

OPENconnectors

McDATA OPENconnectors Command Line Interface

USER MANUAL
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Preface

This publication is part of the documentation suite that supports the McDATA® Sphereon™ 3016 Fabric Switch, Sphereon 3032 Fabric Switch, Sphereon 3216 Fabric Switch, Sphereon 3232 Fabric Switch, Sphereon 4500 Fabric Switch, Intrepid™ 6064 Director, and Intrepid 6140 Director.

Who Should Use This Manual

This publication describes the commands that can be entered through the Command Line Interface for the Intrepid 6064 Director, Intrepid 6140 Director, Sphereon 4500 Switch, Sphereon 3016 Switch, Sphereon 3032 Switch, Sphereon 3216 Switch, and the Sphereon 3232 Switch. (A limited number of these commands are available on the ED-5000 Director.) Access through a Telnet client is presumed.

This publication is intended for data center administrators and customer support personnel, who can either enter the commands manually or write a script containing them. However, the primary purpose of the Command Line Interface is for scripts written by these administrators and personnel for use in a host-based scripting environment. Therefore, this publication presumes that the user is familiar with:

- Establishing and using a Telnet session
- Using the command line of a terminal
- Writing scripts
- Networking, SAN, and zoning concepts

- McDATA products in the user's network

The publications listed in *Related Publications* provide considerable information about both concepts and McDATA products.

Organization of This Manual

This publication is organized as follows:

[Chapter 1, *Introduction*](#), provides an introduction and overview of the Command Line Interface.

[Chapter 2, *CLI Commands*](#), describes the Command Line Interface commands, including their syntax, purpose, and parameters, as well as examples of their usage and any output that they generate.

[Appendix A](#), lists and explains error messages that may appear while using the Command Line Interface.

The [Glossary](#) defines terms, abbreviations, and acronyms used in this manual.

An [Index](#) is also provided.

Manual Updates

Check the McDATA web site at www.mcdata.com for possible updates or supplements to this manual.

Related Publications

Other publications that provide additional information about the products mentioned in this manual are:

- *McDATA Enterprise Fabric Connectivity Manager User Manual* (620-005001)
- *McDATA Products in a SAN Environment - Planning Manual* (620-000124)
- *McDATA ED-5000 Enterprise Fibre Channel Director Installation Manual* (620-005003)
- *McDATA ED-5000 Enterprise Fibre Channel Director Service Manual* (620-005004)
- *McDATA ED-5000 Enterprise Fibre Channel Director User Manual* (620-005002)
- *McDATA Intrepid 6064 Director Installation and Service Manual* (620-000108)
- *McDATA Intrepid 6140 and 6064 Director Product Manager User Manual* (620-000153)

- *McDATA Intrepid 6140 Director Installation and Service Manual (620-000157)*
- *McDATA OPENconnectors SNMP Support Manual (620-000131)*
- *McDATA SANpilot User Manual (620-000160)*
- *McDATA Spheron 3016 and 3216 Fabric Switch Product Manager User Manual (620-000151)*
- *McDATA Spheron 3016 Switch Installation and Service Manual (620-000112)*
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- *McDATA Spheron 3232 Switch Product Manager User Manual (620-000137)*
- *McDATA Spheron 4500 Switch Installation and Service Manual (620-000159)*
- *McDATA Spheron 4500 Switch Product Manager User Manual (620-000158)*

Manual Conventions

The following notational conventions are used in this document:

Convention	Meaning
Bold	Keyboard keys, buttons and switches on hardware products, and screen prompts for the Command Line Interface.
<i>Italic</i>	Outside book references, names of user interface windows, buttons, and dialog boxes.
Monospaced	Command syntax, examples of commands, output.

A note presents important information that is not hazard-related.

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Fax: (720) 566-3851

E-mail: support@mcddata.com

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Introduction

This chapter introduces the Command Line Interface (CLI) and describes the essentials for using the CLI commands.

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Command Line Interface Overview

The Command Line Interface (CLI) is a feature that provides an alternative to McDATA's Enterprise Fabric Connectivity Manager (EFCM) and SANpilot interface products for director and switch management capabilities.

The CLI can only be used through a Telnet client session in an out-of-band management environment, using the Ethernet port in the director or switch. Although the primary use of the CLI is in host-based scripting environments, the CLI commands can also be entered directly at a command line. Any hardware platform that supports the Telnet client software can be used.

The primary purpose of the CLI is to automate management of a large number of switches with the use of scripts.

Because the CLI is not an interactive interface, no prompts are displayed to guide the user through a task. If an interactive interface is needed, the EFCM or SANpilot interface should be used instead of the CLI.

Entering Command Line Interface Commands

The CLI commands can be entered directly at the command line of a terminal or coded in a script.

Note that the CLI commands are not case sensitive.

Documentation Conventions

Throughout this publication, periods are used to separate the components of a command name. However, the periods cannot be included when the command is actually entered at the terminal or coded in a script. (How to enter the commands is explained in [Navigation of the CLI Command Tree](#) on page 1-8.)

Even though the commands cannot be entered with the periods, the command line prompts do include the periods.

Config.Port>

Navigation Conventions

Basic command line navigation conventions are supported. The following table includes the asynchronous commands that are recognized by the CLI.

Table 1-1 CLI Command Tree Navigation Conventions

Character Sequence	Common Name	Action or Description
<CR>	Carriage Return	Pass a completed line to the parser.
	Delete	Backspace one character and delete the character.
<NL>	New Line	Pass a completed line to the parser.
<SP>	Space	Used to separate keywords.
#	Pound Sign	Used to designate comments in a script.
?	Question Mark	Provide help information.
"	Quotation Mark	Used to surround a single token.
^A	Control-A	Position the cursor to the start of the line.

Table 1-1 CLI Command Tree Navigation Conventions (*continued*)

Character Sequence	Common Name	Action or Description
^B	Control-B	Position the cursor left one character.
^D	Control-D	Delete the current character.
^E	Control-E	Position the cursor to the end of the line.
^F	Control-F	Position the cursor right one character.
^H	Control-H	Backspace one character and delete the character.
^I	Tab	Complete the current keyword.
^K	Control-K	Delete to the end of the line.
^L	Control-L	Redraw the line.
^N	Control-N	Move down one line in the command history.
^P	Control-P	Move up one line in the command history.
^R	Control-R	Redraw the line.
^U	Control-U	Clear the input and reset the line buffer.
^X	Control-X	Clear the input and reset the line buffer.
<ESC>[A	Up Arrow	Move up one line in the command history.
<ESC>[B	Down Arrow	Move down one line in the command history.
<ESC>[C	Right Arrow	Position the cursor right one character.
<ESC>[D	Left Arrow	Position the cursor left one character.

Command Tree

The command tree of the CLI begins from the root. The commands in the four extended branches (config, maint, perf, and show) are described in [Chapter 2, CLI Commands](#).

There are three additional commands (login, logout, and commaDelim) that are globally available commands. These commands are described in this chapter.

The hierarchy from the root, reading from left to right, is as follows.

Table 1-2 CLI Command Tree

config -----	features -----	installKey
		enterpriseFabMode
		ficonms
		OpenSysMS
		show
	ip-----	ethernet
		show
	port -----	blocked
		extDist
		fan
		name
		speed
		type
		show
	security -----	fabricBinding -----
		activatePending
		addMember
		clearMemList
		deleteMember
		replacePending
		setFabBindState
		showActive
		showPending
		portBinding -----
		bound
		wwn
		show
		switchBinding -----
		addMember
		deleteMember
		setSwitchBindState

Table 1-2 CLI Command Tree (*continued*)

```

userRights ----- show
                    administrator
                    operator
                    show

snmp ----- addCommunity
             authTraps
             deleteCommunity
             show

switch ----- bbCredit
              domainRSCN
              edTOV
              insistDomainId
              interopMode
              prefDomainId
              priority
              raTOV
              rerouteDelay
              speed
              show

system ----- contact
              date
              description
              location
              name
              show

zoning ----- setDefZoneState
              activateZoneSet
              deactivateZoneSet
              replaceZoneSet
              clearZoneSet
              addZone
              deleteZone
              renameZoneSet
              addWwnMem
              addPortMem
              clearZone

```

Table 1-2 CLI Command Tree (*continued*)

		deleteWwnMem
		deletePortMem
		renameZone
		showPending
		showActive
maint -----	port -----	beacon
		reset
	system -----	beacon
		clearSysError
		ipl
		resetConfig
		setOnlineState
perf -----	class2	
	class3	
	clearStats	
	errors	
	link	
	traffic	
show -----	eventLog	
	features	
	frus	
	ip -----	ethernet
	loginServer	
	nameServer	
	nameServerExt	
	port -----	config
		info
		nodes
		status
		technology
	security -----	fabricBinding
		portBinding
		switchBinding
	switch	
	system	
	zoning	

Note that the commands are shown, with the exception of the zoning commands, in alphabetical order to make them easier to locate. Although the commands can be entered in any order, depending on the results desired, the order shown in [Table 1-2, CLI Command Tree](#), on page 1-5 for the zoning commands is a typical order in which the zoning commands are entered.

Note that the order in which commands are entered determines the order in which the show commands display the values. Refer to [Chapter 2, CLI Commands](#) for examples of show commands output.

Navigation of the CLI Command Tree

Once the administrator or operator logs in and receives the Root> prompt, the CLI commands are accessed by navigating up and down the CLI command tree.

To move from the root through any of the four extended branches, enter the name of the next branch as shown in [Table 1-2, CLI Command Tree](#), on page 1-5. For example, to use the config.port.name command to configure the name for port 4 on the switch, this series of commands is entered:

```
Root> config
Config> port
Config.Port> name 4 "Sam's Tape Drive"
```

At this point, to enter the maint.port.beacon command to set the beaconing state of port 4, the following series of commands is entered:

```
Config.Port> ..
Config> ..
Root> maint
Maint> port
Maint.Port> beacon 4 true
```

Note that you must return all the way to the root of the tree to transition to another extended branch. When traversing back to the root, the name of each branch cannot be used. Instead use the double-dot command (two periods) to move back towards the root. Note that only one double-dot command may be entered at a time.

One approach to making the navigation more concise is to use the root command to jump directly to the root of the CLI command tree. The previous example, which shows stepping back to the root with the double-dot command, is simplified as follows:

```
Config.Port> root
Root> maint
```

```
Maint> port
Maint.Port> beacon 4 true
```

Another approach to making the navigation more concise is to use the complete command syntax from the Root> prompt each time. For example, to issue the config.port.name command and then the maint.port.beacon command, the commands are entered as follows:

```
Root> config port name 4 "Sam's Tape Drive"
Root> maint port beacon 4 true
```

As shown in this example, use of the complete command syntax avoids navigating up and down the branches of the CLI command tree, and the prompt stays at the root. The use of complete command syntax is particularly useful when writing scripts.

When coding a script, remember to code the appropriate character sequences, which are described in [Navigation Conventions](#) on page 1-3.

```
Root> config port name 4 "Sam's Tape Drive"<CR>
Root> maint port beacon 4 true<CR>
```

Limitation on Movements

As the commands are entered, they are recorded in a history log. Note these limitations on movement that result from use of the history log:

- If a command has more than 60 characters, the command runs, but the command is not recorded in the history log, and the position in the tree does not change, as shown in the following example. Because the command is not recorded in the history, a subsequent asynchronous command (navigation command) cannot depend on it.

```
Root> config zoning addWwnMem TheUltimateZone 10:00:00:00
:C9:22:9B:64
Root>
```

- Whenever the position in the CLI command tree moves to a new branch (for example, config to maint, config to config.port, or config.port to config), the history log is cleared. In this case, any asynchronous commands (for example, the up-arrow command <ESC>[A or the up-arrow keyboard symbol) cannot move the position back towards the root, as shown in this example:

```
Root> config
Root.Config> port
Root.Config.Port> <ESC>[A
Root.Config.Port>
```

Parameters

Some command parameters accept character strings that include spaces. Quotation marks are required when a string includes spaces.

```
Config.System> location Building_24_Room_16
```

```
Config.System> location "Building 24 Room 16"
```

If spaces are not included in a parameter that accepts a string, the quotation marks are not required around that string.

To include quotation marks in a string, use the escape character (\) before the quotation marks.

```
Config.System> location "Building 24 \"Joe's PlayLab\""
```

A null string can be created by using the quotation marks without any space between them.

```
Config.System> location ""
```

Output

All output from the CLI commands is limited to the standard 80 columns supported by most Telnet interfaces. The output is left-justified.

Logging In and Logging Out

The CLI allows a single Telnet client to be connected to the switch. If a Telnet client logs out, or if after 15 minutes of inactivity the client's access times out, another Telnet client may log in. Also note that the Telnet client (user) must log in any time the director or switch is restarted because the current user's access is lost. Examples of a restart include an IPL and any power-off situation.

User Access Rights

The CLI supports two user access rights: administrator and operator. A user who logs in with administrator access rights can use all of the commands described in this publication. However, operator access rights grant permission to use only the perf and show branches of the CLI command tree (for example, the perf.traffic and show.system commands), as well as the globally available commands (login, logout, and commaDelim).

login

Syntax	login
Purpose	This command allows a Telnet client to connect to the switch.
Description	<p>This command allows the user to log in with either administrator or operator access rights. The default passwords are <i>password</i>.</p> <p>The login command is called automatically by the CLI each time a new Telnet session is activated, as well as each time new administrator access rights are configured.</p> <p>After the login command is issued, the Username: prompt automatically displays. After a valid user name is entered, the Password: prompt automatically displays. After the corresponding valid password is entered, the Root> prompt displays. At this prompt the user may enter any of the commands included in Table 1-2, CLI Command Tree, on page 1-5.</p> <p>A user name and password can be set by the administrator through the config.security.userRights.administrator command or through the config.security.userRights.operator command.</p>

The access rights chosen for the CLI are completely independent of the other product interfaces, for example, SNMP or McDATA product interfaces.

Parameters This command has no parameters.

Command Examples

```
login
Username: Administrator
Password: password

login
Username: Operator
Password: password
```

logout

Syntax logout

Purpose This command allows a Telnet client to disconnect from the switch.

Description This command logs out the single Telnet client connected to the switch. This command can be entered at any point in the command tree.

Parameters This command has no parameters.

Command Examples

```
Root> logout

Config> logout

Config.Port> logout
```

Using the commaDelim Command

Note that the output examples shown in the other sections of this publication presume that commaDelim is off.

commaDelim

Syntax commaDelim enable

Purpose This command enables the user to obtain displayed information in comma-delimited, rather than tabular, format. Tabular format is the default.

Description This command can be entered at any point in the command tree.

Parameter This command has one parameter

enable Specifies the comma-delineated state for output. Valid values are *true* and *false*. Boolean 1 and 0 may be substituted as values.

Command Examples **Root>** commaDelim true

Config> commaDelim 1

Config.Port> commaDelim false

Output Example Output displayed in commaDelim mode is as follows:

```
Root> show eventLog
Date/Time,Code,Severity,FRU,Event Data,
04/12/01 10:58A,375,Major,CTP-0,00010203 04050607 08090A0B 0C0D0E0F,
04/12/01 10:58A,375,Major,CTP-0,00010203 04050607 08090A0B 0C0D0E0F,
04/12/01 9:58A,385,Severe,CTP-0,00010203 04050607 08090A0B 0C0D0E0F,
04/11/01 7:18P,395,Severe,CTP-0,00010203 04050607 08090A0B 0C0D0E0F,
```

Handling Command Line Interface Errors

Two types of errors detected by the CLI are:

- An error associated with the interface. For example, a keyword is misspelled or does not exist.

```
Root> config
Error 234: Invalid Command
```

- An error associated with fabric or switch issues. For example, a parameter error is detected by the switch, where port 24 is entered for a switch that supports only 16 ports.

```
Root> config port name 24 "Port 24"
Error 248: Invalid Port Number
```

In either case, the command is ignored. The CLI remains at the point it was before the command was entered.

The error messages, including error number and error, are listed in [Appendix A, Error Messages](#).

Using the Command Line Interface Help

The question mark (?) can be used within a command to obtain certain information:

- If the question mark is used in place of a command keyword, all the keywords at that level of the CLI command tree display.

```
Root> config system ?
Command identified
contact          - Set the system contact attribute
date             - Set the system date and time
description      - Set the system description attribute
location        - Set the system location attribute
name            - Set the system name attribute
show            - Display the system configuration
```

- If the question mark is used at the end of a recognized command, any parameters for that command display.

```
Root> config port name ?
- name <portNumber> <portName>
```

- If the question mark is used after one or more characters of a keyword, any keywords at that level of the CLI command tree display.

```
Root> config s?
security snmp switch system
```

Commenting Scripts

The pound sign (#) can be used to add comments in a script file. The pound sign must be the first character in the line; the CLI ignores everything after the pound sign in that line. The following lines are valid:

```
Root> #Change port 3 to an E_Port<CR>
Root> config port<CR>
config.port> #####<CR>
config.port> ## Begin Script ##<CR>
config.port> #####<CR>
```

The pound sign cannot be used after any other characters (a command, for example) to start a comment. The following is an invalid script line:

```
Root> maint system beacon true # Turn on beaconing<CR>
```

To correct the previous script line, move the comment either before or after the line with the command. For example, the following examples are both valid:

```
Root> # Turn on beaconing<CR>
Root> maint system beacon true<CR>

Root> maint system beacon true<CR>
Root> # Turn on beaconing<CR>
```

Comments of over 200 characters in length may cause unpredictable system behavior. Limit comments to 200 characters per line.

ED-5000 Director

A subset of the CLI commands described in this publication are available on the ED-5000 Director™. The globally available commands (login, logout, and commaDelim) are described previously in this chapter. The following config, maint, and show commands are described in [Chapter 2, CLI Commands](#).

Table 1-3 CLI Command Tree for the ED-5000 Director

config -----	security -----	userRights -----	administrator
			operator
			show
<hr/>			
maint -----	system -----	resetConfig	
<hr/>			
show -----	ip -----	ethernet	
	port -----	config	
		info	
		status	
	switch		
	system		
	zoning		
<hr/>			

Telnet Session

The CLI can only be used through a Telnet client session in an out-of-band management environment, using the Ethernet port in the director or switch. Although the primary use of the CLI is in host-based scripting environments, the CLI commands can also be entered directly at a command line. Any hardware platform that supports the Telnet client software can be used.

If you have the Enterprise Fabric Connectivity Manager (EFC Manager) and a Product Manager for a director or switch installed, you can use the Configure option in these products to enable/disable Telnet access. You can also enable/disable Telnet access by using the Configure option of the SANpilot interface.

Telnet access is enabled by default. Any changes to the enabled state of the Telnet server are retained through system resets and power cycles.

Ethernet Connection Loss

If the Ethernet cable is disconnected from the director or switch during a Telnet session, one of three scenarios is possible:

- Replace the Ethernet cable before the client connection times out, and the Telnet session will continue.
- Wait 15 minutes until the client connection times out; then replace the Ethernet cable and restart the connection.
- If the client connection has already timed out, replace the Ethernet cable. Open a SANpilot interface window or Enterprise Fabric Connectivity Manager (EFCM) Product Manager window. Toggle the enabled state of the CLI, thereby clearing the client connection. Restart the client connection.

