CHAPTER 7

Managing Reports, Dashboards, and Views

Prime Performance Manager provides over 2800 reports and dashboards covering many different network device hardware and software elements. You can change how report data is displayed, enable and disable reports, and create customized report policies for specific devices or groups of devices. In addition, you create your own custom report views and groups. These and other report features and functions are described in the following topics:

Displaying Reports

After Prime Performance Manager device discovery is completed (see Chapter 5, "Discovering Network Devices"), you can display reports by either choosing **Reports** from the Performance menu to display network reports or drill down to a device and display the device reports.

Tip To display a list of all provided reports, from the Help menu, choose **Reports**, then click **Reports List Readme**.

At the network report level, the following report categories are displayed in the navigation area:

- Application Traffic
- Availability
- Data Network Services
- Hypervisors

- IP Protocols
- IP QoS
- IP SLA
- Mobile IOS Statistics
- Mobile StarOS Statistics
- PPM System
- Resources
- Security
- StarOS CDMA Statistics
- Storage
- Transport Statistics
- UCS Clusters
- Video Broadcast
- Virtualization

At the device report level, only the report categories containing reports generated for the device are displayed. As you navigate through Prime Performance Manager reports, keep the following in mind:

- Prime Performance Manager presents reports in a context-sensitive hierarchy. The navigation area is the highest report category level. As you drill down to lower levels, the focus turns to the content area, where you can display detailed reports at specific time intervals. The number of report levels depend on the report category.
- The reports available at any given point depend entirely on the focus. At the network level, the largest number of reports are available because many devices are in focus. As you shift the focus to individual devices, device elements, or to specific report categories, the number of available reports shrinks.
- Report availability ultimately depends upon the hardware and technologies provisioned on the devices. A report will not be displayed for a technology not provisioned on a device.

The device time zone displayed in reports is obtained from one of the following:

1. The time zone entered in the device Time Zone field. See Editing a Device Name, Web Port, and Time Zone, page 8-13.
2. The device time zone when the device was imported from Prime Network.
3. The time zone retrieved from the device.
4. The time zone of the Prime Performance Manager server where the device is connected.

For bulk statistics reports (Moble StarOS Statistics), the following notes apply:

- The time zone displayed for Cisco ASR 5000 and Cisco ASR 5500 devices depends on the bulk statistics file name and header sections. If devices are not configured to send files in the correct formats, the time zone will not display properly.
- The time zone name (EDT, UTC, etc.) is taken from bulk statistics file name. For example: RTPZ5SVCGW02_bulkstats_20120912_113502_EDT_5_5.csv.
- The time zone offset [(+/-)HHMM offset] is taken from the bulk statistics header. For example:

  Version-1.4.0,172.18.20.168,20120912-153526,20120912-113526,EDT,-0400,120912-11:35, private

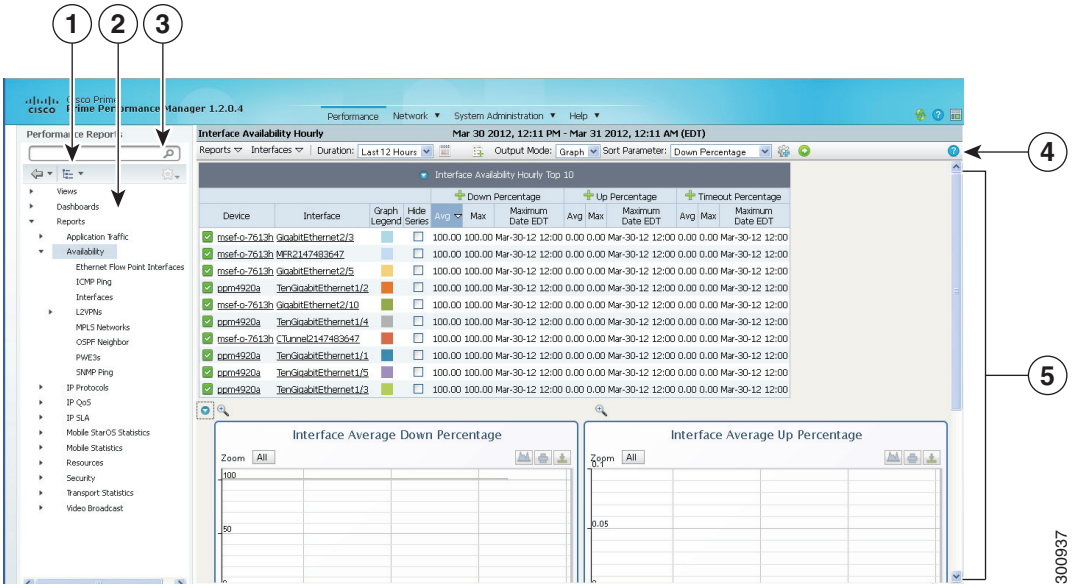
Figure 7-1 shows the Prime Performance Manager reports window with the Interface Availability report displayed in graph output format. Window elements include:

- Navigation tree—Allows you to select high-level report categories and subcategories. You can switch between tree or list views by selecting **Tree View** or **List View** respectively at the top of the navigation area.
- Search—Allows you to search for reports containing key words. For example, entering “Ethernet” will display all reports with Ethernet in their titles.

Note The Search field is also available from the Views and Dashboards windows.

- Content area—Displays report information. You can switch between graph and table formats by selecting **Graph** or **Table** in the reports toolbar Output Mode.

Figure 7-1 Reports Window



1	Navigation tree display tools	**4**	Menu bar
2	Navigation tree	**5**	Content area (graph view)
3	Search field		

Reports Menu Bar

The reports window and menu bar (Figure 7-2) provide many tools and functions that allow you to display individual reports specific to your needs and interests. The window title bar displays the report name and report period. The report time period shows the time zone in *TTT* format (where *TTT* is the time zone, for example, EDT) for all network-level reports when the Display Device Level Data in Device Time Zone user preference is disabled. When the preferences is enabled and the report or

dashboard is device level, the time zone is shown in GMT + *hh:mm* format. The duration is relative to the server or device time zone. For information about setting user preferences, see Changing User Preferences, page 3-7.

The Reports menu bar allows you change the report presentation in many different ways to meet your personal preferences or to highlight data that is of special interest. The menu bar is context sensitive; items that appear depend on the report category and selected report. Menu bar report options include:

- Reports—Allows you to choose the next level report beneath the report level currently in focus. For example, if you choose Availability > MPLS Networks, MPLS availability reports are displayed along with report intervals, for example, hourly, daily, weekly, or monthly.
- *Report Subcategory*—For report categories with multiple levels, a report subcategory menu is displayed with the subcategory name. The navigation tree, Reports menu, and subcategory menu operate hierarchically; selections vary depending on the depth of the report view in focus.
- Duration—Allows you to choose the report duration. The duration options that appear depend on the report intervals that are enabled:
  - 5 Minute—Last 6 hours, 24 hours, 3 days, 7 days.
  - 15 Minute—Last 12 hours, 24 hours, 3 days, 7 days, 14 days.
  - Hourly reports—Last 12 hours, 24 hours, 3 days, 7 days, 14 days, 21 days, 30 days, current month, previous month.
  - Daily reports—Last 7 days, 14 days, 21 Days, 30 days 6 months.
  - Weekly reports—Last 30 days, 60 days, 90 days, 6 months, 1 year.
  - Monthly reports—Last 90 days, 6 months, 1 year, 5 years.

  Note Intervals greater than the reporting aging intervals will not be displayed. For information, see Changing the Master Report Settings, page 7-14.

- Columns—Allows you to change the display from 1 to 3 columns.

Tip You can enable the Show One Graph Column Per Report user preference to display all reports as one column per graph. This can be useful if you have device configurations with long index component names that result in long titles and legends, or if you prefer viewing one stacked list of graphs. This preference sets the default. You always change it using the Columns parameter.

- Customize Date and Time Range—Allows you to create a report with a custom date and time range. The maximum time periods you can specify depend on the report interval:
  - Hourly reports—Seven days.
  - Daily reports—31 days.
  - Weekly reports—One year.
  - Monthly reports—Five years.

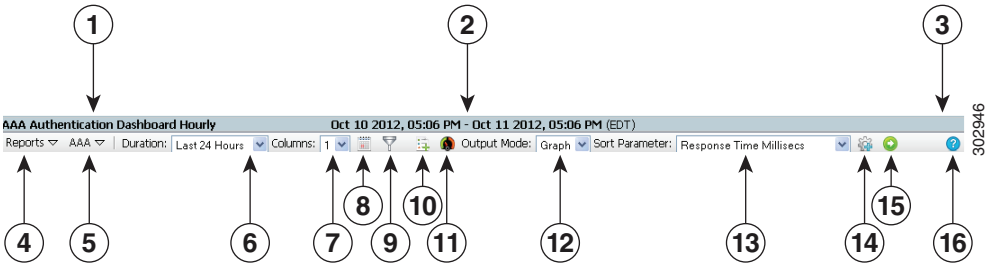
  Note Intervals greater than the reporting aging intervals will not be displayed.

- Report Object Filter—Allows you to filter report information based on different criteria. See Filtering Report Information, page 7-13 for information.

- Toggle Legends—For reports displayed in graph output, turns the chart legend on and off. If turned on, the chart legend appears under each chart displaying the color-coded report items. and the average and maximum data values for each item.
- Go Live—Initiates 15-second polling for device-level reports. (This tool is not displayed for network-level reports.) For more information, see Displaying Network and Device Reports, page 7-6.
- Output Mode—Allows you to change the report output format:
  - Graph—(Default) Displays the top *nn* report items in table and chart formats. By default, ten report items are displayed. (You can change the number of data items that are displayed in User Preferences. For information, see Changing User Preferences, page 3-7. Graph output provides many other customization options. For information, see Customizing Report Display, page 7-9.)
  - Table—Displays all report data in table format. While graph format displays only the top *nn* report items, the table output format displays all items. Page controls in the top right control the number of table rows to display. By default, 200 rows per page are displayed. To see all of the data, use the control to page through it, or use the **Page Size** control to adjust the page size.

    In table output, you can click the **Export report page as CSV file** button to export the current page in comma separated values format.
- Sort Parameter—Allows you to choose a parameter to sort the report information. The parameters displayed depend on the report. For example, in the Figure 7-1 Interface Availability report, the sort parameters are Down Percentage, Up Percentage, and Timeout Percentage.
- Graph Series Editor—Opens the Graph Series Editor dialog box where you can add and remove report items, or "series" from the report display. Report items are often, but not always, devices. For performance, select no more than ten items. (This option is only available in graph output mode.)
- Run Report—Runs the report after you modify any report parameters in the menu bar.
- Help for Report—Displays a text file with the MIB variables that are polled for generating the report, including any calculations that are performed. This text file also has links to the associated report XML files.

Figure 7-2 Reports Menu Bar



1	Report title	**9**	Report Object Filter
2	Report time period	**10**	Toggle Legends
3	Report table row currently in focus	**11**	Go Live
4	Reports selection menu	**12**	Output Mode
5	Report subcategory menu (Interfaces in this example)	**13**	Sort Parameter

6	Duration	**14**	Graph Series Editor
7	Columns	**15**	Run Selected Report
8	Customize Report Date and Time	**16**	Help for Report

Displaying Network and Device Reports

Displaying network and device reports is accomplished using very similar procedures. Prime Performance Manager allows you to easily navigate up and down the report hierarchy, from network-wide views to individual device and device element reports.

Note Network reports include only the devices with report information for the selected report category.

Network-Wide Device Reports

To view a network-wide report:

Step 1 From the Performance menu, choose **Reports**.

Step 2 In the navigation area, expand the **Reports** item and choose the report category that you want to view, for example, Application Traffic, Availability, IP Protocols, or other category.

The content area displays the default network report for the report category you selected. The default report is based on the sort weight Prime Performance Manager assigns to the report. For example, if you choose **Availability > MPLS Networks**, the MPLS Interface Availability hourly network report is displayed. If you choose **Resources > CPU**, the network CPU Utilization report is displayed.

Reports are displayed in graph format by default. For practicality, only ten devices are displayed in graph views. (The number can be changed using the ppm topxxsize command. For information, see ppm topxxsize, page B-77.) If more are available, the report includes a "Top N" in its title. To view the other devices, switch to table view, or use the Graph Series Editor described in Step 4 to add and remove devices.

Step 3 After you select a report category from the navigation tree, you can:

- Modify the parameters of the default report and run the report again, or
- Choose a different report from the content area Reports menu and/or the next level report menu, if it is displayed, or
- Drill down to the device report by clicking a device link.

Note You can change the number of devices displayed in graph view and report summary table using the Maximum Number of Data Series per Report user preference. For information, see Changing User Preferences, page 3-7.

Step 4 As needed, perform any or all of the following report modifications by choosing items on the report menu bar (Figure 7-2):

- Click **Duration** and choose a different report duration. The duration options depend on the report interval:
  - 5 Minute—Last 6 hours, 24 hours, 3 days, 7 days.
  - 15 Minute—Last 12 hours, 24 hours, 3 days, 7 days, 14 days.

