



# Brocade® Fabric OS

Reference

Version 2.6

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Brocade Communications Systems, Incorporated  
Corporate Headquarters  
1745 Technology Drive  
San Jose, CA 95110

European Headquarters  
29, route de l-Aéroport  
Case Postale 105  
1211 Geneva 15,  
Switzerland  
T: +41 22 799 56 40  
F: +41 22 799 56 41  
europe-info@brocade.com

Asia-Pacific Headquarters  
The Imperial Tower 15th Floor  
1-1-1 Uchisaiwaicho  
Chiyoda-ku, Tokyo 100-0011  
Japan  
T: +81 35219 1510  
F: +81 33507 5900  
apac-info@brocade.com

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# Preface

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The *Fabric OS Reference* manual contains descriptions for the telnet commands used to administer and configure SilkWorm switches.

## About This Guide

This guide provides the following information about Fabric OS:

<b>Chapter 1 Telnet Commands</b>	Provides a detailed description of the telnet commands in the Fabric OS.
<b>Chapter 2 Error Messages</b>	Provides information on error messages, and recovery actions.
<b>Chapter 3 Feature Telnet Commands</b>	Provides a summary of telnet commands that are only available with a specific feature license key.

## Related Publications

Related product information can be found in the following Brocade publications:

- *Brocade Secure Fabric OS User's Guide*
- *Brocade MIB Reference*
- *Brocade Web Tools User's Guide*
- *Brocade Zoning User's Guide*
- *Brocade QuickLoop User's Guide*
- *Brocade Fabric Watch User's Guide*
- *Brocade Distributed Fabrics User's Guide*
- *Brocade SES User's Guide*

Information about fibre channel standards and fibre channel in general can be found on the Fibre Channel Industry Association web site, located at:

<http://www.fibrechannel.com>

# Getting Help

Contact your switch supplier for technical support. This includes hardware and software support, all product repairs, and ordering of spare components.

Be prepared to provide the following information to the support personnel:

- Switch serial number
- Switch worldwide name
- Topology configuration
- Output from the `supportShow telnet` command
- Detailed description of the problem
- Troubleshooting steps already performed

# Getting Software Updates

Contact your switch supplier for software updates and maintenance releases. New switch firmware can be installed from the following host operating systems:

- UNIX
- Windows NT
- Windows 98
- Windows 95

Utility programs to facilitate loading firmware from the listed operating systems, in addition to MIB files for switch management by SNMP, are available at the following URL:

<http://secure.brocade.com/index.html>

They can also be accessed through the following steps:

1. Launch your web browser and enter `http://www.brocade.com`.
2. Click to expand **Partners** in the left margin, then click **Partner Login**.
3. Click **Login Now**.
4. Enter your login and password and click **Login**.
5. Click **MIBs and RSH Utilities** (under **Technical Support** in the left margin).

# Telnet Commands

---

## agtcfgDefault

Reset the SNMP agent configuration to default values.

**Synopsis** agtcfgDefault

**Availability** admin

**Description** Use this command to reset the configuration of the SNMP agent to default values:

- `sysDescr` - The default value is `Fibre Channel Switch`.
- `sysLocation` - The default value is `End User Premise`.
- `sysContact` - The default value is `Field Support`.
- `swEventTrapLevel` - The default value is 0 (off).
- `authTraps` - The default value is 0 (off).
- The IP addresses of the trap recipient for each community defaults to 0.0.0.0 or no trap recipient. The 6 communities are:

Community 1: Secret Code

Community 2: OrigEquipMfr

Community 3: private

Community 4: public

Community 5: common

Community 6: FibreChannel

**Note:** For more information about these SNMP configuration parameters refer to `agtcfgset` command.

**Operands** None.

**Example** In the example below, the **agtcfgDefault** command is run to set the SNMP agent configuration parameters to the default values, then the **agtcfgShow** command is run to verify the default values are set.

```
switch:admin> agtcfgDefault
Committing configuration...done.
agent configuration reset to factory default
switch:admin> agtcfgShow
Current SNMP Agent Configuration
Customizable MIB-II system variables:
    sysDescr = Fibre Channel Switch.
    sysLocation = End User Premise
    sysContact = Field Support.
    swEventTrapLevel = 0
    authTraps = 0 (OFF)
SNMPv1 community and trap recipient configuration:
Community 1: Secret Code (rw)
    No trap recipient configured yet
Community 2: OrigEquipMfr (rw)
    No trap recipient configured yet
Community 3: private (rw)
    No trap recipient configured yet
Community 4: public (ro)
    No trap recipient configured yet
Community 5: common (ro)
    No trap recipient configured yet
Community 6: FibreChannel (ro)
    No trap recipient configured yet
switch:admin>
```

**See Also** agtcfgSet  
agtcfgShow

## agtcfgSet

Modify the SNMP agent configuration.

**Synopsis** agtcfgset

**Availability** admin

**Description** Use this command to modify the configuration of the SNMP agent in the switch. Set the values for the following items:

- `sysDescr` - Specify the switch description (in MIB-II definition). The default value is Fibre Channel Switch.
- `sysLocation` - Specify the location of the switch (in MIB-II). The default value is End User Premise.
- `sysContact` - Specify the contact information for this switch. The default value is Field Support.
- `swEventTrapLevel` - Specify the event trap level in conjunction with an event's severity level. When an event occurs, and if its severity level is at or below the set value (that is, more critical), the SNMP trap, `swEventTrap`, is sent to configured trap recipients. The default value is 0 which means that no `swEventTrap` is sent. Possible values are:

0 - none

1 - critical

2 - error

3 - warning

4 - informational

5 - debug

**Note:** Refer to the `errShow` command for more information.

- `authTrapsEnabled` - Specify whether authorization traps are passed to the trap recipient. The default value is False (off), meaning no messages are sent. A value of True (on) means that authorization trap messages are sent to the community IP addresses configured below. For SNMPv1 and SNMPv2c, this indicates that a request containing a community string is not known to the agent.
- There are six communities, each with a respective trap recipient, supported by the agent. The first three communities are for read-write access (rw) and the last three are for read-only access (ro).

Specify the IP address for each management station:

Community 1: Secret Code - The default value for this trap recipient is 0.0.0.0.

Community 2: OrigEquipMfr - The default value for this trap recipient is 0.0.0.0.

Community 3: private - The default value for this trap recipient is 0.0.0.0.

Community 4: public - The default value for this trap recipient is 0.0.0.0.

Community 5: common - The default value for this trap recipient is 0.0.0.0.

Community 6: FibreChannel - The default value for this trap recipient is 0.0.0.0.

**Operands** None.

**Example** The current value for each item is displayed in brackets. To modify the SNMP configuration values:

```
switch:admin> agtcfgSet
Customizing MIB-II system variables ...
At each prompt, do one of the following:
  o <Return> to accept current value,
  o enter the appropriate new value,
  o <Control-D> to skip the rest of configuration, or
  o <Control-C> to cancel any change.
To correct any input mistake:
  <Backspace> erases the previous character,
  <Control-U> erases the whole line,
  sysDescr: [FC Switch]
  sysLocation: [End User Premise]
  sysContact: [Field Support]
  swEventTrapLevel: (0..5) [3] 4
  authTrapsEnabled (true, t, false, f): [true]
SNMP community and trap recipient configuration:
Community (rw): [Secret Code]
  Trap Recipient's IP address in dot notation: [192.168.1.51]
Community (rw): [OrigEquipMfr]
  Trap Recipient's IP address in dot notation: [192.168.1.26]
Community (rw): [private]
  Trap Recipient's IP address in dot notation: [0.0.0.0]
  192.168.64.88
Community (ro): [public]
  Trap Recipient's IP address in dot notation: [0.0.0.0]
Community (ro): [common]
  Trap Recipient's IP address in dot notation: [0.0.0.0]
Community (ro): [FibreChannel]
  Trap Recipient's IP address in dot notation: [0.0.0.0]
value = 1 = 0x1
switch:admin>
```

**See Also** agtcfgDefault  
agtcfgShow



## agtcfgShow

Display the SNMP agent configuration.

**Synopsis** agtcfgShow

**Availability** All users

**Description** Use this command to display the configuration of the SNMP agent in the switch. The following information is displayed:

- `sysDescr` - Displays the switch description.
- `sysLocation` - Displays the location of the switch.
- `sysContact` - Displays the contact information for this switch.
- `swEventTrapLevel` - Displays the event trap level. Possible values are:
  - 0 - none
  - 1 - critical
  - 2 - error
  - 3 - warning
  - 4 - informational
  - 5 - debug

**Note:** Refer to the **errShow** command for more information.

- `authTraps` - Displays whether authorization traps are passed to the trap recipient. The default value is 0 (off), meaning no messages are sent. A value of 1 (on) means that authorization trap messages are sent to the community IP addresses configured below. For SNMPv1 and SNMPv2c, this indicates that a request containing a community string is not known to the agent.
- There are six communities, each with a respective trap recipient, supported by the agent. The first three communities are for read-write access (rw) and the last three are for read-only access (ro).

For an SNMP Management Station to receive a trap generated by the agent, the admin user must configure a trap recipient IP address of the Management Station.

Community 1: Secret Code - Displays the IP address for this trap recipient.

Community 2: OrigEquipMfr - Displays the IP address for this trap recipient.

Community 3: private - Displays the IP address for this trap recipient.

Community 4: public - Displays the IP address for this trap recipient.

Community 5: common - Displays the IP address for this trap recipient.

Community 6: FibreChannel - Displays the IP address for this trap recipient.

**Note:** For more information about these SNMP configuration parameters refer to **agtcfgset** command.

**Operands** None.

**Example** To display SNMP agent configuration information:

```
switch:admin> agtcfgShow
Current SNMP Agent Configuration
Customizable MIB-II system variables:
    sysDescr = FC Switch
    sysLocation = End User Premise
    sysContact = Field Support.
swEventTrapLevel = 3
    authTraps = 1 (ON)

SNMPv1 community and trap recipient configuration:
Community 1: Secret Code (rw)
    Trap recipient: 192.168.1.51
Community 2: OrigEquipMfr (rw)
    Trap recipient: 192.168.1.26
Community 3: private (rw)
    No trap recipient configured yet
Community 4: public (ro)
    No trap recipient configured yet
Community 5: common (ro)
    No trap recipient configured yet
Community 6: FibreChannel (ro)
    No trap recipient configured yet
```

**See Also** agtcfgDefault  
agtcfgSet

## aliasShow

Display alias server information.

**Synopsis** aliasShow

**Availability** All users

**Description** Use this command to display local alias server information. If there is no local alias group, a message is displayed. If there are multiple entries in the local alias group, they are displayed.

**Note:** This command is not related to the Brocade Zoning feature.

The following fields are displayed:

**Alias ID** Multicast address presented in format FFFBxx, where xx is the name of the multicast group.

**Creator** Fibre channel address ID of Nx\_Port that created alias group.

**Creator token** Alias token provided to map to the alias group; it consists of the following entries:

rb	Routing bits.
type	Upper level application type.
grptype	Alias group type; can only be 10 for multicast.
qlfr	Alias qualifier of group.

**Member list** A list of member address IDs.

**Operands** None.

**Example** To display the entries in the local alias server, enter the following command.

```
switch:admin> aliasShow
The Local Alias Server has 1 entry
Alias ID Creator Token [rb, type, grptype, qlfr] Member List
fffb01 fffffd [40, 05, 10, 60000010 12000069] {021200 0208e2}
```

**See Also** fabricShow  
switchShow

## backSpace

Set or clear alternate backspace character.

**Synopsis** backSpace [mode]

**Availability** all users (display)  
admin (set/clear)

**Description** This command changes the backspace character used by the shell between the default value of BACKSPACE (hex 08) and an alternate value of DEL (hex 7F).

**Operands** This command has the following operand:

mode Specify 0 to use the standard backspace character (BACKSPACE). Specify 1 to use the alternate backspace character (DEL). This operand is optional.

Specify the command with no operand to display the current setting.

**Example** To display the current backspace character and change it to DEL:

```
switch:admin> backSpace
BackSpace character is BACKSPACE (hex 08)
switch:admin> backSpace 1
Committing configuration...done.
BackSpace character is DEL (hex 7F)
```

## bannerSet

Set the banner on the local switch.

**Synopsis** bannerSet [banner]

**Availability** admin

**Description** Use this command to set the banner on the local switch.

The banner is a string of alphanumeric characters. It is displayed whenever a user tries to log into a switch.

The banner can be created using the `banner` operand or by entering the **bannerSet** command without an operand, making the session interactive.

If you enter the banner text using the `banner` operand, the valid length is only 128 characters.

If you enter the banner text using the interactive method, the valid length is 1024 characters. If the banner text length exceeds the maximum allowed, the software truncates the input. To close the banner text string, enter a period at the beginning of a new line.

**Operands** This command has the following operand:

`banner` Specify a text string to be displayed when a user logs in. The banner must be between 1 and 1024 characters. Enter a period on a new line to end the banner text.

**Example** To set a new banner for a switch:

```
switch:admin> bannerSet "My banner"

switch:admin> bannerSet
Please input context of security banner (press "." RETURN at the
beginning of a newline to finish input): Do not log into this
switch if you are not an authorized administrator.
.
switch:admin>
```

**See Also** BannerShow

## bannerShow

Display the banner text.

**Synopsis** bannerShow

**Availability** admin

**Description** Use this command to display the contents of the banner.

**Operands** None.

**Example** To display the banner for a switch:

```
switch:admin> BannerShow
Banner:
Do not log into this switch if you are not an authorized
administrator.
switch:admin>
```

**See Also** BannerSet

## bcastShow

Display broadcast routing information.

**Synopsis**      `bcastShow`

**Availability**    All users

**Description**    Use this command to display the broadcast routing information for all ports in the switch (known to the FSPF path selection/routing task). The broadcast routing information indicates all ports that are members of the broadcast distribution tree (that is, ports that are able to send and receive broadcast frames).

Normally, all F\_Ports and FL\_Ports are members of the broadcast distribution tree. The broadcast path selection protocol selects the E\_Ports that are part of the broadcast distribution tree. The E\_Ports are chosen in such a way to prevent broadcast routing loops.

The broadcast routing information displays as a set of bit maps. Each bit in a bit map represents a port, with the least significant bit representing port 0. If a bit is set to 1, that port is part of the broadcast distribution tree.

The following fields are displayed:

`Group`            Displays the multicast group ID of the broadcast group.

`Member Ports`            Displays a map of all ports in broadcast tree.

`Member ISL Ports`        Displays a map of all E\_Ports in broadcast tree.

`Static ISL Ports`        Reserved.

**Operands**        None.

**Examples**        To display the broadcast routing information for all ports in the switch:

```
switch:admin> bcastShow

Group      Member Ports      Member ISL Ports      Static ISL Ports
-----
256        0x00012083        0x00002080           0x00000000
```

**See Also**        `mcastShow`

`portRouteShow`

**bsn**

Display the Brocade serial number.

**Synopsis** bsn

**Availability** admin

**Description** Use this command to display the Brocade serial number.

**Operands** None.

**Examples** To display the Brocade serial number:

```
switch:admin> bsn
DP000013855
```

**See Also** ssn



## camTest

Functional test of the CAM memory.

**Synopsis** camTest [passcount]

**Availability** admin

**Description** Use this command to verify that Content Addressable Memory (CAM) is functionally correct. The CAM is used by QuickLoop to translate the SID.

**Note:** This command may not be executed on an operational switch. You must first disable the switch using the **switchDisable** command.

**Operands** This command has the following operand:

passcount Specify the number of times to execute this test. The default value is 1. This operand is optional.

**Example** To verify that Content Addressable Memory (CAM) is functionally correct:

```
switch:admin> camTest 2
Running CAM Test ..... passed.
```

**Errors** Below are possible error messages if failures are detected:

```
DIAG-CAMINIT
DIAG-XMIT
DIAG-CAMSID
```

**See Also** centralMemoryTest  
cmemRetentionTest  
cmiTest  
crossPortTest  
portLoopbackTest  
portRegTest  
ramTest  
spinSilk  
sramRetentionTest

## centralMemoryTest

Bit write/read test of the ASIC central memory.

**Synopsis** `centralMemoryTest [passCount, dataType, dataSeed]`

**Availability** admin

**Description** Use this command to verify the address and data bus of the ASIC SRAMs that serve as the central memory.

**Note:** This command may not be executed on an operational switch. You must first disable the switch using the **switchDisable** command.

**Operands** This command has the following operands:

`passCount` Specify the number of times to execute this test.

`dataType` Specify the data type to use when writing the central memory. There are 19 sample data types numbered from 1 to 19. Valid values are 1 to 19. The **dataTypeShow** command lists data types and an example of the data stream.

`dataSeed` Specify the initial seed value used in generating the data pattern. For example, a QUAD\_RAMP pattern with a seed value of 0xdead is as follows: 0xdead, 0xdeae, 0xdeadf, 0xdeb0, ...

Some data types, such as BYTE\_LFSR, do not require a seed value.

If all operands are omitted, the default values are 1 for `passCount`, QUAD\_RAMP for `dataType`, and a random value for `dataSeed`.

**Example** To test the ASIC central memory:

```
switch:admin> centralMemoryTest
Running Central Memory Test ... passed.
```

**Errors** Below are possible error messages if failures are detected:

```
DIAG-TIMEOUT
DIAG-BADINT
DIAG-CMERRTYPE
DIAG-CMERRPTN
```

**See Also**

- `camTest`
- `cmemRetentionTest`
- `portLoopbackTest`
- `portRegTest`
- `ramTest`
- `spinSilk`
- `sramRetentionTest`

## cmemRetentionTest

Data retention test of the central memory SRAMs.

**Synopsis** `cmemRetentionTest [passCount]`

**Availability** `admin`

**Description** Use this command to verify for data retention in the central memory SRAMs in the ASIC.

**Note:** This command can not be executed on an operational switch. You must first disable the switch using the **switchDisable** command.

**Operands** This command has the following operand:

`passCount` Specify the number of times to execute this test. The default value is 1. This operand is optional.

**Example** To run the data retention test on the central memory SRAMS:

```
switch:admin> cmemRetentionTest
Running CMEM Retention Test ... passed.
```

**Errors** Below are possible error messages if failures are detected:

```
DIAG-LCMRS
DIAG-LCMTO
DIAG-LCMEM
```

**See Also** `camTest`  
`centralMemoryTest`  
`cmiTest`  
`crossPortTest`  
`portLoopbackTest`  
`ramTest`  
`spinSilk`  
`sramRetentionTest`

## cmiTest

ASIC to ASIC connection test of the CMI bus

**Synopsis** `cmiTest [passCount]`

**Availability** admin

**Description** Use this command to verify that the multiplexed 4-bit Control Message Interface (CMI) point-to-point connection between two ASICs is functioning properly. Also use it to verify that a message with a bad checksum sets the error and interrupt status bits of the destination ASIC and that a message with a good checksum does not set an error or interrupt bit in any ASIC.

**Note:** This command can not be executed on an operational switch. You must first disable the switch using the **switchDisable** command.

The Test method is displayed below. Complete the following for each source ASIC X and each destination ASIC Y in the switch. Do not complete this test if ASIC X = ASIC Y.

1. Generate the CMI data D.
2. Send data from source X to destination Y.
3. Check destination Y for the following:
  - the capture flag is set.
  - the data is received as expected (D).
  - if a good checksum test, the CMI error bit and the EMI error interrupt status bit are not set.
  - if a bad checksum test, the CMI error bit and the CMI error interrupt status bit are set.
4. Check that all ASICs (other than Y) do not have:
  - the capture flag set.
  - the CMI error bit set.
  - the CMI error interrupt status bit set.

**Operands** This command has the following operand:

`passCount` Specify the number of times to execute this test. The default value is 1. This operand is optional.

**Example** To run the ASIC to ASIC connection test of the CMI bus:

```
switch:admin> cmiTest
Running CMI Test ..... passed.
```

**Errors** Below are possible error messages if failures are detected:

DIAG-CMISA1  
DIAG-CMINOCAP  
DIAG-CMICKSUM  
DIAG-CMIINVCAP  
DIAG-CMIDATA  
DIAG-INTNIL  
DIAG-BADINT

**See Also**

camTest  
centralMemoryTest  
cmemRetentionTest  
crossPortTest  
portLoopbackTest  
portRegTest  
ramTest  
spinSilk  
sramRetentionTest

## configDefault

Restore system configuration to default settings.

**Synopsis** `configDefault`

**Availability** `admin`

**Description** Use this command to reset system configuration to default values.

All configuration parameters, with the following exceptions, are reset to default values:

- Ethernet MAC address, IP address, and subnetmask
- IP gateway address
- License keys
- OEM customizations
- passwords of all user accounts
- SNMP configuration
- System name
- World Wide Name
- BROCADE ZONING configuration

**Note:** Refer to the **configure** command for more information on default values for configuration parameters.

**Note:** Do not run this command on an operational switch. First disable the switch using the **switchDisable** command.

Some configuration parameters are cached by the system. To avoid unexpected switch behavior, reboot the system after executing this command.

**Operands** None.

**Example** To restore the system configuration to default values:

```
switch:admin> configDefault
Committing configuration...done.
```

**See Also** `agtcfgDefault`  
`configure`  
`switchDisable`  
`switchEnable`

## configDownload

Download the switch configuration from a host file.

**Synopsis** `configDownload ["host", "user", "file" [, "passwd"]]`

**Availability** admin

**Description** Use this command to download the switch configuration file from a host system. The configuration file is ASCII text and may have been generated using **configUpload**, or it may have been created by a user to download specific configuration changes.

The download process uses either FTP or the RSHD protocol (TCP service 514).

On Windows NT, the FTP server may have to be installed from the distribution media and enabled, or on Windows NT or Windows 9x, there are several good freeware and shareware FTP servers available. To use RSHD on Windows NT or 9x, two utilities are supplied, RSHD.EXE and CAT.EXE, together with instructions on how to install and run them. The FTP server or RSHD must be running before a download can be initiated.

The command may be invoked without any operands, in which case the user is prompted for input, including choice of FTP or RSHD. If invoked with three operands RSHD is used; otherwise, presence of the password operand selects FTP.

Note that the switch's identity cannot be changed by **configDownload**. These parameters (such as the switch's name and IP address) are ignored. They are the lines in the configuration file which begin with "boot".

Also note that the download process is additive; that is, the lines read from the file are added to the current switch configuration. This enables you to change a single configuration variable by downloading a file with a single line. All other variables remain unchanged.

This is particularly important when downloading a zoning configuration. Since the new zoning information is added to the current configuration, there may not be any conflicts. Typically this command is used to add a consistent change to the current zoning configuration, or to replace the current zoning configuration, in which cases **cfgClear** must be invoked before **configDownload**.

**Operands** This command has the following operands:

<code>host</code>	Specify a host name or IP address in quotation marks; for example, "citadel" or "192.168.1.48". The configuration file is downloaded from this host system. This operand is optional.
<code>user</code>	Specify a user name in quotation marks; for example, "jdoe". This user name is used to gain access to the host. This operand is optional.
<code>file</code>	Specify a file name in quotation marks; for example, "config.txt". Absolute path names may be specified using forward slash (/). Relative path names create the file in the user's home directory on UNIX hosts, and in the directory where the FTP server is running on Windows hosts. This operand is optional.
<code>passwd</code>	Specify a password in quotation marks. If present, the command uses FTP to transfer the file. This operand is optional.

**Example** To download switch configuration from from the server `citadel`, username `jdoue`, and host file name `config.txt`:

```
switch:admin> configDownload "citadel","jdoue","config.txt"  
Committing configuration...done.  
download complete
```

**Errors** Below are possible reasons for a failure of this command:

- The host name is not known to the switch
- The host IP address cannot be contacted
- The user does not have permission on the host
- The user runs a script that prints something at login
- The file does not exist on the host
- The file is not a switch configuration file
- The RSHD or FTP server is not running on the host
- The configuration data contains errors.

**See Also** `configDefault`  
`configUpload`  
`configShow`  
`configure`



## configShow

Display system configuration settings.

**Synopsis** `configShow ["textfilter"]`

**Availability** All users

**Description** Use this command to view system configuration settings set by the **configure** command, as well as the following settings:

- Ethernet MAC address
- NVRAM boot settings

**Operands** This command has the following operand:

`textfilter` Specify a text string, in quotation marks, that limits the output of the command to only those entries that contain the text string. The filter does not apply to the ethernet MAC address and NVRAM data display settings.

**Example** To display system configuration settings:

```
switch:admin> configShow
configshow
Ethernet addresses: 0:60:69:30:15:9c

Nvram datadata: fei(0,0)sun1:/view/silkworm/v2.6
e=192.168.198.75:ffffff00 h=192.168.199.166 g=192.168.199.1 u=slu
tn=switch

diag.postDisable:0
fabric.domain:1
fabric.ops.BBCredit:16
fabric.ops.E_D_TOV:2000
fabric.ops.R_A_TOV:10000
fabric.ops.dataFieldSize:2112
fabric.ops.mode.SeqSwitching:0
fabric.ops.mode.fcProbeDisable:0
fabric.ops.mode.isolate:0
fabric.ops.mode.longDistance:0
fabric.ops.mode.noClassF:0
fabric.ops.mode.pidFormat:0
fabric.ops.mode.sync:0
fabric.ops.mode.unicastOnly:0
fabric.ops.mode.useCsCtl:0
fabric.ops.mode.vcEncode:0
fabric.ops.vc.class.2:2
fabric.ops.vc.class.3:3
fabric.ops.vc.config:0xc0
fabric.ops.vc.linkCtrl:0
fabric.ops.vc.multicast:7
fc4.fcIp.address:0.0.0.0
fc4.fcIp.mask:0.0.0.0

Type <CR> to continue, Q<CR> to stop:
```

**See Also**

- agtcfgShow
- configure
- diagDisablePost
- diagEnablePost
- ipAddrShow
- licenseShow
- syslogdIp

## configUpload

Backup the switch configuration to an ASCII file on a host workstation.

**Synopsis** `configUpload ["host", "user", "file" [, "passwd"]]`

**Availability** admin

**Description** Use this command to upload the switch configuration to a host file.

The upload process uses either FTP or the RSHD protocol (TPC service 514). Both of these services are widely available on UNIX hosts, but less so on Windows hosts. On Windows NT, the FTP server may have to be installed from the distribution media and enabled, or on Windows NT or Windows 9x, there are several freeware and shareware FTP servers available.

The two utilities supplied for RSHD.EXE and CAT.EXE, currently do not support uploads, only downloads. Therefore, in a Windows environment, FTP must be used, and the FTP server must be running before an upload can occur.

If the **configUpload** command is entered without operands, the user is prompted for input, including choice of FTP or RSHD. If invoked with three operands, RSHD is used; otherwise, presence of the fourth operand (password) selects FTP.

**Operands** This command has the following operands:

host	Specify a host name or IP address in quotation marks; for example, "citadel" or "192.168.1.48". The configuration file is downloaded from this host system. This operand is optional.
user	Specify a user name in quotation marks; for example, "jdoe". This user name is used to gain access to the host. This operand is optional.
file	Specify a file name in quotation marks; for example, "config.txt". Absolute path names may be specified using forward slash (/). Relative path names create the file in the user's home directory on UNIX hosts, and in the directory where the FTP server is running on Windows hosts. This operand is optional.
passwd	Specify a password in quotation marks. If present, the command uses FTP to transfer the file. This operand is optional.

**Example** To upload a configuration file using FTP from host `citadel`, using account `jdoe`, and a configuration file `config.txt`:

```
swd5:admin> configUpload "citadel", "jdoe", "config.txt", "passwd"
upload complete
switch:admin>
```

If you enter the command with no operands, you are prompted for the appropriate values:

```
switch:admin> configUpload
Server Name or IP Address [citadel]: 192.168.15.42
User Name [none]: user21
File Name [config.txt]: config-switch.txt
Protocol (RSHD or FTP) [FTP]: ftp
Password: xxxxxx
upload complete
switch:admin>
```

**Errors** The upload can fail for several reasons:

- The host name is not known to the switch
- The host IP address cannot be contacted
- The user does not have permission on the host
- The user runs a script that prints something at login
- The RSHD or FTP server is not running on the host

**See Also** configDefault  
configDownload  
configShow  
configure

## configure

Modify system configuration settings.

**Synopsis**      `configure`

**Availability**    `admin`

**Description**    Use this command to change the following system configuration settings:

- Fabric parameters
- Virtual Channel settings
- Switch Operating Mode
- Zoning Operation parameters
- RSCN Transmission Mode
- NS Operation Parameters
- Arbitrated Loop parameters
- System services
- Portlog events enable

**Note:**    Do not run this command on an operational switch. First disable the switch using the **switchDisable** command.

The **configure** command is navigated using a series of menus. Top level menus, and associated submenus consist of a text prompt, a list of acceptable values, and a default value (in brackets).

Use the following options to control input:

Return            When entered at a prompt with no preceding input, accepts the default value (if applicable) and moves to the next prompt.

Interrupt (control-C)            Aborts the command immediately and ignores all changes made. This keystroke is common on many computers, but can be different on your system.

End-of-file (control-D)            When entered at a prompt with no preceding input, terminates the command and saves changes made. This keystroke is common on many computers, but may be different on your system.

### ***Fabric Parameters***

There are a number of settings which control the overall behavior and operation of the Fabric. Some of these values, such as the Domain, are assigned automatically by the Fabric and may differ from one switch to another in the fabric. Other parameters, such as the BB credit, can be changed for specific applications or operating environments, but must be in agreement among all switches to allow formation of the fabric.

The Fabric parameters are as follows:

**Table 1-1** Configure Command Fabric Parameters

Field	Default	Range
Domain	1	1..239
BB Credit	16	1 to 27
R_A_TOV	10000	4000..120000
E_D_TOV	2000	1000 to 5000
Data Field Size	2112	256 to 2112
Sequence Level Switching	0	0 or 1
Disable Device Probing	0	0 or 1
Suppress Class F Traffic	0	0 or 1
SYNC IO mode	0	0 or 1
VC Encoded Address Mode	0	0 or 1
Core Switch PID Format	0	0 or 1
Per-frame Route Priority	0	0 or 1
Long Distance Fabric	0	0 or 1

Descriptions of the switch fabric setting fields are as follows:

Domain	The Domain number uniquely identifies the switch in a Fabric. This value is automatically assigned by the Fabric OS if a value is not set by the admin user, or if the admin user set value conflicts with the Domain ID of another switch in the fabric. The range of valid values varies depending on the switch model and other system parameter settings (refer to VC Encoded Address Mode).
BB Credit	The buffer-to-buffer (BB) credit represents the number of buffers available to attached devices for frame receipt. The range of allowed values varies depending on other system settings (see Unicast-only Operation).
R_A_TOV	The Resource Allocation Time Out Value (R_A_TOV) is displayed in milliseconds. This variable works with the variable E_D_TOV to determine switch actions when presented with an error condition.  Allocated circuit resources with detected errors are not released until the time value has expired. If the condition is resolved prior to the time out, the internal time out clock resets and waits for the next error condition.
E_D_TOV	Error Detect Time Out Value (E_D_TOV) is displayed in milliseconds. This timer is used to flag a potential error condition when an expected response is not received (an acknowledgment or reply in response to packet receipt, for example) within the set time limit. If the time for an expected response exceeds the set value, then an error condition occurs.

#### Data Field Size

The data field size specifies the largest possible value, in bytes, and advertises this value to other switches in the fabric during construction of the fabric as well as to other devices when they connect to the fabric. Setting this to a value smaller than 2112 may result in decreased performance.

#### Sequence Level Switching

When Sequence Level Switching is set to 1, frames of the same sequence from a particular source are transmitted together as a group. When this feature is set to 0, frames are transmitted interleaved among multiple sequences.

Under normal conditions, Sequence Level Switching should be disabled for better performance. However, some host adapters have performance issues when receiving interleaved frames from multiple sequences. When there are such devices attached to the fabric, Sequence Level Switching should be enabled.

#### Disable Device Probing

When Disable Device Probing is set to 1, devices that do not register with the Name Server are not present in the Name Server data base. Set this mode only if the switch N\_Port discovery process (PLOGI, PRLI, INQUIRY) causes an attached device to fail.

#### Suppress Class F Traffic

When this mode is set to 1, all class F interswitch frames are transmitted as class 2 frames. This is to support remote fabrics which involve ATM gateways which don't support class F traffic.

#### SYNC IO mode

When Sync IO mode is set to 1, FSPF frames are sent in synchronous mode (expecting ACKs back from the other side for every frame) which helps in detecting the failures in the link between the ATM gateways in remote fabrics.

#### VC Encoded Address Mode

When VC Encoded Address Mode is set to 1, frame source and destination address utilize an address format compatible with Silkworm 1000 switches. Set this mode only if the fabric includes this type of switch. VC Encoded Address Mode and Core Switch PID Format are mutually exclusive. They cannot both be enabled at the same time.

#### Core Switch PID Format

This is used to set the 256 port PID format that is used for core switches. This option enables single Domain port density higher than 16. VC Encoded Address Mode and Core Switch PID Format are mutually exclusive. They cannot both be enabled at the same time.

When interoperability mode is enabled, the "core switch PID format" parameter is set automatically. This enables a v2.6 switch to work with other manufacturer's switches, as well as with core Brocade switches that have more than 16 ports. If a v2.6 switch needs to be in the same fabric with other manufacturer's switches as well as with other Brocade switches that do not support 256-port PID format, that is, those before v2.4.1F, the "core switch PID format" parameter can be turned off using the **configure** command after the **interopMode** command is used to enable interoperability.

When interoperability mode is disabled, the "core switch PID format" parameter is automatically set to the opposite of the "VC Encoded Address Mode" parameter value. These two parameters are mutually exclusive and should not both be enabled. Make sure they are not both enabled inadvertently using the **configure** command.

There is one case where both of these parameters need to be disabled. This is when a v2.6 switch is in the same fabric with a series 2000 switch running a Fabric OS release before v2.4.1F. Switches prior to v2.4.1F do not support "core switch PID format".

