

Using Network Manager to Collect and Graph Data from Network Devices

Dell OpenManage™ Network Manager

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Introduction

There are two ways to collect data from your Powerconnect™ switches and display that data in a graph when using Network Manager. One way is to pull and display statistical data in real time. This is done through Performance Monitor. Performance Monitor is a tool that is used to capture information about a switch for a relatively short amount of time so you can troubleshoot current problems you may be experiencing on your switches. For this reason, Performance Monitor can be run for up to 48 hours and will graph information as it is received by the server in real time.

Another way to collect data is by using the Data Collection Profile Manager. This tool allows the user to collect data from PowerConnect switches over an extended period of time. This data can be stored for later use (as in a historical record) to make a baseline for your switch or to troubleshoot problems. This data can also be graphed. The graph is displayed as time-based statistical analysis can be quickly and easily performed.

This guide will take you through setting up both Performance Monitor and Data Collection Profile Manager and provide examples of collecting and graphing data for each.

Performance Monitor

Data Collecting and Graphing in Performance Monitor

The following steps will guide you through setting up data collection in Performance Monitor and graphing the data.

1. From Equipment Manager, select the switch you want to collect data for and **Open** the switch.
2. Select **Performance Monitor** from the middle window. The name of your targeted switch will show up in the Target Equipment window at the top of the screen.

If this is the first time you have tried to start Performance Monitor since installing the Network Manager Server, you will see the following screen:

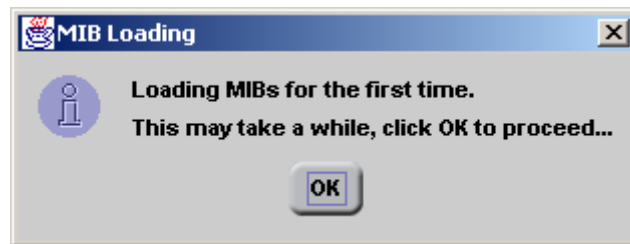


Figure 1. MIB Loading Warning.

Select **OK** to continue loading Performance Monitor.

NOTE: The MIB (Management Information Base) is a file that defines how a network management tool (such as Network Manager) retrieves information from a network device using SNMP.

3. In the next screen you will define how the statistical samples will be collected. Select how often you want data to be collected from the switch by entering the appropriate time interval in the **Collection Interval** field. Field inputs can range from every 5 seconds to every 7200 seconds (2 hours). This number will also determine how often the graph is updated.
4. Select the range of hours for which you would like the data collected and graphed using the **Time Scale**. This can be from 1 hour to 48 hours.

NOTE: Data will be collected and graphed continuously until interrupted by the user, but will only display the last x hours, where x is the range of hours selected by the user. For example, if you select 2 hours and start your graph, and come back 24 hours later, you will see the last two hours displayed on your graph.

Selecting 2 hours does not mean data will be collected and displayed for two hours then stop.

5. Optionally you can select the Processing Algorithm and the number of Data Points for your graph.

Data points are the number of collected values that make up a single point on the graph. The Processing Algorithm (Average, Min, or Max) determines which collected values are used as the data point on the graph. For example, if you collect 6 data points and use a Minimum Processing Algorithm, the program will collect 6 values, select the smallest value of the 6 and display it as one data point on the graph. If you collect 3 data points and use an Average Processing Algorithm, the program will collect 3 values, and then display the average of the 3 values as one data point on the graph.

6. In the SNMP MIB Selection panel, select the MIB elements from which you would like to collect statistical samples. As you browse through the MIB directory, the elements that can be monitored will appear in the screen on the right when they are highlighted. (See Figure 2).