Once the client connection is reestablished, verify your configuration's completeness and accuracy.

This chapter describes the Command Line Interface (CLI) commands, including their syntax, purpose, and parameters, as well as examples of their usage and any output that they generate.

Section	Page
<i>Command Overview</i>	2-2
<i>config</i>	2-2
<i>maint</i>	2-55
<i>perf</i>	2-59
<i>show</i>	2-67

Command Overview

Most of the commands in this chapter are listed in alphabetical order to make them easy to locate. Although the commands can be entered in any order, depending on the results desired (so long as the tree structure is followed), the order used herein for the zoning commands follows a typical order of entry. The various show commands are usually entered at the end of a group of other commands to verify configuration changes.

config

The config branch of the CLI command tree contains commands that set parameter values on the switch or director. These values are not temporary (session) values, but are retained across power cycles.

The commands in the config branch can only be accessed by a user with administrator level user rights.

CLI commands are activated on the switch immediately, except as noted.

In general, the config naming commands (except for the config.zoning commands) use the USASCII character set. All of the characters in this 128-character set (the first 7-bit subset of the ISO-8859-1 Latin-1 character set) are valid. Any exceptions are noted in the specific command descriptions.

config.features.enterpriseFabMode

Syntax `enterpriseFabMode enterpriseFabModeState`

Purpose This command sets the Enterprise Fabric Mode state for the fabric. The McDATA SANtegrity™ feature key must be installed to activate the Enterprise Fabric Mode state.

Parameters This command has one parameter.

`enterpriseFabModeState` Specifies whether `enterpriseFabMode` is active. Valid values are *activate* and *deactivate*. Boolean 1 and 0 may be substituted as values.

Command Example `Root> config features enterpriseFabMode 1`

config.features.ficonms

Syntax `ficonms ficonmsState`

Purpose This command sets the enabled state of the FICON Management Server. The FICON Management Server feature key must be installed in order to enable the FICON Management Server State. (The Sphereon 4500 does not accept this command.)

Parameters This command has one parameter.

`ficonmsState` Specifies whether the FICON Management Server is enabled. Valid values are *enable* and *disable*. Boolean 1 and 0 may be substituted as values.

Command Example `Root> config features ficonms 1`

config.features.installKey

Syntax	<code>installKey featureKey</code>	
Purpose	This command allows the user to install a feature set that is enabled by the provided feature key. The switch can be either offline or online when this command is executed.	
Parameters	This command has one parameter.	
	<code>featureKey</code>	Specifies the key you have received to enable optional software feature on a specific product. A feature key is a string of case-sensitive, alphanumeric ASCII characters. The number of characters may vary in the format; however, the key must be entered exactly, including the hyphens. An example of a feature key format is XxXx-XXxX-xxXX-xX.
Command Example	Root> <code>config features installKey AaBb-CCdD-eeFF-gH</code>	

config.features.OpenSysMS

Syntax	<code>OpenSysMS osmsState</code>	
Purpose	This command sets the enabled state of the Open Systems Management Server. The Open Systems Management Server feature key must be installed in order to enable the OSMS State.	
Parameters	This command has one parameter.	
	<code>osmsState</code>	Specifies whether the Open Systems Management Server is enabled. Valid values are <i>enable</i> and <i>disable</i> . Boolean 1 and 0 may be substituted as values.
Command Example	Root> <code>config features OpenSysMS 1</code>	

config.features.show

Syntax show

Purpose This command shows the product feature information configured for this switch.

Parameters This command has no parameters.

Command Example **Root>** config features show

Output The product feature data is displayed as a table that includes the following property.

Installed Feature Set The feature set installed using a feature key. Only installed keys are displayed.

Feature Individual features within each set. In many cases, there is only one feature within each feature set.

State The state of the individual feature. Fabric-wide features are displayed as Active/Inactive. Switch-centric features are displayed as Enabled/Disabled.

Output Example The output from the config.features.show command displays as follows.

Installed Feature Set	Feature	State
-----	-----	-----
Open Systems Management Server	OSMS	Enabled
Flex Ports	8 Flex Ports	Enabled
SANtegrity	Fabric Binding	Active
SANtegrity	Switch Binding	Enabled
SANtegrity	Enterprise Fabrics	Active

config.ip.ethernet

Syntax	<code>ethernet ipAddress gatewayAddress subnetMask</code>						
Purpose	This command sets the Ethernet network settings.						
Description	<hr/> <p>The Telnet connection can be lost when these Ethernet network settings are changed.</p> <hr/> <p>If the IP address is reconfigured, your Telnet client must be reconnected to the new IP address. A new login will be requested.</p> <hr/>						
Parameters	<p>This command has three parameters.</p> <table> <tr> <td><code>ipAddress</code></td> <td>Specifies the new IP address for the director or switch. The address must be entered in dotted decimal format (for example, 10.0.0.0).</td> </tr> <tr> <td><code>gatewayAddress</code></td> <td>Specifies the new gateway address for the Ethernet interface. The address must be entered in dotted decimal format (for example, 0.0.0.0).</td> </tr> <tr> <td><code>subnetMask</code></td> <td>Specifies the new subnet mask for the Ethernet interface. The address must be entered in dotted decimal format (for example, 255.0.0.0).</td> </tr> </table>	<code>ipAddress</code>	Specifies the new IP address for the director or switch. The address must be entered in dotted decimal format (for example, 10.0.0.0).	<code>gatewayAddress</code>	Specifies the new gateway address for the Ethernet interface. The address must be entered in dotted decimal format (for example, 0.0.0.0).	<code>subnetMask</code>	Specifies the new subnet mask for the Ethernet interface. The address must be entered in dotted decimal format (for example, 255.0.0.0).
<code>ipAddress</code>	Specifies the new IP address for the director or switch. The address must be entered in dotted decimal format (for example, 10.0.0.0).						
<code>gatewayAddress</code>	Specifies the new gateway address for the Ethernet interface. The address must be entered in dotted decimal format (for example, 0.0.0.0).						
<code>subnetMask</code>	Specifies the new subnet mask for the Ethernet interface. The address must be entered in dotted decimal format (for example, 255.0.0.0).						

Command Example `Root> config ip ethernet 10.0.0.0 0.0.0.0 255.0.0.0`

config.ip.show

Syntax	<code>show</code>
Purpose	This command shows the LAN configuration.
Parameters	This command has no parameters.
Command Example	<code>Root> config ip show</code>

Output The LAN configuration data is displayed as a table that includes the following properties.

IP Address	The IP address.
Gateway Address	The gateway address.
Subnet Mask	The subnet mask.

Output Example The output from the `config.ip.show` command displays as follows.

```
IP Address:      10.0.0.0
Gateway Address: 0.0.0.0
Subnet Mask:    255.0.0.0
```

config.port.blocked

Syntax `blocked portNumber blockedState`

Purpose This command sets the blocked state for a port.

Parameters This command has two required parameters.

portNumber	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140
blockedState	Specifies the blocked state for the port. Valid values are <i>true</i> and <i>false</i> . Boolean 1 and 0 may be substituted as values.

Command Examples `Root> config port blocked 4 false`

`Root> config port blocked 4 0`

config.port.extDist

Syntax `extDist portNumber extDistOn`

Purpose This command sets the extended distance state for a port. (The Sphereon 4500 does not accept this command.)

Description When the extended distance field is *true*, the port is configured for 60 buffer credits, which supports a distance of up to 100 km for a 1 gigabits per second (Gbps) port.

Parameters This command has two required parameters.

portNumber Specifies the port number. Valid values are:
0–15 for the Sphereon 3016 and 3216
0–31 for the Sphereon 3032 and 3232
0–63 for the Intrepid 6064
0–127 and 132–144 for the Intrepid 6140

extDistOn Specifies the extended distance state for the port. Valid values are *true* and *false*. Boolean 1 and 0 may be substituted as values.

Command Examples **Root>** `config port extDist 4 false`

Root> `config port extDist 4 0`

config.port.fan

Syntax `fan portNumber fanOn`

Purpose This command sets the fabric address notification (FAN) state for a port (Sphereon 4500 only). This configuration can be applied to any port regardless of its current configuration. The FAN value is applied at the time the port is configured and operated in a loop.

Parameters This command has two required parameters.

`portNumber` Specifies the port number. Valid values are: 0–23 for the Sphereon 4500

`fanOn` Specifies the FAN state for the port. Valid values are *true* and *false*. Boolean 1 and 0 may be substituted as values.

Command Example `Root> config port fan 4 1`

config.port.name

Syntax	<code>name portNumber "portName"</code>				
Purpose	This command sets the name for a port.				
Parameters	This command has two required parameters.				
	<table><tr><td>portNumber</td><td>Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140</td></tr><tr><td>portName</td><td>Specifies the name for the port. The port name must not exceed 24 characters in length.</td></tr></table>	portNumber	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140	portName	Specifies the name for the port. The port name must not exceed 24 characters in length.
portNumber	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140				
portName	Specifies the name for the port. The port name must not exceed 24 characters in length.				
Command Example	<code>Root> config port name 4 "Sam's tape drive"</code>				

config.port.speed

Syntax `speed portNumber portSpeed`

Purpose This command sets the speed for a port.

Description A port can be configured to operate at 1 Gbps, 2 Gbps, or a negotiated speed. The port speed can be set only to 1 Gbps if the switch speed is 1 Gbps. An attempt to set the port speed to 2 Gbps or to negotiate in a switch with a 1 Gbps switch speed results in an error message.

If the port speed is set to negotiate, the port and the device to which it is attached negotiate the data speed setting to either 1 Gbps or 2 Gbps.

Port speed changes temporarily disrupt port data transfers.

Parameters This command has two required parameters.

portNumber Specifies the port number. Valid values are:
 0–15 for the Sphereon 3016 and 3216
 0–23 for the Sphereon 4500
 0–31 for the Sphereon 3032 and 3232
 0–63 for the Intrepid 6064
 0–127 and 132–144 for the Intrepid 6140

portSpeed Specifies the speed of the port. Valid values are
1g, *2g*, and *negotiate*.

Command Examples

```
Root> config port speed 4 2g
```

```
Root> config port speed 6 negotiate
```

config.port.type

Syntax	<code>type portNumber portType</code>				
Purpose	This command sets the allowed type for a port.				
Description	<p>A port can be configured as an F_Port, an E_Port, or a G_Port. On a Sphereon 4500, a port can also be an Fx_port or Gx_port. The port configurations function as follows:</p> <ul style="list-style-type: none"> • F_Port—cannot be used as an interswitch link, but may attach to a device with an N_Port. • E_Port—only other switches may attach to this type of port. • G_Port—either a device or another switch may attach to this type of port. • Fx_Port — allows Arbitrated Loop operation in addition to the functionality of an F_Port. (Sphereon 4500 only.) • Gx_Port—allows Arbitrated Loop operation in addition to the functionality of an F_Port or an E_Port. (Sphereon 4500 only.) 				
Parameters	<p>This command has two required parameters.</p> <table> <tr> <td>portNumber</td> <td> Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140 </td> </tr> <tr> <td>portType</td> <td> Specifies the type of the port. Valid values are: <ul style="list-style-type: none"> • <i>eport</i> • <i>fport</i> • <i>gport</i> • <i>fxport</i> (Sphereon 4500 only) • <i>gxport</i> (Sphereon 4500 only) </td> </tr> </table>	portNumber	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140	portType	Specifies the type of the port. Valid values are: <ul style="list-style-type: none"> • <i>eport</i> • <i>fport</i> • <i>gport</i> • <i>fxport</i> (Sphereon 4500 only) • <i>gxport</i> (Sphereon 4500 only)
portNumber	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140				
portType	Specifies the type of the port. Valid values are: <ul style="list-style-type: none"> • <i>eport</i> • <i>fport</i> • <i>gport</i> • <i>fxport</i> (Sphereon 4500 only) • <i>gxport</i> (Sphereon 4500 only) 				
Command Example	<code>Root> config port type 4 fport</code>				

config.port.show

Syntax `show portNumber`

Purpose This command displays the port configuration for a single port.

Description This show command, on the config.port branch, displays the current configuration for the specified port.

Parameters This command has one parameter.

portNumber	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140
------------	---

Command Example `root> config port show 4`

Output The port configuration is displayed as a table that includes the following properties.

Port Number	The port number.
Name	The port name.
Blocked	The blocked state. Valid values are <i>true</i> and <i>false</i> .
Extended Distance	The extended distance configuration state. Valid values are <i>true</i> and <i>false</i> . (This field is not valid on the Sphereon 4500.)
FAN	The fabric address notification (FAN) state. Valid values are <i>true</i> and <i>false</i> . (Sphereon 4500 only.)

Type	The port type. Valid values are: <ul style="list-style-type: none"> • <i>F Port</i> • <i>E Port</i> • <i>G Port</i> • <i>Fx Port</i> (Sphereon 4500 only) • <i>Gx Port</i> (Sphereon 4500 only)
Speed	The port speed. Valid values are <i>1 Gb/sec</i> , <i>2 Gb/sec</i> , and <i>Negotiate</i> .

Output Example The output from the `config.port.show` command displays as follows.

```

Port Number:      4
Name:             Sam's tape drive
Blocked:          false
Extended distance: false
Type:             F Port
Speed:            2 Gb/sec

```

`config.security.fabricBinding`

Note that the `config.security.fabricBinding` commands function in a different way from most CLI commands, which are single action commands that take effect immediately. The first Fabric Binding command entered invokes a work-area editor. The commands take effect on a temporary copy of a Fabric Member List in the work area until the temporary copy in the work area is activated to the fabric--or is discarded.

Because not all the verification of the Fabric Member List can occur on the temporary copy in the work area, it is possible, however unlikely, that the copy of the list encounters no errors until the list is activated to the fabric.

`config.security.fabricBinding.activatePending`

Syntax	<code>activatePending</code>
Purpose	This command activates the fabric binding configuration contained in the pending work area to the fabric.

This command takes effect immediately. The CLI verifies the list before activating it to the fabric and adds the managed switch to the list if it is not already present.

Parameters This command has no parameters.

```
Root> config security fabricBinding activatePending
```

config.security.fabricBinding.addMember

Syntax addMember wwn domainId

Purpose This command adds a new member to the Fabric Member List in the pending fabric binding work area. The number of entries is limited to the maximum available domain ID's for the fabric (31).

Changes from this command are not activated to the fabric until the activatePending command is issued.

Parameters This command has two parameters:

wwn Specifies the world wide name (WWN) of the member to be added to the fabric membership list. The value of the WWN must be in colon-delimited hexadecimal notation (for example, AA:00:AA:00:AA:00:AA:00).

domainId The domain ID of the member to be added to the fabric membership list. Valid domain ID's range from 1 to 31.

```
Root> config security fabricBinding addMember
AA:99:23:23:08:14:88:C1 2
```

config.security.fabricBinding.clearMemList

Syntax `clearMemList`

Purpose This command clears the fabric membership list for the pending fabric binding working area.

This information is not saved to the fabric until the activatePending command is issued. When the list is cleared, the CLI automatically adds the managed switch to the fabric membership list.

Parameters This command has no parameters.

config.security.fabricBinding.deleteMember

Syntax `deleteMember wwn domainId`

Purpose This command removes a member from the Fabric Member List in the pending fabric binding work area.

Changes are not activated to the fabric until the activatePending command is issued.

Parameters This command has two parameters:

`wwn` Specifies the WWN of the member to be removed from the fabric membership list. The value of the WWN must be in colon-delimited hexadecimal notation (for example, AA:00:AA:00:AA:00:AA:00).

`domainId` The domain ID of the member to be removed from the fabric membership list. Valid domain ID's range from 1 to 31.

```
Root> config security fabricBinding deleteMember
AA:99:23:23:08:14:88:C1
```

```
Root> config security fabricBinding deleteMember 2
```


config.security.fabricBinding.replacePending

Syntax `replacePending`

Purpose This command replaces the pending working area with the fabric binding configuration that is currently loaded on the fabric.

Parameters This command has no parameters.

```
Root> config security fabricBinding replacePending
```

config.security.fabricbinding.setState

Syntax `setState fabricBindingState`

Purpose This command sets the fabric binding state for the pending fabric binding configuration work area.

This state is not saved to the fabric until the activatePending command is issued.

Parameters This command has one parameter:

`fabricBindingState` Specifies the fabric binding state for the pending fabric binding configuration work area. Valid values are:

inactive - Deactivate fabric binding. Switches and directors are allowed to join the fabric without restriction. The fabric membership list is empty in this state and as such, the fabric membership list is cleared when this state is requested.

restrict - Activate fabric binding and restrict connections. Only switches identified in the fabric membership list may join the fabric in this state. The fabric membership list is automatically populated with devices attached prior to activation, but all new members must be manually added before connecting. The switch must be online to complete this request.

```
Root> config security fabricBinding setstate restrict
```

config.security.fabricBinding.showActive

Syntax `showActive`

Purpose This command displays the fabric binding configuration saved on the fabric. It performs the same function as `show.security.fabricBinding`.

Parameters This command has no parameters.

Output This command displays the following fabric binding configuration data:

Fabric Binding State The active fabric binding state: Inactive or Active Restricting

Fabric Membership List The active fabric membership list.

Output Example The output from the `config.security.fabricBinding.showActive` command displays as follows.

```
Fabric Binding State:   Active Restricting
Domain 1  (00:11:22:33:44:55:66:77)
Domain 2  (88:99:AA:BB:CC:DD:EE:FF)
Domain 14 (11:55:35:45:24:78:98:FA)
```

config.security.fabricBinding.showPending

Syntax `showPending`

Purpose This command displays the fabric binding configuration in the pending working area and has not yet been activated to the fabric. If no changes have been made to the pending environment, the CLI displays the Active membership list.

Parameters This command has no parameters.

Output The fabric binding configuration data is displayed as a table that includes the following properties.

Fabric Binding State	The pending fabric binding state: Inactive or Active Restricting
----------------------	--

Fabric Membership List	The pending fabric membership list.
------------------------	-------------------------------------

Output Example The output from the `config.security.fabricBinding.showPending` command displays as follows.

```
Fabric Binding State:  Active Restricting
Domain 1  (00:11:22:33:44:55:66:77)
Domain 2  (88:99:AA:BB:CC:DD:EE:FF)
Domain 14 (11:55:35:45:24:78:98:FA)
```

config.security.portBinding

config.security.portBinding.bound

Syntax	<code>bound portNumber portBindingState</code>
Purpose	This command sets the port binding state for a given port.
Parameters	This command has two parameters.
portNumber	Specifies the port number for which the port binding state is being set. Valid port number values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140
portBindingState	Specifies the port binding state as active or inactive. Valid values are <i>true</i> and <i>false</i> . <i>true</i> sets the port binding to active. The specified port is bound to the WWN configured with the <code>config.security.portBinding.wwn</code> command. If no WWN has been configured, no devices can log in to that port. <i>false</i> sets the port binding to inactive. Any device is free to connect to the specified port in this state, regardless of the WWN setting. Boolean 1 and 0 may be substituted as values.

