

# Fibre Channel Switch

Installation Manual

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JULY 2005

*the most watched worldwide*

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# Contents

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<b>Welcome</b> .....	7
Support for your Fibre Channel switch .....	7
Profile System Software Requirements .....	7
Configuring your Fibre Channel switch .....	7
Enter administrator mode .....	8
Configure Ethernet LAN settings .....	8
Verify firmware version .....	9
Port and switch configuration .....	10
Combining with the QLogic SANbox2 switch .....	13
Connecting devices to the switch .....	13
Cable lengths .....	13
Fabric topology .....	13
Compatible Fibre Channel Devices .....	13
Monitoring your switch with NetCentral .....	14
Maintenance procedures .....	14
Resetting the switch to factory defaults .....	14
Resetting the switch manually .....	15



# Grass Valley Product Support

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To get technical assistance, check on the status of problems, or report new problems, contact Grass Valley Product Support via e-mail, the Web, phone, or fax.

## Web Technical Support

To access support information on the Web, visit the product support Web page on the Grass Valley Web site. You can download software or find solutions to problems by searching our Frequently Asked Questions (FAQ) database.

**World Wide Web:** <http://www.thomsongrassvalley.com/support/>

**Technical Support E-mail Address:** [gvtechsupport@thomson.net](mailto:gvtechsupport@thomson.net)

## Phone Support

Use the following information to contact product support by phone during business hours. Afterhours phone support is available for warranty and contract customers.

United States	(800) 547-8949 (Toll Free)	France	+33 (1) 34 20 77 77
Latin America	(800) 547-8949 (Toll Free)	Germany	+49 6155 870 606
Eastern Europe	+49 6155 870 606	Greece	+33 (1) 34 20 77 77
Southern Europe	+33 (1) 34 20 77 77	Hong Kong	+852 2531 3058
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Australia	+61 3 9721 3737	Netherlands	+31 35 6238421
Belgium	+32 2 3349031	Poland	+49 6155 870 606
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Canada	(800) 547-8949 (Toll Free)	Singapore	+656379 1390
China	+86 106615 9450	Spain	+ 34 91 512 03 50
Denmark	+45 45968800	Sweden	+46 87680705
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## Authorized Support Representative

A local authorized support representative may be available in your country. To locate the support representative for your country, visit the product support Web page on the Grass Valley Web site.

## Profile Users Group

You can connect with other Profile XP Media Platform users to ask questions or share advice, tips, and hints. Send e-mail to [profile-users@thomson.net](mailto:profile-users@thomson.net) to join the community and benefit from the experience of others.



# Welcome

---

You can use your 8, 16, or 20 port QLogic 5202 SANbox Fibre Channel switch to create SCSI protocol fabrics for Grass Valley products. The QLogic 5202 SANbox Fibre Channel switch does not support Internet Protocol (IP) fabrics.

The 8 and 16 port switches have 2Gb/1Gb auto-detecting ports. The 20 port switch includes four 10 Gb ports, which are for Inter-Switch Links (ISLs).

This manual supplements the information provided by the QLogic 5202 SANbox Switch manuals that you received with your switch. Please refer to the following QLogic manuals when installing and configuring your QLogic 5202 SANbox Switch.

- *SANbox 5200 Series Fibre Channel Switch Installation Guide* - This is your primary reference on the installation and initial setup of your specific model of QLogic switch. It also provides maintenance and repair information.
- *SANbox 5200 Series Switch Management User's Guide* - This manual describes the switch management software application that allows you to monitor and administer your QLogic 5202 SANbox Switch.

You can find these manuals on the CD that you receive with the Fibre Channel switch.

## Support for your Fibre Channel switch

Your QLogic 5202 SANbox Switch is sold, supported, and serviced by Grass Valley.

If you have any questions about your QLogic 5202 SANbox Switch, or if you need any help or service for the switch, please contact your local Grass Valley Support representative listed at the front of this manual

**NOTE:** Do not contact QLogic directly for support of your QLogic 5202 SANbox Switch.

## Profile System Software Requirements

Profile System Software version 5.2 or higher is required for operation with a QLogic 5202 SANbox Switch. Earlier versions do not support this Fibre Channel switch. Refer to the Profile Release Notes for instructions on how to install your Profile System Software, as well as information on the new features that are included in the release.

