

QLogic 4 Gb Intelligent Pass-thru Module for IBM BladeCenter

Command Line Interface Guide

Firmware Version 6.5

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Section 1

Introduction

This guide describes the features and use of the command line interface for the QLogic 4 Gb Intelligent Pass-thru Module for IBM BladeCenterrunning firmware version 6.5. This product is referred to as the Pass-thru Module or I/O module throughout this guide. The Pass-thru Module is a 20-port Fibre Channel I/O module with six external ports and 14 internal ports. The Pass-thru Module concentrates multiple blade servers into the external ports. The external ports connect to Fibre Channel switches that support N-Port ID Virtualization (NPIV). The internal ports connect directly to server blades through the BladeCenter unit. The Pass-thru Module presents one or more server blades per port to the fabric. The module expands the fabric because, unlike a Fibre Channel switch, it does not count against the fabric domain ID limit.

This guide is organized as follows:

- [Section 1](#) describes the I/O module and features, the intended audience, related materials, and technical support.
- [Section 2](#) describes logging on and off of an I/O module, opening and closing an Admin session, entering commands, getting help, paging an I/O module, setting page breaks, and loading and retrieving files.
- [Section 3](#) describes the management of user accounts and passwords.
- [Section 4](#) describes configuring the I/O module network connection.
- [Section 5](#) describes managing the I/O module configuration, setting the date and time, backing up and restoring the switch configuration, resetting the I/O module, installing firmware, and installing feature licenses.
- [Section 6](#) describes port configurations, resetting a port, initializing a port loop, configuring port threshold alarms, and testing ports.
- [Section 7](#) describes managing connection security.
- [Section 9](#) describes events and event logging.
- [Section 10](#) describes managing the Simple Network Management Protocol (SNMP) configuration.
- [Section 11](#) lists the commands in alphabetical order, including the command syntax, keywords, notes, and examples.

An index is also provided.

1.1

Intended Audience

This guide is intended for individuals who are responsible for installing and servicing Fibre Channel equipment using the command line interface.

1.2 Related Materials

The following manuals and materials are referenced in the text and/or provide additional information.

- *QLogic 4 Gb Intelligent Pass-thru Module and SAN Switch Module Installation Guide, IBM part number 43W7814*
- *QLogic 4 Gb Intelligent Pass-thru Module for IBM BladeCenter QuickTools TE Switch Management Guide, 59240-00*
- *QLogic 4 Gb Intelligent Pass-thru Module and SAN Switch Module for IBM BladeCenter Enterprise Fabric Suite 2007 User Guide, 59242-00*
- *QLogic 10/20-Port 4 Gb SAN Switch Module for IBM BladeCenter QuickTools Switch Management Guide, 59241-00*
- *QLogic 10/20-Port 4 Gb SAN Switch Module for IBM BladeCenter Command Line Interface Guide, 59243-00*
- *QLogic Fibre Channel Switch Event Message Guide, 59060-03*
- Fibre Channel-Arbitrated Loop (FC-AL-2) Rev. 7.0.
- Fibre Channel-10-bit Interface Rev. 2.3.
- Definitions of Managed Objects for the Fabric Element in Fibre Channel Standard (draft-ietf-ipfc-fabric-element-mib-04.txt).

The Fibre Channel Standards are available from:

Global Engineering Documents, 15 Inverness Way East, Englewood, CO
80112-5776 Phone: (800) 854-7179 or (303) 397-7956
Fax: (303) 397-2740.

1.3 Technical Support

Customers should contact their authorized maintenance provider for technical support of their QLogic switch products. QLogic-direct customers may contact QLogic Technical Support; others will be redirected to their authorized maintenance provider.

Visit the QLogic support Web site listed in [Contact Information](#) for the latest firmware and software updates.

1.3.1 Availability

QLogic Technical Support for products under warranty is available during local standard working hours excluding QLogic Observed Holidays.

1.3.2 Training

QLogic offers certification training for the technical professional for both the SANblade™ HBAs and the QLogic 4 Gb switches. From the training link at www.qlogic.com, you may choose Electronic-Based Training or schedule an intensive "hands-on" Certification course.

Technical Certification courses include installation, maintenance and troubleshooting QLogic SAN products. Upon demonstrating knowledge using live equipment, QLogic awards a certificate identifying the student as a Certified Professional. The training professionals at QLogic may be reached by email at tech.training@qlogic.com.

1.3.3

Contact Information

Support Headquarters

QLogic Corporation
12984 Valley View Road
Eden Prairie, MN 55344-3657
USA

QLogic Web Site

www.qlogic.com

Technical Support Web Site

support.qlogic.com

Technical Support Email

support@qlogic.com

Technical Training Email

tech.training@qlogic.com

North American Region

Email

support@qlogic.com

Phone

+1-952-932-4040

Fax

+1 952-974-4910

Europe, Middle East, and Africa Region

Email

emeasupport@qlogic.com

Phone Numbers by Language

+353 1 6924960 - English
+353 1 6924961 - Français
+353 1 6924962 - Deutsch
+353 1 6924963 - Español
+353 1 6924964 - Português
+353 1 6924965 - Italiano

Asia Pacific Region

Email

apacsupport@qlogic.com

Phone Numbers by Language

+63-2-885-6712 - English
+63-2-885-6713 - (Mandarin)
+63-2-885-6714 - (Japanese)
+63-2-885-6715 - (Korean)

Latin and South America Region

Email

calasupport@qlogic.com

Phone Numbers by Language

+52 55 5278 7016 - English
+52 55 5278 7017 - Español
+52 55 5278 7015 - Português

Section 2

Command Line Interface Usage

Your Pass-thru Module contains an embedded Telnet server. This server enables a Telnet client to establish a Telnet session with the I/O module to retrieve information or to configure parameters using the CLI. You can use the CLI to perform a variety of fabric and I/O module management tasks through an Ethernet connection to your server unit. You can access the Telnet interface in two ways:

- Using your server management interface
- From a command-line window on a connected network management workstation

NOTE: Before you configure your I/O module, be sure that the management modules in your server unit are properly configured. In addition, to accessing and managing your I/O module from an external environment, you might need to enable certain features, such as the external ports and external management over all ports. For more detailed information about configuring your management module, see your server Installation Guide.

This section describes the following tasks:

- [Logging In to the I/O Module](#)
- [Opening and Closing an Admin Session](#)
- [Entering Commands](#)
- [Getting Help](#)
- [Setting Page Breaks](#)
- [Creating a Support File](#)
- [Downloading and Uploading Files](#)

NOTE: Throughout this document, references in text to commands and keywords use initial capitalization for clarity. Actual command and keyword entries are case insensitive.

2.1 Logging In to the I/O Module

To log in to a I/O module through Telnet, complete the following steps:

NOTE: The IP addresses in the following step are the default IP address of the I/O modules; if new IP addresses have been assigned to the I/O modules, use these instead.

1. Open a command-line window on the network management workstation and log in by entering the Telnet command with the IP address for the corresponding bay:
 - For I/O module bay 3: `telnet 192.168.70.129`
 - For I/O module bay 4: `telnet 192.168.70.130`Multi-Switch Interconnect Modules also support bays 7, 8, 9, and 10:
 - For I/O module bay 7: `telnet 192.168.70.133`
 - For I/O module bay 8: `telnet 192.168.70.134`
 - For I/O module bay 9: `telnet 192.168.70.135`
 - For I/O module bay 10: `telnet 192.168.70.136`
2. At the Login prompt, type the initial default user account, `USERID`. At the Password prompt, type the initial default password, `PASSWORD` (the sixth character is a zero, not the letter O). The user account and password are case sensitive.

This user account provides full access to the I/O module and its configuration. After planning your fabric management needs and creating your own user accounts, consider changing the password for this account. Refer to [“Access Authority” on page 11-1](#) for more information about authority levels. See the [“User” on page 11-108](#) for information about creating user accounts.

An I/O module supports a combined maximum of 19 logins or sessions reserved as follows:

- 4 logins or sessions for internal applications such as management server and SNMP
- 9 high priority Telnet sessions
- 6 logins or sessions for Enterprise Fabric Suite 2007 logins, Application Programming Interface (API) out-of-band logins, and Telnet logins. Additional logins will be refused.

2.2 Opening and Closing an Admin Session

The command line interface performs monitoring and configuration tasks. Commands that perform monitoring tasks are available to all user accounts. Commands that perform configuration tasks are available only after entering the [Admin Start](#) command to open an Admin session. A user account must have Admin authority to enter the Admin Start command.

The following is an example of how to open and close an Admin session:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #>
.
.
.
QLogic4GbT (admin) #> admin end
```

2.3 Entering Commands

The command-line completion feature makes entering and repeating commands easier. [Table 2-1](#) describes the command-line completion keystrokes.

Table 2-1. Command-Line Completion

Keystroke	Effect
Tab	Completes the command line. Enter at least one character and press the tab key to complete the command line. If more than one possibility exists, press the Tab key again to display all possibilities.
Up Arrow	Scrolls backward through the list of previously entered commands.
Down Arrow	Scrolls forward through the list of previously entered commands.
Control-A	Moves the cursor to the beginning of the command line
Control-E	Moves the cursor to the end of the command line.
Control-U	Clears the command line.

2.4 Getting Help

To display help for a command, enter the [Help](#) command followed by the command. The following is an example of the help that is available for the [Config Edit](#) command.

```
QLogic4GbT #> help config edit
config edit [CONFIG_NAME]
This command initiates a configuration session and places the current session
into config edit mode.
If CONFIG_NAME is given and it exists, it gets edited; otherwise, it gets
created. If it is not given, the currently active configuration is edited.
```

Admin mode is required for this command.

```
Usage: config edit [CONFIG_NAME]
```


2.5 Setting Page Breaks

Some display commands deliver so much information to the screen that it scrolls off too quickly to read it. You can limit the display to 20 lines by turning on page breaks. By default, page breaks are turned off. The following is an example of how to turn page breaks on and how it affects the display.

```
QLogic4GbT #> set pagebreak on
QLogic4GbT #> help
```

General Help

```
admin          ADMIN_OPTIONS
config         CONFIG_OPTIONS
create        CREATE_OPTIONS
date          [MMDDhhmmCCYY]
exit
feature       FEATURE_OPTIONS
firmware      install
hardreset
help          HELP_OPTIONS
history
hotreset
image         IMAGE_OPTIONS
logout
passwd        [USER_ACCT_NAME]
ping          IP_ADDR
ps
quit
reset         RESET_OPTIONS
set           SET_OPTIONS
show          SHOW_OPTIONS
shutdown
test          TEST_OPTIONS
```

Press any key for more help or 'q' to end this list...

```
uptime
user          USER_OPTIONS
whoami
```

2.6 Creating a Support File

If you contact technical support about a problem with your I/O module, they may request that you create and send a support file. This support file contains all of the I/O module configuration information which can be helpful in diagnosing the problem. The **Create** Support command creates the support file (dump_support.tgz) on the I/O module. If your workstation has an FTP server, you can proceed with the command prompts to send the file from the I/O module to a remote host. Otherwise, you can use FTP to download the support file from the I/O module to your workstation.

The following example creates a support file and sends it to a remote host.

```
QLogic4GbT #> create support
Log Msg:[Creating the support file - this will take several seconds]
FTP the dump support file to another machine? (y/n): y
Enter IP Address of remote computer: 10.20.33.130
Login name: johndoe
Enter remote directory name: bin/support
Would you like to continue downloading support file? (y/n) [n]: y
Connected to 10.20.33.130 (10.20.33.130).
220 localhost.localdomain FTP server (Version wu-2.6.1-18) ready.
331 Password required for johndoe.
Password: xxxxxxxx

230 User johndoe logged in.
cd bin/support
250 CWD command successful.
lcd /itasca/conf/images
Local directory now /itasca/conf/images
bin
200 Type set to I.
put dump_support.tgz
local: dump_support.tgz remote: dump_support.tgz
227 Entering Passive Mode (10,20,33,130,232,133)
150 Opening BINARY mode data connection for dump_support.tgz.
226 Transfer complete.
43430 bytes sent in 0.292 secs (1.5e+02 Kbytes/sec)
Remote system type is UNIX.
Using binary mode to transfer files.
221-You have transferred 43430 bytes in 1 files.
221-Total traffic for this session was 43888 bytes in 1 transfers.
221 Thank you for using the FTP service on localhost.localdomain.
```

If your workstation does not have an FTP server, enter the Create Support command to create the support file, and use FTP to download the support file from the I/O module to your workstation as shown in the following example:

```
QLogic4GbT #> create support
Log Msg:[Creating the support file - this will take several seconds]
FTP the dump support file to another machine? (y/n): n
```

To download the support file from the I/O module to the workstation, do the following:

1. Open a terminal window and move to the directory where you want to download the support file.
2. Enter the FTP command and the I/O module IP address or symbolic name.

```
>ftp 10.0.0.1
```
3. When prompted for a user and password, enter the FTP account name and password (images, images).

```
user: images
password: images
```
4. Set binary mode and use the Get command to download the file (dump_support.tgz).

```
ftp>bin
ftp>get dump_support.tgz
xxxxx bytes sent in xx secs.
ftp>quit
```

2.7 Downloading and Uploading Files

There are several files that reside on the I/O module that you can download to the workstation for examination or for safekeeping. These files include the following:

- Backup configuration file (configdata)
- Log files (logfile)
- Support files (dump_support.tgz)

You can upload firmware image files or backup configuration files to the I/O module to reinstall firmware or restore a corrupted configuration. The I/O module uses FTP to exchange files between the I/O module and the workstation.

- Refer to [“Installing Firmware” on page 5-17](#) for information about installing firmware.
- Refer to [“Back Up and Restore an I/O Module Configuration” on page 5-12](#) for information about backing up and restoring an I/O module configuration.
- Refer to [“Creating and Downloading a Log File” on page 9-7](#) for information about creating a log file.
- Refer to [“Creating a Support File” on page 2-6](#) for information about creating a support file.

To download a file from the I/O module to the workstation, do the following:

1. Enter the FTP command and the I/O module IP address or symbolic name.

```
>ftp 192.168.70.129
```
2. When prompted for a user and password, enter the FTP account name and password (images, images).

```
user: images  
password: images
```
3. Set binary mode and use the Get command to download the file (configdata).

```
ftp>bin  
ftp>get configdata  
xxxxx bytes sent in xx secs.  
ftp>quit
```

To upload a file from the workstation to the I/O module, do the following

1. Enter the FTP command and the I/O module IP address or symbolic name.

```
>ftp 192.168.70.129
```
2. When prompted for a user and password, enter the FTP account name and password (images, images).

```
user:images  
password: images
```
3. Set binary mode and use the Put command to upload the file (config_switch_169).

```
ftp>put config_switch_169 configdata  
xxxxxx bytes sent in xx secs.  
ftp>quit
```

Notes

Section 3

User Account Configuration

User accounts and their respective passwords are the first line of I/O module security. A user account consists of an account name, an authority level, and an expiration date. I/O modules come from the factory with certain user accounts defined for special purposes. [Table 3-1](#) describes these accounts, their passwords, and their purposes. These accounts cannot be deleted from the I/O module.

Table 3-1. Factory User Accounts

User Account Name	Password	Purpose
USERID	PASSWORD ^A	The administrator account provides access to the Telnet server for managing the I/O module. USERID is the only account name that has permission to create and modify other user accounts. To secure your USERID user account, be sure to change the password for this account. The user account and password are case sensitive.
images	images	This user account provides access to the File Transfer Protocol (FTP) server for exchanging files between the I/O module and the workstation.

^AThe sixth character in the initial default password character is a zero, not the letter O.

This section describes the following user account configuration tasks:

- [Displaying User Account Information](#)
- [Creating User Accounts](#)
- [Modifying User Accounts and Passwords](#)

3.1 Displaying User Account Information

You can display all user accounts defined on the I/O module ([User Accounts](#) command) or just those user accounts that are logged on ([User List](#) or [Show Users](#) commands).

The following example displays all user accounts defined on the I/O module. Account information includes account name, authority, and expiration date.

```
QLogic4GbT (admin) #> user accounts
```

```
Current list of user accounts
-----
images      (admin authority = False, never expires)
USERID      (admin authority = True , never expires)
user1       (admin authority = True , never expires)
user2       (admin authority = False, expires in < 50 days)
user3       (admin authority = True , expires in < 100 days)
```

The following example displays user accounts that are logged on to the I/O module:

```
QLogic4GbT (admin) #> user list
```

User	Ethernet Addr-Port	Logged in Since
----	-----	-----
USERID@OB-session1	10.20.68.108-1031	day month date time year
USERID@OB-session2	10.20.68.108-1034	day month date time year
snmp@OB-session3	Unknown	day month date time year
snmp@IB-session4	Unknown	day month date time year
user1@OB-session5	Unknown	day month date time year

3.2 Creating User Accounts

A user account consists of an account name, an authority level, and an expiration date. The account name can be up to 15 characters and must begin with an alphanumeric character. The authority level grants admin authority (true) or denies it (false). The expiration date sets the date when the user account expires. Only the `USERID` user account can create user accounts.

The following example creates a new user account named `user1` with admin authority that expires in 100 days.

```
QLogic4GbT (admin) #> user add
    Press 'q' and the ENTER key to abort this command.
account name (1-15 chars)      : user1
account password (8-20 chars)  : *****

please confirm account password: *****

set account expiration in days (0-2000, 0=never): [0] 100

should this account have admin authority? (y/n): [n] y

OK to add user account 'user1' with admin authority
and to expire in 100 days?

Please confirm (y/n): [n] y
```

3.3 Modifying User Accounts and Passwords

Only the USERID account can modify a user account, delete a user account, or change the password of another user account. However, all user accounts can change their own passwords. The `User` command modifies and deletes user accounts. The `Passwd` command changes passwords.

The following example removes the expiration date and admin authority for the user account named user1.

```
QLogic4GbT (admin) #> user edit
```

```
Press 'q' and the ENTER key to abort this command.
```

```
account name (1-15 chars)      : user1
set account expiration in days (0-2000, 0=never): [0]
should this account have admin authority? (y/n): [n]
```

```
OK to modify user account 'user1' with no admin authority
and to expire in 0 days?
```

```
Please confirm (y/n): [n]
```

The following example deletes the user account named user3.

```
QLogic4GbT (admin) #> user delete user3
```

```
The user account will be deleted. Please confirm (y/n): [n] y
```

In the following example, the USERID account changes the password for the user account named user2.

```
QLogic4GbT #> admin start
```

```
QLogic4GbT (admin) #> passwd user2
```

```
Press 'q' and the ENTER key to abort this command.
```

```
account OLD password          : *****
account NEW password (8-20 chars) : *****
```

```
please confirm account NEW password: *****
password has been changed.
```

Section 4

Network and Fabric Configuration

The network discovery method determines how the I/O module acquires its IP address. The IP address can come from the IP address that resides on the I/O module or from a Dynamic Host Configuration Protocol (DHCP) server. The I/O module supports network discovery from the following server types:

This section describes the following network configuration tasks:

- [Displaying the Ethernet Network Configuration](#)
- [Verifying an I/O Module in the Network](#)

4.1 Displaying the Ethernet Network Configuration

The [Show Setup System](#) command displays the network configuration as shown in the following example:

```
QLogic4GbT #> show setup system
System Information
-----
Eth0NetworkDiscovery      Static
Eth0NetworkAddress       192.168.70.129
Eth0NetworkMask          255.255.252.0
Eth0GatewayAddress       0.0.0.0
AdminTimeout              30
InactivityTimeout        0
LocalLogEnabled           True
RemoteLogEnabled          False
RemoteLogHostAddress     10.0.0.254
NTPClientEnabled          True
NTPServerAddress         51.68.85.102
EmbeddedGUIEnabled       True
```

4.2 Verifying an I/O Module in the Network

You can verify that an I/O module is communicating in the network using the [Ping](#) command. The following example successfully tests the network for an I/O module with IP address 10.20.11.57.

```
QLogic4GbT #> ping 10.20.11.57
    Ping command issued. Waiting for response...
QLogic4GbT #>
    Response successfully received from 10.20.11.57.
```

If the I/O module was unreachable, you would see the following display.

```
QLogic4GbT #> ping 10.20.11.57
    Ping command issued. Waiting for response...
    No response from 10.20.11.57. Unreachable.
```

Section 5

I/O Module Configuration

I/O module configuration consists of the following tasks:

- [Displaying I/O Module Information](#)
- [Managing I/O Module Services](#)
- [Managing I/O Module Configurations](#)
- [Converting a Pass-thru Module to a 20-Port SAN Switch Module](#)
- [Paging an I/O Module](#)
- [Setting the Date and Time](#)
- [Resetting an I/O Module](#)
- [Installing Firmware](#)
- [Managing I/O Module Feature Upgrades](#)

5.1

Displaying I/O Module Information

You can display the following types of I/O module information:

- [I/O Module Operational Information](#)
- [System Process Information](#)
- [Elapsed Time Between Resets](#)
- [Configuration Information](#)
- [Hardware Information](#)
- [Firmware Information](#)

5.1.1 I/O Module Operational Information

The **Show Switch** command displays a variety of module operational information. These include the I/O module WWN, domain ID, firmware version, administrative state, and operational state as shown in the following example:

```
QLogic4GbT #> show switch
Switch Information
-----
SymbolicName                QLogic4GbT
SwitchWWN                   10:00:00:c0:dd:00:bc:56
BootVersion                  Vx.x.x.x-0 (day month date time year)
CreditPool                  0
FirstPortAddress            010000
FlashSize - MBytes          128
LogFilterLevel              Critical
MaxPorts                    20
NumberOfResets              15
ReasonForLastReset          PowerUp
ActiveImageVersion - build date Vx.x.x.x.0 (day month date time year)
PendingImageVersion - build date Vx.x.x.x.0 (day month date time year)
ActiveConfiguration         default
AdminState                  Online
AdminModeActive             False
BeaconOnStatus              Off
OperationalState            Online
BoardTemp (1) - Degrees Celsius 32
SwitchDiagnosticsStatus     Passed
SwitchTemperatureStatus     Normal
```

5.1.2

System Process Information

The **Ps** command displays system process information to help you determine what processes are running and CPU usage. The following example displays current system processes.

```
QLogic4GbT #> ps
  PID  PPID  %CPU  %MEM    TIME      ELAPSED  COMMAND
  ---  ---  ---  ---  ---  ---  ---
  194   166   0.0   0.5  00:00:00  1-02:07:40  cns
  195   166   0.0   0.6  00:00:00  1-02:07:40  ens
  196   166   0.0   0.5  00:00:00  1-02:07:40  dlog
  197   166   0.2   0.8  00:03:11  1-02:07:40  ds
  198   166   0.8   4.1  00:12:55  1-02:07:40  mgmtApp
  199   166   0.0   0.6  00:00:00  1-02:07:40  sys2swlog
  210   166   0.0   0.7  00:00:00  1-02:07:33  fc2
  211   166   0.0   0.9  00:00:02  1-02:07:33  nserver
  212   166   0.0   0.9  00:00:01  1-02:07:33  mserver
  213   166   0.6   1.2  00:10:55  1-02:07:33  util
  214   166   0.0   0.9  00:00:10  1-02:07:33  snmpservicepath
  215   166   0.0   1.0  00:00:22  1-02:07:33  eport
  216   166   0.0   1.4  00:00:08  1-02:07:33  PortApp
  217   166   0.0   0.8  00:00:10  1-02:07:33  port_mon
  218   166   0.0   1.0  00:00:00  1-02:07:33  zoning
  219   166   0.0   0.8  00:00:01  1-02:07:32  diagApp
  370   166   0.0   0.9  00:00:02  1-02:07:20  snmpd
  371   166   0.0   1.0  00:00:00  1-02:07:20  snmpmain
  381   371   0.0   1.0  00:00:00  1-02:07:19  snmpmain
  389   381   0.0   1.0  00:00:00  1-02:07:19  snmpmain
```

The column titles are as follows:

- PID—Process identifier
- PPID—Parent process identifier
- %CPU—Percentage CPU usage
- TIME—Actual processing time
- ELAPSED—Elapsed time since the process started
- COMMAND—The command that initiated the process.

5.1.3

Elapsed Time Between Resets

The [Uptime](#) command displays the elapsed time since the I/O module was last reset and the reset method. A hot reset or non-disruptive firmware activation does not reset the elapsed time reported by this command. The following example displays the time since the last reset.