Command Examples

```
Root> config security portBinding bound 4 true
```

```
Root> config security portBinding bound 4 1
```

config.security.portBinding.wwn

Syntax	<code>wwn portNumber boundWwn</code>
Purpose	This command configures the single device WWN to which a port is bound.
Parameters	This command has two parameters.
portNumber	<p>Specified the port number for which the bound WWN is being set. Valid port number values are:</p> <ul style="list-style-type: none"> 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140
boundWwn	<p>Specifies the WWN of the device that is being bound to the specified port. The value must be entered in colon-delimited hexadecimal notation (for example, 11:22:33:44:55:66:AA:BB). If the boundWwn is configured and the portBindState is:</p> <ul style="list-style-type: none"> Active—only the device described by boundWwn is able to connect to the specified port. Inactive—the WWN is retained, but any device can connect to the specified port. <p>Instead of the WWN, either of two values can be entered in this parameter:</p> <ul style="list-style-type: none"> <i>attached</i> automatically configures the currently attached device WWN as the bound WWN. <i>remove</i> changes the WWN to the default value, 00:00:00:00:00:00:00:00. Even though this removes the WWN-port association, if the portBindingState value set with the config.security.portBinding.bound command is still <i>true</i> (the port binding is active), other devices are prevented from logging in to this port. To allow other devices to log in to this port, use the config.security.portBinding.bound command to set the portBindingState parameter to false.

Command Examples

```

Root> config security portBinding wwn 4
      AA:99:23:23:08:14:88:C1

Root> config security portBinding wwn 4 attached

Root> config security portBinding wwn 4 remove

```

config.security.portBinding.show

Syntax `show portNumber`

Purpose This command shows the port binding configuration for a single port.

Parameters This command has one parameter.

portNumber	Specifies the port number for which the port binding configuration will be shown. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140
------------	--

Command Example `Root> config security portBinding show 4`

Output The port binding configuration data is displayed as a table that includes the following properties.

Port Number	The port number.
WWN Binding	The state of port binding for the specified port, either active or inactive.
Bound WWN	The WWN of the device that is bound to the specified port. If this field is blank, no device has been bound to the specified port.

Output Example The output from the `config.security.portBinding.show` command displays as follows.

```

Port Number:          4
WWN Binding:         Active
Bound WWN:          AA:99:23:23:08:14:88:C1

```

config.security.switchBinding

config.security.switchBinding.addMember

Syntax `addMember wwn`

Purpose This command adds a new member to the Switch Membership List. A maximum number of 256 members may be added to the switch membership list.

Parameters This command has one parameter:

<code>wwn</code>	Specifies the switch or N-Port device WWN of the member to be added to the switch membership list. The value of the WWN must be in colon-delimited hexadecimal notation (for example, AA:00:AA:00:AA:00:AA:00).
------------------	---

```
Root> config security switchBinding addMember
      AA:99:23:23:08:14:88:C1
```

config.security.switchBinding.deleteMember

Syntax `deleteMember wwn`

Purpose This command removes a member from the Switch Member List. The user cannot remove a member that is currently logged into the switch.

Parameters This command has one parameter:

<code>wwn</code>	Specifies the switch or N-Port device WWN of the member to be removed from the switch membership list. The value of the WWN must be in colon-delimited hexadecimal notation (for example, AA:00:AA:00:AA:00:AA:00). The user may also enter <i>all</i> for this argument to clear the switch membership list completely. Note that the user cannot clear a WWN that is currently logged into the switch.
------------------	--

```
Root> config security switchBinding deleteMember
      AA:99:23:23:08:14:88:C1
```

config.security.switchBinding.setState

Syntax	<code>setState switchBindingState</code>		
Purpose	This command sets the switch binding state on the switch.		
Parameters	This command has one parameter: <table><tr><td><code>switchBindingState</code></td><td>Sets the switch binding state for the switch. Valid values are: <i>disable</i> - Disable switch binding. Devices (servers, storage, and other switches) are allowed to connect to the switch without restrictions. <i>eRestrict</i> - Enable switch binding and restrict E_Port connections. E_Ports are prevented from forming ISL connections unless explicitly identified in the switch membership list. F_Port connections are allowed without restriction. <i>fRestrict</i> - Enable switch binding and restrict F_Port connections. Server and (or) storage devices are prevented from forming F_Port connections with the switch unless explicitly identified in the switch membership list. E_Ports are allowed to form ISL connections without restriction. <i>allRestrict</i> - Enable switch binding and restrict E_Port and F_Port connections. Both E_Ports and F_Ports prohibit connections with all devices unless explicitly identified in the switch membership list.</td></tr></table>	<code>switchBindingState</code>	Sets the switch binding state for the switch. Valid values are: <i>disable</i> - Disable switch binding. Devices (servers, storage, and other switches) are allowed to connect to the switch without restrictions. <i>eRestrict</i> - Enable switch binding and restrict E_Port connections. E_Ports are prevented from forming ISL connections unless explicitly identified in the switch membership list. F_Port connections are allowed without restriction. <i>fRestrict</i> - Enable switch binding and restrict F_Port connections. Server and (or) storage devices are prevented from forming F_Port connections with the switch unless explicitly identified in the switch membership list. E_Ports are allowed to form ISL connections without restriction. <i>allRestrict</i> - Enable switch binding and restrict E_Port and F_Port connections. Both E_Ports and F_Ports prohibit connections with all devices unless explicitly identified in the switch membership list.
<code>switchBindingState</code>	Sets the switch binding state for the switch. Valid values are: <i>disable</i> - Disable switch binding. Devices (servers, storage, and other switches) are allowed to connect to the switch without restrictions. <i>eRestrict</i> - Enable switch binding and restrict E_Port connections. E_Ports are prevented from forming ISL connections unless explicitly identified in the switch membership list. F_Port connections are allowed without restriction. <i>fRestrict</i> - Enable switch binding and restrict F_Port connections. Server and (or) storage devices are prevented from forming F_Port connections with the switch unless explicitly identified in the switch membership list. E_Ports are allowed to form ISL connections without restriction. <i>allRestrict</i> - Enable switch binding and restrict E_Port and F_Port connections. Both E_Ports and F_Ports prohibit connections with all devices unless explicitly identified in the switch membership list.		

```
Root> config security switchBinding setState allRestrict
```


config.security.switchBinding.show

Syntax show

Purpose This command displays the switch binding configuration.

Parameters This command has no parameters.

Output This command displays the following switch binding configuration data:

switchBindingState Disabled, Enabled and Restricting F_Ports, Enabled and Restricting E_Ports, or Enabled and Restricting All Ports.

Switch Membership List The switch membership list saved on the switch.

Output Example The output from the config.security.portBinding.show command displays as follows.

```
Switch Binding State:     Enabled and Restricting E Ports
00:11:22:33:44:55:66:77
88:99:AA:BB:CC:DD:EE:FF
11:55:35:45:24:78:98:FA
```

 config.security.userRights
config.security.userRights.administrator

Syntax administrator "username" "password"

Purpose This command sets the name and password for administrator-level access.

Description Immediately after the name and password for the administrator is set, you are prompted to log in with the new access rights.

Parameters This command has two parameters.

username Specifies the new user name for administrator-level login. Default is set to *Administrator*. This parameter is 1–15 characters. Valid characters include all characters in the USASCII character set, excluding control characters and spaces. Spaces are not valid even though quotation marks are used.

password Specifies the password for administrator-level login. Default is set to *password*. This parameter is 1–15 characters. Valid characters include all characters in the USASCII character set, excluding control characters and spaces. Spaces are not valid even though quotation marks are used.

Command Example **Root>** config security userRights administrator
"Administrator" "newpassword"

config.security.userRights.show

Syntax show

Purpose This command shows the user rights for the CLI access levels.

Parameters This command has no parameters.

Command Example **Root>** config security userRights show

Output The user rights configuration data is displayed as a table that includes the following properties.

Operator Username The username for operator privileges.

Operator Password The password for operator privileges.

Administrator Username The username for administrator privileges.

Administrator Password The password for administrator privileges.

Output Example The output from the config.security.userRights.show command displays as follows.

```
Operator Username: Operator
Operator Password: *****
Administrator Username: Administrator
Administrator Password: *****
```

config.snmp.addCommunity

Syntax `addCommunity commIndex "commName" writeAuthorization
 trapRecipient udpPortNum`

Purpose This command adds an SNMP community to the SNMP configuration.

Parameters This command has five parameters. Up to six community names and trap recipients may be defined.

`commIndex` Specifies the community to be created or edited. Valid values are integers in the range 1–6.

`commName` Specifies the community name of the community specified by `commIndex`. The community name must not exceed 32 characters in length. Valid characters include all those in the ISO Latin-1 character set. Duplicate community names are allowed, but the corresponding `writeAuthorization` values must match.

`writeAuthorization` Specifies the write authorization state of the community. Valid values are *enabled* and *disabled*. Boolean 1 and 0 may be substituted as values.

`trapRecipient` Specifies the trap recipient. Values must be 4 bytes in dotted-decimal format.

`udpPortNum` Specifies the user datagram protocol (UDP) port number to which the director sends traps for each recipient. The value can be a decimal number or *default*. The default value is 162. Valid values include all legal UDP port numbers.

Command Example `Root> config snmp addCommunity 1 "CommunityName1" enabled
 123.123.123.123 162`

config.snmp.authTraps

Syntax `authTraps enabledState`

Purpose This command enables or disables the authorization traps to be sent to SNMP management stations when unauthorized stations try to access SNMP information from the director or switch.

Parameters This command has one parameter.

`enabledState` Specifies whether the authorization traps are enabled. Valid values are *true* and *false*. Boolean 1 and 0 may be substituted as values.

Command Examples `Root> config snmp authTraps true`

`Root> config snmp authTraps 1`

config.snmp.deleteCommunity

Syntax `deleteCommunity commIndex`

Purpose This command entirely deletes a community from the SNMP.

Parameters This command has one parameter.

`commIndex` Specifies the community to be deleted. Valid values are integers in the range 1–6. This value was set in the `commIndex` parameter of the `config.snmp.addCommunity` command. Valid values are integers in the range 1–6.

Command Example `Root> config snmp deleteCommunity 5`

config.snmp.show

Syntax show

Purpose This command shows the switch SNMP configuration.

Parameters This command has no parameters.

Command Example **Root>** config snmp show

Output The switch configuration data is displayed as a table that includes the following properties.

Authorization Traps	The state of the authorization traps (for example, enabled) that are sent to SNMP management stations when unauthorized stations attempt to access SNMP information from the switch.
Index	The community index number.
Community Name	The name of the community.
WriteAuth	The write authorization state.
Trap Recipient	The address of the trap recipient.
UDP Port	The user datagram protocol (UDP) port number to which the director will send traps for each recipient.

Output Example The output from the config.snmp.show command displays as follows.

```

Authorization Traps: Enabled
Index Community Name                               WriteAuth Trap Recipient  UDP Port
-----
1      CommunityName1                               Enabled  123.123.123.123  162
2      CommunityName2                               Enabled  10.25.25.10     144
3      CommunityName3                               Disabled 132.44.85.224   162
4      public                                       Enabled  162
5
6

```

config.switch

Some of the config.switch commands require that the switch be set offline. (Use the maint.system.setOnlineState to set the switch offline.) If these commands are entered while the switch is online, an error message results.

config.switch.bbCredit

Syntax bbCredit bbCreditValue

Purpose This command sets the buffer-to-buffer credit value for all ports, except those ports configured for extended distance. (The Sphereon 4500 does not accept this command.)

Description The switch must be set offline before this command is entered.

Parameters This command has one parameter.

 bbCreditValue Specifies the new buffer-to-buffer credit value. This parameter must be an integer in the range 1-60.

Command Example **Root>** config switch bbCredit 2

config.switch.domainRSCN

Syntax domainRSCN domainRSCNState

Purpose This command sets the domain RSCN state for the switch. The switch can be either offline or online when this command is executed.

Parameters This command has one parameter.

 domainRSCNState Specifies whether the domain RSCN state is enabled. Valid values are *enable* and *disable*. Boolean 1 and 0 may be substituted as values.

Command Example **Root>** config switch domainRSCN 1

config.switch.insistDomainId

Syntax `insistDomainId insistentDomainIdState`

Purpose This command sets the insistent domain ID state for the switch.

Parameters This command has one parameter.

insistentDomainIdState Specifies whether the insistent domain ID state is enabled. Valid values are *enable* and *disable*. Boolean 1 and 0 may be substituted as values.

Command Example `Root> config switch insistDomainId 1`

config.switch.edTOV

Syntax `edTOV timeoutValue`

Purpose This command sets the E_D_TOV for the switch.

Description The switch must be set offline before this command is entered.

Special care should be used when scripting this command due to its relationship with R_A_TOV.

Parameters This command has one parameter.

timeoutValue Specifies the new E_D_TOV value. The units for this value are tenths of a second. This parameter must be an integer in the range 2–600 (0.2 second to 60 seconds), and it must be smaller than the R_A_TOV.

Command Example `Root> config switch edTOV 4`

config.switch.interopMode

Syntax `interopMode interopMode`

Purpose This command sets the interoperability mode for the switch. The switch must be offline to complete this command.

Description The switch must be set offline before this command is entered.

Parameters This command has one parameter.

<code>interopMode</code>	Specifies the interoperability mode. Valid values are <i>mcddata</i> and <i>open</i> : <i>mcddata</i> — McDATA Fabric 1.0 <i>open</i> — Open Fabric 1.0
--------------------------	---

Command Example `Root> config switch interopMode open`

config.switch.prefDomainId

Syntax `prefDomainId domainId`

Purpose This command sets the preferred domain ID for the switch. The switch must be offline to complete this command.

Description The switch must be set offline before this command is entered.

Parameters This command has one parameter.

<code>domainId</code>	Specifies the new preferred domain ID value. This parameter must be an integer in the range 1-31.
-----------------------	---

Command Example `Root> config switch prefDomainId 1`

config.switch.priority

Syntax `priority switchPriority`

Purpose This command sets the switch priority.

Description The switch must be set offline before this command is entered.

Parameters This command has one parameter.

`switchPriority` Specifies the switch priority. Valid values are: *principal*, *default*, or *neverprincipal*.

principal — sets the numerical switch priority to 1. The switch with a priority of 1 becomes the principal switch; however, if two or more switches have a priority of 1, the switch with the lowest WWN becomes the principal switch.

default — sets the numerical switch priority to 254. If no switch is set to principal, the switch with a priority 254 becomes the principal switch; however, if two or more switches have a priority of 254, the switch with the lowest WWN becomes the principal switch.

neverprincipal — sets the numerical switch priority to 255. This switch is not able to become the principal switch.

At least one switch in a multiswitch fabric must have a switch priority value of *principal* or *default*.

The number codes 2–253 are not now in use.

Command Example `Root> config switch priority principal`

config.switch.raTOV

Syntax raTOV timeoutValue

Purpose This command sets the R_A_TOV for the switch.

Description The switch must be set offline before this command is entered.
Special care should be used when scripting this command due to its relationship with E_D_TOV.

Parameters This command has one parameter.

timeoutValue Specifies the new R_A_TOV value. The units for this value are tenths of a second. This parameter must be an integer in the range 10–1200 (1 second to 120 seconds), and it must be larger than the E_D_TOV.

Command Example **Root>** config switch raTOV 20

config.switch.rerouteDelay

Syntax `rerouteDelay rerouteDelayState`

Purpose This command enables or disables rerouting delay for the switch.

Description The switch can be either offline or online when this command is executed.

This command is only applicable if the configured switch is in a multiswitch fabric. Enabling the rerouting delay ensures that frames are delivered in order through the fabric to their destination.

If there is a change to the fabric topology that creates a new path (for example, a new switch is added to the fabric), frames may be routed over this new path if its hop count is less than a previous path with a minimum hop count. This may result in frames being delivered to a destination out of order because frames sent over the new, shorter path may arrive ahead of older frames still in route over the older path.

If rerouting delay is enabled, traffic ceases in the fabric for the time specified in the `config.switch.edTOV` command. This delay allows frames sent on the old path to exit to their destination before new frames begin traversing the new path. Note that during this delay period, frames addressed to the destinations that are being rerouted are discarded if they are Class 3 frames and rejected if they are Class 2 or Class F frames.

Parameter This command has one parameter.

`rerouteDelayState` Specifies whether rerouting delay is enabled. Valid values are *true* and *false*. Boolean 1 and 0 may be substituted as values.

Command Examples `Root> config switch rerouteDelay true`

`Root> config switch rerouteDelay 1`

config.switch.speed

Syntax `speed switchSpeed`

Purpose This command sets the speed for the switch.

This command is only applicable for the Intrepid 6064. Spheron products cannot change switch speed.

Description The switch must be set offline before this command is entered.

A switch can be configured to operate at 1 Gbps or 2 Gbps.

If the switch has FPM cards, configuring the switch speed to 2 Gbps makes all the ports on the FPM cards inactive, and their operational state will be set to inactive. FPM ports do not support 2 Gbps and, therefore, will remain inactive after the switch is returned to the online state.

Parameters This command has one required parameter.

`switchSpeed` Specifies the speed of the switch. Valid values are *1g* (for 1 Gbps) or *2g* (for 2 Gbps).

Command Examples `Root> config switch speed 2g`

config.switch.show

Syntax	show
Purpose	This command shows the switch configuration.
Parameters	This command has no parameters.
Description	The switch can be either offline or online when this command is executed.
Command Example	root> config switch show
Output	The switch configuration data is displayed as a table that includes the following properties.
BB Credit	The maximum number of outstanding frames that can be transmitted without causing a buffer overrun condition at the receiver. (This is not valid for the Sphereon 4500.)
R_A_TOV	Resource Allocation Time Out Value. This value is set in tenths of a second.
E_D_TOV	Error Detect Time Out Value. This value is set in tenths of a second.
Preferred Domain Id	The preferred domain ID of the switch.
Switch Priority	The switch priority. Values are Principal, Default, or Never Principal.
Speed	The switch speed. (This is not valid for the Sphereon 4500.)
Rerouting Delay	The rerouting delay that ensures that frames are delivered in order through the fabric to their destination. Values are Enabled or Disabled.
Interop Mode	Interoperability mode for the switch.

Insistent Domain Id	When enabled, ensures that the embedded firmware cannot change a switch's preferred domain ID.
Domain RSCN	When enabled, allows domain RSCNs to be sent to registered members of the fabric.

