

# Performance Manager

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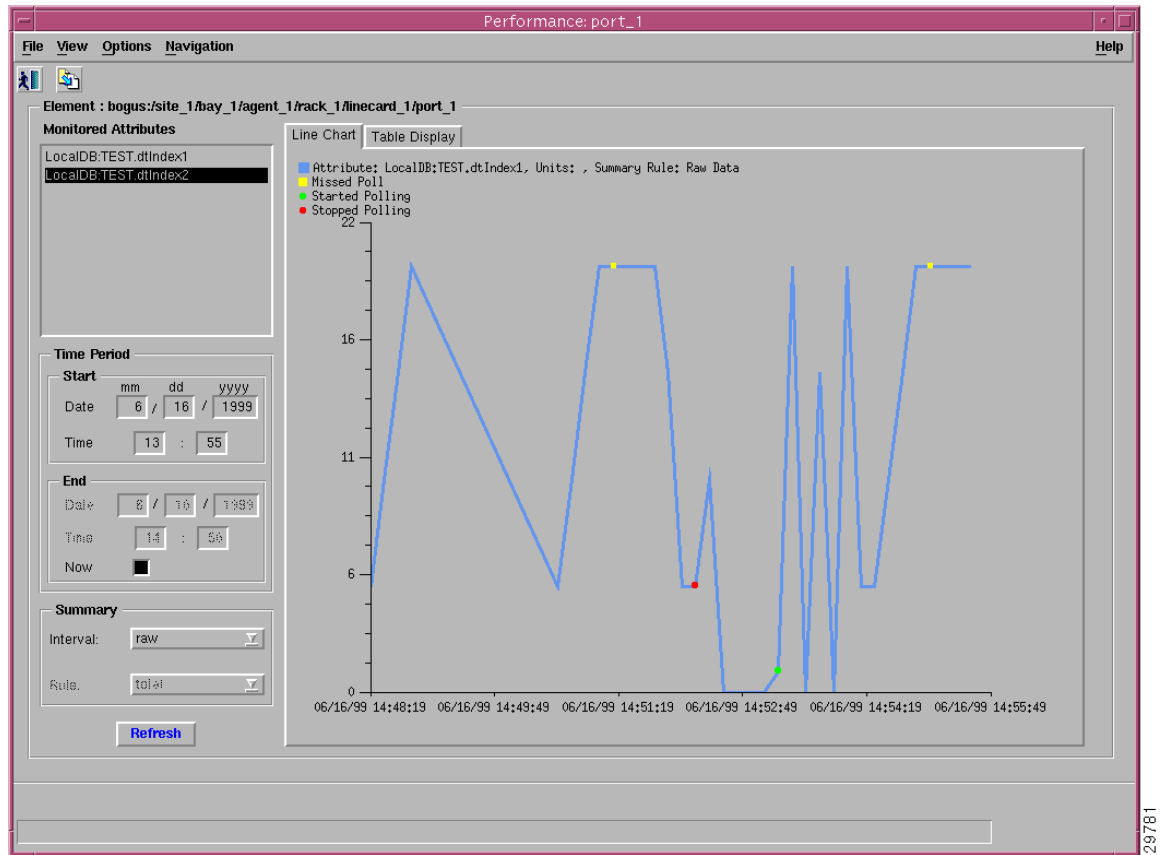
An important component of efficient network management is the ability to receive performance information on a large network of many devices to provide an overall view of the your user domain. You can then pro-actively manage your network elements by analyzing the performance data.

The Cisco EMF Performance Manager provides the capability to monitor the performance statistics gathered from network elements managed by the Cisco EMF system. You can set up the Performance Manager to monitor particular attributes or parameters according to their network requirements.

The Performance Manager is a powerful, flexible tool able to view general and performance specific attributes in one application and in a variety of formats (for example, graphs and tables). You define the attributes or parameters, choose the objects you want to view, select the date and time of the view, and set the summary interval.

The Performance Manager is opened from the Network Maps, Event Browser, or Object Manager applications by selecting **Performance Manager** from the pop up menu available on a selected object. A window similar to Figure 8-1 is displayed.

Figure 8-1 Cisco EMF Performance Manager



A selected object or group of objects has a number of different attributes. You can choose to monitor an area of the network, for example, the performance statistics of a particular attribute. This information could then be used to evaluate the performance of the vendor's equipment and assess the requirements for upgrades or software downloads.