```
QLogic4GbT #> uptime
Elapsed up time : 0 day(s), 2 hour(s), 28 min(s), 44 sec(s)
Reason last reset: NormalReset
```

5.1.4

Configuration Information

Enter the [Show Config Switch](#) command to display the I/O module configuration parameters. These parameters determine the operational characteristics of the I/O module. Refer to [Table 11-9](#) for a description these parameters.

```
QLogic4GbT #> show config switch
Configuration Name: default
-----
Switch Configuration Information
-----
TransparentMode      True
AdminState           Online
SymbolicName         QLogic4GbT
R_A_TOV              10000
E_D_TOV              2000
ConfigDescription    Default Config
ConfigLastSavedBy    admin@OB-session5
ConfigLastSavedOn    day month date time year
```


5.1.5

Hardware Information

Enter the [Show Chassis](#) command to display the status of the I/O module hardware including power supplies, internal temperature, and Heartbeat LED status.

The following is an example of the Show Chassis command:

```
QLogic4GbT #> show chassis
  Chassis Information
  -----
BoardTemp (1) - Degrees Celsius   36
PowerSupplyStatus (1)             Good
HeartBeatCode                     1
HeartBeatStatus                   Normal
```

The HeartBeatCode and HeartBeatStatus entries indicate the Power-on Self Test (POST) results revealed by the Heartbeat LED blink patterns. The result is normal operation or a blink pattern indicating a critical error as described in [Table 5-1](#). Refer to your *QLogic 4 Gb Intelligent Pass-thru Module and SAN Switch Module Installation Guide* for more information about the Heartbeat LED and its blink patterns.

Table 5-1. Heartbeat LED Activity

HeartBeatCode–HeartBeatStatus	Description
1–Normal	One blink per second–Normal operation
2–AppDied	Two blink cluster–Internal firmware failure
3–PostFailed	Three blink cluster–Fatal POST error
4–CorruptFilesystem	Four blink cluster–Configuration file system error
5–Overheating	Five blink cluster– Over temperature

5.1.6 Firmware Information

Enter the [Show Version](#) command to display a summary of I/O module identity information including the firmware version. The following is an example of the Show Version command:

```
QLogic4GbT #> show version
*****
*
*      Command Line Interface SHell  (CLISH)      *
*
*****

SystemDescription      IBM(R) 4Gb Intelligent Pass Through Module for IBM BladeCen
EthNetworkAddress      10.20.11.192 (use 'set setup system' to update)
MACAddress              00:c0:dd:00:06:07
WorldWideName          10:00:00:c0:dd:00:06:07
ChassisSerialNumber    11S0632A00127
SymbolicName           QLogic4GbT
ActiveSWVersion         V6.5.x.x.xx.xx
ActiveTimestamp         day month date time year
DiagnosticsStatus      Passed
LicensedExternalPorts  6
LicensedInternalPorts  14
SwitchMode             Transparent
```

5.2 Managing I/O Module Services

You can configure your I/O module to suit the demands of your environment by enabling or disabling a variety of I/O module services. You manage the I/O module services using the [Show Setup Services](#) and [Set Setup Services](#) commands. Refer to [Table 11-12](#) for a description of the I/O module services.

NOTE: The SSH and SSL services require the Fabric Security license key.

Enter the [Show Setup Services](#) command to display the current I/O module service status as shown in the following example:

```
QLogic4GbT #> show setup services
System Services
-----
TelnetEnabled           True
SSHEnabled              False
GUIMgmtEnabled         True
SSLEnabled              False
EmbeddedGUIEnabled     True
SNMPEnabled            True
NTPEnabled             True
FTPEnabled             True
```

Enter the **Set Setup Services** command within an Admin session to configure the I/O module services as shown in the following example¹:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> set setup services
```

```
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.
```

```
PLEASE NOTE:
-----
```

- * Further configuration may be required after enabling a service.
- * If services are disabled, the connection to the switch may be lost.
- * When enabling SSL, please verify that the date/time settings on this switch and the workstation from where the SSL connection will be started match, and then a new certificate may need to be created to ensure a secure connection to this switch.

```
TelnetEnabled      (True / False)  [True ]
SSHEnabled         (True / False)  [False]
GUIMgmtEnabled    (True / False)  [True ]
SSLEnabled        (True / False)  [False]
EmbeddedGUIEnabled (True / False)  [True ]
SNMPEnabled       (True / False)  [True ]
NTPEnabled        (True / False)  [False]
FTPEnabled        (True / False)  [True ]
```

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

¹ The SSH and SSL services require the Fabric Security license key.

5.3 Managing I/O Module Configurations

The I/O module configuration determines the basic operational characteristics of the I/O module. An I/O module supports up to 10 configurations including the default configuration, named Default Config. The current I/O module operating characteristics are determined by the active configuration. Only one configuration can be active at one time.

Each I/O module configuration contains I/O module, port, port threshold alarm, and zoning configuration components. Managing I/O Module Configurations describes the following tasks:

- [Display a List of I/O Module Configurations](#)
- [Activate an I/O Module Configuration](#)
- [Copy an I/O Module Configuration](#)
- [Delete an I/O Module Configuration](#)
- [Modify an I/O Module Configuration](#)
- [Back Up and Restore an I/O Module Configuration](#)

5.3.1 Display a List of I/O Module Configurations

Enter the [Config List](#) command to display the configurations stored on the I/O module as show in the following example. Notice that the Config List command does not require an Admin session.

```
QLogic4GbT #> config list

Current list of configurations
-----
default
config_1
config_2
```

5.3.2 Activate an I/O Module Configuration

Enter the [Config Activate](#) command to activate an I/O module configuration (config_1) as shown in the following example:

```
QLogic4GbT (admin) config activate config_1
```

5.3.3

Copy an I/O Module Configuration

Enter the [Config Copy](#) command to create a copy of an existing configuration as shown in the following example:

```
QLogic4GbT (admin) config copy config_1 config_2
```

5.3.4

Delete an I/O Module Configuration

Enter the [Config Delete](#) command to delete a configuration from the I/O module as shown in the following example. You cannot delete the active configuration nor the default configuration (Default Config).

```
QLogic4GbT (admin) config delete config_2
```

5.3.5

Modify an I/O Module Configuration

To modify an I/O module configuration, you must open an Admin session with the [Admin Start](#) command. An Admin session prevents other accounts from making changes at the same time through Telnet, Enterprise Fabric Suite 2007, QuickTools, or another management application. You must also open a Config Edit session with the [Config Edit](#) command and indicate which configuration you want to modify. If you do not specify a configuration name the active configuration is assumed.

The Config Edit session provides access to the Set Config commands with which you make modifications to the port, I/O module, port threshold alarm, or zoning configuration components as shown:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> config edit
    The config named default is being edited.
QLogic4GbT (admin-config)#> set config port . . .
QLogic4GbT (admin-config)#> set config switch . . .
QLogic4GbT (admin-config)#> set config threshold . . .
```

The Config Save command saves the changes you made during the Config Edit session. In this case, changes to the configuration named *Default* are being saved to a new configuration named *config_10132003*. However, the new configuration does not take effect until you activate it with the Config Activate command:

```
QLogic4GbT (admin-config)#> config save config_10132003
QLogic4GbT (admin)#> config activate config_10132003
QLogic4GbT (admin)#> admin end
```

The Admin End command releases the Admin session for other administrators when you are done making changes to the I/O module.

The following is an example of the [Set Config Switch](#) command. Refer to [Table 11-9](#) for a description of the I/O module configuration parameters.

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> config edit
QLogic4GbT (admin-config) #> set config switch
```

A list of attributes with formatting and default 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.

TransparentMode	(True / False)	[True]
AdminState	(1=Online, 2=Offline, 3=Diagnostics)	[Online]
SymbolicName	(string, max=32 chars)	[SANbox]
R_A_TOV	(decimal value, 100-100000 msec)	[10000]
E_D_TOV	(decimal value, 10-20000 msec)	[2000]
ConfigDescription	(string, max=64 chars)	[Default Config]	

To make temporary changes to the I/O module administrative state, enter the [Set Switch State](#) command.

5.3.6

Back Up and Restore an I/O Module Configuration

Successful management of I/O modules and fabrics depends on the effective use of I/O module configurations. Backing up and restoring a configuration is useful to protect your work or for use as a template in configuring other I/O modules. Backing up and restoring the I/O module configuration involves the following:

- [Creating the Backup File](#)
- [Downloading the Configuration File](#)
- [Restoring the Configuration File](#)

5.3.6.1

Creating the Backup File

The `Config Backup` command creates a file on the I/O module, named *configdata*. This file can be used to restore an I/O module configuration only from the command line interface; it cannot be used to restore an I/O module using Enterprise Fabric Suite 2007 or QuickTools.

```
QLogic4GbT #> config backup
```

The *configdata* file contains the following I/O module configuration information:

- All named I/O module configurations including port, switch, and port threshold alarm components.
- All SNMP and network information defined with the `Set Setup` command.

5.3.6.2

Downloading the Configuration File

You use FTP to download the *configdata* file to your workstation for safe keeping and to upload the file back to the I/O module for the restore function. To download the *configdata* file, open an FTP session on the I/O module and login with the account name *images* and password *images*. Transfer the file in binary mode with the `Get` command as shown in the following example:

```
>ftp ip_address
user:images
password: images
ftp>bin
ftp>get configdata
xxxxx bytes sent in xx secs.
ftp>quit
```

You should rename the *configdata* file on your workstation with the I/O module name and date, *config_switch_169_10112003*, for example.

5.3.6.3

Restoring the Configuration File

The restore operation begins with FTP to upload the configuration file from the workstation to the I/O module, then finishes with a Telnet session and the Config Restore command. To upload the configuration file, *config_switch_169_10112003* in this case, open an FTP session with account name *images* and password *images*. Transfer the file in binary mode with the Put command as shown:

```
ftp ip_address
user: images
password: images
ftp> bin
ftp> put config_switch_169_10112003 configdata
  Local file config_switch_169_10112003
  Remote file configdata
ftp>quit
```

The restore process replaces all configuration information on the I/O module and afterwards the I/O module is automatically reset. To restore the I/O module, open a Telnet session, then enter the [Config Restore](#) command from within an Admin session as shown:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> config restore
The switch will be reset after restoring the configuration.
  Please confirm (y/n): [n] y
  Alarm Msg: [day month date time year][A1005.0021][SM][Configuration is being
restored - this could take several minutes]
  Alarm Msg: [day month date time year][A1000.000A][SM][The switch will be reset in
3 seconds due to a config restore]
QLogic4GbT (admin) #>
  Alarm Msg: [day month date time year][A1000.0005][SM][The switch is being reset]
```

5.4

Converting a Pass-thru Module to a 20-Port SAN Switch Module

You can convert a Pass-thru Module to a full-fabric 20-Port SAN Switch Module by doing the following:

1. Purchase and install the 20-Port Full Fabric License for IBM BladeCenter. Refer to [“Install a Feature License Key” on page 5-22](#) for information about installing a license key.
2. Change the TransparentMode parameter to False using the [Set Config Switch](#) command.

Converting to a Pass-thru Module discards the current I/O module configuration. You can restore the I/O module to a transparent Pass-thru Module by returning the TransparentMode parameter to True. For information about managing the Pass-thru Module, refer to the following guides:

- *QLogic 4 Gb SAN Switch Module for IBM BladeCenter QuickTools Switch Management Guide*
- *QLogic 4 Gb SAN Switch Module for IBM BladeCenter Command Line Interface Guide*

NOTE: After converting a Pass-thru Module to a SAN Switch Module, you must close any open QuickTools TE sessions.

The following example changes the TransparentMode parameter to False:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> config edit
QLogic4GbT (admin-config) #> set config switch
```

A list of attributes with formatting and default 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.

TransparentMode	(True / False)	[True] False
AdminState	(1=Online, 2=Offline, 3=Diagnostics)	[Online]
SymbolicName	(string, max=32 chars)	[QLogic4GbT]
R_A_TOV	(decimal value, 100-100000 msec)	[10000]
E_D_TOV	(decimal value, 10-20000 msec)	[2000]
ConfigDescription	(string, max=64 chars)	[Default Config]	

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.

```
QLogic4GbT (admin) #> config save
QLogic4GbT (admin) #> config activate
```

5.5 Paging an I/O Module

To help you locate a particular I/O module, you can turn on the beacon feature with the [Set Beacon](#) command. This causes all port Logged-In LEDs to flash in unison. The following is an example of how to turn the beacon on and off.

```
QLogic4GbT #> set beacon on
QLogic4GbT $> set beacon off
```

5.6 Setting the Date and Time

The I/O module date and time can be set explicitly using the [Date](#) command or it can be set automatically through a Network Time Protocol (NTP) server. The [Date](#) command also displays the current time. Unlike the [Date](#) command, the NTP server also synchronizes the date and time on the I/O module with the date and time on the workstation. Synchronized date and time is required for Secure Socket Layer (SSL) connections.

To use an NTP server, you must enable the NTP client on the I/O module and specify an IP address for the NTP server.

NOTE: To set the date with the [Date](#) command, the NTP client must be disabled.

Enter the [Date](#) command to display the date and time as show in the following example:

```
QLogic4GbT #> date
Mon Apr 07 07:51:24 200x
```

Enter the [Date](#) command within an Admin session to set the date and time as shown in the following example:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> date 013110152025
QLogic4GbT (admin) #> date
Fri Jan 31 10:15:03 UTC 2025
```

To configure the I/O module to use an NTP server, enter the [Set Setup System](#) command to enable the NTP client and to specify the NTP server IP address.

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> set setup system
  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.

FCNetworkDiscovery  (1=Static, 2=Bootp, 3=Dhcp, 4=Rarp) [Static      ]
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        ] True
NTPServerAddress    (dot-notated IP Address)              [10.0.0.254   ] 10.2.3.4
EmbeddedGUIEnabled  (True / False)                       [True         ]

Do you want to save and activate this services setup? (y/n): [n] y
System setup saved and activated.
```

5.7 Resetting an I/O Module

[Table 5-2](#) describes the methods for resetting an I/O module, the corresponding command, and the impact on the I/O module.

Table 5-2. I/O Module Reset Methods

Description	Hot Reset (Hotreset command)	Soft Reset (Reset Switch command)	Hard Reset (Hardreset Switch command)
Activates pending firmware	✓	✓	✓
Disrupts I/O traffic		✓	✓
Enterprise Fabric Suite 2007 and QuickTools sessions reconnect afterwards	✓	✓	✓
Clears the event log	✓	✓	✓
Closes all management sessions	✓	✓	✓
Power-on self test			✓

5.8 Installing Firmware

New firmware becomes available periodically either on CD-ROM or from the web site. Installing firmware on an I/O module involves the following steps:

1. Download the firmware image file to the I/O module.
2. Unpack the firmware image file.
3. Activate the new firmware. The activation can be disruptive or non-disruptive. Refer to [“Nondisruptive Activation” on page 5-18](#) for information about the conditions for a non-disruptive activation.

The [Firmware Install](#) and the [Image Install](#) commands automate the firmware installation process and perform a disruptive activation as described in [“One-Step Firmware Installation” on page 5-19](#). To perform a nondisruptive activation, refer to [“Custom Firmware Installation” on page 5-20](#).

5.8.1

Nondisruptive Activation

You can load and activate new firmware on an I/O module disruptively or nondisruptively depending on the condition of the fabric and the commands you choose. If you attempt to perform a non-disruptive activation without satisfying the following conditions, the activation will fail. If the non-disruptive activation fails, you will usually be prompted to try again later. Otherwise, the I/O module will perform a disruptive activation.

- The current firmware version permits the installation and non-disruptive activation of 6.5 firmware. Refer to the 6.5 Firmware Release Notes for previous compatible firmware versions.
- No changes are being made to switches in the fabric including powering up, powering down, disconnecting or connecting ISLs, changing switch configurations, or installing firmware.
- No port on the I/O module is in the diagnostic state.
- No Zoning Edit sessions are open on the I/O module.
- No changes are being made to attached devices including powering up, powering down, disconnecting, connecting, and HBA configuration changes.
- Install firmware on one switch at a time in the fabric. If you are installing firmware on one switch, wait 120 seconds after the activation is complete before installing firmware on a second switch.
- For a fabric in which one or more switches are running firmware prior to version 6.5, only one Enterprise Fabric Suite 2007 session can be open.

Ports that are stable when the non-disruptive activation begins, then change states, will be reset. When the non-disruptive activation is complete, Enterprise Fabric Suite 2007 and QuickTools sessions reconnect automatically. However, Telnet sessions must be restarted manually.

5.8.2

One-Step Firmware Installation

The `Firmware Install` and `Image Install` commands download the firmware image file from an FTP or TFTP server to the I/O module, unpacks the image file, and performs a disruptive activation in one step. The one-step installation process prompts you to enter the following:

- The file transfer protocol (FTP or TFTP)
 - IP address of the remote host
 - An account name and password on the remote host (FTP only)
 - Pathname for the firmware image file
1. Enter the following commands to download the firmware from a remote host to the I/O module, install the firmware, then reset the I/O module to activate the firmware.

```
QLogic4GbT #> admin start
```

```
QLogic4GbT #> firmware install
```

```
The switch will be reset. This process will cause a
disruption to I/O traffic.
```

```
Continuing with this action will terminate all management
sessions, including any Telnet sessions. When the firmware
activation is complete, you may log in to the switch again.
```

```
Do you want to continue? [y/n]: y
```

```
Press 'q' and the ENTER key to abort this command.
```

2. Enter your choice for the file transfer protocol with which to download the firmware image file. FTP requires an user account and a password; TFTP does not.

```
FTP or TFTP      : ftp
```

3. Enter your account name on the remote host (FTP only) and the IP address of the remote host. When prompted for the source file name, enter the path for the firmware image file.

```
User Account     : johndoe
```

```
IP Address       : 10.0.0.254
```

```
Source Filename  : 6.5.00.11_ipc
```

```
About to install image. Do you want to continue? [y/n] y
```

4. When prompted to install the new firmware, enter Yes to continue or No to cancel. Entering Yes will disrupt traffic. This is the last opportunity to cancel.

```
About to install image. Do you want to continue? [y/n] y
```

```
Connected to 10.20.20.200 (10.20.20.200).
```

```
220 localhost.localdomain FTP server (Version wu-2.6.1-18)
ready.
```

5. Enter the password for your account name (FTP only).

```
331 Password required for johndoe.  
Password:*****  
230 User johndoe logged in.
```
6. The firmware will now be downloaded from the remote host to the I/O module, installed, and activated.

5.8.3

Custom Firmware Installation

A custom firmware installation downloads the firmware image file from a remote host to the I/O module, unpacks the image file, and resets the I/O module in separate steps. This allows you to choose the type of reset and whether the activation will be disruptive ([Reset Switch](#) command) or nondisruptive ([Hotreset](#) command). The following example illustrates a custom firmware installation with a nondisruptive activation.

1. Download the firmware image file from the workstation to the I/O module.
 - If your workstation has an FTP server, you can enter the [Image Fetch](#) command:

```
QLogic4GbT #> admin start  
QLogic4GbT (admin) #> image fetch account_name ip_address filename
```
 - If your workstation has a TFTP server, you can enter the [Image TFTP](#) command to download the firmware image file.

```
QLogic4GbT (admin) #> image tftp ip_address filename
```
 - If your workstation has neither an FTP nor a TFTP server, open an FTP session and download the firmware image file by entering FTP commands:

```
>ftp ip_address or switchname  
user:images  
password: images  
ftp>bin  
ftp>put filename  
ftp>quit
```
2. Display the list of firmware image files on the I/O module to confirm that the file was loaded.

```
QLogic4GbT #> admin start  
QLogic4GbT (admin) $> image list
```
3. Unpack the firmware image file to install the new firmware in flash memory.

```
QLogic4GbT (admin) $> image unpack filename
```
4. Wait for the unpack to complete.

```
Image unpack command result: Passed
```


5. A message will prompt you to reset the I/O module to activate the firmware. Use the Hotreset command to attempt a non-disruptive activation.

```
QLogic4GbT (admin) $> hotreset
```

5.9

Managing I/O Module Feature Upgrades

The following features are available to upgrade your I/O module through the purchase and installation of a license key:

- 20-Port Full Fabric License for IBM BladeCenter allows the conversion of the Pass-thru Module to a 20-port 4 Gb SAN Switch Module. All other installed licenses transfer to the SAN Switch Module. After the license is installed, enter the [Set Config Switch](#) and set the TransparentMode parameter to False. To restore the module to a Pass-thru Module, set the TransparentMode parameter to True. Refer to [“Managing I/O Module Configurations” on page 5-9](#) for information about changing the I/O module configuration.
- Enterprise Fabric Suite 2007 for IBM BladeCenter provides access to a workstation-based Java® application that provides a graphical user interface for switch management. This includes Performance Viewer which graphs port performance. Enterprise Fabric Suite 2007 comes with a free 30-day trial license.
- Fabric Security for IBM BladeCenter provides the following:
 - Connection security using Secure Shell (SSH) and Secure Socket Layer (SSL)
 - Remote user account authentication using a Remote Authentication Dial-In User Service (RADIUS) server
- SANdoctor for IBM BladeCenter provides for transceiver diagnostics ([Show Media](#) command).

Installing a feature license key is not disruptive, nor does it require an I/O module reset. To order a license key, contact your switch distributor or your authorized reseller.

5.9.1

Display Feature License Keys

Enter the **Feature** Log command to display the license keys that are installed on your I/O module as shown in the following example:

```
QLogic4GbT: admin> feature log
Mfg Feature Log:
-----

Customer Feature Log:
-----

1) Thu Jan  1 01:52:10 1970 - Switch Licensed for SANdoctor capability
   1000-LCELNULAPWMXX
   SFP Digital Diagnostics capability

2) Thu Jan  1 02:25:10 1970 - Switch Licensed for Full Fabric/Transparent Switch
   Mode change capability 4000-LCBSRCBWL3Y8G6
```

5.9.2

Install a Feature License Key

Enter the **Feature** Add command to install a license key on your I/O module as shown in the following example:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> feature add 4000-LCOHQSMHTJNF2
Full Fabric/Transparent Switch Mode change (All ports licensed in transparent mode)

This feature upgrade does NOT require a switch reset.
Do you want to continue with license upgrade procedure? (y/n): [n] y

Log Msg: [Tue Apr 10 15:42:19.303 EDT 2007][C][8400.005E][Switch][Upgrading
License for Full Fabric/Transparent Switch Mode change capability]
Log Msg: [Tue Apr 10 15:42:19.319 EDT 2007][C][8400.0047][Switch][New licenses
are being installed]
```

Section 6

Port Configuration

This section describes the following topics:

- [Displaying Port Information](#)
- [Modifying Port Operating Characteristics](#)
- [Mapping Transparent Fabric Ports](#)
- [Resetting a Port](#)
- [Configuring Port Threshold Alarms](#)
- [Testing a Port](#)

6.1

Displaying Port Information

You can display the following port information:

- [Port Configuration Parameters](#)
- [Port Operational Information](#)
- [Port Threshold Alarm Configuration Parameters](#)
- [Port Performance](#)
- [Transceiver Information](#)

6.1.1

Port Configuration Parameters

Enter the [Show Config Port](#) command to display the port configuration parameters. These parameters determine the operational characteristics of the port. Refer to [Table 11-8](#) for a description of these parameters. The following example displays port configuration information for external port 0.

