least one unsuccessful polling period in the bar.

Table D-19 **Actions Graphs - Policy Actions on Matching Traffic Page**

Field	Description
Graph Type	Select the graph type to display: <ul style="list-style-type: none"> • Line—Presents data in a line chart format. • Bar—Presents data in a bar chart format.
Units	Select the units to display in the graphs: <ul style="list-style-type: none"> • Packets/second—Displays data flow rates in packets per second. • Bits/second—Displays data flow rates in bits per second.

Table D-19 Actions Graphs - Policy Actions on Matching Traffic Page (continued)

Field	Description
Vertical Axis	<p>Select the vertical scale for graphs:</p> <ul style="list-style-type: none"> • Linear—Displays the vertical scale of charts in linear format (the distance between units remains constant). • Logarithmic—Displays the vertical scale of charts in logarithmic format (the distance between units gets smaller as the total gets higher). • Percentage—Displays the vertical scale of charts as a percentage of the total bandwidth available on the interface.
Group	<p>Select how to group the objects that are displayed in the graphs:</p> <ul style="list-style-type: none"> • Policy—Organizes the report according to policy groups. • Interface—Organizes the report according to interfaces.
From Time and To Time	<p>Select the period of time you want to view in the report:</p> <ul style="list-style-type: none"> • Enter dates in the first From Time and To Time fields in the format <i>mm/dd/yyyy</i>, or click the calendar icons to select dates from the Calendar dialog box. • Enter times in the second From Time and To Time fields in 24-hour format.
Apply button	Click to view only data collected during the period defined by the From Time and To Time controls.
Reset button	Click to reset the time period displayed in the From Time and To time controls to the collection period defined for the analysis task.
Policy Actions graphs	See Policy Actions Graphs , page D-28.
Policies Graphs button	Click to open the Policies Graphs: Matching and Dropped Traffic for Policies Page .
Filters Graphs button	Click to open the Filters Graphs: Matching Traffic for Filter Conditions Page
Actions Graphs button	Click to open the Actions Graphs: Policy Actions on Matching Traffic Page
Back to Task List button	Click to open the Historical Trends Page page.

Policy Actions Graphs

Policy actions graphs display information about traffic that was dropped because of policy actions. Only actions that are configured in a policy will appear in this page.

For example, if a policy has queuing and policing actions assigned, only actions graphs for queuing and policing will appear.

The following actions can appear in the graphs:

- Policing—Displays the following traffic amounts:
 - Conformed—Traffic conformed to rate limit.
This data is obtained from the `cbQosPoliceConformedPkt` and `cbQosPoliceConformedByte` MIB variables.
 - Exceeded—Traffic exceeded rate limit.
This data is obtained from the `cbQosPoliceExceededPkt` and `cbQosPoliceExceededByte` MIB variables.
 - Violated—Traffic violated rate limit.
This data is obtained from the `cbQosPoliceViolatedPkt` and `cbQosPoliceViolatedByte` MIB variables.
- Queuing—Displays the amount of traffic dropped due to queuing.
This data is obtained from the `cbQosQueueingDiscardByte` and `cbQosQueueingDiscardPkt` MIB variables.
- WRED—Displays counts of the following per precedence level:
 - Random drop—Traffic exceeded minimum but was less than maximum count.
This data is obtained from the `cbQosREDRandomDropPkt` and `cbQosREDRandomDropByte` MIB variables.
 - Tail drop—Traffic exceeded maximum count.
This data is obtained from the `cbQosREDTailDropPkt` and `cbQosREDTailDropByte` MIB variables.
 - Transmit counter—Traffic was transmitted.
This data is obtained from the `cbQosREDTransmitPkt` and `cbQosREDTransmitByte` MIB variables.

