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# Monitoring the HP ProCurve Switch with NetCentral

This document describes how to set up the HP ProCurve Switch for monitoring with NetCentral software. The information applies to various switch models, including the following:

- 3400cl-24G

For information about the overall NetCentral system, read the *NetCentral User Guide*.

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## Before you begin monitoring with NetCentral

The following systems must be in place before you can begin monitoring your HP ProCurve Switch with NetCentral:

- NetCentral manager software must be installed and operating correctly on the NetCentral server. Refer to the *NetCentral User Guide*.
- The NetCentral server and the HP ProCurve Switch must be on the network and be able to communicate with one another. Refer to the next procedure “[Configuring the switch via serial connection](#)” to set the IP address and logon. To verify, use the *ping* command at the MS-DOS command prompt.
- The switch’s SNMP trap destination must be set to send SNMP trap messages to the NetCentral server PC, and if you require a unique SNMP community name for your facility, you must configure it as well. Refer to the next procedure “[Configuring the switch via serial connection](#)”.
- The HP ProCurve Switch device provider must be installed on the NetCentral server PC. In NetCentral manager, click **File | New | Device Provider | K2 Server** and follow the on-screen instructions to install the **HP Ethernet Switch** device provider. Refer to the *NetCentral User Guide* for a detailed procedure.
- A license is required. Contact your Grass Valley representative to obtain a license.

Continue with the next procedure “[Configuring the switch via serial connection](#)”.

## Configuring the switch via serial connection

Use a direct console connection to the switch, start a console session, and access the Switch Setup screen to set the IP address. Consult the documentation that came with the switch for more information.

Also refer to the *K2 Storage System Instruction Manual* for other settings required for the K2 Storage System that you can make with a console session.

1. Configure the PC terminal emulator on the control point PC or another PC as a DEC VT-100 (ANSI) terminal or use a VT-100 terminal, and configure either one to operate with these settings:
  - Baud rate 9600
  - 8 data bits, 1 stop bit, no parity, and flow control set to Xon/Xoff
  - Also disable (uncheck) the “Use Function, Arrow, and Ctrl Keys for Windows” option
2. Connect the PC to the switch’s Console Port using the console cable included with the switch.
3. Turn on the PC’s power and start the PC terminal program.
4. Press **Enter** two or three times and you will see the copyright page and the message “Press any key to continue”. Press a key, and you will then see the switch console command (CLI) prompt.
5. At the prompt, enter `setup` to display the Switch Setup screen.
6. Tab to the **IP Config (DHCP/Bootp)** field and use the Space bar to select the **Manual**

option.

7. Tab to the **IP Address** field and enter the switch's control network IP address.
8. Tab to the **Subnet Mask** field and enter the subnet mask used for your network.
9. Press **Enter**, then right-arrow to **Save**. Press **Enter** again and revert to previous menu. If you are at the command (CLI) prompt, enter menu to go to the main menu screen.
10. From the main menu, choose **Console Passwords** and press **Enter**. The Set Password Menu opens.
11. Chose **Set Manager Password** and press **Enter**.
12. Enter a password. You can use the default K2 administrator password "K2admin" or your site's password for administering the K2 Storage System.
13. Return to the main menu
14. Tab to **Command Line (CLI)** and press **Enter**. The command prompt appears.
15. Type `configure` to change to configuration mode.
16. You now configure an administrator username. You can use the default K2 administrator username "K2admin" or your site's username for administering the K2 Storage System. For example, to set the username to "K2admin" type the following:

```
password manager user-name K2admin
```
17. When prompted for the password, enter a password. You can use the default K2 password "K2admin" or your site's password for administering the K2 Storage System.
18. Decide your SNMP community name as explained in the following options, then proceed with the next step:
  - If you decide to use a unique SNMP community name (not "public"), add the community and set its RW permissions. For example, if the community name is "GV", type the following:

```
snmp-server community GV unrestricted
```
  - If you decide to use the default SNMP community "public" for NetCentral monitoring, which already has RW permissions set as required by NetCentral, proceed to the next step.
19. Enter the SNMP community and IP address of the NetCentral server PC. For example, if the IP address is "192.168.40.11" and the community is "public", you type the following:

```
snmp-server host public 192.168.40.11
```
20. Enable Authentication traps by typing the following:

```
snmp-server enable traps authentication
```

This allows NetCentral to test the switch to verify that it can send its SNMP trap messages to NetCentral.
21. Type menu to get to menu mode.