#### Per-frame Route Priority

In addition to the eight virtual channels used in frame routing priority, support is also available for per-frame based prioritization when this value is set. When Per-frame Route Priority is set to 1, the virtual channel ID is used in conjunction with a frame header to form the final virtual channel ID.

#### Long Distance Fabric

When this mode is set to 1, ISLs in a fabric can be up to 100Km long. The exact distance level is determined by the per-port configuration on the E\_Ports of each ISL. Both E\_Ports in an ISL (that is each port at the end of a long distance cable) must be configured to run the same long distance level, otherwise, the fabric will be segmented. The Extended Fabric License is required to set this mode.

## Virtual Channel Settings

The switch enables fine tuning for a specific application, by configuring the parameters for eight virtual channels. The first two virtual channels are reserved for switch internal functions and are not available for modification.

The default virtual channel settings have already been optimized for switch performance. Changing the default values can improve switch performance, but can also degrade performance. Do not change these settings without fully understanding the effects of the changes.

The Virtual Channel Setting fields are as follows:

**Table 1-2** Configure Command Virtual Channel Settings

Field	Default	Range
VC Priority 2	2	2 to 3
VC Priority 3	2	2 to 3
VC Priority 4	2	2 to 3
VC Priority 5	2	2 to 3
VC Priority 6	3	2 to 3
VC Priority 7	3	2 to 3

A description of the Virtual Channel Setting fields are as follows:

#### VC Priority

Specifies the class of frame traffic (2 though 7) given priority for a Virtual Channel.



## Switch Operating Mode

The Switch Operating Mode fields are as follows:

### Interoperability Mode

Interoperability Mode enables Brocade switches to be used in a fabric with other manufacturer's switches. Do not modify this parameter, use the **interopMode** command to enable or disable interoperability.

## Zoning Operation Parameters

The Zoning Operation Parameter fields are as follows:

### Standard Mode

Specify 1 to force the switch to issue interswitch traffic conforming to FCSW, or specify 0 to enable proprietary interswitch traffic. The default value is 0. This value must be set to 1 for interoperability.

### Enable TranactZoneManagement

Specify 1 to enable this mode or specify 0 to disable this mode. When this mode is enabled, if two configuration transactions are simultaneously in progress on different switches, then the first switch to update the configuration (issue the **cfgSave**, **cfgEnable**, or **cfgDisable** command) automatically aborts the transaction on the other switch. This mode is enabled (1) by default.

### Disable NodeName Zone Checking

Specify 1 to disable using Node WWN when specifying nodes in the zone database, or specify 0 to enable using Node WWN when specifying nodes in the zone data. The default value is 1. This value must be set to 1 for interoperability.

### Default Access when zoning is not active

Specify 0 for no access when zoning is not active, specify 1 to select all access when zoning is not active.

## RSCN Transmission Mode

The RSCN Transmission Mode fields are as follows:

### End-device RSCN Transmission Mode

Specify 0 for RSCN with single PID, 1 for RSCN with multiple PIDs, or 2 Fabric RSCN.

## NS Operation Parameters

The NS Pre-zoning Mode fields are as follows:

### Pre-zoned responses Mode

Specify 0 for Standard Mode, or 1 for Pre-zoning On.

### Inter-switch NS entry format

Specify 0 for GS-3 standard format, or 1 for Always small entry. This parameter must be enabled when configuring Interoperability on fabrics that contain Brocade switches with v2.3 or v2.5 firmware. In such a case, all switches in the fabric must have this parameter enabled.

## Arbitrated Loop Settings

The Arbitrated Loop Setting fields are as follows:

**Table 1-3** Configure Command Arbitrated Loop Settings

Field	Default	Range
Send FAN frames?	1	0 or 1
Always send RSCN?	0	0 or 1
Enable CLOSE on OPEN received?	0	0 or 1

Send FAN frames?

Specifies that fabric address notification (FAN) frames be sent to public loop devices to notify them of their node ID and address. When set to 1, frames are sent; when set to 0 frames are not sent.

Always send RSCN?

Following the completion of loop initialization, a remote state change notification (RSCN) is issued when FL\_Ports detect the presence of new devices or the absence of pre-existing devices. When set, a RSCN is issued upon completion of loop initialization, regardless of the presence or absence of new or preexisting devices.

Enable CLOSE on OPEN received?

If this is set, a CLS is returned immediately to an OPN if no buffers are available. This is required for TachLite.

## System Services

The System Services fields are as follows:

**Table 1-4** Configure Command System Services Parameters

Field	Default	Range
rstatd	Off	On/Off
rusersd	Off	On/Off
rapid	On	On/Off
Disable RLS probing	On	On/Off

Descriptions of the system service setting fields are as follows:

**rstatd** Dynamically enables or disables a server that returns information about system operation information through remote procedure calls (RPC). The protocol provides for a wide-range of system statistics; however, only ethernet interface statistics (see **ifShow**) and system up time (see **uptime**) are supported.

The retrieval of this information is supported by a number of operating systems which support RPC. Most UNIX-based systems (HP-UX, Irix, Linux, Solaris, etc.) use the **rup** and **rsysinfo** commands to retrieve the information. See your local system documentation for the appropriate usage of these or equivalent commands.

**rusersd** Dynamically enables or disables a server that returns information about the user logged into the system through remote procedure calls (RPC). The information returned includes user login name, the system name, login protocol or type, login time, idle time, and remote login location (if applicable).

The retrieval of this information is supported by a number of operating systems which support RPC. On most UNIX-based systems (HP-UX, Irix, Linux, Solaris, etc.) the command to retrieve the information is **rusers**. See your local system documentation for the appropriate usage of this or equivalent command.

**rapid**

Dynamically enables or disables a service that handles RPC requests for the API server.

**Disable RLS probing**

This disables Read Link Error Status probing of the ALPAs.

## ***Portlog Events Enable***

Use these parameters to specify which events create an entry in the port log. The Portlog Events fields are as follows:

**Table 1-5** Configure Command Portlog Events parameters

<b>Field</b>	<b>(Valid Values) Default Value</b>
start: a switch start or re-start event	(on, off): [on]
disable: a port is disabled	(on, off): [on]
enable: a port is enabled	(on, off): [on]
ioctl: a port I/O control is executed	(on, off): [on]
Tx: a frame is transmitted	(on, off): [on]
Tx1: a frame is transmitted, class 1	(on, off): [on]
Tx2: a frame is transmitted, class 2	(on, off): [on]
Tx3: a frame is transmitted, class 3	(on, off): [on]
Rx: a frame is received	(on, off): [on]
Rx1: a frame is received, class 1	(on, off): [on]
Rx2: a frame is received, class 2	(on, off): [on]
Rx3: a frame is received, class 3	(on, off): [on]
stats: port status or statistics	(on, off): [on]
scn: a state change notification	(on, off): [on]
pstate: a port changes physical state	(on, off): [on]
reject: a received frame is rejected	(on, off): [on]
busy: a received frame is busied	(on, off): [on]
ctin: a CT based request is received	(on, off): [on]
ctout: a CT based response is transmitted	(on, off): [on]

**Table 1-5** Configure Command Portlog Events parameters

Field	(Valid Values) Default Value
errlog: a message is added to the error log	(on, off): [on]
loopscn: a loop state change notification	(on, off): [on]
create: a task is created	(on, off): [on]
debug: generic debug info	(on, off): [on]
nbrfsm: neighbor state transition	(on, off): [on]
timer: timer	(on, off): [on]
nsRemQ: inter-sw NS query	(on, off): [on]
nsRemR: inter-sw NS response	(on, off): [on]
rscn: RSCN	(on, off): [on]

**Operands** None.

**Example** To set the configuration parameters for a switch:

```
switch:admin> configure
Configure...

Fabric parameters (yes, y, no, n): [no] yes

Domain: (1..239) [1]
BB credit: (1..27) [16]
R_A_TOV: (4000..120000) [10000]
E_D_TOV: (1000..5000) [2000] 5000
Data field size: (256..2112) [2112]
Sequence Level Switching: (0..1) [0]
Disable Device Probing: (0..1) [0]
Suppress Class F Traffic: (0..1) [0] 1
SYNC IO mode: (0..1) [0]
VC Encoded Address Mode: (0..1) [0] 1
Core Switch PID Format: (0..1) [0]
Per-frame Route Priority: (0..1) [0]
Long Distance Fabric: (0..1) [0]

Virtual Channel parameters (yes, y, no, n): [no] yes

VC Priority 2: (2..3) [2]
VC Priority 3: (2..3) [2]
VC Priority 4: (2..3) [2]
VC Priority 5: (2..3) [2]
VC Priority 6: (2..3) [3]

Switch Operating Mode (yes, y, no, n): [no]
Zoning Operation parameters (yes, y, no, n): [no]
RSCN Transmission Mode (yes, y, no, n): [no]
Arbitrated Loop parameters (yes, y, no, n): [no]
System services (yes, y, no, n): [no]
Portlog events enable (yes, y, no, n): [no]
Committing configuration...done.
switch:admin>
```

**See Also** configDefault  
configShow  
ifShow  
ipAddrSet  
syslogdIp  
uptime

## crossPortTest

Functional test of port M->N path.

**Synopsis** `crossPortTest [passCount, singlePortAlso]`

**Availability** admin

**Description** Use this command to verify the functional operation of the switch. This command verifies operation by sending frames from port M's transmitter and looping the frames back through an external fiber cable into another port N's receiver. This exercises all the switch components from the main board to the GBIC, from the GBIC to the fiber cable, from the fiber cable to the GBIC, and from the GBIC back to the main board.

The cables can be connected to any port combination as long as the cables and GBICs connected are of the same technology - a short wavelength GBIC port is connected to another short wavelength GBIC port using a short wavelength cable, a long wavelength port is connected to a long wavelength port, and a copper port is connected to a copper port.

For complete testing, ports connected should be from different ASICs. Ports 0-3 are assigned to ASIC 0, ports 4-7 are assigned to ASIC 1, etc. A connection from port 0 to port 15 exercises the transmit path between ASICs. A connection from port 0 to port 3 tests only the internal transmit path in ASIC 0.

Only one frame is transmitted and received at a given time and the port LEDs flicker green while the test is running.

The test method is as follows:

1. Determine port connections.
2. Enable ports for cabled loopback mode.
3. Create a frame F with a maximum data size (2112 bytes).
4. Transmit frame F through port M.
5. Pick up the frame from its cross connected port N. Complain if port other than N actually received the frame.
6. Check the 8 statistic error counters for nonzero values:
 

```
ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out,
BadOrdSet, DiscC3
```
7. Check the transmit, receive or class 3 receiver counters to see if they are stuck at some value.
8. Check that the number of frames received is equal to the number of frames transmitted.
9. Repeat steps 3 through 8 for all ports present until the number of frames (or `passCount`) requested is reached or all ports are marked bad.

At each pass, the frame is created from a different data type. If seven passes are requested, seven different data types are used in the test. If eight passes are requested, the first seven frames use unique data types, and the eighth is the same as the first. The seven data types are:

1. CSPAT: `0x7e, 0x7e, 0x7e, 0x7e, ...`
2. BYTE\_LFSR: `0x69, 0x01, 0x02, 0x05, ...`
3. CHALF\_SQ: `0x4a, 0x4a, 0x4a, 0x4a, ...`

4. QUAD\_NOT: 0x00, 0xff, 0x00, 0xff, ...
5. CQTR\_SQ: 0x78, 0x78, 0x78, 0x78, ...
6. CRPAT: 0xbc, 0xbc, 0x23, 0x47, ...
7. RANDOM: 0x25, 0x7f, 0x6e, 0x9a, ...

One of three following modes can be activated; the test produces different results for each mode:

- switchEnable/switchDisable mode
- singlePortAlso mode
- GBIC mode

### ***switchEnable switchDisable Mode***

This mode can be run in one of two states, ONLINE or OFFLINE.

In the ONLINE state, the switch is enabled prior to executing the test. In this state, only ports that are cable loopbacked to ports from the same switch are tested. Ports connected outside of the switch are ignored.

To run, at least one port (if `singlePortAlso` is active) or two ports (if `singlePortAlso` is not active) must be cable loopbacked to each other. If this criteria is not met, the message below is sent to the telnet shell:

```
Need at least one port(s) connected to run this test
(singlePortAlso active)
```

or:

```
Need at least two port(s) cross-connected to run this test
(singlePortAlso not active)
```

The following message appears in the front panel display:

```
Need at least one port(s)
connected first
(singlePortAlso active)
```

or:

```
Need at least two port(s)
cross-connected first.
(singlePortAlso not active)
```

In the OFFLINE state, the switch is disabled prior to executing the test. In this state, it is assumed that all ports (see GBIC mode) are cable loopbacked to similar ports in the same switch. If one or more ports are not connected, the test aborts.

The test determines which port is connected to which port transmitting frames. If any ports are not properly connected (improperly seated GBICs or cables, bad GBICs or cables, or improper connection of SWL to LWL, etc.), the message below is sent to the telnet shell:

```
One or more ports is not active, please double check fibres on
all ports.
```

The following message displays on the front panel:

```
One or more ports not cabled.
```

## ***singlePortAlso Mode***

Specify `singlePortAlso` mode by executing `crossPortTest` with a value of 1 for the second argument:

```
switch:admin> crossPortTest 0, 1
```

In this mode, a port can be cable loopbacked to itself (port M is connected to port M) in addition to being cross connected (port M is connected to port N). This mode can be used to isolate improperly functioning ports.

## ***GBIC Mode***

Activate GBIC mode by executing the following command prior to executing **crossPortTest**:

```
switch:admin> setGbicMode 1
```

When activated, only ports with GBICs present are tested by **crossPortTest**. For example, if only port 0 and port 3 contain GBICs, **crossPortTest** limits testing to port 0 and port 3.

The state of GBIC mode is saved in flash memory and it remains active (even after reboots or power cycles) until it is disabled as follows:

```
switch:admin> setGbicMode 0
```

For example, disable the switch, set the GBIC mode to 1, and execute `crossPortTest` with `singlePortAlso` activated and the **crossPortTest** to limit testing to:

```
only ports containing GBICs
that _all_ GBIC ports that are cable loopbacked
ports connected to themselves (single port connections)
```

Because this test includes the GBIC and the fiber cable in the test path, use the results from this test, in conjunction with the results from the **portLoopbackTest** and the **spinSilk** test to determine those switch components that are not functioning properly.

### **Operands**

This command has the following operands:

`passCount` Specify the number of times (or number of frames per port) to execute this test. If omitted, the default value is 0xffffffffe.

`singlePortAlso` Specify 1 to connect port N to itself (port N->N).



**Example** To execute a functional test of port M->N path 100 times:

```
switch:admin> crossPortTest 100
Running Cross Port Test .....
One moment please ...
switchName:      switch
switchType:      2.2
switchState:     Testing
switchRole:      Disabled
switchDomain:    1 (unconfirmed)
switchId:        fffc01
switchWwn:       10:00:00:60:69:00:73:71
port 0: cu      Testing      Loopback->15
port 1: sw      Testing      Loopback->11
port 2: sw      Testing      Loopback->6
port 3: lw      Testing      Loopback->4
port 4: lw      Testing      Loopback->3
port 5: sw      Testing      Loopback->8
port 6: sw      Testing      Loopback->2
port 7: sw      Testing      Loopback->12
port 8: sw      Testing      Loopback->5
port 9: sw      Testing      Loopback->14
port 10: sw     Testing      Loopback->13
port 11: sw     Testing      Loopback->1
port 12: sw     Testing      Loopback->7
port 13: sw     Testing      Loopback->10
port 14: sw     Testing      Loopback->9
port 15: cu     Testing      Loopback->0
passed.
```

**Errors** Below are possible error messages if failures are detected:

```
DIAG-INIT
DIAG-PORTDIED
DIAG-XMIT
DIAG-TIMEOUT
DIAG-ERRSTAT
DIAG-STATS
DIAG-PORTWRONG
DIAG-DATA
```

**See Also**

- camTest
- portLoopbackTest
- portRegTest
- ramTest
- spinSilk
- sramRetentionTest

## dataTypeShow

Displays sample data streams types used in some diagnostic commands.

**Synopsis** dataTypeShow

**Availability** All users.

**Description** Displays sample data streams types used in diagnostic commands. There are 19 different sample data types. The command displays an example of each data stream.

**Example** Display the types of sample data streams you can use with diagnostics:

```
switch:admin> datatypeshow

Pattern      type  example
Byte Fill    1     00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Word Fill    2     0000 0000 0000 0000 0000 0000 0000 0000
Quad Fill    3     00000000 00000000 00000000 00000000
Byte Not     4     00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff
Word Not     5     0000 ffff 0000 ffff 0000 ffff 0000 ffff
Quad Not     6     00000000 ffffffff 00000000 ffffffff
Byte Ramp    7     00 01 02 03 04 05 06 07 08 09 0a 0b 0c 0d 0e 0f
Word Ramp    8     0000 0001 0002 0003 0004 0005 0006 0007
Quad Ramp    9     00000000 00000001 00000002 00000003
Byte LFSR    10    69 01 02 05 0b 17 2f 5e bd 7b f6 ec d8 b0 60 c0
Random       11    62 39 29 18 08 01 e8 d9 c9 ba aa 9b 8b 84 94 a5
CRPAT        12    bc bc 23 47 6b 8f b3 d7 fb 14 36 59 bc bc 23 47
CSPAT        13    7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e
CHALF_SQ     14    4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a
CQTR_SQ      15    78 78 78 78 78 78 78 78 78 78 78 78 78 78
RDRAM_PAT    16    ff00ff00 ff00ff00 ff00ff00 ff00ff00
jCRPAT       17    be d7 23 47 6b 8f b3 14 5e fb 35 59 be d7 23 47
jCJTPAT      18    7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e
jCSPAT       19    7f7f7f7f 7f7f7f7f 7f7f7f7f 7f7f7f7f
switch:admin>
```

**See Also** centralMemoryTest

## date

Display or set system date and time.

**Synopsis**     date [ "newDate" ]

**Availability**   All users (display)  
                  admin (set)

**Description**   Use this command with no operands to display date and time. Use the `newdate` operand to set the date and time. Date and time are specified as a quoted string in the format:

`"mmd dhmm yy"`

where:

*mm* is the month, valid values are 01-12

*dd* is the date, valid values are 01-31

*hh* is the hour, valid values are 00-23

*mm* is minutes, valid values are 00-59

*yy* is the year, valid values are 00-99

Year values greater than 69 are interpreted as 1970-1999, year values less than 70 are interpreted as 2000-2069.

The date function does not support daylight saving time or time zones.

All switches maintain current date and time in non-volatile memory. Date and time are used for logging events. Switch operation does not depend on the date and time; a switch with an incorrect date value still functions properly.

**Operands**     This command has the following operand:

`newDate`       Specify the new date and time in quotation marks. This operand is optional.

**Example**       To display the current date and time, then change it to Feb 27 12:30:00 2001:

```
switch:admin> date
Fri Jan 29 17:01:48 1999
switch:admin> date "0227123001"
Thu Feb 27 12:30:00 2001
```

**See Also**     errLogShow  
                 portLogShow  
                 uptime  
                 tsTimeZone

## diagClearError

Clear the `diag` software flag to allow for retest.

**Synopsis** `diagClearError [port]`

**Availability** admin

**Description** Use this command to clear the `diag` software flag that indicates whether a port is BAD or OK. The current flag settings are displayed by using the **diagShow** command. This command resets the flag to allow the bad port to be retested; otherwise the test skips the port.

This command does not clear the error log entry. Instead, it generates the `DIAG-CLEAR_ERR` message for each port software flag cleared. For example:

```
0x10f9d560 (tShell): Apr  9 08:35:50
      Error DIAG-CLEAR_ERR, 3,
Pt13 (Lm3) Diagnostics Error Cleared
Err# 0001
```

**Operands** This command has the following operand:

`port` Specify the port where you want to reset the `diag` software flag. The default (if no operand is specified) is to clear all bad port flags. This operand is optional.

**Example** To clear the **diag** software flag:

```
switch:admin> diagClearError
0x10f9d5e0 (tShell): Apr  6 13:25:36
      Error DIAG-CLEAR_ERR, 3,
Pt7 (Lm1) Diagnostics Error Cleared
Err# 0001
```

**See Also** `diagShow`

## diagDisablePost

Disable POST execution at reboot.

**Synopsis** `diagDisablePost`

**Availability** `admin`

**Description** Use this command to disable Power On Self Test (POST) execution at switch reboot. This mode is saved in flash memory and POST remains disabled until it is enabled using the **diagEnablePost** command.

A switch rebooted without POST enabled issues a DIAG-POSTSKIPPED error message:

```
0x10fc0c10 (tSwitch): Apr  6 13:24:42
      Error DIAG-POST_SKIPPED, 3,
      Skipped POST tests: assuming all ports are healthy,
      Err# 0004
```

POST includes the following tests:

- `ramTest` - Bit write / read test of SDRAMs in the switch.
- `portRegTest` - Bit write / read test of the ASIC SRAMs and registers.
- `centralMemoryTest` - Bit write / read test of the ASIC central memory.
- `cmiTest` - ASIC to ASIC connection test of the CMI bus.
- `camTest` - Functional test of the CAM memory.
- `portLoopbackTest` - Functional test of switch by sending and receiving frames from the same port.

For more information about these tests, refer to the individual command descriptions.

**Note:** The cold boot (power reset) runs the long `ramTest` while the warm boot (software reset) runs the short `ramTest`.

**Operands** `None`.

**Example** To disable the POST during future power ups:

```
switch:admin> diagDisablePost
Committing configuration...done.
On next reboot, POST will be skipped.
```

**See Also** `diagEnablePost`

## diagEnablePost

Enable POST execution at next reboot.

**Synopsis** `diagEnablePost`

**Availability** `admin`

**Description** Use this command to enable Power On Self Test (POST) execution at the next switch reboot. This mode is saved in flash memory and POST remains enabled until it is disabled using the **diagDisablePost** command.

POST includes the following tests:

- `ramTest` - Bit write / read test of SDRAMs in the switch.
- `portRegTest` - Bit write / read test of the ASIC SRAMs and registers.
- `centralMemoryTest` - Bit write / read test of the ASIC central memory.
- `cmiTest` - ASIC to ASIC connection test of the CMI bus.
- `camTest` - Functional test of the CAM memory.
- `portLoopbackTest` - Functional test of switch by sending and receiving frames from the same port.

For more information about these tests, refer to the individual command descriptions.

**Note:** The cold boot (power reset) runs the long `ramTest` while the warm boot (software reset) runs the short `ramTest`.

**Operands** None.

**Example** To enable the POST during future power ups:

```
switch:admin> diagEnablePost
Committing configuration...done.
On next reboot, POST will be executed.
```

**See Also** `camTest`  
`centralMemoryTest`  
`cmiTest`  
`diagDisablePost`  
`portLoopbackTest`  
`portRegTest`  
`ramTest`

## diagHelp

Display available diagnostic help commands.

**Synopsis**     diagHelp

**Availability**   All users

**Description**   Use this command to display a list of the diagnostic help commands for troubleshooting switch problems.

**Operands**     None.

**Example**       To display diagnostic help commands:

```
switch:admin> diaghhelp

ramTest           System DRAM diagnostic
portRegTest       Port register diagnostic
centralMemoryTest Central memory diagnostic
cmiTest           CMI bus connection diagnostic
camTest           Quickloop CAM diagnostic
portLoopbackTest Port internal loopback diagnostic
sramRetentionTest SRAM Data Retention diagnostic
cmemRetentionTest Central Mem Data Retention diagnostic
crossPortTest     Cross-connected port diagnostic
spinSilk          Cross-connected line-speed exerciser
diagClearError    Clear diag error on specified port
diagDisablePost   Disable Power-On-Self-Test
diagEnablePost    Enable Power-On-Self-Test
setGbicMode       Enable tests only on ports with GBICs
setSp1bMode       Enable 0=Dual, 1=Single port LB mode
supportShow       Print version, error, portLog, etc.
diagShow          Print diagnostic status information
parityCheck       Dram Parity 0=Disabled, 1=Enabl
spinFab           ISL link diagnostic.
loopPortTest      L-Port cable loopback diagnostic.

switch:admin>
```

## diagShow

Print diagnostic results since the last boot.

**Synopsis** `diagShow [nSeconds]`

**Availability** All users

**Description** Use this command to print the following information generated since the last switch reboot:

- State of all ports in the switch resulting from diagnostics run since the last reboot. Ports that passed diagnostic testing are marked OK. Ports that failed one or more diagnostic tests are marked BAD.
- Current state of ports. Active ports are UP and inactive ports are DN.
- Frame counts for active ports - the number of frames transmitted is `frTx` and the number of frames received is `frRx`.

The “LLI\_errs” is the total of the port's 8 statistic error counters: `ENC_in`, `CRC_err`, `TruncFrm`, `FrmTooLong`, `BadEOF`, `Enc_out`, `BadOrdSet`, `DiscC3`.

- State of central memory based on the results of diagnostics run since the last reboot. OK if previous `centralMemoryTest` executions passed; FAULTY if the switch failed **centralMemoryTest**.
- Total diagnostic frames transmitted and received since last reboot.

The totals represent the cumulative number of frames transmitted and received by the diagnostic functional tests (**portLoopbackTest**, **crossPortTest**, or **spinSilk** for the transmitted count only) for all ports since the last reboot. (If the switch is rebooted with POST disabled, **diagShow** indicates the total as 0.)

The transmitted and received values may not always be the same; for example, they are not be the same if an error occurred in one of the ports during one of the tests above.

This command may also be executed by using the `s` (Stats) option of the QCSL diag prompt which is generated when a diagnostic test is keyboard interrupted.

It can also be looped by specifying the `nseconds` operand. This operand enables you to specify a repeat interval for this command. If a repeat interval is specified the command continues to execute until interrupted. For example **diagShow 4** executes **diagShow** every four seconds unless stopped by a keyboard interrupt.

Also use this command to isolate a bad GBIC. A changing “LLI\_errs” value prefixed by “\*\*\*” indicates a port is continuing to detect errors.

**Operands** This command has the following operand:

`nSeconds` Specify the repeat interval (in seconds) between executions of **diagShow**. If a repeat interval is specified the command continues to execute until interrupted. If this operand is not used the default is to print the information once. Valid values are from 1 to 2\*\*32. This operand is optional.



**Example** To print the diagnostic results since the last boot.

```
switch:admin> diagShow

Diagnostics Status:  Wed Apr 5 03:09:20 2000

port#:   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
diags:  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
state:  UP  UP  UP  UP  UP  UP  UP  UP  UP  UP  UP  UP  UP  UP  UP  UP

lm0:      100 frTx      100 frRx      0 LLI_errs. <looped-15>
lm1:      100 frTx      100 frRx      0 LLI_errs. <looped-11>
lm2:      100 frTx      100 frRx      0 LLI_errs. <looped-6>
lm3:      100 frTx      100 frRx      0 LLI_errs. <looped-4>
lm4:      100 frTx      100 frRx      0 LLI_errs. <looped-3>
lm5:      100 frTx      100 frRx      0 LLI_errs. <looped-8>
lm6:      100 frTx      100 frRx      0 LLI_errs. <looped-2>
lm7:      100 frTx      100 frRx      0 LLI_errs. <looped-12>
lm8:      100 frTx      100 frRx      0 LLI_errs. <looped-5>
lm9:      100 frTx      100 frRx      0 LLI_errs. <looped-14>
lm10:     100 frTx      100 frR       0 LLI_errs. <looped-13>
lm11:     100 frTx      100 frRx      0 LLI_errs. <looped-1>
lm12:     100 frTx      100 frR       0 LLI_errs. <looped-7>
lm13:     100 frTx      100 frRx      0 LLI_errs. <looped-10>
lm14:     100 frTx      100 frRx      0 LLI_errs. <looped-9>
lm15:     100 frTx      100 frRx      0 LLI_errs. <looped-0>

Central Memory OK
Total Diag Frames Tx: 131696
Total Diag Frames Rx: 136112
```

**See Also** `diagClearError`

## dlsReset

Turn off dynamic load sharing option.

**Synopsis** dlsReset

**Availability** admin

**Description** Use this command to disable dynamic load sharing when a fabric change occurs. See **dlsSet** for a full description of load sharing.

Use this command only if devices connected to the fabric cannot handle occasional routing changes.

**Operands** None.

**Examples** To disable the dynamic load sharing option.

```
switch:admin> dlsReset
Committing configuration...done.
switch:admin> dlsShow
DLS is not set
```

**See Also** dlsSet

dlsShow

## dlsSet

Turn on dynamic load sharing option.

**Synopsis** dlsSet

**Availability** admin

**Description** Use this command to enable dynamic load sharing when a fabric change occurs.

Routing is done on a per source port basis. This means that all the traffic coming in from a port (either E\_Port or Fx\_Port) directed to the same remote Domain is routed through the same output E\_Port.

To optimize fabric utilization, when there are multiple equivalent paths to a remote switch, traffic is shared among all the paths. Load sharing takes place when a switch reboots. In addition, if dynamic load sharing is enabled, the optimal load sharing is recomputed every time a change in the fabric occurs. A change in the fabric is defined as an E\_Port going up or down, or an Nx\_Port going up or down.

If dynamic load sharing is turned off, load sharing is performed only at boot time or when an Nx\_Port comes up. Optimal load sharing is rarely achieved with this setting.

Dynamic load sharing is on by default.

When dynamic load sharing is set, routing changes can affect working ports. For example, if an Fx\_Port goes down, another Fx\_Port may be rerouted from one E\_Port to a different E\_Port. The switch minimizes the number of routing changes, but some are necessary in order to achieve optimal load sharing. These changes can affect the application, especially if the 'in-order delivery' option is set. With the in-order delivery option (see **iodSet**), routes are not available for a few seconds after a fabric change. In addition, some frame loss may occur. No frame loss occurs if in-order delivery is off, but there is still a short period of time when traffic is not forwarded. This period of time is significantly shorter than when in-order delivery is on, and is usually less than 1 second.

**Operands** None.

**Examples** To enable the dynamic load sharing option.

```
switch:admin> dlsSet
Committing configuration...done.
switch:admin> dlsShow
DLS is set
```

**See Also** dlsReset

dlsShow

## dlsShow

Display the state of the Dynamic Load Sharing option.

**Synopsis** dlsShow

**Availability** All users

**Description** Use this command to display whether Dynamic Load Sharing is on or off.

**Operands** None.

**Example** To display the current dynamic load sharing option setting:

```
switch:admin> dlsShow
DLS is set
```

**See Also** dlsSet  
dlsReset

## errDisplayFilter

Display or set the level of error filtering.

**Synopsis** `errDisplayFilter [level]`

**Availability** All users (display)  
admin (set)

**Description** Use this command to display or set the error levels that are displayed on the front panel. Errors with a higher level (lower severity) than the value specified are stored in the error log but are not displayed on the front panel.

**Note:** This command is only valid for switches with a front panel display.

When the command is used with no operand, the current level is displayed.

When the command is used with the `level` operand, a new filtering level is set.

**Operands** This command has the following operand:

`level` Specify the new error filtering level. Valid values are:  
1 = critical  
2 = error  
3 = warning  
4 = information  
5 = debug  
Only error levels equal or lower (equal or more severe) than the specified value are displayed. This operand is optional.

**Example** To display the current filter level, then change it to 3:

```
switch:admin> errDisplayFilter
All errors will be reported on the front panel.
switch:admin> errDisplayFilter 3
Committing configuration...done.
```

**Note:** This example specifies that only errors of severity 1 through 3 are displayed.

**See Also** `errLogShow`

## errDump

Display the error log without page breaks.

**Synopsis** errDump

**Availability** All users

**Description** Use this command to display the error log without page breaks. This command displays the same information as **errShow**, but **errShow** enables you to scroll through the entries using the Enter button.

See **errShow** for a description of the error log.

**Operands** None.

**Example** To display the error log without page breaks:

```
switch:admin> errDump

Error 02
-----
0x103e9500 (tSwitch): Feb  5 16:59:09
      Error DIAG-TIMEOUT, 1, portLoopbackTest: pass 1,
      Port 1 receive timeout.
Error 01
-----
0x103e9500 (tSwitch): Feb  5 16:42:39
      Error SYS-BOOT, 3, Restart reason: Reboot
```

**See Also** errShow

uptime

## errShow

Scroll through the error log.

**Synopsis**     `errShow`

**Availability**     All users

**Description**     Use this command to display the error log. This command enables you to scroll through the entries using the Enter key. Use **errDump** to display the same information without line breaks.

Each entry in the log follows the format below:

```
Error Number
-----
taskId (taskName): Time Stamp (count)
Error Type, Error Level, Error Message
Diag Err#
```

where:

Error Number	Beginning at one. If the number of errors exceeds the size of the log, the most recent errors are shown.
Task ID (Task Name)	The ID and name of the task recording the error.
Time Stamp	The date and time of the first occurrence of the error.
Error Count	For errors that occur multiple times, the repeat count is shown in parenthesis. The maximum count is 999.
Error Type	An upper case string showing the firmware module and error type. The switch manual contains a detailed explanation of error types.
Error Level	0 = panic (the switch reboots) 1 = critical 2 = error 3 = warning 4 = information 5 = debug
Error Message	Additional information about the error.
Diag Err#	The number of the error. This is a hexadecimal 4-digit code representing the error type.

## Diagnostic Error Codes

The following table lists the error numbers, the POST test that generates this error number, and the type of error.