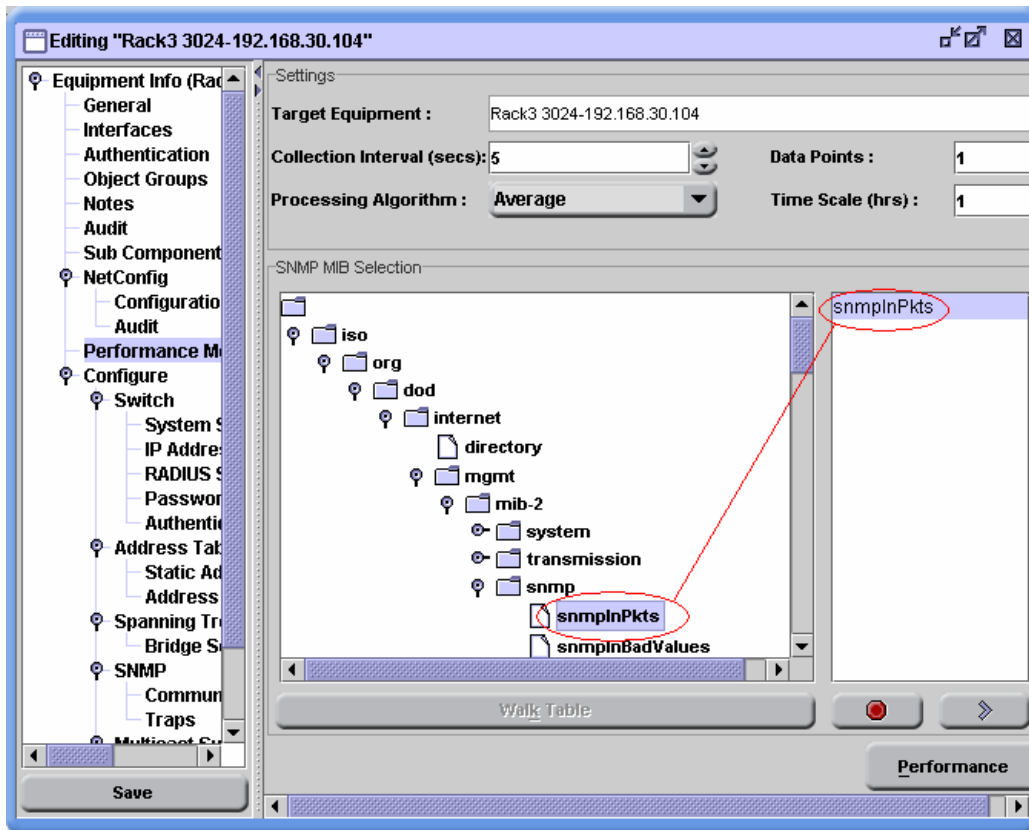


Figure 2. Setting Up Performance Monitor.

7. When you have selected a MIB element that you would like to monitor and it appears in the right screen, select the right-arrow button to add it to the Graphing Entries list. Press the Add button to select any additional MIB elements to want to monitor. You can have up to 50 graphing entries at one time.

8. Once you are finished adding the elements you want to monitor to the Graphing Entries list, press the Performance button to start graphing the data.
9. The first samples will be plotted when the initial Collection Interval time has passed.

