grass valley

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Monitoring the QLogic SANbox Fibre Channel Switch with NetCentral

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Before you begin monitoring

Before you can monitor a QLogic SANbox Fibre Channel Switch, you must prepare the QLogic SANbox Fibre Channel Switch and the NetCentral system. The required tasks and the documents in which you can find instructions are listed in the following table:

Do this...	Using the following documentation:
Install the QLogic SANbox Fibre Channel Switch	*SANbox Fibre Channel Switch Installation Guide*
Assign an IP address to the QLogic SANbox Fibre Channel Switch	*Grass Valley Fibre Channel Switch Installation Manual*
Set up the NetCentral system	*NetCentral User Guide* and *NetCentral Release Notes*
Install the QLogic SANbox Fibre Channel Switch device provider	
License the QLogic SANbox Fibre Channel Switch device provider	*NetCentral Release Notes*

Configuring the QLogic SANbox Switch for NetCentral monitoring

The following section describes how to configure your switch for operation with NetCentral.

SNMP configuration

The QLogic SANbox Switch has a SNMP agent, which is a standard software item on all QLogic SANbox Switches. SNMP includes a mechanism to report events as soon as they occur, rather than waiting until a device is polled to obtain its status. This type of notification is called a trap, and can be sent to one or several SNMP managers. When you monitor with NetCentral you want traps sent to the NetCentral manager software component, so you set the trap destination to the IP address of the NetCentral server PC.

NOTE: You can also perform the SNMP configuration using the SANsurfer switch management application via the Ethernet network.

To configure the destination for trap notifications, follow these steps:

1. Use Telnet over the Ethernet LAN or a serial communication application such as Hyperterminal through an RS-232 connection to enter access the Command Line Interface.
2. Log in to the switch with administrator permissions. The default administrator account is username *admin* and password *password*, all in lowercase characters.
3. Type the following command to enter the administrator mode, which allows you to modify settings:

```
SANbox #> admin start
```

4. Type the following command to configure the SNMP settings:

```
SANbox (admin) #> set setup snmp
```

5. Enter the IP address for the NetCentral server PC as Trap1Address. You can also enter other SNMP monitoring stations in turn (Trap2Address, Trap3Address, etc.). Be sure to enable traps for each monitoring station (Trap1Enabled set to True). The following example shows a configuration with traps sent to a NetCentral server PC with IP address 10.16.43.18:

```
A list of attributes with formatting and current values will follow.
Enter a new value or simply press the ENTER key to accept the current value.
If you wish to terminate this process before reaching the end of the list
press 'q' or 'Q' and the ENTER key to do so.

Trap Severity Options
---------------------
unknown, emergency, alert, critical, error, warning, notify, info, debug, mark

 SnmpEnabled       (True / False)                  [True]
 Contact           (string, max=64 chars)          [ContactName]
 Location          (string, max=64 chars)          [LocationName
 Trap1Address      (dot-notated IP Address)        [10.16.43.18]
 Trap1Port         (decimal value, 1-65535)        [162]
 Trap1Severity     (see allowed options above)     [warning]
 Trap1Version      (1 / 2)                         [2]
 Trap1Enabled      (True / False)                  [True]
 Trap2Addres       (dot-notated IP Address)        [0.0.0.50]
 Trap2Port         (decimal value, 1-65535)        [162]
 Trap2Severity     (see allowed options above)     [warning]
 Trap2Version      (1 / 2)                         [2]
 Trap2Enabled      (True / False)                  [False]
 Trap3Address      (dot-notated IP Address)        [0.0.0.0]
 Trap3Port         (decimal value, 1-65535)        [162]
 Trap3Severity     (see allowed options above)     [warning]
 Trap3Version      (1 / 2)                         [2]
 Trap3Enabled      (True / False)                  [False]
 Trap4Address      (dot-notated IP Address)        [0.0.0.0]
 Trap4Port         (decimal value, 1-65535)        [162]
 Trap4Severity     (see allowed options above)     [warning]
 Trap4Version      (1 / 2)                         [2]
 Trap4Enabled      (True / False)                  [False]
 Trap5Address      (dot-notated IP Address)        [0.0.0.0]
 Trap5Port         (decimal value, 1-65535)        [162]
 Trap5Severity     (see allowed options above)     [warning]
 Trap5Version      (1 / 2)                         [2]
 Trap5Enabled      (True / False)                  [False]
```

```
ReadCommunity      (string, max=32 chars)           [public]
WriteCommunity     (string, max=32 chars)           [public]
TrapCommunity      (string, max=32 chars)           [public]
AuthFailureTrap    (True / False)                   [True]
ProxyEnabled       (True / False)                   [True]

Do you want to save and activate this snmp setup? (y/n): [n] y
```