  - Hourly reports—Last 12 hours, 24 hours, 3 days, 7 days, 14 days, 21 days, 30 days, current month, previous month.
  - Daily reports—Last 7 days, 14 days, 21 Days, 30 days, 6 months.
  - Weekly reports—Last 30 days, 60 days, 90 days, 6 months, 1 year.
  - Monthly reports—Last 90 days, 6 months, 1 year, 5 years.
- Click **Customize Date and Time** and choose a custom report start and end date and time. Use this option if the default Duration time periods do not meet your needs. The custom time period can be no longer than seven days.
- Click **Report Object Filter** to filter report information. For information, see Filtering Report Information, page 7-13.
- For reports in graph output:
  - Click **Toggle Legends** to turn the graph legend on and off. For reports displayed in graph output, Toggle Legends turns the chart legend on and off. If turned on, the chart legend appears under each chart displaying the color-coded report items and the average and maximum data values for each item.
  - Click **Graph Series Editor** and add or remove devices to and from the report.

Note Graph output provides many other customization options. For information, see Customizing Report Display, page 7-9.)

- Click **Output Mode** and choose a different report output:
  - Graph (default)—Displays the top N (10 is the default) devices for the selected report in graphical format.
  - Table—Displays all the devices for the selected report in table format. Click the **Export report page as CSV file** button to export the current page in comma separated values format.
- Click **Sort Parameter** and choose a different report parameter to sort the report information. The parameters are based on the report.

Step 5 When finished, click **Run Report** (green arrow) to run the report with the modified parameters.

Individual Device Reports

Displaying device reports is similar to network device reports, with some navigation and option differences. To display a report for an individual device:

Step 1 From the Network menu, choose **Devices**.

All the devices polled by Prime Performance Manager are displayed.

Step 2 Click the link of the device that you want to view.

The content area displays the default report for the device you selected. The default is based on the sort weight Prime Performance Manager assigns to the report.

Reports are displayed in graph format by default.

Step 3 After you display the default device report, you can:

- Modify the parameters of the default report and run the report again, or

- Choose a different report from the content area Reports menu and/or the next level report menu, if it is displayed.

Step 4 As needed, perform any or all of the following report modifications by choosing items on the report menu bar (Figure 7-2):

- Click **Duration** and choose the report duration. The duration options depend on the report interval:
  - 5 Minute—Last 6 hours, 24 hours, 3 days, 7 days.
  - 15 Minute—Last 12 hours, 24 hours, 3 days, 7 days, 14 days.
  - Hourly reports—Last 12 hours, 24 hours, 3 days, 7 days, 14 days, 14 days, 21 days, 30 days, current month, previous month.
  - Daily reports—Last 7 days, 14 days, 21 Days, 30 days, 60 days, 6 months.
  - Weekly reports—Last 30 days, 60 days, 90 days, 6 months, 1 year.
  - Monthly reports—Last 90 days, 6 months, 1 year, 5 years.
- Click **Customize Date and Time** and choose a custom report start and end date and time. Use this option if the default Duration time periods do not meet your needs. The maximum custom time periods are:
  - 5 Minute—Three days.
  - 15 Minute—Seven days.
  - Hourly reports—Seven days.
  - Daily reports—31 days.
  - Weekly reports—One year.
  - Monthly reports—Five years.
- Click Report Object Filter to filter report information. See Filtering Report Information, page 7-13.
- For reports in graph output,
  - Click **Toggle Legends** to turn the graph legend on and off.
  - Click **Graph Series Editor** and add or remove devices to and from the report.
- Click **Go Live** to start 15-second updates for device-level reports. After you click Go Live:
  - The summary table, tools left of the report chart, and all toolbar functions that do not apply to live mode are removed.
  - End Live Mode appears at the top of the report window.
  - Reports are updated continuously every 15 seconds.

  Live mode continues as long as you remain on the device page, or until you click End Live Mode. If you move away from the device window to another window, Live Mode stops. To start it, return to the device report and click Live Mode.

Note Some reports, such as ICMP Ping, do not support 15-second polling. If so, an alert will tell you that Go Live is not supported.

Note Some devices take longer than 15 seconds to poll. If so, Prime Performance Manager sends a series of messages, initially stating the device is not responsive. Prime Performance Manager then increases the polling interval until it finds an interval that is successful. It will attempt each interval two times. If data is not recovered at 1-minute polling, Go Live mode will exit.

- Click **Output Mode** and choose a different report output:
  - Graph (default)—Displays the top ten devices for the selected report in graphical format.

    Note Graph output provides many other customization options. For information, see Customizing Report Display, page 7-9.)

  - Table—Displays all the devices for the selected report in table format.
  - CSV—Saves the report in CSV format to your client computer.
- Click **Sort Parameter** and choose a different report parameter to sort the report information. The parameters are based on the report.

Step 5 When finished, click **Run the Selected Report** (green arrow) to run the report with the modified parameters.

Related Topics

Changing the Master Report Settings, page 7-14

Customizing Report Display

Prime Performance Manager provides many options to control the report information and how it is presented. The Graph report output provides options that allow you to customize the display to highlight report data or to suit your personal preferences. For example:

- Click **Hide Row** in a table item—Hides the item from the chart. In addition to Hide Series,
  - Click colored boxes in the Graph Legend—Highlights the associated series in the graph.
- Click a data series name in the legend—Hides/displays the series. (It also grays out the text when the series is hidden.)
- Click **Show Graph in Full Screen**—Display the chart in full-screen size.
- Click **Show Related TCAs**—If thresholds are created, displays the threshold in graphical format. If a threshold is not provisioned, the tool is inactive. For information about creating thresholds, see Creating Thresholds, page 10-1.
- Click different report time intervals on the **Zoom** tool
- Click **Copy to Clipboard**—Copies the chart to a clipboard that is unique for each user on the server. You can copy multiple charts to the clipboard. The clipboard retains graphs copied to it until you paste the clipboard contents to a custom view page. See Creating a Custom Report View, page 7-34.

Tip Perform the copy and paste operations in two tabs. In one tab, drill through the reports and click the graphs you want. In the other tab, you can paste the items directly into the view you want.

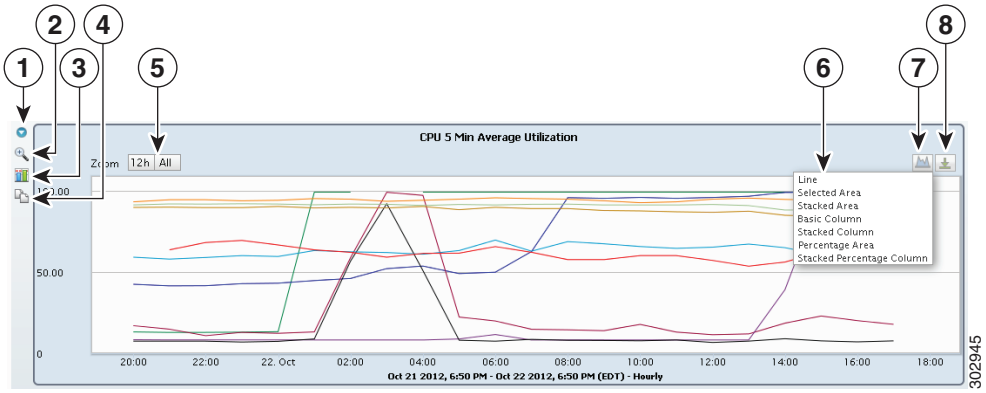
- Click **Add to Star Graphs** to add the report chart to the Star Graphs tab. See Creating Custom Device Star Graphs, page 7-12 for information.

Note

Inside the chart images:

- Click **Graph Style**—Allows you to change how data is presented in the graph:
  - Line—Displays data in lines.
  - Selected Area—Highlights one series.
  - Stacked Area—Shades and stacks all series.
  - Basic Column—For leaf graphs, displays basic bar graphs. Not available for other level graphs.
  - Stacked Column—Similar to the Stacked Area option, but displayed in columns.
  - Percentage Area—Displays the percentage contribution of each series.
  - Stacked Percentage Column—Similar to the Percentage Area option, but displayed in columns.
- **Export to Image**—Downloads the chart to your computer as a PNG or JPG image, or as a PDF.

Figure 7-3 Graph Display Options



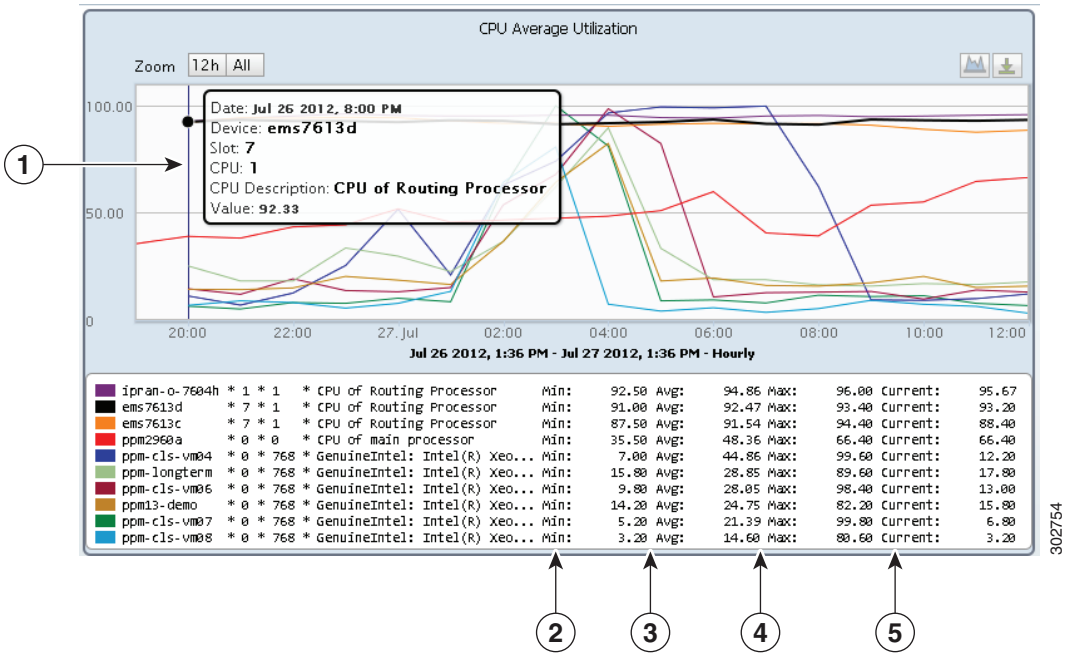
1	Hide Row	**5**	Zoom
2	Show Graph in Fullscreen	**6**	Graph style options
3	Toggle Related Threshold	**7**	Graph Style
4	Copy to Clipboard	**8**	Export Graph

For example, you can choose whether you want the minimum, maximum, average, total, and current data values displayed in graphs and summary tables. In other words, for any data item, the minimum value for the report period, maximum value, average, total, and current values can be displayed. Figure 7-4

shows the minimum, maximum, average and current data for a CPU utilization report. In addition, you can enable or disable the graph vertical data point bar, change the graph height, or display only one graph column per report.

Tip Click the legend color swatches to highlight or not highlight the corresponding series in the chart. Click the legend text to show or hide that series.

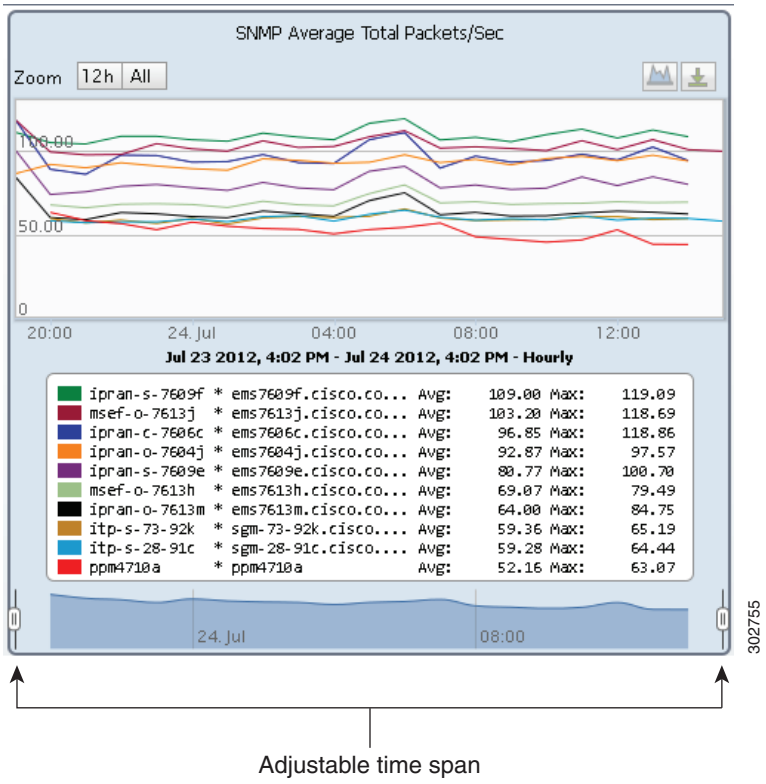
Figure 7-4 Graph Bar and Data Display Options



1	Vertical data point bar	**4**	Maximum data
2	Minimum data	**5**	Current data
3	Average data		

The time span bar (Figure 7-5) is another option you can use to reduce the time span within a chart so you can view intervals of interest in greater detail. By default, the time span bar is displayed in all full screen charts. However, it can be enabled so that it appears on all report charts.