Performance statistics also provide a summary view of the performance of network elements. These statistics help you determine the degree to which the network is meeting assigned service levels. You are able to drive down to the chassis level from the network level in a simple manner if you want to view individual chassis statistics.

Cisco EMF Performance Manager can present data in two ways:

- Raw—this is performance data in its most detailed format (not summarized). History storage criteria defines which attributes are to be monitored on specified objects. When these objects are polled, the retrieved data is stored by Cisco EMF and can be viewed using the Performance Manager. This data is raw data. History storage criteria may also specify summary intervals and rules to be applied to the raw data. The resultant data is summarized data.
- Summarized—this gives derived summaries of raw data. This is an approach which displays the data at a level appropriate to the task in hand; for example, you may decide to view data summarized in hourly or daily intervals according to requirements.

Performance data has the potential to overwhelm. For example, you may wish to view the Errored Packets for a device over a six month interval. If the data was displayed in a table or graph at the rate at which it was sampled, this could be tens of thousands of values. In these circumstances, it is preferable to view summaries of the data. For example, if data was originally received at intervals of 5 minutes, the ability to view it summarized in hourly, daily, or weekly intervals would be an

excellent way of managing the network. History storage criteria can be used to specify these summary intervals and the rules which are used to generate the summaries for the history storage criteria's objects and attributes.

Hourly summaries are generated on the hour, daily summaries are generated at midnight, and weekly summaries are generated at midnight on Sundays (that is, the end of Sundays). For example, if polling starts at 9:30 and hourly summaries are to be generated, the first full hour's worth of data will be between 10:00 and 11:00. So at 11:00, the first hourly summary is generated, and given a timestamp of 10:00. The same pattern is followed for all summaries (daily, weekly, or user-defined). This pattern standardizes summary intervals so all attributes' summaries have the same timestamps.

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**Note** Data generated between 9:30 and 10:00 is ignored in the above example because an hourly summary for 9:00 to 10:00 would be misleading as it would have been generated using only half the usual number of values.

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In some cases, an object may fail to be polled; for example, if communication to the object is lost. This is referred to as a missed poll, and all missed polls are indicated on Performance Manager graphs and charts.

Performance Manager graphs and charts also indicate when an attribute started and stopped being polled due to history storage criteria being added, edited, or removed. You are therefore able to see when polling on an attribute started, the attribute's values while it was being polled (and any missed polls), and finally when the attribute stopped being polled.

A Performance Manager can be opened for each network element you wish to monitor. To view up-to-date information on the Performance Manager, select **Refresh** and the selected data is displayed.

The Performance Manager also allows you to specify how the data is saved or printed, either to file or printer.

## History Storage Criteria

History storage criteria allows a system administrator to specify the criteria Cisco EMF uses to store a historical record of attributes' values. Each history storage criteria can be identified by a unique name.

History storage criteria apply to a set of network elements and to a set of attributes on each of those elements. For each attribute on each network element specified in the history storage criteria, Cisco EMF stores and manages a historical record of the attribute's value.

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**Note** If no history storage criteria are specified, no attributes on any objects are monitored.

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## Opening the Performance Manager

The Performance Manager can be accessed from pop up menus on selected objects in the following applications:

- Network Maps
- Event Browser
- Object Manager.

**Step 1** Open the appropriate window to display a relevant object.

**Step 2** Place the cursor over the object.

**Step 3** Press and hold the right mouse button.

A pop up menu is displayed.

**Step 4** Move the cursor until the **Performance Manager** option is highlighted.

**Step 5** Release the right mouse button.

The Performance Manager window is displayed.

**Figure 8-2 Performance Manager Window**



From the Performance Manager window you can:

- Identify all monitored attributes on a selected managed object
- Identify all time periods configured for sampling each monitored attribute

- Identify all summary methods configured for selected monitored attributes and selected summary periods
- View historical performance data over a requested period of time (in tabular or graphical format)
- Print performance data to a printer or file.

## Viewing Performance Statistics

To view performance statistics, you need to select:

- which attributes performance statistics are to be displayed
- the time period over which the performance statistics are gathered
- the format to be used to display the results.