- Traffic Shaping—Displays counts of the following:
 - Delayed traffic.
This data is obtained from the `cbQoSStatsDelayedByte` and `cbQoSStatsDelayedPkt` MIB variables.
 - Traffic drop due to traffic shaping.
This data is obtained from the `cbQoSStatsDropByte` and `cbQoSStatsDropPkt` MIB variables.
- CAR action (non-modular QoS)—Displays counts of the following:
 - Bytes/packets that conformed to rate limit.
 - Packets/bytes that exceeded rate limit.

Thresholds Configuration

The following topics describe the fields in the pages that are accessed from the Thresholds Configuration option:

- [Threshold Sets Page, page D-30](#)
- [Threshold Assignment Page, page D-32](#)
- [Pending Jobs Page, page D-33](#)
- [Completed Jobs Page, page D-34](#)
- [Threshold Job Details Page, page D-36](#)
- [Threshold Errors and Warnings Page, page D-37](#)
- [Threshold Deployment History Page, page D-38](#)

Threshold Sets Page

Use this page to:

- Clone a Threshold Set using ClassmapMetrics (MIB objects)
- Set the High Water Mark and Low Water Mark levels for the metrics
- Delete a Threshold Set



Note

QPM contains a Default Threshold Set, which you cannot modify. You can add and configure new Threshold Sets.

To open this page, select **Monitor > Thresholds Configuration**.

Table D-20 **Threshold Sets Page**

Field	Description
Threshold Sets	Lists the Threshold Sets. When you select the radio button next to a threshold set, the associated ClassmapMetrics (MIB objects), High Water Mark levels, and Low Water Mark levels appear on the right area of the pane.
New Set Name field	Enter a name for the new threshold set you want to create.
Metric	Displays the MIBs associated with the selected threshold set to collect the required data. See the table below for more information about each MIB.
High Water Mark	Displays the high water mark level for the MIB. This is an editable field.
Low Water Mark	Displays the low water mark level for the MIB. This is an editable field.
Clone button	Click to create a new threshold set after entering a name in the New Set Name field.
Save button	Click to save changes you made for the High and Low Water Mark levels for each metric, corresponding to the selected Threshold Set.
Delete button	Click to delete the selected Threshold Set.

Table D-21 *MIBs in Threshold Sets page*

MIBs in Threshold Sets page	Description
cbQosCMPrePolicyPkt64	The 64 bits count of inbound packets prior to executing any QoS policies. This metric is a counter.
cbQosCMDropPkt64	The 64 bits counter of dropped packets per class as the result of all Traffic Rule/Class Map features that can produce drops (For example, policing, random detection, and so on). This metric is a counter.
cbQosCMDropByte64	The 64 bits counter of dropped bytes per class as the result of all Traffic Rule/Class Map features that can produce drops (For example, policing, random detection, and so on). This metric is a counter.
cbQosCMDropBitRate	The bit rate (in bits per second) of the drops per class as the result of all Traffic Rule/Class Map features that can produce drops (For example, policing, random detection, and so on). This metric is a gauge.
cbQosCMPostPolicyByte64	The 64 bits count of outbound octets after executing QoS policies. This metric is a counter.
cbQosCMPrePolicyBitRate	The bit rate (in bits per second) of the traffic prior to executing any QoS policies. This metric is a gauge.
cbQosCMPrePolicyByte64	The 64 bits count of inbound octets prior to executing any QoS policies. This metric is a counter.
cbQosCMPostPolicyBitRate	The bit rate (in bits per second) of the traffic after executing QoS policies. This metric is a gauge.
cbQosCMNoBufDropPkt64	The 64 bits drop packet count which occurred due to non-availability of SRAM buffers during output processing on an interface. This metric is a counter.

Related Topics

- [Threshold Assignment Page, page D-32](#)

Threshold Assignment Page

Use this page to:

- Assign/Unassign a Threshold Set to a traffic direction (inward/outward) of a device interface with monitorable policies attached for the traffic direction.
- View all the device interfaces to which a Threshold Set is assigned for a particular traffic direction

To open this page, go to **Monitor > Thresholds Configuration** and select **Threshold Assignment** from the TOC.