Figure 7-5 Graph Time Span Bar



These and many other options are provisioned in the User Preferences window. For information, see Changing User Preferences, page 3-7.

Creating Custom Device Star Graphs

At the device report level, you can pick individual report charts and add them to the Star Graphs tab to create a customized, device-level report view.

To create a custom device hot chart:

Step 1 From the Network menu, choose **Devices**.

Step 2 Click the link of the device for which you want to create a custom view.

Step 3 From the device Reports menu, display the report containing the data you want to add to the custom view.

The report is displayed in chart output format by default.

Step 4 Navigate to the chart that you want to add, and click the **Add to Star Graphs** tool inside the graph.

The graph is automatically added to the Star Graphs tab.

Note Prime Performance Manager copies the device-level equivalent of the item you copied. For example, if you drilled into an individual CPU and add it to a star graph, the star graph page will show a report for all device CPUs, not just the one you copied.

Step 5 Repeat Step 4 until you have added the charts that you want to the Star Graphs tab. You can navigate to different reports and select charts from them as well.

Note For performance, you should add no more than ten graphs to the Star Graphs tab.

Step 6 When finished, click the **Star Graphs** tab to view your custom report view for the device. The tab displays the selected charts in normal report view. Most of the report menu bar (see Figure 7-2 on page 7-5) actions are available including Interval, Duration, Custom Date Range, and the ability to toggle between graph and table output formats at the global and individual report item level.

Report items in the Star Graphs view remain until you delete them.

Step 7 To remove a report item, click the **Remove this Graph** toolbar item inside the chart you want to delete. You can also remove a star chart report by unchecking the star of the report on the page where it was first starred.

Filtering Report Information

You can filter report information to display data within certain numeric or alphabetic parameters, for example, to display a down percentage 80 and higher.

Note If you filter reports so that only one report object remains, Prime Performance Manager combines the object data into one graph and displays it without requiring you to drill down.

To filter report information:

Step 1 Display the report following the "Displaying Reports" procedure on page 7-1.

Step 2 On the report toolbar, click the **Report Object Filter** tool.

Step 3 In the Set Report Object Filter dialog box, complete the following:

- Column Name—Choose the report column that you want to use to filter the report information. The columns will vary, depending on the report.

  Note Non-editable fields to the right of Column Name provide database name and data type for the displayed report item. For example, Device has the database name, node, and data type, string. This data is provided for informational purposes and can be useful when customizing reports. (For information about customizing Prime Performance Manager reports, see the *Cisco Prime Performance Manager 1.3 Integration Developer Guide*.

- Operator—Enter the operator:
  - equals
  - not equals
  - contains
  - not contains
  - greater than

  - less than

- Filter Value—Enter the value to be used with the column and operator to filter the report, for example, if you want to display only GigabitEthernet interfaces, you would enter the following values:
  - Column Name: **Interface**
  - Operator: **contains**
  - Filter Value: **GigabitEthernet**

Note When filtering on columns that are percentages, enter filter values in decimal format with a leading 0. For example, to filter everything below 93.25%, enter 0.9325. Entering 93.25 or .9325 will generate the desired results.

Step 4 Click **OK**.

Step 5 On the report toolbar, click **Run the Report**.

The report displays the filtered information.

Step 6 To remove the filter:

a. On the report toolbar, click the **Report Object Filter** tool.

b. In the Set Report Object Filter dialog box, remove the entry in the Filter Value field.

c. Click **OK**.

d. On the report toolbar, click **Run the Report**.

The report displays the full report information.

Changing the Master Report Settings

You can provision report intervals and report aging parameters and apply them to all Prime Performance Manager reports from the Performance > Reports > Administration Report Settings window. The master report settings allows you to set up the broad rules for report generation and management. These rules can be overridden at the individual report level, for example, you might decide not to enable 1-minute reports as a global setting, but enable 1-minute reports for certain critical areas.

To provision the master report general and aging settings:

Step 1 From the Administration menu, click **Report/Group Settings**.

The Administration Report Settings window displays the general and aging report settings.

Step 2 In the General Settings area, click **Time Mode** if you want to change the report time mode, either 12 or 24-hour (default). For the other settings, click **Disabled** or **Enabled** to disable or enable the setting. See Table 7-1 for general setting descriptions.

Step 3 In the Aging Settings area, click a field and edit the aging value for the report, as needed. See Table 7-1 for aging setting descriptions.

Step 4 When finished, return to the previous Prime Performance Manager window.

Step 5 To display the report setting changes, click Run Report click **Reload Report** on the report toolbar (if a report is displayed), or click **Reload Page** on the main toolbar at the top of the Prime Performance Manager window.

Table 7-1 Historical Statistics Report Settings

Area	Field	Description
General Settings	Reports Directory	Directory where Prime Performance Manager stores reports. The default is /opt/CSCOppm-gw/reports. You cannot edit this field. To change the reports directory, use the ppm repdir command. See ppm repdir, page B-56.
	Time Mode	The report time mode, either 12-hour or 24-hour (default).
	Master Report Flag	Enables or disables report generation for all reports: • Enabled—(default) Report generation is on, pending provisioning set at the individual report time interval. • Disabled—Stops all report generation regardless of the provisioning at the individual report time interval.
	1 Min Report Flag	If enabled, 1-minute reports are generated. If you enable 1-minute reports, you must: • Enable 1-minute reports at the individual report level. (See Enabling and Disabling Reports, page 7-16.) One-minute reports are not enabled automatically across all reports. This field is disabled by default.
	5 Min Report Flag	If enabled, 5-minute reports are generated. This field is disabled by default.
	15 Min Report Flag	If enabled (default), 15-minute reports are generated.
	Hourly Report Flag	If enabled (default), hourly reports are generated.
	Daily Report Flag	If enabled (default), daily reports are generated.
	Weekly Report Flag	If enabled (default), weekly reports are generated.
	Monthly Report Flag	If enabled (default), monthly reports are generated.
	Export Reports	If enabled, automatically generate reports in CSV and 3GPP XML format and stores them in the /opt/CSCOppm-gw/reports directory. This field is disabled by default. **Note** If you enable this field, enable report backups. For information, see ppm backuprep, page B-11.
	Generate DB Reports	If enabled (default), automatically generate reports and stores report data in the report database.
	Export Hourly 5 Minute CSV Reports	If enabled, automatically generates hourly 5-minute reports in CSV format and stores them in the /opt/CSCOppm-gw/reports directory. This field is disabled by default.
	Export Hourly 15 Minute CSV Reports	If enabled, automatically generate hourly 15-minute reports in CSV format and stores them in the /opt/CSCOppm-gw/reports directory. This field is disabled by default.
	Perform Disk Space Checking	Enables or disables disk space checking. Disk space usage increases with every enabled report. The increase depends on the report, the number of devices, and their configurations. Monitor disk space usage and disable the reports for specific devices or decrease the aging value to delete old reports frequently.

Table 7-1 Historical Statistics Report Settings (continued)

Area	Field	Description
Aging Settings[1]	1 Min Stats Aging (Days)	Database aging value for 1-minute statistics. The default is 2 days.
	5 Min Stats Aging (Days)	Database aging value for 5-minute statistics. The default is 3 days.
	15 Min Stats Aging (Days)	Database aging value for 15-minute statistics. The default is 7 days.
	Hourly Stats Aging (Days)	Database aging value for hourly statistics. The default is 14 days.
	Daily Stats Aging (Days)	Database aging value for daily statistics. The default is 94 days.
	Weekly Stats Aging (Days)	Database aging value for week statistics. The default is 730 days.
	Monthly Stats Aging (Days)	Database aging value for monthly statistics. The default is 1825 days.
	1 Min CSV Aging (Days)	Database aging value for 1-minute CSV statistics. The default is 2 days.
	5 Min CSV Aging (Days)	Database aging value for 5-minute CSV statistics. The default is 3 days.
	15 Min CSV Aging (Days)	Database aging value for 15-minute CSV statistics. The default is 7 days.
	Hourly CSV Aging (Days)	Database aging value for hourly CSV statistics. The default is 14 days.
	Daily CSV Aging (Days)	Database aging value for daily CSV statistics. The default is 94 days.
	Weekly CSV Aging (Days)	Database aging value for weekly CSV statistics. The default is 730 days.
	Monthly CSV Aging (Days)	Database aging value for monthly CSV statistics. The default is 1825 days.
	Bulk Stats Aging (Days)	Specifies the aging value for bulk statistic files in the drop directory. The age is the age of files received, not a database age. The default is 14 days.

1. When records exceed the specified value, they are aged out of the database.

Enabling and Disabling Reports

While you can apply report settings to all Prime Performance Manager reports (see Changing the Master Report Settings, page 7-14), you can also apply many of the same settings to the report categories and individual reports. For example, you might want to enable and disable all Application Traffic reports or all Availability reports. Within a report category, you can enable or disable reports at specific intervals. Report intervals include 1-minute, 5-minute, 15-minute, hourly, daily, weekly, and monthly intervals. All reports and report intervals are enabled by default except for 1-minute and 5-minute reports, which are disabled by default.

Report data options include the ability to generate report data in CSV format, and the ability to indicate whether report data should be storied in the database.

When modifying reports and report intervals, keep the following in mind:

- Although administrator and operator users can enable 1-minute and 5-minute reports, only system administrator users can enable the SNMP device polling interval required for these intervals.
- Enabling a 1-minute and 5-minute reports increases the Prime Performance Manager unit disk space utilization and decreases unit performance because of the increased disk activity.
- Only reports that run on a regularly scheduled intervals are displayed in the hourly and daily data. Reports that run continuously are not displayed.

To enable or disable reports or change report intervals:

Step 1 From the Administration menu, click **Report Status**.

The Administration Reports Status table (Figure 7-6) displays the high-level report categories and their status: enabled (check box left of the report category is checked) or disabled (check box is not checked).

Step 2 Under Report Name, click the show reports tool to display the reports within a category.

Step 3 As needed, modify any of the following report settings:

- Report intervals—Select the report intervals that you want to enable for the report: 1 Minute, 5 Minute, 15 Minute, Hourly, Daily, Weekly, Monthly.

Note One-minute and five-minute reports require substantial storage and can impact device performance. Enable these intervals with care.

Note Prime Performance Manager automatically adjusts the polling frequency to match the most frequent provisioned report frequency.

- Report data—Two options are provided for report data:
  - CSV—If enabled, reports are generated automatically as CSV files for the selected report intervals and stored in /opt/CSCOppm-gw/reports.
  - DB—If enabled, report statistics are collected and stored in the Prime Performance Manager database. Reports are visible in the Prime Performance Manager Reports window.

  Table 7-2 lists the report data options.

Table 7-2 Report Data Options

CSV	DB	Results
No	Yes	• Report statistics are collected and stored in the Prime Performance Manager database. Reports are visible in the Prime Performance Manager Reports window. • CSV files are not generated.
Yes	Yes	• Report statistics are collected and stored in the Prime Performance Manager database. Reports are visible in the Prime Performance Manager Reports window. • CSV files are generated.
Yes	No	• No report statistics are collected or stored in the Prime Performance Manager database. Reports are not visible in the Prime Performance Manager Reports window. • CSV files are generated.
No	No	• No report statistics are collected or stored in the Prime Performance Manager database. Reports are not visible in the Prime Performance Manager Reports window. • CSV files are not generated.

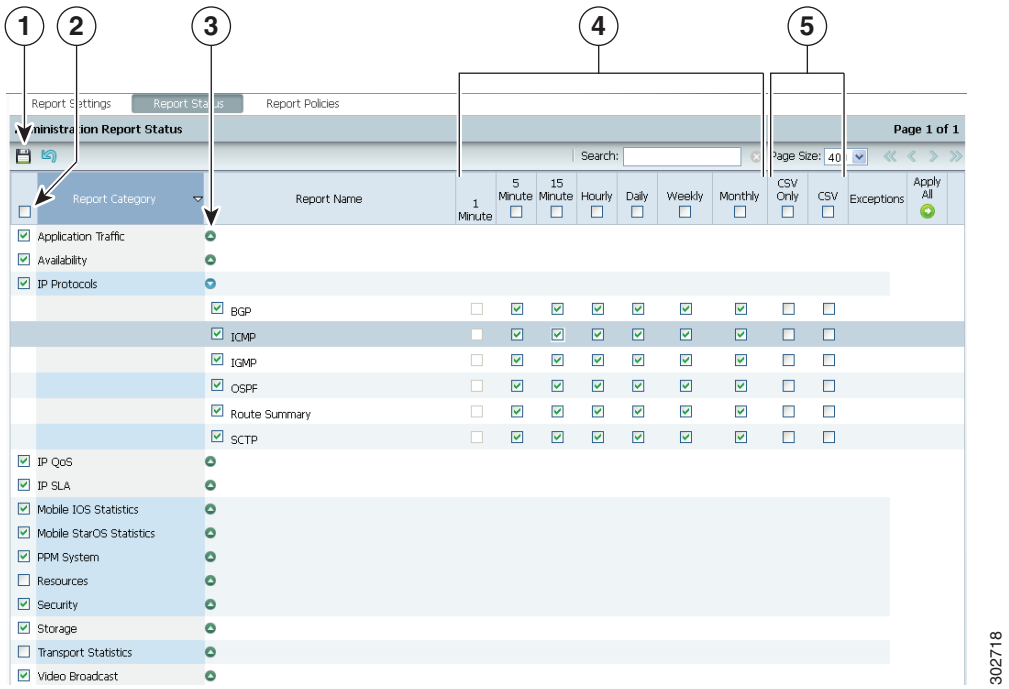
- Exceptions—Report settings can be set at the device level different from the ones set here. If so, an icon appears in this column. Clicking it displays the devices where report settings differ.