```
QLogic4GbT #> show config port 0
```

```
Configuration Name: default
-----

Port Number: 0
-----

AdminState      Online
LinkSpeed       Auto
PortType        TF
SymbolicName    Port0
```

The following example displays port configuration information for internal port 1.

```
QLogic4GbT #> show config port 1
```

```
Configuration Name: default
-----

Port Number: 1
-----

AdminState      Online
LinkSpeed       Auto
PortType        TH
PrimaryTFPortMap 0
BackupTFPortMap 15
SymbolicName    Port1
```

6.1.2 Port Operational Information

Enter the [Show Port](#) command to display port operational information. The following example displays port operational information for external port 0.

```
QLogic4GbT #> show port 0
Port Number: 0
-----
ActiveTHPortList None           MediaSpeeds      1Gb/s, 2Gb/s, 4Gb/s
AdminState         Online           OperationalState Online
AsicNumber         0               PerfTuningMode   Normal
AsicPort           0               PortWWN          20:00:00:c0:dd:00:06:07
ConfigType         TF              RunningType      TF
DiagStatus         Passed          MediaPartNumber  TXN31115D000000
EpConnState        None            MediaRevision    A
EpIsoReason        NotApplicable  MediaType        400-M5-SN-S
Licensed           True            MediaVendor      Intel Corp.
LinkSpeed          2Gb/s          MediaVendorID    000002b3
LinkState          Active          SymbolicName     Port0
LoginStatus        LoggedIn        SyncStatus       SyncAcquired
MaxCredit          8              XmitterEnabled   True

ALInit             0               LIP_F8_F7       0
ALInitError        0               LinkFailures     0
BadFrames          0               Login            0
BBCR_FrameFailures 0               Logout           0
BBCR_RRDYFailures 0               LongFramesIn     0
Class2FramesIn     0               LoopTimeouts     0
Class2FramesOut    0               LossOfSync       0
Class2WordsIn      0               LostFrames       0
Class2WordsOut     0               LostRRDYs        0
Class3FramesIn     118             PrimSeqErrors    0
Class3FramesOut    118             RxLinkResets     0
Class3Toss         0               RxOfflineSeq     1
Class3WordsIn      2268            ShortFramesIn    0
Class3WordsOut     2320            TotalErrors      0
DecodeErrors       0               TotalLinkResets  1
EpConnects         0               TotalLIPsRecvd   0
FBusy              0               TotalLIPsXmitd   0
FlowErrors         0               TotalOfflineSeq  2
FReject            0               TotalRxFrames    118
InvalidCRC         0               TotalRxWords     2268
InvalidDestAddr    0               TotalTxFrames    118
LIP_AL_PD_AL_PS   0               TotalTxWords     2320
LIP_F7_AL_PS      0               TxLinkResets     1
LIP_F7_F7         0               TxOfflineSeq     1
LIP_F8_AL_PS      0
```

6.1.3

Port Threshold Alarm Configuration Parameters

Enter the [Show Config Threshold](#) command to display the port threshold alarm parameters. These parameters determine the error thresholds at which the I/O module issues alarms. Refer to [Table 11-10](#) for a description of these parameters.

```
QLogic4GbT #> show config threshold
Configuration Name: default
-----
Threshold Configuration Information
-----
ThresholdMonitoringEnabled      False
CRCErrorsMonitoringEnabled     True
  RisingTrigger                 25
  FallingTrigger                1
  SampleWindow                  10
DecodeErrorsMonitoringEnabled  True
  RisingTrigger                 25
  FallingTrigger                0
  SampleWindow                  10
ISLMonitoringEnabled           True
  RisingTrigger                 2
  FallingTrigger                0
  SampleWindow                  10
LoginMonitoringEnabled         True
  RisingTrigger                 5
  FallingTrigger                1
  SampleWindow                  10
LogoutMonitoringEnabled        True
  RisingTrigger                 5
  FallingTrigger                1
  SampleWindow                  10
LOSMonitoringEnabled           True
  RisingTrigger                 100
  FallingTrigger                5
  SampleWindow                  10
```

6.1.4

Port Performance

Enter the [Show Perf](#) command to display port performance in terms of the volume of data transmitted, data received, or errors. You can display continuous live performance information for one or more ports, or an instantaneous summary. The following example displays an instantaneous summary in bytes and frames. Values are expressed in thousands (K) and millions (M) of bytes or frames per second.

```
QLogic4GbT #> show perf
```

Port	Bytes/s (in)	Bytes/s (out)	Bytes/s (total)	Frames/s (in)	Frames/s (out)	Frames/s (total)
Ext1:0	0	0	0	0	0	0
Ext2:15	49M	3M	52M	32K	2K	34K
Ext3:16	0	0	0	0	0	0
Ext4:17	0	0	0	0	0	0
Ext5:18	0	0	0	0	0	0
Ext6:19	0	0	0	0	0	0
Bay1	2M	23M	26M	1K	15K	17K
Bay2	0	0	0	0	0	0
Bay3	1M	25M	26M	972	16K	17K
Bay4	0	0	0	0	0	0
Bay5	0	0	0	0	0	0
Bay6	0	0	0	0	0	0
Bay7	0	0	0	0	0	0
Bay8	0	0	0	0	0	0
Bay9	0	0	0	0	0	0
Bay10	0	0	0	0	0	0
Bay11	0	0	0	0	0	0
Bay12	0	0	0	0	0	0
Bay13	0	0	0	0	0	0
Bay14	0	0	0	0	0	0

6.1.5 Transceiver Information

NOTE: The Show Media command requires the SANdoctor license key. To purchase a license key, contact your authorized maintenance provider or authorized reseller.

Enter the [Show Media](#) command to display operational information about one or more transceivers as shown in the following example. Refer to [Table 11-16](#) for a description of the transceiver information in the Show Media display.

```
QLogic4GbT #> show media 19
Port Number: 19
-----
MediaType          400-M5-SN-S
MediaVendor        Intel Corp.
MediaPartNumber    TXN31115D000000
MediaRevision
MediaSerialNumber  AZ6P51300545
MediaSpeeds        1Gb/s, 2Gb/s, 4Gb/s

              Temp      Voltage      Tx Bias      Tx Pwr      Rx Pwr
              (C)       (V)         (mA)         (mW)         (mW)
-----
Value          34.62         3.33         7.10         0.348        0.210
Status          Normal        Normal        Normal        Normal        Normal
HighAlarm       95.00         3.63         13.00        0.794        1.000
HighWarning     90.00         3.56         12.00        0.631        0.794
LowWarning      -25.00        3.04         3.00         0.141        0.032
LowAlarm        -32.00        2.97         2.00         0.126        0.025
```


6.2 Modifying Port Operating Characteristics

You can make permanent or temporary changes to port operating characteristics. You make permanent port configuration changes using the [Set Config Port](#) command. These changes are saved in the active configuration and are preserved across I/O module or port resets. The [Set Port](#) command makes temporary changes that apply until the next port or I/O module reset, or until you activate a configuration.

The following example permanently changes the administrative state for external port 0:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> config edit
QLogic4GbT (admin-config) #> set config port 0
  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:  0
-----
AdminState      (1=Online, 2=Offline, 3=Diagnostics, 4=Down)  [Online] offline
LinkSpeed       (1=1Gb/s, 2=2Gb/s, 4=4Gb/s, A=Auto)              [Auto  ]
PortType        (TH / TF)                                                [TF    ]
SymPortName     (string, max=32 chars)                                   [Port0 ]

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.
QLogic4GbT (admin-config) #> config save
QLogic4GbT (admin-config) #> config activate
```

The following example changes the administrative state for the internal port 1:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> config edit
QLogic4GbT (admin-config) #> set config port 1
  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:  1
-----
AdminState      (1=Online, 2=Offline, 3=Diagnostics, 4=Down)  [Online] offline
LinkSpeed       (2=2Gb/s, 4=4Gb/s, A=Auto)                  [2Gb/s ]
PrimaryTFPortMap (decimal value for port, N=no mapping)              [0      ]
BackupTFPortMap (decimal value for port, N=no mapping)      [15     ]
SymPortName     (string, max=32 chars)                       [Port1  ]

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.
QLogic4GbT (admin-config) #> config save
QLogic4GbT (admin-config) #> config activate
```

You can configure external ports (0, 15, 16, 17, 18, 19) as a group based on port 0, or all internal ports (1–14) based on port 1 using the Set Config Ports command. The following example configures the external ports based on port 0 and activates the configuration.

```
QLogic4GbT #> admin start
QLogic4GbT (admin) config edit
QLogic4GbT (admin) #> set config ports external

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 EXTERNAL 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 external ports (displaying values from port number:  0)
-----

AdminState      (1=Online, 2=Offline, 3=Diagnostics, 4=Down) [Online]
LinkSpeed       (1=1Gb/s, 2=2Gb/s, 4=4Gb/s, A=Auto)      [Auto  ]
PortType        (TH / TF)                                [TH    ] TF

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..

QLogic4GbT (admin-config)#> config save
QLogic4GbT (admin)#> config activate
QLogic4GbT (admin)#> admin end
```

The following example temporarily changes the external port 0 administrative state to Down:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> set port 0 state down
```

6.3 Mapping Transparent Fabric Ports

TF_Port mapping assigns one or more TF_Ports to pass traffic to and from a specified TH_Port. You can specify a primary mapping and a secondary mapping for each TH_Port. If all TF_Ports in the primary mapping fail, the secondary mapping is used. [Table 6-1](#) describes the default primary and secondary mappings:

Table 6-1. Default Primary and Secondary Port Mappings

Primary Mapping		Secondary Mapping	
TH_Ports	TF_Ports	TH_Ports	TF_Ports
1, 2	0	1, 2	15
3, 4	15	3, 4	0
5, 6, 7	16	5, 6, 7	0
8, 9	17	8, 9	0
10, 11	18	10, 11	0
12, 13, 14	19	12, 13, 14	0

The following example creates a primary map and a backup map. This example assumes that ports 0, 15, 16, 17, 18, and 19 have already been configured as TF_Ports.

- Primary map: TF_Ports 0, 15, 16 are mapped to all TH_Ports
- Backup map: TF_Ports 17, 18, and 19 are mapped to all TH_Ports

```
QLogic4GbT #> admin start
QLogic4GbT (admin) config edit
QLogic4GbT (admin) #> set config ports internal

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 INTERNAL 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 internal ports (displaying values from port number:  1)
-----

AdminState      (1=Online, 2=Offline, 3=Diagnostics, 4=Down)  [Online]
LinkSpeed       (2=2Gb/s, 4=4Gb/s, A=Auto)                       [2    ]
PrimaryTFPortMap (decimal value for port, N=no mapping)              [0    ] 0,15,16
BackupTFPortMap (decimal value for port, N=no mapping)  [15   ] 17,18,19

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..

QLogic4GbT (admin-config)#> config save
QLogic4GbT (admin)#> config activate
QLogic4GbT (admin)#> admin end
```

6.4 Resetting a Port

Enter the [Reset](#) Port command to reinitialize one or more ports and to discard any temporary changes that have been made to the administrative state or link speed. The following example reinitializes port 15:

```
QLogic4GbT #> reset port 15
```

6.5 Configuring Port Threshold Alarms

The I/O module can monitor a set of port errors and generates alarms based on user-defined sample windows and thresholds. These port errors include the following:

- Cyclic Redundancy Check (CRC) errors
- Decode errors
- ISL connection count
- Device login errors
- Device logout errors
- Loss-of-signal errors

You make changes to the port threshold alarms by modifying the I/O module configuration as described in [“Modify an I/O Module Configuration”](#) on page 5-10. Refer to [Table 11-10](#) for a description of the port alarm threshold parameters.

The I/O module will down a port if an alarm condition is not cleared within three consecutive sampling windows (by default 30 seconds). Reset the port to bring it back online. An alarm is cleared when the threshold monitoring detects that the error rate has fallen below the falling trigger.

Enter the **Set Config Threshold** command to enable and configure port threshold monitoring on the I/O module:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> config edit
QLogic4GbT (admin-config) #> set config threshold
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.
```

```
ThresholdMonitoringEnabled      (True / False)      [False  ]
CRCErrorsMonitoringEnabled      (True / False)      [True   ]
  RisingTrigger                 (decimal value, 1-1000) [25    ]
  FallingTrigger                (decimal value, 0-1000) [1     ]
  SampleWindow                  (decimal value, 1-1000 sec) [10    ]
DecodeErrorsMonitoringEnabled   (True / False)      [True   ]
  RisingTrigger                 (decimal value, 1-1000) [25    ]
  FallingTrigger                (decimal value, 0-1000) [0     ]
  SampleWindow                  (decimal value, 1-1000 sec) [10    ]
ISLMonitoringEnabled            (True / False)      [True   ]
  RisingTrigger                 (decimal value, 1-1000) [2     ]
  FallingTrigger                (decimal value, 0-1000) [0     ]
  SampleWindow                  (decimal value, 1-1000 sec) [10    ]
LoginMonitoringEnabled          (True / False)      [True   ]
  RisingTrigger                 (decimal value, 1-1000) [5     ]
  FallingTrigger                (decimal value, 0-1000) [1     ]
  SampleWindow                  (decimal value, 1-1000 sec) [10    ]
LogoutMonitoringEnabled         (True / False)      [True   ]
  RisingTrigger                 (decimal value, 1-1000) [5     ]
  FallingTrigger                (decimal value, 0-1000) [1     ]
  SampleWindow                  (decimal value, 1-1000 sec) [10    ]
LOSMonitoringEnabled           (True / False)      [True   ]
  RisingTrigger                 (decimal value, 1-1000) [100   ]
  FallingTrigger                (decimal value, 0-1000) [5     ]
  SampleWindow                  (decimal value, 1-1000 sec) [10    ]
```

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.

```
QLogic4GbT (admin-config) #> config save
QLogic4GbT (admin-config) #> config activate
```

6.6 Testing a Port

You can perform an internal or external offline port test using the [Test Port](#) command. The following sections describe the test types, displaying test results, and cancelling a test:

- [Offline Tests for Ports](#)
- [Display Port Test Results](#)
- [Cancel a Port Test](#)

6.6.1 Offline Tests for Ports

An offline test is a disruptive test that exercises the port connections. You must place the port in the diagnostics state using the [Set Port](#) command before starting the test. There are two types of offline test: internal loopback and external loopback.

- An internal loopback test exercises the internal port connections.
- An external loopback test exercises the port and its transceiver. A transceiver with a loopback plug is required for the port.

The following example performs an offline test:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> set port 1 state diagnostics
QLogic4GbT (admin) #> test port 1 internal

A list of attributes with formatting and current values will follow. Enter a new
value or simply press the ENTER key to accept the default 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.

TestLength      (decimal value, 1-4294967295)  [100      ]
FrameSize       (decimal value, 40-2148)        [256      ]
DataPattern     (32-bit hex value or 'Default') [Default  ]
StopOnError     (True / False)                    [True     ]

Do you want to start the test? (y/n) [n] y

The test has been started.
A notification with the test result(s) will appear
on the screen when the test has completed.

QLogic4GbT (admin) #>
Loopback test for port 1 Passed.
```

When the test is complete, remember to place the port back online.

```
QLogic4GbT (admin) #> set port 1 state online
```


6.6.2

Display Port Test Results

You can display the test status while the test is in progress by entering the [Test Status](#) Port command as shown in the following example:

```
QLogic4GbT (admin) #> test status
Port Number: 1
-----
TestType      Offline
Status        Running
FailureCount  0
FrameCount    91 of 100
```

6.6.3

Cancel a Port Test

To cancel a port test that is in progress, enter the [Test Cancel](#) Port command.

Notes

Section 7

Connection Security Configuration

NOTE: SSH and SSL connection security require the Fabric Security license key. To purchase a license key, contact your authorized maintenance provider or authorized reseller.

This section describes the following tasks:

- [Managing SSL and SSH Services](#)
- [Displaying SSL and SSH Services](#)
- [Creating an SSL Security Certificate](#)

The I/O module supports secure connections with Telnet and I/O module management applications. The Secure SHell protocol (SSH) secures Telnet connections to the I/O module. The Secure Sockets Layer (SSL) protocol secures I/O module connections to the following management applications:

- QuickTools
- Application Programming Interface
- Storage Management Initiative-Specification (SMI-S)

7.1

Managing SSL and SSH Services

Consider the following when enabling SSH and SSL services:

- To establish a secure Telnet connection, your workstation must use an SSH client.
- To enable secure SSL connections, you must first synchronize the date and time on the I/O module and workstation. Refer to [“Setting the Date and Time” on page 5-15](#).
- The SSL service must be enabled to authenticate users through a RADIUS server. Refer to [“Configuring a RADIUS Server on the Switch” on page 8-3](#).
- To disable SSL when using a user authentication RADIUS server, the RADIUS server authentication order must be local.
- Enabling SSL automatically creates a security certificate on the I/O module.

Enter the **Set Setup Services** command to manage both SSH and SSL services as shown in the following example:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> set setup services

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.

PLEASE NOTE:
-----
* Further configuration may be required after enabling a service.

* If services are disabled, the connection to the switch may be lost.

* When enabling SSL, please verify that the date/time settings
  on this switch and the workstation from where the SSL connection
  will be started match, and then a new certificate may need to be
  created to ensure a secure connection to this switch.

TelnetEnabled      (True / False)  [True ]
SSHEnabled         (True / False)  [False] True
GUIMgmtEnabled    (True / False)  [True ]
SSLEnabled        (True / False)  [False] True
EmbeddedGUIEnabled (True / False)  [True ]
SNMPEnabled       (True / False)  [True ]
NTPEnabled        (True / False)  [False]
CIMEnabled        (True / False)  [False]
FTPEnabled       (True / False)  [True ]
MgmtServerEnabled (True / False)  [True ]

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

7.2 Displaying SSL and SSH Services

Enter the [Show Setup Services](#) command to display the status of the SSH and SSL services as shown in the following example:

```
QLogic4GbT #> show setup services
System Services
-----
TelnetEnabled          True
SSHEnabled             False
GUIMgmtEnabled         True
SSEnabled              False
EmbeddedGUIEnabled     True
SNMPEnabled            True
NTPEnabled             True
FTPEnabled             True
```

7.3 Creating an SSL Security Certificate

Enabling SSL automatically creates a security certificate on the I/O module. The security certificate is required to establish an SSL connection with a management application such as QuickTools. The certificate is valid 24 hours before the certificate creation date and expires 365 days after the creation date. Should the original certificate become invalid, enter the [Create Certificate](#) command to create a new one as shown in the following example:

```
QLogic4GbT (admin) #> create certificate
The current date and time is day mon date hh:mm:ss UTC yyyy.
This is the time used to stamp onto the certificate.
Is the date and time correct? (y/n): [n] y
Certificate generation successful.
```

To ensure the creation of a valid certificate, be sure that the I/O module and the workstation time and date are the same. Refer to [“Setting the Date and Time” on page 5-15](#).

Notes

Section 8

RADIUS Server Configuration

NOTE: RADIUS server configuration requires the Fabric Security license key. To purchase a license key, contact your authorized maintenance provider or authorized reseller.

User account authentication can be centralized using a Remote Dial-In User Service (RADIUS) server such as Microsoft RADIUS. With a RADIUS server, the user account database for the entire fabric resides on the server. In this way, the database can be managed centrally, rather than on each switch. You can configure up to five RADIUS servers to provide failover.

When using a RADIUS server to authenticate user logins, every switch in the fabric must have a secure network connection. Refer to [Section 7](#) for information about secure connections.

This section describes the following tasks:

- [Displaying RADIUS Server Information](#)
- [Configuring a RADIUS Server on the Switch](#)

8.1 Displaying RADIUS Server Information

Enter the [Show Setup Radius](#) command to display RADIUS server information as shown in the following example. Refer to [Table 11-11](#) for a description of the RADIUS server configuration parameters.

```
QLogic4GbT #> show setup radius
```

```
Radius Information
-----
DeviceAuthOrder  RadiusLocal
UserAuthOrder   RadiusLocal
TotalServers     1

Server: 1

ServerIPAddress  10.20.11.8
ServerUDPPort    1812
DeviceAuthServer False
UserAuthServer   True
AccountingServer False
Timeout         2
Retries         0
SignPackets     False
Secret          *****
```


8.2 Configuring a RADIUS Server on the Switch

Enter the [Set Setup Radius](#) command to configure a RADIUS server on the I/O module as shown in the following example. Refer to [Table 11-11](#) for a description of the RADIUS server configuration parameters.

```
QLogic4GbT (admin) #> set setup radius
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 attributes
for the server being processed, press 'q' or 'Q' and the ENTER key to do so.
If you wish to terminate the configuration process completely, press 'qq' or
'QQ' and the ENTER key to so do.

PLEASE NOTE:
-----
* SSL must be enabled in order to configure RADIUS User Authentication
  SSL can be enabled using the 'set setup services' command.

DeviceAuthOrder   (1=Local, 2=Radius, 3=RadiusLocal) [Local]
UserAuthOrder     (1=Local, 2=Radius, 3=RadiusLocal) [Local]
TotalServers      (decimal value, 0-5)                [1    ]

Server: 1
ServerIPAddress   (dot-notated IP Address)             [10.20.11.8]
ServerUDPPort     (decimal value)                       [1812   ]
DeviceAuthServer  (True / False)                                   [True   ]
UserAuthServer    (True / False)                                   [True   ]
AccountingServer  (True / False)                                   [False  ]
Timeout           (decimal value, 10-30 secs)         [10     ]
Retries           (decimal value, 1-3, 0=None)         [0      ]
SignPackets       (True / False)                                   [False  ]
Secret            (1-63 characters, recommend 22+)    [*****]
Do you want to save and activate this radius setup? (y/n): [y]
```

Notes

Section 9

Event Log Configuration

This section describes the following tasks:

- [Starting and Stopping Event Logging](#)
- [Displaying the Event Log](#)
- [Managing the Event Log Configuration](#)
- [Clearing the Event Log](#)
- [Logging to a Remote Host](#)
- [Creating and Downloading a Log File](#)

Event messages originate from the I/O module or from the management application in response to events that occur in the fabric. Refer to the *QLogic Fibre Channel Switch Event Message Guide* for a complete listing of event messages.

Events are classified by the following severity levels:

- **Alarm**—The alarm level describes events that are disruptive to the administration or operation of a fabric and require administrator intervention. Alarms are always logged and always displayed on the screen. Alarm thresholds can be defined for certain port errors to customize when to generate an alarm.
- **Critical**—The critical level describes events that are generally disruptive to the administration or operation of the fabric, but require no action.
- **Warning**—The warning level describes events that are generally not disruptive to the administration or operation of the fabric, but are more important than the informative level events.
- **Informative**—The informative level describes routine events associated with a normal fabric.