Output Example The output from the `config.switch.show` command displays as follows.

```

BB Credit:                2
R_A_TOV:                  20
E_D_TOV:                  4
Preferred Domain Id:      1
Switch Priority:           Principal
Speed:                    2 Gb/sec
Rerouting Delay:          Enabled
Interop Mode:              Open Fabric 1.0
Insistent Domain Id:      Disabled
Domain RSCN:              Enabled

```

config.system.contact

Syntax	<code>contact "systemContact"</code>		
Purpose	This command sets the system contact attribute.		
Parameters	This command has one parameter.		
	<table> <tr> <td><code>systemContact</code></td> <td>Specifies the new system contact string for the director or switch. The contact can contain 0–255 characters.</td> </tr> </table>	<code>systemContact</code>	Specifies the new system contact string for the director or switch. The contact can contain 0–255 characters.
<code>systemContact</code>	Specifies the new system contact string for the director or switch. The contact can contain 0–255 characters.		
Command Example	<code>Root> config system contact "Joe"</code>		

config.system.date

Syntax `date sysDate sysTime`

Purpose This command sets the system date and time.

Parameters This command has two required parameters.

sysDate Specifies the new system date. The format of the date parameter must be mm:dd:yyyy or mm/dd/yyyy. Valid date values include:
 mm: 1–12
 dd: 1–31
 yyyy: >1980

sysTime Specifies the new system time. The format of the time parameter must be hh:mm:ss. Valid time values include:
 hh: 0–23
 mm: 0–59
 ss: 0–59

Command Examples

```
Root> config system date 04:16:2001 10:34:01
Root> config system date 10/09/2001 14:07:55
```

config.system.description

Syntax `description "systemDescription"`

Purpose This command sets the system description string.

Parameters This command has one parameter.

systemDescription Specifies the new system description string for the director or switch. The name can contain 0–255 characters.

Command Example

```
Root> config system description "McDATA Intrepid 6064
Fibre Channel Director"
```

config.system.location

Syntax location "systemLocation"

Purpose This command sets the system location attribute.

Parameters This command has one parameter.

systemLocation Specifies the new system location for the director or switch. The location can contain 0–255 characters.

Command Example **Root>** config system location "Everywhere"

config.system.name

Syntax name "systemName"

Purpose This command sets the system name attribute.

Parameters This command has one required parameter.

systemName Specifies the new system name for the director or switch. The name can contain 0–24 characters.

Command Example **Root>** config system name "Joe's Switch"

config.system.show

Syntax show

Purpose This command shows the system configuration.

Parameters This command has no parameters.

Command Example **root>** config system show

Output The system configuration is displayed as a table that includes the following properties.

Name	The system name.
Description	The system description.
Contact	The system contact.
Location	The system location.
Date/Time	The system date and time.

Output Examples The output from the config.system.show command displays as follows.

```
Name:           Joe's Switch
Description:    McDATA Intrepid 6064 Fibre Channel
Director
Contact:        Joe
Location:       Everywhere
Date/Time:      04/16/2001  10:34:01
```

config.zoning

Note that the config.zoning commands function in a different way from most CLI commands, which are single action commands that take effect immediately. A zoning configuration is typically too complicated to be described by a single command, so the first zoning command entered invokes a work-area editor. The commands take effect on a temporary copy of a zone set in the work area until the temporary copy in the work area is activated to the fabric—or is discarded.

Because not all the verification of the zone set can occur on the temporary copy in the work area, it is possible, however unlikely, that the copy of the zone set encounters no errors until the zone set is activated to the fabric.

Port numbers cannot be used for zone members if the interoperability mode for the switch or director is set to Open Fabric 1.0 mode. In this case, you must use node WWNs as zone members.

config.zoning.setDefZoneState

Syntax `setDefZoneState defaultZoneState`

Purpose This command enables or disables the default zone and takes effect immediately fabric wide.

Description

This command takes effect immediately in the fabric.

Parameters This command has one parameter.

`defaultZoneState` Specifies whether the default zone is enabled. Valid values are *true* and *false*. Boolean 1 and 0 may be substituted as values.

Command Examples **Root>** `config zoning setDefZoneState false`

Root> `config zoning setDefZoneState 0`

config.zoning.activateZoneSet

Syntax	<code>activateZoneSet</code>
Purpose	This command activates the zone set contained in the work area to the fabric and takes effect immediately.
Description	<hr/> <u>This command takes effect immediately in the fabric.</u>
Parameters	This command has no parameters.
Command Example	Root> <code>config zoning activateZoneSet</code> <hr/> <u>If the interoperability mode for the switch or director is set to Open Fabric 1.0 mode when the zone is activated, any zone members specified by port number are ignored.</u>

config.zoning.deactivateZoneSet

Syntax	<code>deactivateZoneSet</code>
Purpose	This command places all attached devices in the default zone and takes effect immediately fabric wide.
Description	The default zone must be activated independently of this command. <hr/> <u>This command takes effect immediately in the fabric.</u>
Parameters	This command has no parameters.
Command Example	Root> <code>config zoning deactiveZoneSet</code>

config.zoning.replaceZoneSet

Syntax `replaceZoneSet`

Purpose This command replaces the work area with the active zone set that is currently loaded on the fabric.

Parameters This command has no parameters.

Command Example **Root>** `config zoning replaceZoneSet`

config.zoning.clearZoneSet

Syntax `clearZoneSet`

Purpose This command clears the zone set contained in the work area, removing all zones, and takes effect immediately.

Description This command does not change the zone set name.

Parameters This command has no parameters.

Command Example **Root>** `config zoning clearZoneSet`

config.zoning.addZone

Syntax	addZone "zoneName"	
Purpose	This command adds a new (empty) zone to the zone set in the work area.	
Description	Changes are not activated on the switch until the config.zoning.activateZoneSet command is issued. The CLI supports the number of zones per zone set specified for a given product.	
Parameters	This command has one parameter.	
	zoneName	Specifies the name of the new zone. The zoneName must contain 1–64 characters. Valid characters are: ABCDEFGHIJKLMNOPQRSTUVWXYZabcdef ghijklmnopqrstuvwxyz0123456789\$-^_ Spaces are not permitted, and the first character must be alphabetical.

Command Example **Root>** config zoning addZone TheUltimateZone

config.zoning.deleteZone

Syntax	deleteZone "zoneName"	
Purpose	This command deletes a zone from the zone set in the work area.	
Description	Changes are not activated on the switch until the config.zoning.activeZoneSet command is issued.	
Parameters	This command has one parameter.	
	zoneName	Specifies the name of the zone to be deleted.

Command Example **Root>** config zoning deleteZone TheLeastUltimateZone

config.zoning.renameZoneSet

Syntax	renameZoneSet "zoneSetName"	
Purpose	This command changes the name of the zone set in the work area.	
Description	Changes are not activated on the switch until the config.zoning.activateZoneSet command is issued.	
Parameters	This command has one parameter.	
	zoneSetName	Specifies the new name for the zone set. The zoneSetName must contain 1–64 characters. Valid characters are: ABCDEFGHIJKLMNOPQRSTUVWXYZabcdef ghijklmnopqrstuvwxyz0123456789\$-^_ Spaces are not permitted, and the first character must be alphabetical.

Command Example **Root>** config zoning renameZoneSet TheUltimateZoneSet

config.zoning.addWwnMem

Syntax	addWwnMem "zoneName" wwn	
Purpose	This command adds a WWN zone member to the specified zone in the work area.	
Description	The CLI supports the number of zones members per zone specified for a given product.	
Parameters	This command has two parameters.	
	zoneName	Specifies the name of the zone.
	wwn	The WWN of the member to be added to the zone. The value of the WWN must be in colon-delimited hexadecimal notation (for example, AA:00:AA:00:AA:00:AA:00).

Command Example **Root>** config zoning addWwnMem TheUltimateZone
10:00:00:00:C9:22:9B:64

config.zoning.addPortMem

Syntax `addPortMem "zoneName" domainId portNumber`

Purpose This command adds the domain ID and port number of a zone member to the specified zone in the work area.

Port numbers cannot be used for zone members if the interoperability mode for the switch or director is set to Open Fabric 1.0 mode.

Description The CLI supports the number of zones members per zone specified for a given product.

Parameters This command has one parameter.

zoneName	Specifies the name of the zone.
domainId	Specifies the domain ID of the member to be added to the zone. Valid values are in the range 1–31.
portNumber	Specifies the port number of the member to be added to the zone. Valid port number values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–31 for the ED-5000 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140

Command Example `Root> config zoning addPortMem TheUltimateZone 10 6`

config.zoning.clearZone

Syntax	<code>clearZone "zoneName"</code>
Purpose	This command clears all zone members for the specified zone in the work area.
Description	This command does not change the zone name.
Parameters	This command has one parameter.
	<code>zoneName</code> Specifies the name of the zone to be cleared.

Command Example `Root> config zoning clearZone TheNotUltimateAtAllZone`

config.zoning.deleteWwnMem

Syntax	<code>deleteWwnMem "zoneName" wwn</code>
Purpose	This command removes a WWN member from a zone that is in the work area.
Parameters	This command has two parameters.
	<code>zoneName</code> Specifies the name of the zone that contains the member to be deleted.
	<code>wwn</code> Specifies the WWN of the member to be deleted from the zone. The value of the WWN must be in colon-delimited hexadecimal notation (for example, AA:00:AA:00:AA:00:AA:00).

Command Example `Root> config zoning deleteWwnMem TheNotSoUltimateZone
10:00:00:00:C9:22:9B:AB`

config.zoning.deletePortMem

Syntax `deletePortMem "zoneName" domainId portNumber`

Purpose This command deletes a domain ID and port number for a zone member in the specified zone in the work area.

Parameters This command has three parameters.

zoneName	Specifies the name of the zone that contains the member to be deleted.
domainId	Specifies the domain ID of the member that to be deleted from the zone. Valid domain IDs are in the range 1–31.
portNumber	Specifies the port number of the member to be deleted from the zone. Valid port numbers values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–31 for the ED-5000 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140

Command Example `root> config zoning deletePortMem TheUltimateZone 10 5`

config.zoning.renameZone

Syntax `renameZone "oldZoneName" "newZoneName"`

Purpose This command renames a zone in the work area.

Parameters This command has two parameters.

oldZoneName Specifies the current zone name of the zone to be renamed.

newZoneName Specifies the new zone name. The newZoneName must contain 1–64 characters. Valid characters are:
ABCDEFGHIJKLMNOPQRSTUVWXYZabcdef
ghijklmnopqrstuvwxyz0123456789\$-^_
Spaces are not permitted, and the first character must be alphabetical.

Command Example **Root>** `config zoning renameZone TheOldUltimateZone
 TheUltimateZone`

config.zoning.showPending

Syntax `showPending`

Purpose This command shows the zoning configuration in the work area of the zone set that has not yet been activated.

Parameters This command has no parameters.

Command Example **root>** `config zoning showPending`

Output The zoning configuration data is displayed as a table that includes the following properties.

Local ZoneSet The enabled status, name, and member zones of the zone set.

Output Example The output from the `config.zoning.showPending` command displays as follows.

```
Pending Zone Set
  Default Zone Enabled:  False
  ZoneSet:  TheNewUltimateZoneSet
    Zone:  TheNewUltimateZone
      ZoneMember:  Domain 10, Port 6
      ZoneMember:  Domain 15, Port 2
    Zone:  TheNewNotSoUltimateZone
      ZoneMember:  10:00:00:00:C9:22:9B:AB
      ZoneMember:  10:00:00:00:C9:22:9B:C6
      ZoneMember:  10:00:00:00:C9:22:9B:AB
    Zone:  TheNewNotUltimateAtAllZone
      ZoneMember:  Domain 2, Port 63
```

config.zoning.showActive

Syntax showActive

Purpose This command shows the zoning configuration saved on the fabric.

Parameters This command has no parameters.

Command Example **Root>** config zoning showActive

Output The zoning configuration data is displayed as a table that includes the following properties.

Active ZoneSet The enabled status, name, and member zones of the zone set.

Output Example The output from the config.zoning.showActive command displays as follows.

```
Active Zone Set
  Default Zone Enabled:  False
  ZoneSet:  TheUltimateZoneSet
    Zone:  TheUltimateZone
      ZoneMember:  Domain 10, Port 6
      ZoneMember:  Domain 15, Port 2
      ZoneMember:  Domain 2, Port 63
      ZoneMember:  10:00:00:00:C9:22:9B:64
      ZoneMember:  10:00:00:00:C9:22:9B:BD
    Zone:  TheNotSoUltimateZone
      ZoneMember:  10:00:00:00:C9:22:9B:AB
      ZoneMember:  10:00:00:00:C9:22:9B:C6
      ZoneMember:  10:00:00:00:C9:22:9B:AB
    Zone:  TheNotUltimateAtAllZone
      ZoneMember:  Domain 2, Port 63
```

maint

The `maint` branch of the CLI command tree contains commands that relate to maintenance activities.

The commands in the `maint` branch can be used only by the administrator.

Note that the `maint.system.resetConfig` command resets all configuration data and non-volatile settings, including network information, to their default values (factory settings). Management access may be lost until the network information is restored.

maint.port.beacon

Syntax `beacon portNumber beaconState`

Purpose This command enables or disables port beaconing for a port.

Parameters This command has two required parameters.

`portNumber` Specifies the port number. Valid values are:
 0–15 for the Sphereon 3016 and 3216
 0–23 for the Sphereon 4500
 0–31 for the Sphereon 3032 and 3232
 0–63 for the Intrepid 6064
 0–127 and 132–144 for the Intrepid 6140

`beaconState` Specifies whether unit beaconing is enabled. Valid values are *true* and *false*. Boolean 1 and 0 may be substituted as values.

Command Examples `Root> maint port beacon 4 false`

`Root> maint port beacon 4 0`

maint.port.reset

Syntax	<code>reset portNumber</code>		
Purpose	This command resets a port.		
Description	This command resets an individual port without affecting any other ports. However, if a device is attached to the port and the device is online, the reset causes a link reset to occur. If the port is in a failed state (that is, after failing a loopback test), the reset restores the port to an operational state. The reset also clears all statistics counters and disables port beaconing for the specified port.		
Parameters	This command has one parameter. <table> <tr> <td>portNumber</td> <td>Specifies the port number to be reset. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140</td> </tr> </table>	portNumber	Specifies the port number to be reset. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140
portNumber	Specifies the port number to be reset. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140		

Command Example **Root>** `maint port reset 4`

maint.system.beacon

Syntax	<code>beacon beaconState</code>		
Purpose	This command enables or disables unit beaconing.		
Parameters	This command has one parameter. <table> <tr> <td>beaconState</td> <td>Specifies whether unit beaconing is enabled. Valid values are <i>true</i> and <i>false</i>. Boolean 1 and 0 may be substituted as values.</td> </tr> </table>	beaconState	Specifies whether unit beaconing is enabled. Valid values are <i>true</i> and <i>false</i> . Boolean 1 and 0 may be substituted as values.
beaconState	Specifies whether unit beaconing is enabled. Valid values are <i>true</i> and <i>false</i> . Boolean 1 and 0 may be substituted as values.		

Command Examples **Root>** `maint system beacon false`

Root> `maint system beacon 0`

maint.system.clearSysError

Syntax `clearSysError`

Purpose This command clears the system error light.

Parameters This command has no parameters.

Command Example **Root>** `maint system clearSysError`

maint.system.ipl

Syntax `ipl`

Purpose This command IPLs the switch.

Description Connection to the CLI is lost when this command runs.

Parameters This command has no parameters.

Command Example **Root>** `maint system ipl`

maint.system.resetConfig

Syntax `resetConfig`

Purpose This command resets all NV-RAM configuration parameters to their default values, including feature keys and IP addresses.

Description This command IPLs the switch. Connection from the CLI to the switch is lost when this command runs.

This command resets all configuration data and non-volatile settings, including network information, to their default values (factory settings). Management access may be lost until the network information is restored.

The default values are set in the firmware of the director or switch. For information about the default values, refer to the service manual for your director or switch.

Parameters This command has no parameters.

Command Example **Root>** `maint system resetConfig`

maint.system.setOnlineState

Syntax `setOnlineState onlineState`

Purpose This command sets the switch online or offline.

Parameters This command has one parameter.

`onlineState` Specifies whether the switch is online. Valid values are *true* and *false*. Boolean 1 and 0 may be substituted as values.

Command Examples **Root>** `maint system setOnlineState true`

Root> `maint system setOnlineState 1`

perf

The perf branch of the CLI command tree contains commands that relate to performance services.

The commands in the perf branch can be used by either the administrator or the operator.

Note that the counters in perf command output are 32-bit values that wrap at 4,294,967,296. To calculate the full value of a counter, multiply 4,294,967,296 by the value in the wrap field, and add the resulting product to the value in the count field. For example, if a TxFrames statistic has a count value of 1842953 and a wrap value of 12, the full value of the counter is:

$$(4,294,967,296 \times 12) + 1842953 = 51,541,450,505.$$

perf.class2

Syntax `class2 portNumber`

Purpose This command displays port Class 2 counters for a single port.

Parameters This command has one parameter.

portNumber	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140
------------	---

Command Example `Root> perf class2 2`

Output The port Class 2 counter data is displayed as a table that includes the following statistics, along with a wrap count for each corresponding counter.

Port	The port number.
RxFrames	The number of Fibre Channel Class 2 frames that the port has received.

TxFrames	The number of Fibre Channel Class 2 frames that the port has transmitted.
RxWords	The number of Class 2 4-byte words within frames that the port has received.
TxWords	The number of Class 2 4-byte words within frames that the port has transmitted.
Busied Frms	The number of times that FBSY (Fabric Busy link response) was returned to this port as a result of a Class 2 frame that could not be delivered to the other end of the link. This occurs if either the fabric or the destination port is temporarily busy.
Rjct Frames	The number of times that FRJT (Frame Reject link response) was returned to this port as the result of a Class 2 frame that was rejected by the fabric.

Output Example The output from the perf.class2 command displays as follows.

Port 2 Statistic	Wrap	Count
RxFrames	23	2953184
TxFrames	12	1842953
RxWords	65	2953184
TxWords	32	1842953
Busied Frms	0	2953184
Rjct Frames	0	1842953

perf.class3

Syntax	<code>class3 portNumber</code>
Purpose	This command displays port Class 3 counters for a single port.

Parameters This command has one parameter.

portNumber Specifies the port number. Valid values are:
 0–15 for the Sphereon 3016 and 3216
 0–23 for the Sphereon 4500
 0–31 for the Sphereon 3032 and 3232
 0–63 for the Intrepid 6064
 0–127 and 132–144 for the Intrepid 6140

Command Example `root> perf class3 2`

Output The port Class 3 counter data is displayed as a table that includes the following statistics, along with a wrap count for each corresponding counter.

Port	The port number.
RxFrames	The number of Fibre Channel Class 3 frames that the port has received.
TxFrames	The number of Fibre Channel Class 3 frames that the port has transmitted.
RxWords	The number of Class 3 4-byte words within frames that the port has received.
TxWords	The number of Class 3 4-byte words within frames that the port has transmitted.
Disc Frames	The number of Class 3 frames that have been discarded upon receipt by this port. There are no FBSYs (Fabric Busy link response) or FRJTs (Frame Reject link response) generated for Class 3 frames.