**Table 1-6** Diagnostic Error Codes

Error Number	Test	Error Type
0001	n/a	DIAG-CLEAR_ERR
0002	n/a	DIAG-BURNIN_START
0003	n/a	DIAG-BURNIN_STOP
0004	n/a	DIAG-POST_SKIPPED
0110	ramTest	DIAG-MEMORY
0111	ramTest	DIAG-MEMSZ
0112	ramTest	DIAG-MEMNULL
040F	portRegTest	DIAG-BUS_TIMEOUT
0415	portRegTest	DIAG-REGERR
0416	portRegTest	DIAG-REGERR_UNRST
0B0F	sramRetentionTest	DIAG-BUS_TIMEOUT
0B15	sramRetentionTest	DIAG-REGERR
0B16	sramRetentionTest	DIAG-REGERR_UNRST
1020	centralMemoryTest	DIAG-CMBISRTO
1021	centralMemoryTest	DIAG-CMBISRF
1025	centralMemoryTest	DIAG-LCMRS
1026	centralMemoryTest	DIAG-LCMTO
1027	centralMemoryTest	DIAG-LCMEM
1028	centralMemoryTest	DIAG-LCMEMT
1029	centralMemoryTest	DIAG-CMNOBUF
102A	centralMemoryTest	DIAG-CMERRTYPE
102B	centralMemoryTest	DIAG-CMERRPTN
102C	centralMemoryTest	DIAG-INTNOTCLR
1030	centralMemoryTest	DIAG-BADINT
106F	centralMemoryTest	DIAG-TIMEOUT
1F25	cmemRetentionTest	DIAG-LCMRS
1F26	cmemRetentionTest	DIAG-LCMTO
1F27	cmemRetentionTest	DIAG-LCMEM
2030	cmiTest	DIAG-BADINT
2031	cmiTest	DIAG-INTNIL



**Table 1-6** Diagnostic Error Codes (Continued)

Error Number	Test	Error Type
2032	cmiTest	DIAG-CMISA1
2033	cmiTest	DIAG-CMINOCAP
2034	cmiTest	DIAG-CMIINVCAP
2035	cmiTest	DIAG-CMIDATA
2036	cmiTest	DIAG-CMICKSUM
223B	camTest	DIAG-CAMINIT
223C	camTest	DIAG-CAMSID
2271	camTest	DIAG-XMIT
2640	portLoopbackTest	DIAG-ERRSTAT (ENCIN)
2641	portLoopbackTest	DIAG-ERRSTAT (CRC)
2642	portLoopbackTest	DIAG-ERRSTAT (TRUNC)
2643	portLoopbackTest	DIAG-ERRSTAT (2LONG)
2644	portLoopbackTest	DIAG-ERRSTAT (BADEOF)
2645	portLoopbackTest	DIAG-ERRSTAT (ENCOUT)
2646	portLoopbackTest	DIAG-ERRSTAT (BADORD)
2647	portLoopbackTest	DIAG-ERRSTAT (DISCC3)
264F	portLoopbackTest	DIAG-INIT
265F	portLoopbackTest	DIAG-PORTDIED
2660	portLoopbackTest	DIAG-STATS (FTX)
2661	portLoopbackTest	DIAG-STATS (FRX)
2662	portLoopbackTest	DIAG-STATS (C3FRX)
266E	portLoopbackTest	DIAG-DATA
266F	portLoopbackTest	DIAG-TIMEOUT
2670	portLoopbackTest	DIAG-PORTABSENT
2671	portLoopbackTest	DIAG-XMIT
3040	crossPortTest	DIAG-ERRSTAT (ENCIN)
3041	crossPortTest	DIAG-ERRSTAT (CRC)
3042	crossPortTest	DIAG-ERRSTAT (TRUNC)
3043	crossPortTest	DIAG-ERRSTAT (2LONG)
3044	crossPortTest	DIAG-ERRSTAT (BADEOF)
3045	crossPortTest	DIAG-ERRSTAT (ENCOUT)
3046	crossPortTest	DIAG-ERRSTAT (BADORD)
3047	crossPortTest	DIAG-ERRSTAT (DISCC3)

**Table 1-6** Diagnostic Error Codes (Continued)

Error Number	Test	Error Type
304F	crossPortTest	DIAG-INIT
305F	crossPortTest	DIAG-PORTDIED
3060	crossPortTest	DIAG-STATS (FTX)
3061	crossPortTest	DIAG-STATS (FRX)
3062	crossPortTest	DIAG-STATS (C3FRX)
306E	crossPortTest	DIAG-DATA
306F	crossPortTest	DIAG-TIMEOUT
3070	crossPortTest	DIAG-PORTABSENT
3071	crossPortTest	DIAG-XMIT
3078	crossPortTest	DIAG-PORTWRONG
3840	spinSilk	DIAG-ERRSTAT (ENCIN)
3841	spinSilk	DIAG-ERRSTAT (CRC)
3842	spinSilk	DIAG-ERRSTAT (TRUNC)
3843	spinSilk	DIAG-ERRSTAT (2LONG)
3844	spinSilk	DIAG-ERRSTAT (BADEOF)
3845	spinSilk	DIAG-ERRSTAT (ENCOUT)
3846	spinSilk	DIAG-ERRSTAT (BADORD)
3847	spinSilk	DIAG-ERRSTAT (DISCC3)
384F	spinSilk	DIAG-INIT
385F	spinSilk	DIAG-PORTDIED
3870	spinSilk	DIAG-PORTABSENT
3871	spinSilk	DIAG-XMIT
3874	spinSilk	DIAG-PORTSTOPPED

**Operands** None.

**Example** The following illustrates a log with two entries. The first entry is the most recent; it is a diagnostic failure. The second entry is the oldest; it displays the switch restart reason.

```
switch:admin> errShow
Error 02
-----
0x10fbd880 (tSwitch): Feb 5 17:03:19
      Error DIAG-POST_SKIPPED, 3,
Skipped POST tests: assuming all ports are healthy,
Err# 0004

Type <CR> to continue, Q<CR> to stop:
Error 01
-----
0x103e9500 (tSwitch): Feb 5 16:58:39
      Error SYS-BOOT, 3, Restart reason: Reboot
```

**See Also**

- errDump
- firmwareDownload
- reboot
- uptime

## fabricShow

Displays fabric membership information.

**Synopsis** fabricShow

**Availability** All users

**Description** Use this command to display information about switches and multicast alias groups in the fabric. Multicast alias groups are created on demand by request from N\_Ports attached to the alias server; typically no groups are listed.

If the switch is initializing, or disabled, the message “no fabric” is displayed. If the fabric is reconfiguring, some or all switches may not be shown. Otherwise, the following fields are shown:

**Table 1-7** fabricShow display fields

Field	Description
Switch ID	The switch Domain_ID and embedded port D_ID.
Worldwide Name	The switch worldwide name.
Enet IP Addr	The switch ethernet IP address.
FC IP Addr	The switch FC IP address.
Name	The switch symbolic name (“>” indicates the principal switch).

If multicast alias groups exist, the following fields are shown:

**Table 1-8** fabricShow Multicast Alias display fields

Field	Description
Group ID	The alias group number and D_ID.
Token	The alias group token (assigned by the N_Port).

**Operands** None.

**Example** The following example shows a fabric of four switches. “sw180” is the principal switch. Three of the switches are configured to run IP over fibre channel. There is one multicast alias group.

```
switch:admin> fabricShow
Switch ID    Worldwide Name          Enet IP Addr    FC IP Addr      Name
-----
0: fffc40 10:00:00:60:69:00:06:56 192.168.64.59   192.168.65.59   "sw5"
1: fffc41 10:00:00:60:69:00:02:0b 192.168.64.180 192.168.65.180 >"sw180"
2: fffc42 10:00:00:60:69:00:05:91 192.168.64.60   192.168.65.60   "sw60"
3: fffc43 10:00:00:60:69:10:60:1f 192.168.64.187 0.0.0.0          "sw187"
The Fabric has 4 switches

Group ID     Token
-----
0: fffb01 40:05:00:00:10:00:00:60:69:00:00:15
```

**See Also** switchShow

## fanShow

Display fan status.

**Synopsis** fanShow

**Availability** All users

**Description** Use this command to displays the current status of the switch fans. The format of the display varies according to the switch model and number of fans. Some switch models show fan speed measured in RPM.

Fan status is shown as:

OK Fan is functioning correctly.

absent Fan is not present.

below minimum Fan is present but rotating too slowly or stopped.

**Operand** None.

**Example** To display the status and RPMs for the fans:

```
switch:admin> fanShow
Fan #1 is OK, speed is 7860 RPM
Fan #2 is OK, speed is 7920 RPM
Fan #3 is OK, speed is 7890 RPM
Fan #4 is OK, speed is 7950 RPM
Fan #5 is OK, speed is 7920 RPM
Fan #6 is OK, speed is 7960 RPM
switch:admin>
```

**See Also** psShow  
tempShow

## fastboot

Reboot the switch, bypassing POST.

**Synopsis** fastboot

**Availability** admin

**Description** Use this command to reboot the switch, bypassing POST. The reboot takes effect immediately as the switch resets and executes normal power-on booting sequence. However, Power On Self Test (POST) is skipped. This reduces boot time significantly.

If POST has been disabled using the **diagDisablePost** command, then **fastboot** is the same as reboot. However, **fastboot** skips POST on the current reboot, while **diagDisablePost** skips POST on all future reboots until cancelled by **diagEnablePost**.

While the switch is rebooting, the telnet session is closed and all fibre channel ports are inactive. If the switch is part of a fabric, the remaining switches reconfigure.

**Operands** None.

**Example** To reboot the switch, bypassing the POST:

```
switch:admin> fastboot
Rebooting...
```

**See Also** diagDisablePost  
diagEnablePost  
reboot

## firmwareDownload

Download a switch firmware file from a host.

**Synopsis** `firmwareDownload ["host", "user", "file" [, "passwd"]]`

**Availability** admin

**Description** Use this command to download a switch firmware file from a host into the switch flash memory.

The download process uses either FTP or the RSHD protocol (TCP service 514). Both of these services are widely available on Unix and Windows hosts.

On Windows NT, the FTP server may have to be installed from the distribution media and enabled, or on Windows NT or Windows 9x there are several good freeware and shareware FTP servers available. To use RSHD on Windows NT or 9x, two utilities are supplied with the firmware file, RSHD.EXE and CAT.EXE, together with instructions on how to install and run them. The FTP server or RSHD must be running before a firmware download can occur.

If this command is invoked without operands, you are prompted for input, including the choice of FTP or RSHD. If it is invoked with three operands, RSHD is used; the addition of the fourth operand (password) selects FTP.

Once the download begins, numbers are displayed (size of .text, .data, and .bss sections, and the file checksum) followed by status lines indicating download progress. This display varies depending on switch model, but all displays print a period "." per page of firmware read or written.

While **firmwareDownload** is in process, the switch led will beacon from left to right until the it completes successfully.

**Note:** Do not power cycle the switch until **firmwareDownload** is complete, or the flash may be corrupted.

After a download successfully completes, the switch must be rebooted to activate the new firmware. You can also download firmware through the switch's World Wide Web interface.

**Operands** This command has the following operands:

host	Specify a host name or IP address in quotation marks; for example, "citadel" or "192.168.1.48". The configuration file is downloaded from this host system. This operand is optional.
user	Specify a user name in quotation marks; for example, "jdoe". This user name is used to gain access to the host. This operand is optional.
file	Specify a file name in quotation marks; for example, "firmware.txt". Absolute path names may be specified using forward slash (/). Relative path names create the file in the user's home directory on UNIX hosts, and in the directory where the FTP server is running on Windows hosts. This operand is optional.
passwd	Specify a password in quotation marks. If present, the command uses FTP to transfer the file. This operand is optional.



**Example** To download a firmware file:

```
switch:admin> firmwareDownload "citadel","jdoe","/home/firmware/v2.2"
55696+6984+133172, csum 7eca
writing flash 0 .....
writing flash 1 .....
download complete
```

**Errors** The following can cause the download to fail:

- The host name is not known to the switch
- The host IP address cannot be contacted
- The user does not have permission on the host
- The user runs a script that prints something at login
- The path to the firmware may be case sensitive
- The file does not exist on the host
- The file is not a switch firmware file
- The file is corrupted
- The RSHD or FTP server is not running on the host

**See Also** reboot  
version

## fspfShow

Display FSPF protocol information.

**Synopsis** fspfShow

**Availability** All users

**Description** Use this command to display the Fibre Channel Shortest Path First (FSPF) protocol information, and internal data structures. FSPF is implemented by a single task, called `tFspf`.

The display shows the following fields:

**Table 1-9** fspfShow display fields

Field	Description
version:	Version of FSPF protocol.
domainID:	Domain number of local switch.
isl_ports:	Bit map of all E_Ports.
minLSArrival:	FSPF constant.
minLSInterval:	FSPF constant.
LSoriginCount:	Internal variable.
startTime:	Start time of tFspf task (milliseconds from boot).
fspfQ:	FSPF input message queue.
fabP:	Pointer to fabric data structure.
agingTID:	Ager timer ID.
agingTID:	Ager time out value, in milliseconds.
lsrDlyTID:	Link State Record delay timer ID.
lsrDelayTo:	Link State Record delay time out value, in milliseconds.
lsrDelayCount:	Counter of delayed Link State Records.
ddb_sem:	FSPF semaphore ID.
event_sch:	FSPF scheduled events bit map.
lsrRefreshCnt:	Internal variable.

**Operands** None.

**Examples** To display FSPF protocol information:

```
switch:admin> fspfshow

version          = 2
domainID        = 3
isl_ports       = 0x00000020
minLSArrival    = 3
minLSInterval   = 5
LSoriginCount   = 0
startTime       = 16784
fspfQ           = 0x10f48f10
fabP            = 0x10f49f90
agingTID        = 0x10f3c100
agingTo         = 10000
lsrDlyTID       = 0x10f3c0b0
lsrDelayTo      = 5000
lsrDelayCount   = 0
ddb_sem         = 0x10f48ee0

fabP:
event_sch       = 0x0
lsrRefreshCnt   = 0

switch:admin>
```

**See Also** bcastShow  
mcastShow  
topologyShow  
uRouteShow

## gbicShow

Display serial ID GBIC information.

**Synopsis**     `gbicShow [portnumber]`

**Availability**   All users

**Description**   Use this command to display information about Serial Identification GBICs (also known as module definition "4" GBICs). These GBICs provide extended information that describes the GBICs capabilities, interfaces, manufacturer, and other information.

Use this command with no operand to display a summary of all GBICs in the switch. The summary shows the GBIC type (see **switchShow** for an explanation of the two letter codes) and, for Serial ID GBIC, the vendor name and GBIC serial number.

Use this command with a port number operand to display detailed information about the Serial ID GBIC in that port.

For Finisar "smart" GBICs, four additional fields are displayed: module temperature, received optical power, transmitted optical power (longwave only), and laser diode drive current.

**Operands**     This command has the following operand:

`portnumber`   Specify the port number to be displayed. Valid values are 0-7 or 0-15 depending on the switch type. This operand is optional.

**Example** To display GBIC summary information for an eight port switch, followed by detailed information for a Finisar "smart" GBIC:

```
switch:admin> gbicShow
port 0: id Vendor: FINISAR CORP. Serial No: 103980
port 1: id Vendor: HEWLETT-PACKARD Serial No:9809100953460702
port 2: id Vendor: FINISAR CORP. Serial No: 103960
port 3: sw
port 4: sw
port 5: cu
port 6: sw
port 7: sw
switch:admin>
switch:admin> gbicShow 2
Identifier: 1 GBIC
Connector: 1 SC
Transceiver: 010d102202000000 100_MB/s SM M5 M6 Longwave Inter_dist

Encoding: 1 8B10B
Baud Rate: 12 (units 100 megabaud)
Length 9u: 100 (units 100 meters)
Length 50u: 55 (units 10 meters)
Length 625u: 55 (units 10 meters)
Length Cu: 0 (units 1 meter)
Vendor Name: FINISAR CORP.
Vendor OUI: 00:5a:41
Vendor PN: FTR 1319
Vendor Rev: S
Options: 001a Loss_of_Sig Tx_Fault Tx_Disable
BR Max: 0
BR Min: 0
Serial No: 103960
Date Code: 990119
Temperature: 39 Centigrade
RX Power: 0 uWatts
TX Power: 289 uWatts
Current: 15 mAmps
```

**See Also** switchShow

**h**

Display shell history.

**Synopsis** h

**Availability** All users

**Description** Use this command to view the shell history. The shell history mechanism is similar to the UNIX Korn shell history facility, it has a built-in line-editor similar to UNIX vi that allows previously typed commands to be edited. The command h displays the 20 most recent commands typed into the shell; old commands fall off the top as new ones are entered.

To edit a command, press ESC to access edit mode, then use vi commands. The ESC key switches the shell to edit mode. The RETURN key gives the line to the shell from either editing or input mode.

Basic vi commands:

k	get the previous shell command
j	get the next command
h	move the cursor left
l	move the cursor right
a	append
i	insert
x	delete
u	undo

**Operands** None.

**Example** To display previous shell commands:

```
switch:admin> h
1 version
2 switchShow
3 portDisable 2
4 portEnable 2
5 switchShow
```

## help

Display help information for commands.

**Synopsis**    `help [command]`

**Availability**    All users

**Description**    Use this command without a operand to display an alphabetical list of commands that provide help information. At the end of the list are additional commands that display groups of commands, for example **diagHelp** displays a list of diagnostic commands.

The lists show only commands that are available to the current user; this can vary according to:

- Login user level
- License key
- Switch model

To access help information for a specific command, enter the command name as an operand.

**Operands**    This command has the following operand:

`command`        Specify the command name, with or without quotation marks.

**Example**        The first example provides help information on the login command. The second example provides help information on the configure command.

```
switch:admin> help login
...
switch:admin> help "configure"
...
```

**See Also**        `diagHelp`

`licenseHelp`

`routeHelp`

## i

Display task summary.

**Synopsis** i [taskId]

**Availability** All users

**Description** Use this command to display a synopsis of all tasks in the switch, or for a specific task if a taskId is supplied. One line is displayed for each task; it contains the following fields:

**Table 1-10** Task Description Fields

Field	Description
NAME	Task name
ENTRY	Symbol name or address where task began execution
TID	Task ID
PRI	Priority
STATUS	Task status (see below)
PC	Program counter
SP	Stack pointer
ERRNO	Most recent error code for this task
DELAY	If task is delayed, number of clock ticks remaining

The following indicate task status:

**Table 1-11** Task Status Descriptions

Task Status	Status Description
READY	Task is not waiting for any resource other than the CPU
PEND	Task is blocked due to the unavailability of a resource
DELAY	Task is asleep for a duration
SUSPEND	Task is unavailable for execution (but not delayed or ended)
DELAY+S	Task is both delayed and suspended
PEND+S	Task is both pended and suspended
PEND+T	Task is pended with a time out
PEND+S+T	Task is pended with a time out, and also suspended
DEAD	Task no longer exists

**Operands** This command has the following operand:

taskId            Specify the task name or task ID for the task to be displayed.



**Example** To display the task summary:

```
switch:admin> i tFcp
```

NAME	ENTRY	TID	PRI	STATUS	PC	SP	ERRNO	DELAY
tFcp	_fcpTask	103ad660	150	PEND+T	10191b78	103ad9e0	3d0004	32

```
switch:admin> i
```

NAME	ENTRY	TID	PRI	STATUS	PC	SP	ERRNO	DELAY
tExcTask	_excTask	103f7eb0	0	PEND	10191b78	103f8200	3d0001	0
tLogTask	_logTask	103f5f30	0	PEND	10191b78	103f6280	0	0
tShell	_shellTask	103b8970	1	READY	10177460	103b8be0	1c0001	0
tRlogind	_rlogind	103de0e0	2	PEND	10173e80	103de7d0	0	0
tTelnetd	_telnetd	103dc150	2	PEND	10173e80	103dc5c0	0	0
tTimers	_timerTask	103cf270	10	PEND	10191b78	103cf5f0	0	0
tErrLog	_errLogTask	103d0810	20	PEND	10191b78	103d0b90	0	0
tNetTask	_netTask	103f0370	50	READY	10174f20	103f0740	0	0
tSwitch	_switchTask	103d1db0	80	PEND+T	10191b78	103d21b0	3d0004	9
tPMenu	_menuTask	103c8e30	90	PEND	10191b78	103c91f0	0	0
tReceive	_portRxTask	103c5690	100	PEND	10191b78	103c5a10	0	0
tTransmit	_portTxTask	103c40f0	100	PEND	10191b78	103c4470	0	0
tFabric	_fabricTask	103aae20	100	PEND	10191b78	103able0	0	0
tFspf	_fspfTask	103a8c70	100	PEND	10191b78	103a8ff0	0	0
tFcpH	_fcpHTask	103af890	120	PEND+T	10191b78	103afc10	3d0004	2
tFcp	_fcpTask	103ad660	150	READY	10191b78	103ad9e0	3d0004	0
tNSd	_ns_svr	10397050	150	PEND	10191b78	103973e0	0	0
tASd	_as_svr	1036f5b0	150	PEND	10191b78	1036f930	0	0

**See Also** `diagHelp`  
`routeHelp`

## ifModeSet

Set the link operating mode for a network interface.

**Synopsis** `ifModeSet ["interface"]`

**Availability** admin

**Description** Use this command to set the link operating mode for a network interface.

Use `ifShow` to list network interfaces available on the system.

An operating mode is confirmed with a "y" or "yes" at the prompt. If the operating mode selected differs from the current mode, the change is saved and the command exits.

The system must be rebooted for changes to take effect.

Changing the link mode is not supported for all network interfaces or for all ethernet network interfaces. At present, this command is only functional for "fei" interfaces.

Exercise care when using this command. Forcing the link to an operating mode not supported by the network equipment to which it is attached may result in an inability to communicate with the system through its ethernet interface.

**Operands** This command has the following operand:

`interface` Specify the name of the interface in quotation marks. For example, "fei0", where fei is the network interface, and 0 is the physical unit.

**Example** To force the link for the "fei0" ethernet interface from auto-negotiate operation to 10 Mbps / Half duplex operation:

```
switch:admin> ifModeSet "fei0"
Auto-negotiate (yes, y, no, n): [no]
100 Mbps / Full Duplex (yes, y, no, n): [no]
100 Mbps / Half Duplex (yes, y, no, n): [no]
10 Mbps / Full Duplex (yes, y, no, n): [no]
10 Mbps / Half Duplex (yes, y, no, n): [no] yes
Committing configuration...done.
```

**See Also** `ifModeShow`

`ifShow`

## ifModeShow

Display the link operating mode for a network interface.

**Synopsis** `ifModeShow ["interface"]`

**Availability** All users

**Description** Use this command to display the link operating mode for a network interface.

**Operands** This command has the following operand:

`interface` Specify the name of the interface in quotation marks. For example, "fei0", where fei is the network interface and 0 is the physical unit.

**Example** To display the link operating mode for the "fei0" ethernet interface:

```
switch:admin> ifModeShow "fei0"
fei (unit number 0):
Link mode: Auto-negotiate
```

**See Also** `ifModeSet`

`ifShow`

## ifShow

Display network interface information.

**Synopsis** `ifShow [ "ifName" ]`

**Availability** All users

**Description** Use this command to display network interface status. If the operand `ifName` is provided, only the that interface is displayed. If `ifName` is omitted, all interfaces are displayed.

Each switch has three interfaces:

- “ei” or “fei” is the 10BaseT or 100BaseT ethernet interface
- “lo” is the loopback interface
- “fc” is the fibre channel interface

The “fc” interface is displayed for switches running IP over fibre channel that have been assigned an FC-IP address.

For each interface selected, the following information is displayed:

- Flags (for example, loopback, broadcast, arp, running, debug)
- Internet address
- Broadcast address
- Netmask and subnetmask
- Ethernet address
- Route metric
- Maximum transfer unit
- Number of packets received and sent
- Number of input errors, output errors, and collisions

**Operands** This command has the following operand:

`ifName` Specify the name of an interface, in quotation marks. This operand is optional.

**Example** To display ethernet interface information for a switch with a 10BaseT connection:

```
switch:admin> ifShow "ei"
ei (unit number 0):
  Flags: (0x63) UP BROADCAST ARP RUNNING
  Internet address: 192.168.1.65
  Broadcast address: 192.168.1.255
  Netmask 0xffffffff Subnetmask 0xffffffff
  Ethernet address is 00:60:69:00:00:8a
  Metric is 0
  Maximum Transfer Unit size is 1500
  42962 packets received; 127 packets sent
  0 input errors; 0 output errors
  7 collisions
```

**See Also** [ipAddrSet](#)  
[ipAddrShow](#)

## interfaceShow

Display FSPF interface information.

**Synopsis** `interfaceShow [portnumber]`

**Availability** All users

**Description** Use this command to display data structures associated with FSPF interfaces (E\_Ports) on the switch.

There are two data structures - the permanently allocated Interface Descriptor Block (IDB) and the neighbor data structure that is allocated when a switch port becomes an E\_Port. The neighbor data structure contains all the information relating to the switch that is connected to a local interface, also known as the adjacent switch. This command displays the content of both data structures, if they have been allocated.

Used without specifying the port number, this command displays the interface information for all ports on the switch (including non E\_Ports).

The following fields are displayed:

<code>idbP</code>	Pointer to IDB.
<code>nghbP</code>	Pointer to neighbor data structure.
<code>ifNo</code>	Interface number.
<code>cost</code>	Cost of sending a frame over the ISL connected to this interface. The value 1000 indicates a 1 Gb/s link.
<code>delay</code>	Conventional delay incurred by a frame transmitted on this ISL. A fixed value required by the FSPF protocol.
<code>lastScn</code>	Type of the last State Change Notification received on this interface.
<code>lastScnTime</code>	Time the last State Change Notification was received on this interface.
<code>upCount</code>	Number of times this interface came up, with respect to FSPF.
<code>lastUpTime</code>	Last time this interface came up.
<code>downCount</code>	Number of times this interface went down.
<code>lastDownTime</code>	Last time this interface went down.
<code>downReason</code>	Type of last State Change Notification that caused this interface to go down.
<code>iState</code>	Current state of this interface. The state can be UP or DOWN. An interface in DOWN state does not have an allocated neighbor data structure and cannot be used to route traffic to other switches.
<code>state</code>	Current state of this interface. This E_Port is used to route traffic to other switches only if the state is 'NB_ST_FULLL'.
<code>nghbCap</code>	Neighbor capabilities. Should be 0.
<code>nghbId</code>	Domain ID of the neighbor (adjacent) switch.
<code>idbNo</code>	IDB number. Should be equal to <code>portnumber</code>

<code>remPort</code>	Port number on the remote switch connected to this port.
<code>nflags</code>	Internal FSPF flags.
<code>initCount</code>	Number of times this neighbor was initialized, without the interface going down.
<code>&amp;dbRetransList</code>	Pointer to the database retransmission list.
<code>&amp;lsrRetransList</code>	Pointer to the Link State Records (LSR) retransmission list.
<code>&amp;lsrAckList</code>	Pointer to the Link State Acknowledgements (LSA) retransmission list.
<code>inactTID</code>	Inactivity timer ID.
<code>helloTID</code>	Hello timer ID.
<code>dbRtxTID</code>	Database retransmission timer ID.
<code>lsrRtxTID</code>	LSR retransmission timer ID.
<code>inactTo</code>	Inactivity time out value, in milliseconds. When this time out expires, the adjacency with the neighbor switch is broken and new paths are computed to all possible destination switches in the fabric.
<code>helloTo</code>	Hello time out value, in milliseconds. When this time out expires, a Hello frame is sent to the neighbor switch through this port.
<code>rXmitTo</code>	Retransmission time out value, in milliseconds. It is used to transmit topology information to the neighbor switch. If no acknowledgement is received within <code>rXmitTo</code> , frame is retransmitted.
<code>nCmdAcc</code>	Total number of commands accepted from the neighbor switch. Number includes Hellos, Link State Updates (LSU) and Link State Acknowledgements.
<code>nInvCmd</code>	Number of invalid commands received from the neighbor switch. Usually commands with an FSPF version number higher than the one running on the local switch.
<code>nHloIn</code>	Number of Hello frames received from the neighbor switch.
<code>nInvHlo</code>	Number of invalid Hello frames (Hello frames with invalid parameters) received from the neighbor switch.
<code>nLsuIn</code>	Number of LSUs received from the neighbor switch.
<code>nLsaIn</code>	Number of LSAs received from the neighbor switch.
<code>attHloOut</code>	Number of attempted transmissions of Hello frames to the neighbor switch.
<code>nHloOut</code>	Number of Hello frames transmitted to the neighbor switch.
<code>attLsuOut</code>	Number of attempted transmissions of LSUs to the neighbor switch.
<code>nLsuOut</code>	Number of LSUs transmitted to the neighbor switch.
<code>attLsaOut</code>	Number of attempted transmissions of LSAs to the neighbor switch.
<code>nLsaOut</code>	Number of LSAs transmitted to the neighbor switch.

**Operands** This command has the following operand:

`portnumber` Specify the port number you want to display the interface data structures for. This operand is required.

**Examples** To display FSPF interface information:

```
switch:admin> interfaceShow 4
idbP          = 0x10f61f40
Interface 4 data structure:
nghbP         = 0x10f61d90
ifNo          = 4
cost          = 1000
delay         = 1
lastScn       = 5
lastScnTime   = Mar 29 12:57:52.833
upCount       = 2
lastUpTime    = Mar 29 12:57:52.833
downCount     = 1
lastDownTime  = Mar 29 12:57:47.566
downReason    = 2
iState        = UP
Type <CR> to continue, Q<CR> to stop:
< ... sample output truncated ... >
```

**See Also** `portShow`  
`switchShow`



## interopMode

Enables or disables Brocade switch interoperability with switches from other manufacturers.

**Synopsis**    `interopMode [mode]`

**Availability**    admin

**Description**    Use this command to enable or disable interoperability mode for individual Brocade switches. This feature enables other manufacturer's switches to be used in a fabric of Brocade switches.

Interoperability mode allows Brocade switches to operate in a heterogeneous fabric (a fabric containing switches from different manufacturers). This command must be executed on all switches in the fabric. The switch must be rebooted after changing the interoperability mode. Other manufacturers switches may require the invocation of a command similar to **interopmode**.

In a heterogeneous fabric, Management server, Brocade Web Tools, Fabric Watch, and SES are available for the Brocade switches, plus basic Brocade Zoning and QuickLoop functionality for all switches.

### Switch Requirements

- All Brocade switches must be running Fabric OS v2.5 or greater.
- The following licenses are required: Fabric license, and Zoning license.
- Each Brocade switch in the fabric must have interoperability mode enabled.

**Note:** For information on supported manufacturer's switches for a heterogeneous fabric contact Brocade Support.

### Supported Brocade Features

In a heterogeneous fabric, the following Brocade features are supported with the appropriate licenses on the Brocade switches only:

- Management server
- Brocade Web Tools
- Fabric Watch
- Brocade SES
- Brocade Zoning
- Brocade QuickLoop

The following Brocade features are supported on all switches in the fabric:

- Brocade Zoning (with restrictions, explained on the next page)

**Note:** All zoning configurations on Brocade switches, both effective and defined, should be cleared or disabled before enabling or disabling interomode. Only zoning by port WWN is allowed.

### Configuration Requirements

The following conditions are required for correct operation of a heterogeneous fabric:

- Other vendor switches must have their Default Zone disabled and Operating Mode set to Open Fabric 1.0.

- For full Brocade Zoning functionality, the fabric topology must be set up so that a Brocade-only communication path exists from each Brocade switch to all other Brocade switches in the fabric.
- The maximum number of switches in a fabric is limited to 31, regardless of type.
- The Brocade Domain IDs **MUST** be in set within the range 97 to 127 (that is, 0x61 through 0x7F). When interopmode is enabled, if the Domain ID is outside this range, it is changed to the first available value in this range.
- If interoperability mode is enabled on a fabric containing a Brocade 3000 series switch, or a switch running a Fabric OS version prior to 2.6, another parameter must be enabled: Inter-switch NS Entry format. This parameter is enabled using the **configure** command and must be set manually on all switches in the fabric.
- Any zone members defined using ALPAs must be deleted using **zoneRemove**.
- Any QuickLoop zones must be deleted using the **zoneRemove** telnet command.
- QuickLoops defined through Brocade Zoning (using **qloopCreate**) must be undefined using **qloopDelete**. Unnamed QuickLoops are supported for interoperability.
- Any QL/FA zones (QuickLoop) must be deleted.
- With no zoning configuration in effect, the default effective configuration is such that all ports can see no other port.

### Restrictions

The following operating restrictions apply once a heterogeneous fabric is booted:

- For full Brocade Zoning functionality, Zoning must be consistently and entirely managed from a single selected switch type for the lifetime of the "Effective Configuration".
- Zoning is available for port WWN only. Node WWN members and members added by AL\_PA Port ID are ignored.
- Broadcast zones cannot be specified.
- For end-ports in other manufacturer switches, only Name Server zoning is valid.
- Support for Platform Management cannot be enabled unless all switches in the fabric support the platform management requests introduced in the FC-GS standard, to allow the association of port and node WWN with specific platforms within the fabric.
- The Alias server is not available.

### Operands

This command has the following operand:

mode                    Specify 1 to enable interoperability mode; specify 0 to disable interoperability mode. This operand is optional.

If no operand is specified the current value is displayed.

### Example

To view the current interoperability mode:

```
switch:admin> interopmode
interopMode is 0
```

To enable interoperability mode:

```
switch:admin> interopmode 1
Committing configuration...done.
interopMode is 1
switch:admin>
```

**See Also** `configure`

## iodReset

Turn off the in-order delivery option.

**Synopsis**    `iodReset`

**Availability**    `admin`

**Description**    Use this command to allow out-of-order delivery of frames during fabric topology changes. This is the default behavior, and allows fast rerouting after a fabric topology change.

**Operands**    None.

**Examples**    To turn off the in-order delivery option:

```
switch:admin> iodReset
```

**See Also**    `iodSet`  
              `iodShow`

## iodSet

Turn on in-order delivery option.