**Step 1** Open the Performance Manager. The window shows the name of the selected object.

**Step 2** From the **Monitored Attributes** list, select the attribute to be monitored.

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**Note** You can select multiple attributes in a list by holding down the **Shift** key and selecting attributes in the list. You can select multiple individual attributes by holding down the **Ctrl** key and clicking individual items. The information for all selected attributes is shown in the Table Display. Only the first selected attribute is shown in the Line Chart or Bar Chart.

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**Step 3** In the **Start Date** data entry boxes, enter the date the view of the performance statistics has to start from. The format is `<mm>/<dd>/<yyyy>`.

**Step 4** You set a start time and an end time using 24 hour notation. The times are inclusive. In the **Start Time** data entry boxes, enter the time the view of the performance statistics has to start on the **Start Date**.

**Step 5** To set the **End Date** you have two options:

In the **End Date** data entry boxes, enter the date the view of the performance statistics has to stop at. The format must be `<mm>/<dd>/<yyyy>` or select the **Now** check box to view the data from the selected start date to the current time. By selecting this option, you do not have to update the **End Date** and **End Time** fields.

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**Note** **Now** is the current time, and remains current.

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**Step 6** To set the **End Time** you have two options:

In the **End Time** data entry boxes, enter the time the view of the performance statistics has to stop on the **End Date** or select the **Now** check box to view the data from the selected start date to the current time. By selecting this option, you do not have to update the **End Date** and **End Time** fields.

**Step 7** From the drop down list, select the **Summary Interval** rule to be used. This varies according to the attribute selected. The summary interval is the period of time over which the rule is applied. This drop down menu always contains the option to select **raw**. This displays the data in raw format, which is performance data in its most detailed format (not summarized).

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**Note** When **raw** is selected, the Bar Chart view is not available and the Summary Rule option is grayed out.

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**Step 8** From the drop down list, select the **Summary Rule** to be used. This gives you the option to summarize data to a lower granularity as follows:

- Total—totals all values gathered in the summary period
- Average—takes the average of all values gathered in the summary period
- Min—presents the lowest value received over the summary period
- Max—presents the highest value received over the summary period
- LogicalOR—displays either 1 or 0. This is typically used for status flags. Some attributes may have only two potential values (such as, true or false; yes or no; 1 or 0). When summaries are generated from values such as these, and the “logical OR” rule is used, the summarized value is 1 if any value in the summary interval is 1. If all values in the summary interval are 0, then the summarized value is 0.

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**Note** The **Summary Rule** option is not available when the option to view raw data is selected.

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**Step 9** Click the **Refresh** button.

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**Note** The **Refresh** button is blue when it is available for selection. It is grayed out when not available. The **Refresh** button is available for selection when **Now** is selected, or when any criteria has changed and you have moved the cursor away from the changed value by pressing the **Tab** key or by using the mouse.

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By default, a line chart of the performance information, to date, is displayed. You can view performance information in the following formats:

- Line Chart, refer to Figure 8-3
- Bar Chart, refer to Figure 8-4
- Table Display, refer to Figure 8-5.

The performance information displayed corresponds to the attributes' raw values. If a summary period is selected, the information is displayed according to the summary rule. No summary period is associated with raw data.