Table D-22 **Threshold Assignment Page**

Field	Description
Threshold Sets	Select the required threshold set.
Device Interfaces	Select the direction of traffic (Inward or Outward) to be monitored on the device interfaces (with inward or outward traffic rules defined for the assigned monitorable policies). You can open the trees for device group, device, and interface, to select the traffic direction.
Show Selected button	Click to view all the device interfaces with the selected Threshold Set assigned, for a particular traffic direction (inward or outward).
Assign button	Click to assign the selected threshold set to the selected traffic direction of the respective interfaces.
Unassign button	Click to unassign the selected Threshold Set from the selected traffic direction of the respective interfaces.

Related Topics

- [Threshold Sets Page, page D-30](#)
- [Pending Jobs Page, page D-33](#)
- [Completed Jobs Page, page D-34](#)

Pending Jobs Page

Use this page to:

- View all the pending Threshold Assignment jobs on different devices
- Control the Threshold Assignment job
- Redeploy the Threshold Assignment job

To open this page, go to **Monitor > Thresholds Configuration** and select **Pending Jobs** from the TOC.

Table D-23 Pending Jobs Page

Field	Description
Job Name	The name of the Threshold Assignment job. Click the Job Name link for a selected job to open the Job Details report for that job.
Start Time	The start time of Threshold Assignment job.
Job Status	Selected job's status (Pending, In Progress, Paused, Aborted, Completed, No Devices, or Failed).
Devices Pending	The number of devices that are waiting to be assigned.
Devices In Progress	The number of devices whose Threshold Assignment is in-progress.
Devices Completed	The number of devices whose Threshold Assignment is completed successfully.
Devices Failed	The number of devices whose Threshold Assignment failed.
Total	The total number of devices in the current job. (This number is the sum of the four previous status fields.)
Refresh	Click to force a manual update of the displayed data. The display is automatically refreshed every ten seconds.
Pause	Click to pause a job during its assignment to devices. Any devices that are being configured when the Pause command is issued will be finished. Devices for which the assignment has not yet begun, will remain with the status "Pending".
Resume	Click to resume the configuration of devices for a job that was paused.

Table D-23 Pending Jobs Page (continued)

Field	Description
Redeploy	Click to manually request that Threshold Assignment be re-tried for a specific failed or aborted device or all failed or aborted devices in the selected job. Another assignment is created for the job.
Remove From Display	Click to remove a completed or failed job from the table. When removed, the job is moved to the Completed Jobs Page page
Abort	Click to terminate a job that is currently in progress or has been paused. Any devices that were not configured when the Abort command was issued will not be deployed. They will be set as Failed. A terminated deployment cannot be resumed.

Related Topics

- [Threshold Assignment Page, page D-32](#)
- [Completed Jobs Page, page D-34](#)

Completed Jobs Page

Use this page to:

- View the results of a DNS host name resolution check for a Threshold Assignment job.
- View the history details of Threshold Assignment jobs.
- Restore a historical version for editing and deploying.
- Delete Threshold Assignment jobs.
- Lock and unlock jobs for deletion.
- Download the configuration files of a Threshold Assignment job
- View a Job Details report for a Threshold Assignment job.
- View a Threshold Assignment History report for a job.