Output Example The output from the `perf.class3` command displays as follows.

```
Port 2
Statistic      Wrap      Count
-----
RxFrames      3         2953184
TxFrames      2         1842953
RxWords       65        2953184
TxWords       32        1842953
Disc Frames   26        2953184
```

perf.clearStats

Syntax	<code>clearStats portNumber</code>		
Purpose	This command resets all port statistics for an individual port or for all ports.		
Parameters	This command has one parameter.		
	<table> <tr> <td>portNumber</td> <td>Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140 <i>all</i> for every port on the director or switch</td> </tr> </table>	portNumber	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140 <i>all</i> for every port on the director or switch
portNumber	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140 <i>all</i> for every port on the director or switch		

Command Example

```
Root> perf clearStats 4
Root> perf clearStats all
```

perf.errors

Syntax	<code>errors portNumber</code>		
Purpose	This command displays port error counters for a single port.		
Parameters	This command has one parameter.		
	<table> <tr> <td>portNumber</td> <td>Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140</td> </tr> </table>	portNumber	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140
portNumber	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140		

Command Example

```
Root> perf errors 2
```

Output The port error counter data is displayed as a table that includes the following statistics.

Port	The port number.
Prim Seq Err	The number of state machine protocol errors detected by the port hardware.
Disc Frms	The number of received frames discarded due to a frame size of less than size words or to frames dropped because the BB credit was zero. This number is counted during the first round of frame verification and applies to both Class 2 and Class 3 traffic.
Inv Tx Wrds	The number of 10-bit transmission words that the port is unable to map to 8-bit bytes because of disparity errors or misaligned K characters while in the OL2 or OL3 state.
CRC Errs	The number of frame CRC errors detected by the port.
Delim Errs	The number of invalid frame delimiters (SOF or EOF) received by the port.
Addr Id Errs	The number of frames received with unknown addressing.

Output Example The output from the `perf.errors` command displays as follows.

```

Port 2
Statistic      Count
-----
Prim Seq Err  753452
Disc Frms     351269
Inv Tx Wrds   2953184
CRC Errs      1842953
Delim Errs    2953184
Addr Id Errs  1842953

```

perf.link

Syntax	<code>link portNumber</code>
Purpose	This command displays port link counters for a single port.
Parameters	This command has one parameter.

portNumber	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140
------------	---

Command Example **root>** `perf link 2`

Output The port link counter data is displayed as a table that includes the following statistics.

Port	The port number.
OLS In	The number of offline sequences initiated by the attached N_Port.
OLS Out	The number of offline sequences initiated by this director or switch port.
Reset In	The number of link resets initiated by the attached N_Port.
Reset Out	The number of link resets initiated by this director or switch.
LIPS In	The number of Loop Initialization Primitives (LIPS) detected on this switch loop port.
LIPS Out	The number of LIPS generated on this switch loop port.
Link Flrs	The number of times the port has detected a link error resulting from an invalid link state transition or timeout.

Sync Losses	The number of times the port has detected a loss of synchronization timeout while not in an offline or LF2 state.
Sig Losses	The number of times the port has detected a loss of signal while not in an offline or LF2 state.

Output Example The output from the `perf.link` command displays as follows.

```

Port 2
Statistic      Count
-----
OLS In         753452
OLS Out        351269
Reset In       2953184
Reset Out      1842953
Link Flrs      2953184
Sync Losses    1842953
Sig Losses     35246

```

perf.traffic

Syntax `traffic portNumber`

Purpose This command displays port traffic counters for a single port.

Parameters This command has one parameter.

<code>portNumber</code>	Specifies the port number. Valid values are: 0–15 for the Sphereon 3016 and 3216 0–23 for the Sphereon 4500 0–31 for the Sphereon 3032 and 3232 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140
-------------------------	---

Command Example `Root> perf traffic 2`

Output The port traffic counter data is displayed as a table that includes the following statistics, along with a wrap count for each corresponding counter.

Port	The port number.
Rx%	The received link utilization percentage.
Tx%	The transmitted link utilization percentage.
RxFrames	The number of Fibre Channel Class 2 and Class 3 frames that the port has received.
TxFrames	The number of Fibre Channel Class 2 and Class 3 frames that the port has transmitted.
RxWords	The number of 4-byte words in Class 2 and Class 3 frames that the port has received.
TxWords	The number of 4-byte words in Class 2 and Class 3 frames that the port has transmitted.

Output Example The output from the perf.traffic command displays as follows.

```

Port 2      Wrap      Count
Statistic  -----
Rx%        N/A       75
Tx%        N/A       30
RxFrames   23       2953184
TxFrames   12       1842953
RxWords    65       2953184
TxWords    32       1842953

```

show

The show branch of the CLI command tree contains commands that display, but do not change, stored data values. The displayed output that results from these commands is not necessarily identical with the output from the show commands that are within the other CLI command tree branches, for example, config.port.show.

The commands in the show branch can be used by either the administrator or the operator.

show.eventLog

Syntax eventLog

Purpose This command shows the contents of the event log as maintained in NV-RAM on the director or switch.

Parameters This command has no parameters.

Command Example **Root>** show eventLog

Output The event log data are displayed as a table that includes the following properties.

Date/Time	The date and time when the event occurred.
Code	The event reason code.
Severity	The severity of the event. The values are: Major—Unit operational (major failure). Minor—Unit operational (minor failure). Severe—Unit not operational. The causes are either that the switch contains no operational SBAR cards or that the system shuts down due to CTP thermal threshold violations. Info—Unit operational (information only).
FRU	The FRU and FRU position, where applicable.
Event Data	The 32-byte hexadecimal description of the event in words.

Output Example The output from the `show.eventLog` command displays as follows.

Date/Time	Code	Severity	FRU	Event Data
04/12/01 10:58A	375	Major	CTP-0	00010203 04050607 08090A0B 0C0D0E0F
04/12/01 9:58A	385	Severe	CTP-0	00010203 04050607 08090A0B 0C0D0E0F
04/11/01 7:18P	395	Severe	CTP-0	00010203 04050607 08090A0B 0C0D0E0F

show.features

Syntax `features`

Purpose This command displays a table of all installed feature sets and their states. The output is exactly the same as the output to `config.features.show`.

Parameters This command has no parameters.

Command Example `Root> show features`

Output The features data is displayed as a table that includes the following properties.

Installed Feature Set The feature set installed using a feature key. Only installed keys are displayed.

Feature Individual features within each set. In many cases, there is only one feature within each feature set.

State The state of the individual feature. Fabric-wide features are displayed as Active/Inactive. Switch-centric features are displayed as Enabled/Disabled.

Output Example The output from the `show.features` command displays as follows.

Installed Feature Set	Feature	State
Open Systems Management Server	OSMS	Enabled
Flex Ports	8 Flex Ports	Enabled
SANtegrity	Fabric Binding	Active
SANtegrity	Switch Binding	Enabled
SANtegrity	Enterprise Fabrics	Active

show.frus

Syntax	<code>frus</code>
Purpose	This command displays information about all FRUs.
Parameters	This command has no parameters.
Command Example	root> <code>show frus</code>
Output	The FRU information is displayed as a table that includes the following properties.

FRU	<p>The FRU name.</p> <ul style="list-style-type: none"> • If a FRU is not installed on a Sphereon 3016, 3216, 3032, 3232, or an Intrepid 6064, the output in this column is <i>NotInstalled</i>. • If a FRU is not installed on a Sphereon 4500 or an Intrepid 6140, the output in this column is the name of the missing FRU or <i>Unknown</i>.
Position	The relative position of the FRU, that is, its slot.
State	<p>The state of the FRU. Values are:</p> <p>Active—the current module is active.</p> <p>Backup—this module is not currently being used, but it is available for immediate failover.</p> <p>NotInst—the module is not currently installed.</p> <p>Failed—the current module is failed.</p>
Serial Num	The serial number of the FRU. (This field is blank for power supply modules of the Sphereon 4500.)
Part Num	The part number of the FRU.
Beacon	The beaconing state of the FRU (On or Off).
Pwr On Hrs	The power-on hours value for the FRU.

Output Example The output from the show.frus command displays as follows.

FRU	Position	State	Serial Num	Part Num	Beacon	Pwr On Hrs
CTP	0	Active	470-000399-700	123456789	Off	2800
CTP	1	Backup	470-000399-700	223456789	On	2801
SBAR	0	Active	470-000399-700	223456789	Off	2801
SBAR	1	Failed	470-000399-700	223456789	Off	2801
FPM	1	Active	470-000399-700	223456789	Off	2801
FPM	3	Active	470-000399-700	223456789	Off	831
UPM	4	Active	470-000399-700	223456789	Off	831
Power	0	Active	470-000399-700	223456789	Off	831
Fan	0	Active	470-000399-700	223456789	Off	831

show.ip.ethernet

Syntax ethernet

Purpose This command displays ethernet attributes.

Parameters This command has no parameters.

Command Example **Root>** show ip ethernet

Output The Ethernet attributes data is displayed as a table that includes the following properties.

IP Address The IP address for the Ethernet adapter as set in the config.ip.ethernet command.

Gateway Address The gateway address for the Ethernet adapter as set in the config.ip.ethernet command.

Subnet Mask The subnet mask for the Ethernet adapter as set in the config.ip.ethernet command.

Output Example The output from the show.ip.ethernet command displays as follows.

```
LAN Information
IP Address:      144.49.10.15
Gateway Address: 144.49.10.1
Subnet Mask:     255.255.255.0
```

show.loginServer

Syntax loginServer

Purpose This command displays information from the login server database for devices attached to this switch. Note that it is possible to have more than one device per port for any public loop devices attached to an FL Port.

Parameters This command has no parameters.

Command Example **Root>** show loginServer

Output The device information is displayed as a table that includes the following properties.

Port	The port number where the device is attached.
BB Crdt	The maximum number of remaining frames that can be transmitted without causing a buffer overrun condition at the receiver.
RxFldSz	The buffer-to-buffer receive data field size from the FLOGI received from the attached N_Port.
COS	The class of service (for example, 1; 2; 3; 4; 5; 6; F; 1,2; 2,3).
Port Name	The port WWN of the attached device.
Node Name	The node WWN of the attached device.

Output Example The output from the show.loginServer command displays as follows.

Port	BB Crdt	RxFldSz	COS	Port Name	Node Name
0	10		2,3	00:11:22:33:44:55:00:77	20:11:22:33:44:55:66:77
1	10		2	00:11:22:33:44:55:00:78	20:11:22:33:44:55:66:78
4	10		2,3	00:11:22:33:44:55:00:79	20:11:22:33:44:55:66:79
7	10		2,3	00:11:22:33:44:55:00:80	20:11:22:33:44:55:66:80
8	10		2	00:11:22:33:44:55:00:81	20:11:22:33:44:55:66:81
10	10		2,3	00:11:22:33:44:55:00:82	20:11:22:33:44:55:66:82
11	10		2,3	00:11:22:33:44:55:00:83	20:11:22:33:44:55:66:83
12	10		3	00:11:22:33:44:55:00:84	20:11:22:33:44:55:66:84
13	10		2,3	00:11:22:33:44:55:00:85	20:11:22:33:44:55:66:85
15	10		2,3	00:11:22:33:44:55:00:86	20:11:22:33:44:55:66:86

show.nameServer

Syntax nameServer

Purpose This command displays information from the name server database for devices attached to this switch. Note that it is possible to have more than one device per port for any public loop devices attached to an FL Port.

Parameters This command has no parameters.

Command Example **Root>** show nameServer

Output The device information data is displayed as a table that includes the following properties.

Type	The type (N, NL, F/NL, F, FL, E, B).
Port Id	The 24-bit Fibre Channel address.
Port Name	The port WWN of the attached device.
Node Name	The node WWN of the attached device.
COS	The class of service (for example, 1; 2; 3; 4; 5; 6; F; 1,2; 2,3).
FC4 Types	The FC4 types registered for this device. One or more numbers display in this field. The numbers in this field correspond to the list at the bottom of the output example below.

Output Example The output from the show.nameServer command displays as follows.

Type	Port Id	Port Name	Node Name	COS	FC4 Types
N	010400	00:11:22:33:44:55:66:77	20:11:22:33:44:55:66:77	2,3	2
N	010500	00:11:22:33:44:55:66:78	20:11:22:33:44:55:66:78	2,3	0
N	010600	00:11:22:33:44:55:66:79	20:11:22:33:44:55:66:79	2,3	2
N	010700	00:11:22:33:44:55:66:80	20:11:22:33:44:55:66:80	2	2
N	010800	00:11:22:33:44:55:66:81	20:11:22:33:44:55:66:81	3	2
N	010900	00:11:22:33:44:55:66:82	20:11:22:33:44:55:66:82	3	2
N	010C00	00:11:22:33:44:55:66:83	20:11:22:33:44:55:66:83	2,3	2
N	010D00	00:11:22:33:44:55:66:84	20:11:22:33:44:55:66:84	2,3	2
N	010E00	00:11:22:33:44:55:66:85	20:11:22:33:44:55:66:85	2	5
N	010F00	00:11:22:33:44:55:66:86	20:11:22:33:44:55:66:86	2	4
N	011200	00:11:22:33:44:55:66:87	20:11:22:33:44:55:66:87	2,3	2
N	011300	00:11:22:33:44:55:66:88	10:11:22:33:44:55:66:88	2,3	2

FC4 Types

```

0: ISO/IEC 8802-2 LLC
1: ISO/IEC 8802-2 LLC/SNAP
2: SCSI-FCP
3: SCSI-GPP
4: IPI-3 Master
5: IPI-3 Slave
6: IPI-3 Peer
7: CP IPI-3 Master
8: CP IPI-3 Slave
9: CP IPI-3 Peer
10: SBCCS-Channel
11: SBCCS-Control Unit
12: FC-SB-2 Channel to Control Unit
13: FC-SB-2 Control Unit to Channel
14: Fibre Channel Service
15: FC-FG
16: FC-SW
17: FC-AL
18: SNMP
19: HIPPI-FP
20: Vendor Unique

```

show.nameServerExt

Syntax nameServerExt

Purpose This command displays extended information from the name server database for devices attached to this switch. The command provides Symbolic Nameserver information, as well as the same information as the show.nameServer command. Multiple devices per port are possible for any public loop device attached to an FL Port.

Because it contains symbolic nameserver information that can be lengthy, the CLI output wraps several times per node. For this reason, this command is supported only in comma-delimited mode.

Parameters This command has no parameters.

Command Example **Root>** show nameServerExt

Output The device information data is displayed as a table that includes the following properties.

Type	The type (N, NL, F/NL, F, FL, E, B).
Port Id	The 24-bit Fibre Channel address.
Port Name	The port WWN of the attached device.
Node Name	The node WWN of the attached device.
COS	The class of service (for example, 1; 2; 3; 4; 5; 6; F; 1,2; 2,3).
FC4 Types	The FC4 types registered for this device. One or more numbers display in this field. The numbers in this field correspond to the list in the output example for <i>show.nameServer</i> on page 2-72.
SymNodeName	255-character representation of the Symbolic Node Name.
SymPortName	255-character representation of the Symbolic Port Name.

Output Example The output from the *show.nameServerExt* command displays as follows.

```
Type, Port Id, Port Name, Node Name, COS, FC4 Types,
SymNodeName, SymPortName,
N, 010400, 00:11:22:33:44:55:00:77,
20:11:22:33:44:55:66:77, 2-3, 2, Node Name A, Port
Name A,
N, 010500, 00:11:22:33:44:55:01:77,
20:11:22:33:44:55:66:77, 2-3, 0, This Is Symbolic Node
Name B, Symbolic Port Name B Is Slightly Longer
N, 010600, 00:11:22:33:44:55:66:02,
20:11:22:33:44:55:66:77, 2-3, 2, , ,
FL, 000001, 00:11:22:33:44:55:66:03,
20:11:22:33:44:55:66:77, 2, 0, Loop Node 1, Loop Port
7
FL, 000002, 00:11:22:33:44:55:66:04
20:11:22:33:44:55:66:77, 3, 2, Loop Node 2, Loop Port
7,
```

show.port.config

Syntax `config`

Purpose This command shows the port configuration for all ports.

Parameters This command has no parameters.

Command Example `Root> show port config`

Output The port configuration attributes are displayed as a table that includes the following properties.

Port	The port number.
Name	The name of the port as set in the <code>config.port.name</code> command.
Blocked	The blocked state of the port as set in the <code>config.port.blocked</code> command.
Ext Dist	The extended distance state as set in the <code>config.port.extDist</code> command. (This does not apply to the Sphereon 4500.)
FAN	The configured fabric address notification (FAN) state. (Sphereon 4500 only.)
Type	The port type as set in the <code>config.port.type</code> command.
Speed	The port speed as set in the <code>config.port.speed</code> command.

Output Example The output from the `show.port.config` command displays as follows.

Port	Name	Blocked	Ext Dist	Type	Speed
0	Port 1	false	Off	fPort	1 Gb/sec
1	Port 2	true	On	fPort	1 Gb/sec
2	Port 3	false	Off	gPort	1 Gb/sec
3	Port 4	false	Off	fPort	2 Gb/sec
4	Port 5	true	On	fPort	2 Gb/sec
5	Port 6	false	Off	fPort	2 Gb/sec
6	Port 7	true	On	fPort	1 Gb/sec
7	Port 8	false	Off	fPort	Negotiate
8	Port 9	false	On	fPort	1 Gb/sec
9	Port A	false	Off	fPort	1 Gb/sec
10	Port B	false	Off	fPort	2 Gb/sec
11	Port C	false	Off	fPort	2 Gb/sec
12	Port D	false	Off	fPort	1 Gb/sec
13	Port E	false	Off	fPort	1 Gb/sec
14	Port F	false	Off	fPort	1 Gb/sec
15	Port X	false	Off	fPort	1 Gb/sec

show.port.info

Syntax info

Purpose This command displays port information for all ports.

Parameters This command has no parameters.

Command Example **Root>** show port info

Output The port information data is displayed as a table that includes the following properties.

Port	The port number.
WWN	The WWN of the port.
OpSpeed	The current operating speed (1 Gb/sec, 2 Gb/sec, or Not Established).
SpeedCap	The current transceiver capability speed (1 Gb/sec or 2 Gb/sec).

Output Example The output from the show.port.info command displays as follows.