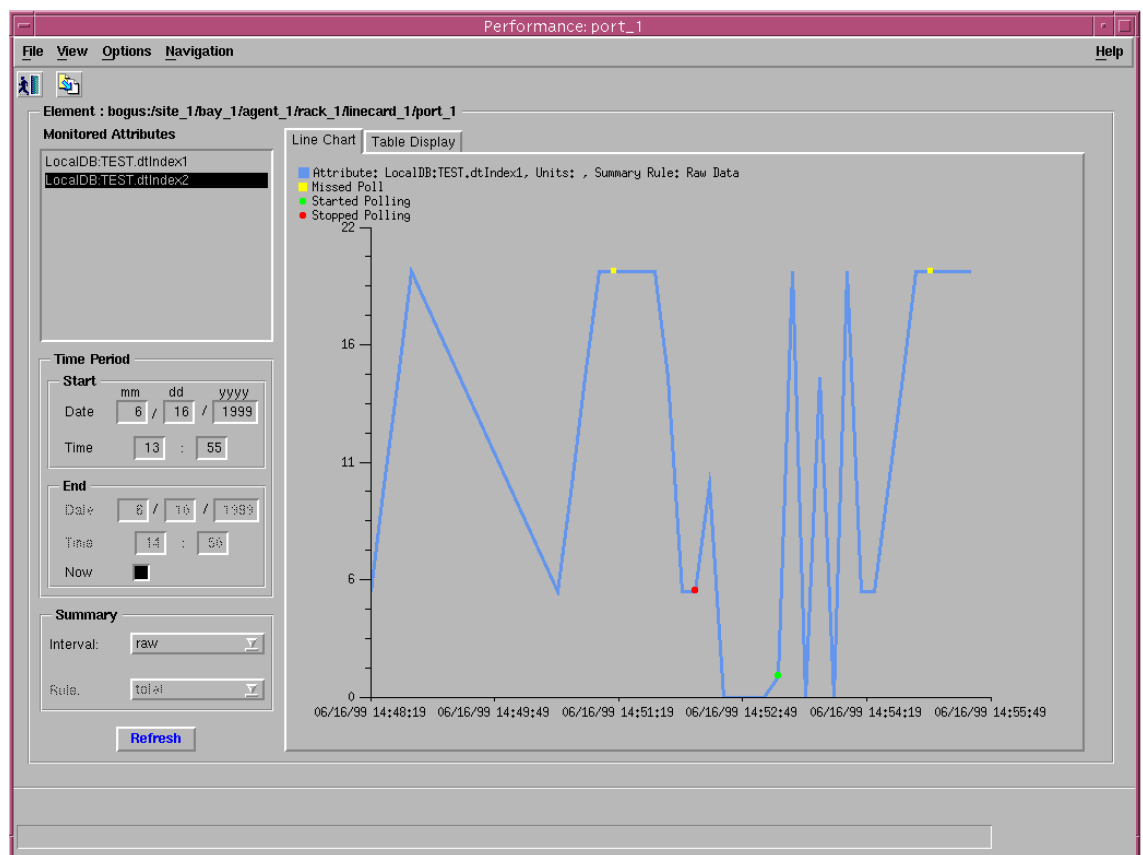
**Note** In some circumstances, possibly due to Cisco EMF being shut down or heavy network load, an object may fail to be polled. This is a missed poll. All missed polls are indicated on Performance Manager graphs and charts by a yellow point. This shows the last valid value collected. A missed poll affects the summary data and the data should not be relied upon.

Performance Manager graphs and charts also indicate when an attribute started and stopped being polled due to history storage criteria being added, edited, or removed. Start and Stop polling events are shown in charts and tables:

- The Start polling events point is shown in green
- The Stop polling events point is shown in red.