9.1 Starting and Stopping Event Logging

Enter the [Set Log Stop](#) command to stop recording event messages in the I/O module Log as shown in the following example:

```
QLogic4GbT (admin) #> set log stop
```

Enter the [Set Log Start](#) command to start recording event message in the I/O module log as shown in the following example:

```
QLogic4GbT (admin) #> set log start
```

9.2 Displaying the Event Log

Enter the [Show Log](#) command to display the event log. Each message has the following format:

[ordinal][time_stamp][severity][message_ID][source][message_text]

[ordinal]—A number assigned to each message in sequence since the last time the alarm history was cleared.

[time_stamp]—The time the alarm was issued in the format day month hh:mm:ss.ms UTC yyyy. This time stamp comes from the I/O module for events that originate with the switch, and from the workstation for events that originate with Enterprise Fabric Suite 2007.

[severity]—The event severity: A—Alarm, C—Critical, W—Warning, I—Informative.

[message_ID]—A number that identifies the message using the following format: category.message_number

[source]—The program module or application that generated the event. Alarms do not include the source.

The following is an example of the Show Log command:

```
QLogic4GbT #> show log
[1][Fri Jan 07 02:07:56.068 UTC 2000][I][8400.0023][Switch][Successful login user
(admin@OB-session8) with admin privilege from address 10.20.32.223-3852]
[2][Fri Jan 07 02:07:56.069 UTC 2000][W][8400.0058][Switch][User (USERID) is using
their initial/default password]
[3][Fri Jan 07 02:08:38.179 UTC 2000][I][8400.0023][Switch][Successful login user
(admin@OB-session9) with admin privilege from address 10.20.32.146]
[4][Fri Jan 07 02:08:38.180 UTC 2000][W][8400.0058][Switch][User (USERID) is using
their initial/default password]
[5][Fri Jan 07 02:09:39.793 UTC 2000][I][8400.0023][Switch][Successful login user
(admin@OB-session10) with admin privilege from address 10.20.32.223-3862]
[6][Fri Jan 07 02:09:39.795 UTC 2000][W][8400.0058][Switch][User (USERID) is using
their initial/default password]
[7][Fri Jan 07 02:17:10.205 UTC 2000][C][8400.002A][Switch][User (USERID) attempted
to log into switch with an incorrect password from 10.20.32.223]
```

You can also filter the event log display with the Show Log Display command and customize the messages that display automatically in the output stream.

- [Filtering the Event Log Display](#)
- [Controlling Messages in the Output Stream](#)

9.2.1

Filtering the Event Log Display

You can customize what events are displayed according to the component or severity level. Enter the [Show Log](#) Display command to filter the events in the display. You can choose from the following severity levels and component events:

- Informative events
- Warning events
- Critical events
- Port events
- Switch management events
- Simple Network Management Protocol (SNMP) events

The following example filters the event log display for critical events.

```
QLogic4GbT #> show log display critical
```

9.2.2

Controlling Messages in the Output Stream

Enter the [Set Log](#) Display command to specify the severity level filter to use to determine what messages are automatically displayed on the screen when they occur. Alarms are always included in the output stream. The following example includes warning and critical level messages in the output stream:

```
QLogic4GbT (admin) #> set log display warn
```

9.3 Managing the Event Log Configuration

Managing the Event Log Configuration consists of the following tasks:

- [Configure the Event Log](#)
- [Display the Event Log Configuration](#)
- [Restore the Event Log Configuration](#)

9.3.1 Configure the Event Log

You can customize what events are recorded in the I/O module event log according to component, severity level, and port. Enter the [Set Log Component](#), [Set Log Level](#), and [Set Log Port](#) commands to filter the events to be recorded. You can choose from the following component events:

- Port events
- Switch management events
- Simple Network Management Protocol (SNMP) events
- Command Line Interface events

The following example configures the event log to record switch management events with warning and critical severity levels associated with ports 0, 15, 16, and 17. Entering the [Set Log Save](#) command ensures that this configuration is preserved across I/O module resets.

```
QLogic4GbT (admin) #> set log component switch
QLogic4GbT (admin) #> set log level warn
QLogic4GbT (admin) #> set log port 0 15-17
QLogic4GbT (admin) #> set log save
```

9.3.2 Display the Event Log Configuration

Enter the [Show Log Settings](#) command to display all event log configuration settings as shown in the following example:

```
QLogic4GbT #> show log settings
Current settings for log
-----
Started                True
FilterComponent        Switch Blade Port Snmp CLI
FilterLevel            Info
DisplayLevel           Critical
FilterPort             0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
```

9.3.3

Restore the Event Log Configuration

Enter the [Set Log](#) Restore command to return the event log configuration to the factory default as shown in the following example:

```
QLogic4GbT (admin) #> set log restore
```

9.4

Clearing the Event Log

Enter the [Set Log](#) Clear command to delete all entries in the event log as shown in the following example:

```
QLogic4GbT (admin) #> set log clear
```

9.5 Logging to a Remote Host

The I/O module comes from the factory with local logging enabled, which instructs the I/O module firmware to maintain an event log in I/O module memory. The I/O module can also be configured to log events to a remote host that supports the syslog protocol. This requires that you enable remote logging on the I/O module and specify an IP address for the remote host.

NOTE: To log event messages on a remote host, you must edit the `syslog.conf` file on the remote host and then restart the syslog daemon. The `syslog.conf` file must contain an entry that specifies the name of the log file. Add the following line to the `syslog.conf` file. A `<tab>` separates the selector field (`local0.info`) and action field which contains the log file path name (`/var/adm/messages/messages.name`).

```
local0.info <tab> /var/adm/messages/messages.name
```

Consult your host operating system documentation for information on how to configure remote logging.

The [Set Setup System](#) command controls local logging through the `LocalLogEnabled` parameter and remote logging through the `RemoteLogEnabled` and `RemoteLogHostAddress` parameters as shown in the following example:

```
QLogic4GbT (admin) #> set setup system
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.

FCNetworkDiscovery      (1=Static, 2=Bootp, 3=Dhcp, 4=Rarp) [Static      ]
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        ]
```


9.6 Creating and Downloading a Log File

Enter the [Set Log Archive](#) command to collect the event log messages in a file on the I/O module named *logfile*. This file can have a maximum of 1200 event messages. Use FTP to download the file from the I/O module to your workstation as follows:

1. Log into the I/O module through Telnet and create an archive of the event log. The Set Log Archive command creates a file on the I/O module named *logfile*.

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> set log archive
```

2. Open an FTP session on the I/O module and log in with the account name *images* and password *images*. Transfer the file *logfile* in binary mode with the Get command.

```
>ftp ip_address
user:images
password: images

ftp>bin
ftp>get logfile
xxxxx bytes sent in xx secs.
ftp>quit
```

Notes

Section 10

Simple Network Management Protocol Configuration

This section describes the following tasks:

- [Managing the SNMP Service](#)
- [Displaying SNMP Information](#)
- [Modifying the SNMP Configuration](#)
- [Resetting the SNMP Configuration](#)

The Simple Network Management Protocol (SNMP) provides for the management of the I/O module through third-party applications that use SNMP. Security consists of a read community string and a write community string that serve as passwords that control read and write access to the switch. These strings are set at the factory to well-known defaults and should be changed if SNMP is to be enabled.

10.1

Managing the SNMP Service

You control the SNMP service SNMPEabled parameters through the [Set Setup SNMP](#) or [Set Setup Services](#) commands. Refer to “[Modifying the SNMP Configuration](#)” on page 10-4 for more information.

Enter the [Set Setup Services](#) command to enable SNMP as shown in the following example:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> set setup services
```

```
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.
```

```
PLEASE NOTE:
-----
```

- * Further configuration may be required after enabling a service.
- * If services are disabled, the connection to the switch may be lost.
- * When enabling SSL, please verify that the date/time settings on this switch and the workstation from where the SSL connection will be started match, and then a new certificate may need to be created to ensure a secure connection to this switch.

```
TelnetEnabled      (True / False)  [True ]
SSHEnabled         (True / False)  [False]
GUIMgmtEnabled    (True / False)  [True ]
SSLEnabled        (True / False)  [False]
EmbeddedGUIEnabled (True / False)  [True ]
SNMPEnabled       (True / False)  [True ]
NTPEnabled        (True / False)  [False]
FTPEnabled        (True / False)  [True ]
```

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

You can display the `SNMPEnabled` parameters using the [Show Setup SNMP](#) or [Show Setup Services](#) commands.

10.2 Displaying SNMP Information

Enter the [Show Setup SNMP](#) command to display SNMP configuration information as shown in the following example. Refer to [Table 11-13](#) for a description of the SNMP parameters.

```
QLogic4GbT #> show setup snmp
SNMP Information
-----
SNMPEnabled          True
Contact              <sysContact undefined>
Location             N_107 System Test Lab
Description          QLogic 4 Gb FC Switch
Trap1Address         10.0.0.254
Trap1Port            162
Trap1Severity        warning
Trap1Version         2
Trap1Enabled         False
Trap2Address         0.0.0.0
Trap2Port            162
Trap2Severity        warning
Trap2Version         2
Trap2Enabled         False
Trap3Address         0.0.0.0
Trap3Port            162
Trap3Severity        warning
Trap3Version         2
Trap3Enabled         False
Trap4Address         0.0.0.0
Trap4Port            162
Trap4Severity        warning
Trap4Version         2
Trap4Enabled         False
Trap5Address         0.0.0.0
Trap5Port            162
Trap5Severity        warning
Trap5Version         2
Trap5Enabled         False
ObjectID             1.3.6.1.4.1.1663.1.1.1.1.17
AuthFailureTrap     True
ProxyEnabled         True
```

10.3 Modifying the SNMP Configuration

Enter the [Set Setup SNMP](#) command to modify the SNMP configuration as shown in the following example. Refer to [Table 11-13](#) for SNMP parameters descriptions.

```
QLogic4GbT (admin) #> set setup snmp

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)  [<sysContact undefined>]
Location         (string, max=64 chars)  [<sysLocation undefined>]
Trap1Address     (dot-notated IP Address) [10.20.71.15   ]
Trap1Port        (decimal value)         [162           ]
Trap1Severity    (see allowed options above) [warning       ]
Trap1Version     (1 / 2)                 [2             ]
Trap1Enabled     (True / False)         [False        ]
Trap2Address     (dot-notated IP Address) [0.0.0.0       ]
Trap2Port        (decimal value)         [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)         [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)         [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)         [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)  [private       ]
TrapCommunity    (string, max=32 chars)  [public        ]
AuthFailureTrap  (True / False)         [False        ]
ProxyEnabled     (True / False)         [True          ]
```

10.4

Resetting the SNMP Configuration

Enter the [Reset](#) SNMP command to reset the SNMP configuration back to the factory defaults as shown in the following example. Refer to [Table 11-4](#) for a listing of the SNMP configuration factory defaults.

```
QLogic4GbT (admin) #> reset snmp
```

Notes

Section 11

Command Reference

This section describes the commands of the CLI and the format in which they are presented. The command format presents the following:

- [Access Authority](#)
- [Syntax and Keywords](#)
- [Notes and Examples](#)

The commands are listed in [“Command Listing” on page 11-3](#).

11.1

Access Authority

The Authority paragraph in each command description indicates what types of sessions are required to enter that command. Commands associated with monitoring tasks are available to all account names with no special session requirement. Commands associated with configuration tasks are available only within an Admin session. An account must have Admin authority to enter the Admin Start command, which opens an Admin session.

Some commands require that you open additional editing sessions within an Admin session. Commands that modify the I/O module configuration require a Config Edit session, which is opened by the [Config Edit](#) command. These command include all of the Set Config commands.

11.2 Syntax and Keywords

The **Syntax** paragraph defines the command syntax using the following convention:

command

keyword
keyword *[value]*
keyword [value1] [value2]

The **Command** is followed by one or more keywords. Consider the following rules and conventions:

- Commands and keywords are case insensitive.
- Required keyword values appear in standard font: [value]. Optional values are shown in italics: *[value]*.
- Underlined portions of the keyword in the command format indicate the abbreviated form that can be used. For example, the delete keyword can be abbreviated **del**.

The **Keywords** paragraph lists and describes each keyword and any applicable values.

11.3 Notes and Examples

The **Notes** paragraph presents useful information about the command and its use, including special applications or effects on other commands. The **Examples** paragraph presents sample screen captures of the command and its output.

11.4

Command Listing

The commands are listed in alphabetical order as follows:

- A** [Admin](#)
- C** [Config, Create](#)
- D** [Date](#)
- E** [Exit](#)
- F** [Feature, Firmware Install](#)
- H** [Hardreset, Help, History, Hotreset](#)
- I** [Image](#)
- L** [Logout](#)
- P** [Passwd, Ping, Ps](#)
- Q** [Quit](#)
- R** [Reset](#)
- S** [Set Alarm, Set Beacon](#)
[Set Config Port, Set Config Switch, Set Config Threshold](#)
[Set Log, Set Pagebreak, Set Port](#)
[Set Setup Radius through Set Setup System](#)
[Set Switch State, Set Timezone](#)
- Sh** [Show About, Show Alarm, Show Chassis](#)
[Show Config Port, Show Config Switch, Show Config Threshold, Show Interface,](#)
[Show Log, Show Media, Show Pagebreak, Show Perf, Show Port,](#)
[Show Post Log, Show Setup Mfg through Show Setup System](#)
[Show Switch, Show Timezone, Show Users,](#)
[Show Version, Shutdown](#)
- T** [Test Cancel, Test Port, Test Status](#)
- U,W,Z** [Uptime, User, Whoami](#)

Admin

Opens and closes an Admin session. The Admin session provides access to commands that change module configurations. Only one Admin session can be open on the module at any time. An inactive Admin session will time out after a period of time which can be changed using the [Set Setup System](#) command.

Authority User account with Admin authority

Syntax **admin**
start (or begin)
end (or stop)
cancel

Keywords **start (or begin)**
Opens the Admin session

end (or stop)
Closes the Admin session. The [Hardreset](#), [Hotreset](#), [Quit](#), [Shutdown](#), and [Reset Switch](#) commands will also end an Admin session.

cancel
Terminates an Admin session opened by another user. Use this keyword with care because it terminates the Admin session without warning the other user and without saving pending changes.

Notes Closing a Telnet window during an Admin session does not release the session. In this case, you must either wait for the Admin session to time out, or use the Admin Cancel command.

Examples The following example shows how to open and close an Admin session:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #>
.
.
.
QLogic4GbT (admin) #> admin end
```

Config

Manages the Fibre Channel configurations on an I/O module. For information about setting the port and I/O module configurations, refer to the [“Set Config Switch” command on page 11-42](#).

Authority Admin session for all keywords except Backup and List

Syntax

```

config
  activate [config_name]
  backup
  cancel
  copy [config_source] [config_destination]
  delete [config_name]
  edit [config_name]
  list
  restore
  save [config_name]
  
```

Keywords **activate [config_name]**
 Activates the configuration given by [config_name]. If you omit [config_name], the currently active configuration is used. Only one configuration can be active at a time.

backup
 Creates a file named *configdata*, which contains the system configuration information. This keyword does not require an Admin session.

cancel
 Terminates the current configuration edit session without saving changes that were made.

copy [config_source] [config_destination]
 Copies the configuration given by [config_source] to the configuration given by [config_destination]. The I/O module supports up to 10 configurations including the default configuration.

delete [config_name]
 Deletes the configuration given by [config_name]. You cannot delete the default configuration (Default Config) nor the active configuration.

edit [config_name]
 Opens an edit session for the configuration given by [config_name]. If you omit [config_name], the currently active configuration is used.

list

Displays a list of all available configurations. This keyword does not require an Admin session.

restore

Restores configuration settings from a backup file named *configdata*, which must be first uploaded on the module using FTP. You create the backup file using the Config Backup command. Use FTP to load the backup file on the module, then enter the Config Restore command. After the restore is complete, the module automatically resets. Refer to [“Back Up and Restore an I/O Module Configuration” on page 5-12](#).

save [config_name]

Saves changes made during a configuration edit session in the configuration given by [config_name]. If you omit [config_name], the value for [config_name] you chose for the most recent Config Edit command is used. [config_name] can be up to 31 characters excluding #, semicolon (;), and comma (.). The module supports up to 10 configurations including the default configuration.

Notes

Changes you make to an active or inactive configuration can be saved, but will not take effect until you activate that configuration.

Examples

The following shows an example of how to open and close a Config Edit session:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> config edit
    The config named default is being edited.
.
.
QLogic4GbT (admin-config) #> config cancel
    Configuration mode will be canceled. Please confirm (y/n): [n] y
QLogic4GbT (admin) #> admin end
```

The following is an example of how to create a backup file (configdata) and download the file to the workstation.

```
QLogic4GbT #> config backup
QLogic4GbT #> exit

#>ftp symbolic_name or ip_address
user: images
password: images
ftp> bin
ftp> get configdata
ftp> quit
```

The following is an example of how to upload a configuration backup file (configdata) from the workstation to the I/O module, and then restore the configuration.

```
#> ftp symbolic_name or ip_address
user: images
password: images
ftp> bin
ftp> put configdata
ftp> quit
```

```
QLogic4GbT #> admin start
```

```
QLogic4GbT (admin) #> config restore
```

The switch will be reset after restoring the configuration.

```
  Please confirm (y/n): [n] y
```

```
  Alarm Msg: [day month date time year][A1005.0021][SM][Configuration is being
restored - this could take several minutes]
```

```
  Alarm Msg: [day month date time year][A1000.000A][SM][The switch will be reset in
3 seconds due to a config restore]
```

```
QLogic4GbT (admin) #>
```

```
  Alarm Msg: [day month date time year][A1000.0005][SM][The switch is being reset]
```

Create

Creates support files for troubleshooting I/O module problems, and certificates for secure communications for Enterprise Fabric Suite 2007 and SMI-S.

Authority Admin session for the Certificate keyword

Syntax **create**
certificate
support

Keywords **certificate**

Creates a security certificate on the I/O module. The security certificate is required to establish an SSL connection with a management application such as Enterprise Fabric Suite 2007. The certificate is valid 24 hours before the certificate creation date and expires 365 days after the creation date. Should the current certificate become invalid, use the Create Certificate command to create a new one.

NOTE: To insure the creation of a valid certificate, be sure that the I/O module and the workstation time and date are the same. Refer to the following:

- [“Date” command on page 11-11](#) for information about setting the time and date
- [“Set Timezone” command on page 11-66](#) for information about setting the time zone on the I/O module and workstation
- [“Set Setup System” command on page 11-63](#) (System keyword) for information about enabling the Network Time Protocol for synchronizing the time and date on the I/O module and workstation from an NTP server.

support

Assembles all log files and I/O module memory data into a file (dump_support.tgz) on the I/O module. If your workstation has an FTP server, you can proceed with the command prompts to send the file from the I/O module to a remote host. Otherwise, you can use FTP to download the support file from the I/O module to your workstation. The support file is useful to technical support personnel for troubleshooting I/O module problems. Use this command when directed by your authorized maintenance provider. This keyword does not require an Admin session.

Examples The following is an example of the Create Support command when an FTP server is available on the workstation:

```
QLogic4GbT #> create support
Log Msg:[Creating the support file - this will take several seconds]
FTP the dump support file to another machine? (y/n): y
Enter IP Address of remote computer: 10.20.33.130
Login name: johndoe
Enter remote directory name: bin/support
Would you like to continue downloading support file? (y/n) [n]: y
Connected to 10.20.33.130 (10.20.33.130).
220 localhost.localdomain FTP server (Version wu-2.6.1-18) ready.
331 Password required for johndoe.
Password: xxxxxxxx

230 User johndoe logged in.
cd bin/support
250 CWD command successful.
lcd /itasca/conf/images
Local directory now /itasca/conf/images
bin
200 Type set to I.
put dump_support.tgz
local: dump_support.tgz remote: dump_support.tgz
227 Entering Passive Mode (10,20,33,130,232,133)
150 Opening BINARY mode data connection for dump_support.tgz.
226 Transfer complete.
43430 bytes sent in 0.292 secs (1.5e+02 Kbytes/sec)
Remote system type is UNIX.
Using binary mode to transfer files.
221-You have transferred 43430 bytes in 1 files.
221-Total traffic for this session was 43888 bytes in 1 transfers.
221 Thank you for using the FTP service on localhost.localdomain.
```

The following is an example of the Create Support command and how to download the support file to your workstation. When prompted to send the support file to another machine, decline, then close the Telnet session. Open an FTP session on the I/O module and log in with the account name *images* and password *images*. Transfer the *dump_support.tgz* file in binary mode with the Get command.

```
QLogic4GbT #> create support
Log Msg:[Creating the support file - this will take several seconds]
FTP the dump support file to another machine? (y/n): n

QLogic4GbT (admin) #> quit
>ftp switch_ip_address
user:      images
password: images

ftp>bin
ftp>get dump_support.tgz
      xxxxx bytes sent in xx secs.
ftp> quit
```

The following is an example of the Create Certificate command:

```
QLogic4GbT (admin) #> create certificate
The current date and time is day mon date hh:mm:ss UTC yyyy.
This is the time used to stamp onto the certificate.
Is the date and time correct? (y/n): [n] y
Certificate generation successful.
```

Date

Displays or sets the system date and time. To set the date and time the information string must be provided in this format: MMDDhhmmCCYY. The new date and time takes effect immediately.

Authority Admin session except to display the date.

Syntax **date**
[MMDDhhmmCCYY]

Keywords **[MMDDhhmmCCYY]**
Specifies the date – this requires an Admin session. If you omit [MMDDhhmmCCYY], the current date is displayed which does not require an Admin session.

Notes Network Time Protocol (NTP) must be disabled to set the time with the Date command. Enter the [Set Setup System](#) command to disable the NTPClientEnabled parameter.

When setting the date and time on a I/O module that is enabled for SSL connections, the I/O module time must be within 24 hours of the workstation time. Otherwise, the connection will fail.

Examples The following is an example of the Date command:

```
QLogic4GbT #> date
Mon Apr 07 07:51:24 200x
```

Exit

Closes the Telnet session.

Authority None

Syntax `exit`

Notes You can also enter Control-D to close the Telnet session.

Feature

Adds license key features to the I/O module and displays the license key feature log. To order a license key contact your switch distributor or your authorized reseller. Upgrading an I/O module is not disruptive, nor does it require an I/O module reset.

Authority Admin session for Add keyword only

Syntax **feature**
 add [license_key]
 log

Keywords **add [license_key]**
 Adds the feature that corresponds to the value given by [license_key]. [license_key] is case insensitive.

log
 Displays a list of installed license key features.

Notes The following license keys are available:

- 20-Port Full Fabric License for IBM BladeCenter allows the conversion of the 4 Gb Intelligent Pass-thru Module to a full featured 20-port 4 Gb SAN Switch Module. All other installed licenses transfer to the 20-port I/O module. After the license is installed, enter the [Set Config Switch](#) and set the TransparentMode parameter to False. To restore the module to a 4Gb Intelligent Pass Through Module, set the TransparentMode parameter to True.
- Enterprise Fabric Suite 2007 for IBM BladeCenter provides access to a workstation-based Java® application that provides a graphical user interface for I/O module management. This includes Performance Viewer which graphs port performance.
- Fabric Security for IBM BladeCenter provides the following:
 - ❑ Connection security using Secure Shell (SSH) and Secure Socket Layer (SSL).
 - ❑ Remote user authentication using a Remote Authentication Dial-In User Service (RADIUS) server
- SANdoctor for IBM BladeCenter provides for transceiver diagnostics ([Show Media](#) command).