**Synopsis**    `iodSet`

**Availability**    `admin`

**Description**    Use this command to enforce in-order delivery of frames during a fabric topology change.

In a stable fabric, frames are always delivered in order, even when the traffic between switches is shared among multiple paths. However, when topology changes occur in the fabric (for instance, a link goes down), traffic is rerouted around the failure. When topology changes occur, generally, some frames are delivered out of order. This command insures that frames are not delivered out-of-order, even during fabric topology changes.

The default behavior is for the in-order delivery option to be off.

This command should be used with care, because it can cause a delay in the establishment of a new path when a topology change occurs. Only if there are devices connected to the fabric that do not tolerate occasional out-of-order delivery of frames, should this command be used.

**Operands**    None.

**Examples**    To turn on the in-order delivery option:

```
switch:admin> iodSet
```

**See Also**    `iodReset`

`iodShow`

## iodShow

Display the state of the in-order delivery option.

**Synopsis**    `iodShow`

**Availability**    All users

**Description**    Use this command to display whether the In-Order Delivery option is on or off.

**Operands**    None.

**Example**    To display the current setting of the in-order delivery option:

```
switch:admin> iodShow
IOD is not set
```

**See Also**    `iodSet`  
              `iodReset`

## ipAddrSet

Set ethernet and FC IP addresses.

**Synopsis** ipAddrSet

**Availability** admin

**Description** Use this command to set ethernet and FC IP addresses. You are prompted for:

Ethernet IP Address: IP address of the ethernet port.

Ethernet Subnetmask: IP subnet mask of the ethernet port.

Fibre Channel IP Address: IP address of the fibre channel ports.

Fibre Channel Subnetmask: IP subnet mask of the fibre channel ports.

Gateway Address: IP address of the gateway.

After each prompt the current value is shown. You may:

- Press `return` to retain the current value
- Enter an IP address in conventional dot ('.') notation
- Enter `none`
- Press `control-C` to cancel changes
- Press `control-D` to accept changes and end input

The final prompt allows you to set the new IP addresses immediately; enter `y` to set new addresses immediately, enter `n` to delay the changes until the next switch reboot. (Entering `y` closes the telnet session.)

A change to these values issues a Domain Address format RSCN (see FC-FLA for a description of RSCNs).

**Operands** None.

**Example** To enable IP over fibre channel:

```
switch:admin> ipAddrSet
Ethernet IP Address [192.168.1.65]:
Ethernet Subnetmask [none]:
Fibre Channel IP Address [none]: 192.168.65.65
Fibre Channel Subnetmask [none]:
Gateway Address [192.168.1.1]:
Committing configuration...done.
Set IP addresses now?
[y = set now, n = next reboot]: y
```

**See Also** ifShow

ipAddrShow

## ipAddrShow

Display ethernet and FC IP addresses.

**Synopsis** ipAddrShow

**Availability** All users

**Description** Use this command to display ethernet and fibre channel IP addresses. The following are shown:

Ethernet IP Address: IP address of the ethernet port.

Ethernet Subnetmask: IP subnet mask of the ethernet port.

Fibre Channel IP Address: IP address of the fibre channel ports.

Fibre Channel Subnetmask: IP subnet mask of the fibre channel ports.

Gateway Address: IP address of the gateway.

IP addresses are displayed in conventional dot ('.') notation.

All fibre channel ports on a switch have the same IP address and subnet mask. The fibre channel IP address displays none if the switch is not configured to run IP over fibre channel.

**Operands** None.

**Example** To display the switch IP addresses:

```
switch:admin> ipAddrShow
Ethernet IP Address: 192.168.1.65
Ethernet Subnetmask: none
Fibre Channel IP Address: 192.168.65.65
Fibre Channel Subnetmask: none
Gateway Address: 192.168.1.1
```

**See Also** ifShow

ipAddrSet



## islTopoCheck

Display ISL sgroup connections for a switch.

**Synopsis**    `islTopoCheck`

**Availability**    `admin`

**Description**    This command displays the ISL sgroup connections and status for this switch. This command is used to verify that the switch is properly cabled and configured. Each port that is specified in the ISL definition corresponding to an ISL sgroup that this switch is a member of will be displayed. A switch with properly configured ISL connections will report a status of “OK” for each of these ports.

**Operands**    None.

**Example**    The following example shows the results of `islTopoCheck` on a mis-configured switch. In a proper configuration, all of the switches would have valid Domains and names and each of the ports status would be OK.

```
switch:admin> islTopoCheck

ISL data for type: S32_6_1, sgroup: My_group

idx  domain  expected wwn          name
01   01    10:00:00:60:69:20:02:9f  jr_1003
02   02    10:00:00:60:69:10:a0:4e  switch
03  -01    00:00:00:00:00:00:00:03  -UNKNOWN-
04  -01    00:00:00:00:00:00:00:04  -UNKNOWN-
05  -01    00:00:00:00:00:00:00:05  -UNKNOWN-
06  -01    00:00:00:00:00:00:00:06  -UNKNOWN-

Domain: 2, wwn: 10:00:00:60:69:10:a0:4e

isl port  expected switch  port  actual switch  port  status
0  08 -> jr_1003      : 00  jr_1003        : 00  OK
1  09 -> jr_1003      : 01  jr_1003        : 01  OK
2  10 -> jr_1003      : 02  jr_1003        : 03  Wrong port
3  11 -> jr_1003      : 03  -UNKNOWN-      :-01  Bad status
4  12 -> -UNKNOWN-    : 12  -UNKNOWN-      :-01  Bad status
5  13 -> -UNKNOWN-    : 13  jr_1003        : 07  Wrong switch
6  14 -> -UNKNOWN-    : 14  -UNKNOWN-      :-01  Bad status
7  15 -> -UNKNOWN-    : 15  -UNKNOWN-      :-01  Bad status
```

**See Also**    `islTopoShow`

## islTopoShow

Displays ISL switch group topology and status.

**Synopsis** `islTopoShow [sgroup]`

**Availability** all users

**Description** This command displays the current connections and status for all the switches in the ISL switch groups that the current switch is a member of. The status for every port and switch combination in each active ISL group is displayed.

**Operands** This command has the following operand:

`sgroup` Specify a switch group or switch group type to display the ISL connection status for that specific switch group or switch group type.

If no operand is entered, the default behavior is to display the topology status for all ISL sgroups of which the current switch is a member.

**Example** The following example shows the results of **islTopoShow** on a mis-configured switch. In a proper configuration, all of the switches would have valid Domains and names and each of the ports status would be OK.

```
switch:admin> islTopoShow
ISL data for type: S32_6_1, sgroup: My_group
idx  domain  expected wwn          name
01   01     10:00:00:60:69:20:02:9f  jr_1003
02   02     10:00:00:60:69:10:a0:4e  switch
03  -01     00:00:00:00:00:00:00:03  -UNKNOWN-
04  -01     00:00:00:00:00:00:00:04  -UNKNOWN-
05  -01     00:00:00:00:00:00:00:05  -UNKNOWN-
06  -01     00:00:00:00:00:00:00:06  -UNKNOWN-
```

```
Switch idx: 1 Domain: 1, wwn: 10:00:00:60:69:20:02:9f
```

isl	port	expected switch	port	actual switch	port	status
0	00	-> es_6	: 08	es_6	: 08	OK
1	01	-> es_6	: 09	es_6	: 09	OK
2	02	-> es_6	: 10	-UNKNOWN-	:-01	No record
3	03	-> es_6	: 11	es_6	: 10	Wrong port
4	04	-> -UNKNOWN-	: 08	-UNKNOWN-	:-01	No record
5	05	-> -UNKNOWN-	: 09	-UNKNOWN-	:-01	No record
6	06	-> -UNKNOWN-	: 10	-UNKNOWN-	:-01	No record
7	07	-> -UNKNOWN-	: 11	es_6	: 13	Wrong switch
8	08	-> -UNKNOWN-	: 08	-UNKNOWN-	:-01	No record
9	09	-> -UNKNOWN-	: 09	-UNKNOWN-	:-01	No record
10	10	-> -UNKNOWN-	: 10	-UNKNOWN-	:-01	No record
11	11	-> -UNKNOWN-	: 11	-UNKNOWN-	:-01	No record
12	12	-> -UNKNOWN-	: 08	-UNKNOWN-	:-01	No record
13	13	-> -UNKNOWN-	: 09	-UNKNOWN-	:-01	No record
14	14	-> -UNKNOWN-	: 10	-UNKNOWN-	:-01	No record
15	15	-> -UNKNOWN-	: 11	-UNKNOWN-	:-01	No record

```
Switch idx: 2 Domain: 2, wwn: 10:00:00:60:69:10:a0:4e
```

isl	port	expected switch	port	actual switch	port	status
0	08	-> jr_1003	: 00	jr_1003	: 00	OK
1	09	-> jr_1003	: 01	jr_1003	: 01	OK
2	10	-> jr_1003	: 02	jr_1003	: 03	Wrong port
3	11	-> jr_1003	: 03	-UNKNOWN-	:-01	No record
4	12	-> -UNKNOWN-	: 12	-UNKNOWN-	:-01	No record
5	13	-> -UNKNOWN-	: 13	jr_1003	: 07	Wrong switch
6	14	-> -UNKNOWN-	: 14	-UNKNOWN-	:-01	No record
7	15	-> -UNKNOWN-	: 15	-UNKNOWN-	:-01	No record

**See Also**    islTopoCheck

## licenseAdd

Add license key to switch.

**Synopsis** `licenseAdd "license"`

**Availability** admin

**Description** Use this command to add a license key to a switch. The license key string is case sensitive; it must be entered exactly as issued.

When the key has been entered, use the **licenseShow** command to check that the key has been correctly entered and the licensed product installed. Once the key has been installed, the product is immediately available.

**Note:** A QuickLoop only switch (SilkWorm 2100) must be rebooted after adding a Fabric license.

**Operands** This command has the following operand:

`license` Specify the license key, in quotation marks. This operand is required.

**Example** To add a license key to the switch:

```
switch:admin> licenseAdd "bQebzbRdScRfc0iK"  
adding license key "bQebzbRdScRfc0iK"  
Committing configuration...done.
```

**See Also** `licenseRemove`

`licenseShow`

## licenseHelp

Display commands used to administer license keys.

**Synopsis** licenseHelp

**Availability** admin

**Description** Use this command to display a list of the commands used to administer license keys.

**Operands** None.

**Example** To display license commands:

```
switch:admin> licenseHelp
licenseAdd      Add a license key to this switch
licenseRemove   Remove a license key from this switch
licenseShow     Show current license key
```

**See Also** licenseAdd

licenseRemove

licenseShow

## licenseRemove

Remove the license key from a switch.

**Synopsis** `licenseRemove "license"`

**Availability** admin

**Description** Use this command to remove an existing license key from a switch. The existing license key must be entered exactly as shown by **licenseShow**, including case.

When the key has been entered, use the **licenseShow** command to check that the key has been removed and the licensed product uninstalled. Once the license key has been removed, the switch must be rebooted.

With no license keys installed, `licenseShow` displays "No licenses".

**Operands** The following operand is required:

`license` Specify the license key, in quotation marks. This operand is required.

**Example** To remove a license key from the switch:

```
switch:admin> licenseRemove "bAaAabRdScRfc0iK"  
removing license key "bAaAabRdScRfc0iK"  
Committing configuration...done.
```

**See Also** `licenseAdd`

`licenseShow`

## licenseShow

Display current license keys.

**Synopsis**    `licenseShow`

**Availability**    All users

**Description**    Use this command to display current license keys along with a list of licensed products enabled by these keys; none is displayed if no license keys are installed.

**Operands**    None.

**Example**    In this example, the switch has two keys, the first key enables two licensed products and the second key enables a third:

```
switch:admin> licenseShow
bQebzbRdScRfc0iK:
    Web license
    Zoning license
SybbzQQ9edTzcc0X:
    Fabric license
```

**See Also**    `licenseAdd`  
              `licenseRemove`

## linkCost

Set or print the FSPF cost of a link.

**Synopsis** `linkCost [portnumber], [cost]`

**Availability** admin

**Description** Use this command to set or display the cost of an Inter-Switch Link (ISL). The cost of a link is a dimensionless positive number. It is used by the FSPF path selection protocol to determine the path that a frame takes going from the source to the destination switch. The chosen path is the path with minimum cost. The cost of a path is the sum of the costs of all the ISLs traversed by the path. The cost of a path is also known as the "metric".

FSPF supports load sharing over a number of equal cost paths.

Every ISL has a default cost that is inversely proportional to the bandwidth of the ISL. For a 1Gb/sec ISL, the default cost is 1000.

This command changes the actual link cost only, it does not affect the default cost. The **interfaceShow** command displays both the default and the actual cost.

Without operands, this command displays the actual cost of all the ISLs. With one operand, it displays the actual cost of a specific ISL. With two operands, it sets the cost of a specific ISL.

**Operands** This command has the following operands:

`portnumber` Specify the interface cost to be set or printed. This operand is optional.

`cost` Specify the new cost of the link connected to interface `portnumber`. This operand is optional.

**Examples** To display the FSPF cost of a link, and reset the cost:

```
switch:admin> linkCost 1
Interface: 1 cost 1000
switch:admin> linkCost 1,2000
Committing configuration...done.
switch:admin> linkCost 1
Interface: 1cost 2000
```

**See Also** `interfaceShow`

`LSDbShow`

`topologyShow`

`uRouteShow`



## login

Login as a new user.

**Synopsis** login

**Availability** All users

**Description** Use this command to login to the switch with another user name and password, without first logging out from the original session. If the user was originally connected using a telnet, sectelnet or rlogin session, that session is left open.

This command allows you to access commands that you cannot access at your current user level.

**Operands** None.

**Example** To change the login from “user” to “admin”:

```
switch:user> login
login: admin
Password: xxxxxx
switch:admin>
```

**See Also** logout

## logout

Logout from a telnet, rlogin or serial port session.

**Synopsis**     logout

**Availability**   All users

**Description**   Use this command to logout from a telnet, rlogin or serial port session. Telnet and rlogin connections are closed, the serial port returns to the “login:” prompt.  
The commands **exit** and **quit** are accepted as synonyms for **logout**, as is `control-D` entered at the beginning of a line.

**Operands**     None.

**Example**       To log out from an rlogin session:

```
switch:admin> logout
Connection closed.
```

**See Also**     login

## loopdiagClear

Clear information from management layers.

**Synopsis**    `loopdiagClear port`

**Availability**    `admin`

**Description**    Use this command to clean up any residue information from a previous failed session in management layer. It releases all the resources created for the port specified.

**Operands**    This command has the following operand:

`port`            The physical port number where the loopdiag application was executed. This operand is required.

**Example**    To clear the loopdiag application information at port 5:

```
switch:admin> loopdiagClear 5
```

**See Also**    `loopdiagStart`

`loopdiagStop`

## loopdiagDone

Completes loopdiag application.

**Synopsis** `loopdiagDone port`

**Availability** admin

**Description** Use this command to complete the loopdiag application at the port specified. It releases all the resources created for loopdiag and sets the port ONLINE before resetting the loop.

**Operands** This command has the following operand:

`port`            The physical port number where the loopdiag application executes. This operand is required.

**Example** To complete the loopdiag application at port 5:

```
switch:admin> loopdiagDone 5
```

**See Also** `loopdiagStart`

`loopdiagStop`

## loopdiagRestore

Restore the original loop configuration.

**Synopsis** `loopdiagRestore port`

**Availability** admin

**Description** Use this command to restore an FC-AL to its original configuration. It would start with a partial loop resulted from device failure during an earlier **loopdiagStart** command and issues LPE(ff, x) to bring online all the N-ports that were bypassed. It can be used in conjunction with command **loopdiagClear** to handle failed commands.

**Operands** This command has the following operand:

`port` The physical port number where the loopdiag application executes. This operand is required.

**Example** To restore the loopdiag configuration at port 5:

```
switch:admin> loopdiagRestore 5
```

**See Also** `loopdiagClear`  
`loopdiagDone`  
`loopdiagStart`  
`loopdiagStop`

## loopdiagStart

Start loopdiag application.

**Synopsis** `loopdiagStart port`

**Availability** admin

**Description** Use this command to start the loopdiag application at the port specified. It will isolate the loop device before running diagnostics and report the test result. Error/failure and statistics will be reported.

The port has to be ONLINE prior to initiating the command. The command will place the port in TESTING mode during and put the port back ONLINE at the end of the test. In the cases when failure occurs in the management layer, users should issue **loopdiagClear** to clear any residue from the failure.

**Operands** This command has the following operand:

`port` The physical port number where the loopdiag application executes. This operand is required.

**Example** To start the loopdiag application at port 5:

```
switch:admin> loopdiagStart 5
```

**See Also** `loopdiagClear`  
`loopdiagDone`  
`loopdiagStop`

## loopdiagStop

Stops the loopdiag application.

**Synopsis**    `loopdiagStop port`

**Availability**    `admin`

**Description**    Use this command to stop the loopdiag application at the port specified. It releases all the resource created for loopdiag and place the port ONLINE before resetting the loop.

**Operands**    This command has the following operand:

`port`            The physical port number where the loopdiag application executes. This operand is required.

**Example**    To stop the loopdiag application at port 5:

```
switch:admin> loopdiagStop 5
```

**See Also**    `loopdiagClear`  
              `loopdiagDone`  
              `loopdiagStart`

## LSDbShow

Display the FSPF Link State Database.

**Synopsis** LSDbShow [domain]

**Availability** All users

**Description** Use this command to display a link state database record for switches in the fabric.

There are two data structures - the permanently allocated Link State Database Entry and the Link State Record (LSR) that is allocated when a switch is connected to the fabric. The LSR for Domain 'n' describes the links between the switch with Domain number 'n' and its neighbor switches. For a link to be reported in the LSR, the neighbor for that link must be in NB\_ST\_FULL state.

This command displays the content of both data structures, if the LSR is present.

Without operands, this command displays the whole Link State Database.

The display shows the following fields:

**Table 1-12** LSDbShow Display Fields

Field	Description
Domain	Domain number described by this LSR. A (self) keyword after the Domain number indicates LSR describes the local switch.
lsrP	Pointer to LSR.
earlyAccLSRs	Number of LSRs accepted even though they were not sufficiently spaced apart.
ignoredLSRs	Number of LSRs not accepted because they were not sufficiently spaced apart.
lastIgnored	Last time an LSR was ignored.
installTime	Time this LSR was installed in the database, in seconds since boot.
lseFlags	Internal variable.
uOutIfs	Internal variable
uPathCost	Internal variable.
uHopsFromRoot	Internal variable.
mOutIfs	Internal variable.
parent	Internal variable.
mPathCos	Internal variable.
mHopsFromRoot	Internal variable.
lsAge	Age, in seconds, of this LSR. An LSR is removed from the database when its age exceeds 3600 seconds.
reserved	Reserved for future use.
type	Type of the LSR. Always 1.



**Table 1-12** LSDbShow Display Fields (Continued)

Field	Description
options	Always 0.
lsId	ID of this LSR. It is identical to the Domain number.
advertiser	ID (Domain number) of the switch that originated this LSR.
incarn	Incarnation number of this LSR.
length	Total length (in bytes) of this LSR. Includes header and link state information for all links.
chksum	Checksum of total LSR, with exception of lsAge field.
linkCnt	Number of links in this LSR. Each link represents a neighbor in NB_ST_FULL state.
flags	Always 0.
LinkId	ID of this link. It is the Domain number of the switch on the other side of the link.
out port	Port number on the local switch.
rem port	Port number of the port on the other side of the link.
cost	Cost of this link. The default cost for a 1 Gb/s link is 1000.
costCnt	Always 0.
type	Always 1.

**Operands** This command has the following operand:

domain            Specify the Domain number of LSR to be displayed.

**Examples** To display the Link State Record for the local switch, as indicated by `self` keyword (the local switch has four links in `NB_ST_FULL` state, three of them connected to switch 5, and one connected to switch 4).

```
Domain = 7 (self), Link State Database Entry pointer = 0x103946a0

lsrP          = 0x1035bb30
earlyAccLSRs = 1
ignoredLSRs  = 0
lastIgnored  = Never
installTime  = 0x4f20a (324106)
lseFlags     = 0xa
uOutIfs     = 0x0
uPathCost    = 0
uHopsFromRoot = 0
mOutIfs     = 0x20
parent      = 0x4
mPathCost   = 2000
mHopsFromRoot = 2

Link State Record:

Link State Record pointer = 0x1035bb30

lsAge        = 138
reserved     = 0
type        = 1
options     = 0x0
lsId       = 7
advertiser  = 7
incarn     = 0x80000217
length     = 92
chksum     = 0x2fdd
linkCnt = 4, flags = 0x0
LinkId = 4, out port = 3, rem port = 2, cost = 1000, costCnt = 0, type = 1
LinkId = 5, out port = 5, rem port = 5, cost = 1000, costCnt = 0, type = 1
LinkId = 5, out port = 6, rem port = 3, cost = 1000, costCnt = 0, type = 1
LinkId = 5, out port = 7, rem port = 4, cost = 1000, costCnt = 0, type = 1
```

**See Also** `interfaceShow`  
`nbrStateShow`

## mcastShow

Display multicast routing information.

**Synopsis** mcastShow [group\_ID]

**Availability** All users

**Description** Use this command to display the multicast routing information, as it is known by the FSPF path selection and routing task, for all ports in the switch. The multicast routing information indicates, for each multicast group, all the ports that are members of that group, that is ports that are able to send and receive multicast frames on that group.

The multicast routing information is shown for all the multicast groups, or for a specific group if a group ID is supplied.

Normally, an F\_Port or FL\_Port is a member of the multicast group only if it has joined the group using the Alias Server protocol. On the other hand, E\_Ports that are part of the multicast group are selected by the multicast path selection protocol. They are chosen in a way that prevents multicast routing loops.

The multicast paths are active for all the multicast groups at all times, regardless of whether a multicast group contains any members.

The multicast routing information is shown as a set of bit maps. Each bit in the bit map represents a port, with the least significant bit representing port 0. A bit set to 1 indicates that a port is part of the multicast distribution tree.

The following fields are displayed:

Group:	Multicast group ID.
Member Ports:	Bit map of all ports in the multicast tree for that multicast group.
Member ISL Ports:	Bit map of all E_Ports in the multicast tree for that multicast group.
Static ISL Ports:	Reserved. It should be all zeroes.

**Operands** This command has the following operand:

group_ID	Specify the multicast group number to be displayed. This operand is optional. If no operand is specified all multicast groups are displayed.
----------	--

**Examples** To display multicast routing information:

```
switch:admin> mcastShow 9
Group          Member Ports  Member ISL Ports  Static ISL Ports
-----
9              0x00002083   0x00002080       0x00000000
```

**See Also** bcastShow  
portRouteShow

## msConfigure

Configure the Management Server.

**Synopsis** `msConfigure`

**Availability** `admin`

**Description** Use this command to display and configure parameters used to access the Management Server. The Management Server allows a storage area network (SAN) management application to retrieve and administer fabric and interconnect elements such as switches. It is located at the fibre channel address, FFFFFFFAh.

If the Management Server Access Control List (ACL) is empty (default), the Management Server is accessible to all systems connected in-band to the fabric. To restrict access, specify the World Wide Name (WWN) for one or more management applications; access is then restricted to those WWNs.

The ACL is implemented on a per switch basis and should be configured on the switch to which the management application station is directly connected.

This command is interactive and provides the following choices:

- 0 Done (with the administration)
- 1 Display the access list (ACL)
- 2 Add member based on its Port/Node WWN
- 3 Delete member based on its Port/Node WWN

If a change is made you are prompted to save the changed ACL to the FLASH. The saved ACL is restored on future reboot.

**Operands** None.

**Example** To display the Management Server access control list.

```
switch:admin> msConfigure
0          Done
1          Display the access list
2          Add member based on its Port/Node WWN
3          Delete member based on its Port/Node WWN
select : (0..3) [1]
MS Access List consists of (5): {
 20:01:00:60:69:00:60:10
 20:02:00:60:69:00:60:10
 20:03:00:60:69:00:60:10
 20:02:00:60:69:00:60:03
 20:02:00:60:69:00:60:15
}
0          Done
1          Display the access list
2          Add member based on its Port/Node WWN
3          Delete member based on its Port/Node WWN

select : (0..3) [1] 0
done ...
switch:admin>
```

**See Also** msPlCapabilityShow  
msPlMgmtActivate  
msPlMgmtDeactivate  
msPlClearDB

## msPlatShow

Displays the Management Server Platform Database.

**Synopsis** msPlatShow

**Availability** admin

**Description** This command enables an admin user to display the Management Server Platform Database. It displays the Platform name and associated attributes of each Platform object in the database.

Platform Database Management is available in firmware v2.3 and above. Lower level firmware releases do not support Platform Database Management.

**Operands** None.

**Example** To display the Management Server platform database for a fabric:

```
switch:admin> msPlatShow
-----
Platform Name: [9] "first obj"
Platform Type: 5 : GATEWAY
Number of Associated M.A.: 1
Associated Management Addresses:
  [35] "http://java.sun.com/products/plugin"
Number of Associated Node Names: 1
Associated Node Names:
  10:00:00:60:69:20:15:71
-----
Platform Name: [10] "second obj"
Platform Type: 7 : HOST_BUS_ADAPTER
Number of Associated M.A.: 1
Associated Management Addresses:
  [30] "http://java.sun.com/products/1"
Number of Associated Node Names: 2
Associated Node Names:
  10:00:00:60:69:20:15:79
  10:00:00:60:69:20:15:75
```

**See Also** msPlCapabilityShow

msPlMgmtActivate

msPlMgmtDeactivate

msPlClearDB

## msPlClearDB

Clears the Management Server Platform Database on all switches in the fabric.

**Synopsis** msPlClearDB

**Availability** admin

**Description** This command enables an admin user to clear the entire Management Server Platform Database on all switches in the fabric. Since this operation is non-recoverable (once issued, the database will be erased), it should not be used unless it is intended to resolve a database conflict between two joining fabrics or to establish an entire new fabric with an empty database.

**Limitations** Platform database management is available in v2.3 and above. Lower level firmware releases will not be able to support Platform Database Management.

**Operands** None

**Example** To clear the Management Server platform database on all switches in the fabric:

```
switch:admin> msPlClearDB
Fabric-wise Platform DB Delete operation in progress...
switch:admin>Done...
```

**See Also** msPlMgmtDeactivate  
msPlatShow  
msPlCapabilityShow  
msPlMgmtActivate

## msPlCapabilityShow

Display the Platform Database Management Capability.

- Synopsis** msPlCapabilityShow
- Availability** admin
- Description** This command enables an admin user to query a fabric for the Platform Database Management capability. Based on the result of this command, the admin user can then decide if it is ok to activate the Platform database management service on all switches in the fabric.
- When this command is issued, information is gathered from every switch of the fabric and each switch's ability to handle the Platform database management is displayed.
- Limitations** Platform Database Management is available in firmware v2.3 and above. Lower level firmware releases do not support Platform Database Management.
- Operands** None.
- Example** To display Platform Database Management capability on a fabric:

```
switch:admin> msPlCapabilityShow
                                     Platform
Switch WWN                          Service Capable  Capability  Name
=====
10:00:00:60:69:20:15:71              Yes            0X0000000B  "swd156"
10:00:00:60:69:00:30:05              Yes            0X0000000B  "swd158"
    Capability Bit Definitions:
        Bit 0: Basic Configuration Service Supported.
        Bit 1: Platform Management Service Supported.
        Bit 2: Topology Discovery Service Supported.
        Bit 3: Unzoned Name Server Service Supported.
        Bit 4: M.S. Fabric Zone Service Supported.
        Bit 5: Fabric Lock Service Supported.
        Others: Reserved.

Done.
```

- See Also** msPlMgmtActivate  
 msPlMgmtDeactivate  
 msPlatShow  
 msPlClearDB



## msPlMgmtActivate

Activates the Platform DB Management service on all switches in the fabric.

**Synopsis** msPlMgmtActivate

**Availability** admin

**Description** This command enables an admin user to activate the Management Server Platform Database Management Service on all switches in the fabric. It is recommended that the admin user run the **msPlCapabilityShow** command before issuing this command. If any switch within the fabric is not capable of handling the Platform Management service, this command is rejected. When this command is issued, all the switches in the fabric will have the Platform database management service ENABLED.

The activation is saved to the non-volatile storage of each switch, so even after a reboot, a switch will boot up with Platform Management service ENABLED.

By default, the Platform Management service is DISABLED.

**Limitations** Platform Database Management is available in firmware v2.3 and above. Lower level firmware releases do not support Platform Database Management.

**Operands** None.

**Example** To activate Platform Database Management on all switches in the fabric:

```
switch:admin> msPlMgmtActivate
Request Fabric to activate Platform Management services... Done.
switch:admin>
```

**See Also** msPlMgmtDeactivate  
msPlatShow  
msPlCapabilityShow  
msPlClearDB

## msPlMgmtDeactivate

Deactivates the Platform DB Management service on all switches in the fabric.

**Synopsis** msPlMgmtDeactivate

**Availability** admin

**Description** This command enables an admin user to deactivate the Platform DB Management service. This command deactivates the Platform DB Management service of each switch in the fabric and commits the changes to the non-volatile storage of each switch.

Once deactivated, even in the event of a reboot, the switch will initialize with the service DISABLED.

By default, the Platform Management service is DISABLED.

**Limitations** Platform Database Management is available in firmware v2.3 and above. Lower level firmware releases do not support Platform Database Management.

**Operands** None.

**Example** To deactivate the Platform Database on all switches in the fabric:

```
switch:admin> msPlMgmtDeactivate
Request Fabric to Deactivate Platform Management services....
Done.
switch:admin>
```

**See Also** msPlatShow  
msPlCapabilityShow  
msPlMgmtActivate  
msPlClearDB

## nbrStatsClear

Reset FSPF interface counters.

**Synopsis**   nbrStatsClear [portnumber]

**Availability**   All users

**Description**   Use this command to reset the counters of FSPF frames transmitted and received on an interface.  
Use this command with no operand to reset counters on all interfaces.

**Operands**   This command has the following operand:  
portnumber   Specify the port number for the counters to be reset. This operand is optional.

**Examples**   To display how to reset the counters on port 4:

```
switch:admin> interfaceShow 4
idbP                = 0x10f61f40
Interface 4 data structure:
nghbP                = 0x10f61d90
ifNo                 = 4
defaultCost          = 1000
cost                 = 1000
delay                = 1
lastScn              = 5
lastScnTime          = Mar 29 12:57:52.833
upCount              = 2
lastUpTime           = Mar 29 12:57:52.833
downCount            = 1
lastDownTime         = Mar 29 12:57:47.566
downReason           = 2
iState               = UP
Type <CR> to continue, Q<CR> to stop:
Neighbor 4 data structure:
state                = NB_ST_FULL
lastTransition        = Mar 29 12:57:52.865
nghbCap              = 0x0
nghbId               = 2
idbNo                = 4
remPort              = 1
nflags               = 0x3

< ... sample output truncated ... >
```

**See Also**   interfaceShow  
portShow  
switchShow

## nbrStateShow

Display FSPF neighbor's state.

**Synopsis** `nbrStateShow [portnumber]`

**Availability** All users

**Description** Use this command to display information about neighbors to the local switch, or information about a specific neighbor if a port number is supplied. A neighbor is a switch that is directly attached to the local switch.

The display shows the following fields:

**Table 1-13** nbrStateShow Display Fields

Field	Description
Local Domain ID:	Domain number of local switch.
Local Port:	E_Port (interface) on local switch.
Domain:	Domain number of remote switch.
Remote Port:	E_Port (interface) on remote switch.
State:	State of the neighbor. The E_Port is used to route frames only if the neighbor is in NB_ST_FULL state.

**Operands** This command has the following operand:

`portnumber` Specify the port on the local switch that connects to the neighbor being displayed.

**Examples** To display information about switches directly connected to the local switch:

```
switch:admin> nbrStateShow
Local Domain ID: 15
Local Port      Domain      Remote Port  State
-----
2               13         13          NB_ST_FULL
6               13         9           NB_ST_FULL
7               13         8           NB_ST_FULL
13              3          7           NB_ST_FULL
```

**See Also** `interfaceShow`

## nsAllShow

Display global Name Server information.

**Synopsis** nsAllShow [type]

**Availability** All users

**Description** Use this command to display the 24-bit fibre channel addresses of all devices in all switches in the fabric. If the `type` operand is supplied, only devices of specified FC-PH type are displayed. If the `type` operand is omitted, all devices are displayed.

**Operands** This command has the following operand:  
`type` Specify the FC-PH type code. This operand is optional.

**Example** To display all devices in the Fabric, followed by all type 8 (SCSI-FCP) devices:

```
switch:admin> nsAllShow
  12 Nx_Ports in the Fabric {
    011000 011200 0118e2 0118e4 0118e8 0118ef 021200 021300
    0214e2 0214e4 0214e8 0214ef
  }
switch:admin> nsAllShow 8
  8 FCP Ports {
    0118e2 0118e4 0118e8 0118ef 0214e2 0214e4 0214e8 0214ef
  }
switch:admin> nsAllShow 5
  2 FC-IP Ports in the Fabric {
    011200 021200}
```

**See Also** nsShow  
switchShow

## nsShow

Display local Name Server information.

**Synopsis** nsShow

**Availability** All users

**Description** Use this command to display local Name Server information, including information about devices connected to this switch, and cached information about devices connected to other switches in the fabric.

The following message is displayed if there is no information in this switch:

```
There is no entry in the Local Name Server
```

There still may be devices connected to other switches in the fabric. The **nsAllShow** command displays information from all switches.

Each line of output shows:

*	Indicates a cached entry from another switch.
Type	U for unknown, N for N_Port, NL for NL_Port.
Pid	24-bit fibre channel address.
COS	List of classes of service supported by device.
PortName	Device port worldwide name.
NodeName	Device node worldwide name.
TTL	Time-to-live (in seconds) for cached entries, or na (not applicable) if the entry is local.