To open this page, go to **Monitor > Thresholds Configuration** and select **Completed Jobs** from the TOC

Table D-24 **Completed Jobs Page**

Field	Description
Job Name	The name of the Threshold Assignment job. Click the Job Name link for a selected job to open the Job Details report for that job.
Deployment Time	The time the last Threshold Assignment occurred for the job.
Deployments	The number of Threshold Assignment that were made for the job. Click the Deployments link of a job whose Threshold Assignment details you want to view to open a Threshold Deployment History report for the selected deployment.
Status	The selected job's assignment status—Pending, In Progress, Completed, Paused, Aborted, or Failed.
Lock Job	Lock or Unlock, depending on whether the job is locked to prevent deletion when the history cache becomes full.
Files	Click this link to download the zip file containing the individual configuration files for a device to your desktop.
Details	Click the Details icon for a job to open its Job Details report in which you can view the status of devices related to the Threshold Assignment job.
DNS Resolution	Click to view the results of a DNS host name resolution check for a selected Threshold Assignment job.
Restore	Click to restore a selected historical version for editing and deploying. The Restore Threshold Deployment Group page appears.
Delete	Click to delete a selected historical version from the Job History list. After its deletion, you cannot restore it.
Lock Job	Click to prevent a selected historical version from being automatically deleted when the history cache is full.
Unlock Job	Click to unlock a historical version, making it available for deletion.

Related Topics

- [Pending Jobs Page, page D-33](#)
- [Threshold Assignment Page, page D-32](#)

Threshold Job Details Page

Use this page to view:

- The final status of all the Threshold Assignment of a selected job.
- The current Threshold Assignment status of a job that is still in progress.
- A table of all the devices related to the Threshold Assignment job.
- The CLI commands that were used to configure a device.

To open this page, do any of the following:

- In the Pending Jobs page, click the Job Name link for a job.
- In the Completed Jobs page, click the Job Name link of the job whose details you want to view, or click the Details icon for the job.

Table D-25 **Threshold Job Details Page**

Field	Description
Job Name	The name of the Threshold Assignment job.
Device Group	The device group that contains the Threshold Assignment job.
Job Status	The Threshold Assignment job's status (Pending, In Progress, Paused, Aborted, Completed, or Failed).
Owner	The person who last saved the Threshold Assignment job.
Creation Time	The date and time the job was created.
Job Description	The description of the job, if any.
Device Name/IP	The name of the device or its IP address.
Status	The Threshold Assignment status of the device.
Status Time	The time the device received its status.

Table D-25 **Threshold Job Details Page (continued)**

Field	Description
Errors/Warnings	<p>An error string, if available. In the case of a FAILED status, the CLI command that caused the error will also be displayed.</p> <p>If the error string for a Failed job displays “Internal error - unknown device state”, some of the job’s devices might be stuck in progress.</p> <p>In such a case, QPM will not be able to determine what was configured on these devices. You should contact Cisco technical support for help.</p>
View CLI Commands	Click to view the CLI commands that were used to configure the device. A Device Configuration window opens.

Related Topics

- [Pending Jobs Page, page D-33](#)
- [Completed Jobs Page, page D-34](#)

Threshold Errors and Warnings Page

Use this page to view details about any errors, warnings, or notifications that resulted from the Threshold Assignment of a device.

To open this page, click the Errors/Warnings link for a threshold job, in the Threshold Job Details page.

Table D-26 **Threshold Errors and Warnings Page**

Field	Description
Type	Displays message type— Notify, Exception, Error, Fatal Error, or Warning .
Message	Displays the reason for the message.
Message Time	Displays the time the error or warning occurred.

Related Topics

- [Threshold Job Details Page, page D-36](#)

Threshold Deployment History Page

Use this page to view the Threshold Assignment history details of a selected deployment.

To open this page, in the Completed Jobs page, click the Deployment link of the job whose assignment details you want to view.

Table D-27 **Threshold Deployment History Page**

Field	Description
Job Name	The name of the Threshold Assignment job.
Device Group	The device group that contains the Threshold Assignment job.
Creation Time	The date and time the job was created.
Job Description	The description of the job, if any.
Threshold Assignment Type	The Threshold Assignment type - Normal or Redeploy. Click this link to view the Job Details report of the selected deployment.
Start Time	The date and time the Threshold Assignment started.
End Time	The date and time the Threshold Assignment ended.

Related Topics

- [Threshold Job Details Page, page D-36](#)