## Configuring your Fibre Channel switch

Your QLogic 5202 SANbox Switch must be configured so that you can control and monitor it in your LAN environment. As you make these settings, you should also verify that all the other switch and port settings are appropriate for operation in a Grass Valley SCSI protocol Fibre Channel fabric. The following instructions describe how to verify and assign these settings using a serial port connection. The same commands can also be used in a Telnet session over the Ethernet port.

**NOTE:** You can use the SANsurfer Management software application described in the *SANbox 5200 Series Switch Management User's Guide* to establish Ethernet LAN, SNMP, and basic switch and port settings.

## Enter administrator mode

You must be in administrator mode to make changes to your QLogic 5202 SANbox Switch settings. To enter this mode:

1. Establish serial connection to the QLogic 5202 SANbox Switch using a null-modem cable and Windows HyperTerminal or an equivalent serial communication tool.

To log on to a switch through the serial port, configure the workstation port with the following settings:

- 9600 baud
- 8-bit character
- 1 stop bit
- No parity

Refer to the *SANbox 5200 Series Fibre Channel Switch Installation Guide* for connection information.

2. In the serial communication window, press Enter to establish communications, then log in to the switch with 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
```

## Configure Ethernet LAN settings

You must assign an Ethernet IP address, a subnet mask, and a default gateway to configure your QLogic 5202 SANbox Switch for operation in your Ethernet local area network.

1. In administrator mode, type the following command at the prompt:  

```
SANbox (admin) #> set setup system
```
2. As you step through each of the following configuration items, assign your local settings as needed, or press Enter to accept the defaults.

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.

Eth0NetworkDiscovery	(1=Static, 2=Bootp, 3=Dhcp, 4=Rarp)	[Static]
Eth0NetworkAddress	(dot-notated IP Address)	[10.16.42.117]
Eth0NetworkMask	(dot-notated IP Address)	[255.255.254.0]
Eth0GatewayAddress	(dot-notated IP Address)	[10.16.42.1]
AdminTimeout	(dec value 0-1440 minutes, 0=never)	[30]
InactivityTimeout	(dec value 0-1440 minutes, 0=never)	[0]
LocalLogEnabled	(True / False)	[True]
RemoteLogEnabled	(True / False)	[False]



RemoteLogHostAddress	(dot-notated IP Address)	[10.0.0.254]
NTPClientEnabled	(True / False)	[False]
NTPServerAddress	(dot-notated IP Address)	[10.0.0.254]
EmbeddedGUIEnabled	(True / False)	[True]

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

## Verify firmware version

You can use the *show switch* command to view switch information and confirm that the active firmware version is correct. The minimum qualified image is:

- 5.0.0.17.0 or higher

Contact your Grass Valley representative to determine the current required version.

To view the current version information, do the following:

1. In administrator mode type the following command at the prompt:

```
SANbox (admin) #> show switch
```

2. View the switch information, an example of which is shown here. Note that the *ActiveImageVersion - build date* specifies the active firmware image version and build date.

### Switch Information

```
-----
SymbolicName                SANbox
SwitchWWN                   10:00:00:c0:dd:07:13:79
SwitchType                   SANbox 5202
BootVersion                  V1.2.0.16.0 (Mon Sep 13 15:35:12 2004)
CreditPool                  0
DomainID                    2 (0x2)
FirstPortAddress             020000
FlashSize - MBytes          128
LogFilterLevel               Info
MaxPorts                     20
NumberOfResets               6
ReasonForLastReset           PowerUp
ActiveImageVersion - build date V5.0.0.17.0 (Thu Mar 10 16:11:44 2005)
PendingImageVersion - build date V5.0.0.17.0 (Thu Mar 10 16:11:44 2005)
ActiveConfiguration          SANbox
AdminState                   Online
AdminModeActive              True
BeaconOnStatus               False
OperationalState             Online
PrincipalSwitchRole          False
BoardTemp (1) - Degrees Celsius 23
SwitchDiagnosticsStatus      Passed
SwitchTemperatureStatus      Normal
```

3. If the correct firmware version is not loaded, refer to the *SANbox 5200 Series Fibre Channel Switch Installation Guide* for information on how to install firmware.

## Port and switch configuration

You must ensure that all the Fibre Channel ports are correctly configured for operation with Grass Valley equipment. With these settings, you can use any port in a SCSI fabric without any further configuration.

1. In administrator mode, type the following command at the prompt to enter the configuration mode:

```
SANbox (admin) #> config edit
```

2. In configuration mode, type the following command at the prompt to view the configuration of 2 Gb ports on the switch:

```
SANbox (admin-config) #> set config ports
```

3. Modify the settings as needed. The following example shows the required settings.

A list of attributes with formatting and current values for the port number or port type specified at the command line will follow. Each value that is changed will be set for all ports, except ports 16-19. Ports 16-19 must be modified with the 'set config port PORT\_NO' command. Each value that is changed will be set for ALL PORTS. 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.

Configuring ALL ports (displaying values from port number: 0)

```
-----

AdminState      (1=Online, 2=Offline, 3=Diagnostics, 4=Down)    [Online]
LinkSpeed       (1=1Gb/s, 2=2Gb/s, A=Auto)                      [Auto]
PortType        (GL / G / F / FL / Donor)                       [GL]
ALFairness      (True / False)                                  [False]
DeviceScanEnable (True / False)                                  [True]
ForceOfflineRSCN (True / False)                                  [False]
ARB_FF          (True / False)                                  [False]
InteropCredit   (decimal value, 0-255)                          [0]
ExtCredit       (dec value, increments of 15, non-loop only) [0]
FANEnable       (True / False)                   [True]
AutoPerfTuning  (True / False)                   [True]
MSEnable        (True / False)                   [True]
NoClose         (True / False)                   [False]
IOStreamGuard   (Enable / Disable / Auto)         [Disabled]
PDISCPingEnable (True / False)                   [True]
```

Finished configuring attributes.

This configuration must be saved (see config save command) and activated (see config activate command) before it can take effect. To discard this configuration use the config cancel command.

4. If you are configuring a switch with 16 or fewer ports, skip ahead to step 8.
5. If you are configuring a 20 port switch, in configuration mode, type the following command at the prompt to view the configuration of port 16 (a 10 Gb port) on the switch.

```
SANbox (admin-config) #> set config port 16
```

6. Modify the settings as needed. The following example shows the required settings.

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.

Configuring Port Number: 16

-----

AdminState	(1=Online, 2=Offline, 3=Diagnostics, 4=Down)	[Online]
LinkSpeed	(10=10Gb/s)	[10Gb/s]
PortType	(G / F)	[G]
SymPortName	(string, max=32 chars)	[10G-16]
DeviceScanEnable	(True / False)	[True]
ForceOfflineRSCN	(True / False)	[False]
AutoPerfTuning	(True / False)	[True]
MSEnable	(True / False)	[True]
<b>IOStreamGuard</b>	<b>(Enable / Disable / Auto)</b>	<b>[Disabled]</b>

Finished configuring attributes.

This configuration must be saved (see config save command) and activated (see config activate command) before it can take effect.  
To discard this configuration use the config cancel command.

7. If you are configuring a 20 port switch, repeat step 4 and step 6 for port 17, 18, and 19.
8. In configuration mode, type the following command at the prompt to configure global switch settings:

```
SANbox (admin-config) #> set config switch
```

9. Modify the settings as needed. The following example shows the required settings.

**NOTE:** Each QLogic 5202 SANbox Switch must have a unique DomainID for the local fabric. You should specify these values individually for each switch and not allow the switches to select their own DomainID values. Setting DomainIDLock to True prevents the switch from changing the DomainID when a new switch is added to fabric.

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.

AdminState	(1=Online, 2=Offline, 3=Diagnostics)	[Online]
BroadcastEnabled	(True / False)	[True]
InbandEnabled	(True / False)	[True]
FdmiEnabled	(True / False)	[True]
FdmiEntries	(decimal value, 0-1000)	[1000]
DefaultDomainID	(decimal value, 1-239)	[2]
DomainIDLock	(True / False)	[True]
SymbolicName	(string, max=32 chars)	[SANbox]
R_A_TOV	(decimal value, 100-100000 msec)	[2000]
E_D_TOV	(decimal value, 10-20000 msec)	[1000]
PrincipalPriority	(decimal value, 1-255)	[254]
ConfigDescription	(string, max=64 chars)	[FC-SCSI Config]
InteropMode	(0=Standard, 1=Interop_1)	[Standard]

Finished configuring attributes.

This configuration must be saved (see config save command) and activated (see config activate command) before it can take effect. To discard this configuration use the config cancel command.

10.Type the following command to save your configuration:

```
SANbox (admin-config) #> config save
```

11.Type the following command to activate your configuration:

```
SANbox (admin-config) #> config activate
```

12. Confirm activation of the configuration when prompted.

13.Type the following commands to view the threshold advanced settings:

```
sb2_16port #> admin start
```

```
sb2_16port (admin) #> config edit
```

```
sb2_16port (admin-config) #> set config threshold
```

14. Verify that the ThesholdMonitoringEnabled setting is True, or modify it if needed.

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.

<b>ThresholdMonitoringEnabled</b>	<b>(True / False)</b>	<b>[True]</b>
-----------------------------------	-----------------------	---------------

q

Finished configuring attributes.

This configuration must be saved (see config save command) and activated (see config activate command) before it can take effect. To discard this configuration use the config cancel command.

15. Save and activate the configuration with the following commands:

```
sb2_16port (admin-config) #> config save
sb2_16port (admin) #> config activate
```

16. Confirm activation of the configuration when prompted.

You must make various SNMP settings so that you can monitor your switch with NetCentral. Refer to [“Monitoring your switch with NetCentral” on page 14](#). The NetCentral **Help** menu has device provider documentation specific to the QLogic 5202 SANbox Switch. This documentation provides SNMP configuration information.

If you are installing your QLogic 5202 SANbox Switch in a Grass Valley Open SAN, refer to the *Open SAN Instruction Manual*.

## Combining with the QLogic SANbox2 switch

If you have the previous version of the Grass Valley Fibre Channel Switch, the QLogic SanBox2, you can combine it with the QLogic 5202 SANbox Switch to expand your SCSI protocol Fibre Channel fabric. To do this, the QLogic SanBox2 Fibre Channel switch must be upgraded to firmware version 5 or higher. Refer to the *SANbox2 Fibre Channel Switch Installer's/User's Manual* for firmware installation instructions.

## Connecting devices to the switch

Follow the instructions in the *SANbox 5200 Series Fibre Channel Switch Installation Guide* to connect your devices to the Fibre Channel switch. You should also take note of the following guidelines when setting up your fabric environment:

### Cable lengths

Use the appropriate cable types and Small Form-factor Pluggable Transceivers (SFPs) for the length of your Fibre Channel connections. In general, distances under 5 meters can be connected with copper cables. Distances from 5 to 500 meters require the use of fiber-optic cable.

### Fabric topology

Your choices in switch interconnections can greatly affect the cost, redundancy, and throughput of your Fibre Channel fabric. Refer to the *SANbox 5200 Series Fibre Channel Switch Installation Guide* for detailed information on fabric topology.

**NOTE:** You must not connect a Fibre Channel Arbitrated Loop to a Fibre Channel Switch port. Grass Valley does not support loops in a fabric environment.

## Compatible Fibre Channel Devices

The QLogic 5202 SANbox Switch has been qualified for operation with the following devices:

- Profile XP Media Platform (Open SAN)
- PFC500 RAID storage

- PFR 500/600/700 RAID storage
- NewsEdit Digital News Production system

The QLogic 5202 SANbox Switch has not been qualified for operation with the following devices. Do not connect them to a QLogic 5202 SANbox Switch.

- Profile PDR Video Server (IP Video Network)
- Brocade Fibre Channel Switch
- Profile PDR 100 Professional Disk Recorder

## Monitoring your switch with NetCentral

You can use NetCentral, a Grass Valley SNMP Manager, to monitor the state of your Fibre Channel switch. The information presented in NetCentral allows you to verify the normal operation of your switch. NetCentral can also alert you immediately when problems occur.

Before you can monitor a QLogic 5202 SANbox Switch, you must prepare the NetCentral system. Refer to the *NetCentral User Guide* and the *NetCentral Release Notes* to do the following:

- Set up the NetCentral system.
- Install the SANbox Fibre Channel Switch device provider on the NetCentral server PC. The device provider is a NetCentral component that acts as a plug-in to the NetCentral manager software. The device provider enables the QLogic 5202 SANbox Switch to be monitored by NetCentral.

Once you have the device provider installed on the NetCentral system, refer to the NetCentral **Help** menu for device provider documentation specific to the QLogic 5202 SANbox Switch. This documentation guides you through the remaining set up and configuration tasks and provides instructions for using NetCentral to monitor the QLogic 5202 SANbox Switch.

## Maintenance procedures

You may wish to use the following procedures to recover from faulty configurations or other problems. Since these procedures stop all traffic on all Fibre Channel ports, be sure to take the switch out of service before performing any of these tasks.

### Resetting the switch to factory defaults

Resetting factory defaults returns your QLogic 5202 SANbox Switch to its original configuration, although it does not reset the password. After resetting factory defaults, you must restore all the Grass Valley settings and site-specific network settings described earlier in this manual.

To reset the QLogic 5202 SANbox Switch to factory defaults:

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.

To log on to a switch through the serial port, configure the workstation port with

the following settings:

- 9600 baud
- 8-bit character
- 1 stop bit
- No parity

Refer to the *SANbox 5200 Series Fibre Channel Switch Installation Guide* for connection information.

2. Log in to the switch with 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 restore the factory defaults:  