There may be additional lines if the device has registered any of the following information (the switch automatically registers SCSI inquiry data for FCP target devices):

- FC4s supported
- IP address
- IPA
- Port and node symbolic names
- Fabric Port Name - This is the WWN of the port on the switch that the device is physically connected to.
- hard address and/or port IP address

**Operands** None.

**Example** To display local name server information:

```
switch:admin> nsShow
The Local Name Server has 7 entries {
Type Pid    COS      PortName                NodeName                TTL(sec)
*N    011200;   2,3;10:00:00:60:69:00:ab:ba;10:00:00:60:69:00:ab:ba; 60
      FC4s: FCIP
N    021200;   2,3;10:00:00:60:69:00:03:19;30:00:00:60:69:00:03:19; na
      FC4s: FCIP
N    021300;   3;10:00:00:60:69:00:02:d6;20:00:00:60:69:00:02:d6; na
NL   0214e2;   3;21:00:00:fa:ce:00:21:1e;20:00:00:fa:ce:00:21:1e; na
      FC4s: FCP [STOREX RS2999FCPH3 MT09]
NL   0214e4;   3;21:00:00:fa:ce:00:21:e1;20:00:00:fa:ce:00:21:e1; na
      FC4s: FCP [STOREX RS2999FCPH3 CD09]
NL   0214e8;   3;21:00:00:fa:ce:04:83:c9;20:00:00:fa:ce:04:83:c9; na
      FC4s: FCP [STOREX RS2999FCPH3 NS09]
NL   0214ef;   3;21:00:00:ad:bc:04:6f:70;20:00:00:ad:bc:04:6f:70; na
      FC4s: FCP [STOREX RS2999FCPH3 JB09]
}
```

**See Also** nsAllShow  
switchShow

## parityCheck

Enable or disable DRAM parity checking.

**Synopsis** parityCheck [mode]

**Availability** admin

**Description** This command enables DRAM parity checking. The mode is saved in flash memory and stays in that mode until the next execution of parityCheck.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

The DRAM parity checking, when enabled causes ramTest to perform several additional tests of the parity memory. It also enables the parity checking hardware to verify proper parity on all DRAM read operations. DRAM parity checking is only available on specific switch models. If the current switch does not support parity checking an error is displayed.

**Operands** This command has the following operand:

mode Specify a 1 to enable DRAM parity checking or specify a 0 to disable it. The default (if no operand is specified) is to disable parity checking.

**Example** To enable and disable DRAM parity checking:

```
switch:admin> parityCheck 1
Committing configuration...done.
Parity check is now ON.

switch:admin> parityCheck 0
Committing configuration...done.
Parity check is now OFF.

switch:admin> parityCheck 0
Parity not supported on system model: 4
Parity check already OFF.
```

**See Also** ramTest



## passwd

Change the system login names and passwords

**Synopsis** `passwd [ "user" ]`

**Availability** All users

**Description** Use this command to change the system login name and password for one or more users.

If the **user** operand is specified, the command prompts to change the login name and password for that user. If no operand is specified, the command prompts the user to change the login names and passwords for all users up to and including the current user's security level.

The user is first prompted to change the login name. The current login name is shown in brackets. Press the Enter key with no input to accept the current login name as default. All login names must be unique. If the login name supplied is not already in use by another user, the user is then prompted for the old password. If the password entered matches the current password, the user is then prompted to enter the new password twice. The new password must be different from the old password. If the two new passwords do not match, the process is repeated two more times, before the command fails for that user.

**Note:** If the optional Secure Fabric OS feature is installed on your fabric, this command is used to change the fabric wide FCS passwords.

**Note:** It is possible to change a login name without changing the associated password.

Passwords must be between 8 and 40 characters in length.

If switch fabric is in secure mode, this command can only be run on the primary FCS switch. The login names cannot be changed. Any modifications to the password database are distributed to all FCS switches. If the password policy is disabled in secure mode. The command is used as in non-secure mode.

You cannot change the login IDs until all login passwords have been changed or until security mode has been enabled.

Special Inputs:

Carriage return When entered alone at a prompt without any preceding input, accepts the default value (if applicable) and moves to the next prompt.

Interrupt Aborts the command immediately and ignores all changes made.

End-of-file When entered alone at a prompt without any preceding input, terminates the command saving any changes made. The password must have from 8 to 40 alphanumeric characters.

**Operands** This command has the following operand:

**user** Specify the user name, in quotation marks, where you want to change the login name and password. This operand is optional.

**Example** To change the admin user name and password:

```
switch:admin> passwd "admin"
New username [admin]: maint
Old password:
New password:
Re-enter new password:

Committing configuration...done.
```

**See Also** login

logout

**Diagnostics** All error messages are preceded by the command name with one of the following messages appended:

"user" is not a valid user name.	You have not specified a user name that is a valid, recognized user name on the system.
Permission denied.	You do not have permission to change the login name or password specified.
That user name is already being used.	You cannot change the user name to that of a previously existing user.
Incorrect password.	You have not entered the correct password when prompted for the old password.
Password unchanged.	You have entered the carriage return special input case, choosing not to change the password.
Number of failure attempts exceeded.	You have made 3 unsuccessful attempts to enter and verify a new password.
Passwords do not match; try again.	You have not correctly verified the new password.

## portCfgEport

Enable or disable a port from becoming an E\_Port.

**Synopsis** `portCfgEport [port_number, mode]`

**Availability** admin

**Description** Use this command to enable or disable a port from becoming an E\_Port. The E\_Port capability is enabled by default unless this command is used to disable it.

When a port is configured as a non-E\_Port through this command, an ISL connected to this port will be segmented. No data traffic between two switches will be routed through this port. Fabric management data, such as zoning information will not be exchanged through this port either.

The configuration is saved in the non-volatile memory and is persistent across switch reboot or power cycle.

**Operands** This command has the following operands:

`port_number` Specify the port number to be configured. Valid values for port number vary depending on the switch type. This operand is optional.

`mode` Specify 1 or 0 to enable or disable a port as an E\_Port. Specify 1 to enable the port to become an E\_Port. This is the default port state. Specify 0 to disable the port from becoming an E\_Port. When the `port_number` operand is present, the `mode` operand must also be present. This operand is optional.

When no operand is specified, the command reports a list of ports that are disabled from becoming E\_Ports.

**Example** To disable port 3 from becoming an E\_Port:

```
switch:admin> portCfgEport 3, 0
Committing configuration...done.
switch:admin> portCfgEport
Ports:   0   1   2   3   4   5   6   7
-----
-   -   -   NO  -   -   -   -
```

**See Also** `portShow`  
`switchShow`

## portCfgGport

Designates a port as a locked G\_Port.

**Synopsis** `portCfgGport portnumber, mode`

**Availability** admin

**Description** This command enables a user to designate a port as a locked G\_Port. Once this is done, the switch attempts to initialize that port as an F\_Port only, and does not attempt loop initialization (FL\_Port) on the port. However, if the device attached to the port initiates loop communication, then the switch responds accordingly and the port can then become an FL\_Port. Similarly, a port designated as a G\_Port can become an E\_Port.

Locking a port as a G\_Port only changes the actions initiated by the switch; it does not change how the switch responds to initialization requests.

The configuration is saved in the non-volatile memory and is persistent across switch reboot or power cycle.

**Operands** This command has the following operands:

`portnumber` Specify the port number to be configured. Valid values for port number vary depending on the switch type. This operand is required.

`mode` Specify a value of 1 to designate the port as a G\_Port.  
Specify a value of 0 to remove the G\_Port designation from the port. This is the default port state. This operand is required.

**Example** The following example configures switch port 3 as a locked G\_Port:

```
switch:admin> portCfgGport 3, 1
Committing configuration...done.
```

**See Also** `portShow`  
`switchShow`  
`configure`

## portCfgLport

Lock a port as an L\_PORT.

**Synopsis** portCfgLport port\_number mode

**Availability** admin

**Description** Use this command to designate a port as an L\_PORT. The switch will then only attempt to initialize that port as an FL\_PORT. The switch will never attempt point-to-point (F\_PORT) initialization on the port. However, if the device attached to the port initiates point-to-point communication, then the switch will respond accordingly, and the port may then become an F\_PORT.

Similarly, being locked as an L\_PORT will not prevent the port from becoming an E\_PORT. Locking a port as an L\_PORT only affects what actions the switch initiates. It does not change how the switch responds to initialization requests.

**Operands** This command has the following operands:

**port\_number** Specify the port to be configured. Valid values for port number vary depending on the switch type. This operand is required.

**mode** Specify a value of 1 if the "port\_number" is designated as a locked L\_PORT. Specify a value of 0 if the "port\_number" de-configured from its previous role as a locked L\_PORT. This operand is required.

**Example** To configure switch port 3 as a locked L\_PORT:

```
switch:admin> portCfgLport 3, 1
Committing configuration...done.
```

**See Also** portShow  
switchShow  
configure

## portCfgLongDistance

Configure a port to support long distance links.

**Synopsis** `portCfgLongDistance portnumber [distance]`

**Availability** admin. The Brocade Extended Fabrics License key is required to use this command.

**Description** Use this command to specify the allocation of enough full size frame buffers on a particular port to support a long distance link of up to 100 km. The port can be used as either an Fx\_Port or an E\_Port. The configuration is saved in the non-volatile memory and is persistent across switch reboot or power cycle.

When this command is invoked without the optional operand, you are prompted to enter the long distance level number. The level value must be one of the following:

- |   |   |
|---|---|
| 0 | Reconfigures port as a regular switch port. The number of buffers reserved for the port supports links up to 10 km. |
| 1 | Level one long distance, up to 50 km. A total of 27 full size frame buffers are reserved for the port.              |
| 2 | Level two long distance, up to 100 km. A total of 60 full size frame buffers are reserved for the port.             |

You can cancel the configuration update by entering CTRL + D.

When a port is configured to be a long distance port, the output of **portShow** and **switchShow** displays the long distance level. In the **portShow** output, the long distance level is indicated as "medium" for level 1 long distance, and "long" for level 2 long distance. In the **switchShow** output, the format is Lx, where x is the long distance level number, except for level 0, which is not displayed in **switchShow**.

**Note:** Refer to the *Brocade Extended Fabrics User's Guide* for more information.

**Operands** This command has the following operands:

- |                         |   |
|-------------------------|---|
| <code>portnumber</code> | Specify the port number to be configured. Valid values for port number vary depending on the switch type. This operand is required.   |
| <code>distance</code>   | This operand indicates the distance to the connected port. This operand is optional. The valid values for this operand are:<br><b>0</b> = reconfigure port to be regular switch port<br><b>1</b> = level one long distance (up to 50 km)<br><b>2</b> = level two long distance (up to 100 km) |

**Limitations** A group of four adjacent ports that share a common pool of frame buffers (for example, ports 0 - 3 or 4 - 7) are called a "quad". Since the total number of frame buffers in a quad is limited, if one of the ports in the quad is configured as a long distance port, none of the remaining ports in the quad can be a long distance port; they must all be level 0 ports.

In order to have a long distance port take effect, all switches in the fabric must be configured to run in long distance fabric mode (in other words, the long distance fabric mode bit must be "on", or set to 1). Otherwise, the fabric will be segmented. A long distance port cannot be configured in a switch unless the long distance fabric mode is on for that switch.

If all ports are reconfigured back to non-long distance ports, the long distance fabric mode must be set to “off” for that switch.

**Example** To configure switch port 3 to support a 100 km link:

```
switch:admin> portCfgLongDistance 3
Please enter the long distance level -- : (0..2) [0] 2
Committing configuration...done.
```

**See Also** `configure`  
`portShow`  
`switchShow`

## portcfgMcastLoopback

Configure a port to receive multicast frames.

**Synopsis** `portCfgMcastLoopback portnumber, mode`

**Availability** admin

**Description** Use this command to configure a port to receive multicast frames. This command allows a user to dedicate an unused port in a leaf (edge) switch, with no F\_Port belonging to a multicast group, to receive multicast frames.

When multicast frames are received at an edge switch with no member port, traffic will throttle down in the KBytes/Second range as embedded processor intervention is required to process it.

However when a port is assigned as the multicast loopback port, frames destined for any multicast group will be routed to that multicast loopback port where it is loopbacked to the port's receiver which is turned off. This effectively sends the frames to a black hole. Since embedded processor is not involved, traffic moves at normal (and full) speed.

Executing this command on a branch (middle) switch will not affect traffic. It can be configured for future use as an edge switch. The disadvantage is that the port cannot be used to connect to other devices.

The configuration is saved in the non-volatile memory and is persistent across switch reboot or power cycle.

The user will be prompted if:

- The selected port is already in use as an E\_Port, or Fx\_Port,
- The switch is a branch (middle) switch.

A warning message is printed if another port is already configured as the multicast loopback.

When a port is configured as multicast loopback port:

- Its port LED will blink a slow green indicating a loopback state. Its laser, if optical GBIC'ed, will be disabled. It will not respond to any attempt to connect it to any device.
- The comment field of switchShow will show that it is looped back to itself like so:
 

```
"port 3: sw No_Light Loopback->3"
```
- The portFlags line of portShow will display the "F\_PORT" and "INT\_LB" flags like so:
 

```
"portFlags: 0x20249 PRESENT F_PORT U_PORT INT_LB LED"
```
- mcastShow will show the port as a member in its "Member Ports" column.

**Operands** This command has the following operands:

`portnumber` Specify the port number to be configured. Valid values for port number vary depending on the switch type. This operand is required.

`mode` Specify the value 1 and the "portnumber" is dedicated as a multicast loopback port. Specify the value 0 and the "portnumber" is de-configured from its previous role as a multicast loopback port. This operand is required.



**Example** To configure switch port 3 as a multicast loopback port:

```
switch:admin> portCfgMcastLoopback 3, 1  
Committing configuration...done.
```

**See Also** portShow  
switchShow  
mcastShow  
configure

## portDisable

Disable a switch port.

**Synopsis** `portDisable portnumber`

**Availability** admin

**Description** Use this command to disable a switch port. If the port is connected to another switch, the fabric may reconfigure. If the port is connected to one or more devices, the devices can no longer communicate with the fabric.

If the port was online before being disabled, the following indicate a state transition: RSCN, SNMP trap, Web pop-up window.

The front panel LED of a disabled port flashes yellow with a two second cycle.

**Operands** This command has the following operand:

`portnumber` Specify the port number to be disabled. Valid values for port number vary depending on the switch type. This operand is required.

**Example** To disable port 4:

```
switch:admin> portDisable 4
```

**See Also** `portEnable`  
`portShow`  
`switchShow`

## portEnable

Enable a switch port.

**Synopsis** `portEnable portnumber`

**Availability** admin

**Description** Use this command to enable a switch port. If the port is connected to another switch, the fabric may reconfigure. If the port is connected to one or more devices, the devices can communicate with the fabric.

For ports that come online after being enabled, the following indications may be sent to indicate a state transition: RSCN, SNMP trap, Web pop-up window.

The front panel LED of an enabled and online port is green.

**Operands** This command has the following operand:

`portnumber` Specify the port number to be enabled. Valid values for port number vary depending on the switch type. This operand is required.

**Example** To enable port 4:

```
switch:admin> portEnable 4
```

**See Also** `portDisable`  
`portShow`  
`switchShow`

## portErrShow

Display port error summary.

**Synopsis** portErrShow

**Availability** All users

**Description** Use this command to display an error summary for all ports. The display contains one output line per port and shows error counters in ones, thousands (K), or millions (M).

The following fields are displayed:

frames tx	Frames transmitted.
frames rx	Frames received.
enc in	Encoding errors inside frames.
crc err	Frames with CRC errors.
too short	Frames shorter than minimum.
too long	Frames longer than maximum.
bad eof	Frames with bad end-of-frame delimiters.
enc out	Encoding error outside of frames.
disc c3	Class 3 frames discarded.
link fail	Link failures (LF1 or LF2 states).
loss sync	Loss of synchronization.
loss sig	Loss of signal.
frjt	Frames rejected with F_RJT.
fbsy	Frames busied with F_BSY.

**Operands** None.

**Example** The following example shows an eight port switch. Notice in the example below that port six has a high number of errors and should be examined:

```
switch:admin> portErrShow

frames  enc  crc  too  too  bad  enc  disc  link  loss  loss  frjt  fbsy
tx    rx   in  err  shrt long eof  out  c3   fail sync  sig
-----
0:      0    0    0    0    0    0    0    0    0    0    0    1    0    0
1:  2.5m  38    0    0    0    0    0    2    0    0    1    1    0    0
2:      0    0    0    0    0    0    0    0    0    0    0    1    0    0
3:  95k   15k    0    0    0    0    0    3    0    0    1    0    0    0
4:      0    0    0    0    0    0    0    0    0    0    0    1    0    0
5:      0    0    0    0    0    0    0    0    0    0    0    1    0    0
6:  61k   48    2   15    0    0    0    3k   0    0    2    0    0    0
7:      0    0    0    0    0    0    0    0    0    0    0    1    0    0
```

**See Also** portShow  
portStatsShow

## portLogClear

Clear the port log.

**Synopsis** portLogClear

**Availability** admin

**Description** Use this command to clear the port log.

You may want to clear the port log before triggering an activity so that the log displays only the activity related to that activity. See the **portLogShow** command for a description of the port log.

If the port log is disabled, **portLogClear** enables it. Certain errors automatically disable the port log to preserve information needed to understand the error (new events are not collected so that existing information is not over-written).

**Operands** None.

**Example** To clear the port log:

```
switch:admin> portLogClear
switch:admin> portLogShow
port log is empty
```

**Errors** The following errors disable the port log:

```
FCIU, IUBAD
FCIU, IUCOUNT
FCPH, EXCHBAD
FCPH, EXCHFEE
NBFSM, DUPEPORTSCN
UCAST, RELICPDB
```

**See Also** portLogDump

portLogShow

## portLogDump

Display the port log without page breaks.

**Synopsis** `portLogDump [count[, saved]]`

**Availability** All users

**Description** Use this command to display the port log, listing all entries in the log without page breaks. This command displays the same information as **portLogShow**, but **portLogShow** prompts the user to enter ‘returns’ between each page.

See **portLogShow** for a description of the port log.

If the port log is disabled, the following message appears as the first line (see **portLogClear** for details):

```
WARNING: port log is disabled
```

**Operands** This command has the following operands:

**count** Specify the maximum number of lines to be displayed. Only the most recent **count** entries are displayed. This operand is optional.

**saved** Specify a nonzero value to display the saved port log from the last switch fault. See **uptime** for conditions that cause a fault. **count** is ignored when displaying the saved log. This operand is optional.

**Example** To display the port log:

```
switch:admin> portlogdump 10
May  1      task      event port  cmd  args
-----
16:51:15.499 tShell      ioctl   7   de  10f9bb90,0
16:51:15.499 tShell      ioctl   8   de  10f9bb90,0
16:51:15.499 tShell      ioctl   9   de  10f9bb90,0
16:51:15.499 tShell      ioctl  10   de  10f9bb90,0
16:51:15.499 tShell      ioctl  11   de  10f9bb90,0
16:51:15.499 tShell      ioctl  12   de  10f9bb90,0
16:51:15.499 tShell      ioctl  13   de  10f9bb90,0
16:51:15.499 tShell      ioctl  14   de  10f9bb90,0
16:51:15.499 tShell      ioctl  15   de  10f9bb90,0
16:58:28.383 tShell      create                tSyslog
Sr99:admin>
```

**See Also** `portLogClear`  
`portLogShow`  
`uptime`

## portLogShow

Display the port log.

**Synopsis** `portLogShow [count[, saved]]`

**Availability** All users

**Description** Use this command to display the port log; 22 entries are displayed at a time.

**portLogShow** displays the same information as **portLogDump**, but it allows you to enter a “return” after each page of output.

If the port log is disabled, the following message appears as the first line (see **portLogClear** for details):

```
WARNING: port log is disabled
```

The following fields are shown:

**Table 1-14** PortLogShow Display Fields

Field	Description
time	Date and time of event. Clock resolution is 16 milliseconds.
task	Name of task that logged the event, or “interrupt” if the event was logged in interrupt context, or “unknown” if the task no longer exists.
event	Possible events are: start           switch start or re-start event disable       port is disabled enable        port is enabled ioctl         port I/O control is executed Tx            frame is transmitted (class is indicated) Rx            frame is received (class is indicated) scn           state change notification is posted pstate       port changes physical state rejec        received frame is rejected busy         received frame is busied ctin         CT based request is received ctout        CT based response is transmitted errlog       message is added to the error log loopscn     loop state change notification is posted create      task is created



**Table 1-14** PortLogShow Display Fields (Continued)

Field	Description
port	Port number of the affected port.
cmd	<p>Command value - description depends on event type:</p> <p>ioctl            I/O control command code</p> <p>Tx &amp; Rx            frame payload size</p> <p>scn                new state</p> <p>pstate            new physical state (Table 1-15 on page 1-135)</p> <p>ctin               CT-subtype: fc = Simple Name Server, f8 = Alias Server.</p> <p>ctout              same as ctin above.</p> <p>errlog             error level (see the <b>errShow</b> command)</p> <p>loopscn           current loop state during loop initialization. Possible values are:</p> <ul style="list-style-type: none"> <li>• OLP - offline (disconnected or nonparticipating)</li> <li>• LIP - FL_Port entered INITIALIZING or OPEN_INIT state</li> <li>• LIM - LISM completed, FL_Port became the loop master</li> <li>• BMP - loop initialization completed, FL_Port in MONITORING state</li> <li>• OLD - port transited to the OLD_PORT state</li> <li>• TMO - loop initialization times out</li> </ul>

**Table 1-14** PortLogShow Display Fields (Continued)

Field	Description
args	The command arguments - description depends on event type: star            start type: 0 = enable ports, 100 = disable ports disable        state (see Table 1-15 on page 1-135) enable        mode: 0 = normal, non-zero = loopback ioctl         I/O control arguments Tx & Rx        first two header words and first payload word reject        FC-PH reject reason busy         FC-PH busy reason ctin         Argument 0 is divided into two 16-bit fields: [A]           bit map indicating validity of subsequent args (0001 = argument 1 is valid, 0003 = arguments 1 and 2 are valid). [B]           ct-based service command code. Argument 1 = first word of the CT payload, if applicable (as specified in [A]). Argument 2 = second word of the CT payload, if applicable (as specified in [A]). ctout        Argument 0 is divided into two 16-bit fields: [A]           bit map indicating validity of subsequent args (0001 = argument 1 is valid, 0003 = arguments 1 and 2 are valid). [B]           CT command code indicating an accept (8002) or a reject (8001). If [B] is an accept, argument 1 and 2 represents the first and second words of the CT payload, if applicable (as specified in [A]). If [B] is a reject, argument 1 contains the CT reject reason and explanation code. errlog        error type (see the <b>errShow</b> command) create - name of the task being created

**Table 1-14** PortLogShow Display Fields (Continued)

Field	Description
loopscn	description depends on loop state:
OLP	offline reason code, usually zero
LIP	reason code for LIPs initiated by FL_Port, if the code value is 800x (x = [1,0xc], see below), or the lower two bytes of the LIP received, if the code value is other than 800x
LIM	usually zero BMP: memory address for the loop bitmap
OLD	usually zero
TMO	encoded value of state when loop initialization timed out . This value is usually equal to the first word of a loop initialization frame payload. Other possible values include:
2	LIP (req. INITIALIZING) timeout
94F0F0	ARB(F0) timeout
40	CLS timeout

**Table 1-15** Pstate Codes

Pstate Code	Description
AC	Active State
LR1	Link Reset: LR Transmit State
LR2	Link Reset: LR Receive State
LR3	Link Reset: LRR Receive State
LF1	Link Failure: NOS Transmit State
LF2	Link Failure: NOS Receive State
OL1	Offline: OLS Transmit State
OL2	Offline: OLS Receive State
OL3	Offline: Wait for OLS State

**Table 1-16** ioctl Codes

ioctl Code	Description
90	get virtual channel credits
91	Set virtual channel credits
a1	Port is an E_Port
a2	Port is an F_Port

**Table 1-16** ioctl Codes (Continued)

a3	Port is segmented
a4	Domain name is known
a5	Port enable
a6	Port disable
a7	Link reset
a8	Add unicast route
a9	Delete unicast route
aa	Add multicast route
ab	Delete multicast route
ac	Unicast path selection done
ad	Multicast path selection done

**Table 1-17** LIP Reason Codes

LIP Code	Description
8001	Retry loop init
8002	Start loop after gaining sync
8003	Restart loop after port reset
8004	LIP when a loop hangs
8005	Restart loop if LIP received when sending out ARB(F0)
8006	LIP when an OPN returns
8007	Restart loop when LIPs received in OLD_PORT AC state
8008	Restart loop if loop not empty but E_Port loopback
8009	LIP as requested by the LINIT ELS received
800a	LIP as requested by the LPC ELS received
800b	Restart loop for QuickLoop looplet setup
800c	Restart loop for QuickLoop looplet re-initialization

**Operands**

This command has the following operands:

- count** Specify the maximum number of lines to display. Only the most recent `count` entries are displayed. This operand is optional.
- saved** Specify a non-zero value to display the saved port log from the last switch fault. See `uptime` for a list of conditions that cause a fault. `count` is ignored when displaying the saved log. This operand is optional.

**Example** The following illustrates a section of the port log with an E\_Port coming online. The ELP and EFP exchanges are shown; a name service request was processed.

```
switch:admin> portLogShow 5
May 1          task          event port  cmd  args
-----
06:48:01.623  interrupt  scn    13    2
06:48:02.359  tFspf     ioctl  13    ab  fffffff,10
06:48:04.699  tReceive  Rx     13    0   c0ffffffd,00ffffffd,00bb0045
06:48:07.616  tReceive  Rx     13    40  02ffffffd,00ffffffd,0046ffff,14000000
06:48:07.616  tTransmit Tx     13    0   c0ffffffd,00ffffffd,004600bc
```

**See Also** portLogClear  
portLogDump  
uptime

## portLoopbackTest

Functional test of port N->N path.

**Synopsis** `portLoopbackTest [passCount]`

**Availability** admin

**Description** Use this command to verify the functional operation of the switch by sending frames from the port N transmitter, and looping the frames back into the same port N receiver. The loopback is done at the parallel loopback path. The path exercised in this test does not include the GBIC nor the fiber cable.

Only one frame is transmitted and received at any one time. No external cable is required to run this test. The port LEDs flicker green rapidly while the test is running.

Below is the test method:

1. Set all ports for parallel loopback.
2. Create a frame F of maximum data size (2112 bytes).
3. Transmit frame F through port N.
4. Pick up the frame from the same port N.
5. Check the 8 statistic error counters for nonzero values:
 

```
ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out, BadOrdSet,
DiscC3
```
6. Check if the transmit, receive or class 3 receiver counters are stuck at some value.
7. Check if the number of frames transmitted is not equal to the number of frames received.
8. Repeat steps 2 through 7 for all ports present until:
  - The number of frames (or `passCount`) requested is reached.
  - All ports are marked bad.

At each pass, the frame is created from a different data type. If seven passes are requested, seven different data types are used in the test. If eight passes are requested, the first seven frames use unique data types, and the eighth is the same as the first. The seven data types are:

1. CSPAT:        0x7e, 0x7e, 0x7e, 0x7e, ...
2. BYTE\_LFSR:  0x69, 0x01, 0x02, 0x05, ...
3. CHALF\_SQ:   0x4a, 0x4a, 0x4a, 0x4a, ...
4. QUAD\_NOT:   0x00, 0xff, 0x00, 0xff, ...
5. CQTR\_SQ:    0x78, 0x78, 0x78, 0x78, ...
6. CRPAT:       0xbc, 0xbc, 0x23, 0x47, ...
7. RANDOM:     0x25, 0x7f, 0x6e, 0x9a, ...

Because this test does not include the GBIC and the fiber cable in its test path, use the results from this test in conjunction with the results from **crossPortTest** and **spinSilk** test to determine those switch components that are not functioning properly.

**Operands** This command has the following operand:

`passCount` Specify the number of times (or number of frames per port) to execute this test. The default value is 0xffffffff. This operand is optional.

**Example** To run the `portLoopbackTest` 100 times:

```
switch:admin> portLoopbackTest 100
Running Port Loopback Test .... passed.
```

**Errors** Below are possible error messages if failures are detected:

DIAG-INIT

DIAG-PORTDIED

DIAG-XMIT

DIAG-TIMEOUT

DIAG-ERRSTAT

DIAG-STATS

DIAG-DATA

**See Also**

`camTest`

`centralMemoryTest`

`cmemRetentionTest`

`cmiTest`

`crossPortTest`

`portRegTest`

`ramTest`

`spinSilk`

`sramRetentionTest`

## portPerfShow

Display port throughput performance in bytes, kilobytes, or megabytes.

**Synopsis** `portPerfShow [interval]`

**Availability** All users

**Description** Use this command to display throughput information for all ports on the switch (8 or 16 columns depending on the switch model). One output line is displayed per interval (or second if no interval is specified) until return, control-C, or control-D is entered.

Shown are the number of bytes received plus the number of bytes transmitted per interval. Throughput numbers are shown as either bytes, kilobytes (k), or megabytes (m).

**Operands** This command has the following operand:

`interval` Specify the interval, in seconds, between each sample. This operand is optional.

**Example** To display port throughput for an 8- port switch:

```
switch:admin> portPerfShow
0   1   2   3   4   5   6   7
-----
0   0   0   0   0   0   0   76m
96  0   96  0   0   96  0   76m
0   0   0   0   0   0   0   76m
```

**See Also** `portStatsShow`



## portRegTest

Bit write/read test of the ASIC SRAMs and registers.

**Synopsis** portRegTest

**Availability** admin

**Description** Use this command to verify that SRAM and register data bits in each ASIC can be independently written and read.

To verify the data bits, write a walking 1 pattern to each location - write a pattern of 0x00000001 to register N, read, and compare to be sure that the pattern is the same. Shift the pattern one bit to the left (to 0x00000002), repeat the write, read, and compare cycle. Shift again and repeat until the last writable bit in register N is reached (0x80000000 for a 32-bit register).

For example, use the following pattern to test a 6-bit register:

1. 0x0001
2. 0x0002
3. 0x0004
4. 0x0008
5. 0x0010
6. 0x0020
7. 0x0040
8. 0x0080
9. 0x0100
10. 0x0200
11. 0x0400
12. 0x0800
13. 0x1000
14. 0x2000
15. 0x4000
16. 0x8000

Repeat the above steps until all ASIC SRAMs and registers have been tested.

**Operands** None.

**Example** To run bit write/read test of the ASIC SRAMs and registers:

```
switch:admin> portRegTest
Running Port Register Test .... passed.
```

**Errors** Below are possible error messages if failures are detected:

DIAG-REGERR

DIAG-REGERR\_UNRST

DIAG-BUS\_TIMEOUT

**See Also**

camTest

centralMemoryTest

cmemRetentionTest

cmiTest

crossPortTest

portLoopbackTest

ramTest

spinSilk

sramRetentionTest

## portRouteShow

Display routing tables for a port.

**Synopsis** `portRouteShow portnumber`

**Availability** All users

**Description** Use this command to display the port address ID and the contents of the following port routing tables:

**External unicast routing table** Shows unicast frame routing to another switch element in the fabric. Output format is as follows:

```
domainnumber: ports_bitmap
```

where `domainnumber` is the switch element number that a unicast frame can reach from the `portnumber` port and `ports_bitmap` contains all output ports, in bitmap hex format, that can forward unicast frames from `portnumber` to `domainnumber`.

This table contains at least one entry for each active port:

```
local_switch_domainnumber: 0x10000
```

This is for routing unicast frames designated to the embedded port of the local switch element.

**Internal unicast routing table** Lists all ports in the local switch that a unicast frame can reach from `portnumber`. Format is

```
destination_port: output_ports_bitmap
```

Because the `destination_port` is in the local switch, `output_ports_bitmap` usually contains one bit with a bit position number representing the `destination_port` number.

**Multicast routing table** Shows multicast frame routing to the destination multicast group. Output format is:

```
mcast_group_number: (mcast_group_id)
ports_bitmap
```

where `mcast_group_number` is the multicast group number, `mcast_group_id` is the multicast frame destination ID, and `ports_bitmap` is a hex bitmap of all output port numbers that can forward a multicast frame from the `portnumber` to `mcast_group_id`.

**Broadcast routing table** A bitmap, containing all ports reachable by a received broadcast frame. Bit 16 of the bitmap is always set to allow the switch element to receive broadcast frames.

**Operands** This command has the following operand:

`portnumber` Specify the port number to be displayed. Valid values vary depending on the switch type. This operand is required.

**Example** To display the port routing tables for switch port 3:

```
switch:admin> portRouteShow 3
port address ID: 0x604300
external unicast routing table:
  0: 0x10000
  1: 0x2
internal unicast routing table:
  0: 0x1
  3: 0x4
  6: 0x40
multicast routing table:
broadcast routing table:
  0x10045
```

**See Also** bcastShow  
fabricShow  
mcastShow  
switchShow  
topologyShow  
uRouteShow

## portShow

Display port status.

**Synopsis** `portShow portnumber`

**Availability** All users.

**Description** Use this command to display status information for a port. Information varies with the switch model and port type. The display shows:

**Table 1-18** PortShow Display Fields

Field	Description	
portFlags	Bit map of port status flags.	
portType	Port type and revision numbers.	
portState	Port SNMP state:	
	Online	up and running
	Offline	not online, portPhys gives details
	Testing	running diagnostics
portPhys	Faulty	failed diagnostics
	Port physical state:	
	No_Card	no interface card present
	No_Module	no module (GBIC or other) present
No_Light	module not receiving light	
No_Sync	receiving light but out of sync	
In_Sync	receiving light and in sync	
Laser_Flt	module is signaling a laser fault	
Port_Flt	port marked faulty	
Diag_Flt	port failed diagnostics	
Lock_Ref	locking to the reference signal	
portScn	Last state change notification for port.	
portRegs	Address of the port hardware registers.	
portData	Address of the port driver private data.	
portId	24-bit D_ID for port.	
portWwn	Port worldwide name.	
Distance	The port's long distance level.	
Interrupts	Total number of interrupts.	
Unknown	Interrupts that are not counted elsewhere.	