- Apply All—Applies the report category settings to all devices, overriding any report settings that might be set at the device level.

Step 4 Choose the report categories and intervals you want to enable or disable by clicking the check box to the left of each category, subcategory, or time interval. Checking or unchecking a report category automatically selects or deselects categories under it.

Step 5 When finished, click **Save Report Settings** in the Report Status toolbar.

Figure 7-6 Enabling Reports and Report Intervals



1	Save report settings	**4**	Report interval settings
2	Enable or disable report category	**5**	Database storage options
3	Display or hide subreports		

Note You can use the ppm statreps command to modify the report status from the CLI. For information, see ppm statreps, page B-73).

Capability Polling

The Prime Performance Manager capability polling feature polls devices to see what MIBs the device supports, then determines the reports the device is capable of supporting. Capability polling occurs once a day. It also occurs when users request a poll, or when a device is rebooted or has a configuration change, such as a new card installation.

By default, capability polling is enabled in optimized mode. This means capability polling is only conducted for device reports that are enabled at the master or individual device report levels. This means when you display individual device reports, only the reports that are enabled at the master or individual device report levels are displayed.

For performance, leaving capability polling optimization enabled is recommended. However, in certain scenarios, for example, in a lab environment where device configurations and capabilities change frequently for testing, you can use the ppm optimizecapabilitypoll command to disable capability polling optimization. This would allow users to see what set of reports could be enabled for a given device as well as the reports that are enabled. For information, see ppm optimizecapabilitypoll, page B-45.

Exporting Reports in 3GPP XML Format

CSV is the default format for exported Prime Performance Manager reports. You can change the format to 3rd Generation Partnership Project (3GPP) XML format. To change CSV to 3GPP XML:

Step 1 log into the Prime Performance Manager gateway server as the root user. See Root User Login, page 2-1.

Step 2 Enter the following commands:

```
/opt/CSCOppm-gw/bin/ppm statreps csvnames 3gpp
/opt/CSCOppm-gw/bin/ppm statreps expformat xml
```

Step 3 Open a Prime Performance Manager browser session.

Step 4 From the Performance menu, choose **Reports**, then click **Report/Group Settings**.

Step 5 Enable **Export Reports**.

Step 6 Click **Report/Group Status**.

Step 7 Verify that one or more report intervals and CSV are enabled.

Step 8 Allow time for reports to be generated, then display the 3GPP XML reports. Reports will have the following characteristics:

- All XML report files have an xml.zip extension.
- Each report has an XML header, file header and file footer. The file header and footer have the start and end time stamps for the reporting interval.
- Each device is enclosed in the <measData> </measData> tags and has a <granPeriod> tag.
- The <measTypes> tag encloses column names, excluding the key fields.
- The <measValue> tag encloses key names and values.
- The <measResults> tag encloses the column values in the same order as the column names enclosed within <measTypes>.
- The column names containing any of the following special characters, ' " & < >, are encoded in XML format. For example, "ppm5550a" and "ppm5580a" contain apostrophes that are encoded in the column/key values.

Creating Report Policies

You can create report policies to customize report attributes for certain device types or individual devices. For example, you might decide if you want to enable or disable reports based on the device type, or set custom report intervals to a device type or specific devices. Devices discovered during device discovery are assigned the standard report policies. However, you can:

- Change the report policy based on the device type. For example, to change the reports generated for all Cisco 7606 routers, you would modify the Cisco7606s report policy.
- Create a new report policy and assign devices to it. For example, if you want to assign the same report policy to a group of devices with different device types, you create the report policy and assign each device to it.

Related Topics

- Editing Report Policy Parameters, page 7-20
- Creating a New Report Policy, page 7-21
- Assigning Devices to Report Policies, page 7-21

Editing Report Policy Parameters

By default, all devices are assigned to a report policy created for the device type. To edit the parameters of an existing report policy:

Step 1 Log into the Prime Performance Manager GUI as the system administrator user.

Step 2 From the Administration menu, click **Report Policies**.

Step 3 Scroll to the device type group you want to modify and click the **Edit Policy** tool in the Edit Policies column.

The Edit Report Policy: *devicegroup* window appears. This is the same window that is displayed when you click the Report Status tab. However, changes that you make here only apply to the device group that you selected, whereas changes made in the Report Status tab apply to all devices.

Step 4 Modify any of the following:

- Check the reports that you want enabled for this device type.
- Check the report intervals that you want applied to this device group:
  - 5 Minute
  - 15 Minute
  - Hourly
  - Daily
  - Weekly
  - Monthly
  - CSV Only

Note You cannot edit the report policy name of policies created by Prime Performance Manager. These are based on the device types discovered during device discovery.

Step 5 On the Report Policy toolbar, click the **Save Report Policy** tool.

Creating a New Report Policy

To create a new report policy:

Step 1 Log into the Prime Performance Manager GUI as the administrative user.

Step 2 From the Administration menu, click **Report Policies**.

Step 3 On the Report Policy Editor toolbar, click the **Add Report Policy** tool.

Step 4 In the Save Report Policy dialog box, enter the report policy name.

Step 5 Click **OK**.

Step 6 On the Report Policy Editor toolbar, click the **Save Polling Group** tool.

Step 7 Complete the "Editing Report Policy Parameters" procedure on page 7-20 to edit the reports and report intervals that you want for the new report policy.

Assigning Devices to Report Policies

By default, Prime Performance Manager creates device type report policies and assigns devices to them based on their device type. You can create custom report policies and reassign the devices to them.

To assign a device to a custom report policy:

Step 1 Log into the Prime Performance Manager GUI as the system administrator user.

Step 2 From the Network menu, choose **Devices**.

Step 3 In the device table, select the row of the device whose report policy you want to change. To select more than one device, press **Shift** and highlight the device table row.

Step 4 From the Devices window toolbar Actions menu, choose **Edit Report Policy**.

Step 5 In the Edit Report Policy dialog box, choose the report policy that you want to assign. The following options appear:

- The device type report policy. This option is not displayed if you choose multiple devices with different device types.
- This Device Only—If selected, allows you to edit the report policy parameters and assign it to the selected devices.
- Default—Assigns the device(s) to the default report policy.
- Custom groups—If you created report policies, they are displayed.

Step 6 Click **OK**.

Displaying Report Definitions

Prime Performance Manager cover many networking devices and technologies. To view the underlying XML definitions for a report, from the Help menu, choose **Reports**, then click **Report XML Definitions**. The README-Reports-system.html file is displayed. It provides the MIB tables and the fields that are polled to retrieve data from the device. It also describes the fields that are mapped to the report columns.

README-Reports-system.html is located in the /opt/CSCOppm-gw/etc/pollers/system or /opt/CSCOppm-gw/etc/pollers/user directories. Administrator access is required to edit the report definitions.

Should the provided Prime Performance Manager reports not meet all of your needs, you can create new ones using the provided reports as examples. For information about creating new reports, see the *Cisco Prime Network 1.3 Integration Developer Guide*.

Note In instances where a user file and a system file for the same report exist, the user file has priority.

Displaying Data Center Reports

Prime Performance Manager supports many data center networking, computing, storage, virtualization, and management devices and technologies. To display data center reports, from the Performance menu, choose **Views**. Supported data center devices and technologies are displayed in a Data Center view. Table 7-3 lists the data center devices and technologies that Prime Performance Manager supports.

Table 7-3 Supported Data Center Devices and Technologies

Category	Device/Technology	Chassis Components	Card/Interface Components
Network	Cisco ASR 9000	Supervisor card, line cards, routes, and neighbors	interfaces, ports
	Cisco ASR 1000	Same as Cisco ASR 9000	
	Cisco Nexus 7000 VDC	Supervisor card, line cards, VLAN, Interfaces, ports channels, vPC peer members	interfaces, subinterfaces, VLANs
	Cisco Nexus 5000	Same as Cisco Nexus 7000	
	Cisco Nexus 3000	+ route table size. ECMP variance and LPM statistics	
	Cisco Nexus 1000	Supervisor card, VLANs	VEM
	Cisco Nexus 1010	Same as Cisco Nexus 1000	
	Cisco Catalyst 6500 VSS	Supervisor card, line cards, and service module	interfaces, subinterfaces, VLANs
	Cisco Catalyst Firewall Service Module	Contexts	connection counts, translation counts (global and per context)
	Cisco ACE 20/30	Contexts	connection counts at global level and per context level
	Cisco ACE 4712	Contexts	

Table 7-3 Supported Data Center Devices and Technologies (continued)

Category	Device/Technology	Chassis Components	Card/Interface Components
	Cisco ASA 5500	Supervisor card, modules	VPNs
Compute - Physical Devices	Cisco UCS 6100	+hosts, VMs, cluster and per chassis	per VM, CPU, memory, disk, buffer, I/O, process
	Cisco UCS 5000	hosts and VM per chassis	
	Cisco UCS B Series	hosts and VM per chassis	
	Cisco UCS C Series	per chassis	
	Fabric InterConnect switches: • Cisco 6100, 6200 Series	per chassis	
	Other blade servers (IBM, HP, and othes)		
	Bare metal servers	per server	
Compute Logical/Virtual Devices	VMWare • vCenter • ESXi		host/VM CPU, memory, disk and network reports
	Hyper-V		
	KVM		
	Xen		
Storage	Cisco MDS 9000	Supervisor card, line cards, power supply, fans, VSANs, zoning	Storage ports, host ports, ISL ports, NPV ports, VSANs
	EMC	• Capacity and volumes • Storage pools • LUNs	
	NetApp	• Capacity: – Used – Available in aggregates – Spare disks • Uptime • CPU Utilization • I/O Throughput • Protocol Latency	• Volumes: used/available • Shares • Exports • LUNs • Quotas • Aggregates • Disks
Integration	Northbound interface		

In the Prime Performance Manager GUI, data center features are listed under Views and Reports.Under Views, a default Data Center view is provided. It includes:

- Network
  - VDC

  - VSS
  - Routers/Switches
- Compute
  - UCS Clusters (includes the hosts/VMs to blade server mapping)

Under Reports, the following data center report categories are provided:

- Data Network Services:
  - ACE
- Hypervisors
  - Hyper-V
  - KVM
  - VMWare (includes ESXi and vCenter
- Xen
- Security
  - FWSM
- Storage
  - EMC
  - NetApp
  - VSAN Zoning

UCS Clusters

  - UCS Chassis (includes UCS Blade)
  - UCS Fabric InterConnect
- Virtualization
  - VDC

Setting Up Bulk Statistics Reports

Prime Performance Manager retrieves report data for most devices using SNMP to poll the device MIBs containing the performance data. Some devices, such as the Cisco ASR 5000 and Cisco ASR 5500, provide less SNMP support and few MIBs, so few statistics can be gathered using SNMP. However, you can generate reports for these devices using bulk statistics. Bulk statistics are statistics collected in a groups, called schemas, at regular intervals. The device sends the schemas to a specified location as comma separated value (CSV) files. Prime Performance Manager picks up the files and generates the reports. Each schema contains many performance data variables called counters.

The Cisco ASR 5000 and ASR 5500 devices can be configured to collect bulk statistics and FTP them to a collection server (remote folder). To generate reports from the bulk statistics, you must configure the device to generate the bulk statistics in the specific format expected by Prime Performance Manager and set up Prime Performance Manager so it can read the CSV files generated by the device.

To set up Prime Performance Manager for bulk statistics:

Step 1 Following instructions in the device documentation, configure devices to FTP bulk statistics files to either the Prime Performance Manager unit server or a SAN directory.

Step 2 Complete the "Creating the Device Bulk Statistics Configuration" procedure on page 7-27 to generate the device configuration. The procedure generates the bulk statistics in the format Prime Performance Manager expects.

Step 3 Copy the generated configuration to all the required devices. Prime Performance Manager does not configure the devices automatically, so you must copy the configuration file manually.

Note You do not need to configure all the schema types generated by the command. However the reports will have data only for the schemas that are configured.

Note If the drop directory is a SAN directory, the Prime Performance Manager unit must have read and write permissions to it.

Step 4 Verify the bulk statistics samples are received at the drop directory.

The drop location for the files is configured in the device config using the CLI "remotefile" format. Verify the devices actually FTP the bulk statistics CSV file to this location. If files are not received at the drop directory, verify the directory has the proper permissions and the login user name and password provided in the device configuration is valid.

Tip Perform a save configuration from the device to the drop directory. If save configuration works successfully, the bulk statistics samples should FTP without issues.

Step 5 Open the bulk statistics samples and verify the counter names are complete.