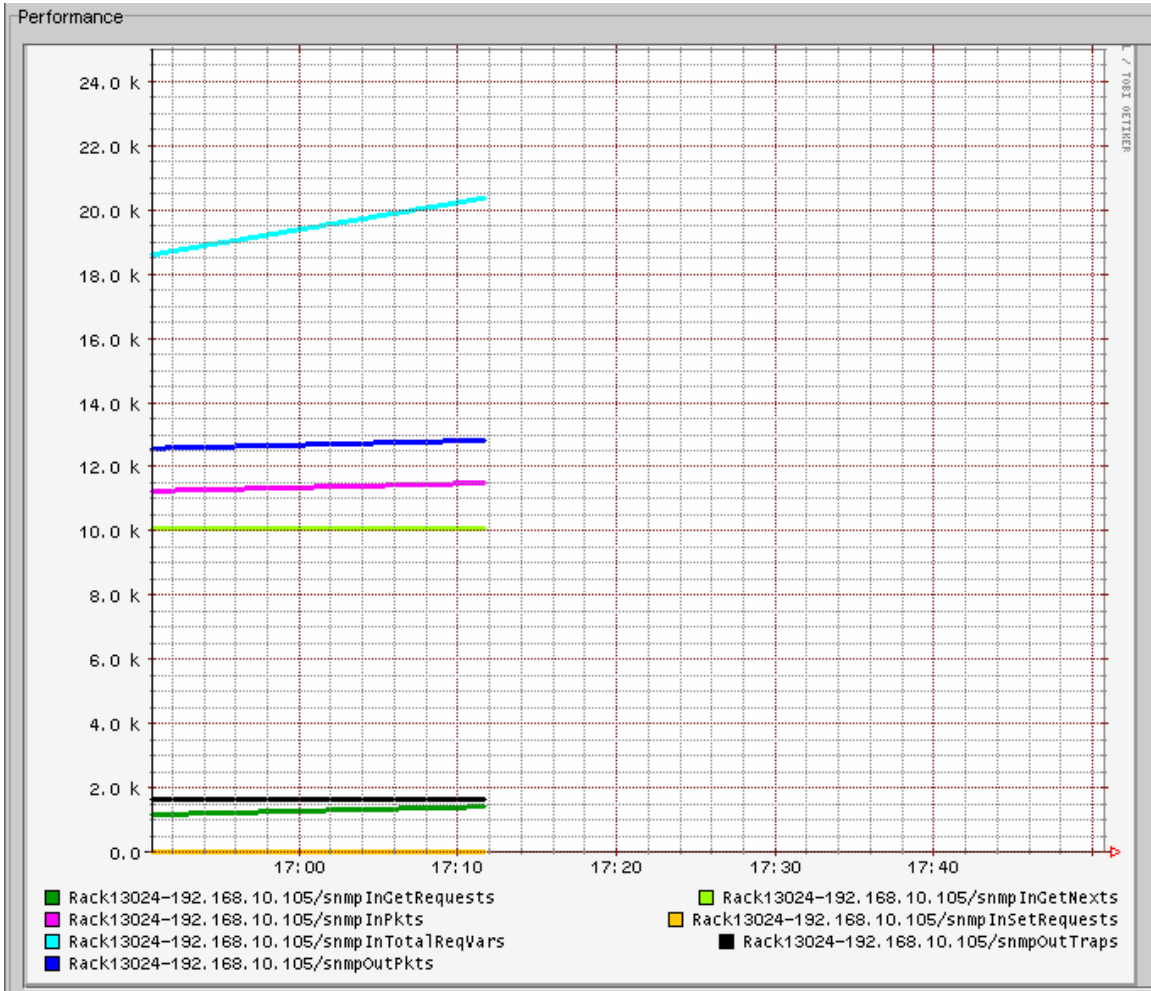


Figure 3. Graphing Example.

In Figure 3, the x-axis shows the time and the y-axis shows the number of packets sent and received in real time.

Important: If you exit from a graph by selecting the Settings button, the data already plotted is lost. If you exit from the switch editing window, the data already plotted and your performance monitoring set-up are both lost.

To restart the plot while viewing a graph, select Settings from the graph window and then select Performance from the Performance Monitor window. If you are in the switch editing window, you can start a new plot with the same setup by selecting Performance from the Performance Monitor window (assuming you have not exited the switch editing window since you started the data collection).

Data Collection Profile Manager

Collecting Data in Data Collection Profile Manager

Creating a Profile

The following steps will guide you through setting up Data Collections in Profile Manager. The Data Collection Profile Manager allows you to set up data collection parameters in a profile that can be enabled or disabled at any time. This allows you to view information when you need it without having to set up the collection process each time.

1. Select **Data Collection Profile Manager** from the navigation pane in Network Manager.
2. Press the **New** button. This will bring up a tool to create a Data Collection Profile.
3. Give your new profile a name. This name will allow you to save this profile so you can return to monitor the same information at any time.
4. Beside the Target Device field, press the browse button (...) to bring up the Select Equipment screen, which contains a list of discovered devices (Figure 4). This screen can not be re-sized. Consequently you may need to widen the Name column or other columns on the Select Equipment screen in order to see the entire field. You can also click on any column header to sort discovered devices by that field.