**Table 1-18** PortShow Display Fields (Continued)

Field	Description
Lli	Low-level interface (physical state, primitive seqs).
Proc_rqrd	Frames delivered for embedded N_Port processing.
Timed_out	Frames that have timed out.
Rx_flushed	Frames requiring translation.
Tx_unavail	Frames returned from an unavailable transmitter.
Free_buffer	Free buffer available interrupts.
Overrun	Buffer overrun interrupts.
Suspended	Transmission suspended interrupts.
Parity_err	Central memory parity errors.

**Operands** This command has the following operand:

`portnumber` Specify the port number to be displayed. Valid values for port number vary depending on the switch type. This operand is required.

**Example** To display the status for a specified E\_Port:

```
switch:admin> portShow 1
portFlags: 0x20041      PRESENT U_PORT LED
portType:  3.1
portState: 2    Offline
portPhys:  4    No_Light
portScn:   0
portRegs:  0x80020000
portData:  0x10fa70a0
portId:    011100
portWwn:   20:01:00:60:69:00:73:71

Distance:  normal

Interrupts:  0          Link_failure: 0          Frjt:          0
Unknown:    0          Loss_of_sync: 0          Fbsy:          0
Lli:        0          Loss_of_sig:  1
Proc_rqrd:  0          Protocol_err: 0
Timed_out:  0          Invalid_word: 0
Rx_flushed: 0          Invalid_crc:  0
Tx_unavail: 0          Delim_err:    0
Free_buffer: 0          Address_err:  0
Overrun:    0          Lr_in:        0
Suspended:  0          Lr_out:       0
Parity_err: 0          Ols_in:       0
                                Ols_out:      0

switch:admin>
```

**See Also** `switchShow`

## portStatsShow

Display port hardware statistics.

**Synopsis** `portStatsShow portnumber`

**Availability** All users

**Description** Use this command to display port hardware statistics counters. The first section, below, is common to all hardware; one of the last two sections (depending on switch type) is shown for loop ports:

<code>stat_wtx</code>	4-byte words transmitted.
<code>stat_wrx</code>	4-byte words received.
<code>stat_ftx</code>	Frames transmitted.
<code>stat_frx</code>	Frames received.
<code>stat_c2_frx</code>	Class 2 frames received.
<code>stat_c3_frx</code>	Class 3 frames received.
<code>stat_lc_rx</code>	Link control frames received.
<code>stat_mc_rx</code>	Multicast frames received.
<code>stat_mc_to</code>	Multicast timeouts.
<code>stat_mc_tx</code>	Multicast frames transmitted.
<code>tim_rdy_pri</code>	Time R_RDY high priority.
<code>tim_txcrd_z</code>	Time BB_credit zero.
<code>er_enc_in</code>	Encoding errors inside frames.
<code>er_crc</code>	Frames with CRC errors.
<code>er_trunc</code>	Frames shorter than minimum.
<code>er_toolong</code>	Frames longer than maximum.
<code>er_bad_eof</code>	Frames with bad end-of-frame.
<code>er_enc_out</code>	Encoding error outside frames.
<code>er_disc_c3</code>	Class 3 frames discarded.
<code>fl_open</code>	Number of OPNyx sent.
<code>fl_opened</code>	Number of OPNyx received.
<code>fl_openfr</code>	Number of OPNfr sent.
<code>fl_cls_idle</code>	CLS sent due to loop idle.
<code>fl_cls_rx</code>	CLS received when OPEN.
<code>fl_bb_stall</code>	OPN/CLS BB_Credit stalls.
<code>fl_cf_alloc</code>	Number of CFIFOs allocated.
<code>fl_cf_opn</code>	CFIFOs delivered when OPENED.

<code>fl_cf_full</code>	Number of CFIFOs full stalls.
<code>fl_cf_na</code>	CFIFO not available stalls.
<code>fl_trig_age</code>	Number of age count triggers.
<code>fl_trig_lp</code>	Number of loop not busy triggers.
<code>open</code>	Number of times the FL_Port entered OPEN state.
<code>transfer</code>	Number of times the FL_Port entered TRANSFER state.
<code>opened</code>	Number of times the FL_Port entered OPENED state.
<code>starve_stop</code>	Loop tenancies stopped due to starvation.
<code>fl_tenancy</code>	Number of times FL_Port had loop tenancy.
<code>nl_tenancy</code>	Number of times NL_Port had loop tenancy.
<code>frame_nozone</code>	Frames rejected due to zone protection.

**Operands** This command has the following operand:

`portnumber` Specify the port number to be displayed. Valid values for port number vary depending on the switch type. This operand is required.



**Example** To display a port with only the basic set of statistics:

```
switch:admin> portStatsShow 3
stat_wtx      1181994    4-byte words transmitted
stat_wrx      1188458    4-byte words received
stat_ftx      95830      Frames transmitted
stat_frx      15564      Frames received
stat_c2_frx   0          Class 2 frames received
stat_c3_frx   93         Class 3 frames received
stat_lc_rx    7735      Link control frames received
stat_mc_rx    0          Multicast frames received
stat_mc_to    0          Multicast timeouts
stat_mc_tx    0          Multicast frames transmitted
tim_rdy_pri   477       Time R_RDY high priority
tim_txcrd_z   0          Time BB_credit zero
er_enc_in     0          Encoding errors inside of frames
er_crc        0          Frames with CRC errors
er_trunc      0          Frames shorter than minimum
er_toolong    0          Frames longer than maximum
er_bad_eof    0          Frames with bad end-of-frame
er_enc_out    3          Encoding error outside of frames
er_disc_c3    0          Class 3 frames discarded
```

**See Also** `portErrShow`  
`portShow`

## psShow

Display power supply status.

**Synopsis** psShow

**Availability** All users

**Description** Use this command to display the switch power supply status.

The display format varies with switch model and number of power supplies present.

The status of each supply is shown as:

OK Power supply present and functioning correctly.

absent Power supply not present.

faulty Power supply present but faulty (no power cable, power switch turned off, fuse blown, or other internal error).

After the status line, a power supply identification line may be shown. If present, this line contains manufacture date, part numbers, serial numbers, and other identification information.

**Operands** None.

**Example** To view the status of the power supply for the current switch:

```
switch:admin> psShow
Power Supply 1 is OK
9835,DH000000208,60-0000734-01, A,00001, E108302A,01, 803350
Power Supply 2 is OK
9839,DH000000253,60-0000734-01, A,00001, E108302A,01, 803522
```

**See Also** fanShow

tempShow

## quietMode

Toggles shell quiet mode on and off.

**Synopsis**     quietMode [mode]

**Availability**   All users (display)  
admin (set/clear)

**Description**   Use this command to change the output displayed on the switch console (serial port or telnet session).

By default, quiet mode is off and all switch tasks can send output to the console, including output caused by asynchronous events, such as the fabric re-configuring, or devices logging in.

When quiet mode is on, only output produced by shell commands is shown; asynchronous output produced by other tasks is suppressed.

Turn quiet mode on when driving a telnet session using a script that does not expect asynchronous output.

**Operands**     This command has the following operand:

mode           Specify 1 to enable quiet mode or specify 0 to disable quiet mode. With quiet mode enabled, only shell commands print to the console. With quiet mode disabled all tasks can print to the console. This operand is required.

**Example**     To display the current mode, then reset to ON:

```
switch:admin> quietMode
Quiet Mode is OFF
switch:admin> quietMode 1
Committing configuration...done.
Quiet Mode is now ON
```

**See Also**     ramTest

## ramTest

Bit write/read test of SDRAMs in the switch.

**Synopsis** `ramTest [patternSize]`

**Availability** admin

**Description** Use this command to verify the address and data bus of the SDRAMs that serve as the 16MByte CPU memory in the switch.

The test consists of two subtests:

1. The address subtest verifies that SDRAM locations can be uniquely accessed.

The method used is to write a unique pattern to each location in the SDRAMs. When all are written, the data is read back from each location and compared against the data previously written. A failure in the test implies that the address path between the CPU and the SDRAMs are faulty resulting in failures to program unique values.

Following is the ramp pattern used in the test:

```
0x57626f42, 0x57626f43, 0x57626f44, 0x57626f45, ...
```

2. The data subtest verifies that each cell in the SDRAMs can be independently written and read, and that there is no short, stuck-at-1, or stuck-at-0 faults between data cells.

The method used is to write pattern D to location N, write the complementary pattern D to location N+1, and then read and compare location N to location N+1. Bump the location to test: N=N+1. Repeat the double write and read until all locations are tested with the following 9 patterns:

- 0x55555555
- 0x69696969
- 0x3c3c3c3c
- 0x1e1e1e1e
- 0x87878787
- 0x14284281
- 0x137ffec8
- 0x0f0f0f0f
- 0x00000000

Since the test requires the operating system to operate which is loaded in the same memory, it does not and cannot test all 16 MB of the memory. Instead it tests the largest portion as given by the OS, which is typically about 13 MB.

**Operands** This command has the following operand:

`patternSize` Specify a value N, and **ramTest** executes N number of patterns in the data subtest. Specify 0 (the default value), and **ramTest** executes all nine patterns in the data subtest. If N is greater than 9, it is truncated to 9. Only the data subtest is configurable. The address subtest is always executed. This operand is optional.

**Example** To run a RAM test:

```
switch:admin> ramTest
Running System DRAM Test ..... passed.
```

**Errors** Below are the possible error messages if failures are detected:

DIAG-MEMORY

DIAG-MEMSZ

DIAG-MEMNULL

**See Also**

camTest

centralMemoryTest

cmemRetentionTest

cmiTest

crossPortTest

portLoopbackTest

portRegTest

spinSilk

sramRetentionTest

## reboot

Reboot the switch.

**Synopsis** reboot

**Availability** admin

**Description** Use this command to reboot the switch. The reboot takes effect immediately as the switch resets, then executes the normal power-on booting sequence.

While the switch is rebooting, the telnet session is closed and all fibre channel ports are inactive. If the switch was part of a fabric, the remaining switches reconfigure.

**Operands** None.

**Example** To reboot the switch:

```
switch:admin> reboot
Rebooting...
```

**See Also** fastboot

## routeHelp

Display routing help commands.

**Synopsis** routeHelp

**Availability** admin

**Description** Use this command to display routing help commands.

**Operands** None.

**Example** To view a list of routing related commands:

```
switch:admin> routeHelp

bcastShow          Print broadcast tree information
dlsReset           Turn off Dynamic Load Sharing
dlsSet             Turn on Dynamic Load Sharing
dlsShow            Print state of Dynamic Load Sharing
fspfShow           Print FSPF global information
interfaceShow      Print FSPF interface information
iodReset           Turn off In-Order Delivery
iodSet            Turn on In-Order Delivery
iodShow            Print state of In-Order Delivery
linkCost           Set or print the FSPF cost of a link
LSDbShow           Print Link State Database entry
mcastShow          Print multicast tree information
nbrStateShow       Print neighbor's summary information
nbrStatsClear      Reset FSPF neighbor's counters
topologyShow       Print paths to domain(s)
uRouteConfig       Configure static unicast route
uRouteRemove       Remove static unicast route
uRouteShow         Print port's unicast routing info
```

**See Also** bcastShow

interfaceShow

uRouteRemove

uRouteShow

## secFabricShow

Displays security related fabric information.

**Synopsis**     secFabricShow

**Availability**   admin

**Description**   This command displays the security related information about the fabric.

The information displayed is as follows:

Role	Displays whether the switch is the Primary FCS, Backup FCS, or Non FCS.
WWN	Displays the world wide name of the switch.
DId	Displays the Domain of the switch.
Status	Displays the security state of the switch. Ready - This switch is in a stable state. Busy - This switch is updating its security database. Error - This switch's security database is inconsistent with the Primary FCS.
Enet IP Addr	Displays the Ethernet IP address.
Name	Displays the switch name.

**Note:** This command must be issued from the Primary FCS switch.

**Operands**     None.

**Example**       To display security related fabric information on the Primary FCS switch.

```
prifcs:admin> secFabricShow
Role      WWN                               DId Status  Enet IP Addr  Name
=====
non-FCS   10:00:00:60:69:10:03:23           1 Ready   192.168.100.148 "nonfcs"
Backup    10:00:00:60:69:00:12:53           2 Ready   192.168.100.147 "backup"
Primary   10:00:00:60:69:22:32:83           3 Ready   192.168.100.135 "prifcs"
-----

Secured switches in the fabric: 3
prifcs:admin>
```

**See Also**     secPolicyShow

secPolicyDump



## secFCSFailover

Enables a Backup FCS switch to take over as Primary FCS switch.

**Synopsis**    `secFCSFailover`

**Availability**    `admin`

**Description**    Use this command to enable a Backup FCS switch to take over as the Primary FCS switch.

This command can only be issued on a Backup FCS switch. After this command is issued, the current Primary FCS switch will abort its current transaction and move the Backup FCS switch where this command is issued to be the first member in the FCS list. The current Primary FCS switch will then activate the new policy set and the Backup FCS switch which issued this command will become the new Primary FCS switch in the fabric.

The purpose of this command is to recover from a scenario where all available access to the Primary FCS switch is lost, such as the Ethernet and serial connections.

**Operands**    None.

**Example**    To enable a Backup FCS switch to take over as the Primary FCS switch.:

```
switch:admin> secFCSfailover
This switch is about to become the Primary FCS switch.
All transactions of the current Primary FCS switch will be aborted.
ARE YOU SURE (yes, y, no, n): [no] y

WARNING!!!
The FCS policy of Active and Defined Policy sets have been changed.
Review them before you issue secPolicyActivate again.
switch:admin>
```

**See Also**    `secFabricShow`  
              `secModeEnable`  
              `secModeDisable`  
              `secModeShow`

## secHelp

Display information about security telnet commands.

- Synopsis**     secHelp
- Availability**   admin
- Description**   Use this command to display a list of security telnet commands.
- Operands**     None.
- Example**     To display a list of security telnet commands:

```
switch:admin> sechelp

secFabricShow          Display security related fabric information
secFCSFailover         Force primary role to this FCS switch
secModeEnable          Enable security mode
secModeDisable         Disable security mode
secModeShow            Show current mode of security
secNonFCSPasswd       Set non FCS password
secPolicyAbort         Abort changes to defined policy
secPolicyActivate     Activate all policy sets
secPolicyAdd           Add members to a policy
secPolicyCreate        Create a policy
secPolicyDelete        Delete a policy
secPolicyFCSMove      Move a FCS member in the FCS list
secPolicyRemove        Remove members from a policy
secPolicySave          Save all policy sets and send to switches
secPolicyShow          Show members of one or more policies
secPolicyDump          Dump all policies
secStatsReset          Reset security statistics
secStatsShow           Display security statistics
secTempPasswdSet       Set temporary password
secTempPasswdReset     Reset temporary password
secTransAbort          Abort current transaction
secVersionReset        Reset version stamp

switch:admin>
```

## secModeEnable

Enable security mode.

**Synopsis** `secModeEnable [ "fcsmember;fcsmember" ]`

**Availability** admin

**Description** Use this command to enable security mode on all switches in the fabric. This command fails if any switch in the fabric is not capable of enforcing the security policies defined in the security database. If no operand is specified the command becomes interactive.

**Note:** `sectelnet` must be used to open a secure telnet session into a switch.

This command sets up security in the fabric by executing the following:

- activates security mode on all switches in the fabric
- creates the security database populated with a list of FCS switches in the FCS\_POLICY
- distributes the security database to all switches in the fabric
- resets the root, factory, admin, and user account passwords on all FCS switches
- resets the admin account password on all Non FCS switches
- disables the root, factory, and user accounts on all non-FCS switches in the fabric

The administrator is prompted to enter passwords for the following accounts:

- factory
- root
- admin
- user

If the fabric is not in secure mode and one or more specified FCS switches are present in the fabric, the command must be issued on the first active FCS in the list.

If the fabric is not in secure mode and no specified FCS switches are present in the fabric, the command can be issued on any switch.

If the fabric is not in secure mode and this command is issued, the switch reboots.

If the fabric is in secure mode and no FCS switches are present in the fabric, the command can be issued on any switch. This is used to recover a secure fabric that has no FCS switch.

**Note:** Make sure that all users (using Telnet or Web Tools) are logged off the fabric before enabling security mode. All users who are logged into the fabric on non-FCS switches when this command executes have their telnet sessions terminated.

**Operands** This command has the following operand:

`fcsmember` Specify a list of FCS switches. The list of member switches must be enclosed in quotation marks and each member switch must be separated by semicolons. The members can be specified using Domain, WWN, or switch name format. For example:

```
"5; 10:00:00:60:69:00:00:20; star1"
```

If a member is specified by Domain, or switch name, the switch must be in the fabric or the command fails. This operand is optional. If no operand is specified the session becomes interactive and you are prompted to enter FCS member values.

**Example** To enable a security policy that includes three FCS switches specified by Domain, WWN address, and switch name:

```
fcsprimary:admin> secmodeenable
This is an interactive session to create a FCS list.

Current FCS list is empty
Enter WWN, Domain, or switch name(Leave blank when done): 2
Switch WWN is 10:00:00:60:69:11:fc:53

Current FCS list:
    10:00:00:60:69:11:fc:53

Enter WWN, Domain, or switch name(Leave blank when done): 1
Switch WWN is 10:00:00:60:69:11:fc:55

Current FCS list:
    10:00:00:60:69:11:fc:53
    10:00:00:60:69:11:fc:55

Enter WWN, Domain, or switch name(Leave blank when done):
Are you done? (yes, y, no, n): [no] y
Is the FCS correct? (yes, y, no, n): [no] y
New FCS switch root password:
Password must differ by at least 1 position
New FCS switch root password:
Re-enter new password:
New FCS switch factory password:
Re-enter new password:
New FCS switch admin password:
Re-enter new password:
New FCS switch user password:
Re-enter new password:
New Non FCS switch admin password:
Re-enter new password:
Saving passwd...done.
Saving Defined FMPS ...
done
Saving Active FMPS ...
done
Committing configuration...done.
Secure mode is enabled.
Saving passwd...done.
Rebooting...
```

**See Also** secFabricShow  
secModeDisable  
secModeShow

## secModeDisable

Disable security mode.

**Synopsis**    secModeDisable

**Availability**    admin

**Description**    Use this command to disable security mode on all switches in the fabric. This command deletes both the defined and active security database.

**Note:**    This command must be issued from the Primary FCS switch.

**Operands**    None.

**Example**    To disable security mode:

```
primaryfcs:admin> secModeDisable
Warning!!!
About to disable security.
ARE YOU SURE (yes, y, no, n): [no] y
Committing configuration...done.
Removing Active FMPS...
done
Removing Defined FMPS...
done
Disconnecting current session.
```

**See Also**    secFabricShow

secModeEnable

secModeShow

## secModeShow

Display if security mode is enabled or disabled.

**Synopsis** secModeShow

**Availability** admin

**Description** Use this command to display the current security mode of the fabric. The fabric can be in secure mode or non secure mode. If the fabric is in secure mode, the following information is displayed:

- Version stamp - Displays the current version and build date and time of the security database.
- FCS switches - Displays a list of FCS switches.
- Primary - Displays whether the switch is a Primary FCS or Backup FCS.
- WWN - Displays the WWN of the FCS switch.
- Did - Displays the Domain of the FCS switch.
- swName - Displays the alias name of the FCS switch.

**Note:** This command must be issued from the Primary FCS switch.

**Operands** None.

**Example** To display the current security mode of a fabric:

```
primaryfcs:admin> secModeShow
Secure Mode: ENABLED.
Version Stamp: 9182, Wed Mar 13 16:37:01 2001.
POS Primary WWN                               DId  swName.
=====
1   Yes      10:00:00:60:69:00:00:5a  21   SW47.
2   No       12:00:00:60:60:03:23:5b   5    SW12.
primaryfcs:admin>
```

**See Also** secFabricShow  
secModeEnable  
secModeDisable

## secNonFCSPasswd

Set the admin password for non-FCS switches.

**Synopsis**      secNonFCSPasswd

**Availability**    admin

**Description**    Use this command to change the admin password on all non-FCS switches in the fabric. This command can only be issued from the Primary FCS switch in secure mode. The changed passwords are persistent across reboots. All non-FCS switches that join the fabric in the future will inherit this new password.

This command also disables the root and factory accounts on all non-FCS switches in the fabric.

The password must be between 8 and 40 characters long, and may consist of any combination of alpha-numeric characters.

**Note:**    Make sure no users are logged into the network when this command is executed. All users logged into the fabric as admin on non-FCS switches will have their telnet sessions terminated.

**Note:**    This command must be issued from the Primary FCS switch with secure mode enabled.

**Operands**      None.

**Example**        To set the admin password for all non-FCS switches in the fabric:

```
primaryfcs:admin> secNonFCSPasswd
Non FCS switch password:
Re-enter new password:
Committing configuration...done.
primaryfcs:admin>
```

**See Also**      passwd  
                 secTempPasswdSet  
                 secModeEnable  
                 secModeShow  
                 secModedisable

## secPolicyAbort

Aborts all changes to the defined database that have not been saved.

**Synopsis** secPolicyAbort

**Availability** admin

**Description** Use this command to abort all changes to the defined security database that have not been saved to flash memory.

**Note:** This command must be issued from the Primary FCS switch.

**Operands** None.

**Example** To abort all changes that have not been saved to flash memory:

```
primaryfcs:admin> secPolicyAbort
Unsaved data has been aborted.
primaryfcs:admin> secPolicyAbort
No new data to abort.
```

**See Also** secPolicyActivate

secPolicyAdd

secPolicyCreate

secPolicyDelete

secPolicyRemove

secPolicySave

secPolicyShow

secPolicyDump



## secPolicyActivate

Apply defined policy set to all switches in the fabric.

**Synopsis** secPolicyActivate

**Availability** admin

**Description** Use this command to activate the current defined security policy to all switches in the fabric. After activation the defined policy set becomes the active policy set.

**Note:** This command must be issued from the Primary FCS switch.

**Operands** None.

**Example** To activate the defined security policy set to all switches in the fabric:

```
primaryfcs:admin> secPolicyActivate
About to overwrite the current Active data.
ARE YOU SURE (yes, y, no, n): [no] y
Committing configuration...done.
Saving Defined FMPS ...
done
Saving Active FMPS ...
done
primaryfcs:admin>
```

**See Also** secPolicyAbort  
secPolicyAdd  
secPolicyCreate  
secPolicyDelete  
secPolicyRemove  
secPolicySave  
secPolicyShow  
secPolicyDump

## secPolicyAdd

Add members to an existing policy.

**Synopsis** `secPolicyAdd "name", "member; member"`

**Availability** admin

**Description** Use this command to add members to an existing access policy. The new members must not already be members within the policy or the command fails.

Each policy corresponds to a management method. The list of members of a policy acts as an access control list for that management method. When security is first enabled using the **secModeEnable** command only the FCS\_POLICY exists. Before a policy is created, there is no enforcement for that management method, that is, all access is granted. After a policy has been created and a member has been added to the policy, that policy becomes closed to all access except from included members. If all members are then deleted from the policy, all access is denied for that management access method (the DCC\_POLICY is an exception).

**Note:** This command must be issued from the Primary FCS switch.

**Operands** This command has the following operands:

**name** Specify the name of an existing policy you want to add members to. Valid values for this operand are:

- DCC\_POLICY\_nnn
- FCS\_POLICY
- TELNET\_POLICY
- HTTP\_POLICY
- API\_POLICY
- RSNMP\_POLICY
- WSNMP\_POLICY
- SES\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY
- OPTIONS\_POLICY

The specified policy name must be capitalized.

The DCC\_POLICY\_nnn name has the common prefix DCC\_POLICY\_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names, but are case sensitive.

**member** Specify a list of member switches for the security policy. The members must be enclosed in quotation marks and separated by semicolons. Depending on the Policy type members can be specified using IP address, WWN, Domain, switch name, or other.

### IP Address Member Policy Types

The following policy types require members be specified by IP address:

- TELNET\_POLICY
- HTTP\_POLICY
- API\_POLICY
- RSNMP\_POLICY
- WSNMP\_POLICY

These policy types require member IPs to be specified in dot notation (for example, 124.23.56.122). If 0 is specified in one of the octets, it means any number can be matched.

### WWN Member Policy Types

The following policy types require members be specified by WWN address:

- FCS\_POLICY
- SES\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY

These policy types require members be specified as WWN strings, Domain ID, or switch names. If Domain ID or switch names are used, the switches associated must be present in the fabric or the command fails.

### DCC\_POLICY Members

The DCC\_POLICY\_nnn is a list of devices associated with a specific switch and port combination. An empty DCC\_POLICY does not stop access to the switch. The device is specified with a WWN string. The switch and port combination must be in the following format:

<switch><port>

where:

<switch> can be specified using WWN, Domain, or switch name.

<port> can be specified by port number separated by commas, and enclosed in either brackets or parenthesis. For example, (2, 4, 6). Ports enclosed in brackets will include the devices currently attached to those ports. The following examples show several ways to specify the port values:

(1-6) = selects ports 1 through 6.

(\*) = selects all ports on the switch.

[3, 9] = selects ports 3 and 9 and all devices attached to those ports.

[1-3, 5] = selects ports 1 through 3 and 5 and all devices attached to those ports.

[\*] = selects all ports on the switch and devices currently attached to those ports.

### OPTIONS\_POLICY members

"NoNodeWWNZoning" is the only option.

**Example** Adding a member to the MS\_POLICY using the device WWN:

```
primaryfcs:admin> secPolicyAdd "MS_POLICY", "12:24:45:10:0a:67:00:40"  
Member(s) have been added to MS_POLICY.  
primaryfcs:admin>
```

Adding an SNMP manager to WSNMP\_POLICY:

```
primaryfcs:admin> secPolicyAdd "WSNMP_POLICY", "192.168.5.21"  
Member(s) have been added to WSNMP_POLICY.  
primaryfcs:admin>
```

Adding 2 devices to attach to Domain 3's ports 1 and 3 in an existing empty DCC policy. WWN of first device is 11:22:33:44:55:66:77:aa, and WWN of second device is 11:22:33:44:55:66:77:bb.

```
primaryfcs:admin> secPolicyAdd "DCC_POLICY_abc",  
"11:22:33:44:55:66:77:aa;11:22:33:44:55:66:77:bb;3(1,3)"  
primaryfcs:admin>
```

**See Also**

- secPolicyAbort
- secPolicyActivate
- secPolicyCreate
- secPolicyDelete
- secPolicyRemove
- secPolicySave
- secPolicyShow
- secPolicyDump

## secPolicyCreate

Create a new policy.

**Synopsis** `secPolicyCreate name[, "member;member"]`

**Availability** admin

**Description** Use this command to create a new policy. All policies can be created only once, except for the DCC\_POLICY\_nnn. Each DCC\_POLICY\_nnn must each have a unique name.

Adding members while creating a policy is optional. You may add members to a policy later, using the **secPolicyAdd** command.

Each policy corresponds to a management method. The list of members of a policy acts as an access control list for that management method. When security is first enabled using the **secModeEnable** command only the FCS\_POLICY exists. Before a policy is created, there is no enforcement for that management method, that is, all access is granted. After a policy has been created and a member has been added to the policy, that policy becomes closed to all access except from included members. If all members are then deleted from the policy, all access is denied for that management access method.

**Note:** The FCS\_POLICY can only be created when enabling security mode using the **secModeEnable** command.

**Note:** This command must be issued from the Primary FCS switch.

**Note:** If a TELNET\_POLICY or SERIAL\_POLICY is created that will end the current sectelnet or serial session, a warning is issued.

**Operands** This command has the following operand:

name Specify the name of a policy you want to create. Valid values for this operand are:

- DCC\_POLICY\_nnn
- TELNET\_POLICY
- HTTP\_POLICY
- API\_POLICY
- RSNMP\_POLICY
- WSNMP\_POLICY
- SES\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY
- OPTIONS\_POLICY

The specified policy name must be capitalized.

The `DCC_POLICY_nnn` name has the common prefix `DCC_POLICY_` followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names. Valid values for `DCC_POLICY_nnn` are user defined alphanumeric or underscore characters. The maximum length is 30 characters, including the prefix `DCC_POLICY_`.

member

Specify a list of members for the security policy. The members must be enclosed in quotation marks and separated by semicolons. Depending on the Policy type members can be specified using IP address, WWN, Domain, or switch name.

#### **IP Address Member Policy Types**

The following policy types require members be specified by IP address:

- `TELNET_POLICY`
- `HTTP_POLICY`
- `API_POLICY`
- `RSNMP_POLICY`
- `WSNMP_POLICY`

These policy types require member IDs in dot notation (for example, 124.23.56.122). If 0 is specified in one of the octets, it means any number can be matched.

#### **WWN Member Policy Types**

The following policy types require members be specified by WWN address:

- `SES_POLICY`
- `MS_POLICY`
- `SERIAL_POLICY`
- `FRONTPANEL_POLICY`

These policy types require member IDs be specified as WWN strings, Domains, or switch names. If Domain or switch names are used, the switches associated must be present in the fabric or the command fails.

#### **DCC\_POLICY Members**

The `DCC_Policy_nnn` is a list of devices associated with a specific switch and port combination. The device is specified with a WWN string. The switch and port combination must be in the following format:

```
<switch><port>
```

where:

`<switch>` can be specified using WWN, Domain, or switch name.

`<port>` can be specified by port number separated by commas, and enclosed in either brackets or parenthesis. For example, (2, 4, 6). Ports enclosed in brackets will include the devices currently attached to those ports. The following examples show several ways to specify the port values:

(1-6) = selects ports 1 through 6.

(\*) = selects all ports on the switch.

[3, 9] = selects ports 3 and 9 and all devices attached to those ports.

[1-3, 5] = selects ports 1 through 3 and 5 and all devices attached to those ports.

[\*] = selects all ports on the switch and devices currently attached to those ports.

### **OPTIONS\_POLICY members**

"NoNodeWWNZoning" is the only option.

### **SCC\_POLICY Members**

This policy type requires member IDs be specified as WWN strings, Domains, or switch names. If Domain or switch names are used, the switches associated must be present in the fabric or the command fails.

To add all switches in the current fabric as members of the SCC\_POLICY enter an asterisk "\*" enclosed in quotation marks as the member value. This feature cannot be used by the other security telnet commands.

**Example** Create a new single MS\_POLICY that allows access through a device that has WWN of 12:24:45:10:0a:67:00:40..

```
primaryfcs:admin> secPolicyCreate "MS_POLICY", "12:24:45:10:0a:67:00:40"  
MS_POLICY has been created.  
primaryfcs:admin>
```

Create a new Front Panel policy that only allows Domains 3 and 4 to use the front panel:

```
primaryfcs:admin> secPolicyCreate "FRONTPANEL_POLICY", "3; 4"  
FRONTPANEL_POLICY has been created.  
primaryfcs:admin>
```

Create a Device policy to allow 2 devices to attach to Domain 3 ports 1 and 3. The WWN of first device is 11:22:33:44:55:66:77:aa, and the WWN of second device is 11:22:33:44:55:66:77:bb:

```
primaryfcs:admin> secPolicyCreate "DCC_POLICY_aB_7",  
"11:22:33:44:55:66:77:aa;11:22:33:44:55:66:77:bb;3[1,3]"  
DCC_POLICY_abc has been created.  
primaryfcs:admin>
```

Create a Telnet policy to allow anyone on the 192.168.5.0/24 network to access the fabric through sectelnet.:

```
primaryfcs:admin> secPolicyCreate "TELNET_POLICY", "192.168.5.0"  
TELNET_POLICY has been created.  
primaryfcs:admin>
```

**See Also**

- secPolicyAbort
- secPolicyActivate
- secPolicyAdd
- secPolicyDelete
- secPolicyRemove
- secPolicySave
- secPolicyShow
- secPolicyDump



## secPolicyDelete

Delete an existing policy.

**Synopsis**     secPolicyDelete "name"

**Availability**   admin

**Description**   Use this command to delete an existing defined policy. The FCS\_POLICY can not be deleted through this command, since this policy must exist to maintain security mode.

Each policy corresponds to a management method. The list of members of a policy acts as an access control list for that management method. When security is first enabled using the **secModeEnable** command only the FCS\_POLICY exists. Before a policy is created, there is no enforcement for that management method, that is, all access is granted. After a policy has been created and a member has been added to the policy, that policy becomes closed to all access except from included members. If the policy is deleted all access is granted.

**Note:**   This command must be issued from the Primary FCS switch.

**Operands**     This command has the following operand:

name           Specify the name of a security policy to delete. The policy name must be enclosed in quotation marks. Valid security policy names are:

- DCC\_POLICY\_nnn
- TELNET\_POLICY
- HTTP\_POLICY
- API\_POLICY
- RSNMP\_POLICY
- WSNMP\_POLICY
- SES\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY
- OPTIONS\_POLICY

The specified policy name must be capitalized.

The DCC\_POLICY\_nnn name has the common prefix DCC\_POLICY\_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names.

This operand is required.

**Note:**   Once a Security policy is deleted, fabric wide switch access through that method is unrestricted.

**Example** To delete an existing security policy:

```
primaryfcs:admin> secPolicyDelete "MS_POLICY"  
About to delete policy MS_POLICY.  
Are you sure (yes, y, no, n):[no] y  
MS_POLICY has been deleted.  
primaryfcs:admin>
```

**See Also** ssecPolicyAbort  
secPolicyActivate  
secPolicyAdd  
secPolicyCreate  
secPolicyRemove  
secPolicySave  
secPolicyShow  
secPolicyDump

## secPolicyDump

Show all members of existing policies.

**Synopsis** `secPolicyDump [listtype[, name]]`

**Availability** admin

**Description** Use this command to display the members of an existing policy in the Active and Defined (saved) databases with no page breaks.