The example schema definitions below show incomplete counters at the end.

```
PPM,system,systemSch55,1349867400,20121010,071000,1702713,0,,%d
PPM,system,systemSch56,1349867400,20121010,071000,1702713,,0,%disc-reason
PPM,system,systemSch6,1349867400,20121010,071000,1702713,,,,,0,606734,%sess-s
```

Tip Incomplete counters in the bulk statistics samples often occur when you copy too many configuration lines to the device at the same time. Devices have a buffer limit on the number characters that can be pasted to it at one time. If you experience incomplete counters, configure a smaller number of lines at a time.

Bulk statistics samples with complete counter names enclosed within % symbols are acceptable. These are counters that are obsolete and not supported in the current Star OS version. Prime Performance Manager ignores these counters and used the default data type value for processing. For example, %cpu3-cpuused-user% is an obsolete or unsupported counter in the following:

```
PPM,card,cardSch3,1346768700,20120904,142500,928325,1,0,0,0,%cpu3-cpuused-user%,0.00,0.00,
0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,0.00,
```

Step 6 Set the drop location on the unit server, by entering:

```
/opt/CSCOppm-gw/bin/ppm csvdrop [dir]
```

When you install the unit, the default drop directory location is /opt/CSCOppm-unit/csvdrop/. Use the ppm csvdrop command to point to the directory where bulk statistics samples are received from the Cisco ASR 5000 and Cisco ASR 5500 devices. The command updates the CSV_DROP_DIR property in BulkStats.properties located in /opt/CSCOppm-unit/properties. Restarting the unit is not necessary; the property changes takes effect automatically.

Use the same drop directory for all Cisco ASR 5000 and Cisco ASR 5500 devices in the network. The %host% variable in the filename helps to uniquely identify each device.

Step 7 Discover devices and check for alarms in the Alarms/Events window. For information about device discovery, see Chapter 5, "Discovering Network Devices." For information about the Prime Performance Manager alarms management, see Chapter 9, "Managing Network Alarms and Events."

Prime Performance Manager might raise bulk statistics alarms. See Bulk Statistics Alarms, page 7-29 for alarm descriptions and actions to resolve them. The unit console and message log files in /opt/CSCOppm-unit/logs/ are also be a good place to view possible errors.

Step 8 Verify the Prime Performance Manager CSV Bulk Stats status for each device:

a. From the Network menu, choose **Devices**.

b. Click the link for each device configured for bulk statistics.

c. On the device window, click **Data Collection**.

d. In the Collector Status area, the CSV Bulk Stats item displays one of the following statuses:

- Active—The device is configured for bulk statistics and the unit is receiving the files regularly.
- Not Active—The device is configured for bulk statistics but it might not be discovered or some files are skipped.
- Not Configured—The device is not configured properly or bulk statistics are not supported for the device type.

Prime Performance Manager processes new files in the drop directory when they arrive. If the file name format is valid, Prime Performance Manager processes the new files for enabled Star OS reports.

If parameters are missing in the file name or the headers and footers in the bulk statistics samples do not match the property file values, marker files are created in the drop directory. The files have zero size and have the same name as the file in error but are appended with an error extension.

If multiple sample files are collected in the drop directory, Prime Performance Manager processes from the oldest to latest sample. Prime Performance Manager processes about 50 files at a time until it catches up with the recent files. Daily statistics can be looked up for older time range if necessary.

Note To process more than 50 files, edit the BulkStats.properties file and change MAX_FILE_COUNT. Increasing the number may cause performance issues depending on the number of devices discovered on the unit.

Step 9 Verify the device reports by choosing **Reports** from the Performance menu and scrolling to the Mobile StarOS Statistics reports in the navigation tree. If the Star OS reports lack data, complete the following steps:

a. Verify that the report is enabled at the network and device level. To check the network level, from the Administration menu, choose **Report Status**. To check at the device level, select a device and click the **Report Status** tab.

b. Verify the particular schema is configured on the device. Prime Performance Manager server might also be processing a backlog of files in the drop directory, check for data for longer durations.

c. Verify the device StarOS[tm] software version. The StarOS version for Cisco ASR 5000 and ASR 5500 devices is taken from the bulk statistics files. You can view the version by displaying the device, then clicking the **Details** tab. If the version is Unknown, verify if you have the system schema 71 configured on the device. This is the schema line where version information is taken from. The schema systemSch71 format is:

```
PPM,system,systemSch71,%epochtime%,%localdate%,%localtime%,%uptime%,%disc-reason-490%,
%disc-reason-491%,%disc-reason-492%,%disc-reason-summary%,,,,,%swversion%,%peak-cpuusa
ge%,%peak-memusage%,,%system-capacity-usage%,%session-capacity%,%session-capacity-usag
e%,%npu-capacity%,%npu-capacity-usage%,%sess-max-lastreset-time%,,,,
PPM,system,systemSch71,1349964000,20121011,100000,3595,0,0,0,,,,,,14.0,15.61,11291412.
00,,0.06,10137600,6095,1207959552,608208,Never,,,,
```

Creating the Device Bulk Statistics Configuration

The ppm starbuild command builds the StarOS bulk statistics device configuration with the desired schemas and counters. Prime Performance Manager requires bulk statistics files to be in a very specific format. This command generates the device configuration in the format that Prime Performance Manager expects. The command generates the configuration that you must copy to the Cisco ASR 5000 and Cisco ASR 5500 devices. The command format is:

```
/opt/CSCOppm-gw/bin/ppm starbuild <schemafilename>
```

The input, *schemafilename*, is the CSV file with the bulk statistics schema and counters that need to be configured on the devices. Prime Performance Manager includes a full schema file for StarOS 14.0 that supports all the EPC counters. It is located in the install directory:

/opt/CSCOppm-gw/install/ASR5K_BulkStats_Schemas_Counters-staros14-epc.csv

Prime Performance Manager expects the filenames to be in the following format:

```
%host%_bulkstats_%localdate%_%localtime%_%localtz%_5_5.csv
```

%host%, %localdate%, %localtime%, %localtz% are common bulk statistics counter variables.

Prime Performance Manager uses the %host% variable to identify the device. This is usually the device sysName. The "_5_5" at the end of the file name is the sample and transfer interval set on the device.

To build the StarOS device configuration:

Step 1 log into the gateway as an administrator user.

Step 2 Enter the ppm starbuild command using the provided StarOS 14.0 schema file for the *schemafilename*:

```
/opt/CSCOppm-gw/bin/ppm starbuild
/opt/CSCOppm-gw/install/ASR5K_BulkStats_Schemas_Counters-staros14-epc.csv
```

Step 3 Enter the IP address of Prime Performance Manager unit where the Cisco ASR 5000 and Cisco ASR 5500 devices are discovered, or the SAN folder location IP address.:

```
Enter the IP Address of Prime Performance Manager unit To Send Files To:
```

Step 4 Enter the path to the file directory where you want the device to drop the CSV files. This is usually a folder mounted on SAN. The bulk statistics files are retained for 14 days by default in this directory. The full path to the folder is provided here.

Note Note: If you need to change the default 14 days bulk statistics age use ppm bulkstatsage command.

```
Enter File Directory On Prime Performance Manager unit To Drop Files To:
```

Step 5 Enter the output file name. This can be any valid filename. The output configuration file is created in /opt/CSCOppm-gw/bin/ folder by default.

```
Enter Output Filename To Write StarOS 14.0 Config To: staros14-bulkstats-config.txt
```

Note You can simply press Enter to the prompts and change the values by editing the generated output file later.

Removing Bulk Statistics Device Configurations

To remove bulk statistics configurations from a device on a per schema basis:

Step 1 log into the gateway as an administrator user.

Step 2 Enter the following command:

```
/opt/CSCOppm-gw/bin/ppm starbuild
/opt/CSCOppm-gw/install/ASR5K_BulkStats_Schemas_Counters-staros14-epc.csv -no
```

The output configuration file is created in /opt/CSCOppm-gw/bin/ folder by default. The file contains the delete CLIs for all the available schemas.

Adding New Bulk Statistics Schemas or Counters

If config needs to be generated for a smaller subset of schemas or if new schemas need to be added, modify the spreadsheet included in the install directory.

```
/opt/CSCOppm-gw/install/ASR5K_BulkStats_Schemas_Counters-staros14-epc.xlsx
```

After the changes are complete, update the CSV file in the install folder by saving the spreadsheet in comma separated format and execute the ppm starbuild command to generate the revised configuration.

Note If counters within a schema counters must be removed, mark the Export column as “no” in the spreadsheet. This generates the configuration with consecutive commas (,,,,) to maintain the counter position in the schema.

Updating the Prime Performance Manager Bulk Statistics Schema File

To add a new schema or counter to an existing Prime Performance Manager report or to a new report, you must update the gateway schema file. Prime Performance Manager looks up this schema file to identify the format in which the devices are configured.

Note You only need to generate the Prime Performance Manager schema file when new counters need to be used in reports.

To generate the schema file for Prime Performance Manager:

Step 1 log into the gateway as the administrator user.

Step 2 Enter the ppm starbuild with the -ppm option:

```
/opt/CSCOppm-gw/bin/ppm starbuild
/opt/CSCOppm-gw/install/ASR5K_BulkStats_Schemas_Counters-staros14-epc.csv -ppm
```

Step 3 Enter the output file name:

```
Enter Output Filename To Write PPM Schema:staros14-ppm-bulkstatsschema.csv
PPM Schema File Written To: staros14-ppm-bulkstatsschema.csv
```

The output schema file is created in /opt/CSCOppm-gw/bin/ folder by default.

Step 4 Copy the file to the etc gateway directory and save it as bulkstatsschema.csv:

```
/opt/CSCOppm-gw/etc/bulkstatsschema.csv
```

Step 5 Reload the new schema file:

```
/opt/CSCOppm-gw/bin/ppm reloadbulkstats
```

Bulk Statistics Alarms

Bulk statistics alarms you might see are listed below. You can view BulkStats.properties in /opt/CSCOppm-unit/properties to see values shown in the alarm generation.

- BulkStatsInfo Alarm - Files available but node not discovered.

  This is an Informational alarm. Examples:

  ```
  Unit: ppm-ucs-vm13 - Bulk Statistics available for RTPZ5SVCGW01 but device not
  discovered.
  ```

- BulkStatsInfo Alarm - File name parameter is missing/invalid.

  This is an Informational alarm. If parameters are missing in the file name, Prime Performance Manager stops processing the file. New files with zero size are created in drop directory with same name as the original file appended with extension, skipped. Examples:

  ```
  Unit: ppm-ucs-vm13 - Missing parameters in filename:
  _bulkstats_20120419_152500_EDT_5_5.csv Missing Hostname.

  Unit: ppm-ucs-vm13 - Missing parameters in filename:
  Prime5k_bulkstats_20sds120419_155500_EDT_5_5.csv Unparseable date:
  "20sds120419155500EDT" format:yyyyMMddHHmmssz value: 20sds120419155500EDT.

  Unit: ppm-ucs-vm13 - Missing parameters in filename:
  Prime5k_bulkstats_20120419_160000_EDT.csv Mising Sample Interval.
  ```

  If necessary the following properties can be modified in BulkStats.properties

  FILENAME_SUBSTR = _bulkstats_

  FILENAME_DELIMITER = _

DATE_VARIABLE_FORMAT = yyyyMMdd

TIME_VARIABLE_FORMAT = HHmmss

- BulkStatsInfo Alarm - Files with no header or no footer information.

  The header is the first line in the bulk statistics samples. A missing header indicates the file is incomplete. Cisco ASR 5000 and 5500 devices maintain a buffer while collecting the samples until the time when it can transfer the CSV file to the drop directory. The header is the first information stored in the buffer. If the buffer allocated on the device is too small for the sample and transfer interval, the old data in the buffer is overwritten, so the header and some collected data might be removed.

  The footer is the last line in the bulk statistics samples. A missing footer also indicates the file is incomplete. The file might be in the transfer process or FTP transfer issues might exist. The header and footer are required for processing. If necessary, the following properties can be modified in BulkStats.properties.

  HEADER_LINE_PREFIX = Version

  FOOTER_LINE_PREFIX = EndOfFile

  If header and footer is missing in the filename, Prime Performance Manager stops processing the files. New files of zero size are created in drop directory with same name as the original file appended with extension, noheader or nofooter. Examples:

  ```
  Unit: ppm-ucs-vm13 - Bulk statistics skipped. File
  Prime5k_bulkstats_20120419_161500_EDT_5_5.csv received with no header information.
  Unit: ppm-ucs-vm13 - Bulk statistics skipped. File
  Prime5k_bulkstats_20120419_161500_EDT_5_5.csv received with no footer information.
  ```

  If a footer is unavailable, Prime Performance Manager waits for a specified interval to see if the transfer gets completed. If no footer exists after the specified interval, Prime Performance Manager creates the zero size file and raises the NoFooter alarm. If necessary the following property can be BulkStats.properties to control the wait duration:

  FOOTER_WAIT_TIME = 3

- BulkStatsError Alarm - Device is Discovered but there are no files available.

  This is a Major alarm. Check if the drop directory is correct in BulkStats.properties. Also check device configurations. Example:

  ```
  Device 172.18.53.231 has no bulk statistics.
  ```

- BulkStatsError Alarm - Device missing 1-5 files.