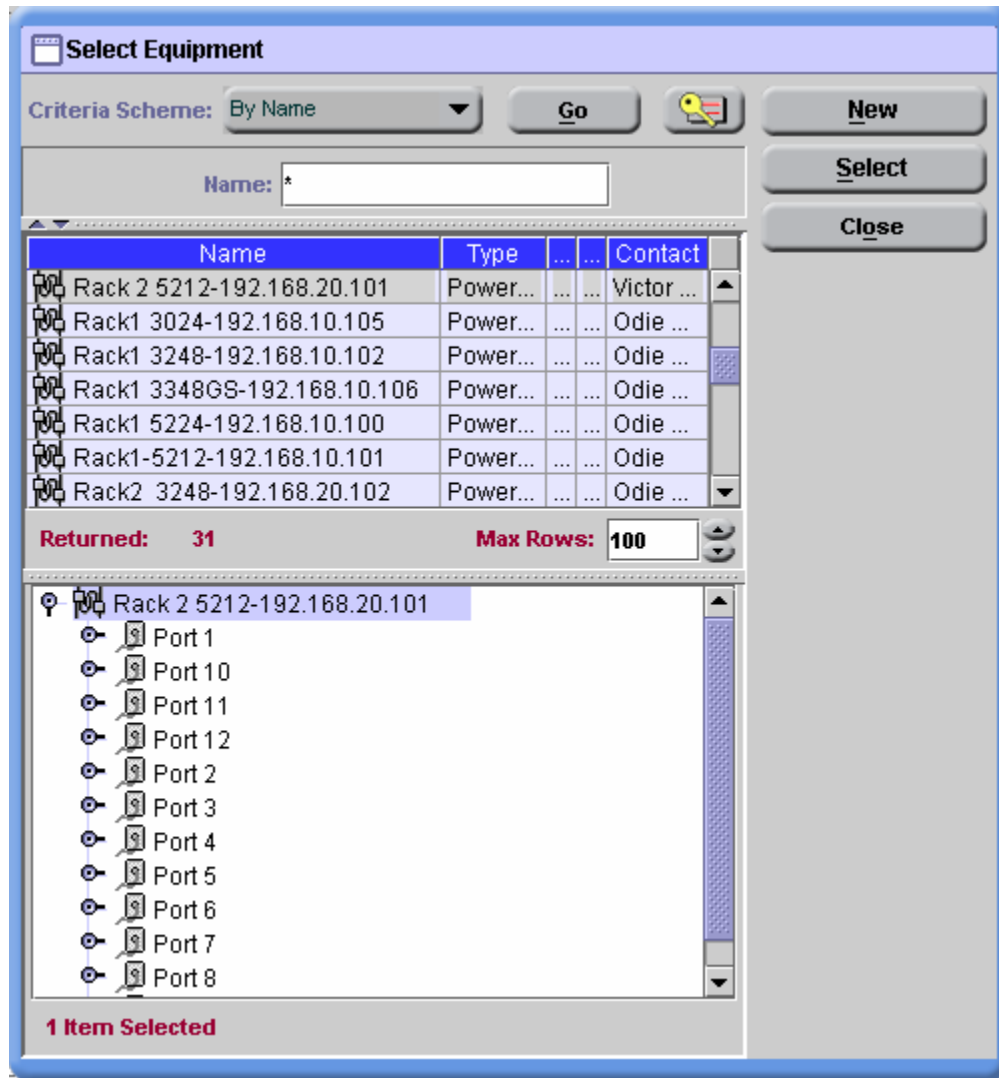


Figure 4. Data Collection Profile Manager.

5. Scroll down and highlight the device you would like to monitor. Press the **Select** button to select that device. Network Manager will take you back to the Create Data Collection Profile screen. Note that a Data Collection Profile can only be applied to a single switch at a time.
6. Select your Collection Interval (in minutes) by using the pull-down menu. The available intervals are, 1,2,3,4,5,6,10,12,15,20,30, and 60 minutes. This determines how often data is to be collected from the device.
7. Optionally you can select the Processing Algorithm and the number of Data Points for your graph. Data points are the number of collected values that make up a single point on the graph. The Processing Algorithm (Average, Min, or Max) determines which collected values are used as the data point on the graph. For example, if you collect 6 data points using a Minimum Processing Algorithm, the program will collect 6 values, select the smallest value of the 6 and display it as one data point on the graph. If you collect 3 data points using an Average Processing Algorithm, the program will collect 3 values, and then display the average of the 3 values as one data point on the graph.

8. In the SNMP MIB Selection panel, select the MIB elements from which you would like to collect statistical samples. As you browse through the MIB directory, the elements that can be monitored will appear in the screen on the right when they are highlighted.. (See Figure 5).