22. Choose **Reboot Switch** to restart the switch.
23. You can now use the switch's web browser interface for further configuration.
24. Close the PC terminal program and disconnect the console cable.

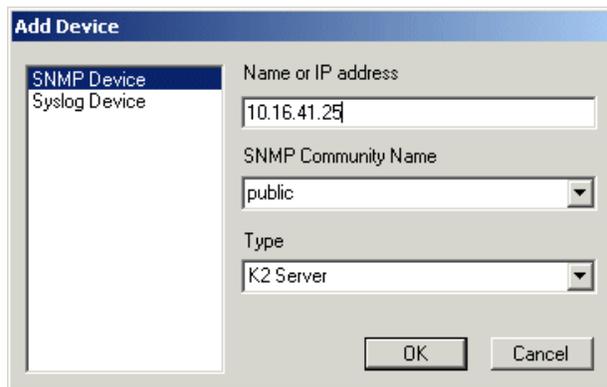
## Adding the HP ProCurve Switch to NetCentral

Use the following procedure to add a HP ProCurve Switch to the NetCentral system. This adds the HP ProCurve Switch to the NetCentral manager tree view.

To add the HP ProCurve Switch to the NetCentral tree view:

1. If you have not already done so, log on to NetCentral manager with NetCentral administrator-level access rights. Refer to the *NetCentral User Guide* for information about logging on and application security.
2. In NetCentral, click **File | New | Device**.

The Add Device dialog box opens.



3. Enter the HP ProCurve Switch IP address.
4. Select **K2 Server** in the Device Type drop-down list, then click **OK**.

NetCentral Manager attempts to communicate with the HP ProCurve Switch. When contact is made, the HP ProCurve Switch is added to the NetCentral tree view. This may take a few moments.

5. In the tree view, hover your cursor over the HP ProCurve Switch, identify the tooltip displayed, and proceed as follows:
  - If the tooltip only identifies the device as a HP ProCurve Switch and has no message regarding trap validation, it means that NetCentral successfully entered the IP address of the NetCentral server and then successfully received a test trap message from the device. A HP ProCurve Switch with this tooltip is fully monitored by NetCentral and requires no further steps.
  - If a HP ProCurve Switch has a "...Traps not validated..." tooltip message, one of the following conditions applies. In the Messages view, check the HP ProCurve Switch's SNMP Trap Target Status message to determine which condition applies and then proceed as indicated:
    - NetCentral is in the process of testing the HP ProCurve Switch to validate its SNMP trap messages. After a few minutes check the HP ProCurve Switch

again for a change in its SNMP Trap Target Status message reflecting the test results.

- NetCentral tried to configure SNMP properties but was not successful. In most cases this means you must configure SNMP properties manually, as follows:
  - Set the trap destination to the NetCentral server PC
  - Make sure the community name you use is configured on the switch
  - Make sure the community name has RW permissions set
  - Enable Authentication traps

To configure SNMP properties, you can use the switch's web browser interface, or you can use a serial connection, as in ["Configuring the switch via serial connection"](#) on page 2.

## Monitoring the HP ProCurve Switch with NetCentral

After completing the setup procedure, you are ready to monitor the HP ProCurve Switch using NetCentral. Most monitoring features are common for all types of monitored devices and are explained in the *NetCentral User Guide*. The monitoring features explained in the following sections are unique to the HP ProCurve Switch.

### Monitoring HP ProCurve Switch Trends

Click the **Trends** button to see the Trends view. The Trends view pulls specific device parameters and provides you with a daily, weekly, monthly, and yearly view of selected parameters. The following table lists the Trends view graphs for the HP ProCurve Switch and provides explanations:

Name of Trend graph	Explanation of Trend graph
System\ Up Time	<p>Up time essentially is an ever incrementing value that indicates the system is up and running and is measured as an absolute value in minutes; given that the polling rate is more than a minute.</p> <p>Though the value itself is of less significance, it is the ramp graph obtained by plotting these values that proves significant where a downward edge on the ramp indicates a device going offline and a flat line at zero indicating the device downtime.</p> <p>Multiple ramps indicate how often the device was taken down for activities like maintenance or servicing, or simply how many times it was restarted to handle a complete device failure. If the ramps do not coincide when the device was taken down, it could indicate conditions like automatic restarts, and the device may need attention.</p>
System\ Memory Usage	<p>Memory usage indicates the percentage of memory installed on the switch that is being used (allocated for tasks) during that sampling period.</p> <p>Sustained increase in values of memory usage could indicate a network traffic burst and could lower the switch throughput. Values above 85% could cause network packets to be dropped or slower network response times.</p> <p>Upper Threshold: 85</p>
System\ Processor Usage	<p>Processor usage is a primary indicator of switch activity. It is the average percentage of elapsed time that the processor spends executing switch management operations during that sampling period.</p> <p>Sustained value over 80% (5 minutes or more) indicates an excessively busy system and may result in poor response to switch management applications.</p>

Name of Trend graph	Explanation of Trend graph
Ports\ Excessive Collisions[port]	<p>Excessive collisions indicates the number of Ethernet frames that were dropped by the switch port due to excessive collisions during that sampling period.</p> <p>Collisions are caused when multiple sources try to transmit data at exactly the same time on an Ethernet network. The Ethernet protocol has an exponential back-off algorithm to retransmit data when a transmitter recognizes a collision. When too many collisions occur, the data is eventually dropped. Collisions will increase network latencies and cause very low network throughput.</p> <p>If the switch port is directly connected to a host adapter, collisions should be zero. If the switch port is connected to an Ethernet hub/repeater whose ports are then connected to multiple hosts, the port could see collisions.</p> <p>Typically this should be zero. A non-zero value for a sustained time interval indicates that the network needs segregation.</p>
Ports\ Carrier Sense Errors[port]	<p>Carrier Sense Errors is the number of times a carries sense condition was lost when the port was attempting to transmit data.</p> <p>Before attempting to transmit data, the Ethernet protocol requires the interface to sense an electrical signal on the line called the carrier and then transmits data by synchronizing to this signal.</p> <p>Carrier Sense Errors is typically indicative of cabling problems, or faulty network adapters at cable end-points. This should be typically a zero value. A sustained non-zero value would warrant a network cabling check.</p>
Interface\ Usage[lport]	<p>Interface usage is the percentage of the attained throughput on the network interface compared with its maximum operational capacity during that sampling period.</p> <p>This helps measure congestion (or potential congestion) through the network.</p> <p>A sustained high value is not necessarily bad. However over utilization occurs when there is more traffic queued to pass over the interface than it can handle, there will be latency implications.</p> <p>Note: This will also provide information on logical interfaces like VLANs and port groups.</p>

Name of Trend graph	Explanation of Trend graph
Interface\ Bandwidth[port]	<p>Interface bandwidth is the amount of actual data transferred on the interface during that sampling period measured in bits per second.</p> <p>Bandwidth is used to measure the quality of service (QoS) of the network interface. Higher values indicate faster data transfers and better performance.</p> <p>Note: This will also provide information on logical interfaces like VLANs and port groups.</p>
Interface\ Error Rate[port]	<p>Error Rate is the percentage of error occurrences on the interface when receiving network data during that sampling period.</p> <p>Note that transmit errors are not accounted because an interface never knowingly places frames with errors on the network.</p> <p>This is indicative of network problems. When errors occur, typically attempts would be made to retransmit the data potentially causing more errors.</p> <p>Sustained values above 10% are indicative of faulty network cabling, or a suspicious Ethernet controller, or port.</p> <p>Note: This will also provide information on logical interfaces like VLANs and port groups.</p>
Ports\ Dropped Frames[port]	<p>Dropped frames indicates the rate at which error-free frames on the port were dropped (not relayed to the destination).</p> <p>Typically this value should be zero. A non-zero value may indicate an over-utilized switch. When the port drops frames, network clients will attempt to retransmit causing in turn more network traffic and possibly dropped frames. If the port consistently drops frames, the network traffic through that port will experience delays.</p>

## Troubleshooting the HP ProCurve Switch with NetCentral

NetCentral reports status, warnings, and alarms using messages that are easy to understand. Suggested corrective actions are presented along with failure information. If you have any trouble interpreting any of the problems or suggested solutions, contact Grass Valley Support.

### For more information

For more information about NetCentral, how it works, and how to configure and use its features, refer to the *NetCentral User Guide*. You can find an online Help version of this manual on the NetCentral Help menu.