  This is a Minor alarm. Check if device is being reloaded. Example:

  ```
  Device 172.18.20.166 failed to receive 4 bulk statistics. Last received time is Apr
  19, 2012 5:12:00 PM.
  ```

- BulkStatsError Alarm - Device missing more than 5 files.

  This is a Major alarm. Examples:

  ```
  Device 172.18.20.166 failed to receive 17 bulk statistics. Last received time is Apr
  19, 2012 5:39:57 PM.
  ```

- BulkStatsError Alarm - When files are received after a period of failure.

  This is a Normal alarm. Examples:

  ```
  Device 172.18.53.231 receives bulk statistics as of Apr 19, 2012 5:12:00 PM.
  ```

- BulkStatsError Alarm - Several devices missing more than five files.

This is a Major alarm. Examples:

```
Unit ppm-ucs-vm13 - 2 devices failed to receive bulk statistics. Devices are:
Prime5k,RTPZ5SVCGW02,
```

If necessary, modify the following properties in BulkStats.properties to control when to raise alarms.

MINOR_ALARM_COUNT = 1

MAJOR_ALARM_COUNT = 5

NODES_FAIL_COUNT = 5

Managing Dashboards

Prime Performance Manager dashboards present data from different sources on a single page. For example, the ICMP (Internet Control Message Protocol) application dashboard presents the ICMP hourly packet rates, total errors, total echoes, and echo replies. The CPU/Memory dashboard presents the hourly CPU average and peak utilization as well as the top *nn* hourly memory pool average and peak utilization. Many dashboards are provided with the Prime Performance Manager package. High-level dashboard categories include:

- Application
- Availability
- IP Protocols
- IP QoS
- IPSLA
- Network Health
- Resource
- Response Time
- Server Health
- Transport
- VPDN Statistics
- Video Broadcast

Because dashboards are presented in graph output, only the top 10 report items are presented. You can change this number with the ppm topxxsize command. For information, see ppm topxxsize, page B-77.

You can modify the provided Prime Performance Manager dashboards or create new ones. For information, see the *Cisco Prime Performance Manager Integration Developer Guide*.

Displaying Dashboards Status

Be default, all Prime Performance Manager dashboards are enabled. System-level dashboards depend upon the regular report to define what data to poll and monitor for the dashboard report. This is done by the regular report that the dashboard draws from. Disabling the report that actually defines the data for the dashboard will cause that data to stop being gathered, so the dashboard will only have data up to the time that the associated report was disabled. However, you can create a poller definition within the dashboard XML to enable the dashboard to draw the data independently from any reports.

You cannot enable or disable dashboards from that dashboard status page. The Dashboard Status page is a static list showing you which dashboards are on or off. The dashboard state is based on the status of its reports. If none of the reports used for the dashboard are enabled, the dashboard is disabled automatically.

To display dashboard status:

Step 1 Log into the Prime Performance Manager GUI.

Step 2 From the Performance menu, click **Dashboards**.

Step 3 In the Dashboard Status Table, enabled dashboards contain a check in the box next to the dashboard title.

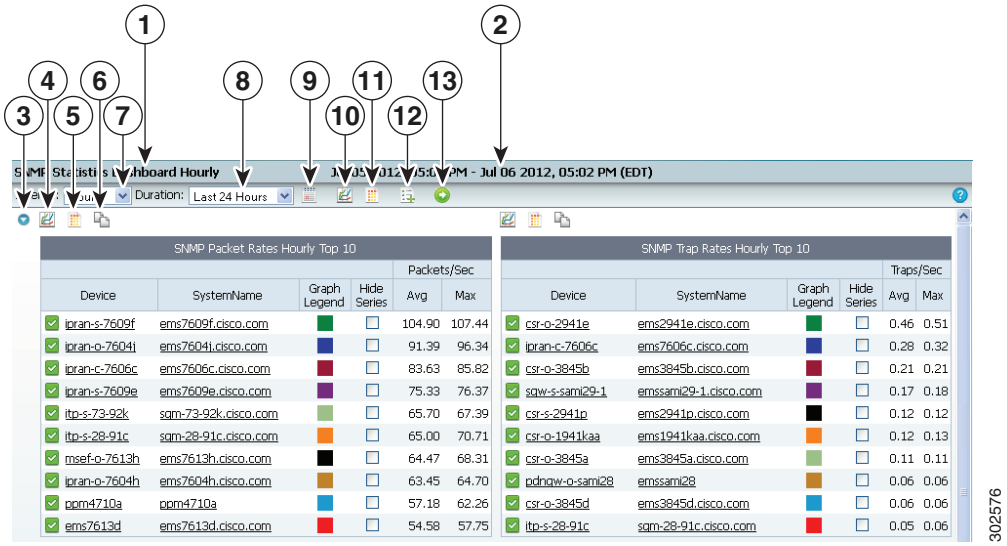
Editing Dashboard Display

You can change the dashboard information display using options in the Dashboard menu bar, shown in Figure 7-7. Menu bar items include:

- Interval—Dashboard intervals are: Hourly, Daily, Weekly, Monthly.
- Duration—Allows you to choose the dashboard report duration. The duration options depend on the dashboard report interval:
  - 5 Minute—Last 6 hours, 24 hours, 3 days, 7 days.
  - 15 Minute—Last 12 hours, 24 hours, 3 days, 7 days, 14 days.
  - Hourly reports—Last 12 hours, 24 hours, 3 days, 7 days. 14 days, 21 days, 30 days, current month, previous month.
  - Daily reports—Last 7 days, 14 days, 21 Days, 30 days, 6 months.
  - Weekly reports—Last 30 days, 60 days, 90 days, 6 months, 1 year.
  - Monthly reports—Last 90 days, 6 months, 1 year, 5 years.
- Customize Date and Time Range—Allows you to create a report with a customized date and time range. The maximum custom time periods are:
  - 5 Minute—Three days.
  - 15 Minute—Seven days.
  - Hourly reports—Seven days.
  - Daily reports—31 days.
  - Weekly reports—One year.
  - Monthly reports—Five years.
- Graph Mode—Displays all the dashboard parameters in chart format. For readability in this format, only the top *nn* items are displayed.
- Table Mode—Displays all the dashboard parameters in table format.
- Toggle Legends—For reports displayed in graph format, this tool allows you to turn the graphical legend on and off.
- Run Selected Report—Runs the report after you modify any report parameters in the menu bar.

- Help for Report—Displays a text file with the MIB variables that are polled for generating the selected report, including any calculations that are performed. This text file also has links to the associated report XML files.

Figure 7-7 Dashboard Menu Bar



1	Dashboard title	**8**	Duration
2	Dashboard time period	**9**	Customize the Date and Time
3	Display/hide graph row.	**10**	Graph Mode for all dashboard parameters
4	Graph Mode for the individual dashboard parameter.	**11**	Table Mode for all dashboard parameters
5	Table Mode for the individual dashboard parameter.	**12**	Toggle legends option
6	Interval	**13**	Run the Report option
7	Copy chart to clipboard		

To change a dashboard display:

Step 1 Log into the Prime Performance Manager GUI.

Step 2 From the Performance menu, choose **Dashboards**.

Step 3 In the Performance Reports navigation area, click **Dashboards**.

Step 4 In the Dashboard navigation tree, navigate to the dashboard category that you want to modify.

Step 5 As needed, perform any or all of the following modifications by choosing items on the dashboard menu bar (Figure 7-7):

- Click **Interval** and choose a different interval: Hourly, Daily, Weekly, or Monthly.
- Click **Duration** and choose a different time period for the dashboard: the last 12 (default) or 24 hours, or the last 3, 7, 14, 21, or 30 days. The list of available durations depend upon the interval that is selected.

- Click **Customize Date and Time** and choose a custom start and end date and time for the dashboard. Use this option if the default Duration time periods do not meet your needs. The maximum time period you can specify depends on the report interval selected.
- Click **Graph Mode** to display all the dashboard parameters in chart format.
- Click **Table Mode** to display all the dashboard parameters in table format.

Note The View Chart and View Report tools appear above each dashboard parameter so you can change the display of individual dashboard parameters.

- For graph format, click **Toggle Legends** to turn the graph legend on and off.

Step 6 When finished, click **Run the Selected Report** (green arrow) to run the report with the modified parameters.

Step 7 Within each individual dashboard report, you can do the following:

- Click the **Graph Mode** and **Table Mode** tools to switch between graphical chart and report table displays.
- In report table display, check **Hide Series** for any report items you do not want displayed in the graph, then click **Graph Mode** to view chart with the selected items hidden.
- Click **Hide this row of graphs** to hide or display individual graph rows.
- Click **Copy to clipboard** to copy a graph to the Prime Performance Manager clipboard where it can be pasted into a custom report view. (See Creating and Managing Custom Report Views, page 7-34.)

Creating and Managing Custom Report Views

Prime Performance Manager allows you to create custom report views, for example, to monitor a particular function on selected devices or interfaces. You can attach devices to custom views and view all device information from menus within the view.

Creating and managing custom report views are described in the following topics:

Creating a Custom Report View

You can create a custom report view to monitor specific performance data and functions across selected devices and interfaces. These charts and tables update automatically to show the most recent data from the server.

To create a custom report view:

Step 1 From the Performance menu, select **Views**.

Step 2 In the View Editor window toolbar, click the **Create a New View** tool.

Step 3 In the Add View Entry dialog box, enter the following information:

- **View Name**—Enter the custom view name.
- **Editable**—Check this box if you want other users to have the ability to modify the view.
- **Visible**—Check this box if you want the custom report view to be viewed by other users.
- **Device**—If you want to add a device to the view, enter the device hostname or IP address. Adding devices to the view allows you to view device information from within the view including device details, reports, alarms and events,

Step 4 Click **OK**.

The new custom report view appears in the View Editor window with the text, "No entries found."

Step 5 Display the the data that you want to add to the custom view:

a. From the Performance menu, choose **Reports**.

b. Navigate to the report containing the data you want to add. You can navigate to reports, dashboards, grouped reports, and other views that have graphs defined within them. You can also copy device or group level data and maintain whatever filter or series selections you apply to the report.

Step 6 If the report is not displayed in graph output, in the toolbar Output Mode, choose **Graph**.

Tip You can filter the report before you copy it and bring only the filtered report data to your custom view. For information about report filtering, see Filtering Report Information, page 7-13.

Step 7 Scroll to the graph that you want to add and click the **Copy to Clipboard** tool.

Step 8 From the navigation area, click the custom report view you just created.

Step 9 On the custom report view toolbar, click **Paste Charts from Clipboard**.

You can copy multiple graphs to the clipboard before you need to click the Paste Charts from Clipboard. so you do not need to go back and forth. For example, you can copy six charts from six individual reports, then paste them into the view at one time.

Step 10 Repeat Steps 5 through 9 until you have added report data.

Step 11 To modify custom report display, continue with the "Modifying Custom Report Views" procedure on page 7-37.

Alternately, you can copy a view that already exists by clicking **Copy this view**. This creates a copy of the view, except you are the new view owner (current user).

Adding Views to the Navigation Tree

Views navigation tree behavior differs from the Reports, Dashboards, and Groups navigation trees because of the following:

- Any user can manually create multiple views.
- Prime Performance Manager includes a Data Center view. This is a special view built and maintained by Prime Performance Manager. (For information about the Data Center view, see Displaying Data Center Reports, page 7-22.)

- Users with the edit view privilege (network operator user and above) can copy the Data Center view and make changes to the copy.
- Views can contain many subviews and many reports and devices.
- Views have a visibility attribute that allows you to hide views from other users.

You generally will only open one view because that view represents the way you want to see the devices and reports are laid out hierarchically. When you select Views in navigation tree, a list of views you are allowed to see is presented in the content area. To display the views in the navigation tree, click **Views**, then click the folder icon of the view you want to add. Prime Performance Manager adds the view to the navigation tree.

If user access is enabled, you only need to perform this step once per user. If user access is not enabled, the user is the hostname of the device communicating with Prime Performance Manager. Whenever you switch hostnames, for example, if you go from wired to Wi-Fi, or from office to home, Prime Performance Manager will consider you a different user and you will need to repeat the step.

Copying and Pasting Views

An alternate method for creating new views is to copy an existing view and paste it into another one. This is often easier if an existing view will meet your needs with some modifications.

To copy and paste a view:

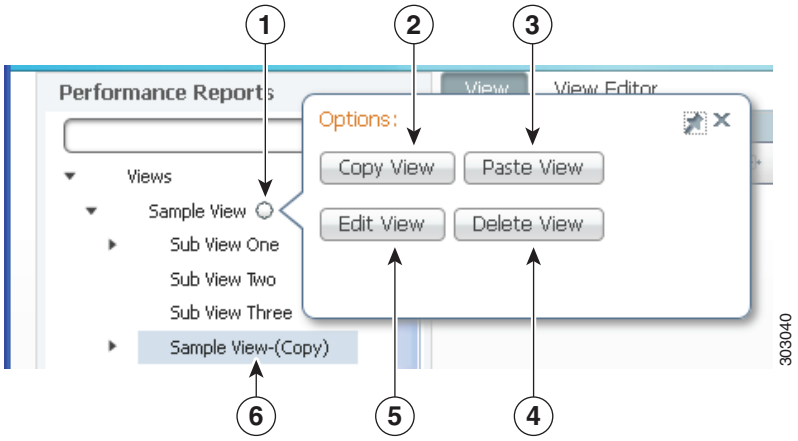
Step 1 Highlight the view or subview you want to copy and click the options icon. The options icon is a circle located to right of the view title.