Examples The following is an example of the Feature Add command:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> feature add 4000-LCOHQSMHTJNF2
Full Fabric/Transparent Switch Mode change (All ports licensed in transparent mode)
```

```
This feature upgrade does NOT require a switch reset.
Do you want to continue with license upgrade procedure? (y/n): [n] y
```

```
Log Msg: [Tue Apr 10 15:42:19.303 EDT 2007][C][8400.005E][Switch][Upgrading
License for Full Fabric/Transparent Switch Mode change capability]
Log Msg: [Tue Apr 10 15:42:19.319 EDT 2007][C][8400.0047][Switch][New licenses
are being installed]
```

The following is an example of the Feature Log command:

```
QLogic4GbT: admin> feature log
```

```
Mfg Feature Log:
```

```
-----
```

```
Customer Feature Log:
```

```
-----
```

- 1) Thu Jan 1 01:52:10 1970 - Switch Licensed for SANdoctor capability
1000-LCELNULAPWMXX
SFP Digital Diagnostics capability
- 2) Thu Jan 1 02:25:10 1970 - Switch Licensed for Full Fabric/Transparent Switch
Mode change capability 4000-LCBSRCBWL3Y8G6

Firmware Install

Downloads firmware from a remote host to the I/O module, installs the firmware, then resets the I/O module to activate the firmware. This is disruptive. The command prompts you for the following:

- The file transfer protocol (FTP or TFTP)
- IP address of the remote host
- An account name and password on the remote host (FTP only)
- Pathname for the firmware image file

Authority Admin session

Syntax `firmware install`

Examples The following is an example of the Firmware Install command using FTP:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> firmware install
  The switch will be reset.  This process will cause a disruption
  to I/O traffic.

  Continuing with this action will terminate all management sessions,
  including any Telnet sessions.  When the firmware activation is complete,
  you may log in to the switch again.

  Do you want to continue? [y/n]: y
      Press 'q' and the ENTER key to abort this command.

  FTP or TFTP      : ftp
  User Account     : johndoe
  IP Address       : 10.0.0.254
  Source Filename  : 6.5.00.11_ipc
  About to install image.  Do you want to continue? [y/n] y

Connected to 10.0.0.254 (10.0.0.254).
220 localhost.localdomain FTP server (Version wu-2.6.1-18) ready.
331 Password required for johndoe.
Password: xxxxxxxxxx
230 User johndoe logged in.
bin
200 Type set to I.
verbose
Verbose mode off.
  This may take several seconds...
  The switch will now reset.
Connection closed by foreign host.
```

The following is an example of the Firmware Install command using TFTP:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> firmware install
  The switch will be reset.  This process will cause a disruption
  to I/O traffic.
  Continuing with this action will terminate all management sessions,
  including any Telnet sessions.  When the firmware activation is complete,
  you may log in to the switch again.

  Do you want to continue? [y/n]: y

      Press 'q' and the ENTER key to abort this command.

  FTP or TFTP      : tftp
  IP Address       : 10.0.0.254
  Source Filename  : 6.5.00.11_ipc
  About to install image.  Do you want to continue? [y/n] y

Connected to 10.0.0.254 (10.0.0.254).
220 localhost.localdomain FTP server (Version wu-2.6.1-18) ready.
bin
200 Type set to I.
verbose
Verbose mode off.
  This may take several seconds...
  The switch will now reset.
Connection closed by foreign host.
```

Hardreset

Resets the I/O module and performs a power-on self test. This reset disrupts I/O traffic, activates the pending firmware, and clears the alarm log. To save the alarm log before resetting, refer to the [“Set Log” command on page 11-46](#).

Authority Admin session

Syntax `hardreset`

Notes To reset the I/O module without a power-on self test, refer to the [“Reset” command on page 11-29](#).

To reset the I/O module without disrupting traffic, refer to the [“Hotreset” command on page 11-20](#).

Help

Displays a brief description of the specified command, its keywords, and usage.

Authority None

Syntax **help [command] [keyword]**

Keywords **[command]**

Displays a summary of the command given by [command] and its keywords. If you omit [command], the system displays all available commands.

[keyword]

Displays a summary of the keyword given by [keyword] belonging to the command given by [command]. If you omit [keyword], the system displays the available keywords for the specified command.

all

Displays a list of all available commands (including command variations).

Examples The following is an example of the Help Config command:

```
QLogic4GbT #> help config
config CONFIG_OPTIONS
The config command operates on configurations.
```

```
Usage: config { activate | backup | cancel | copy | delete |
              edit | list | restore | save }
```

The following is an example of the Help Config Edit command:

```
QLogic4GbT #> help config edit
config edit [CONFIG_NAME]
This command initiates a configuration session and places the current session
into config edit mode.
```

If CONFIG_NAME is given and it exists, it gets edited; otherwise, it gets created. If it is not given, the currently active configuration is edited.

Admin mode is required for this command.

```
Usage: config edit [CONFIG_NAME]
```

History

Displays a numbered list of the previously entered commands from which you can re-execute selected commands.

Authority None

Syntax `history`

Notes Use the History command to provide context for the `!` command:

- Enter `![command_string]` to re-execute the most recent command that matches `[command_string]`.
- Enter `![line number]` to re-execute the corresponding command from the History display
- Enter `![partial command string]` to re-execute a command that matches the command string.
- Enter `!!` to re-execute the most recent command.

Examples The following is an example of the History command:

```
QLogic4GbT #> history
  1 show switch
  2 date
  3 help set
  4 history

QLogic4GbT #> !3
help set

set SET_OPTIONS
There are many attributes that can be set.
Type help with one of the following to get more information:

Usage: set { alarm      | beacon      | config      | log          | pagebreak |
           port        | setup      | switch }
```

Hotreset

Resets the I/O module for the purpose of activating the pending firmware without disrupting traffic. This command terminates all management sessions, saves all configuration information, and clears the event log. After the pending firmware is activated, the configuration is recovered. This process may take a few minutes. To save the event log to a file before resetting, enter the [Set Log Archive](#) command.

Authority Admin session

Syntax `hotreset`

- Notes**
- You can load and activate version 6.5.x firmware on an operating I/O module without disrupting data traffic or having to re-initialize attached devices under the following conditions:
 - ❑ The current firmware version permits the installation and non-disruptive activation of 6.5 firmware. Refer to the 6.5 Firmware Release Notes for previous compatible firmware versions.
 - ❑ No changes are being made to switches in the fabric including installing firmware, powering up, powering down, disconnecting or connecting ISLs, and switch configuration changes.
 - ❑ No port on the I/O module is in the diagnostic state.
 - ❑ No changes are being made to attached devices including powering up, powering down, disconnecting, connecting, and HBA configuration changes.
 - Ports that are stable when the non-disruptive activation begins, then change states, will be reset. When the non-disruptive activation is complete, QuickTools and Enterprise Fabric Suite 2007 sessions reconnect automatically. However, CLI and SSH sessions must be restarted manually.
 - This command clears the event log and all counters.

Image

Manages and installs I/O module firmware.

Authority Admin session

Syntax **image**
cleanup
fetch [account_name] [ip_address] [file_source] [file_destination]
install
list
tftp [ip_address] [file_source] [file_destination]
unpack [file]

Keywords **cleanup**

Removes all firmware image files from the I/O module. All firmware image files are removed automatically each time the I/O module is reset.

fetch [account_name] [ip_address] [file_source] [file_destination]

Retrieves image file given by [file_source] using FTP and stores it on the I/O module with the file name given by [file_destination]. The image file is retrieved from the host IP address given by [ip_address]. If an account name needs a password to access the FTP server, the system will prompt you for it.

install

Downloads firmware from a remote host to the I/O module, installs the firmware, then resets the I/O module to activate the firmware. This is disruptive. The command prompts you for the following:

- File transfer protocol (FTP or TFTP)
- IP address of the remote host
- An account name and password on the remote host (FTP only)
- Pathname for the firmware image file

list

Displays the list of image files that reside on the I/O module.

tftp [ip_address] [file_source] [file_destination]

Retrieves image file given by [file_source] using TFTP and stores it on the I/O module with the file name given by [file_destination]. The image file is retrieved from the host IP address given by [ip_address].

unpack [file]

Installs the firmware file given by [file]. After unpacking the file, a message appears confirming successful unpacking. The I/O module must be reset for the new firmware to take effect.

Notes To provide consistent performance throughout the fabric, ensure that all switches are running the same version of firmware.

To install firmware when the management workstation has an FTP server, use the [Image Install](#) command or the [Firmware Install](#) command.

Examples The following is an example of the Image Install command:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> image install
Warning: Installing new firmware requires a switch reset.

Continuing with this action will terminate all management sessions,
including any Telnet sessions. When the firmware activation is complete,
you may log in to the switch again.

Do you want to continue? [y/n]: y

Press 'q' and the ENTER key to abort this command.

FTP or TFTP      : ftp
User Account     : johndoe
IP Address       : 10.0.0.254
Source Filename  : 6.5.00.11_ipc
About to install image. Do you want to continue? [y/n] y

Connected to 10.0.0.254 (10.0.0.254).
220 localhost.localdomain FTP server (Version wu-2.6.1-18) ready.
331 Password required for johndoe.
Password: xxxxxxxx
230 User johndoe logged in.
bin
200 Type set to I.
verbose
Verbose mode off.
This may take several seconds...
The switch will now reset.
Connection closed by foreign host.
```

The following is an example of the Image Fetch and Image Unpack commands:

```
QLogic4GbT (admin) #> image fetch johndoe 10.0.0.254 6.5.00.11_ipc
>ftp 10.0.0.254
user:johndoe
password: *****
ftp>bin
ftp>put 6.5.00.11_ipc
ftp>quit
SANbox (admin) $>image list
SANbox (admin) $>image unpack 6.5.00.11_ipc
Image unpack command result: Passed
```

Logout

Closes the Telnet session.

Authority None

Syntax **logout**

Notes You can also enter Control-D to close the Telnet session.

Passwd

Changes a user account's password.

Authority Admin account name and an Admin session to change another account's password; You can change you own password without an Admin session.

Syntax `passwd [account_name]`

Keywords `[account_name]`

The user account name. To change the password for an account name other than your own, you must open an Admin session with the account name `USERID`. If you omit `[account_name]`, you will be prompted to change the password for the current account name.

Examples The following is an example of the `Passwd` command:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> passwd user2
```

Press 'q' and the ENTER key to abort this command.

```
account OLD password           : *****
account NEW password (8-20 chars) : *****

please confirm account NEW password: *****
password has been changed.
```

Ping

Initiates an attempt to communicate with another switch over an Ethernet network and reports the result.

Authority None

Syntax `ping [ip_address]`

Keywords `[ip_address]`

The IP address of the switch to query. Broadcast IP addresses, such as 255.255.255.255, are not valid.

Examples The following is an example of a successful Ping command:

```
QLogic4GbT #> ping 10.20.11.57
  Ping command issued. Waiting for response...
QLogic4GbT #>
  Response successfully received from 10.20.11.57.
```

This following is an example of an unsuccessful Ping command:

```
QLogic4GbT #> ping 10.20.11.57
  Ping command issued. Waiting for response...
  No response from 10.20.11.57. Unreachable.
```

Ps

Displays current system process information.

Authority None

Syntax ps

Examples The following is an example of the Ps command:

```
QLogic4GbT #> ps
  PID  PPID  %CPU  %MEM    TIME      ELAPSED  COMMAND
  194   166   0.0   0.5  00:00:00  1-02:07:40  cns
  195   166   0.0   0.6  00:00:00  1-02:07:40  ens
  196   166   0.0   0.5  00:00:00  1-02:07:40  dlog
  197   166   0.2   0.8  00:03:11  1-02:07:40  ds
  198   166   0.8   4.1  00:12:55  1-02:07:40  mgmtApp
  199   166   0.0   0.6  00:00:00  1-02:07:40  sys2swlog
  210   166   0.0   0.7  00:00:00  1-02:07:33  fc2
  211   166   0.0   0.9  00:00:02  1-02:07:33  nserver
  212   166   0.0   0.9  00:00:01  1-02:07:33  mserver
  213   166   0.6   1.2  00:10:55  1-02:07:33  util
  214   166   0.0   0.9  00:00:10  1-02:07:33  snmpservicepath
  215   166   0.0   1.0  00:00:22  1-02:07:33  eport
  216   166   0.0   1.4  00:00:08  1-02:07:33  PortApp
  217   166   0.0   0.8  00:00:10  1-02:07:33  port_mon
  218   166   0.0   1.0  00:00:00  1-02:07:33  zoning
  219   166   0.0   0.8  00:00:01  1-02:07:32  diagApp
  370   166   0.0   0.9  00:00:02  1-02:07:20  snmpd
  371   166   0.0   1.0  00:00:00  1-02:07:20  snmpmain
  381   371   0.0   1.0  00:00:00  1-02:07:19  snmpmain
  389   381   0.0   1.0  00:00:00  1-02:07:19  snmpmain
```

Quit

Closes the Telnet session.

Authority None

Syntax `quit`

Notes You can also enter Control-D to close the Telnet session.

Reset

Resets the I/O module configuration parameters. If you omit the keyword, the default is Reset Switch.

Authority Admin session

Syntax **reset**
 config [*config_name*]
 factory
 port [*port_list*]
 radius
 services
 snmp
 switch (default)
 system

Keywords **config [*config_name*]**

Resets the configuration given by [*config_name*] to the factory default values for switch, port, and port threshold alarm configuration as described in [Table 11-1](#) through [Table 11-14](#). If [*config_name*] does not exist on the I/O module, a configuration with that name will be created. If you omit [*config_name*], the active configuration is reset. You must activate the configuration for the changes to take effect.

factory

Resets I/O module configuration, port configuration, port threshold alarm configuration, zoning configuration, SNMP configuration, system configuration, security configuration, RADIUS configuration, and I/O module services configuration to the factory default values as described in [Table 11-1](#) through [Table 11-14](#). The I/O module configuration is activated automatically.

NOTE: This keyword does not affect installed license keys.

port [*port_list*]

Reinitializes one or more ports given by [*port_list*]. [*port_list*] can be a set of port numbers and ranges delimited by spaces. For example, [0 2 10-15] specifies ports 0, 2, 10, 11, 12, 13, 14, and 15.

radius

Resets the RADIUS configuration to the default values as described in [Table 11-5](#).

services

Resets the I/O module services configuration to the default values as described in [Table 11-6](#).

snmp

Resets the SNMP configuration settings to the factory default values. Refer to [Table 11-4](#) for SNMP configuration default values.

switch

Resets the I/O module without a power-on self test. This is the default. This reset disrupts traffic and does the following:

- Activates the pending firmware.
- Closes all management sessions.
- Clears the event log. To save the event log before resetting, refer to the [“Set Log” command on page 11-46](#).

To reset the I/O module with a power-on self test, refer to the [“Hardreset” command on page 11-17](#). To reset the I/O module without disrupting traffic, refer to the [“Hotreset” command on page 11-20](#).

system

Resets the system configuration settings to the factory default values as described in [Table 11-7](#).

- NOTE:**
- Because this keyword changes network parameters, the workstation could lose communication with the I/O module.
 - This keyword does not affect installed license keys.

Notes

The following tables specify the various factory default settings:

Enter the [Show Config Switch](#) command to display I/O module configuration values.

Table 11-1. I/O Module Configuration Defaults

Parameter	Default
TransparentMode	True
Admin State	Online
Symbolic Name	QLogic4GbT
R_A_TOV	10000
E_D_TOV	2000
Configuration Description	Default Config

Enter the [Show Config Port](#) command to display port configuration values.

Table 11-2. Port Configuration Defaults

Parameter	External Port Defaults (Ports 0, 15, 16, 17, 18, 19)	Internal Port Defaults (Ports 1–14) ^A
Admin State	Online	Online
Link Speed	Auto	4-Gbps
Port Type	TF	TH
PrimaryTFPortMap	Not applicable	1, 2 map to port 0 3, 4 map to port 15 5–7 map to port 16 8, 9 map to port 17 10, 11 map to port 18 12–14 map to port 19
BackupTFPortMap	Not applicable	1, 2 map to port 15 3–14 map to port 0
Symbolic Name	Portn, where n is the port number	Portn, where n is the port number

^A Ports 1–14 apply to BladeCenter unit Type 8677. Ports 1–8 apply to BladeCenter T unit Types 8720 and 8730; ports 9–14 are not used.

Enter [Show Config Threshold](#) command to display threshold alarm configuration values.

Table 11-3. Port Threshold Alarm Configuration Defaults

Parameter	Default
ThresholdMonitoringEnabled	False
CRCErrorsMonitoringEnabled	True
■ RisingTrigger	25
■ FallingTrigger	1
■ SampleWindow	10
DecodeErrorsMonitoringEnabled	True
■ RisingTrigger	25
■ FallingTrigger	0
■ SampleWindow	10
ISLMonitoringEnabled	True
■ RisingTrigger	2
■ FallingTrigger	0
■ SampleWindow	10
LoginMonitoringEnabled	True
■ RisingTrigger	5
■ FallingTrigger	1
■ SampleWindow	10
LogoutMonitoringEnabled	True
■ RisingTrigger	5
■ FallingTrigger	1
■ SampleWindow	10
LOSMonitoringEnabled	True
■ RisingTrigger	100
■ FallingTrigger	5
■ SampleWindow	10

Enter the [Show Setup SNMP](#) command to display SNMP configuration values.

Table 11-4. SNMP Configuration Defaults

Parameter	Default
SNMPEnabled	True
Contact	<syscontact undefined>
Location	<sysLocation undefined>
Description	QLogic(R) 4Gb Intelligent Pass-thru Module for IBM BladeCenter(R)
Trap [1-5] Address	Trap 1: 10.0.0.254; Traps 2–5: 0.0.0.0
Trap [1-5] Port	162
Trap [1-5] Severity	Warning
Trap [1-5] Version	2
Trap [1-5] Enabled	False
ObjectID	1.3.6.1.4.1.3873.1.8
AuthFailureTrap	False
ProxyEnabled	True

Enter the [Show Setup Radius](#) command to display RADIUS configuration values.

Table 11-5. RADIUS Configuration Defaults

Parameter	Default
DeviceAuthOrder	Not applicable
UserAuthOrder	Local
TotalServers	1
DeviceAuthServer	False
UserAuthServer	False
AccountingServer	False
ServerIPAddress	10.0.0.1
ServerUDPPort	1812
Timeout	2 seconds
Retries	0
SignPackets	False

Enter the [Show Setup Services](#) command to display I/O module service configuration values.

Table 11-6. Services Configuration Defaults

Parameter	Default
TelnetEnabled	True
SSHEnabled	False
GUIMgmtEnabled	True
SSLMgmtEnabled	False
EmbeddedGUIEnabled	True
SNMPEEnabled	True
NTPEnabled	False
FTPEEnabled	True.

Enter the [Show Setup System](#) command to display system configuration values.

Table 11-7. System Configuration Defaults

Parameter	Default
Ethernet Network Discovery	Static
Admin Timeout	30 minutes
InactivityTimeout	0
LocalLogEnabled	True
RemotelogEnabled	False
RemoteLogHostAddress	10.0.0.254
NTPClientEnabled	False
NTPServerAddress	10.0.0.254
EmbeddedGUIEnabled	True

Set Alarm

Controls the display of alarms in the session output stream or clears the alarm log.

Authority Admin session for the Clear keyword. Otherwise, none.

Syntax **set alarm [option]**

Keywords **[option]**

[option] can be one of the following:

clear

Clears the alarm log history. This value requires an Admin session.

on

Enables the display of alarms in the session output stream.

off

Disables the display of alarms in the session output stream. Disabling the display of alarms in the output stream allows command scripts to run without interruption.

Examples The following is an example of the Set Alarm command:

```
QLogic4GbT #> set alarm on
```

Set Beacon

Enables or disables the flashing of the Logged-In LEDs for the purpose of locating an I/O module.

Authority None

Syntax `set beacon [state]`

Keywords `[state]`

[state] can be one of the following:

on

Enables the flashing beacon.

off

Disables the flashing beacon.

Examples The following is an example of the Set Beacon command:

```
QLogic4GbT #> set beacon on
```

Set Config Port

Sets the port configuration parameters for one or more ports. The changes you make with this command are not retained when you reset or power cycle the I/O module unless you save them using the Config Save command.

Authority Admin session and a Config Edit session

Syntax **set config port** [*port_number*]
or
set config ports
internal
external

Keywords **port** [*port_number*]
Initiates an edit session in which to change configuration parameters for the port number given by [*port_number*]. If you omit [*port_number*], the system begins with port 0 and proceeds in order through the last port. For each parameter, enter a new value or press the Enter key to accept the current value shown in brackets. Enter “q” to end the configuration for one port, or “qq” to end the configuration for all ports. [Table 11-8](#) describes the port configuration parameters.

ports [*port_set*]

Initiates an editing session in which to change configuration parameters (except symbolic port name) for the set of all external ports based on external port 0, or the set of all internal ports based on internal port 1, depending on the value given by [*port_set*]. For each parameter, enter a new value or press the Enter key to accept the current value shown in brackets. Enter “q” to end the configuration. [Table 11-8](#) describes the port configuration parameters. [*port_set*] can have the following values:

external

The configurations for all external ports (0, 15, 16, 17, 18, 19) are made based on the configuration of external port 0.

internal

The configuration for all internal ports (1–14) are made based on the configuration of internal port 1.

Table 11-8. Port Configuration Parameters

Parameter	Description
AdminState	Port administrative state: <ul style="list-style-type: none"> ■ Online – Activates and prepares the port to send data. This is the default. ■ Offline – Prevents the port from receiving signal and accepting a device login. ■ Diagnostics – Prepares the port for testing and prevents the port from accepting a device login. ■ Down – Disables the port by removing power from the port lasers.
LinkSpeed	Transmission speed: <ul style="list-style-type: none"> ■ TF_Ports: 1-Gbps, 2-Gbps, 4-Gbps, or Auto. The default is Auto. ■ TH_Ports: 2-Gbps, 4-Gbps, or Auto. The default is 2Gb/s.
PortType	Port type for external ports: <ul style="list-style-type: none"> ■ TF–Transparent Fabric port connects to Fibre Channel switches that support NPIV. ■ TH–Transparent Host port connects to an HBA. TH_Ports are mapped to TF_Ports. The default for external ports is TF. All internal ports are TH_Ports.
PrimaryTFPortMap	Primary mapping for TH_Ports. The mapping consists of a list of TF_Port numbers (delimited by spaces) that are assigned to pass traffic to and from the TH_Port. If you specify N, the TH_Port is unmapped, effectively disconnecting the TH_Port from the fabric. The default primary mapping is as follows: <ul style="list-style-type: none"> ■ Ports 1, 2 map to port 0 ■ Ports 3, 4 map to port 15 ■ Ports 5–7 map to port 16 ■ Ports 8, 9 map to port 17 ■ Ports 10, 11 map to port 18 ■ Ports 12–14 map to port 19 If all TF_Ports in the primary mapping fail, the backup port mapping is used (BackupTFPortMap).

Table 11-8. Port Configuration Parameters (Continued)

Parameter	Description
BackupTFPortMap	Backup mapping for TH_Ports. The mapping consists of a list of TF_Port numbers (delimited by spaces) that are assigned to pass traffic to and from the TH_Port when all TF_Ports in the primary mapping (PrimaryTFPortMap) have failed. If you specify N, the TH_Port is unmapped, effectively disconnecting the TH_Port from the fabric. The default secondary mapping is as follows: <ul style="list-style-type: none"> ■ Ports 1, 2 map to port 15 ■ Ports 3–14 map to port 0
SymbolicPortName	Descriptive name for the port. The name can be up to 32 characters excluding #, semicolon (;), and comma (.). The default is Port n where n is the port number. This parameter can be changed only with the Set Config Port command.

Examples The following is an example of the Set Config Port command for external port 0:

```

QLogic4GbT #> admin start
QLogic4GbT (admin) #> config edit
QLogic4GbT (admin-config) #> set config port 0

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: 0
-----
AdminState      (1=Online, 2=Offline, 3=Diagnostics, 4=Down)  [Online]
LinkSpeed       (1=1Gb/s, 2=2Gb/s, 4=4Gb/s, A=Auto)             [Auto ]
PortType        (TH / TF)                                         [TF   ]
SymPortName     (string, max=32 chars)                           [Port0 ]

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.
    