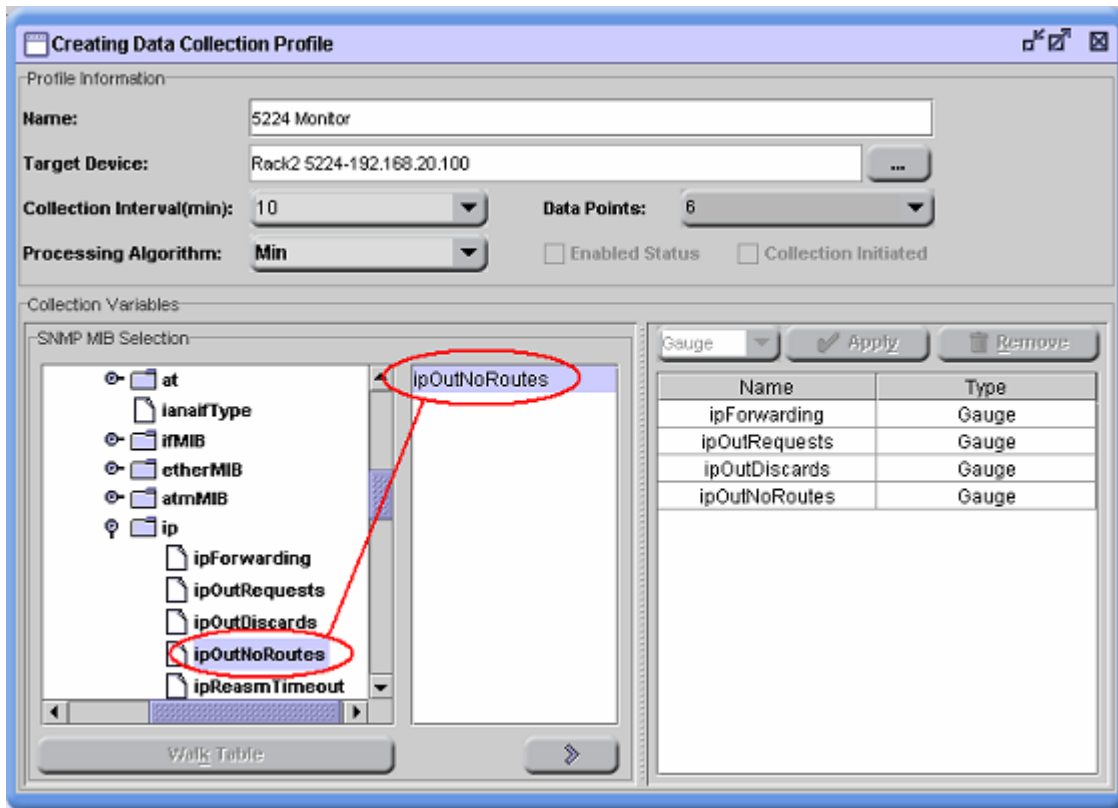


Figure 5. Selecting MIB elements for monitoring.

9. When you see a MIB element in the middle screen that you would like to monitor, select the right-arrow button to add it to the collection variables list on the right. You can monitor up to 50 collection variables at one time.
10. Once you are finished adding the elements you want to monitor, press the Save button (as shown in Figure 6) to save your profile.