Step 2 From the Options menu, click **Copy View**.

Step 3 Navigate to the view where you want to paste the view, click the options icon next to it and choose **Paste View**.

The view appears in the new location with the name [*view name*}-Copy, as shown in Figure 7-8.

Figure 7-8 Copying and Pasting Views



1	Copy and Paste View options icon	**3**	Edit View
2	Copy View	**4**	Delete view
3	Paste View	**5**	Pasted view

To modify the copied view, see Modifying Custom Report Views, page 7-37 and Editing Views, page 7-40.

Modifying Custom Report Views

After you create a custom report view, you can modify the data display and change the custom report configuration from the View and View Editor tabs.

To modify a custom report view:

Step 1 From the Performance menu, select **Views**.

Step 2 In the navigation area, choose the custom report view or subview that you want to modify.

Step 3 From the View tab toolbar, shown in Figure 7-9, perform any of the following changes to the reports contained in the view:

- Click **Home** to make the view your home view. After you click it, "(Home View)" appears in the view title, and this view appears when you click the main menu Home icon. (See Figure 3-2 on page 3-4.)
- Click **Paste Charts from Clipboard** to paste report charts copied from other reports.
- Click **Columns** to change the graph width, from 1 to 3 columns. 2 is the default.
- Click **Show/Hide Chart Legends** to display or hide legends from the report graphs.
- Click **Enable Compact Mode** to reduce the graph size and see more graphs within the same screen area. Enabling compact mode can be useful when trying to see patterns among multiple charts.
- Click **Merge Selected Charts** to merge two or more selected charts. See Merging View Charts, page 7-40.
- Click **Lock this Page** to prevent the report from being updated; click **Unlock this Page** to allow updates. This function is provided when continual, automatic updates are not needed.
- Click **Refresh** to manually update all the graphs and tables in the page.

Step 4 From each report chart toolbar you can perform any of the following changes:

- **Drag to Reorder Items**—Click and drag the chart to a new location within the view.
- **Fullscreen Graph**—Displays the chart in full screen.
- **Delete**—Deletes the report item from the report.
- **Graph Mode**—Displays the report item in chart view.
- **Table Mode**—Displays the report item in table view.
- **Comparative View**—Displays a full-screen comparative view of the report, for example a 15-minute and hourly comparison.

- **Edit**—Displays the Edit Report Properties dialog box where you can modify the chart name and add or edit a subtitle.
- **Copy to Clipboard**—Copies the report to the Prime Performance Manager clipboard to allow you to paste it into other views.
- **Select this Graph**—Selects the graph. The function allows you to select multiple charts and merge them into one graph using the Merge Selected Charts tool.

Note If Compact Mode is enabled, the chart toolbar is not displayed.

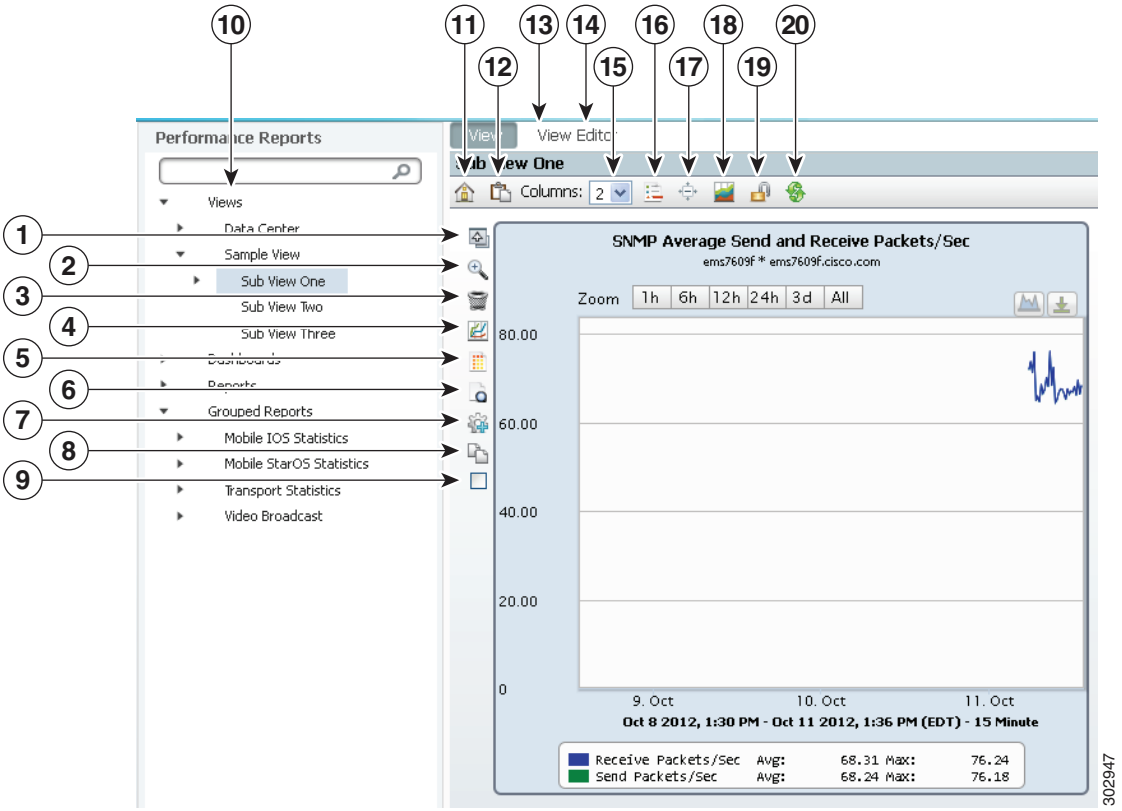
Step 5 If devices are attached to the view, the following device menus are displayed:

- Reports
- Dashboards
- Details
- Event History
- Active Alarms
- Report Status
- Availability
- Star Graphs

For descriptions of the device menus, see Displaying Individual Device Information, page 8-17.

Figure 7-9 shows the custom report options in the View tab.

Figure 7-9 View Tab



1	Reorder tool	**11**	View tab
2	Show full screen tool	**12**	View Editor tab
3	Delete tool	**13**	Home view tool
4	Chart mode tool	**14**	Paste charts tool
5	Table mode tool	**15**	Column editor
6	Comparative view tool	**16**	Chart legend display tool
7	Edit tool	**17**	Compact Mode
8	Copy to clipboard tool	**18**	Merge charts
9	Select chart	**19**	Page lock
10	View menus	**20**	Refresh

Merging View Charts

Merging charts in views can be useful to create a composite view of similar data within similar times. For example, charts for TE tunnels between two provider edge (PE) devices could be merged into one chart to give a composite view of traffic between the two PEs, for example:

ifInOctects TE_Tunnel_1000_PE_A__PE_B

ifOutOctects TE_Tunnel_1000_PE_A__PE_B

ifInOctects TE_Tunnel_1001_PE_B__PE_A

ifOutOctects TE_Tunnel_1001_PE_B__PE_A

To merge charts:

Step 1 Display the view containing the charts you want to merge.

Step 2 Click Select This Graph for each chart you want to merge.

Step 3 On the Views toolbar, click Merge Selected Charts.

Step 4 In the Edit Report Properties dialog box, enter the report name and, if desired, a subtitle, then click **Save**.

The merged report appears beneath the other charts.

When creating merged charts, keep the following points in mind:

- To maximize effectiveness, merged charts should be created from charts with similar data and time frames.
- Merged charts cannot be viewed in table mode.

Editing Views

By default, the Prime Performance Manager View Editor lists every available custom view, including views you created and views other users created with the Visible attribute turned on. Views that you created are open, and views other users created are closed.

To hide or display views, and perform other view management tasks:

Step 1 From the Performance menu, select **Views**.

Step 2 In the navigation area, choose the custom report view or subview that you want to modify.

Tip Alternatively, you can search for views from any View Editor tab by entering text strings. Views or subviews with text in their titles that match the search text titles will be displayed.

Step 3 Click the **View Editor** tab.

Step 4 As needed, modify the following:

- Name—Enter report name edits, if any.
- Editable—If checked, allows other users to modify the view.
- Visible—If checked, allows the custom report view to be viewed by other users.

- Device—To include a device, enter the device hostname or IP address. (Only one device can be attached to a view or subview.)

Step 5 To add a subview:

a. From the View Editor toolbar, click **Add Subview**.

b. In the Add Subview dialog box, enter the subview name and, if you want to attach a device, the device hostname or IP address.

c. Click **OK**.

Step 6 To delete, edit, or display a view, from the View Editor Actions column, click the following:

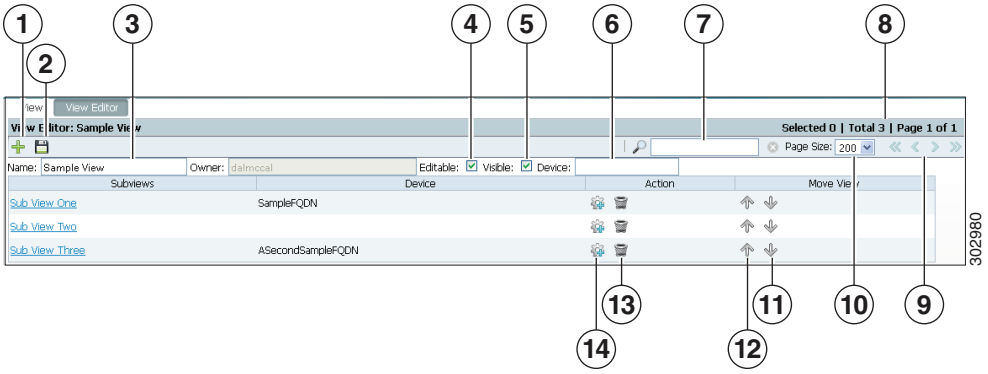
- **Delete This View** to delete the view or subview.
- **Edit This View** to display the selected view or subview in the View Editor.

Note Alternatively, you can choose Edit View or Delete View from the view context menu, shown in Figure 7-8 on page 7-36.

Step 7 To change the position of a view or subview, select the view then click the up or down arrow under the Move View column.

Step 8 When finished, click **Update View Information** on the view toolbar.

Figure 7-10 View Editor



1	Add view or subview	**8**	View page summary
2	Update view or subview information	**9**	View page scroll buttons
3	View name	**10**	Page size
4	Editable option	**11**	Move view/subview up
5	Visible option	**12**	Move view/subview down
6	Device attachment field	**13**	Delete view
7	Search	**14**	Edit view

Creating and Managing Report Groups

Prime Performance Manager allows you to generate reports based on groups of network objects, for example, devices, interfaces, CPUs, or a combination of devices and device elements. You create the group by providing a list of network objects that you want included, or by providing an algorithm that is used to search the network and return objects that meet the provided criteria.

Creating new groups requires you to create new group reports. Information for creating group reports is provided in the *Cisco Prime Performance Manager 1.3 Integration Developer Guide*. Prime Performance Manager includes example groups in four categories: Mobile IOS Statistics, Mobile StarOS Statistics, Transport Statistics, and Video Broadcast.

Group elements that you work with in the Prime Performance Manager GUI include:

- Group ID—Is assigned by Prime Performance Manager when a group is created. It uniquely identifies the group.
- Editable (true or false)—Indicates whether the group can be edited by other users. If true, users with the appropriate permissions can edit the group.
- Enabled (true or false)—Enables or disables the group. If true, the group processes the input data and returns the appropriate return values. If false, the group does not return any data.
- Name—Is assigned by the group creator. This is the group name displayed in the GUI.
- Algorithm—Defines the criteria Prime Performance Manager uses to search the network for objects. The algorithm is built from macros joined by standard operators, for example, +, =, >=, and others. The algorithm final output is true (the object meets the criteria and is included) or false (the object does not meet the criteria and is not included). For example, the following algorithm return devices with “To_Rome” or “To_Venice” in the interface descriptions:

  ```
  If(Contains(ifDescr,"To_Rome") || Contains(ifDescr,"To_Venice"),true,false)
  ```

- Objects—Is a list of objects by their Fully Qualified Domain Names (FQDNs) that map to objects within the Prime Performance Manager network. The object format is:

  Node=<host or IP>,<other keys as defined in the corresponding report XML file>

  Examples:

  ```
  Node=em1941kbf.cisco.com
  Node=10.74.125.210
  Node=em1941kbf.cisco.com,ifDescr=FastEthernet0/0
  Node=10.74.125.210,CPUSlot=0,CPUNum=0,processorIndex=1
  ```

  The objects contained in this list are included in the group processing. Objects are returned if they meet the criteria specified in the algorithm or items in the Objects list.

- Type—Is used to identify the report domain to users. For example, a group that filters data at the network level may specify a Network type, while a group that filters data for a particular region may specify a Regional type. Specifying the domain is useful when reviewing grouped report information.