```


The following is an example of the Set Config Port command for internal port 1:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> config edit
QLogic4GbT (admin-config) #> set config port 1
  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:  1
-----
AdminState      (1=Online, 2=Offline, 3=Diagnostics, 4=Down)  [Online] offline
LinkSpeed       (2=2Gb/s, 4=4Gb/s, A=Auto)                    [2Gb/s ]
PrimaryTFPortMap (decimal value for port, N=no mapping)                [0      ]
BackupTFPortMap (decimal value for port, N=no mapping)        [15     ]
SymPortName     (string, max=32 chars)                       [Port1  ]

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.
QLogic4GbT (admin-config) #> config save
QLogic4GbT (admin-config) #> config activate
```

Set Config Switch

Sets the I/O module configuration parameters. The changes you make with this command are not retained when you reset or power cycle the I/O module unless you save them using the [Config Save](#) command.

Authority Admin session and a Config Edit session

Syntax `set config switch`

This command initiates an editing session in which to change I/O module configuration settings. The system displays each parameter one line at a time and prompts you for a value. For each parameter, enter a new value or press the Enter key to accept the current value shown in brackets. [Table 11-9](#) describes the I/O module configuration parameters.

Table 11-9. I/O Module Configuration Parameters

Parameter	Description
TransparentMode	Transparent mode control of the 20-Port Full Fabric License for IBM BladeCenter: <ul style="list-style-type: none"> ■ Converts a properly licensed Pass-thru Module to a full-fabric 20-Port 4 Gb SAN Switch Module (False). ■ Converts a 20-Port 4 Gb SAN Switch Module to a Pass-thru Module (True).
AdminState	I/O module administrative state. <ul style="list-style-type: none"> ■ Online – Activates and prepares the ports to send data. This is the default. ■ Offline – Prevents the ports from receiving signal and accepting a device login. ■ Diagnostics – Prepares the ports for testing and prevents the ports from accepting a device login. ■ Down – Disables the ports by removing power from the port lasers.
SymbolicName	Descriptive name for the I/O module. The name can be up to 32 characters excluding #, semicolon (;), and comma (.). The default is QLogic4GbT.
R_A_TOV	Resource Allocation Timeout Value. The number of milliseconds the I/O module waits to allow two ports to allocate enough resources to establish a link. The default is 10000.
E_D_TOV	Error Detect Timeout Value. The number of milliseconds a port is to wait for errors to clear. The default is 2000.

Table 11-9. I/O Module Configuration Parameters (Continued)

Parameter	Description
ConfigDescription	I/O module configuration description. The configuration description can be up to 32 characters excluding #, semicolon (;), and comma (.). The default is Default Config.

Examples The following is an example of the Set Config Switch command:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> config edit
QLogic4GbT (admin-config) #> set config switch
```

A list of attributes with formatting and default 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.

```
TransparentMode      (True / False)           [True      ]
AdminState           (1=Online, 2=Offline, 3=Diagnostics) [Online    ]
SymbolicName         (string, max=32 chars)   [SANbox    ]
R_A_TOV              (decimal value, 100-100000 msec) [10000     ]
E_D_TOV              (decimal value, 10-20000 msec) [2000      ]
ConfigDescription    (string, max=64 chars)   [Default Config]
```

Set Config Threshold

Sets the port alarm threshold parameters by which the I/O module monitors port performance and generates alarms. The changes you make with this command are not retained when you reset or power cycle the I/O module unless you save them using the [Config Save](#) command.

Authority Admin session and a Config Edit session

Syntax `set config threshold`

Initiates a configuration session by which to generate and log alarms for selected events. The system displays each event, its triggers, and sampling window one line at a time and prompts you for a value. For each parameter, enter a new value or press the Enter key to accept the current value shown in brackets. [Table 11-10](#) describes the port alarm threshold parameters.

Table 11-10. Port Alarm Threshold Parameters

Parameter	Description
Threshold Monitoring Enabled	Master enable/disable parameter for all events. Enables (True) or disables (False) the generation of all enabled event alarms. The default is False.
CRCErrorsMonitoringEnabled	The event type enable/disable parameter. Enables (True) or disables (False) the generation of alarms for each of the following events: <ul style="list-style-type: none"> ■ CRC errors ■ Decode errors ■ ISL connection count ■ Device login errors ■ Device logout errors ■ Loss-of-signal errors
DecodeErrorsMonitoringEnabled	
ISLMonitoringEnabled	
LoginMonitoringEnabled	
LogoutMonitoringEnabled	
LOSMonitoringEnabled	
Rising Trigger	The event count above which a rising trigger alarm is logged. The I/O module will not generate another rising trigger alarm for that event until the count descends below the falling trigger and again exceeds the rising trigger.
Falling Trigger	The event count below which a falling trigger alarm is logged. The I/O module will not generate another falling trigger alarm for that event until the count exceeds the rising trigger and descends again below the falling trigger.
Sample Window	The time in seconds in which to count events.

Notes The I/O module will down a port if an alarm condition is not cleared within three consecutive sampling windows (by default 30 seconds). Reset the port to bring it back online. An alarm is cleared when the threshold monitoring detects that the error rate has fallen below the falling trigger.

Examples The following is an example of the Set Config Threshold command:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> config edit
QLogic4GbT (admin-config) #> set config threshold
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.
```

ThresholdMonitoringEnabled	(True / False)	[False]
CRCErrorsMonitoringEnabled	(True / False)	[True]
RisingTrigger	(decimal value, 1-1000)	[25]
FallingTrigger	(decimal value, 0-1000)	[1]
SampleWindow	(decimal value, 1-1000 sec)	[10]
DecodeErrorsMonitoringEnabled	(True / False)	[True]
RisingTrigger	(decimal value, 1-1000)	[25]
FallingTrigger	(decimal value, 0-1000)	[0]
SampleWindow	(decimal value, 1-1000 sec)	[10]
ISLMonitoringEnabled	(True / False)	[True]
RisingTrigger	(decimal value, 1-1000)	[2]
FallingTrigger	(decimal value, 0-1000)	[0]
SampleWindow	(decimal value, 1-1000 sec)	[10]
LoginMonitoringEnabled	(True / False)	[True]
RisingTrigger	(decimal value, 1-1000)	[5]
FallingTrigger	(decimal value, 0-1000)	[1]
SampleWindow	(decimal value, 1-1000 sec)	[10]
LogoutMonitoringEnabled	(True / False)	[True]
RisingTrigger	(decimal value, 1-1000)	[5]
FallingTrigger	(decimal value, 0-1000)	[1]
SampleWindow	(decimal value, 1-1000 sec)	[10]
LOSMonitoringEnabled	(True / False)	[True]
RisingTrigger	(decimal value, 1-1000)	[100]
FallingTrigger	(decimal value, 0-1000)	[5]
SampleWindow	(decimal value, 1-1000 sec)	[10]

```
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.
```

Set Log

Specifies the events to record in the event log and display on the screen. You determine what events to record in the I/O module event log using the Component, Level, and Port keywords. You determine what events are automatically displayed on the screen using the Display keyword. Alarms are always displayed on the screen.

Authority Admin session

Syntax **set log**
archive
clear
component [filter_list]
display [filter]
level [filter]
port [port_list]
restore
save
start (default)
stop

Keywords **archive**
Collects all log entries and stores the result in new file named *logfile* that is maintained in I/O module memory where it can be downloaded using FTP. To download *logfile*, open an FTP session, log in with account name/password of “images” for both, and type “get logfile”.

clear
Clears all log entries.

component [filter_list]
Specifies one or more components given by [filter_list] to monitor for events. A component is a firmware module that is responsible for a particular portion of I/O module operation. Use a <space> to delimit values in the list. [filter_list] can be one or more of the following:

All

Monitors all components. To maintain optimal I/O module performance, do not use this setting with the Level keyword set to Info.

None

Monitor none of the component events.

Port

Monitors all port events.

SNMP

Monitors all SNMP events.

Switch

Monitors I/O module management events.

display [filter]

Specifies the log events to automatically display on the screen according to the event severity levels given by [filter]. [filter] can be one of the following values:

Critical

Critical severity level events. The critical level describes events that are generally disruptive to the administration or operation of the fabric, but require no action.

Warn

Warning severity level events. The warning level describes events that are generally not disruptive to the administration or operation of the fabric, but are more important than the informative level events.

Info

Informative severity level events. The informative level describes routine events associated with a normal fabric.

None

Specifies no severity levels for display on the screen.

level [filter]

Specifies the severity level given by [filter] to use in monitoring and logging events for the specified components or ports. [filter] can be one of the following values:

Critical

Monitors critical events. The critical level describes events that are generally disruptive to the administration or operation of the fabric, but require no action. This is the default severity level.

Warn

Monitors warning and critical events. The warning level describes events that are generally not disruptive to the administration or operation of the fabric, but are more important than the informative level events.

Info

Monitors informative, warning, and critical events. The informative level describes routine events associated with a normal fabric.

NOTE: Logging events at the Info severity level can deplete I/O module resources because of the high volume of events.

None

Monitors none of the severity levels.

port [port_list]

Specifies one or more ports to monitor for events. Choose one of the following values:

[port_list]

Specifies the port or ports to monitor. [port_list] can be a set of port numbers and ranges delimited by spaces. For example, [0 2 10-15] specifies ports 0, 2, 10, 11, 12, 13, 14, and 15.

All

Specifies all ports.

None

Disables monitoring on all ports.

restore

Restores and saves the port, component, and level settings to the default values.

save

Saves the log settings for the component, severity level, port, and display level. These settings remain in effect after an I/O module reset. The log settings can be viewed using the [Show Log Settings](#) command. To export log entries to a file, use the Set Log Archive command.

start

Starts the logging of events based on the Port, Component, and Level keywords assigned to the current configuration. The logging continues until you enter the Set Log Stop command.

stop

Stops logging of events.

Notes In addition to critical, warn, and informative severity levels, the highest event severity level is alarm. The alarm level describes events that are disruptive to the administration or operation of a fabric and require administrator intervention. Alarms are always logged and always displayed on the screen.

Examples The following is an example of the Set Log Archive command:

```
QLogic4GbT: user1> admin start  
QLogic4GbT (admin): user1> set log archive
```

The following is an example of the Set Log Restore command:

```
QLogic4GbT: user1> admin start  
QLogic4GbT (admin): user1> set log restore
```

Set Pagebreak

Specifies how much information is displayed on the screen at a time. This command is useful for disabling pagebreaks to allow command scripts to run without interruption.

Authority None

Syntax `pagebreak [state]`

Keywords `[state]`

[state] can be one of the following:

on

Limits the display of information to 20 lines at a time.

off

Allows continuous display of information without a break. This is the default.

Examples The following is an example of the Set Pagebreak command:

```

QLogic4GbT #> set pagebreak on
QLogic4GbT #> help

                                General Help
                                -----

admin                ADMIN_OPTIONS
config               CONFIG_OPTIONS
create               CREATE_OPTIONS
date                 [MMDDhhmmCCYY]
exit
feature              FEATURE_OPTIONS
firmware             install
hardreset
help                 HELP_OPTIONS
history
hotreset
image                IMAGE_OPTIONS
logout
passwd               [USER_ACCT_NAME]
ping                 IP_ADDR
ps
quit
reset                RESET_OPTIONS
set                  SET_OPTIONS
show                 SHOW_OPTIONS
shutdown
test                 TEST_OPTIONS

                                Press any key for more help or 'q' to end this list...

uptime
user                 USER_OPTIONS
whoami

```

Set Port

Sets port state and speed for the specified port temporarily until the next I/O module reset or new configuration activation. This command also clears port counters. For information about port numbering and mapping, see [Table A-1](#).

NOTE: For external ports (0, 15, 16, 17, 18, 19), all port parameters apply. For internal ports (1–14), only the port state setting is configurable.

Authority Admin session

Syntax **set port clear**
or
set port [port_number]
bypass [alpa]
clear
enable
speed [transmission_speed]
state [state]

Keywords **[port_number]**
Specifies the port. Ports are numbered beginning with 0. For information about port numbering and mapping, see [Appendix A](#).

bypass [alpa]
Sends a Loop Port Bypass (LPB) to a specific Arbitrated Loop Physical Address (ALPA) or to all ALPAs on the arbitrated loop. [alpa] can be a specific ALPA or the keyword ALL to choose all ALPAs.

clear
Clears the counters on all ports or the port given by [port_number].

enable
Sends a Loop Port Enable (LPE) to all ALPAs on the arbitrated loop.

speed [transmission_speed]

Specifies the transmission speed for the specified port. Choose one of the following port speed values:

1Gb/s

One gigabit per second.

2Gb/s

Two gigabits per second.

4Gb/s

Four gigabits per second.

Auto

The port speed is automatically detected.

state [state]

Specifies one of the following administrative states for the specified port:

Online

Activates and prepares the port to send data.

Offline

Prevents the port from receiving signal and accepting a device login.

Diagnostics

Prepares the port for testing and prevents the port from accepting a device login.

Down

Disables the port by removing power from the port lasers.

Examples The following is an example of the Set Port State command:

```
QLogic4GbT: user1> admin start
QLogic4GbT (admin): user1> set port state down
```

Set Setup Radius

NOTE: This command requires the Fabric Security license key. To purchase a license key, contact your authorized maintenance provider or authorized reseller. Use the [Feature](#) command to install a license key.

Configures RADIUS servers on the I/O module.

Authority Admin session

Syntax **set setup radius**

Prompts you in a line-by-line fashion to configure RADIUS servers for user account and device authentication. [Table 11-11](#) describes the RADIUS server configuration fields.

Table 11-11. RADIUS Service Settings

Entry	Description
DeviceAuthOrder	Not applicable to the Pass-thru Module.
UserAuthOrder	Authenticator priority for user accounts: <ul style="list-style-type: none">■ Local: Authenticate users using only the local security database. This is the default.■ Radius: Authenticate users using only the security database on the RADIUS server.■ RadiusLocal: Authenticate users using the RADIUS server security database first. If the RADIUS server is unavailable, then use the local I/O module security database.
TotalServers	Number of RADIUS servers to configure during this session. Setting TotalServers to 0 disables all RADIUS authentication. The default is 0.
ServerIPAddress	IP address of the RADIUS server. The default is 10.0.0.1.
ServerUDPPort	User Datagram Protocol (UDP) port number on the RADIUS server. The default is 1812.
DeviceAuthServer	Enable (True) or disable (False) this server for device authentication. The default is False.
UserAuthServer	Enable (True) or disable (False) this server for user account authentication. A user authentication RADIUS server requires a secure management connection (SSL). The default is True.

Table 11-11. RADIUS Service Settings (Continued)

Entry	Description
AccountingServer	Enable (True) or disable (False) this server for auditing of activity during a user session. When enabled, user activity is audited whether UserAuthServer is enabled or not. The default is False. The accounting server UDP port number is the ServerUDPPort value plus 1 (default 1813).
Timeout	Number of seconds to wait to receive a response from the RADIUS server before timing out. The default is 2.
Retries	Number of retries after the first attempt to establish communication with the RADIUS server fails. The default is 0.
SignPackets	Enable (True) or disable (False) the use of sign packets to protect the RADIUS server packet integrity. The default is False.
Secret	32-byte hex string or 16-byte ASCII string used as a password for authentication purposes between the I/O module and the RADIUS server.

Examples The following is an example of the Set Setup RADIUS command:

```
QLogic4GbT (admin) #> set setup radius
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 attributes
for the server being processed, press 'q' or 'Q' and the ENTER key to do so.
If you wish to terminate the configuration process completely, press 'qq' or
'QQ' and the ENTER key to so do.

PLEASE NOTE:
-----
* SSL must be enabled in order to configure RADIUS User Authentication
  SSL can be enabled using the 'set setup services' command.

DeviceAuthOrder   (1=Local, 2=Radius, 3=RadiusLocal) [Local]
UserAuthOrder     (1=Local, 2=Radius, 3=RadiusLocal) [Local]
TotalServers      (decimal value, 0-5)                [1    ]

Server: 1
ServerIPAddress   (dot-notated IP Address)           [10.20.11.8]
ServerUDPPort     (decimal value)                   [1812   ]
DeviceAuthServer  (True / False)                       [True   ]
UserAuthServer    (True / False)                       [True   ]
AccountingServer  (True / False)                       [False  ]
Timeout           (decimal value, 10-30 secs)        [10     ]
Retries           (decimal value, 1-3, 0=None)        [0      ]
SignPackets       (True / False)                       [False  ]
Secret            (1-63 characters, recommend 22+)    [*****]
Do you want to save and activate this radius setup? (y/n): [y]
```


Set Setup Services

Configures services on the I/O module.

Authority Admin session

Syntax **set setup services**

Prompts you in a line-by-line fashion to enable or disable I/O module services. [Table 11-12](#) describes the I/O module service parameters. For each parameter, enter a new value or press the Enter key to accept the current value shown in brackets.

NOTE: Use caution when disabling TelnetEnabled and GUIMgmtEnabled; it is possible to disable all Ethernet access to the I/O module.

Table 11-12. I/O Module Services Settings

Entry	Description
TelnetEnabled	Enables (True) or disables (False) the ability to manage the I/O module over a Telnet connection. Disabling this service is not recommended. The default is True.
SSHEnabled	Enables (True) or disables (False) Secure Shell (SSH) connections to the I/O module. SSH secures the remote connection to the I/O module. To establish a secure remote connection, your workstation must use an SSH client. The default is False. The SSH service requires the Fabric Security license key. To purchase a license key, contact your authorized maintenance provider or authorized reseller.
GUIMgmtEnabled	Enables (True) or disables (False) out-of-band management of the I/O module with Enterprise Fabric Suite 2007, the Application Programming Interface, SNMP, and SMI-S. The default is True.

Table 11-12. I/O Module Services Settings (Continued)

Entry	Description
SSLEnabled	<p>Enables (True) or disables (False) secure SSL connections for management applications including Enterprise Fabric Suite 2007, QuickTools, Application Programming Interface, and SMI-S. The default is False.</p> <ul style="list-style-type: none"> ■ The SSL service requires the Fabric Security license key. ■ To enable secure SSL connections, you must first synchronize the date and time on the I/O module and workstation. ■ This service must be enabled to authenticate users through a RADIUS server. ■ Enabling SSL automatically creates a security certificate on the I/O module. ■ To disable SSL when using a user authentication RADIUS server, the RADIUS server authentication order must be local. <p>The SSL service requires the Fabric Security license key To purchase a license key, contact your authorized maintenance provider or authorized reseller.</p>
EmbeddedGUIEnabled	<p>Enables (True) or disables (False) the QuickTools embedded management application. QuickTools enables you to point at an I/O module with an internet browser and manage the I/O module. This parameter is the master control for the Set Setup System command parameter, EmbeddedGUIEnabled. The default is True.</p>
SNMPEnabled	<p>Enables (True) or disables (False) the management of the I/O module through third-party applications that use the Simple Network Management Protocol (SNMP). This parameter is the master control for the Set Setup SNMP command parameter, SNMPEnabled. The default is True.</p>
NTPEnabled	<p>Enables (True) or disables (False) the Network Time Protocol (NTP) which allows the synchronizing of I/O module and workstation dates and times with an NTP server. This helps to prevent invalid SSL certificates and timestamp confusion in the event log. The default is False. This parameter is the master control for the Set Setup System command parameter, NTPClientEnabled.</p> <p>The default is False.</p>

Table 11-12. I/O Module Services Settings (Continued)

Entry	Description
FTPEnabled	Enables (True) or disables (False) the File Transfer Protocol (FTP) for transferring files rapidly between the workstation and the I/O module. The default is True.

Examples The following is an example of the Set Setup Services command¹:

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> set setup services
```

```
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.
```

```
PLEASE NOTE:
-----
```

- * Further configuration may be required after enabling a service.
- * If services are disabled, the connection to the switch may be lost.
- * When enabling SSL, please verify that the date/time settings on this switch and the workstation from where the SSL connection will be started match, and then a new certificate may need to be created to ensure a secure connection to this switch.

```
TelnetEnabled      (True / False)  [True ]
SSHEnabled         (True / False)  [False]
GUIMgmtEnabled     (True / False)  [True ]
SSLEnabled         (True / False)  [False]
EmbeddedGUIEnabled (True / False)  [True ]
SNMPEnabled        (True / False)  [True ]
NTPEnabled         (True / False)  [False]
FTPEnabled         (True / False)  [True ]
```

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

¹ SSHEnabled and SSLEnabled are available only with the Fabric Security license.

Set Setup SNMP

Configures SNMP on the I/O module.

Authority Admin session

Syntax `set setup snmp`

Prompts you in a line-by-line fashion to change SNMP configuration settings. [Table 11-13](#) describes the SNMP fields. For each parameter, enter a new value or press the Enter key to accept the current value shown in brackets.

Table 11-13. SNMP Configuration Settings

Entry	Description
SNMPEnabled	Enables (True) or disables (False) SNMP on the I/O module. The default is True.
Contact	Specifies the name of the person to be contacted to respond to trap events. The name can be up to 64 characters excluding #, semicolon (;), and comma (.). The default is undefined.
Location	Specifies the name of the I/O module location. The name can be up to 64 characters excluding #, semicolon (;), and comma (.). The default is undefined.
Trap [1-5] Address	Specifies the workstation IP address to which SNMP traps are sent. The default address for trap 1 is 10.0.0.254. The default address for traps 2–5 is 0.0.0.0. Addresses, other than 0.0.0.0, for all traps must be unique.
Trap [1-5] Port	Specifies the workstation port to which SNMP traps are sent. Valid workstation port numbers are 1–65535. The default is 162.
Trap [1-5] Severity	Specifies the severity level to use when monitoring trap events. The default is Warning.
Trap [1-5] Version	Specifies the SNMP version (1 or 2) to use in formatting traps. The default is 2.
Trap [1-5] Enabled	Specifies whether traps (event information) are enabled or disabled (default).
ReadCommunity	Read community password that authorizes an SNMP agent to read information from the I/O module. This is a write-only field. The value on the I/O module and the SNMP management server must be the same. The read community password can be up to 32 characters excluding #, semicolon (;), and comma (.). The default is “public”.

Table 11-13. SNMP Configuration Settings (Continued)

Entry	Description
WriteCommunity	Write community password that authorizes an SNMP agent to write information to the I/O module. This is a write-only field. The value on the I/O module and the SNMP management server must be the same. The write community password can be up to 32 characters excluding #, semicolon (;), and comma (,). The default is "private".
TrapCommunity	Trap community password that authorizes an SNMP agent to receive traps. This is a write-only field. The value on the I/O module and the SNMP management server must be the same. The trap community password can be up to 32 characters excluding #, semicolon (;), and comma (,). The default is "public".
AuthFailureTrap	Enables (True) or disables (False) the generation of traps in response to trap authentication failures. The default is False.
ProxyEnabled	Enables (True) or disables (False) SNMP communication with other switches in the fabric. The default is True.

Examples The following is an example of the Set Setup SNMP command:

```
QLogic4GbT (admin) #> set setup snmp
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)  [<sysContact undefined>]
Location         (string, max=64 chars)  [<sysLocation undefined>]
Trap1Address     (dot-notated IP Address) [10.20.71.15   ]
Trap1Port        (decimal value)         [162           ]
Trap1Severity    (see allowed options above) [warning       ]
Trap1Version     (1 / 2)                 [2             ]
Trap1Enabled     (True / False)         [False        ]
Trap2Address     (dot-notated IP Address) [0.0.0.0       ]
Trap2Port        (decimal value)         [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)         [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)         [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)         [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)  [private       ]
TrapCommunity    (string, max=32 chars)  [public        ]
AuthFailureTrap  (True / False)         [False        ]
ProxyEnabled     (True / False)         [True         ]
```

Set Setup System

Configures the network, session, and logging settings on the I/O module.

Authority Admin session

Syntax **set setup system**

Prompts you in a line-by-line fashion to change system configuration settings. [Table 11-14](#) describes the system configuration fields. For each parameter, enter a new value or press the Enter key to accept the current value shown in brackets.

Table 11-14. System Configuration Settings

Entry	Description
FCNetworkDiscovery	Ethernet boot method: 1 - Static, 3 - DHCP. The default is 1 - Static.
AdminTimeout	Amount of time in minutes the I/O module waits before terminating an idle Admin session. Zero (0) disables the time out threshold. The default is 30, the maximum is 1440.
InactivityTimeout	Amount of time in minutes the I/O module waits before terminating an idle Telnet command line interface session. Zero (0) disables the time out threshold. The default is 0, the maximum is 1440.
LocalLogEnabled	Enables (True) or disables (False) the saving of log information on the I/O module. The default is True.
RemoteLogEnabled	Enables (True) or disables (False) the recording of the I/O module event log on a remote host that supports the syslog protocol. The default is False.
RemoteLogHostAddress	The IP address of the host that will receive the I/O module event log information if remote logging is enabled. The default is 10.0.0.254.
NTPClientEnabled	Enables (True) or disables (False) the Network Time Protocol (NTP) client on the I/O module. This client enables the I/O module to synchronize its time with an NTP server. This feature supports NTP version 4 and is compatible with version 3. An Ethernet connection to the server is required and you must first set an initial time and date on the I/O module. The synchronized time becomes effective immediately. The default is False.
NTPServerAddress	The IP address of the NTP server from which the NTP client acquires the time and date. The default is 10.0.0.254.

Table 11-14. System Configuration Settings (Continued)

Entry	Description
EmbeddedGUIEnabled	Enables (True) or disables (False) the QuickTools management application. Changing this parameter to False while QuickTools is running will terminate the application. The default is True.

Examples The following is an example of the Set Setup System command:

```
QLogic4GbT (admin) #> set setup system
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.