Port	WWN	OpSpeed	SpeedCap
----	-----	-----	-----
0	10:00:80:00:11:22:33:44	1 Gb/sec	2 Gb/sec
1	10:00:80:01:11:22:33:44	1 Gb/sec	2 Gb/sec
2	10:00:80:02:11:22:33:44	1 Gb/sec	2 Gb/sec
3	10:00:80:03:11:22:33:44	1 Gb/sec	2 Gb/sec
4	10:00:80:04:11:22:33:44	2 Gb/sec	2 Gb/sec
5	10:00:80:05:11:22:33:44	2 Gb/sec	2 Gb/sec
6	10:00:80:06:11:22:33:44	2 Gb/sec	2 Gb/sec
7	10:00:80:07:11:22:33:44	2 Gb/sec	2 Gb/sec
8	10:00:80:08:11:22:33:44	2 Gb/sec	2 Gb/sec
9	10:00:80:09:11:22:33:44	2 Gb/sec	2 Gb/sec
10	10:00:80:10:11:22:33:44	1 Gb/sec	2 Gb/sec
11	10:00:80:11:11:22:33:44	1 Gb/sec	2 Gb/sec
12	10:00:80:12:11:22:33:44	1 Gb/sec	2 Gb/sec
13	10:00:80:13:11:22:33:44	1 Gb/sec	2 Gb/sec
14	10:00:80:14:11:22:33:44	1 Gb/sec	2 Gb/sec
15	10:00:80:15:11:22:33:44	1 Gb/sec	2 Gb/sec

show.port.nodes

Syntax `nodes portNumber`

Purpose This command displays the loop node list for a specified port. This command is valid only on the Sphereon 4500.

Parameters This command has one parameter.

`portNumber` Specifies the port number. Valid values are: 0–23 for the Sphereon 4500

Command Example `root> show port nodes portNumber`

Output The port nodes data is displayed as a table that includes the following properties.

FC Addr The Fibre Channel address of nodes attached to this port. Private devices are assigned address strings of 0000 followed by the two-digit hexadecimal Arbitrated Loop Physical Address (ALPA), instead of the 6 digit hexadecimal number presented for public devices.

Attached WWN The WWN of nodes attached to this port, or the string *NOT LOGGED IN* for a private loop device.

Class The Class value for public devices. This field is left blank for private devices.

Data Field Size The Data Field Size value for public devices. This field is left blank for private devices.

Output Example The show.port.nodes command output for a mix of public and private nodes on a loop appears as follows:

FC Addr	Attached WWN	Class	Data Field Size
-----	-----	-----	-----
610A01	33:00:00:00:00:00:03	1	2112
610A02	33:00:00:00:00:00:04	1	2112
610A04	33:00:00:00:00:00:05	1	2112
610A08	33:00:00:00:00:00:02	1	2112
610A0F	33:00:00:00:00:00:0A	1	2112
610A10	33:00:00:00:00:00:10	1	2112
000017	NOT LOGGED IN		
000018	NOT LOGGED IN		
00001B	NOT LOGGED IN		

If no nodes are on the loop, a message displays saying that no loop nodes are on the port.

show.port.status

Syntax	<code>status</code>
Purpose	This command displays port status for all ports.
Parameters	This command has no parameters.
Command Example	root> <code>show port status</code>
Output	The port status data is displayed as a table that includes the following properties.
Port	The port number.
State	The port state (for example, Segmented E_Port, Invalid Attachment, Not Installed, Online, Offline, Not Operational, No Light, Testing, Port Failure, Link Reset, or Inactive).
Type	<p>The operational port type. If the configured port type is F_Port or E_Port, this value will match the configured type. If the configured type is G_Port, this value can be E_Port, F_Port, or G_Port, depending on what is connected to the port.</p> <p>On the Sphereon 4500, if the configured port type is Fx_Port, the operational port type can include FL_Port in addition to the values noted above for F_Port. If the configured port type is Gx_Port, then the operational port type can include FL_Port in addition to the values noted above for G_Port.</p>
Attached WWN	The WWN of the device or switch attached to the port, if one is attached.
Beaconing	The beaconing state for the port (Off or On).

Reason

An optional message number that indicates if the port has a segmented ISL, if a port binding violation has occurred, or if the port is inactive. The message description for this message number is provided at the bottom of the table.

If the operational state is *Segmented E_Port*, only the following messages can be generated:

- 00 Segment Not Defined
- 01 Incompatible Operating Parameters
- 02 Duplicate Domain ID(s)
- 03 Incompatible Zoning Configurations
- 04 Build Fabric Protocol Error
- 05 No Principal Switch
- 06 No Response from Attached Switch
- 07 ELP Retransmission Failure Timeout

If the operational state is *Invalid Attachment* only the following messages can be generated:

- 08 None
- 09 Unknown
- 10 ISL connection not allowed on this port
- 11 ELP rejected by the attached switch
- 12 Incompatible switch at other end of the ISL.
- 13 External loopback adapter connected to the port
- 14 N_Port connection not allowed on this port
- 15 Non-McDATA switch at other end of the ISL.
- 16 ISL connection not allowed on this port
- 17 ISL connection not allowed to external Fabrics
- 18 Port binding violation—unauthorized WWN
- 19 Unresponsive node connected to port
- 20 Incompatible security attributes
- 21 Fabric Binding violation
- 22 Authorization failure
- 23 Switch Binding violation

If the operational state is *Inactive* only the following messages can be generated:

- 24 Inactive – RC 0
- 25 No Serial Number
- 26 Feature Not Enabled

Output Example The output from the `show.port.status` command displays as follows.

```

Port State          Type  Attached WNN          Beaconing Reason
-----
0   Online           fPort 10:00:80:00:11:22:33:44 Off
1   Online           gPort 10:00:80:00:11:22:33:45 On
2   No Light         fPort 10:00:80:00:11:22:33:55 On
3   Offline          ePort 10:00:80:00:11:22:33:00 Off
4   Online           gPort 10:00:80:00:11:22:33:57 Off
5   Port Failure     fPort 10:00:80:00:11:22:33:46 Off
6   Link Reset       gPort 10:00:80:00:11:22:33:63 Off
7   Segmented E_Port ePort 10:00:80:00:11:22:33:47 Off      02
8   Online           ePort 10:00:80:00:11:22:33:88 Off
9   Offline          fPort 10:00:80:00:11:22:33:49 Off
10  Inactive         ePort 10:00:80:00:11:22:33:50 Off      26
11  Online           fPort 10:00:80:00:11:22:33:53 Off
12  No Light         fPort 10:00:80:00:11:22:33:56 Off
13  Online           fPort 10:00:80:00:11:22:33:59 Off
14  Invalid Attachment fPort 10:00:80:00:11:22:33:64 Off      15
15  Online           fPort 10:00:80:00:11:22:33:66 Off

02: Duplicate Domain ID(s)
03: Switch Speed Conflict
07: ISL connection not allowed on this port

```

show.port.technology

Syntax `technology`

Purpose This command displays port technology information for all ports.

Parameters This command has no parameters.

Command Example **Root>** `show port technology`

Output The port technology data is displayed as a table that includes the following properties.

Port	The port number.
Connectr	The port connector type (LC, MT_RJ, MU, Internal).
Transcvr	The transceiver type (Long LC, Short, Short OFC, Long LL, Long Dist).
Distance	The distances supported (Short, Intermediate, Long, Very Long).
Media	The media type (M-M 62.5um, M-M 50um, M-M 50,62.5um, S-M 9um, Copper).

Output Example The output from the `show.port.technology` command displays as follows.

Port	Connectr	Transcvr	Distance	Media
0	LC	Long LC	Long	M-M 50um
1	LC	Long LC	Long	M-M 50um
2	LC	Long LC	Long	M-M 50um
3	MT_RJ	Long LC	Long	M-M 50um
4	MT_RJ	Long LC	Long	M-M 50um
5	MT_RJ	Long LC	Long	M-M 50um
6	LC	Long LC	Long	M-M 50um
7	LC	Long LC	Long	M-M 50um
8	LC	Long LC	Long	M-M 50um
9	LC	Long LC	Long	M-M 50um
10	LC	Long LC	Long	M-M 50um
11	LC	Long LC	Long	M-M 50um
12	LC	Long LC	Long	M-M 50um
13	LC	Long LC	Long	M-M 50um
14	LC	Long LC	Long	M-M 50um
15	LC	Long LC	Long	M-M 50um

show.security.fabricBinding

Syntax `fabricBinding`

Purpose This command displays the fabric binding configuration saved on the fabric. The command performs the same function as `config.security.fabricBinding.showActive`.

Parameters This command has no parameters.

Command Example `root> show security fabricBinding`

Output The fabric binding configuration data is displayed as a table that includes the following properties.

Fabric Binding State	The active fabric binding state: <i>Inactive</i> or <i>Active Restricting</i>
----------------------	---

Fabric Membership List	The active fabric membership list.
------------------------	------------------------------------

Output Example The output from the `show.security.fabricBinding` command displays as follows.

```
Fabric Binding State:   Active Restricting
Domain 1  (00:11:22:33:44:55:66:77)
Domain 2  (88:99:AA:BB:CC:DD:EE:FF)
Domain 14 (11:55:35:45:24:78:98:FA)
```

show.security.portBinding

Syntax portBinding

Purpose This command shows the port binding configuration for all ports.

Parameters This command has no parameters.

Command Example **Root>** show security portBinding

Output The port binding configuration data is displayed as a table that includes the following properties.

Port The port number.

WWN Binding The state of port binding for the specified port (active or inactive).

Bound WWN The WWN of the device that is bound to the specified port. If this field is blank, no device is bound to the specified port.

Output Example The output from the show.security.portBinding command displays as follows.

Port	WWN Binding	Bound WWN
0	Active	AA:00:AA:00:AA:00:AA:00
1	Inactive	00:00:00:00:00:00:00:00
2	Inactive	CC:33:44:55:CC:33:44:55
3	Active	00:00:00:00:00:00:00:00
4	Inactive	00:00:00:00:00:00:00:00
5	Inactive	00:00:00:00:00:00:00:00
6	Inactive	00:00:00:00:00:00:00:00
7	Inactive	00:00:00:00:00:00:00:00
8	Inactive	00:00:00:00:00:00:00:00
9	Inactive	00:00:00:00:00:00:00:00
10	Inactive	00:00:00:00:00:00:00:00
11	Inactive	00:00:00:00:00:00:00:00
12	Inactive	00:00:00:00:00:00:00:00
13	Inactive	00:00:00:00:00:00:00:00
14	Inactive	00:00:00:00:00:00:00:00
15	Inactive	00:00:00:00:00:00:00:00

show.security.switchBinding

Syntax `switchBinding`

Purpose This command displays the switch binding configuration.

Parameters This command has no parameters.

Command Example `Root> show security switchBinding`

Output The switch binding configuration data is displayed as a table that includes the following properties.

Switch Binding *Disabled, Enabled and Restricting F_Ports,
State Enabled and Restricting E_Ports, or
 Enabled and Restricting All Ports*

Switch The active switch membership list.
Membership List

Output Example The output from the show.security.switchBinding command displays as follows.

```
Switch Binding State:   Enabled and Restricting E Ports
00:11:22:33:44:55:66:77
88:99:AA:BB:CC:DD:EE:FF
11:55:35:45:24:78:98:FA
```

show.switch

Syntax	<code>switch</code>
Purpose	This command displays switch attributes.
Parameters	This command has no parameters.
Command Example	root> <code>show switch</code>
Output	The switch attributes data is displayed as a table that includes the following properties.
State	The state of the switch (for example, online or offline).
BB Credit	The BB credit as set in the <code>config.switch.bbCredit</code> command. (This does not apply to the Sphereon 4500.)
R_A_TOV	The R_A_TOV as set in the <code>config.switch.raTov</code> command.
E_D_TOV	The E_D_TOV as set in the <code>config.switch.edTov</code> command.
Preferred Domain Id	The domain ID as set in the <code>config.switch.domainId</code> command.
Switch Priority	The switch priority as set in the <code>config.switch.priority</code> command.
Speed	The switch speed as set in the <code>config.switch.speed</code> command. (This does not apply to the Sphereon 4500.)
Rerouting Delay	The rerouting delay as set in the <code>config.switch.rerouteDelay</code> command.
Operating Mode	The operating mode (Open Systems or S/390). This attribute cannot be configured through the CLI.
Interop Mode	The interoperability mode as set in the <code>config.switch.interopMode</code> command.

Active Domain Id	The active domain ID of the switch. This ID may or may not be the same as the preferred domain ID.
World Wide Name	The WWN for the switch.
Insistent Domain Id	Configured Insistent domain ID state as set in the <code>config.switch.insistDomainId</code> command.
Domain RSCN	Configured Domain RSCN state as set in the <code>config.switch.domainRSCN</code> command.

Output Example The output from the `show.switch` command displays as follows.

```
Switch Information
State: Online
BB Credit: 2
R_A_TOV: 20
E_D_TOV: 4
Preferred Domain Id: 1
Switch Priority: Default
Speed: 2 Gb/sec
Rerouting Delay: Enabled
Operating Mode: Open Systems
Interop Mode: Open Fabric 1.0
Active Domain Id: 1
World Wide Name: 10:00:08:00:88:00:21:07
Insistent Domain Id: Enabled
Domain RSCN: Enabled
```

show.system

Syntax `system`

Purpose This command displays a set of system attributes.

Parameters This command has no parameters.

Command Example `Root> show system`

Output The system attributes are displayed as a table that includes the following properties.

Name	The system name as set in the <code>config.system.name</code> command.
Description	The system description as set in the <code>config.system.description</code> command.
Contact	The system contact as set in the <code>config.system.contact</code> command.
Location	The system description as set in the <code>config.system.description</code> command.
Date/Time	The system date and time as set in the <code>config.system.date</code> command.
Serial Number	The serial number for the system.
Type Number	The type number for the system.
Model Number	The model number for the system (for example, Intrepid 6064).
EC Level	The engineering change level installed.
Firmware Version	The current firmware version installed.
Beaconing	The enabled state of unit beaconing (enabled or disabled) as set in the <code>maint.system.beacon</code> command.

Output Example The output from the show.system command displays as follows.

```
System Information
  Name:                Joe's Switch
  Description:         McDATA Intrepid 6064 Fibre Channel
  Director
  Contact:             Joe
  Location:            Everywhere
  Date/Time:           04/16/2001 10:34:01AM
  Serial Number:       123456789
  Type Number:         1
  Model Number:        Intrepid 6064
  EC Level:            1
  Firmware Version:   01.03.00 34
  Beaconing:           Disabled
```

show.zoning

Syntax zoning

Purpose This command shows the zoning configuration saved on the fabric.

Parameters This command has no parameters.

Command Example **Root>** show zoning

Output The zoning configuration data is displayed as a table that includes the following properties.

Active ZoneSet The enabled status, name, and member zones of the zone set.

Output Example The output from the show.zoning command displays as follows.

```
Active Zone Set
Default Zone Enabled: False
ZoneSet: TheUltimateZoneSet
  Zone: TheUltimateZone
    ZoneMember: Domain 10, Port 6
    ZoneMember: Domain 15, Port 2
    ZoneMember: Domain 2, Port 63
    ZoneMember: 10:00:00:00:C9:22:9B:64
    ZoneMember: 10:00:00:00:C9:22:9B:BD
  Zone: TheNotSoUltimateZone
    ZoneMember: 10:00:00:00:C9:22:9B:AB
    ZoneMember: 10:00:00:00:C9:22:9B:C6
    ZoneMember: 10:00:00:00:C9:22:9B:AB
  Zone: TheNotUltimateAtAllZone
    ZoneMember: Domain 2, Port 63
```

This appendix lists and explains error messages for the Command Line Interface (CLI). Any error numbers that are not listed are reserved for future use.

The message that is returned is a string that includes the error number and the text of the message.

Message	Error 05: Busy
Description	The switch is busy processing another request.
Action	After a few seconds, re-issue the request.
Message	Error 08: Invalid Switch Name
Description	The value entered for the switch name is invalid.
Action	The name for the director or switch may contain 0–24 characters. Enter a name with 0–24 characters and re-submit. If spaces are used, enclose the name in quotation marks.

Message **Error 09: Invalid Switch Description****Description** The value entered for the switch description is invalid.**Action** The description for the director or switch may contain 0–255 characters. Enter a description with 0–255 characters and re-submit. If spaces are used, enclose the description in quotation marks.**Message** **Error 10: Invalid Switch Location****Description** The value entered for the switch location is invalid.**Action** The location for the director or switch may contain 0–255 characters. Enter a location with 0–255 characters and re-submit. If spaces are used, enclose the location in quotation marks.**Message** **Error 11: Invalid Switch Contact****Description** The value entered for the switch contact is invalid.**Action** The contact for the director or switch may contain 0–255 characters. Enter a contact with 0–255 characters and re-submit. If spaces are used, enclose the contact in quotation marks.**Message** **Error 13: Invalid Port Number****Description** The value entered for the port number is invalid.**Action** Enter a port number within the range supported by your director or switch. Valid values are:

0–15 for the Sphereon 3016 and Sphereon 3216

0–31 for the Sphereon 3032 and Sphereon 3232

0–31 for the ED-5000

0–63 for the Intrepid 6064

0–127 and 132–144 for the Intrepid 6140

Message	Error 14: Invalid Port Name
Description	The value entered for the port name is invalid.
Action	The port name for the individual port may contain 0–24 characters. Enter a name with 0–24 characters and re-submit. If spaces are used, enclose the name in quotation marks.
Message	Error 15: Invalid BB Credit
Description	The value entered for the buffer-to-buffer credit is invalid.
Action	The buffer-to-buffer credit must be an integer in the range of 1–60.
Message	Error 16: Invalid R_A_TOV
Description	The value entered for the resource allocation time-out value is invalid.
Action	The R_A_TOV is entered in tenths of a second and must be entered as an integer in the range 10–1200 (1 second to 120 seconds). The R_A_TOV value must be larger than the E_D_TOV value. Check to be sure that all conditions are met and re-submit.
Message	Error 17: Invalid E_D_TOV
Description	The value entered for the error detection time-out value is invalid.
Action	The E_D_TOV is entered in tenths of a second and must be entered as an integer in the range 2–600 (0.2 second to 60 seconds). The E_D_TOV must be smaller than the R_A_TOV. Check to be sure that all conditions are met and re-submit.
Message	Error 18: Invalid TOV
Description	The E_D_TOV and R_A_TOV values are not compatible.
Action	Enter a valid E_D_TOV / R_A_TOV combination. The E_D_TOV must be smaller than the R_A_TOV.

Message **Error 20: Invalid Preferred Domain ID**

Description The value entered for the preferred domain ID for the director or switch is invalid.

Action The preferred domain ID must be an integer in the range 1–31. Enter an appropriate value and re-submit.

Message **Error 21: Invalid Switch Priority**

Description The value entered for the switch priority is invalid.

Action The switch priority entered for the director or switch must be one of the following: *principal*, *neverprincipal*, or *default*. Enter an appropriate value and re-submit. (Refer to the description of the command in [config.switch.priority](#) on page 2-35.)

Message **Error 29: Invalid Gateway Address**

Description The value entered for the gateway address is invalid.

Action The new gateway address for the Ethernet interface must be entered in dotted decimal format (e.g. 0.0.0.0). Enter an appropriate gateway address and re-submit.

Message **Error 30: Invalid IP Address**

Description The value entered for the IP Address is invalid.

Action The new IP address for the Ethernet interface must be entered in dotted decimal format (e.g. 10.0.0.0). Enter an appropriate IP address and re-submit.