**Note:** This command must be issued from the Primary FCS switch.

**Operands** This command has the following operand:

**listtype** Specify which database to display. The name for active database is "Active"; the name for saved, defined database is "Defined". If not specified, all databases are displayed. This operand is optional. An asterisk (\*) can be used to specify both Active and Defined.

**name** Specify the name of a security policy you would like to view. Valid values for this operand are:

- DCC\_POLICY\_nnn
- FCS\_POLICY
- TELNET\_POLICY
- HTTP\_POLICY
- API\_POLICY
- RSNMP\_POLICY
- WSNMP\_POLICY
- SES\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY
- OPTIONS\_POLICY

The specified policy name must be capitalized.

The DCC\_POLICY\_nnn name has the common prefix DCC\_POLICY\_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names.

This operand is optional.

**Example** To view all security policy information from all databases (active, updating, defined) without page breaks:

```
primaryfcs:admin> secPolicyDump

-----
DEFINED POLICY SET

FCS_POLICY
Pos      Primary WWN                               DID swName
-----
1       Yes      10:00:00:60:69:30:15:5c    1 primaryfcs

HTTP_POLICY
IpAddr
-----
192.555.52.0

-----

ACTIVE POLICY SET

FCS_POLICY
Pos      Primary WWN                               DID swName
-----
1       Yes      10:00:00:60:69:30:15:5c    1 primaryfcs

HTTP_POLICY
IpAddr
-----
192.555.52.0
192.555.53.1
192.555.54.2
192.555.55.3

-----
primaryfcs:admin>
```

To view all security policy information for the TELNET\_POLICY without page breaks:

```
primaryfcs:admin> secPolicyDump "*" , "TELNET_POLICY"

-----
                        DEFINED POLICY SET

TELNET_POLICY
  IpAddr
-----
    192.555.52.13
    192.555.52.11
-----

-----
                        ACTIVE POLICY SET

TELNET_POLICY
  IpAddr
-----
    192.555.52.0
-----

primaryfcs:admin>
```

**See Also**

- secPolicyAbort
- secPolicyActivate
- secPolicyAdd
- secPolicyCreate
- secPolicyDelete
- secPolicyRemove
- secPolicySave
- secPolicyShow

## secPolicyFCSMove

Move a member in the FCS policy.

**Synopsis** secPolicyFCSMove [From, To]

**Availability** admin

**Description** This command moves an FCS member from one position to another position in the FCS list. Only one FCS can be moved at a time. The first FCS switch in the list that is also present in the fabric is the Primary FCS.

If no parameters are specified, the command becomes interactive and prompts for valid values for the operands.

**Note:** This command must be issued from the Primary FCS switch. If a Backup FCS is moved to the first position, then it becomes the Primary FCS after activation.

**Operands** This command has the following operands:

From Specify the position number of the FCS switch you want to move.

To Specify the position that you want to move the FCS switch to.

If no operand is specified the command becomes interactive and you are prompted for values.

**Example** To move Backup FCS switch at position 2 to position 3 in the FCS list:

```
switch5:admin> secpolicyfcsmove
Pos   Primary WWN                               DId swName.
=====
  1   Yes    10:00:00:60:69:10:02:18   1 switch5.
  2   No     10:00:00:60:69:00:00:5a   2 switch60.
  3   No     10:00:00:60:69:00:00:13   3 switch73.

Please enter position you'd like to move from : (1..3) [1] 2
Please enter position you'd like to move to   : (1..3) [1] 3

-----
                        DEFINED POLICY SET
-----
FCS_POLICY
Pos   Primary WWN                               DId swName
-----
  1   Yes    10:00:00:60:69:10:02:18   1 switch5.
  2   No     10:00:00:60:69:00:00:13   3 switch73.
  3   No     10:00:00:60:69:00:00:5a   2 switch60.

-----
switch5:admin>
```

**See Also**    `secFabricShow`  
              `secPolicyAbort`  
              `secPolicyActivate`  
              `secPolicyAdd`  
              `secPolicyCreate`  
              `secPolicyDelete`  
              `secPolicyRemove`  
              `secPolicySave`  
              `secPolicyShow`  
              `secPolicyDump`

## secPolicyRemove

Remove members from an existing policy.

**Synopsis** `secPolicyRemove "name", "member;member"`

**Availability** admin

**Description** Use this command to remove members from an existing security policy. If a policy is empty after removing all members, all accesses to the policy are disallowed (the DCC\_POLICY is an exception). You cannot remove all members from the FCS\_POLICY, and you cannot remove the FCS members from the SCC\_POLICY.

**Note:** This command must be issued from the Primary FCS switch.

**Operands** This command has the following operands:

**name** Specify the name of an existing policy you want to remove members from. Valid values for this operand are:

- DCC\_POLICY\_nnn
- FCS\_POLICY
- TELNET\_POLICY
- HTTP\_POLICY
- API\_POLICY
- RSNMP\_POLICY
- WSNMP\_POLICY
- SES\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY
- OPTIONS\_POLICY

The specified policy name must be capitalized.

The DCC\_POLICY policy name has the common prefix DCC\_POLICY\_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names, but are case sensitive.

This operand is required.

**member** Specify a member or list of members to delete from the policy. The members must be enclosed in quotation marks and separated by semicolons. This operand is required. Depending on the policy type, members can be specified using IP address, WWN, Domain, or switch name.

### IP Address Member Policy Types

The following policy types require members be specified by IP address:

- TELNET\_POLICY
- HTTP\_POLICY
- API\_POLICY



- RSNMP\_POLICY
- WSNMP\_POLICY

These policy types require member IDs in dot notation (for example, 124.23.56.122). If 0 is specified in one of the octets, it means any number can be matched.

### **WWN Member Policy Types**

The following policy types require members be specified by WWN address:

- FCS\_POLICY
- SES\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY

These policy types require member IDs be specified as WWN strings, Domains, or switch names. If Domain or switch names are used, the switches associated must be present in the fabric or the command fails.

### **DCC\_POLICY Members**

The DCC\_Policy\_nnn is a list of devices associated with a specific switch and port combination. The device is specified with a WWN string. The switch and port combination must be specified in the following format:

<switch><port>

where:

<switch> can be specified using WWN, Domain, or switch name.

<port> can be specified by port number separated by commas, and enclosed in either brackets or parenthesis. For example, (2, 4, 6). Ports enclosed in brackets will include the devices currently attached to those ports. The following examples show several ways to specify the port values:

(1-6) = selects ports 1 through 6.

(\*) = selects all ports on the switch.

[3, 9] = selects ports 3 and 9 and all devices attached to those ports.

[1-3, 5] = selects ports 1 through 3 and 5 and all devices attached to those ports.

[\*] = selects all ports on the switch and devices currently attached to those ports.

### **OPTIONS\_POLICY members**

"NoNodeWWNZoning" is the only option.

**Example** Remove a member that has a WWN of 12:24:45:10:0a:67:00:40 from MS policy:

```
primaryfcs:admin> secPolicyRemove "MS_POLICY",  
"12:24:45:10:0a:67:00:40"  
Member(s) have been removed from MS_POLICY. .  
primaryfcs:admin>
```

**See Also**

- secPolicyAbort
- secPolicyActivate
- secPolicyAdd
- secPolicyCreate
- secPolicyDelete
- secPolicySave
- secPolicyShow
- secPolicyDump

## secPolicySave

Save a defined security policy to flash memory on all switches in the fabric.

**Synopsis** secPolicySave

**Availability** admin

**Description** Use this command to save a defined security policy to flash memory of all switches in the fabric.

**Note:** This command must be issued from the Primary FCS switch.

**Operands** None.

**Example** To save new policy set in all switches in the fabric:

```
primaryfcs:admin> secPolicySave
Committing configuration...done.
Saving Define FMPS ...
done
primaryfcs:admin>
```

**See Also**

- secPolicyAbort
- secPolicyActivate
- secPolicyAdd
- secPolicyCreate
- secPolicyDelete
- secPolicyRemove
- secPolicyShow
- secPolicyDump

## secPolicyShow

Show an existing security policy.

**Synopsis** `secPolicyShow [listtype[, name]]`

**Availability** admin

**Description** Use this command to display the members of an existing policy in the Active, or Defined security policy database. Users can specify which database to display. If not specified, all database are displayed.

Users can specify to view a security policy by name. If no name is specified, all policies are displayed.

This command displays the policy database one page at a time. Use **secPolicyDump** to display the policy database without page breaks.

**Note:** This command must be issued from the Primary FCS switch.

**Operands** This command has the following operand:

**listtype** Specify which database to display. The name for active database is "Active"; the name for saved, defined database is "Defined". This operand must be enclosed in quotation marks. If not specified, all databases are displayed. This operand is optional. Use an asterisk (\*) to specify both Active and Defined.

**name** Specify the name of a security policy you would like to view. Valid values for this operand are:

- DCC\_POLICY\_nnn
- FCS\_POLICY
- TELNET\_POLICY
- HTTP\_POLICY
- API\_POLICY
- RSNMP\_POLICY
- WSNMP\_POLICY
- SES\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY
- OPTIONS\_POLICY

The specified policy name must be capitalized.

The DCC\_POLICY\_nnn name has the common prefix DCC\_POLICY\_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names, but is case sensitive.

This operand is optional.

**Example** Show all security policies from all databases:

```
primaryfcs:admin> secPolicyShow "active"
-----
ACTIVE POLICY SET

FCS_POLICY
Pos Primary WWN                               DId swName
-----
1 Yes 10:00:00:60:69:30:15:5c 1 primaryfcs

HTTP_POLICY
IpAddr
-----
192.555.52.0

-----
primaryfcs:admin>
primaryfcs:admin> secPolicyShow "defined"
-----
DEFINED POLICY SET

FCS_POLICY
Pos Primary WWN                               DId swName
-----
1 Yes 10:00:00:60:69:30:15:5c 1 primaryfcs

HTTP_POLICY
IpAddr
-----
192.555.52.0
192.555.53.1
192.555.54.2
192.555.55.3
192.555.56.4

-----
primaryfcs:admin>
```

**See Also**

- secPolicyAbort
- secPolicyActivate
- secPolicyAdd
- secPolicyCreate
- secPolicyDelete
- secPolicyRemove
- secPolicySave
- secPolicyDump

## secStatsReset

Reset security statistic for a policy or all policies to zero.

**Synopsis** `secStatsReset [name]`

**Availability** admin

**Description** Use this command to reset statistic data for a particular policy or all policies to zero. This command can be issued to any switch.

**Operands** This command has the following operand:

name Specify the name of a security statistic you would like to reset. Valid values for this operand are:

- DCC\_POLICY
- FCS\_POLICY
- TELNET\_POLICY
- HTTP\_POLICY
- API\_POLICY
- RSNMP\_POLICY
- WSNMP\_POLICY
- SES\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY
- OPTIONS\_POLICY
- LOGIN

The specified policy name must be all capitalized.

To access DCC policies, enter DCC\_POLICY. Violations are not tracked for individual DCC policies. The statistics for all DCC\_POLICY violations are grouped together.

This operand is optional.

**Example** Reset statistic data of all policies:

```
primaryfcs:admin> secStatsReset
About to reset all security counters.
Are you sure (yes, y, no, n):[no] y
Security statistics reset to zero.
primaryfcs:admin>
```

**See Also**    `secFabricShow`  
              `secStatsShow`

## secStatsShow

Display security statistic for a policy or for all policies.

**Synopsis** `secStatsShow [name]`

**Availability** admin

**Description** Use this command to display statistic data of security violations for a particular policy or all policies.

This command can be issued to any switch.

**Operands** This command has the following operand:

**name** Specify the name of a security statistic you would like to view. Valid values for this operand are:

- DCC\_POLICY
- FCS\_POLICY
- TELNET\_POLICY
- HTTP\_POLICY
- API\_POLICY
- RSNMP\_POLICY
- WSNMP\_POLICY
- SES\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY
- OPTIONS\_POLICY
- LOGIN

The specified policy name must be all capitalized

To access DCC policies, enter DCC\_POLICY. Violations are not tracked for individual DCC policies. The statistics for all DCC\_POLICY violations are grouped together.

This operand is optional.

**Example** Show statistic information of the "MS\_POLICY":

```
primaryfcs:admin> secStatsShow "MS_POLICY"
Name          Value
=====
MS            20
primaryfcs:admin>
```



**See Also**    `secFabricShow`  
              `secStatsReset`

## secTempPasswdReset

Reset a password on a remote switch.

**Synopsis**     secTempPasswdReset [domain[, login\_name]]

**Availability**   Admin

**Description**   This command allows the user to remove temporary passwords that had been set up using **secTempPasswdSet** command. The password is restored to the default password set up on non-FCS switches.

If a login name is not supplied, all passwords on the switch identified by the specified Domain are refreshed. If the Domain is also not supplied, all temporary passwords for all login levels are removed from every switch in the fabric.

Each switch has four accounts, Root, Factory, Admin and User. Root and Factory accounts are disabled for non-FCS switches. If they are temporarily activated by **secTempPasswdSet**, those accounts are disabled by **secTempPasswdReset** or rebooting the switch.

**Note:**   This command must be issued from the Primary FCS switch with secure mode enabled.

**Operands**     This command has the following operands:

domain           Specify the Domain of the switch from which the temporary passwords are to be removed. This operand is optional.

login\_name       Specify the name of the login account from which the temporary password are removed. This operand is optional.

**Example**     To remove temporary passwords:

```
primaryfcs:admin> secTempPasswdReset 2, "root"
primary-switch:admin> secTempPasswdReset 2, "root"
Account root has been successfully disabled on domain 2

primary-switch:admin> secTempPasswdReset 2
Restoring password of every account on domain 2
Temporary password of each account on domain 2 has been successfully
reset (if switch is non fcs switch it will further display).
Root and factory accounts on domain 2 have been disabled.

primary-switch:admin> secTempPasswdReset
All temporary passwords or account settings have been restored to
fabric-wide secure settings.
Passwords of permanent accounts have been reset to fabric-wide
values. Root and factory accounts on each Non FCS switch have
been disabled.
```

**See Also**     secSwitchPasswd  
                   secNonFCSPasswd  
                   secModeEnable  
                   secModeShow

## secTempPasswdSet

Set a temporary password on a remote switch.

**Synopsis**     secTempPasswdSet domain, login\_name

**Availability**   admin

**Description**   Use this command to set a unique temporary password for a given account on a specific switch in the fabric. Use the **secTempPasswdReset** command to remove the temporary password or reboot the switch.

You can change any password on any switch. In order to change the password of an account which has higher level than that of the current user logged into the primary FCS switch, you must enter the password of the same level account on the primary FCS switch.

The password setup on the target is not persistent and will be reset to the secure fabric-wide setting when this target switch is rebooted or when **secTempPasswdReset** is run on primary FCS switch.

Each switch has four accounts; Root, Factory, Admin and User. Root and Factory accounts are disabled for non-FCS switches. This command can enable the root or factory account on a non-FCS switch when you specify a password for those accounts.

The password should be at least 8 characters long and no more than 40 characters.

**Note:** This command must be issued from the Primary FCS switch with security mode enabled.

**Operands**     This command has the following operand:

domain         Specify the Domain of a switch where you want to change the password. This operand is required.

login\_name     Specify the login name where you want to change the password. This operand is required.

**Example**       To set the password on a remote switch with a Domain of 2:

```
primaryfcs:admin> secTempPasswdSet 2, "root"
Please provide password of root on primary FCS switch
in order to change this password: *****
Set remote switch root password: *****
Re-enter new password: *****
Account root has been successfully enabled on domain 2
```

**See Also**    passwd  
              secNonFCSPasswd  
              secTempPasswdReset  
              secModeEnable  
              secModeShow  
              secModeDisable

## secTransAbort

Abort current security transaction.

**Synopsis** secTransAbort

**Availability** admin

**Description** Use this command to abort the current transaction. This command is used to recover from management application problems. This command will abort all current changes that have not been committed or activated.

**Note:** This command can be issued from any switch in the fabric.

**Operands** None.

**Example** To abort the current security transaction:

```
primaryfcs:admin> secTransAbort
Transaction has been aborted.
primaryfcs:admin>
```

**See Also** secPolicyAbort  
secPolicyActivate  
secPolicyAdd  
secPolicyCreate  
secPolicyDelete  
secPolicyRemove  
secPolicySave  
secPolicyShow  
secPolicyDump

## secVersionReset

Reset the version stamp to zero.

**Synopsis** secVersionReset

**Availability** admin

**Description** Use this command to reset the version stamp of all switches in a fabric to zero, so that it can be joined to the another secure fabric.

When merging two or more secure fabrics, the following steps should be taken.

1. Determine which secure fabric will become the FCS\_POLICY controller fabric, that is the dominant fabric to which all other secure fabrics will be merged.
2. Use the **secPolicyAdd**, **secPolicyRemove**, and **secPolicyActivate** commands to modify the FCS\_POLICY of the merging fabrics to match the FCS\_POLICY of the controller fabric. All secure fabrics to be merged must have identical FCS\_POLICY lists. The FCS policies of merged fabrics must match exactly, that is, they must contain the same FCS members and in the same order, or the merge will fail.
3. Reset the version stamp using the **secVersionReset** command on each secure fabric to be merged into the controller fabric. The controller fabric does not require a version reset.
4. Cascade the fabrics together. When the secure fabrics are merged, the primary FCS switch in the controller fabric will propagate its security policies across the newly formed fabric.

**Operands** None.

**Example** To reset the version stamp to zero:

```
primaryfcs:admin> secVersionReset
About to reset version stamp to 0.
Are you sure (yes, y, no, n):[no] y
Committing configuration... done.
Security Policy Version Stamp has been set to 0.
primaryfcs:admin>
```

**See Also** secFabricShow  
secModeEnable  
secModeDisable  
secModeShow  
secTransAbort

## setGbicMode

Enable or disable GBIC mode.

**Synopsis**     `setGbicMode [mode]`

**Availability**   admin

**Description**   Use this command to enable or disable the GBIC mode. The setting is saved in flash memory and remains in that mode until the next execution of **setGbicMode**.

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

The GBIC mode, when enabled, forces **crossPortTest** and **spinSilk** to limit testing to ports with GBICs present. This command can be used to limit testing to GBIC ports with a suspected problems.

**Operands**     This command has the following operand:

mode           Specify whether to enable or disable GBIC mode. Specify 1 to enable GBIC mode or 0 to disable GBIC mode. The default value if no operand specified is 0.

**Example**     To enable or disable GBIC mode:

```
switch:admin> setGbicMode 1
Committing configuration...done.
GBIC mode is now ON.

switch:admin> setGbicMode
Committing configuration...done.
GBIC mode is now OFF.
```

**See Also**     crossPortTest  
spinSilk

## setSplbMode

Enable or disable 2 port loop-back.

**Synopsis**     setSplbMode [mode]

**Availability**   admin

**Description**   Use this command to enable SPLB mode if the operand is a 1 and disable the SPLB mode if the operand is a 0. The mode is saved in flash memory and stays in that mode until the next execution of **setSplbMode**. The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

The SPLB mode, when enabled, forces **spinSilk** to disable two port loop-back for M->M connected ports. This may be useful to isolate internal switch problems from GBIC problems since the internal paths are used much less with SPLB mode enabled.

The SPLB mode, when disabled, forces **spinsilk** to circulate frames between pairs of M->M connected ports as follows:

```
P1 TX >>> P1 RX -> P2 TX >>> P2 RX -> P1 TX
>>> cable or internal loop-back
-> routing table entry
```

The connections between pairs of M->M ports will be chosen to exercise the connections between as many chips (or bloom quadrants) as possible subject to the setting of `allow_intra_chip` and the availability of pairs of M->M ports.

Any ports that are cross-cabled will be routed to each other in the normal manner regardless of the setting of SPLB mode:

```
P1 TX >>> P2 RX -> P1 TX
P2 TX >>> P1 RX -> P2 TX
```

**Operands**     This command has the following operand:

mode           Specify whether to enable or disable SPLB mode. Specify 1 to enable GBIC mode or 0 to disable SPLB mode. The default value (if no operand specified) is 0.

**Example**     To enable or disable a 2 port loop-back:

```
switch:admin> setSplbMode 1
Committing configuration...done.
SPLB mode is now ON.

switch:admin> setSplbMode 0
Committing configuration...done.
SPLB mode is now OFF.
```

**See Also**     setGbicMode  
spinSilk



## sgroupDelete

Delete a switch group.

**Synopsis** `sgroupDelete sgName [, force]`

**Availability** admin

**Description** This command deletes a switch group. If the parameter is not specified, the command will become an interactive session and the necessary parameters will be prompted. This command makes the same change to all switches in the specified group. It executes on every switch in the group if and only if each switch in the group can perform the action.

**Operands** This command has the following operands:

`sgName` Specify a character string in quotation marks containing the switch group name to be deleted (for example "MyGroup"). Entering a wrong name will cause this command to terminate without modifying any switch groups. The sgroup name is case sensitive.

`force` Specify the **force** parameter to delete the group even if one or more members of the group failed to execute the command. The entered string must be "**force**".

**Example** To interactively delete switch group called "MyGroup":

```
switch:admin> sgroupDelete
Please Enter Group Name: [ ] MyGroup
About to DELETE the group with Group name "MyGroup"
ARE YOU SURE (yes, y, no, n): [no] y
Committing configuration...done.
```

This example shows what happens when an invalid group is entered:

```
switch:admin> sgroupDelete "MyPrevGroup"
Group Name "MyPrevGroup" does not exist.
```

**See Also**

- `sgroupRename`
- `sgroupSet`
- `sgroupShow`
- `sgroupSupportShow`
- `sgroupSwReplace`

## sgroupRename

Rename a switch group.

**Synopsis** sgroupRename [ "old\_sgName", "new\_sgName" ]

**Availability** admin

**Description** This command renames a specified sgroup name to the given new name. The member list for the renamed group is not modified. If any parameter is not specified, the session will become an interactive session for which all the parameters will be prompted.

**Operands** This command has the following operands:

oldName Specify a character string in quotation marks containing the sgroup name to be replaced, for example "MyPrevGroupName".

newName Specify a character string in quotation marks containing the new sgroup name, for example "MyNewGroupName".

**Example** To rename an sgroup:

```
switch:admin> sgroupShow
Group Type          Group Name          Member WWN
=====
S32_6_1             MyPrevGroupName     10:00:00:60:69:00:00:20
                    10:00:00:60:69:20:15:81
                    10:00:00:60:69:10:02:18
                    10:00:00:60:69:20:15:71
                    10:00:00:60:69:00:30:05
                    10:00:00:60:69:00:60:11

switch:admin> sgroupRename "MyPrevGroupName", "MyNewGroupName"
Committing configuration...done.
switch:admin> sgroupShow
Group Type          Group Name          Member WWN
=====
S32_6_1             MyNewGroupName     10:00:00:60:69:00:00:20
                    10:00:00:60:69:20:15:81
                    10:00:00:60:69:10:02:18
                    10:00:00:60:69:20:15:71
                    10:00:00:60:69:00:30:05
                    10:00:00:60:69:00:60:11
```

**See Also** sgroupDelete  
sgroupSet  
sgroupShow  
sgroupSupportShow  
sgroupSwReplace

## sgroupSet

Create a switch group.

**Synopsis** `sgroupSet ["sgType", "sgName", "sgMemberList"]`

**Availability** admin

**Description** This command creates a switch group. If any parameter is not specified, the session will become an interactive session for which all the parameters will be prompted.

**Operands** This command has the following operands:

`sgType` Specify a character string in quotation marks containing the sgroup type, for example "S32\_6\_1". The given type **MUST** be a valid type. If the type is not valid, this command will be rejected. Valid types are displayed when this command is run interactively.

`sgName` Specify a character string in quotation marks containing the sgroup name, for example "FirstGroup". The given name must have from 1 to 32 characters, comprised of letters, digits or underscores. Spaces are not allowed.

`sgMemberList` Specify a character string in quotation marks containing the sgroup members, for example "1,2,3,4,5,6". This list can be either the WWN format or Domain format. If given in Domain format, the list will be validated first to ensure that all the specified switch Domains are valid. If given in WWN format, a Warning message may appear if any WWN given is not in the current fabric.

WWN format:

"aa:bb:cc:dd:ee:ff:xx:yy,aa:bb:cc:dd:ee:ff:xx:zz,  
aa:bb:cc:dd:ee:ff:xx:ww,....,aa:bb:cc:dd:ee:ff:xx:qq"

Domain format:

"domain\_ID1,domain\_ID2,....,domain\_IDx"

**Example** To set a group called "My Group" of type "S32\_6\_1" using Domains 1 through 6:

```
switch:admin> sgroupSet "S32_6_1", "MyGroup", "1,2,3,4,5,6"  
Committing configuration...done.
```

To create an sgroup using the interactive form of the **sgroupSet** command:

```
switch:admin> sgroupSet  
Here are the valid sgroup types:  
S32_6_1  
Please Enter Group Type: [S32_6_1] S32_6_1  
Please Enter Group Name: [ ] MyGroup  
Enter member list by domain#? (yes, y, no, n): [yes] n  
For Group Member #1  
enter its WWN (in hex): [00:00:00:00:00:00:00:00] 10:00:00:60:69:00:00:20  
For Group Member #2  
enter its WWN (in hex): [00:00:00:00:00:00:00:00] 10:00:00:60:69:20:15:81  
For Group Member #3  
enter its WWN (in hex): [00:00:00:00:00:00:00:00] 10:00:00:60:69:10:02:18  
For Group Member #4  
enter its WWN (in hex): [00:00:00:00:00:00:00:00] 10:00:00:60:69:20:15:71  
For Group Member #5  
enter its WWN (in hex): [00:00:00:00:00:00:00:00] 10:00:00:60:69:00:30:05  
For Group Member #6  
enter its WWN (in hex): [00:00:00:00:00:00:00:00] 10:00:00:60:69:00:60:11  
Committing configuration...done.
```

**See Also** sgroupDelete  
sgroupRename  
sgroupShow  
sgroupSupportShow  
sgroupSwReplace

## sgroupShow

Display switch group configuration information.

**Synopsis** sgroupShow [ "sgType" | "sgName" ]

**Availability** all users

**Description** This command displays switch group information. If no parameter is specified, ALL sgroup definitions will be displayed. If a parameter is specified, ALL sgroups with sgType or sgName that contain the given parameter string will be displayed.

**Operands** This command has the following operands:

sgType	Specify a character string in quotation marks containing the sgroup type to be displayed, for example "S32_6_1". This operand must be enclosed in quotation marks.
SgName	Specify a character string in quotation marks containing the sgroup name to be displayed, for example "Group". If no parameter is specified, ALL defined sgroups will be displayed. This operand must be enclosed in quotation marks.

**Example** To display all switch group configurations:

```
switch:admin> sgroupShow
Group Type      Group Name      Member WWN
=====
S32_6_1        MyNewGroupName  10:00:00:60:69:00:00:20
                10:00:00:60:69:10:62:ee
                10:00:00:60:69:10:61:0e
                10:00:00:60:69:10:60:f9
                10:00:00:60:69:10:62:44
                10:00:00:60:69:10:60:a0
```

To display ALL switch groups that contain the key word “Group”:

```
switch:admin> sgroupShow "Group"
Group Type      Group Name      Member WWN
=====
S32_6_1        MyNewGroupName  10:00:00:60:69:00:00:20
                10:00:00:60:69:20:15:81
                10:00:00:60:69:10:02:18
                10:00:00:60:69:20:15:71
                10:00:00:60:69:00:30:05
                10:00:00:60:69:00:60:11
```

**Note:** Since *MyNewGroupName* contains the key word “Group”, it is displayed.

**See Also** sgroupDelete  
sgroupRename  
sgroupSet  
sgroupSupportShow  
sgroupSwReplace

## sgroupSupportShow

Displays switch information for all switches within the specified group.

**Synopsis** `sgroupSupportShow "sgroupName" [ , "commandName" ]`

**Availability** All users

**Description** This command can display a range of debugging information for all the switches in a switch group. If no *commandName* is specified or **all** is specified in place of a command name, all the supported commands are displayed for the all the switches within a switch group. If a single command is specified, only the information for that command is displayed.

**Operands** This command has the following operands:

`sgroupName` Specify the name of the switch group. This operand must be enclosed in quotation marks. This operand is required.

`commandName` Specify the name of the command to be displayed for the specified switch group. If no command is specified, or **all** is specified, all the supported commands are executed against all the switches within a switch group. Below is a list of command names that are supported in the order they are executed. These command names are not case sensitive. The command must be enclosed in quotation marks. This operand is optional.

<code>version</code>	<code>portRegShow</code>
<code>uptime</code>	<code>portRouteShow</code>
<code>tempShow</code>	<code>fabricShow</code>
<code>psShow</code>	<code>topologyShow</code>
<code>licenseShow</code>	<code>qlShow</code>
<code>diagShow</code>	<code>nsShow</code>
<code>errDump</code>	<code>nsAllShow</code>
<code>switchShow</code>	<code>cfgShow</code>
<code>portFlagsShow</code>	<code>configShow</code>
<code>portErrShow</code>	<code>faultShow</code>
<code>mqShow</code>	<code>traceShow</code>
<code>portSemShow</code>	<code>portLogDump</code>
<code>portShow</code>	

**Example** To display the temperature in all the switch components of a Silkworm 6400:

```
switch:admin>sgroupsupportshow "starbase", "tempshow"
Group Type          Group Name          Member WWN
=====
S32_6_1             starbase            10:00:00:60:69:10:57:91
                   10:00:00:60:69:10:56:79
                   10:00:00:60:69:10:58:89
                   10:00:00:60:69:10:57:dd
                   10:00:00:60:69:10:58:63
                   10:00:00:60:69:10:58:3f

Please wait for remote data!
value = 0
switch:admin>
=====
Information from Local Domain 7
=====
 27  30  31  33  32 Centigrade
 80  86  87  91  89 Fahrenheit
=====
Information from Domain 8
=====
 28  29  32  33  33 Centigrade
 82  84  89  91  91 Fahrenheit
=====
Information from Domain 9
=====
 27  29  33  34  32 Centigrade
 80  84  91  93  89 Fahrenheit
=====
Information from Domain 10
=====
 26  30  31  34  31 Centigrade
 78  86  87  93  87 Fahrenheit
=====
Information from Domain 11
=====
 28  29  31  33  32 Centigrade
 82  84  87  91  89 Fahrenheit
=====
Information from Domain 12
=====
 28  31  34  35  33 Centigrade
 82  87  93  95  91 Fahrenheit
=====
=====DONE=====
```

**See Also**

- sgroupDelete
- sgroupRename
- sgroupSet
- sgroupShow
- sgroupSwReplace



## sgroupSwReplace

Replace a member of a switch group.

**Synopsis** `sgroupSwReplace ["sgName", "oldWwn", "newWwn"]`

**Availability** admin

**Description** This command replaces the member with oldWWN in group sgName with the member with newWwn. The order of members within the member list will not be changed by this operation.

If any parameter is not specified, the session will become an interactive session and all the parameters will be prompted.

This command makes the same change to all switches in the specified group. It will execute on every switch in the group if and only if each switch in the group can perform the action.

**Operands** This command has the following operands:

sgName	Specify the switch group name (for example, "NewGroup") that contains the member you want to replace. The switch group name must be enclosed in quotation marks. This operand is optional.
oldWwn	Specify the WWN of a switch group member (for example, "10:00:00:60:69:20:22:22") that you want to replace. The WWN must be enclosed in quotation marks. This operand is optional.
newWwn	Specify the WWN of the new member (for example, "10:00:00:60:69:20:55:55"). The WWN must be enclosed in quotation marks. This operand is optional.

**Example** The example shows the non-interactive form of `sgroupSwReplace`. The `sgroupShow` command is used to illustrate the changes made with the `sgroupSwReplace` command. To replace a member of an sgroup:

```
switch:admin> sgroupShow
Group Type      Group Name      Member WWN
=====
S32_6_1         NewGroup        10:00:00:60:69:20:15:71
                                     10:00:00:60:69:20:15:93
                                     10:00:00:60:69:20:15:2a
                                     10:00:00:60:69:20:18:32
                                     10:00:00:60:69:20:22:22
                                     10:00:00:60:69:20:64:31

value = 0
switch:admin> sgroupSwReplace "NewGroup", "10:00:00:60:69:20:22:22",
"10:00:00:60:69:20:55:55"
Committing configuration...done.
switch:admin> sgroupShow
Group Type      Group Name      Member WWN
=====
S32_6_1         NewGroup        10:00:00:60:69:20:15:71
                                     10:00:00:60:69:20:15:93
                                     10:00:00:60:69:20:15:2a
                                     10:00:00:60:69:20:18:32
                                     10:00:00:60:69:20:55:55
                                     10:00:00:60:69:20:64:31
```

**See Also** `sgroupDelete`  
`sgroupRename`  
`sgroupSet`  
`sgroupShow`  
`sgroupSupportShow`

## snmpMibCapSet

View and modify options for configuring SNMP MIB/Trap Capability.

**Synopsis** snmpMibCapSet

**Availability** admin

**Description** This command enables a user to turn on or off certain MIBS and TRAPS. This command also enables a user to turn on or off group information and SSN in SW trap messages. It first displays current settings and then prompts the user to change the values for each parameter.

- FA-MIB - Specifying **yes** means the user can access FA MIB variables with an SNMP manager. The default value is **yes**.
- SW-TRAP - Specifying **yes** means the SNMP management application can receive SW traps from the switch. The default value is **yes**.
- FA-TRAP - Specifying **yes** means the SNMP management application can receive FA traps from the switch. The default value is **yes**.
- SW-EXTTRAP - Specifying **yes** means the user can receive group information such as Group Name, Group Type, and Member Position, and SSN in the SW traps. The default value is **no**.