FCNetworkDiscovery      (1=Static, 2=Bootp, 3=Dhcp, 4=Rarp) [Static      ]
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        ]
```


Set Switch State

Changes the administrative state for all ports on the I/O module. The previous Set Config Switch settings are restored after an I/O module reset or a reactivation of an I/O module configuration.

Authority Admin session

Syntax **set switch state [state]**

Keywords **[state]**

[state] can be one of the following:

online

Activates and prepares the ports to send data. This is the default.

offline

Prevents the ports from receiving signal and accepting a device login.

diagnostics

Prepares the ports for testing and prevents each port from accepting a device login. When you leave the diagnostics state, the I/O module automatically resets.

Examples The following is an example of the Set Switch command:

```
QLogic4GbT #>admin start
QLogic4GbT (admin) #>set switch state offline
```

Set Timezone

Specifies the time zone for the I/O module and the workstation. The default is Universal Time (UTC) also known as Greenwich Mean Time (GMT). This keyword prompts you to choose a region, then a subregion to specify the time zone.

Authority Admin session

Syntax `set timezone`

Examples The following is an example of the Set Timezone command:

```
QLogic4GbT (admin) #> set timezone
Africa                               America
Antarctica                           Asia
Atlantic                             Australia
Europe                               Indian
Pacific                              UTC
    Press ENTER for more options or 'q' to make a selection.

America/Grenada                      America/Guadeloupe
America/Guatemala                    America/Guayaquil
America/Guyana                       America/Halifax
America/Havana                       America/Hermosillo
America/Indiana                      America/Indianapolis
America/Inuvik                       America/Iqaluit
America/Jamaica                      America/Juneau
America/Kentucky                     America/La_Paz
America/Lima                          America/Los_Angeles
America/Louisville                   America/Maceio
America/Managua                      America/Manaus
America/Martinique                   America/Mazatlan
America/Menominee                    America/Merida
America/Mexico_City                  America/Miquelon
America/Monterrey                    America/Montevideo
America/Montreal                     America/Montserrat
America/Nassau                       America/New_York
America/Nipigon                      America/Nome
America/Noronha                      America/North_Dakota
America/Panama                       America/Pangnirtung

    Press ENTER for more options or 'q' to make a selection.
q
Enter selection (or 'q' to quit): america/north_dakota
America/North_Dakota/Center
Enter selection (or 'q' to quit): america/north_dakota/center
```

Show About

Displays an introductory set of information about operational attributes of the I/O module. This command is equivalent to the [Show Version](#) command.

Authority None

Syntax **show about**

Examples The following is an example of the Show About command:

```
QLogic4GbT #> show about
*****
*
*      Command Line Interface SHell   (CLISH)
*
*
*****

SystemDescription  QLogic(R) 4Gb Intelligent Pass-thru Module for IBM BladeCenter
EthNetworkAddress  10.20.11.192 (use 'set setup system' to update)
MACAddress         00:c0:dd:00:06:07
WorldWideName     10:00:00:c0:dd:00:06:07
ChassisSerialNumber 11S0632A00127
SymbolicName      QLogic4GbT
ActiveSWVersion    V6.5.x.x.xx.xx
ActiveTimestamp    day month date time year
DiagnosticsStatus  Passed
LicensedExternalPorts 6
LicensedInternalPorts 14
SwitchMode         Transparent
```

Show Alarm

Displays the alarm log and session output stream display setting.

Authority None

Syntax **show alarm**
settings

Keywords ***settings***

Displays the status of the parameter that controls the display of alarms in the session output stream. This parameter is set using the [Set Alarm](#) command.

Notes The alarm log is cleared when the I/O module is reset or power cycled.

Examples The following is an example of the Show Alarm Settings command:

```
QLogic4GbT #> show alarm settings
```

```
Current settings for alarm
-----
display ON
```

Show Chassis

Displays chassis component status, and temperature.

Authority None

Syntax **show chassis**

Examples The following is an example of the Show Chassis command.

```
QLogic4GbT #> show chassis
  Chassis Information
  -----
BoardTemp (1) - Degrees Celsius    36
PowerSupplyStatus (1)              Good
HeartBeatCode                       1
HeartBeatStatus                     Normal
```

Show Config Port

Displays configuration parameters for one or more ports.

Authority None

Syntax **show config port *[port_number]***

Keywords ***[port_number]***

The number of the port. Ports are numbered beginning with 0. If you omit *[port_number]*, all ports are specified.

Examples The following is an example of the Show Config Port command for port 0:

```
QLogic4GbT #> show config port 0
```

```
Configuration Name: default
-----

Port Number: 0
-----
AdminState      Online
LinkSpeed       Auto
PortType        TF
SymbolicName    Port0
```

Show Config Switch

Displays the I/O module configuration parameters.

Authority None

Syntax **show config switch**

Examples The following is an example of the Show Config Switch command:

```
QLogic4GbT #> show config switch
Configuration Name: default
-----
Switch Configuration Information
-----
TransparentMode      True
AdminState           Online
SymbolicName         QLogic4GbT
R_A_TOV              10000
E_D_TOV              2000
ConfigDescription    Default Config
ConfigLastSavedBy    admin@OB-session5
ConfigLastSavedOn    day month date time year
```

Show Config Threshold

Displays alarm threshold parameters for the I/O module.

Authority None

Syntax **show config threshold**

Examples The following is an example of the Show Config Threshold command:

```
QLogic4GbT #> show config threshold
Configuration Name: default
-----
Threshold Configuration Information
-----
ThresholdMonitoringEnabled      False
CRCErrorsMonitoringEnabled     True
  RisingTrigger                 25
  FallingTrigger                1
  SampleWindow                 10
DecodeErrorsMonitoringEnabled  True
  RisingTrigger                 25
  FallingTrigger                0
  SampleWindow                 10
ISLMonitoringEnabled           True
  RisingTrigger                 2
  FallingTrigger                0
  SampleWindow                 10
LoginMonitoringEnabled         True
  RisingTrigger                 5
  FallingTrigger                1
  SampleWindow                 10
LogoutMonitoringEnabled       True
  RisingTrigger                 5
  FallingTrigger                1
  SampleWindow                 10
LOSMonitoringEnabled           True
  RisingTrigger                 100
  FallingTrigger                5
  SampleWindow                 10
```


Show Interface

Displays the status of the active network interfaces.

Authority None

Syntax **show interface**

Examples The following is an example of the Show Interface command:

```
QLogic4GbT #> show interface
eth0      Link encap:Ethernet  HWaddr 00:C0:DD:00:BD:ED
          inet addr:10.20.68.107  Bcast:10.20.68.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:4712 errors:0 dropped:0 overruns:0 frame:0
          TX packets:3000 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:100
          RX bytes:415313 (405.5 Kb)  TX bytes:716751 (699.9 Kb)
          Interrupt:11 Base address:0xfcc0
          RX bytes:20116 (19.6 Kb)  TX bytes:20116 (19.6 Kb)
```

Show Log

Displays the contents of the log or the parameters used to create and display entries in the log. The log contains a maximum of 1200 entries. When the log reaches its entry capacity, subsequent entries overwrite the existing entries, beginning with the oldest.

Authority None

Syntax **show log**
[number_of_events]
component
display [filter]
level
options
port
settings

Keywords [number_of_events]

Specifies the number of the most recent events to display from the event log. [number_of_events] must be a positive integer.

component

Displays the components currently being monitored for events. [Table 11-15](#) describes the log monitoring components.

Table 11-15. Log Monitoring Components

Component	Description
CLI	Command line interface events
Port	Port events
SNMP	SNMP events
Switch	I/O module management events

display [filter]

Displays log events on the screen according to the component or severity level filter given by [filter]. [filter] can be one of the following:

Info

Displays all informative events.

Warning

Displays all warning events.

Critical

Displays all critical events.

Port [port_number]

Displays all events related to the port given by [port_number].

SNMP

Displays all events related to SNMP.

Switch

Displays all events related to I/O module management.

level

Displays the event severity level logging setting and the display level setting.

options

Displays the options that are available for configuring event logging and automatic display to the screen. Refer to the [“Set Log” command on page 11-46](#) for information about how to configure event logging and display level.

port

Displays the ports being monitored for events. If an event occurs which is of the defined level and on a defined component, but not on a defined port, no entry is made in the log.

settings

Displays the current filter settings for component, severity level, port, and display level. This command is equivalent to executing the following commands separately: Show Log Component, Show Log Level, and Show Log Port.

Examples

The following is an example of the Show Log Component command:

```
QLogic4GbT #> show log component
Current settings for log
-----
FilterComponent   Switch Port Snmp CLI
```

The following is an example of the Show Log Level command:

```
QLogic4GbT #> show log level
Current settings for log
-----
FilterLevel      Info
DisplayLevel     Critical
```

The following is an example of the Show Log Options command:

```
QLogic4GbT #> show log options
Allowed options for log
-----
FilterComponent  Switch,Port,Snmp,CLI
FilterLevel      Critical,Warn,Info,None
DisplayLevel     Critical,Warn,Info,None
```

The following is an example of the Show Log command:

```
QLogic4GbT #> show log
[1][Fri Jan 07 02:07:56.068 UTC 2000][I][8400.0023][Switch][Successful login user
(admin@OB-session8) with admin privilege from address 10.20.32.223-3852]
[2][Fri Jan 07 02:07:56.069 UTC 2000][W][8400.0058][Switch][User (USERID) is using
their initial/default password]
[3][Fri Jan 07 02:08:38.179 UTC 2000][I][8400.0023][Switch][Successful login user
(admin@OB-session9) with admin privilege from address 10.20.32.146]
[4][Fri Jan 07 02:08:38.180 UTC 2000][W][8400.0058][Switch][User (USERID) is using
their initial/default password]
[5][Fri Jan 07 02:09:39.793 UTC 2000][I][8400.0023][Switch][Successful login user
(admin@OB-session10) with admin privilege from address 10.20.32.223-3862]
[6][Fri Jan 07 02:09:39.795 UTC 2000][W][8400.0058][Switch][User (USERID) is using
their initial/default password]
[7][Fri Jan 07 02:17:10.205 UTC 2000][C][8400.002A][Switch][User (USERID) attempted
to log into switch with an incorrect password from 10.20.32.223]
```

Show Media

Displays transceiver operational and diagnostic information for one or more external ports.

NOTE: This command requires the SANdoctor license key. To purchase a license key, contact your authorized maintenance provider or authorized reseller. Use the [Feature](#) command to install a license key.

Authority None

Syntax **show media**
 [port_list]
 all
 installed

Keywords [port_list]

The external port or ports for which to display transceiver information. [port_list] can be a set of port numbers and ranges delimited by spaces. For example, [0 15-19] specifies ports 0, 15, 16, 17, 18, and 19.

all

Displays transceiver information for all ports.

installed

Displays transceiver information for all ports that have transceivers installed.

Notes [Table 11-16](#) describes the transceiver information in the Show Media display.

Table 11-16. Transceiver Information

Information Type	Description
MediaType	Fibre Channel specification or one of the following: <ul style="list-style-type: none"> ■ NotInstalled—transceiver is not installed. ■ Unknown—transceiver does not have a serial ID. ■ NotApplicable—transceiver is not needed.
MediaVendor	Vendor name
MediaPartNumber	Vendor media part number
MediaRevision	Vendor media revision level
MediaSerialNumber	Vendor media serial number

Table 11-16. Transceiver Information (Continued)

Information Type	Description
MediaSpeeds	Transmission speed capabilities
Temp	Temperature in degrees Celsius.
Voltage	Supply voltage in Volts. The range is 0–6.55.
Tx Bias	Transmitter laser bias current in milliamps. The range is 0–655.
Tx Power	Transmitter coupled output power in milliWatts. The range is 0–6.55.
Rx Power	Received optical power in milliWatts. The range is 0–6.55.
Value	Measured value.
Status	State associated with the measured value: <ul style="list-style-type: none"> ■ Normal: Value is in the normal operating range. ■ HighAlarm: Value exceeds the high alarm threshold. ■ HighWarning: Value exceeds the high warning threshold. ■ LowWarning: Value is less than the low warning threshold. ■ LowAlarm: Value is less than the low alarm threshold.
HighAlarm	Vendor specified threshold above which an alarm is issued.
HighWarning	Vendor specified threshold above which a warning is issued.
LowWarning	Vendor specified threshold below which a warning is issued.
LowAlarm	Vendor specified threshold below which an alarm is issued.

Examples The following is an example of the Show Media command for port 19:

```
QLogic4GbT #> show media 19
Port Number: 19
-----
MediaType          400-M5-SN-S
MediaVendor        Intel Corp.
MediaPartNumber    TXN31115D000000
MediaRevision
MediaSerialNumber  AZ6P51300545
MediaSpeeds        1Gb/s, 2Gb/s, 4Gb/s

              Temp      Voltage      Tx Bias      Tx Pwr      Rx Pwr
              (C)       (V)         (mA)         (mW)         (mW)
-----
Value          34.62         3.33         7.10         0.348        0.210
Status         Normal        Normal        Normal        Normal        Normal
HighAlarm      95.00         3.63         13.00        0.794        1.000
HighWarning    90.00         3.56         12.00        0.631        0.794
LowWarning     -25.00        3.04         3.00         0.141        0.032
LowAlarm       -32.00        2.97         2.00         0.126        0.025
```

The following is an example of the Show Media command for all ports:

```
QLogic4GbT#> show media
```

```
Note:  -- LowAlarm; - LowWarning; + HighWarning; ++ HighAlarm
```

Port	Vendor Name	Temp (C)	Voltage (V)	Tx Bias (mA)	Tx Pwr (mW)	Rx Pwr (mW)
----	-----	-----	-----	-----	-----	-----
Ext1:0	Intel Corp.	35.25	3.34	6.45	0.314	0.366
Ext2:15	Intel Corp.	34.28	3.34	6.60	0.342	0.377
Ext3:16	NotInstalled	N/A	N/A	N/A	N/A	N/A
Ext4:17	NotInstalled	N/A	N/A	N/A	N/A	N/A
Ext5:18	NotInstalled	N/A	N/A	N/A	N/A	N/A
Ext6:19	Intel Corp.	34.78	3.33	7.08	0.348	0.211
Bay1	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay2	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay3	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay4	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay5	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay6	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay7	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay8	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay9	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay10	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay11	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay12	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay13	NotApplicable	N/A	N/A	N/A	N/A	N/A
Bay14	NotApplicable	N/A	N/A	N/A	N/A	N/A

Show Mem

Displays information about memory activity.

Authority None

Syntax **show mem [count]**

Keywords **[count]**

The number of seconds for which to display memory information. If you omit [count], the value 1 is used. Displayed memory values are in 1K block units.

NOTE: This keyword will display memory activity updates until [count] is reached—it cannot be interrupted. Therefore, avoid using large values for [count].

Examples The following is an example of the Show Mem command:

```
procs -----memory----- ---swap-- -----io----- --system-- ----cpu----
 r  b  swpd  free  buff  cache  si  so  bi  bo  in  cs  us  sy  id  wa
 0  0      0 136292 1040 68092  0  0  2  0 434 152  1  2 97  0
```

```
Filesystem space in use: 36808/41297 KB (89%)
```

Show Pagebreak

Displays the current pagebreak setting.

Authority None

Syntax **show pagebreak**

Notes The pagebreak setting limits the display of information to 20 lines or allows the continuous display of information without a break.

Examples The following is an example of the Show Pagebreak command:

```
QLogic4GbT #> show pagebreak
```

```
current setting: ON
```

Show Perf

Displays port performance in frames/second and bytes/second. If you omit the keyword, the command displays data transmitted (out), data received (in), and total data transmitted and received in frames/second and bytes per second. Transmission rates are expressed in thousands (K) and millions (M).

Authority None

Syntax **show perf**
or
show perf
byte
inbyte
outbyte
frame
inframe
outframe
errors

Keywords **byte**

Displays continuous performance data in total bytes/second transmitted and received for all ports. Type any character to stop the display.

inbyte

Displays continuous performance data in bytes/second received for all ports. Type any character to stop the display.

outbyte

Displays continuous performance data in bytes/second transmitted for all ports. Type any character to stop the display.

frame

Displays continuous performance data in total frames/second transmitted and received for all ports. Type any character to stop the display.

inframe

Displays continuous performance data in frames/second received for all ports. Type any character to stop the display.

outframe

Displays continuous performance data in frames/second transmitted for all ports. Type any character to stop the display.

errors

Displays continuous error counts for all ports. Type any character to stop the display.

Examples The following is an example of the Show Perf command:

```
QLogic4GbT #> show perf
```

Port	Bytes/s (in)	Bytes/s (out)	Bytes/s (total)	Frames/s (in)	Frames/s (out)	Frames/s (total)
Ext1:0	0	0	0	0	0	0
Ext2:15	49M	3M	52M	32K	2K	34K
Ext3:16	0	0	0	0	0	0
Ext4:17	0	0	0	0	0	0
Ext5:18	0	0	0	0	0	0
Ext6:19	0	0	0	0	0	0
Bay1	2M	23M	26M	1K	15K	17K
Bay2	0	0	0	0	0	0
Bay3	1M	25M	26M	972	16K	17K
Bay4	0	0	0	0	0	0
Bay5	0	0	0	0	0	0
Bay6	0	0	0	0	0	0
Bay7	0	0	0	0	0	0
Bay8	0	0	0	0	0	0
Bay9	0	0	0	0	0	0
Bay10	0	0	0	0	0	0
Bay11	0	0	0	0	0	0
Bay12	0	0	0	0	0	0
Bay13	0	0	0	0	0	0
Bay14	0	0	0	0	0	0

The following is an example of the Show Perf Byte command:

```
QLogic4GbT#> show perf byte
  Displaying bytes/sec (total)... (Press any key to stop display)