```
SANbox #> reset factory
```
5. Reconfigure the switch for your environment by following all the procedures described in [“Configuring your Fibre Channel switch” on page 7](#).

## Resetting the switch manually

In some situations, you may be unable to use the *reset factory* command to restore factory defaults. For example, if you don't remember the admin password, you cannot enter administrator mode to use the *reset factory* command. You can recover the switch using maintenance mode, which temporarily returns the switch IP address to 10.0.0.1.

To recover a switch, do the following:

1. Place the switch in maintenance mode. Press and hold the Maintenance button with a pointed tool for 2–7 seconds. When the Heartbeat LED alone is illuminated, release the button.
2. Allow one minute for the switch to complete its tests. When the switch is in maintenance mode, the Heartbeat LED illuminates continuously. All other chassis LEDs are extinguished.
3. Establish a Telnet session with the switch using the maintenance mode IP address 10.0.0.1.
4. Enter the maintenance mode account name and password (prom, prom), and press the Enter key.  

```
Switch login: prom
Password:xxxx
```
5. The maintenance menu displays several recovery options. To select a switch recovery option, press the corresponding number (displayed in option: field) on the keyboard and press the Enter key.  

```
0) Exit
1) Image Unpack
```

- 2) Reset Network Config
- 3) Reset User Accounts to Default
- 4) Copy Log Files
- 5) Remove Switch Config
- 6) Remake Filesystem
- 7) Reset Switch
- 8) Update Boot Loader

Option:

- 6. Refer to the “Recovering a switch” section of the *SANbox2 Fibre Channel Switch Installer’s/User’s Manual* for detailed explanations of the various choices. For example, you might use item 2 to reset the switch’s network properties to the factory default values, or item 3 restore the admin password to password (password). Choose item 7 to reboot the switch with the new parameters.
- 7. Use option 7 to close the communication session, exit Force PROM mode, and reboot the switch with the new configuration.