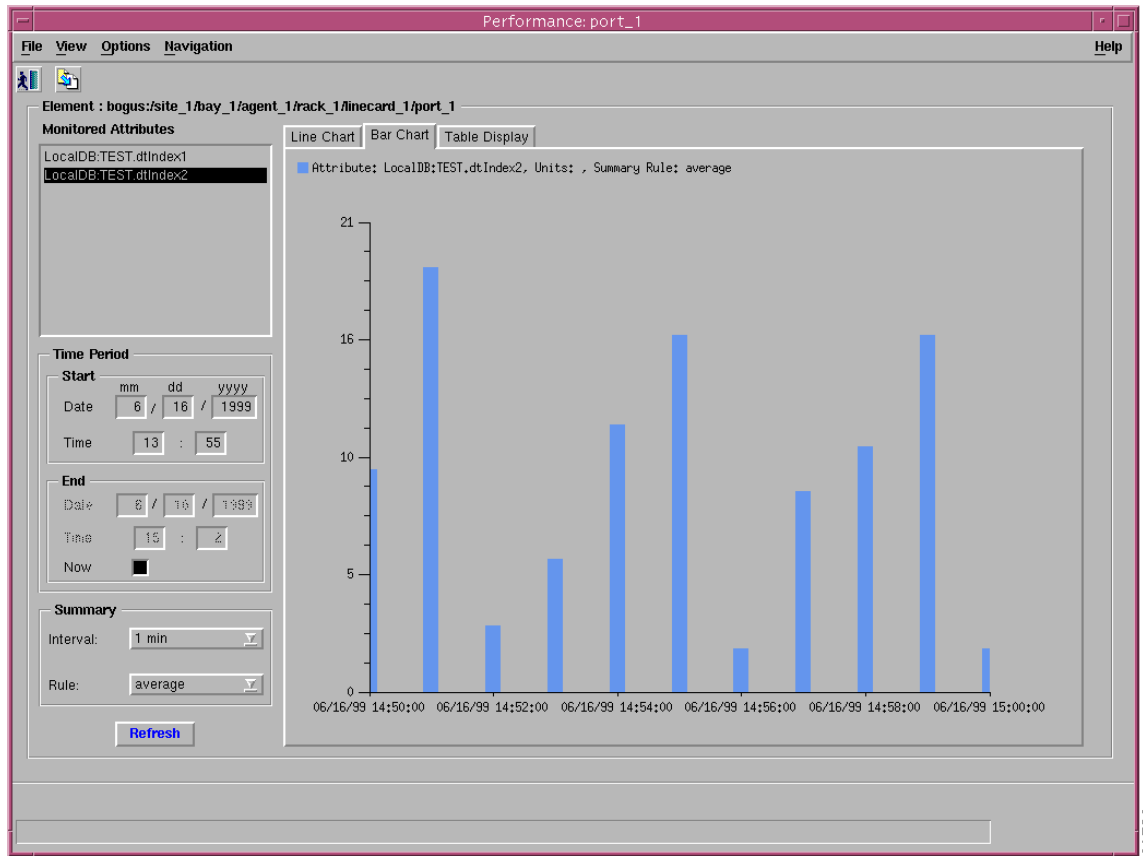
**Note** A Polling Events key is displayed.

**Figure 8-3** Line Chart Example



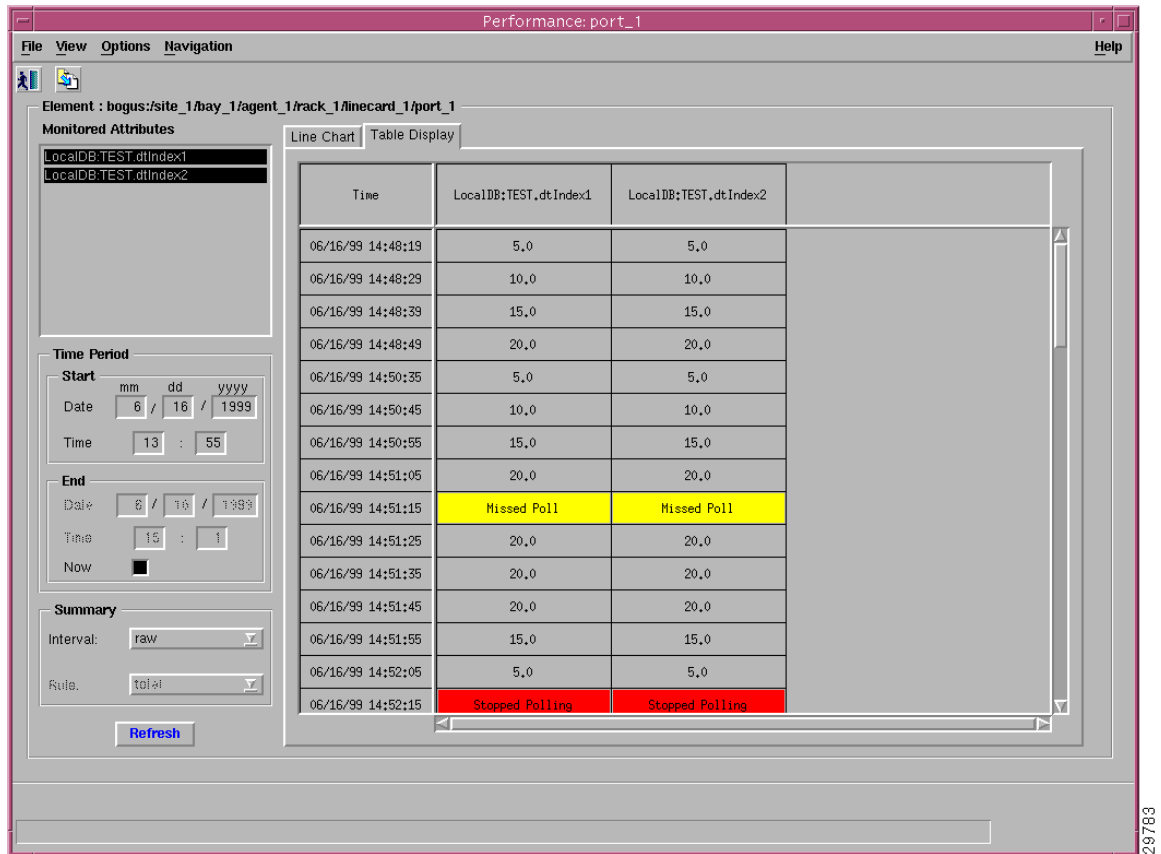
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Figure 8-4 Bar Chart Example