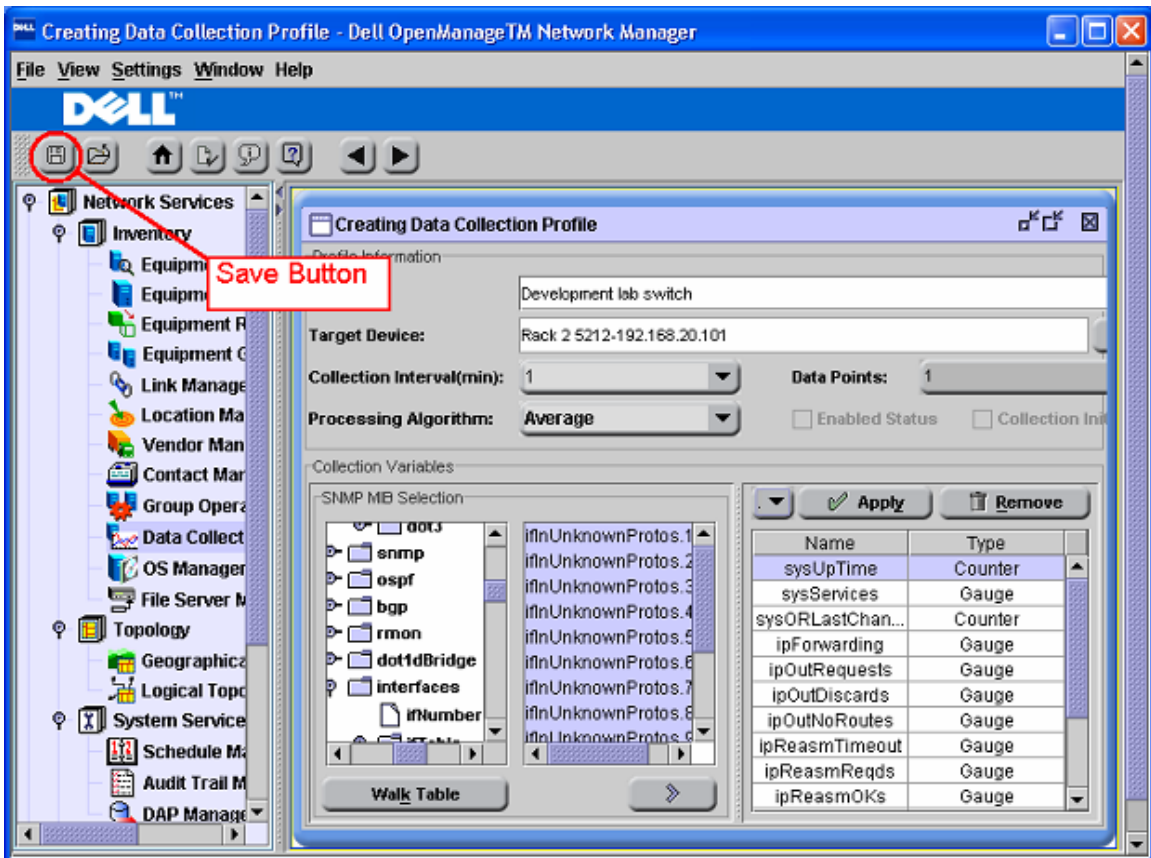


Figure 6. Saving a Data Collection Profile.

11. You now have a saved profile ready to begin collecting statistical samples. Figure 7 shows four profiles that have been saved. The number of profiles you can save is limited only by your system resources.

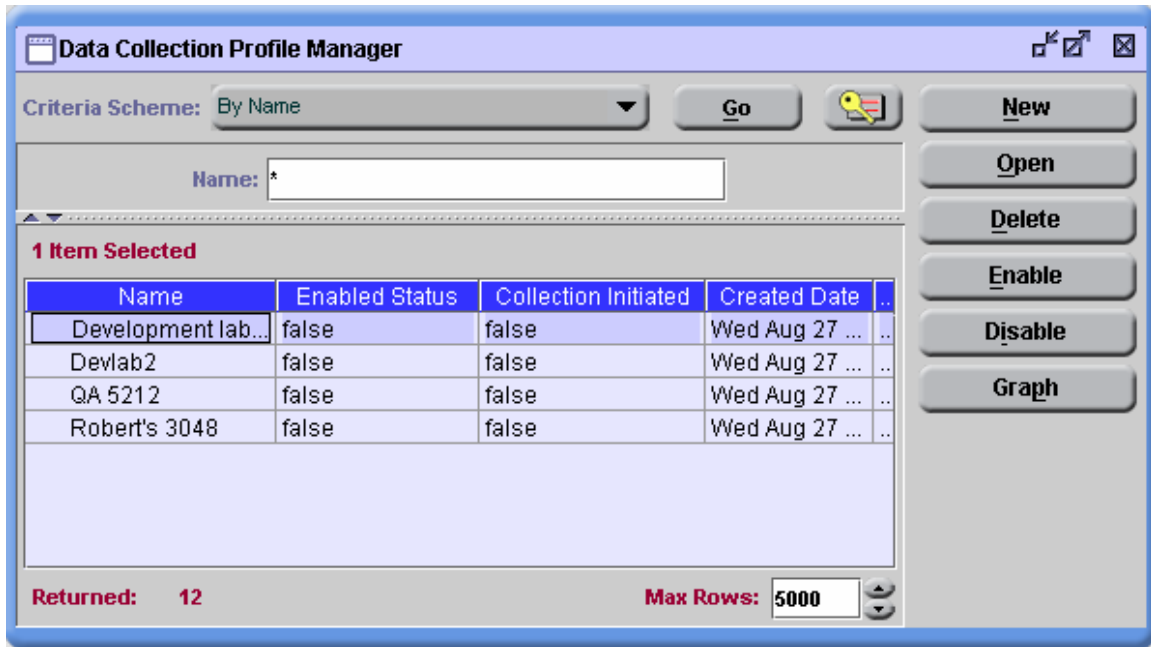


Figure 7. Collection Profile selection screen.