- Message** **Error 31: Invalid Subnet Mask**
- Description** The value entered for the subnet mask is invalid.
- Action** The new subnet mask for the Ethernet interface must be entered in dotted decimal format (e.g. 255.0.0.0). Enter an appropriate subnet mask and re-submit.
-
- Message** **Error 32: Invalid SNMP Community Name**
- Description** The value entered for the SNMP community name is invalid.
- Action** The community name must not exceed 32 characters in length. Duplicate community names are allowed, but corresponding write authorizations must match. Enter an appropriate SNMP community name and re-submit.
-
- Message** **Error 33: Invalid SNMP Trap Address**
- Description** The value entered for the SNMP trap address is invalid.
- Action** The new SNMP trap address for the SNMP interface must be entered in dotted decimal format (e.g. 10.0.0.0). Enter an appropriate SNMP trap address and re-submit.
-
- Message** **Error 34: Duplicate Community Names Require Identical Write Authorization**
- Description** Two or more community names have been recognized as being identical, but their corresponding write authorizations are not identical.
- Action** Enter unique SNMP community names or force write authorizations for duplicate community names to be identical and re-submit.

Message	Error 37: Invalid Month
Description	The value of the month entered for the new system date is invalid.
Action	The format of the date parameter must be mm:dd:yyyy or mm/dd/yyyy. The month must contain an integer in the range 1–12. Enter an appropriate date and re-submit.
Message	Error 38: Invalid Day
Description	The value of the day entered for the new system date is invalid.
Action	The format of the date parameter must be mm:dd:yyyy or mm/dd/yyyy. The day must contain an integer in the range 1–31. Enter an appropriate date and re-submit.
Message	Error 39: Invalid Year
Description	The value of the year entered for the new system date is invalid.
Action	The format of the date parameter must be mm:dd:yyyy or mm/dd/yyyy. The year must contain an integer greater than 1980. Enter an appropriate date and re-submit.
Message	Error 40: Invalid Hour
Description	The value of the hour entered for the new system time is invalid.
Action	The format of the time parameter must be hh:mm:ss. The hour can contain an integer in the range 0–23. Enter an appropriate time and re-submit.
Message	Error 41: Invalid Minute
Description	The value of the minute entered for the new system time is invalid.
Action	The format of the time parameter must be hh:mm:ss. The minute can contain an integer in the range 0–59. Enter an appropriate time and re-submit.

Message **Error 42: Invalid Second**

Description The value of the second entered for the new system time is invalid.

Action The format of the time parameter must be hh:mm:ss. The second can contain an integer in the range 0–59. Enter an appropriate time and re-submit.

Message **Error 44: Max SNMP Communities Defined**

Description A new SNMP community may not be defined without removing an existing community from the list.

Action A total of 6 communities may be defined for SNMP. A new community can be added only after a current community is removed. Make the appropriate changes and re-submit.

Message **Error 45: Not Allowed While Switch Online**

Description The entered command requires that the director or switch be set offline.

Action Set the switch offline and re-submit the command.

Message **Error 55: Invalid Zone Name**

Description The value entered for the zone name is invalid.

Action The zone name must be unique and contain 1–64 characters. The valid character set for the zone name can be found under [config.zoning.addZone](#) on page 2-47. Make the appropriate changes to the zone name and re-submit.

Message	Error 57: Duplicate Zone
Description	Two or more zone names in the zone set are identical.
Action	All zone names must be unique. Make the appropriate changes and re-submit.
Message	Error 59: Zone Name in Use
Description	Two or more zone names in the zone set are identical.
Action	All zone names must be unique. Make the appropriate changes and re-submit.
Message	Error 60: Invalid Number of Zone Members
Description	The entered command tried to add more zone members than the zone can hold.
Action	Reduce the number of zone members in the zone and re-submit the command.
Message	Error 61: Invalid Zone Member Type
Description	A zone member was entered that is neither a WWN nor a Domain, Port pair.
Action	Zone members must be expressed in WWN format or as a Domain, Port pair. Make the appropriate changes and re-submit. For more information, see config.zoning.addWwnMem on page 2-48 and config.zoning.addPortMem on page 2-49.
Message	Error 62: Invalid Zone Set Name
Description	The value entered for the zone set name is invalid.
Action	The zone set name must be contain 1–64 characters. The valid character set for the zone name can be found in config.zoning.addZone on page 2-47. Make the appropriate changes to the zone set name and re-submit.

- Message** **Error 69: Duplicate Port Name**
- Description** Two or more port names are identical.
- Action** Port names must be unique. Make appropriate changes and re-submit. For more information, see [config.port.name](#) on page 2-10.
-
- Message** **Error 70: Invalid FRU Type**
- Description** The specified FRU does not exist on this product
- Action** Consult the installation/service manual for this product to find appropriate FRU names.
-
- Message** **Error 71: FRU Not Installed**
- Description** The specified FRU is not installed.
- Action** Consult the installation/service manual for this product for appropriate action.
-
- Message** **Error 72: No Backup FRU**
- Description** The FRU cannot be swapped because a backup FRU is not installed.
- Action** Insert a backup FRU and re-submit the request or consult the installation/service manual for this product for appropriate action.
-
- Message** **Error 73: Port Not Installed**
- Description** The port specified is not installed on this product.
- Action** Consult the installation/service manual on installing a port optic.

Message	Error 74: Invalid Number of Zones
Description	The specified zone set contains less than one zone or more than the maximum number of zones allowed for this product.
Action	A zone set must contain at least one zone to be considered valid. Add or remove zones accordingly to meet specified requirements.
Message	Error 75: Invalid Zone Set Size
Description	The zone set entered exceeds switch NVRAM limitations.
Action	Reduce the size of the zone set to meet specified requirements. This can be a reduction in the number of zones in the zone set, a reduction of members in a zone, or a reduction of zone name lengths.
Message	Error 76: Invalid Number of Unique Zone Members
Description	The zone entered contains more than the maximum number of zone members allowed per zone set for this product.
Action	Reduce the number of members in one or more zones and re-submit the command.
Message	Error 77: Not Allowed While Port Is Failed
Description	The port selected is in a failed or inactive state, or is in need of service.
Action	Consult the installation/service manual for appropriate action.
Message	Error 78: System Error Light On
Description	This unit is not able to beacon because the system error light is on.
Action	You must clear the system error light before unit beaconing may be enabled. Consult the installation/service manual for appropriate action.

Message	Error 79: FRU Failed
Description	The specified FRU has failed.
Action	Consult the installation/service manual for appropriate action.
Message	Error 81: Default Zone Enabled
Description	The request cannot be completed because the default zone is enabled
Action	Disable the default zone and re-submit the command.
Message	Error 82: Invalid Interop Mode
Description	The value entered for the interoperability mode is not valid.
Action	The interoperability mode for the director or switch must be mcdata (McDATA Fabric 1.0) or open (Open Fabric 1.0). Make the appropriate changes and re-submit the command.
Message	Error 83: Not Allowed in Open Fabric Mode
Description	This request cannot be completed while this switch is operating in Open Fabric 1.0 mode.
Action	Configure the interop mode to McDATA Fabric 1.0 mode.
Message	Error 88: Invalid Feature Key Length
Description	The feature key installed is longer than the maximum length allowed.
Action	Be sure that the key has been entered correctly and re-submit. Contact your sales representative with any further problems.

Message	Error 89: Not Allowed in S/390 Mode Without the SANtegrity (TM) Feature
Description	Cannot configure port types in S/390 mode without installing SANtegrity.
Action	This command is only supported when the switch is in Open Systems mode or in S/390 with SANtegrity. The switch will need to be taken out of S/390 Mode in order to complete this command or SANtegrity will need to be purchased and installed. The switch cannot be taken out of S/390 Mode via the Command Line Interface. The EFC Manager application must be used to change the switch operating mode.
Message	Error 90: Invalid Port Type
Description	The port type configured is invalid.
Action	A port may be configured to be an eport, gport, or fport. Be sure the port is configured appropriately and re-submit the command.
Message	Error 91: E_Port Type Configured
Description	Ports are not allowed to be configured as E_Ports in S/390 mode.
Action	Configure the port as either a fport or gport and resubmit the command.
Message	Error 92: Not Allowed While Port Is Unblocked
Description	The port must be blocked to complete this request.
Action	Block the port and re-submit the command.
Message	Error 93: Not Allowed While FICON MS Is Installed
Description	This request cannot be completed because FICON Management Server is installed.
Action	This operation is not supported. No action necessary.

Message	Error 94: Invalid Feature Combination
Description	The features requested cannot be installed at the same time on one director or switch.
Action	Contact your sales representative.
Message	Error 99: Preferred Domain ID Cannot Be Zero
Description	This product cannot be configured to have a preferred domain ID equal to zero (0).
Action	Ensure that the ID is expressed as an integer in the range 1–31 and re-submit.
Message	Error 101: Command Not Supported on This Product
Description	This product does not support the requested command.
Action	Command not supported. No action necessary.
Message	Error 102: Switch Not Operational
Description	The request cannot be completed because the switch is not operational.
Action	Consult the installation/service manual and contact your service representative.
Message	Error 115: Invalid Switch Speed
Description	The request cannot be completed because the switch is not capable of operating at the configured speed.
Action	Consult the installation/service manual to determine the speed capabilities of your product.

Message	Error 116: Switch Not Capable of 2 Gb/sec
Description	The request cannot be completed because the switch is not capable of operating at 2 Gbps.
Action	Consult the installation/service manual to determine the speed capabilities of your product.
Message	Error 117: Port Speeds Cannot be Set at Higher Data Rate than Switch Speed
Description	This request cannot be completed because the requested port speed is faster than the currently-configured switch speed.
Action	The switch speed should first be configured to accommodate changes in the configured port speed. The ports can not operate at a faster rate than the switch, itself. Update the switch speed and re-submit the request. For more information, see config.switch.speed on page 2-38 and config.port.speed on page 2-11.
Message	Error 118: Invalid Port Speed
Description	This request cannot be completed because the requested port speed is not recognized for this product.
Action	Port speeds may be set to 1 Gbps or 2 Gbps. Update the port speed and re-submit the request.
Message	Error 119: Switch Speed Not 2 Gb/sec
Description	This request cannot be completed because the switch speed has not been set to 2 Gbps.
Action	The switch speed must be set to 2 Gbps in order to accommodate a port speed of 2 Gbps. Update the switch speed and re-submit the request.

Message	Error 134: Invalid Membership List
Description	Generic message to indicate a problem in either the switch binding or fabric binding membership list.
Action	Be sure that the membership list submitted does not isolate a switch already in the fabric. If this is not the case, the user needs to be aware of all fabric security rules and make sure that the list submitted adheres appropriately.
Message	Error 135: Invalid Number of Fabric Membership List Entries
Description	The number of fabric members submitted exceeds the maximum allowable entries of 31.
Action	The number of entries in the fabric membership list is limited to the total number of domain ID's available to the fabric. Make sure that the list (including the managed switch) contains no more than 31 entries.
Message	Error 136: Invalid Number of Switch Membership List Entries
Description	The number of switch members submitted exceeds the maximum allowable entries of 256.
Action	The number of entries in the switch membership list is limited to 256. Make sure that the list (including the managed switch) contains no more than 256 entries.
Message	Error 137: Invalid Fabric Binding State
Description	The fabric binding state submitted is not recognized by the CLI.
Action	The fabric binding state must be set to either <i>inactive</i> or <i>restrict</i> . For more information, see config.security.fabricBinding on page 2-14.

Message **Error 138: Invalid Switch Binding State****Description** The switch binding state submitted is not recognized by the CLI.**Action** The switch binding state must be set to one of the following: *disable*, *erestrict*, *frestrict*, or *allrestrict*. For more information, see [config.security.switchBinding](#) on page 2-23.**Message** **Error 139: Insistent Domain ID's Must Be Enabled When Fabric Binding Active****Description** The user attempted to disable insistent domain ID's while fabric binding was active.**Action** Insistent domain ID's must remain enabled while fabric binding is active. If fabric binding is set to inactive, the insistent domain ID state may be changed. It should be noted, however, that this can be disruptive to the fabric.**Message** **Error 140: Invalid Insistent Domain ID State****Description** The request cannot be completed because an invalid insistent domain ID state has been submitted.**Action** The insistent domain ID state must be set to either *enable* or *disable*. For more information, see [config.switch.insistDomainId](#) on page 2-33.**Message** **Error 141: Invalid Enterprise Fabric Mode****Description** The request cannot be completed because an invalid enterprise fabric mode has been submitted.**Action** The enterprise fabric mode must be set to either *activate* or *deactivate*. For more information, see [config.features.enterpriseFabMode](#) on page 2-3.

- Message** **Error 142: Invalid Domain RSCN State**
- Description** The request cannot be completed because an invalid domain RSCN state has been submitted.
- Action** The domain RSCN state must be set to either *enable* or *disable*. For more information, see [config.switch.domainRSCN](#) on page 2-32.
-
- Message** **Error 143: Domain RSCNs Must Be Enabled When Enterprise Fabric Mode Active**
- Description** The user attempted to disable domain RSCN's while enterprise fabric mode was active.
- Action** Domain RSCN's must remain enabled while the enterprise fabric mode is active. If enterprise fabric mode is set to inactive, the domain RSCN state may be changed. It should be noted, however, that this can be disruptive to the fabric.
-
- Message** **Error 144: The SANtegrity Feature Has Not Been Installed**
- Description** The user attempted to activate a change to the fabric security configuration without first installing the SANtegrity feature key.
- Action** If this key has not been installed, contact your sales representative.
-
- Message** **Error 146: Fabric Binding May Not Be Deactivated While Enterprise Fabric Mode Active**
- Description** The user attempted to deactivate fabric binding while enterprise fabric mode was active.
- Action** Fabric binding must be active while operating in enterprise fabric mode. The fabric binding state may be changed if enterprise fabric mode is deactivated. It should be noted, however, that this can be disruptive to the fabric.

Message	Error 148: Not Allowed While Switch Offline
Description	The switch must be online to complete this request.
Action	Change the state of the switch to ONLINE and re-submit the request.
Message	Error 149: Not Allowed While Enterprise Fabric Mode Enabled and Switch Active
Description	The request cannot be completed while the switch is online and enterprise fabric mode is Active.
Action	This operation will be valid if the switch state is set to offline and enterprise fabric mode to inactive. It should be noted, however, that this can be disruptive to the fabric.
Message	Error 151: Invalid Open Systems Management Server State
Description	The request cannot be completed because the OSMS state submitted is invalid.
Action	The OSMS state may be set to either <i>enable</i> or <i>disable</i> . For more information, see config.features.OpenSysMS on page 2-4.
Message	Error 152: Invalid FICON Management Server State
Description	The request cannot be completed because the FICON MS state submitted is invalid.
Action	The FICON MS state may be set to either <i>enable</i> or <i>disable</i> . For more information, see config.features.ficonms on page 2-3.
Message	Error 153: Feature Key Not Installed
Description	The request cannot be completed because the required feature key has not been installed to the firmware.
Action	Contact your sales representative.

Message	Error 154: Invalid Membership List WWN
Description	The request cannot be completed because the WWN does not exist in the switch binding membership list.
Action	Make sure that the WWN deleted matches the WWN in the switch membership list. Make appropriate changes and re-submit the request.
Message	Error 155: Cannot Remove Active Member From List
Description	This member cannot be removed from the fabric security list because it is currently logged in.
Action	Fabric security rules prohibit any device or switch from being isolated from the fabric via a membership list change. If it is truly the intention of the user to remove the device in question from the membership list, then there are several approaches to take. This request may be completed most non-disruptively by blocking the port (or physically removing the device from the managed switch) to which this device is attached and resubmitting the request.
Message	Error 156: Cannot Disable Fabric Binding while Switch is Online
Description	The switch must be offline before Fabric Binding can be deactivated.
Action	Deactivating fabric binding is disruptive to Fabric operations. Set the switch offline before deactivating this feature.
Message	Error 201: Change Authorization Request Failed
Description	The switch did not accept the request to make a change to NVRAM.
Action	Be sure all parameters have been entered correctly and re-submit. Contact your service representative with further problems.

Message	Error 202: Invalid Change Authorization ID
Description	The switch will not accept a change request from this particular client.
Action	Be sure all parameters have been entered correctly and re-submit. Contact your service representative with further problems.
Message	Error 203: Another Client Has Change Authorization
Description	Another user is currently making changes to this switch.
Action	Be sure all parameters have been entered correctly and re-submit.
Message	Error 207: Change Request Failed
Description	The switch did not accept the request.
Action	Be sure all parameters have been entered correctly and re-submit. Contact your service representative with further problems.
Message	Error 208: Change Request Timed Out
Description	Authorization time to make NVRAM changes has expired.
Action	Be sure all parameters have been entered correctly and re-submit. Contact your service representative with further problems.
Message	Error 209: Change Request Aborted
Description	The switch did not accept the request.
Action	Be sure all parameters have been entered correctly and re-submit. Contact your service representative with further problems.

Message	Error 210: Busy Processing Another Request
Description	A different switch in the Fabric was busy processing another request and could not complete the command.
Action	Be sure all parameters have been entered correctly and re-submit. Contact your service representative with continued problems.
Message	Error 211: Duplicate Zone
Description	Two or more zone names in the local zone set are identical.
Action	All zone names must be unique. Make the appropriate changes and re-submit.
Message	Error 212: Duplicate Zone Member
Description	A member was added that already exists in the zone.
Action	No action necessary.
Message	Error 213: Number of Zones Is Zero
Description	You are attempting to activate an empty zone set.
Action	The zone set must have at least one zone to be considered valid. Add a valid zone to the zone set and re-submit.
Message	Error 214: A Zone Contains Zero Members
Description	You are attempting to activate a zone set that contains at least one zone with zero members.
Action	Each zone in the zone set must contain at least one member. Add a valid member to the empty zone and re-submit.

Message	Error 215: Zone Set Size Exceeded
Description	The local work area zone set has outgrown the size limitations imposed by the Command Line Interface.
Action	Reduce the size of the zone set to meet CLI requirements. This can be a reduction in the number of zones in the zone set, a reduction of members in a zone, or a reduction of zone name lengths.
Message	Error 218: Invalid Port Number
Description	The value entered for the port number is invalid
Action	Enter a port number within the range supported by your director or switch. Valid values are: <ul style="list-style-type: none"> 0–15 for the Sphereon 3016 and Sphereon 3216 0-23 for the Sphereon 4500 0–31 for the Sphereon 3032 and Sphereon 3232 0–31 for the ED-5000 0–63 for the Intrepid 6064 0–127 and 132–144 for the Intrepid 6140
Message	Error 219: Invalid Port Type
Description	The port type configured is invalid.
Action	A port may be configured to be an eport, gport, or fport. Be sure the port is configured appropriately and re-submit the command. On the Sphereon 4500 only, fxport and gxport types are also supported.
Message	Error 222: Invalid SNMP Community Index
Description	The value entered for the SNMP community index is invalid.
Action	The SNMP community index must be an integer in the range 1–6. Make the appropriate changes and re-submit the command.