The following topics describe how to create, manage, and display group reports:

- Creating a Report Group, page 7-44
- Creating Algorithms Using the Algorithm Editor, page 7-45
- Managing Report Groups, page 7-47
- Displaying Group Reports, page 7-48

Provided Groups

Prime Performance Manager includes sample groups that are shipped in the disabled state. You can use these as standalone groups to generate network-level statistics or you can copy them and add algorithms to aggregate similar objects at different level. For example,you might want to aggregate statistics to the network level as well as regional, group, or device levels.

Provided groups include:

- apn.xml—Aggregates the statistics for an APN (AccessPointName) to a network level on GGSN devices. An APN can be defined on multiple routers. This group aggregates APN statistics for all routers. It is defined on into a single statistic. This aggregation type reports, for example, the sum of the up stream traffic volume for the APN in the network. It requires the device to implement the MIB, CISCO-GPRS-ACC-PT-MIB.my.
- pdngwApn.xml—Aggregates the statistics for an APN to the network level on PDNGW devices. An APN can be defined on multiple routers. This group aggregates the APN statistics for all routers. It is defined into a single statistic. This type of aggregation reports, for example, the sum of active PDPs for the APN in the network. It requires the device to implement the MIB, CISCO-GPRS-ACC-PT-MIB.my.
- sgwApn.xml—Aggregates the statistics for an APN to a network level on SGW devices. An APN can be defined on multiple routers and this group will aggregate the statistics for an APN for all routers. It is defined on into a single statistic. This type of aggregation reports, for example, the sum of active PDP's for the APN in the network. It requires the device to implement the MIB, CISCO-GPRS-ACC-PT-MIB.my.
- spgwApn.xml—Aggregates the statistics for an APN to a network level on SPGW devices. An APN can be defined on multiple routers and this group will aggregate the statistics for an APN for all routers. It is defined on into a single statistic. This type of aggregation reports, for example, the sum of active PDP's for the APN in the network. It requires the device to implement the MIB, CISCO-GPRS-ACC-PT-MIB.my.
- cableDownModem.xml—Aggregates the number of online downstream cable modems in the network.
- cableModem.xml—Summarizes the per-state count of all cable modems in network.
- cableUpModem.xml—Aggregates the number of online upstream cable modem in the network.
- dbdsApplicationProcessState.xml—Aggregates the application processes by state for Scientific America controllers.
- dbdsControllerProcess.xml—Aggregates the general purpose processes by state for Scientific America controllers.

The following groups aggregate data for the StarOS running on Cisco ASR 5000 platforms. The aggregated statistics are the similar to those collected through the apn, pdngwApn, sgwApn, and spgwApn groups listed above.

- starOsApnBearers.xml
- starOsApnPdp.xml
- starOsApnQos.xml
- starOsApnSess.xml
- starOsApnTraffic.xml
- starOsApn.xml

Creating a Report Group

To display grouped reports within the Prime Performance Manager GUI:

- From the Performance menu, choose **Reports** then scroll to **Grouped Reports** in the navigation tree.

To create a new grouped report:

Step 1 Log into the Prime Performance Manager GUI as the system administrator user.

Step 2 From the Administration menu, choose **Group Editor**.

Step 3 In the navigation area, click **Groups Summary**.

The default system groups are displayed:

Step 4 In the System Groups window, click the **Create New Group** tool.

Step 5 In the Create Group dialog box, enter the group name. Valid characters are letters, numbers, underscores, hyphens, and periods. Spaces are not permitted. The group name must be unique.

Step 6 Click **OK**.

The Group Details window is displayed.

Step 7 In the Group Details window, enter the parameters for the new group:

- Name—Allows you to create multiple processing sets for the same group. For example, you might want to create a group of objects defined by multiple algorithms or objects lists. Each processing set is identified with a unique name. The default processing set is “records.” It cannot be deleted.

  To create a new processing set, click **+**, then enter the new processing set name in the dialog that appears and click **OK**. Conversely, to delete a processing set, click -.

- Type—Enter the group type. The group type is a tag for the group processing section. It is used by other Prime Performance Manager functions to qualify the data. For example, in an aggregate report that uses this processing group the data is tagged with the type entered here. The type is included in each data row.

- Enabled—Check if you want the group enabled, that is, group report data will be collected and displayed.

- Data Source—Click **Change** and choose the data source you want included in the group by selecting the data source under Available Usages and clicking **Add** to move it to the Assigned Usages group. The data source identifies the report processors that use this group processing section when the group is enabled. Report processors are defined in the individual report XML files. Provided data sources include:

Step 8 Enter the object selection criteria using one or both of the following:

- Algorithm—Enter the algorithm that you want to use to define the objects added to the group. You can enter the algorithm by typing it into the Matching Algorithm box, or click **Launch Algorithm Editor** to create the algorithm using an editor. For information about using the algorithm editor, see Creating Algorithms Using the Algorithm Editor, page 7-45. If you enter the algorithm directly, click **Validate Algorithm** to validate it.

- List of Objects—Enter a list of objects using the object FQDNs, using the format:

  Node=<host or IP>,<other keys as defined in the corresponding report XML file>

  Examples:

  ```
  Node=em1941kbf.cisco.com
  Node=10.74.125.210
  ```

```
Node=em1941kbf.cisco.com,ifDescr=FastEthernet0/0
Node=10.74.125.210,CPUSlot=0,CPUNum=0,processorIndex=1
```

To validate the algorithm, click **Validate**.

Step 9 Click **Save**.

The new group is added to the Prime Performance Manager grouped reports list.

Creating Algorithms Using the Algorithm Editor

You can create group algorithms by typing it into the Matching Algorithm box, or by using the Algorithm Editor. The Algorithm editor provides a list of all possible macros and operators and allows you to create the algorithm by dragging and dropping them into a work area. To create a group algorithm using the Algorithm Editor, complete the following steps from Step 8 in "Creating a Report Group" procedure on page 7-44, or Step 5 in "Managing Report Groups" procedure on page 7-47:

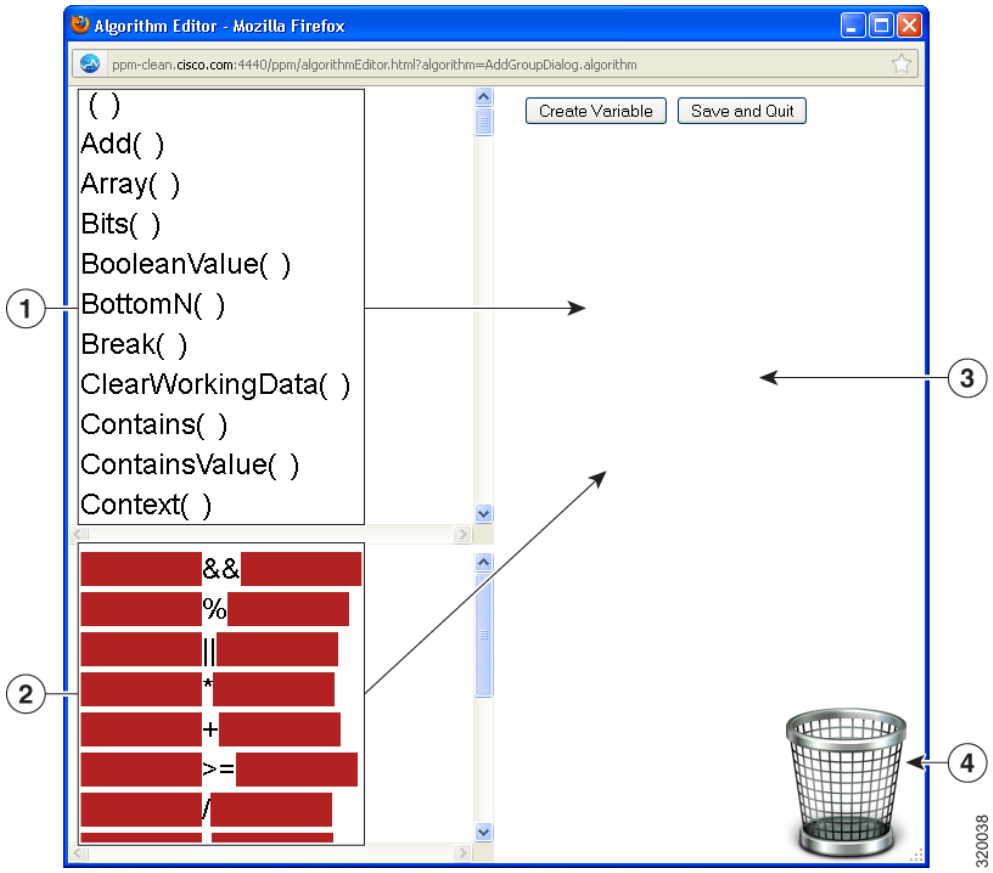
Step 1 In the Group Details tab, click **Launch Algorithm Editor**.

The Algorithm Editor (Figure 7-11) displays the following elements.

- Macros—Macros perform a discrete mathematical or programmatic routine. For a list of macro definitions, see the *Cisco Prime Performance Manager 1.3 Integration Developer Guide*.
- Operators—Define the mathematical or analytical operation to be performed between two macros.

Operator	Description	Operator	Description
&&	And	-	Subtract
%	Modulo operator	= =	Equality check
||	Or	<=	Less than or equal to
*	Multiplied by	!=	Not equal to
+	Add	>	Greater than
>=	Greater than or equal to	=	Assignment operator
/	Divided by	<	Less than

Figure 7-11 Algorithm Editor



1	Macros	**3**	Algorithm build area
2	Operators	**4**	Delete

Step 2 Drag a macro from the macro list to the work area.

Step 3 Drag an operator from the operator list to the work area and assemble the algorithm.

Dragging a macro or operation to the work area creates a copy that you can manipulate by dragging variables, operations, or other macros into it. If you drop an item into a macro, Prime Performance Manager inserts the item wherever you release your mouse button. For example, if you drop an item on the space between two parameters inside a macro, the item is placed inside that macro between the two parameters. However, if you drop the item on top of a parameter within a macro, Prime Performance Manager assumes you are trying to drop the item into the parameter, not the containing macro. For example:

```
        (1)         (2)
                          v    v
Array( SomeMacro(),      SomeOtherMacro() )
```

If you try to drop on (1), Prime Performance Manager assumes you want to drop into SomeMacro(), not Array(). However, if you drop on (2), Prime Performance Manager assumes you want to insert the item between SomeMacro() and SomeOtherMacro().

An operation allows two items to be dropped into it on either side into red boxes, one for the left operand and one for the right operand. Operands can be macros, other operations, or variables. You can only place one item into each operand target (). You can drop items into whatever is placed as an operand for an operator, however. So, if you placed a macro onto the left hand side of an operator, you can still drop parameters into that macro, you just can't add another item to the left hand side of that operator.

- Create Variable—Allows you to create a variable for use in algorithms. Click **Create Variable**, enter the variable text, then click **OK**. The new variable is placed on the page. You can drag and drop the variable into macros and operators. (You can not drop anything into a variable.)
- Delete—To delete a macro, operator, or variable item, drag it to the trash can at the bottom of the Algorithm Editor.

Step 4 When your algorithm is completed, click **Save and Quit**.

The editor validates the algorithm. If it has errors, a popup tells you errors so you can fix it, then try saving it again. You cannot save an algorithm until it passes the validation. If you want to cancel the algorithm creation attempt, close the editor. If all the algorithms pass the validation, the editor closes and the new algorithm appears in the Matching Algorithm box in the Group Details page.

Managing Report Groups

After you create report groups, you can edit, enable, disable, duplicate, and delete them at any later time.

To edit, enable, disable, duplicate, or delete a grouped report:

Step 1 Log into the Prime Performance Manager GUI as the system administrator user.

Step 2 From the Administration menu, choose **Group Editor**.

Step 3 In the navigation area, click **Groups Summary**.

Step 4 To edit a group, click the group link under the Name column.

Step 5 In the Group Details tab, edit any of the following:

- Name
- Type
- Enabled
- Data Source
- Matching Algorithm

  To edit algorithms, you can:

  – Edit the algorithm directly in the Matching Algorithm text box, then click **Validate Algorithm** to validate your edits, or,

  – Click **Launch Algorithm Editor** and edit the algorithm in the algorithm editor. See Creating Algorithms Using the Algorithm Editor, page 7-45 for information.
- List of Objects

For field descriptions and entry examples, see Creating a Report Group, page 7-44.

Step 6 To enable, disable, duplicate, or delete groups:

a. Click Groups Summary

b. Highlight the groups you want to enable, disable, or delete. Press **Shift** to choose more than one group.

c. From the Actions menu, choose the action you want to perform:

- **Enable Selected Groups**
- **Disable Selected Groups**
- **Duplicate Selected Groups**
- **Delete Selected Groups**

d. On the confirmation, click **OK**.

Displaying Group Reports

Group reports are displayed following steps similar to the display of non-group reports. To display a group report:

Step 1 Log into the Prime Performance Manager GUI.

Step 2 From the Performance menu, choose **Reports**.

Step 3 Click **Grouped Reports**, then navigate to the report you want to see.

The group report appears on the content area. For information on managing the report display, see Customizing Report Display, page 7-9.