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Figure 8-5 Table Display Example



## Viewing Raw Data

Cisco EMF provides the option to view raw data as it is received without any summarization. History storage criteria define which attributes are to be monitored on specified objects. When these objects are polled, the retrieved data is stored by Cisco EMF and can be viewed using the Performance Manager. This data is raw data. History storage criteria may also optionally specify summary intervals and rules to be applied to the raw data. The resultant data is summarized data.

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**Note** The Summary Rule option and the Bar Chart view are not available when the option to view raw data is chosen.

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- Step 1** Launch the Performance Manager.
- Step 2** Choose the desired attributes and set the dates and times as described in the “Viewing Performance Statistics” section on page 8-5.

- Step 3** From the **Summary Interval** drop down list, select **raw**.
- Step 4** Click the **Refresh** button. The new performance information displayed corresponds to the attributes value returned during the raw period.

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**Note** The **Refresh** button is blue when it is available for selection. It is grayed out when not available. The **Refresh** button is available for selection when **Now** is selected or when any criteria has changed and you have moved the cursor away from the changed value by pressing the **Tab** key or by using the mouse.

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## Viewing a Chart

You can zoom in, zoom out, and move around the displayed charts by using the following keys and mouse buttons. Note, you must select a chart before invoking the following actions.

**Table 8-1 Chart Viewing Actions**

Press	Action
<b>Shift</b> and left mouse button	To select multiple attributes in a list.
Up arrow key	Scrolls up the Table display.
Down arrow key	Scrolls down the Table display.
Left mouse button	Clicking and dragging with the left mouse button over an area zooms in on that section of the chart. You cannot zoom in on a chart that has a scroll bar.
Middle mouse button	Takes the view back one “zoom” after zooming in using the left mouse button.

## Viewing Points and Values on a Line Chart

You can choose to annotate a line chart with color coded points which represent the polling status. You can also show the values associated with each point.

- Step 1** From the **View** menu, select **Points**. This annotates the line chart with points, which visually indicate the points which are presented in tabular form in the Table Display. A point is colored coded to show polling status as follows:

- Black—poll
- Red—stopped polling
- Green—started polling
- Yellow—missed poll.

- Step 2** From the **View** menu, select **Values**. This option shows the values associated with each point, which are presented in tabular form in the Table Display.

The values are shown on each chart until the item is deselected in the **View** menu.

## Printing a Performance File

You can print performance statistics from the Performance Manager, either as a chart or as a table. A chart prints out the information which can be seen in the window. A Table prints out all of the performance statistics in a plain text format.

The output is printed by the default printer set up on your network.

**Step 1** Open the Performance Manager and select the desired performance statistics.

**Step 2** From the **File** menu, select **Print**. Choose either **As Chart** or **As Table**.

## Saving Performance Data to a File

No performance data is saved automatically. If you want to save data, you must select **Export to File** to save the current data to a file.

**Step 1** Open the Performance Manager and view the performance statistics you want to save.

**Step 2** From the **File** menu, select **Export to File** or

click the Save As icon  from the Toolbar.

**Step 3** The File Chooser window is displayed. The left hand panel displays the directories and the right hand panel displays the files. Use the scroll bars to locate the desired file. Click **Filter** to expand the list of options.

**Step 4** Select the file. The full path name of the selected file is displayed in the **File Filter** box, as well as the **Choice** box.

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**Note** You can save the data to a new location or to a new file. Type in the new names as required in the **Choice** boxes.

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**Step 5** Click **Apply** to save the file or **Cancel** to return to the Performance Manager window.