- Note that all new Data Collection Profiles are disabled by default. The next section, Starting and Stopping a Data Collection Profile, details the steps necessary to enable the collection profile. If at any time you need to make changes to a profile, click on the profile in the list, and then press the Open button. This will take you to the Editing Data Collection Profile screen which is similar to the Creating Data Collection Profile screen used to create the profile. After making changes, click the Save button as shown in Figure 6.

Starting and Stopping a Data Collection Profile

The following steps detail how to start and stop collecting data on a profile.

- Select **Data Collection Profile Manager** from the navigation pane in Network Manager
- Click on the profile in the list that you would like to enable.
- With the profile highlighted, press the Enable button. The Enabled Status column will change from “false” to “true”. The Collection Initiated column will also change to “true” once data collection has begun.

In a normal situation, a user would leave a profile on for days, weeks or even months. The graphing feature, discussed in the next section, will allow the user to organize and view the data collected.

- Once you start data collection for a specific profile, you must delete the profile in order to stop the data collection for that profile.** Using the Disable button will not stop data from being collected, but will only keep the data from being plotted on the graph for the period of time it is Disabled.

Organizing and Graphing Data in Data Collection Profile Manager

Once data has been collected in a profile, you will need to use the Graphing Data Collection tool to organize and view the data. The following steps will guide you in organizing and graphing your data.

1. From the Data Collection Profile Manager, click on the profile that contains the collected data you want to analyze.
2. With the selected profile highlighted, click the Graph button to bring up the Graphing Data Collection screen.
3. In the top left corner of the screen, select the profile from the Profiles list. A list of MIB elements will appear in the bottom left of the screen.
4. Use your mouse to select the elements you would like to graph, then press the **Select** button. This will add the elements to the Graphing Entries Settings list.
5. Optionally, you can change the graph attributes of each element. Do this by selecting an element, selecting a new **Drawing Style** or **Color** for the element, *and then pressing the Apply button.*
6. Set the Start and Stop time for your graph. Since the graph is not real-time as the graph in Performance Monitor is, you will not be able to view newly acquired data without refreshing your plot.

HINT: It is usually (but not always) best to set your Start time to the same time you started collecting data, and to set your Stop time to the current time or a little after. Setting your Stop time slightly in the future will allow you to see the end of the lines where they stop on the graph. This way you will know you are seeing all of the data collected up to that point. This applies only if you want to see the latest data that was collected.

Figure 8 shows a graph displaying snmpInPkts, snmpOutPkts, and snmpOutTraps after the collection profile has been running for only five minutes.