Message	Error 223: Unknown Error
Description	The switch did not accept the request
Action	Contact your service representative.
Message	Error 224: Invalid Argument
Description	One or more parameters are invalid for this command.
Action	For the appropriate parameters, see the section of the manual that corresponds to the attempted command. Parameters must be typed exactly to specification to be recognized correctly by the CLI.
Message	Error 225: Argument Does Not Contain All USASCII Characters
Description	The CLI received non-USASCII characters.
Action	For the appropriate parameters, see the section of the manual that corresponds to the attempted command. Parameters must be typed exactly to specification to be recognized correctly by the CLI.
Message	Error 226: Argument Is Too Long
Description	One or more parameters are invalid for this command.
Action	For the appropriate parameters, see the section of the manual that corresponds to the attempted command. Parameters must be typed exactly to specification to be recognized correctly by the CLI.
Message	Error 227: Invalid SNMP Community Name
Description	The value entered for the SNMP community name is invalid
Action	The community name must not exceed 32 characters in length. Duplicate community names are allowed, but corresponding write authorizations must match. Enter an appropriate SNMP community name and re-submit.

Message **Error 228: Invalid Write Authorization Argument****Description** The writeAuthorization parameter does not contain a valid value.**Action** Parameters must be typed exactly to specification to be recognized correctly by the CLI. For more information, see [config.snmp.addCommunity](#) on page 2-29.**Message** **Error 229: Invalid UDP Port Number****Description** The udpPortNum parameter does not contain a valid value.**Action** Parameters must be typed exactly to specification to be recognized correctly by the CLI. For more information, see [config.switch.insistDomainId](#) on page 2-33.**Message** **Error 230: Invalid WWN****Description** The wwn parameter does not contain a valid value.**Action** For the appropriate parameters, see the section of the manual that corresponds to the attempted command. Parameters must be typed exactly to specification to be recognized correctly by the CLI.**Message** **Error 231: Invalid Port number****Description** The portNum parameter does not contain a valid value.**Action** For the appropriate parameters, see the section of the manual that corresponds to the attempted command. Parameters must be typed exactly to specification to be recognized correctly by the CLI.**Message** **Error 232: Invalid Domain ID****Description** The domainID parameter does not contain a valid value.**Action** For the appropriate parameters, see the section of the manual that corresponds to the attempted command. Parameters must be typed exactly to specification to be recognized correctly by the CLI.

Message Error 233: Invalid Member

Description The zone member added is not valid.

Action For the appropriate parameters, see the section of the manual that corresponds to the attempted command. Parameters must be typed exactly to specification to be recognized correctly by the CLI.

Message Error 234: Invalid Command

Description The CLI cannot associate an action with the submitted command. The command may be misspelled, required parameters may be missing, or the request may not be applicable to the branch of the CLI tree from which it was submitted.

Action Consult the documentation for the command to be sure this command was entered correctly, all parameters are valid and present, and that the syntax is correct.

Message Error 235: Unrecognized Command

Description The CLI does not recognize the command and cannot perform the help '?' command as requested.

Action The entered command is misspelled or the prompt is not positioned at the right place in the CLI command tree for this command. For the appropriate syntax, see the section of the manual that corresponds to the attempted command.

Message Error 236: Ambiguous Command

Description The CLI does not recognize the command issued.

Action The CLI cannot interpret the command because a unique match cannot be identified. For the appropriate syntax, see the section of the manual that corresponds to the attempted command. Enter the complete command and re-submit.

Message	Error 237: Invalid Zoning Database
Description	There was an unidentifiable problem in the local zone set work area.
Action	Verify all parameters are entered correctly and re-submit. Otherwise, the pending zone set should be cleared and reconstructed.
Message	Error 238: Invalid Feature Key
Description	The feature key entered is invalid.
Action	Verify that the feature key was entered correctly and re-submit. Contact your service representative with further difficulties.
Message	Error 239: Fabric binding entry not found
Description	The user requested to remove a fabric binding entry that is not in the pending fabric membership list.
Action	Verify that the correct entry (both WWN and Domain ID) is being requested for removal from the list and re-submit the request.
Message	Error 240: Duplicate fabric binding member
Description	The user requested to add an entry to the fabric binding list that is already a member of the list.
Action	Verify that the correct entry (both WWN and Domain ID) is being requested for addition to the list and re-submit the request.
Message	Error 241: Comma-delimited mode must be active
Description	Comma-delimited mode must be active to execute this command
Action	Some commands require that comma-delimited mode be active (e.g. show.nameserverExt). Enable comma-delimited mode and re-issue the command.

- Message** **Error 242: Open trunking threshold % value must be 0–99**
- Description** An invalid threshold percentage has been entered.
- Action** The Open trunking threshold must be in the range 0–99. Make sure all values are valid and re-submit the request.
-
- Message** **Error 243: Not allowed while S/390 Mode is Enabled**
- Description** This operation is not allowed while S/390 mode is enabled.
- Action** This command is not valid for the S/390 environment.

The following cross-references are used in this glossary:

Contrast with. This refers to a term that has an opposite or substantively different meaning.

See. This refers the reader to another keyword or phrase for the same term.

See also. This refers the reader to definite additional information contained in another entry.

A

active zone set

The single zone set that is active in a multiswitch fabric. It is created when you enable a specified zone set. This zone set is compiled by checking for undefined zones or aliases.

ALPA

Arbitrated Loop Physical Address.

B

backplane

The backplane provides 48 VDC power distribution and connections for all logic cards.

backup FRU	When an active FRU fails, an identical backup FRU takes over operation automatically (failover) to maintain director and Fibre Channel link operation.
beaconing	The use of light-emitting diodes on ports, port cards, hardware components, and directors to aid in the fault-isolation process; when enabled, active beaconing will cause LEDs to flash for selected components.
BB_Credit	Also known as Buffer-to-Buffer Credit. The maximum number of frames a port can transmit without receiving a receive ready signal from the receiving device.
blocked port	Devices communicating with the port are prevented from logging into the director or communicating with other devices attached to the director. A blocked port continuously transmits the offline sequence.
buffer	A storage area for data in transit. Buffers compensate for differences in processing speeds between devices. <i>See</i> also BB_Credit.
C	
channel	A point-to-point link that transports data from one point to the other.
class of Fibre Channel service	Defines the level of connection dedication, acknowledgment, and other characteristics of a connection.
Class F Fibre Channel service	Used by switches to communicate across interswitch links (ISLs) to configure, control, and coordinate a multiswitch fabric.
Class 2 Fibre Channel service	Provides a connectionless (not dedicated) service with notification of delivery or nondelivery between two N_Ports.
Class 3 Fibre Channel service	Provides a connectionless (not dedicated) service without notification of delivery or nondelivery between two N_Ports. Also known as datagram.
community profile	Information that specifies which management objects are available to what management domain or SNMP community name.
configuration data	Configuration data includes: identification data, port configuration data, operating parameters, SNMP configuration, and zoning

configuration. A configuration backup file is required to restore configuration data if the CTP card in a nonredundant Intrepid 6064 is removed and replaced.

connectionless Nondedicated link. Typically used to describe a link between nodes which allows the switch to forward Class 2 or Class 3 frames as resources (ports) allow. Contrast this to the dedicated bandwidth that is required in a Class 1 Fibre Channel Service point-to-point link.

connector *See* optical fiber connector.

control processor card Circuit card that contains the director microprocessor. The CTP card also initializes hardware components of the system after power-on. A 10 Mbps RJ-45 twisted pair connector is located on the CTP card to connect to the Ethernet LAN and communicate with the EFC Server or a specific management station.

control unit A hardware unit that controls the reading, writing, or displaying of data at one or more input/output units.

CRC *See* cyclic redundancy check.

CTP *See* control processor card.

cyclic redundancy check System of error checking performed at both the sending and receiving station using the value of a particular character generated by a cyclic algorithm. When the values generated at each station are identical, data integrity is confirmed.

D

datagram *See* Class 3 Fibre Channel service.

default Pertaining to an attribute, value, or option that is assumed when none is explicitly specified.

default zone Contains all attached devices that are not members of a separate zone.

device Product, connected to a managed director, connected to a switch or director, that is not controlled by the switch or director's management software. *See also* node.

- dialog box** A window containing informational messages or data fields to be modified or filled in with desired options.
- director** An intelligent, high-availability Fibre Channel switching device providing any-to-any port connectivity between nodes (end devices) on a switched fabric. The director sends data transmissions (data frames) between nodes in accordance with the address information present in the frame headers of those transmissions.
- domain ID** The number that uniquely identifies a switch in a multiswitch fabric. A distinct domain ID is automatically allocated to each switch in the fabric by the principal switch.

E

- E_Port** See expansion port.
- E_D_TOV** See error-detect time-out value.
- EFC** Enterprise fabric connectivity.
- EFC Server** PC shipped with a product to run the EFC Manager, EFC Product Manager, and EFC Fabric Manager applications.
- embedded web server** With director firmware Version 1.2 (or later) installed, administrators or operators with a browser-capable PC and an Internet connection can monitor and manage the director through an embedded web server interface, called the SANpilot interface. The interface provides a GUI similar to the Product Manager application, and supports director configuration, statistics monitoring, and basic operation.
- Enterprise Fabric Connectivity Manager** Software application that is the system management framework providing the user interface for managing McDATA Fibre Channel connectivity products. The EFC Manager can run both locally on the EFC Server and remotely on a user workstation.
- error detect time out value** The value that defines the time the switch waits for an expected response before declaring an error condition.
- error message** Indication that an error has been detected. See also information message; warning message.

Ethernet	A widely implemented local area network (LAN) protocol that uses a bus or star topology and served as the basis for the IEEE 802.3 standard, which specifies the physical and software layers. Baseband LAN allows multiple station access to the transmission medium at will without prior coordination and which avoids or resolves contention.
event log	Record of significant events that have occurred on the director, such as FRU failures, degraded operation, and port problems.
expansion port	The physical interface on a Fibre Channel switch within a fabric, that attaches to an expansion port (E_Port) on another Fibre Channel switch to form a multiswitch fabric. <i>See also</i> segmented E_Port.
F	
F_Port	<i>See</i> fabric port.
fabric	Entity that interconnects N_Ports and is capable of routing (switching) Fibre Channel frames using the destination ID information in the Fibre Channel frame header accompanying the frames.
fabric port	Physical interface within the fabric that connects to an N_Port through a point-to-point full duplex connection.
failover	The automatic and nondisruptive transition of functions from an active FRU that has failed to a backup FRU.
FAN	Fabric address notification.
FCP	A standard Fibre Channel protocol used to run SCSI over Fibre Channel.
fiber	Physical media types supported by the Fibre Channel specification, such as optical fiber, twisted pair, and coaxial cable.
Fibre Channel	Integrated set of standards recognized by ANSI which defines specific protocols for flexible information transfer. Logically, a point-to-point serial data channel, structured for high performance.

Fibre Channel Address

There are two types of Fibre Channel addresses:

- An address for a public device, comprised of the domain ID, port address, and its AL_PA
- An address for a private device, comprised of 0000 followed by its AL_PA.

In both cases, the Fibre Channel address is represented as a six-digit hexadecimal string.

field-replaceable unit

An assembly removed and replaced in its entirety when any one of its components fails.

firmware

The embedded program code that resides and executes on, for example, directors, switches, and hubs.

FL_Port

Fabric Port currently operating in Arbitrated Loop. Only the Sphereon 4500 Switch supports the operation of Arbitrated Loop.

FX_Port

A port configuration allowing a port to transition operationally to either an F_Port or an FL_Port. Only the Sphereon 4500 Switch supports the configuration of this port type.

FRU

See field-replaceable unit.

G**G_Port**

See generic port.

gateway

A multi-homed host used to route network traffic from one network to another, and to pass network traffic from one protocol to another.

gateway address

A unique string of numbers (in the format xxx.xxx.xxx.xxx) that identifies a gateway on the network.

Gbps

Gigabits per second.

generic port

Also known as G_Port. Physical interface on a director that can function either as a fabric port (F_Port) or an extension port (E_Port) depending on the port type to which it connects.

Gx_Port A port configuration allowing a port to transition operationally to FL_Port as well as to the port operational states described for a G_Port. Only the Sphereon 4500 Switch supports the configuration of this port type.

H

hop Data transfer from one node to another node.

hop count The number of hops a unit of information traverses in a fabric.

hub In Fibre Channel, a device that connects nodes into a logical loop by using a physical star topology.

I

information message A message telling a user that a function is performing normally or has completed normally. *See also* error message; warning message.

initial program load Process of initializing the device and causing the operating system to start. Initiated through a menu in the Product Manager, this option performs a hardware reset on the active CTP only.

interface Hardware, software, or both, linking systems, programs, or devices.

Internet protocol address A unique string of numbers (in the format xxx.xxx.xxx.xxx) that identifies a device on a network.

interoperability The ability to communicate, execute programs, or transfer data between various functional units over a network.

interswitch link Also known as ISL. Physical E_Port connection between two directors in a fabric.

IP address *See* Internet protocol address.

IPL *See* initial program load.

ISL *See* interswitch link.

L

LIN See link incident.

link Physical connection between two devices on a switched fabric.

link incident Interruption to link due to loss of light or other causes.

LIPS Loop Initialization Primitives.

loopback test Test that checks attachment or control unit circuitry, without checking the mechanism itself, by returning the output of the mechanism as input.

M

managed product A hardware product that can be managed by the CLI. This usually refers to the switch or director that has an established connection to the telnet client. For example, the Intrepid 6064 is a managed product. See also device.

multiswitch fabric A Fibre Channel fabric created by linking more than one director or fabric switching device within a fabric.

N

N_Port See node port.

name server (1) In TCP/IP, a program that translates names from one form into another. Domain name servers (DNS) translate domain names into IP addresses. (2) In Fibre Channel, a server that allows N_Ports to register information about themselves. This information allows N_Ports to discover and learn about one another by sending queries to the Name Server.

network address Name or address that identifies a managed product on a TCP/IP network. The network address can be either an IP address in dotted-decimal notation containing four three-digit octets in the

format xxx.xxx.xxx.xxx), or a domain name (as administered on a customer network).

node In Fibre Channel terminology, node refers to an end device (server or storage device) that is or can be connected to a switched fabric.

node port Physical interface within an end device which can connect to an F_Port on a switched fabric or directly to another N_Port (in point-to-point communications).

O

offline sequence The sequence sent by the transmitting port to indicate that it is offline.

OLS *See* offline sequence.

operating state (director) The operating states are described as follows:

Online - when the director is set online, an attached device can log in to the director if the port is not blocked. Attached devices can communicate with each other if they are configured in the same zone.

Offline - when the director is set offline, all ports are set offline. The director transmits the offline sequence (OLS) to attached devices, and the devices cannot log in to the director.

operating state (port) Valid states are:

- Online, offline, or testing.
- Beaconsing.
- Invalid attachment.
- Link incident or link reset.
- No light, not operational, or port failure.
- Segmented E_Port.

optical fiber connector Hardware component that transfers optical power between two optical fibers or bundles and is designed to be repeatedly connected and disconnected.

out-of-band management Transmission of management information using frequencies or channels other than those routinely used for information transfer.

P

password Unique string of characters known to the computer system and to a user who must specify it to gain full or limited access to a system and to the information stored within it.

path In a network, any route between any two ports.

port Receptacle on a device to which a cable leading to another device can be attached.

port card Field-replaceable hardware component that provides the port connections for fiber cables and performs specific device-dependent logic functions.

port name Name that the user assigns to a particular port through the Product Manager.

preferred domain ID Domain ID that a switch is assigned by the principal switch in a switched fabric. The preferred domain ID becomes the active domain ID except when configured otherwise by the user.

principal switch In a multiswitch fabric, the switch that allocates domain IDs to itself and to all other switches in the fabric. There is always one principal switch in a fabric. If a switch is not connected to any other switches, it acts as its own principal switch.

Product Manager The EFCM application that implements the management user interface for the director or switch.

R

R_A_TOV *See* resource allocation time out value.

redundancy Performance characteristic of a system or product whose integral components are backed up by identical components to which

operations will automatically failover in the event of a component failure. Redundancy is a vital characteristic of virtually all high-availability (24 hr./7 days per week) computer systems and networks.

**resource allocation
time out value**

R_A_TOV is a value used to time out operations that depend on the maximum possible time that a frame could be delayed in a fabric and still be delivered.

S

SAN

See storage area network.

SANpilot interface

With director firmware Version 1.2 (or later) installed, administrators or operators with a browser-capable PC and an Internet connection can monitor and manage the director through an embedded web server interface, called the SANpilot interface. The interface provides a GUI similar to the Product Manager application, and supports director configuration, statistics monitoring, and basic operation.

SBAR

See serial crossbar assembly.

segmented E_Port

An E_Port that has ceased to function as an E_Port within a multiswitch fabric due to an incompatibility between the fabrics that it joins. *See also* expansion port.

SEL

System error light.

**serial crossbar
assembly**

The serial crossbar assembly (SBAR) is responsible for Fibre Channel frame transmission from any director port to any other director port. Connections are established without software intervention.

**Simple Network
Management
Protocol**

A protocol that specifies a mechanism for network management that is complete, yet simple. Information is exchanged between agents, which are the devices on the network being managed, and managers, which are the devices on the network through which the management is done.

SNMP

See Simple Network Management Protocol.

SNMP community	Also known as SNMP community string. SNMP community is a cluster of managed products (in SNMP terminology, hosts) to which the server or managed product running the SNMP agent belongs.
SNMP community name	The name assigned to a given SNMP community. Queries from an SNMP management station to a device running an SNMP agent will only elicit a response if those queries are addressed with the correct SNMP community name.
storage area network	A high-performance data communications environment that interconnects computing and storage resources so that the resources can be effectively shared and consolidated.
subnet mask	Used by a computer to determine whether another computer with which it needs to communicate is located on a local or remote network. The network mask depends upon the class of networks to which the computer is connecting. The mask indicates which digits to look at in a longer network address and allows the router to avoid handling the entire address.
switch priority	Value configured into each switch in a fabric that determines its relative likelihood of becoming the fabric's principal switch.
T	
topology	The logical, physical, or both arrangement of stations on a network.
trap	The unsolicited notification of an event originating from a SNMP managed device and directed to an SNMP network management station.
U	
UPM	<i>See</i> universal port module.
universal port module	A flexible 1 gigabit-per-second or 2 gigabit-per-second module that contains four generic ports (G_Ports).

W

warning message Indication that a possible error has been detected. *See also* error message; information message.

world wide name Eight byte identifier uniquely assigned to a switch or to a node (end device), even on global networks.

WWN *See* world wide name.

Z

zone A set of devices that can access one another. All connected devices may be configured into one or more zones. Devices in the same zone can see each other. Those devices that occupy different zones cannot.

zone member The specification of a device to be included in a zone. A zone member can be identified by the port number of the director to which it is attached or by its world-wide name. In multiswitch fabrics, identification of end-devices and nodes by world-wide name is preferable.

zone set A collection of zones that may be activated as a unit.

zoning Grouping of several devices by function or by location. All devices connected to a connectivity product, such as the director, may be configured into one or more zones. *See also* zone.

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