In this list of attributes you can optionally enter Contact and Location strings that are meaningful to NetCentral users at your site. If your site uses an SNMP community name other than “public”, you can also set the community name.

Your NetCentral server PC should now receive all traps from your QLogic SANbox Switch. You can test this by creating a fault condition, such as disconnecting one of your Fibre Channel connections to the QLogic SANbox Switch. A message should appear in the NetCentral manager.

Using NetCentral to monitor the QLogic SANbox Switch

This section describes features of the NetCentral IV product (NetCentral version 4.1 and higher) that are specific to monitoring a QLogic SANbox Fibre Channel Switch. These features are added to the NetCentral Manager interface only when the QLogic SANbox Fibre Channel Switch device provider is installed and so do not apply to monitoring other types of devices.

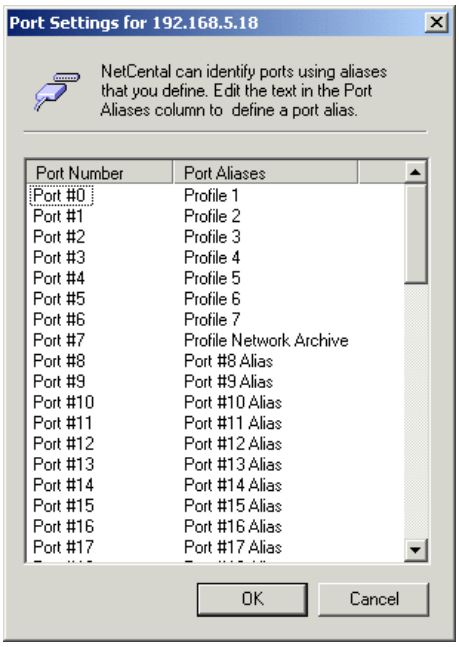
To understand NetCentral features that apply to monitoring all types of devices, including the QLogic SANbox Fibre Channel Switch, refer to the *NetCentral User Guide*.

Setting port aliases

You can configure NetCentral to set the reporting name of each port on your QLogic SANbox Switch to something meaningful to you. When NetCentral reports the status of a port, or notifies you of a problem, you may find it convenient to see a name that you chose

To set port aliases:

1. Select the switch you want to configure in the NetCentral tree view.
2. Right-click the switch and select **Port Settings**. The Port Settings dialog box opens.



3. Select the Port Alias for a port. When selected, a text entry box opens. Enter the desired alias.
4. Repeat the previous step for each port requiring an alias.
5. Click **OK** to set the aliases.

Monitoring Status

You can use NetCentral to monitor the status of your QLogic SANbox Switch. NetCentral displays information about the switch's power supplies, temperature, and fans. Click on the appropriate subsystem node in the NetCentral tree view to monitor its status. Consult the *NetCentral User Guide* for more information on using NetCentral.

NetCentral also lets you monitor the status of each of the ports on your QLogic SANbox Switch. Click the **Ports** node to view information such as the state and transmitter type of each port.