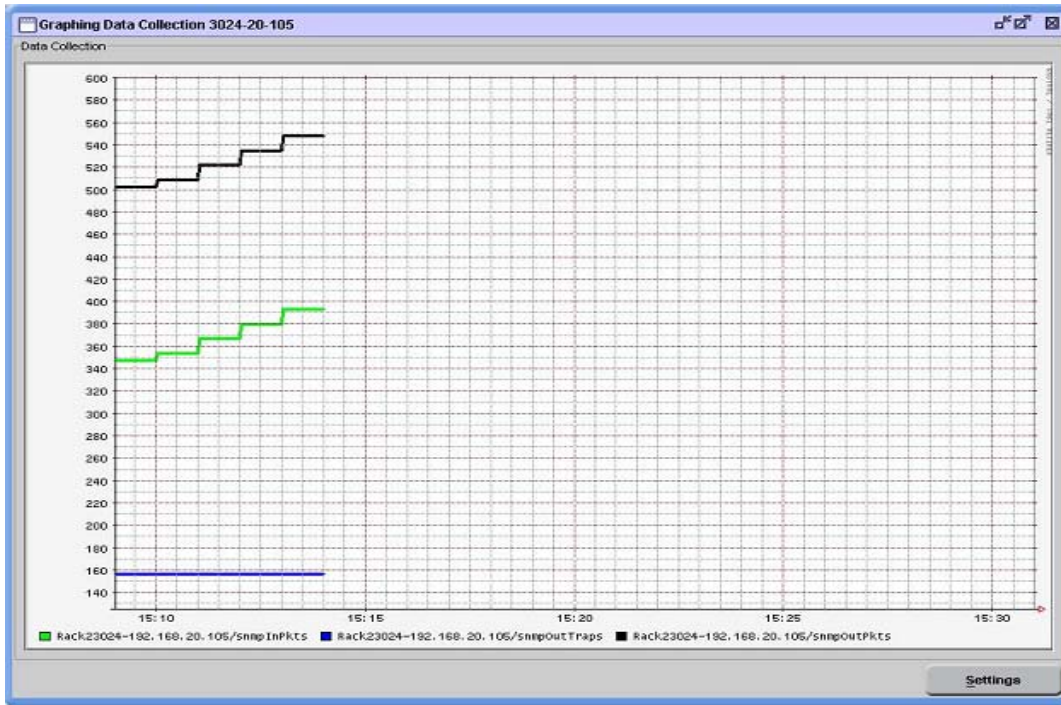


Figure 8. Sample Data Graph after Five Minutes of Collection.

Figure 9 shows the same three elements after the profile has been running for fifteen minutes.

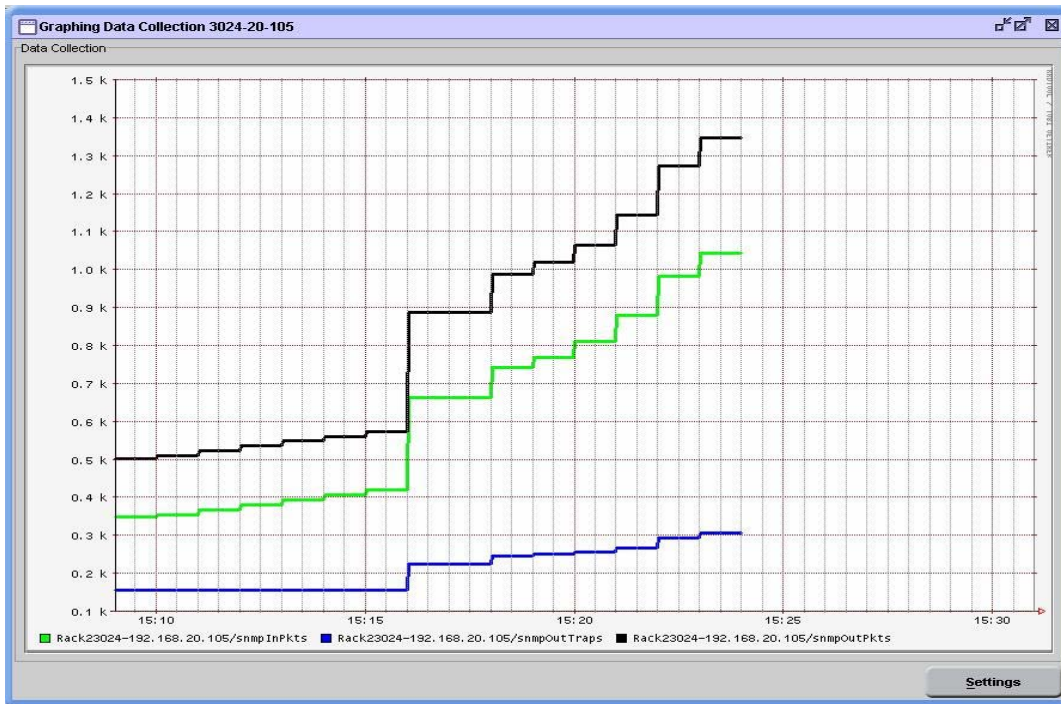


Figure 9. Sample Data Graph after Fifteen Minutes of Collection.

To update a graph with the most current collected information, simply select the **Settings** button from the graph screen, select the desired Start date and time, then set the Stop date and time as the current time and press the **View Graph** button.

Conclusion

Network Manager delivers sophisticated and flexible performance monitoring for your PowerConnect switches. For short term or real-time monitoring, you should use Performance Monitor. For long term monitoring (with graphing capabilities) or when you need to save a collection profile, you should use the Data Collection Profile Manager. For more information on how to use Performance Monitor and Data Collection Profile Manager, please refer to the Dell OpenManage Network Manager User's Guide.

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