  0  15  16  17  18  19  1  2  3  4  5  6  7  8  9  10  11  12  13  14
  -----
  0  63M 0  0  0  0  31M 0  31M 0  0  0  0  0  0  0  0  0  0  0
  0  65M 0  0  0  0  31M 0  34M 0  0  0  0  0  0  0  0  0  0  0
  0  60M 0  0  0  0  29M 0  30M 0  0  0  0  0  0  0  0  0  0  0
  0  62M 0  0  0  0  28M 0  33M 0  0  0  0  0  0  0  0  0  0  0
  0  58M 0  0  0  0  26M 0  31M 0  0  0  0  0  0  0  0  0  0  0
  0  52M 0  0  0  0  26M 0  26M 0  0  0  0  0  0  0  0  0  0  0
  0  61M 0  0  0  0  34M 0  26M 0  0  0  0  0  0  0  0  0  0  0
  0  58M 0  0  0  0  29M 0  28M 0  0  0  0  0  0  0  0  0  0  0
  0  54M 0  0  0  0  28M 0  26M 0  0  0  0  0  0  0  0  0  0  0
  0  66M 0  0  0  0  32M 0  34M 0  0  0  0  0  0  0  0  0  0  0
  0  64M 0  0  0  0  35M 0  29M 0  0  0  0  0  0  0  0  0  0  0
  0  59M 0  0  0  0  30M 0  29M 0  0  0  0  0  0  0  0  0  0  0
  0  56M 0  0  0  0  26M 0  29M 0  0  0  0  0  0  0  0  0  0  0
  0  54M 0  0  0  0  26M 0  27M 0  0  0  0  0  0  0  0  0  0  0
  0  50M 0  0  0  0  24M 0  25M 0  0  0  0  0  0  0  0  0  0  0
  0  61M 0  0  0  0  31M 0  30M 0  0  0  0  0  0  0  0  0  0  0
  q
```

Show Port

Displays operational information for one or more ports.

Authority None

Syntax **show port**
[port_list]

Keywords [port_list]

The number of the port for which to display information. [port_list] can be a set of port numbers and ranges delimited by spaces. For example, [0 15-19] specifies ports 0,15, 16, 17, 18, and 19.

Notes [Table 11-17](#) describes the port parameters.

Table 11-17. Show Port Parameters

Entry	Description
ActiveTHPortList	The list of TH_Ports to which the TF_Port is mapped.
ActiveTFPortMap	The list of TF_Ports that are mapped to the TH_Port.
AdminState	Administrative state
Alinit	Incremented each time the port begins AL initialization.
AlinitError	Number of times the port entered initialization and the initialization failed.
AsicNumber	ASIC number
AsicPort	ASIC port number
Bad Frames	Number of frames that have framing errors.
BBCR_FrameFailures	Number of times more frames were lost during a credit recovery period than the recovery process could resolve. This causes a Link Reset to recover the credits.
BBCR_RRDYFailures	Number of times more R_RDYs were lost during a credit recovery period than the recovery process could resolve. This causes a Link Reset to recover the credits.
ClassXFramesIn	Number of class x frames received by this port.
ClassXFramesOut	Number of class x frames sent by this port.
ClassXWordsIn	Number of class x words received by this port.
ClassXWordsOut	Number of class x words sent by this port.

Table 11-17. Show Port Parameters (Continued)

Entry	Description
ClassXToss	Number of times an SOFi3 or SOFn3 frame is tossed from TBUF.
ConfigType	Configured port type
DecodeError	Number of decode errors detected
DiagFaultCode	Fault code from the most recent Power-on self test
DiagStatus	Status from the most recent Power-on self test
EpConnects	Number of times an E_Port connected through ISL negotiation.
EpConnState	E_Port connection status
EplsoReason	E_Port isolation reason
FBusy	Number of times the I/O module sent a F_BSY because Class 2 frame could not be delivered within ED_TOV time. Number of class 2 and class 3 fabric busy (F_BSY) frames generated by this port in response to incoming frames. This usually indicates a busy condition on the fabric or N_Port that is preventing delivery of this frame.
Flowerrors	Number of frames received there were no available credits.
FReject	Number of frames from devices that were rejected.
InvalidCRC	Invalid CRC detected.
InvalidDestAddr	Invalid destination address detected.
Link Failures	Number of optical link failures detected by this port. A link failure is a loss of synchronization or a loss of signal while not in the offline state. A loss of signal causes the I/O module to attempt to re-establish the link. If the link is not re-established, a link failure is counted. A link reset is performed after a link failure.
LinkSpeed	Port transmission speed
LinkState	Port activity status
LIP_AL_PD_ALPS	Number of F7, AL_PS LIPs, or AL_PD (vendor specific) resets, performed.
LIP_F7_AL_PS	This LIP is used to reinitialize the loop. An L_Port, identified by AL_PS, may have noticed a performance degradation and is trying to restore the loop.

Table 11-17. Show Port Parameters (Continued)

Entry	Description
LIP_F8_AL_PS	This LIP denotes a loop failure detected by the L_Port identified by AL_PS.
LIP_F7_F7	A loop initialization primitive frame used to acquire a valid AL_PA.
LIP_F8_F7	A loop initialization primitive frame used to indicate that a loop failure has been detected at the receiver.
Login	Number of device logins
LoginStatus	Login status
Logout	Number of device logouts
LongFramesIn	Number of incidents when one or more frames are received that are greater than the maximum size.
LoopTimeouts	A two (2) second timeout as specified by FC-AL-2.
LossOfSync	Number of synchronization losses (>100 ms) detected by this port. A loss of synchronization is detected by receipt of an invalid transmission word.
LostFrames	Number of incidents of lost frames.
Lost RRDYs	Number of incidents of lost R_RDYs.
MaxCredit	Maximum number of port buffer credits
MediaSpeeds	Possible transmission speeds
MediaPartNumber	Transceiver vendor part number
MediaRevision	Transceiver revision
MediaType	Transceiver type
MediaVendor	Transceiver manufacturer
MediaVendorID	Transceiver manufacturer identifier
OperationalState	Operational state
PerfTuningMode	AutoPerfTuning status
PortID	Fibre Channel port address
PortWWN	World wide port name
PrimSeqErrors	Primitive sequence errors detected.
RunningType	Operational port type

Table 11-17. Show Port Parameters (Continued)

Entry	Description
RxLinkResets	Number of link reset primitives received from an attached device.
RxOfflineSeq	Number of offline sequences received. An OLS is issued for link initialization, a Receive & Recognize Not_Operational (NOS) state, or to enter the offline state.
ShortFramesIn	Number of incidents when one or more frames are received that are less than the minimum size.
SymbolicName	Port symbolic name
SyncStatus	Synchronization status
TestFaultCode	Fault code from the most recent port test
TestStatus	Status from the most recent port test
TotalErrors	Total number of errors detected.
TotalLinkResets	Total number of link resets.
TotalLIPsRecvd	Number of loop initialization primitive frames received by this port.
TotalLIPsXmitd	Number of loop initialization primitive frames transmitted by this port.
TotalOfflineSeq	Total number of Offline Sequences issued and received by this port.
TotalRxFrames	Total number of frames received by this port.
TotalRxWords	Total number of words received by this port.
TotalTxFrames	Total number of frames issued by this port.
TotalTxWords	Total number of words issued by this port.
TxLinkResets	Number of Link Resets issued by this port.
TxOfflineSeq	Number of Offline Sequences issued by this port.

Examples The following is an example of the Show Port command for external port 0:

```

QLogic4GbT #> show port 0
Port Number: 0
-----
ActiveTHPortList None           MediaSpeeds      1Gb/s, 2Gb/s, 4Gb/s
AdminState      Online           OperationalState Online
AsicNumber      0             PerfTuningMode   Normal
AsicPort        0             PortWWN          20:00:00:c0:dd:00:06:07
ConfigType      TF             RunningType      TF
DiagStatus      Passed         MediaPartNumber  TXN31115D000000
EpConnState     None           MediaRevision    A
EpIsoReason     NotApplicable MediaType         400-M5-SN-S
Licensed        True           MediaVendor      Intel Corp.
LinkSpeed       2Gb/s         MediaVendorID    000002b3
LinkState       Active         SymbolicName     Port0
LoginStatus     LoggedIn       SyncStatus       SyncAcquired
MaxCredit       8             XmitterEnabled   True

ALInit          0             LIP_F8_F7       0
ALInitError     0             LinkFailures    0
BadFrames       0             Login           0
BBCR_FrameFailures 0           Logout          0
BBCR_RRDYFailures 0           LongFramesIn    0
Class2FramesIn  0             LoopTimeouts    0
Class2FramesOut 0             LossOfSync      0
Class2WordsIn   0             LostFrames      0
Class2WordsOut  0             LostRRDYs       0
Class3FramesIn  118           PrimSeqErrors   0
Class3FramesOut 118           RxLinkResets    0
Class3Toss      0             RxOfflineSeq    1
Class3WordsIn   2268          ShortFramesIn   0
Class3WordsOut  2320          TotalErrors     0
DecodeErrors    0             TotalLinkResets 1
EpConnects     0             TotalLIPsRecvd  0
FBusy          0             TotalLIPsXmitd  0
FlowErrors     0             TotalOfflineSeq 2
FReject        0             TotalRxFrames   118
InvalidCRC      0             TotalRxWords    2268
InvalidDestAddr 0             TotalTxFrames   118
LIP_AL_PD_AL_PS 0             TotalTxWords    2320
LIP_F7_AL_PS   0             TxLinkResets    1
LIP_F7_F7      0             TxOfflineSeq    1
LIP_F8_AL_PS   0

```

Show Post Log

Displays the Power On Self Test (POST) log which contains results from the most recently failed POST.

Authority None

Syntax `show post log`

Examples The following is an example of the Show Post Log command:

```
QLogic4GbT #> show post log
```

```
Sat Jan 1 00:18:21 2000: POST log created
Sat Jan 1 00:18:34 2000: POST completed
```

Show Setup Mfg

Displays manufacturing information about the I/O module.

Authority None

Syntax `show setup mfg`

Examples The following is an example of the Show Setup Mfg command:

```
QLogic4GbT #> show setup mfg
Manufacturing Information
-----
BrandName                IBM
BuildDate                Wednesday, January 31, 2007 10:13
ChassisPartNumber        BRT-4146-009 A
ChassisSerialNumber      0703C00113
CPUBoardSerialNumber     0703C00113
LicensedExternalPorts    6
LicensedInternalPorts    14
MACAddress                00:c0:dd:0d:2b:40
PlanarPartNumber         31716-02 A
SwitchSymbolicName       QLogic4GbT
SwitchWWN                 10:00:00:c0:dd:0d:2b:40
SystemDescription         QLogic(R) 4Gb Intelligent Pass Through Module
                          for IBM BladeCenter(R)
SystemObjectID           1.3.6.1.4.1.3873.1.8
```

Show Setup Radius

Displays RADIUS server information.

Authority None

Syntax **show setup radius**

Examples The following is an example of the Show Setup RADIUS command:

```
QLogic4GbT #> show setup radius
```

```
Radius Information
-----
DeviceAuthOrder  RadiusLocal
UserAuthOrder   RadiusLocal
TotalServers     1

Server: 1

ServerIPAddress  10.20.11.8
ServerUDPPort    1812
DeviceAuthServer False
UserAuthServer   True
AccountingServer False
Timeout          2
Retries          0
SignPackets      False
Secret           *****
```

Show Setup Services

Displays I/O module service status information.

Authority None

Syntax **show setup services**

Examples The following is an example of the Show Setup Services command:

```
QLogic4GbT #> show setup services
System Services
-----
TelnetEnabled           True
SSHEnabled              False
GUIMgmtEnabled         True
SSLEnabled              False
EmbeddedGUIEnabled     True
SNMPEnabled            True
NTPEnabled              True
FTPEntered              True
```

Show Setup SNMP

Displays the current SNMP settings.

Authority None

Syntax **show setup snmp**

The following is an example of the Show Setup Snmp command:

```
QLogic4GbT #> show setup snmp
SNMP Information
-----
SNMPEnabled          True
Contact              <sysContact undefined>
Location             N_107 System Test Lab
Description           QLogic 4 Gb FC Switch
Trap1Address         10.0.0.254
Trap1Port            162
Trap1Severity        warning
Trap1Version         2
Trap1Enabled         False
Trap2Address         0.0.0.0
Trap2Port            162
Trap2Severity        warning
Trap2Version         2
Trap2Enabled         False
Trap3Address         0.0.0.0
Trap3Port            162
Trap3Severity        warning
Trap3Version         2
Trap3Enabled         False
Trap4Address         0.0.0.0
Trap4Port            162
Trap4Severity        warning
Trap4Version         2
Trap4Enabled         False
Trap5Address         0.0.0.0
Trap5Port            162
Trap5Severity        warning
Trap5Version         2
Trap5Enabled         False
ObjectID             1.3.6.1.4.1.1663.1.1.1.1.17
AuthFailureTrap      True
ProxyEnabled         True
```

Show Setup System

Displays the current system settings.

Authority None

Syntax **show setup system**

Examples The following is an example of the Show Setup System command:

```
QLogic4GbT #> show setup system
System Information
-----
Eth0NetworkDiscovery        Static
Eth0NetworkAddress        192.168.70.129
Eth0NetworkMask            255.255.252.0
Eth0GatewayAddress        0.0.0.0
AdminTimeout               30
InactivityTimeout          0
LocalLogEnabled            True
RemoteLogEnabled           False
RemoteLogHostAddress      10.0.0.254
NTPClientEnabled           True
NTPServerAddress          51.68.85.102
EmbeddedGUIEnabled        True
```


Show Switch

Displays I/O module operational information.

Authority None

Syntax `show switch`

Notes [Table 11-18](#) describes the I/O module operational parameters.

Table 11-18. I/O Module Operational Parameters

Parameter	Description
SymbolicName	Descriptive name for the I/O module
SwitchWWN	I/O module world wide name
BootVersion	PROM boot version
CreditPool	Number of port buffer credits available to recipient ports
FirstPortAddress	FC address of I/O module port 0
FlashSize - MBytes	Size of the flash memory in megabytes
LogFilterLevel	Event severity level used to record events in the event log
MaxPorts	Number of ports available on the I/O module
NumberOfResets	Number of times the I/O module has been reset over its service life
ReasonForLastReset	Action that caused the last reset
ActiveImageVersion - build date	Active firmware image version and build date.
PendingImageVersion - build date	Firmware image version and build date that is pending. This image will become active at the next reset or power cycle.
ActiveConfiguration	Name of the I/O module configuration that is in use.
AdminState	I/O module administrative state
AdminModeActive	Admin session status
BeaconOnStatus	Beacon status as set by the Set Beacon command.
OperationalState	I/O module operational state

Table 11-18. I/O Module Operational Parameters (Continued)

Parameter	Description
BoardTemp (1) - Degrees Celsius	Internal I/O module temperature at circuit board sensor 1.
SwitchDiagnosticsStatus	Results of the power-on self test
SwitchTemperatureStatus	I/O module temperature status: normal, warning, failure.

Examples The following is an example of the Show Switch command:

```

QLogic4GbT #> show switch
Switch Information
-----
SymbolicName                QLogic4GbT
SwitchWWN                   10:00:00:c0:dd:00:bc:56
BootVersion                  Vx.x.x.x-0 (day month date time year)
CreditPool                   0
FirstPortAddress             010000
FlashSize - MBytes           128
LogFilterLevel               Critical
MaxPorts                     20
NumberOfResets               15
ReasonForLastReset           PowerUp
ActiveImageVersion - build date Vx.x.x.0 (day month date time year)
PendingImageVersion - build date Vx.x.x.0 (day month date time year)
ActiveConfiguration          default
AdminState                   Online
AdminModeActive              False
BeaconOnStatus               Off
OperationalState             Online
BoardTemp (1) - Degrees Celsius 32
SwitchDiagnosticsStatus      Passed
SwitchTemperatureStatus      Normal
  
```

Show Timezone

Displays the current time zone setting.

Authority None

Syntax **show timezone**

Examples The following is an example of the Show Timezone command:

```
QLogic4GbT #> show timezone
```

```
America/Chicago
```

Show Users

Displays a list of logged-in users. This is equivalent to the User List command.

Authority None

Syntax `show users`

Examples The following is an example of the Show Users command:

```
QLogic4GbT #> show users
```

User	Ethernet Addr-Port	Logged in Since
----	-----	-----
cim@OB-session1	cim	Tue Jul 11 05:14:54 2006
admin@OB-session2	10.20.34.42-3720	Tue Jul 11 12:26:20 2006
admin@OB-session3	10.20.32.58-35794	Tue Jul 11 11:08:18 2006
snmp@IB-session4	Unknown	Tue Jul 11 05:15:01 2006
snmp@OB-session5	Unknown	Tue Jul 11 05:15:01 2006
admin@OB-session8	10.20.33.201	Tue Jul 11 09:55:36 2006
admin@OB-session11	10.20.34.42	Tue Jul 11 12:18:20 2006
admin@OB-session14	10.20.32.68	Tue Jul 11 13:00:40 2006
ms@OB-session16	Unknown	Tue Jul 11 13:08:31 2006

Show Version

Displays an introductory set of information about operational attributes of the I/O module. This command is equivalent to the [Show About](#) command.

Authority None

Syntax **show version**

Examples The following is an example of the Show Version command.

```
QLogic4GbT #> show version
*****
*
*      Command Line Interface SHell  (CLISH)      *
*
*****

SystemDescription      IBM(R) 4Gb Intelligent Pass Through Module for IBM BladeCen
EthNetworkAddress      10.20.11.192 (use 'set setup system' to update)
MACAddress              00:c0:dd:00:06:07
WorldWideName          10:00:00:c0:dd:00:06:07
ChassisSerialNumber    11S0632A00127
SymbolicName           QLogic4GbT
ActiveSWVersion        V6.5.x.x.xx.xx
ActiveTimestamp        day month date time year
DiagnosticsStatus     Passed
LicensedExternalPorts  6
LicensedInternalPorts  14
SwitchMode             Transparent
```

Shutdown

Terminates all data transfers on the I/O module at convenient points and closes the Telnet session. Always power cycle the I/O module after entering this command.

Authority Admin session

Syntax **shutdown**

Notes When the shutdown is complete, the Heartbeat LED is extinguished.

Test Cancel

Cancels a port test that is in progress.

Authority Admin session

Syntax **test cancel**
port [port_number]

Keywords **port [port_number]**
Cancel the test for the port given by [port_number]. [port_number] can be 0–19.

Examples The following example cancels the test running on port 15:
`QLogic4GbT (admin) #> test cancel port 15`

Test Port

Tests individual port performance.

Authority Admin session

Syntax **test port [port_number] [loopback_type]**

Keywords **[port_number]**

The port to be tested. [port_number] can be 0–19.

[loopback_type]

Performs a test of the type given by [loopback_type] on the port given by [port_number]. [loopback_type] can have the following values:

internal

Exercises the internal port connections. Use the [Set Port](#) command to place the port in the diagnostics state before running the test.

external

Exercises the port and its transceiver. Use the [Set Port](#) command to place the port in the diagnostics state before running the test. A transceiver with a loopback plug is required for the port.

Notes [Table 11-19](#) describes the port test parameters.

Table 11-19. Port Test Parameters

Parameter	Description
TestLength	Number of frames sent
FrameSize	Number of bytes in each test frame
DataPattern	Pattern in the payload
StopOnError	Stops the test when an error occurs (True). Otherwise, the test continues to completion.

To cancel a port test that is in progress, enter the [Test Cancel](#) Port command.

To display the status of the most recent port test or port test in progress, enter the [Test Status](#) Port command.

Examples The following is an example of an internal test on port 1.

```
QLogic4GbT #> admin start
QLogic4GbT (admin) #> set port 1 state diagnostics
QLogic4GbT (admin) #> test port 1 internal

A list of attributes with formatting and current values will follow. Enter a new
value or simply press the ENTER key to accept the default 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.

TestLength      (decimal value, 1-4294967295)  [100      ]
FrameSize       (decimal value, 40-2148)        [256      ]
DataPattern     (32-bit hex value or 'Default') [Default  ]
StopOnError     (True / False)                  [True     ]

Do you want to start the test? (y/n) [n] y

The test has been started.
A notification with the test result(s) will appear
on the screen when the test has completed.

QLogic4GbT (admin) #>
Loopback test for port 1 Passed.
```

Test Status

Displays the status of a test in progress, or if there is no test in progress, the status of the test that was executed last.

Authority None

Syntax `test status`

Examples The following is an example of the Test Status command:

```
QLogic4GbT (admin) #> test status
Port Number: 1
-----
TestType      Offline
Status        Running
FailureCount  0
FrameCount    91 of 100
```

Uptime

Displays the elapsed up time since the I/O module was last reset and reset method. A hot reset or non-disruptive firmware activation does not reset the elapsed up time reported by this command.

Authority None

Syntax `uptime`

Examples The following is an example of the Uptime command:

```
QLogic4GbT #> uptime
```

```
Elapsed up time : 0 day(s), 2 hour(s), 28 min(s), 44 sec(s)  
Reason last reset: NormalReset
```

User

Administers and displays user accounts.

Authority USERID account name and an Admin session. The Accounts and List keywords are available to all account names without an Admin session.

Syntax **user**
accounts
add
delete [account_name]
edit
list

Keywords **accounts**
Displays all user accounts that exist on the I/O module. This keyword is available to all account names without an Admin session.

add

Add a user account to the I/O module. You will be prompted for an account name, a password, authority, and an expiration date.

- An I/O module can have a maximum of 15 user accounts.
- Account names are limited to 15 characters; passwords must be 8–20 characters.
- Admin authority grants permission to use the Admin command to open an Admin session, from which all commands can be entered. Without Admin authority, you are limited to view-only commands.
- The expiration date is expressed in the number of days until the account expires (2000 maximum). The I/O module will issue an expiration alarm every day for seven days prior to expiration. 0 (zero) specifies that the account has no expiration date.

delete [account_name]

Deletes the account name given by [account_name] from the I/O module.

edit

Initiates an edit session that prompts you for the account name for which to change the expiration date and authority.

list

Displays the list of users currently logged in and their session numbers. Provides the same function as the Show Users command. This keyword is available to all account names without an Admin session.

Notes Authority level or password changes that you make to an account that is currently logged in do not take effect until that account logs in again.

Examples The following is an example of the User Accounts command:

```
QLogic4GbT (admin) #> user accounts
```

```
Current list of user accounts
-----
images      (admin authority = False, never expires)
USERID      (admin authority = True , never expires)
user1       (admin authority = True , never expires)
user2       (admin authority = False, expires in < 50 days)
user3       (admin authority = True , expires in < 100 days)
```

The following is an example of the User Add command:

```
QLogic4GbT (admin) #> user add
  Press 'q' and the ENTER key to abort this command.
account name (1-15 chars)      : user1
account password (8-20 chars)  : *****

please confirm account password: *****

set account expiration in days (0-2000, 0=never): [0] 100

should this account have admin authority? (y/n): [n] y

OK to add user account 'user1' with admin authority
and to expire in 100 days?

Please confirm (y/n): [n] y
```

The following is an example of the User Edit command:

```
QLogic4GbT (admin) #> user edit

  Press 'q' and the ENTER key to abort this command.

account name (1-15 chars)      : user1
set account expiration in days (0-2000, 0=never): [0]
should this account have admin authority? (y/n): [n]

OK to modify user account 'user1' with no admin authority
and to expire in 0 days?

Please confirm (y/n): [n]
```

The following is an example of the User Delete command:

```
QLogic4GbT (admin) #> user del user3
```

```
    The user account will be deleted.  Please confirm (y/n): [n] y
```

The following is an example of the User List command:

```
QLogic4GbT (admin) #> user list
```

User	Ethernet Addr-Port	Logged in Since
----	-----	-----
USERID@OB-session1	10.20.68.108-1031	day month date time year
USERID@OB-session2	10.20.68.108-1034	day month date time year
snmp@OB-session3	Unknown	day month date time year
snmp@IB-session4	Unknown	day month date time year
user1@OB-session5	Unknown	day month date time year

Whoami

Displays the account name, session number, and I/O module domain ID for the Telnet session.

Authority None

Syntax **whoami**

Examples The following is an example of the Whoami command:

```
QLogic4GbT #> whoami
```

```
User name       : USERID@session2
Switch name     : QLogic4GbT
Switch domain ID: 1 (0x1)
```


Appendix A

Mapping Port Locations and Software Numbering

Your I/O module has six external Fibre Channel ports (external Fibre Channel ports 0, 15, 16, 17, 18, and 19) and 14 internal Fibre Channel ports that connect to each of the 14 blade server bays (ports 1 to 14). QuickTools, the CLI, and Enterprise Fabric Suite 2007 require port numbering from 0 to 19. The SNMP monitoring agent for the switch module numbers the ports from 1 to 20.

A.1 Port Mapping

[Table A-1](#) shows the mapping of switch module port numbering for the BladeCenter and BladeCenter T configurations and whether these ports have the capability to be configured.

Table A-1. Port Mapping For Server Units

Physical Port Connection	QuickTools, CLI, and Enterprise Fabric Suite 2007 Logical Port Number	SNMP Port Numbering	Configurable
External port 1	0 Ext(1:0 ^A)	1	Yes
Server bay 1	1	2	No
Server bay 2	2	3	No
Server bay 3	3	4	No
Server bay 4	4	5	No
Server bay 5	5	6	No
Server bay 6	6	7	No
Server bay 7	7	8	No
Server bay 8	8	9	No
Server bay 9 ^B	9	10	No
Server bay 10 ²	10	11	No
Server bay 11 ²	11	12	No
Server bay 12 ²	12	13	No
Server bay 13 ²	13	14	No

Table A-1. Port Mapping For Server Units (Continued)

Physical Port Connection	QuickTools, CLI, and Enterprise Fabric Suite 2007 Logical Port Number	SNMP Port Numbering	Configurable
Server bay 14 ²	14	15	No
External port 2	15 Ext(2:15 ¹)	16	Yes
External port 3	16 Ext(3:16 ¹)	17	Yes
External port 4	17 Ext(4:17 ¹)	18	Yes
External port 5	18 Ext(5:18 ¹)	19	Yes
External port 6	19 Ext(6:19 ¹)	20	Yes

¹ Indicates a symbolic port name if it is different from the logical port number.

² Bays 9 through 14 are not used for the BladeCenter T units.

NOTE: The Fibre Channel ports that connect to each of the server bays (1 through 14) are fixed 4-Gbps TH_Ports (Pass-thru Modules) or F_Ports (SAN Switch Modules). Only the administrative state for these ports can be changed.

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