Number	Name	Hardware State	Operational State	Transmitter Type	Speed
0	Port0	active	online	shortwaveNoOFC	212500 kB/sec
1	Port1	active	online	shortwaveNoOFC	212500 kB/sec
2	Port2	active	online	shortwaveNoOFC	212500 kB/sec
3	Port3	active	online	copper	106250 kB/sec
4	Port4	linkDown	offline	shortwaveNoOFC	212500 kB/sec
5	Port5	active	online	shortwaveNoOFC	212500 kB/sec
6	Port6	active	online	shortwaveNoOFC	212500 kB/sec
7	Port7	active	online	shortwaveNoOFC	212500 kB/sec
8	Port8	active	online	shortwaveNoOFC	212500 kB/sec
9	Port9	active	online	shortwaveNoOFC	212500 kB/sec
10	Port10	active	online	shortwaveNoOFC	212500 kB/sec
11	Port11	active	online	shortwaveNoOFC	212500 kB/sec
12	Port12	active	online	shortwaveNoOFC	212500 kB/sec
13	Port13	active	online	shortwaveNoOFC	212500 kB/sec
14	Port14	active	online	shortwaveNoOFC	212500 kB/sec
15	Port15	active	online	shortwaveNoOFC	212500 kB/sec
16	10G-16	active	online	unknown	1062500 kB/sec
17	10G-17	noMedia	offline	unused	1062500 kB/sec
18	10G-18	active	online	unknown	1062500 kB/sec
19	10G-19	noMedia	offline	unused	1062500 kB/sec

You can also view configuration events. Select the **Events** subsystem node to see a summary of the configuration events on the switch.

Monitoring Trends

Click the NetCentral **Trends** view control button to view graphs of status parameters. The following table specifies the parameters reported in the Trends view:

Parameter Name	Comments	Unit
System\Up Time	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. 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. 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.	Minutes
System\Processor Usage	Processor Usage is the average percentage of elapsed time that the processor spends executing non-idle instructions during that sampling period and is an indicator of switch management activity. Sustained value over 80% (5 minutes or more) indicates an excessively busy system and may result in the system appearing unresponsive to management applications. Upper Threshold: 80	%
System\Memory Usage	Memory usage is the percentage of total physical memory used by the system during that sampling period to support switch management operations. Sustained increase in this value could indicate a memory leak in one or more running programs, or high system loading and might eventually lead to system failure due to unavailability of more memory. Upper Threshold: 90	%
Ports\Throughput [module-port]	Throughput is the rate at which data is transmitted or received at a switch port in Mega Bits per second during that sampling period. This is an indicator of the port usage	Mega Bits Per Second (Mbps)
Ports\Link Failures [module-port]	Link failures indicate the number of times the Fibre Channel connectivity with the port was “broken” during that sampling interval when the port observes errors for a sustained time interval and was online. This is likely an indicator for a faulty connector or cable. These are also caused when the device connected to the port is restarted, replaced or being serviced when the Fibre Channel cable connected to the port is temporarily disconnected. The error recovery for this type of error is disruptive and will be noticed by the device connected to the port. Each such error will cause the system to run degraded until the link recovery is complete.	Errors

Parameter Name	Comments	Unit
Ports\Sync Losses [module-port]	Sync Losses indicates the number of times the port went into the “loss of synchronization” state where it encountered continuous Disparity errors during that sampling interval. This is likely an indicator for a faulty connector or cable. These are also caused when the device connected to the port is restarted, replaced or being serviced when the Fibre Channel cable connected to the port is temporarily disconnected. If the port is in the “loss of synchronization” state for longer than a specific period, the port will get into the link failure state which could degrade the performance of the Fibre Channel link.	Errors
Ports\Signal Losses [module-port]	Signal losses is the number times the port detected a loss of the electrical or optical signal used to transfer data on the port during that sampling period. This is likely an indicator for a faulty connector or cable. These are also caused when the device connected to the port is replaced or being serviced when the Fibre Channel cable connected to the port is temporarily disconnected. If the port is in the “loss of signal” state for longer than a specific period, the port will get into the link failure state which could degrade the performance of the Fibre Channel link.	Errors
Ports\CRC Errors [module-port]	CRC Errors is the number of Fibre Channel frames handled by the port that containing checksum errors during that sampling period. Typically the error is recovered by retransmitting the frame and the error will go unnoticed by the device connected to the port. These are usually recoverable errors and will not degrade system performance unless their occurrence is sustained when the data cannot be relayed after retransmissions.	Errors

Troubleshooting 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.