**Operands** none

**Example** To view or modify the options for configuring SNMP MIB traps:

```
switch:admin> snmpmibcapset
The SNMP Mib/Trap Capability has been set to support
FE-MIB SW-MIB FA-MIB SW-TRAP FA-TRAP
FA-MIB (yes, y, no, n): [yes]
SW-TRAP (yes, y, no, n): [yes]
FA-TRAP (yes, y, no, n): [yes]
SW-EXTTRAP (yes, y, no, n): [no]
no change
```

**See Also** agtcfgShow  
agtcfgSet  
agtcfgDefault

## spinSilk

Functional test of port M->N path at maximum switch speed.

**Synopsis** `spinSilk [nMillionFrames]`

**Availability** admin

**Description** Use this command to verify the functional operation of the switch at the maximum speed of 1Gbps.

To run `spinSilk`, set up the routing hardware so that frames received by port M are retransmitted through port N and frames received by port N are retransmitted through port M. Each port M sends 4 frames to its partner port N using an external fiber cable; this exercises all switch components from the main board, to the GBIC, to the fiber cable, to the GBIC, and back to the main board.

The cables can be connected to any port combination as long as the cables and GBICs connected are of the same technology: a short wavelength GBIC port is connected to another short wavelength GBIC port using a short wavelength cable, and a long wavelength port is connected to a long wavelength port, and a copper port is connected to a copper port.

For best coverage, connect ports from different ASICs. Ports 0-3 belong to ASIC 0, ports 4-7 belong to ASIC 1, etc. A connection from port 0 to port 15 exercises the transmit path between ASICs. A connection from port 0 to port 3 tests only the internal transmit path in ASIC 0.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running.

Below is the test method:

1. Determine port connections.
2. Enable ports for cabled loopback mode.
3. Configure the routing table to route frames received by port M to the partner port N and vice versa.
4. Transmit 4 frames of different lengths using port M. Below are the 4 frames:

```
2112 bytes of BYTE_LFSR
1000 bytes of CSPAT
128 bytes of RANDOM
512 bytes of RDRAM_PAT
```

The partner port N eventually sends 4 similar frames as follows:

```
2112 bytes of BYTE_LFSR
928 bytes of CSPAT
200 bytes of RANDOM
480 bytes of RDRAM_PAT
```

5. Periodically check each port for the following:
  - each port has not died
  - frames transmitted counter is incrementing
  - statistic error counters are nonzero

ENC\_in, CRC\_err, TruncFrm, FrmTooLong, BadEOF, Enc\_out, BadOrdSet, DiscC3

until one of the following is met:

- the number of million frames requested per port are met
- all ports are marked bad
- the user sends a keyboard (or push button) interrupt to abort

In this test, data is not read and checked and the only CPU intervention is the periodic check of hardware counters.

Below is an example of the data used:

```
CSPAT:                0x7e, 0x7e, 0x7e, 0x7e, ...
BYTE_LFSR:            0x69, 0x01, 0x02, 0x05, ...
RANDOM:                0x25, 0x7f, 0x6e, 0x9a, ...
RDRAM_PAT:           0xff, 0x00, 0xff, 0x00, ...
```

## GBIC Mode

If **spinSilk** is executed with GBIC mode activated, only ports containing GBICs are tested. To activate GBIC mode, execute the following command prior to executing **spinSilk**:

```
switch:admin> setGbicMode 1
```

The state of the GBIC mode is saved in flash and it remains active (even after reboots or power cycles) until it is disabled as follows:

```
switch:admin> setGbicMode 0
```

For example, disable the switch, set the GBIC mode to 1, and execute **spinSilk** to limit testing to:

```
only ports containing GBICs
that _all_ GBIC ports that are cable loopbacked
```

Because this test includes the GBIC and the fiber cable in its test path, use the results from this test in conjunction with the results from **crossPortTest** and **portLoopbackTest** to determine those switch components that are not functioning properly.

### Operands

This command has the following operand:

nMillionFrames

Specify the number of million frames per port to execute this test. If omitted, the default `passCount` value is `0xfffffffffe`. This operand is optional.

**Example** To verify the functionality of a switch:

```
switch:admin> spinSilk 2
Running Spin Silk .....
One moment please ...
switchName:      switch
switchType:      2.2
switchState:     Testing
switchRole:      Disabled
switchDomain:    1 (unconfirmed)
switchId:        fffc01
switchWwn:       10:00:00:60:69:00:73:71
port 0: cu Testing Loopback->15
port 1: sw Testing Loopback->11
port 2: sw Testing Loopback->6
port 3: lw Testing Loopback->4
port 4: lw Testing Loopback->3
port 5: sw Testing Loopback->8
port 6: sw Testing Loopback->2
port 7: sw Testing Loopback->12
port 8: sw Testing Loopback->5
port 9: sw Testing Loopback->14
port 10: sw Testing Loopback->13
port 11: sw Testing Loopback->1
port 12: sw Testing Loopback->7
port 13: sw Testing Loopback->10
port 14: sw Testing Loopback->9
port 15: cu Testing Loopback->0

Transmitting ... done.
Spinning ...
port 0 Rx/Tx 1 of 1 million frames.
port 1 Rx/Tx 1 of 1 million frames.
port 2 Rx/Tx 1 of 1 million frames.
port 3 Rx/Tx 1 of 1 million frames.
port 4 Rx/Tx 1 of 1 million frames.
port 5 Rx/Tx 1 of 1 million frames.
port 6 Rx/Tx 1 of 1 million frames.
port 7 Rx/Tx 1 of 1 million frames.
port 8 Rx/Tx 1 of 1 million frames.
port 9 Rx/Tx 1 of 1 million frames.
port 10 Rx/Tx 1 of 1 million frames.
port 11 Rx/Tx 1 of 1 million frames.
port 12 Rx/Tx 1 of 1 million frames.
port 13 Rx/Tx 1 of 1 million frames.
port 14 Rx/Tx 1 of 1 million frames.
port 15 Rx/Tx 1 of 1 million frames.
```

```

Diagnostics Status: Tue Apr 6 04:10:12 1999
port#: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
diags: OK OK OK OK OK OK OK OK OK OK OK OK OK OK OK OK
state: UP UP UP UP UP UP UP UP UP UP UP UP UP UP UP UP

lm0: 2059619 frTx 2052666 frRx 0 LLI_errs. <looped-15>
lm1: 2054565 frTx 2052620 frRx 0 LLI_errs. <looped-11>
lm2: 2050424 frTx 2048321 frRx 0 LLI_errs. <looped-6>
lm3: 2053094 frTx 2042762 frRx 0 LLI_errs. <looped-4>
lm4: 2042957 frTx 2053290 frRx 0 LLI_errs. <looped-3>
lm5: 2056586 frTx 2053910 frRx 0 LLI_errs. <looped-8>
lm6: 2048992 frTx 2048569 frRx 0 LLI_errs. <looped-12>
lm9: 2039595 frTx 2051975 frRx 0 LLI_errs. <looped-14>
lm10: 2050130 frTx 2052565 frRx 0 LLI_errs. <looped-13>
lm11: 2054678 frTx 2056622 frRx 0 LLI_errs. <looped-1>
lm12: 2049707 frTx 2050131 frRx 0 LLI_errs. <looped-7>
lm13: 2053410 frTx 2050976 frRx 0 LLI_errs. <looped-10>
lm14: 2053358 frTx 2040971 frRx 0 LLI_errs. <looped-9>
lm15: 2056132 frTx 2063094 frRx 0 LLI_errs. <looped-0>

Central Memory OK
Total Diag Frames Tx: 31712
Total Diag Frames Rx: 32816
value = 0

```

**Errors** Below are the possible error messages if failures are detected:

```

DIAG-INIT
DIAG-PORTDIED
DIAG-XMIT
DIAG-PORTSTOPPED
DIAG-ERRSTAT
DIAG-ERRSTATS

```

**See Also**

```

camTest
centralMemoryTest
cmemRetentionTest
cmiTest
crossPortTest
portLoopbackTest
portRegTest
ramTest
sramRetentionTest

```

## sramRetentionTest

Data retention test of the miscellaneous SRAMs in ASIC.

**Synopsis** `sramRetentionTest [passCount]`

**Availability** admin

**Description** Use this command to verify that data written into the miscellaneous SRAMs in the ASIC are retained after a 10 second wait.

The method used is to write a fill pattern to all SRAMs, wait 10 seconds, and then read all SRAMs checking that data read matches data previously written. Repeat using the complementary version of the pattern.

The following patterns are used:

```
0xffffffff (and 0x00000000)
0x55555555 (and 0xaaaaaaaa)
0x33333333 (and 0xcccccccc)
0x0f0f0f0f (and 0xf0f0f0f0)
QUAD_RAMP with a random seed value (and its invert)
```

**Operands** This command has the following operand:

`passCount` Specify the number of times to execute the test. The default value is 1. This command is optional.

**Example** To run a data retention test:

```
switch:admin> sramRetentionTest
Running SRAM Retention Test ... passed.
```

**Errors** Below are the possible error messages if failures are detected:

```
DIAG-REGERR
DIAG-REGERR_UNRST
DIAG-BUS_TIMEOUT
```

**See Also**

- `camTest`
- `centralMemoryTest`
- `cmemRetentionTest`
- `cmiTest`
- `crossPortTest`
- `portLoopbackTest`
- `ramTest`
- `spinSilk`



## ssn

Display and set soft serial number.

**Synopsis** `ssn ["softserialnumber"]`

**Availability** all users

**Description** Use this command to display and set soft serial number.

If no operand is specified, this command displays the current soft serial number. If an operand is specified, this command sets the soft serial number. The soft serial number can be an alphanumeric value between 1 and 127 bytes in length.

**Operands** This command has the following operand:

`softserialnumber`

Specify a character string between 1 and 127 bytes in length. This operand must be enclosed in quotation marks. This operand is optional.

**Example** To view and then set soft serial number:

```
switch:admin> ssn
10:00:00:60:69:50:02:7b
switch:admin> ssn "BRCD_101"
Committing configuration...done.
switch:admin> ssn
BRCD_101
```

**See Also** `bsn`

## supportShow

Print switch information for debugging purposes.

**Synopsis** `supportShow [firstPort, lastPort, nLog]`

**Availability** All users

**Description** Use this command to print the switch information for debugging purposes. This command executes the listed commands in the following order:

1. `version`
2. `uptime`
3. `tempShow`
4. `psShow`
5. `licenseShow`
6. `diagShow`
7. `errDump`
8. `switchShow`
9. `portFlagsShow`
10. `portErrShow`
11. `mqShow`
12. `portSemShow`
13. `portShow`
14. `portRegShow`
15. `portRouteShow`
16. `fabricShow`
17. `topologyShow`
18. `qlShow`
19. `nsShow`
20. `nsAllShow`
21. `cfgShow`
22. `configShow`
23. `faultShow`
24. `traceShow`
25. `portLogDump`

**Operands** This command has the following operands:

- firstPort** Specify the first port, of a range of ports, to dump information. The default (if no operand specified) is to print state of port 0. If only **firstPort** is specified, only information for **firstPort** is printed.
- lastPort** Specify the last port, of range of ports, to dump information. If **firstPort** is specified but **lastPort** is not specified, only **firstPort** information is printed for the port based commands (**portShow**, **portRegShow**, **portRouteShow**). If no operand is supplied, **firstPort** is set to 0 and **lastPort** is set to maximum port of switch.
- nLog** Specify the number of lines of **portLogDump** to print:
- 0 = dump all lines (default)
  - N = dump the last N lines
  - <0 = skip **portLogDump**

**Example** To display switch information for debugging:

```
switch:admin> supportShow
Kernel:      5.3.1
Fabric OS:   v2.1
Made on:     Tue Apr 6 16:57:22 PDT 1999
Flash:       Thu Apr 1 10:23:43 PST 1999
BootProm:    Thu Oct 1 13:34:29 PDT 1998

Up for:      12 secs
Powered for: 472 days, 19:15
Last up at:  Tue May  2 10:48:21 2000
Reason:      Reboot

 37  34  37  45  49  Centigrade
 98  93  98 113 120 Fahrenheit

Power Supply #1 is absent
Power Supply #2 is absent
byRdzdSRxyzSe0D:

      Web license

      Diagnostics Status: Tue Apr  6 16:22:34 1999

< ... sample output truncated ... >
```

**See Also** `switchShow`

## switchBeacon

Set switch beaconing mode on or off.

**Synopsis** `switchBeacon mode`

**Availability** admin

**Description** Use this command to set the switch beaconing mode on (if the operand is 1) or off (if the operand is 0).

When beaconing mode is turned on, the port LEDs flash amber in a running pattern from port 0 to port 15, and then back again. The user sees a running pattern in amber LEDs, from left to right and right to left. The pattern continues until turned off by the user.

Beaconing mode affects only the port LEDs. Other commands are still executable and functional. The normal flashing LED pattern (associated with an active, faulty or disabled port) is suppressed and the beaconing pattern is shown. However, if diagnostic frame based tests (**portLoopbackTest**, **crossPortTest**, and **spinSilk**) are executed, two patterns are interleaved. The diagnostic test flickers the LEDs green and simultaneously the beaconing mode runs the LEDs amber.

Use the **switchShow** command to display the status of beaconing.

**Operands** This command has the following operand:

mode Specify the switch beacon mode for the switch. Valid values are 0 or 1. Specify 1 to enable beacon mode or 0 to disable beacon mode. This operand is required.

**Example** To turn beaconing mode ON:

```
switch:admin> switchBeacon 1
```

To turn beaconing mode OFF:

```
switch:admin> switchBeacon 0
```

**See Also** `switchShow`

## switchDisable

Disable the switch.

**Synopsis**      `switchDisable`

**Availability**    `admin`

**Description**    Use this command to disable the switch. All fibre channel ports are taken offline; if the switch was part of a fabric, the remaining switches reconfigure.

The switch must be disabled before making configuration changes (using **configure** or **configDefault**) or before running many of the diagnostic tests. All commands that require the switch to be disabled send an error if invoked while the switch is enabled.

The switch does not need to be disabled before rebooting or powering off.

As each port is disabled, the front panel LED changes to a slow flashing yellow.

**Operands**        None.

**Example**         To disable the switch:

```
switch:admin> switchDisable
```

**See Also**        `switchEnable`  
`switchShow`

## switchEnable

Enable the switch.

**Synopsis**      `switchEnable`

**Availability**    `admin`

**Description**    Use this command to enable the switch. All fibre channel ports that passed POST are enabled. They can come online if connected to a device, or remain offline if disconnected. A switch may need to be enabled if it was previously disabled to make configuration changes or to run diagnostics.

If the switch is connected to a fabric, it rejoins the fabric. When this command is issued, the 10 second fabric stability count down is displayed. If this switch remains the principal switch at the end of the count down, then it assigns itself a Domain. If another switch assumes the principal role, then this switch becomes a subordinate switch, and accepts a Domain from the principal. See FC-SW for a complete description of this process.

As each port is enabled, the front panel LED changes to green for online ports, black for disconnected ports, or yellow for un-initialized ports.

**Operands**      None.

**Example**        To enable a switch:

```
switch:admin> switchEnable
10 9 8 7 6 5 4 3 2 1
fabric: Principal switch
fabric: Domain 1
```

**See Also**      `switchDisable`  
`switchShow`

## switchName

Display or set switch name.

**Synopsis**      `switchName [ "newName" ]`

**Availability**    All users (display)  
                  admin (set)

**Description**    Use this command to display or modify the switch name.

All switches have a symbolic name that is primarily used for switch management. This name is usually the same as the name given to the switch by the network administrator and maintained by the network name service (DNS, NIS, etc). This name is shown in the telnet prompt, under each switch icon on the Fabric Web page, and in the output of various telnet commands, such as `fabricShow`.

Enter this command with no parameters displays the current name.

Enter this command with the `newname` operand sets the switch's name to the new value. Switch names can be upto 19 characters long, must begin with a alphanumeric value and can use any alphanumeric or underscore character.

Changing the switch's name causes a Domain Address format RSCN to be issued (see FC-FLA for a description of RSCNs).

The switch's name may also be changed using the Web Tools interface.

**Operands**        This command has the following operand:

`newName`        Specify a new name for the switch, in quotation marks. This operand is optional.

**Example**         To change a switch name to `sw10`:

```
switch:admin> switchName "sw10"  
Updating flash ...  
sw10:admin>
```

**See Also**        `switchShow`  
                  `fabricShow`

## switchShow

Display switch and port status.

**Synopsis**      `switchShow`

**Availability**    All users

**Description**    Use this command to display switch and port status information. Information may vary by switch model. Below is the information provided. The first section provides switch summary information; it is followed by a section covering summary information by port.

Switch summary information:

<code>switchName</code>	Switch symbolic name.
<code>switchType</code>	Switch model and revision numbers.
<code>switchState</code>	Switch state: online, offline, testing, faulty.
<code>switchRole</code>	Switch role: principal, subordinate, disabled.
<code>switchDomain</code>	Switch Domain: 0-31 or 1-239.
<code>switchId</code>	Switch embedded port D_ID.
<code>switchWwn</code>	Switch worldwide name.
<code>switchBeacon</code>	The switch's beaconing state (either ON or OFF).

The switch summary is followed by one line per port:

`port number`    Port number. Valid values vary depending on the switch type.

`module type`    Port module type (GBIC or other):

- no module present
- `sw` - shortwave laser
- `lw` - longwave laser
- `cu` - copper
- `id` - serial ID

`port state`    Port state:

- `No_Card` - no interface card present
- `No_Module` - no module (GBIC or other) present
- `No_Light` - module not receiving light
- `No_Sync` - module receiving light but out of sync
- `In_Sync` - module receiving light and in sync
- `Laser_Flt` - module signaling a laser fault
- `Port_Flt` - port marked faulty
- `Diag_Flt` - port failed diagnostics



Lock\_Ref - locking to the reference signal  
 Testing - running diagnostics  
 Online - port is up and running  
 comment The comment field may be blank, or it may display:  
 Disabled - port is disabled  
 Bypassed - port is bypassed (loop only)  
 Loopback - port is in loopback mode  
 E-Port - fabric port, shows WWN of attached switch  
 F-Port - point-to-point port, shows WWN of attached N\_Port  
 G-Port - point-to-point but not yet E-Port or F-port  
 L-Port - loop port, shows number of NL\_Ports

**Operands** None.

**Example** The following illustrates a 16 port switch. Two ports are F\_Ports (point-to-point connections to N\_Ports), two ports are loop ports (one has 8 private loop devices), and two ports are connected to another switch “sw6”.

```

switch:admin> switchshow
switchName:      switch
switchType:      2.2
switchState:     Online
switchRole:      Principal
switchDomain:    1
switchId:        fffc01
switchWwn:       10:00:00:60:69:00:73:71
switchBeacon:    OFF
port 0: sw No_Light
port 1: sw No_Light
port 2: lw No_Light
port 3: sw No_Light
port 4: sw No_Light
port 5: sw No_Light
port 6: sw No_Light
port 7: sw No_Light
port 8: sw No_Light
port 9: sw No_Light
port 10: -- No_Module
port 11: sw No_Light
port 12: lw No_Light
port 13: sw No_Light
port 14: -- No_Module
port 15: -- No_Module
switch:admin>
  
```

**See Also**    `switchDisable`  
                  `switchEnable`  
                  `switchName`

## switchStatusPolicySet

Set the policy parameters that determine the overall switch status.

**Synopsis**      switchStatusPolicySet

**Availability**    admin

**Description**    Use this command to set the policy parameters for calculating the overall status of the switch enclosure. The policy parameter values determine how many failed or faulty units of each contributor are allowed before triggering a status change in the switch from HEALTHY to MARGINAL or DOWN.

The command will print the current parameters in a three column table format. The first column specifies the contributor; the second column specifies the minimum number that contributes to the DOWN/FAILED status; the third column specifies the minimum number that contributes to the MARGINAL/WARNING status. This command then prompts the user to change the values for each policy parameter. The default values for the policy parameters are as follows:

**Table 1-19** Contributor Value and Status

Contributor	Default Value for DOWN	Default Value for MARGINAL
FaultyPorts	2	1
MissingGBICs	0	0
PowerSupplies	2	1
Temperatures	2	1
Fans	2	1
PortStatus	0	0
sgroup ISLStatus	2	1

Any single contributor can force the overall status of the switch to MARGINAL or DOWN.

This command enables you to set a threshold for each contributor, so that a certain number of failures are allowed before changing the status of the switch.

If the value of a policy parameter is set to 0, it means that this factor is not used to determine the status of the switch. If the range of values for a particular contributor are set to 0 for both MARGINAL and DOWN, that contributor is not used in the calculation of the overall switch status.

ISLStatus monitors ISLs that are part of a defined switch group. The status of other ISLs on the same switch but outside of the group definition will not be considered when calculating switch status. If no switch groups are defined on this switch, then these ISLStatus settings will have no effect on switch status.

The sgroup ISLStatus does not affect the status of the switch as quickly as the other contributors. It may take a few minutes for a switch group ISL status change to affect the state of the switch.

**Note:** When PortStatus monitoring is set to values of (0,0), port status changes are not logged to the event log and console. Similarly, GBIC removal does not generate a message to the event log and console if MissingGBICs is set to (0,0). By configuring these options, the user can more closely monitor for port status and/or removal of GBICs.

**Operands** None.

**Example** Notice that in the following example, the only parameters modified are the number of FaultyPorts allowed before the status of the switch changes to MARGINAL and DOWN.

```
switch:admin> switchStatusPolicySet
To change the overall switch status policy parameters
The current overall switch status policy parameters:
                Down      Marginal
-----
    FaultyPorts  1          0
    MissingGBICs 0          1
    PowerSupplies 2          1
    Temperatures 2          1
         Fans    2          1
    PortStatus   0          0
    sgroup ISLStatus 2          1
```

Note that the value, 0, for a parameter, means that it is NOT used in the calculation.

\*\* In addition, if the range of settable values in the prompt is (0..0),

\*\* the policy parameter is NOT applicable to the switch.

\*\* Simply hit the Return key.

The minimum number of

```
FaultyPorts contributing to DOWN status: (0..8) [2]
FaultyPorts contributing to MARGINAL status: (0..8) [1]
MissingGBICs contributing to DOWN status: (0..8) [0]
MissingGBICs contributing to MARGINAL status: (0..8) [0] 1
Bad PowerSupplies contributing to DOWN status: (0..2) [2]
Bad PowerSupplies contributing to MARGINAL status: (0..2) [1]
Bad Temperatures contributing to DOWN status: (0..5) [2]
Bad Temperatures contributing to MARGINAL status: (0..5) [1]
Bad Fans contributing to DOWN status: (0..6) [2]
Bad Fans contributing to MARGINAL status: (0..6) [1]
Down PortStatus contributing to DOWN status: (0..8) [0]
Down PortStatus contributing to MARGINAL status: (0..8) [0]
Down ISLStatus contributing to DOWN status: (0..16) [2]
Down ISLStatus contributing to MARGINAL status: (0..16) [1]
```

```
Policy parameter set has been changed
... Committing configuration...done.
```

**See Also**    `switchStatusPolicyShow`  
              `switchStatusShow`

## switchStatusPolicyShow

Displays the policy parameters that determine the overall switch status.

**Synopsis** `switchStatusPolicyShow`

**Availability** all users

**Description** Use this command to view the current policy parameters set for the switch. These policy parameters determine the number of failed or non-operational units allowed for each contributor before triggering a status change in the switch.

The command will print the current parameters in a three column table format. The first column specifies the contributor; the second column specifies the minimum number that contributes to the DOWN/FAILED status; the third column specifies the minimum number that contributes to the MARGINAL/WARNING status. The default values for the policy parameters are as follows:

**Table 1-20** Contributor Value and Status

Contributor	Default Value for DOWN	Default Value for MARGINAL
FaultyPorts	2	1
MissingGBICs	0	0
PowerSupplies	2	1
Temperatures	2	1
Fans	2	1
PortStatus	0	0
sgroup ISLStatus	2	1

The policy parameters determine the number of failed or non-operational units for each contributor that trigger a status change in the switch. For example, if the FaultyPorts DOWN parameter is set to 3, and 3 ports fail in the switch, then the status of the switch changes to DOWN.

**Operands** None.

**Example** To display the switch status policy:

```
switch:admin> switchStatusPolicyShow
The current overall switch status policy parameters:
                Down      Marginal
-----
    FaultyPorts  1         0
    MissingGBICs 0         1
    PowerSupplies 2         1
    Temperatures 3         1
        Fans     3         1
    PortStatus   0         0
sgroup ISLStatus 2         1
```

**See Also** `switchStatusShow`  
`switchStatusPolicySet`

## switchStatusShow

Displays the overall status of the switch.

**Synopsis** switchStatusShow

**Availability** All Users

**Description** Use this command to display the overall status of the switch. The overall status is calculated based on the most severe status of all contributors:

- Internal Switch Status
- Faulty Ports
- Missing GBICs
- Power Supplies
- Fans
- Temperatures
- Port Status

The overall status can be one of the following:

- Healthy/OK - every contributor is healthy
- Marginal/Warning - one or more components are causing a warning status
- Down/Failed - one or more contributors have failed

If the overall status is not HEALTHY/OK, the contributing factors are listed.

**Operands** None.

**Example** To display the status of a switch:

```
switch:admin> switchStatusShow
The overall switch status is Marginal/Warning
Contributing factors:
* 1 missing power supply triggered the Marginal/Warning status
* 2 bad fans, 4 good fans triggered the Marginal/Warning status
* 1 missing GBIC triggered the Marginal/Warning status
switch:admin>
```

After all the problems have been fixed the command displays as follows:

```
switch:admin> switchStatusShow
The overall switch status is HEALTHY/OK
switch:admin>
```

**See Also** switchStatusPolicyShow

switchStatusPolicySet



## syslogdIpAdd

Add the IP address of a syslog daemon.

**Synopsis** `syslogdIpAdd IP_address`

**Availability** admin

**Description** Use this command to add the IP address of a syslog daemon, that is the IP address of the server which is running the syslogd process. Syslog daemon (syslogd) is a process available on most Unix systems that reads and forwards system messages to the appropriate log files and/or users, depending on the system configuration.

When one or more IP addresses are configured, the switch forwards all error log entries to the syslogd on the specified server(s). Up to six servers are supported.

**Operands** This command has the following operand:

`IP_address` Specify the IP address of the server running syslogd. This operand is required.

**Example** To add the address 192.168.1.60 to the list of machines to which system messages are sent:

```
switch:admin> syslogdIpAdd "192.168.1.60"  
Committing configuration...done.
```

**See Also** `errShow`  
`syslogdIpRemove`  
`syslogdIpShow`

## syslogdIpRemove

Remove the IP address of a syslog daemon.

**Synopsis** `syslogdIpRemove IP_address`

**Availability** admin

**Description** Use this command to remove the IP address of a syslog daemon, that is the IP address of the server which is running the `syslogd` process.

**Operands** This command has the following operand:

`IP_address` Specify the IP address of the server running `syslogd`. This operand is required.

**Example** To remove the address 192.168.1.60 from the list of machines to which system messages are sent:

```
switch:admin> syslogdIpRemove "192.168.1.60"  
Committing configuration...done.
```

**See Also** `errShow`

`syslogdIpAdd`

`syslogdIpShow`

## syslogdIpShow

Display all syslog daemon IP addresses.

**Synopsis** `syslogdIpShow`

**Availability** All users

**Description** Use this command to display all syslog daemon IP addresses in the configuration database.

**Operands** None.

**Example** To display all syslog daemon IP addresses:

```
switch:admin> syslogdIpShow  
syslog.IP.address.1: 192.168.1.60  
syslog.IP.address.2: 192.168.1.88  
syslog.IP.address.3: 192.168.2.77
```

**See Also** `errShow`  
`syslogdIpAdd`  
`syslogdIpRemove`

## tempShow

Display temperature readings.

**Synopsis** tempShow

**Availability** All users

**Description** Use this command to display the current temperature readings from each of five temperature sensors located on the main printed circuit board of the switch. The sensors are located, approximately, one in each corner and one at the center of the PCB.

**Operands** None.

**Example** To display the temperature readings for a switch:

```
switch:admin> tempShow
43  40  44  48  45  Centigrade
109 104 111 118 113 Fahrenheit
```

**See Also** fanShow

psShow

## timeOut

Used to set or clear idle telnet connection timeout value.

**Synopsis**     timeOut [0 | minutes]

**Availability**   all users (display)  
                  admin (set/clear)

**Description**   This command changes the telnet timeout value used by the shell. The default value of zero means that telnet timeouts are disabled. A non-zero value specifies the number of minutes to wait before an idle telnet session is timed out. The minimum value is 1 minute, the maximum is 512640 minutes (1 year).

**Operands**       The following operand is optional:

0                 Specify a 0 to disable telnet timeouts.

minutes          Specify a number of minutes before an idle telnet session is timed out.

**Example**        To display the current telnet timeout value, then change it to 10 minutes:

```
sw5:admin> timeOut
TimeOut is Disabled
sw5:admin> timeOut 10
Committing configuration...done.
TimeOut is now 10 minutes
```

**See Also**      help  
                  version

## topologyShow

Display the unicast fabric topology.

**Synopsis** `topologyShow [domainnumber]`

**Availability** All users

**Description** Use this command to display the fabric topology, as it appears to the local switch.

This includes:

- A list of all Domains that are part of the fabric, and to each of those Domains, all possible paths from the local switch.
- For each path - cost, the number of hops from the local switch to the destination switch, name of the destination switch, and a summary of all ports are routed through that path.

A path is described by the output port that a frame addressed to a certain Domain will be forwarded to by the switches' routing hardware, in order to reach the Domain.

With the Domain number specified, this command displays the topology information for the specified destination Domain.

The display contains the following fields:

Local Domain:

Domain number of local switch.

Domain: Domain number of destination switch.

Metric: Cost of reaching destination Domain.

Hops: The number of hops to reach destination Domain.

Out Port: Port that incoming frame will be forwarded to, in order to reach the destination Domain.

In Ports: Bit map of input ports to use the corresponding Out Port to reach the destination Domain. A bit set to 1 indicates port is being routed through the corresponding Out Port. The least significant bit represents port 0. This is the same information provided in a different format by **portRouteShow** and **uRouteShow**.

Flags: Always 'D', indicating a dynamic path. A dynamic path is discovered automatically by the FSPF path selection protocol.

Name: Name of destination switch.

**Operands** This command has the following operand:

`domainnumber`

Specify the destination Domain for which topology information is to be displayed. This operand is optional.

**Examples** To display the unicast fabric topology:

```
switch:admin> topologyShow
Local Domain ID: 1
Domain  Metric  Hops  Out Port  In Ports  Flags  Name
-----
0       1000      1     2         0x00002000  D     "sw25"
          1     6         0x00000000  D
          1     7         0x00000000  D
3       1000      1     13        0x000000c4  D     "sw4"
4       2000      2     2         0x00002000  D     "sw10"
          2     6         0x00000000  D
          2     7         0x00000000  D
8       2000      0     2         0x00002000  D     "sw16"
          0     6         0x00000000  D
          0     7         0x00000000  D

switch:admin> topologyShow 4
Local Domain ID: 1
Domain  Metric  Hops  Out Port  In Ports  Flags  Name
-----
4       2000      2     2         0x00002000  D     "sw10"
          2     6         0x00000000  D
          2     7         0x00000000  D
```

**See Also** `portRouteShow`  
`uRouteShow`

## trackChangesSet

Enables configuring of track-changes feature.

**Synopsis** trackChangesSet [ mode ], [ snmptrapmode ]

**Availability** admin

**Description** This command enables or disables the track-changes feature. An SNMP-TRAP mode can also be enabled. Trackable changes are:

- Successful login
- Unsuccessful login
- Logout
- Config file change from task
- Track-changes on
- Track-changes off

**Operands** This command has the following operands:

mode Specify 1 to enable the track-changes feature or specify 0 to disable the feature. The default (if no operand is specified) is 0 to disable the track-changes feature.

snmptrapmode Specify 1 to enable errors to be sent to the SNMP-TRAP in addition to the errlog or specify 0 to disable the SNMP-TRAP messages. The default (if no operand is specified) is to disable SNMP-TRAP messages.

**Example** Below are two examples. The first sets the track-changes feature and disables SNMP TRAP messages. The second disables both the track-changes feature and SNMP TRAP messages.

```
switch:admin> trackChangesSet 1, 0
0x10f9bcd0 (tShell): Feb 10 15:04:38
Error TRACK-TRACK_ON, 4, Track-changes on
Committing configuration...done.
0x10f9bcd0 (tShell): Feb 10 15:04:42
Error TRACK-CONFIG_CHANGE, 4, Config file change from task:tShell

switch:admin> trackChangesSet 0, 0
0x10f9bcd0 (tShell): Feb 10 15:04:50
Error TRACK-TRACK_OFF, 4, Track-changes off
Committing configuration...done.
```

**See Also** agtcfgSet  
agtcfgShow



## tsTimeZone

Display or set the system time zone.

**Synopsis**     `tsTimeZone [hourOffset [, minuteOffset]]`

**Availability**     all users (display)  
                      admin (set)

**Description**     Use this command to display or set the system time zone.

All switches maintain the current time zone setup in non-volatile memory. Changing the Time Zone on a switch updates the local time zone setup and is reflected in local time calculations.

All switches are by default in the 0,0 time zone, that is GMT. If all switches in a fabric are in one time zone, it is possible to leave the time zone setup at the default.

Time zone is used only in computing local time which is used for error reporting and logging. An incorrect time zone setup will not affect the switch operation in any way.

Enter this command with no parameters, to display the time zone setup. With the valid parameters, it sets the time zone for an individual switch.

Negative hourOffset values mean the local time is behind GMT.

Example: -8,0 is GMT-08:00

Positive hourOffset values mean the local time is ahead of GMT.

Example: 3, 0 is GMT+03:00

**Operands**     This command has the following operands:

`hourOffset`     Specify the number of hours relative to GMT. This operand must be specified as an integer. Valid values are -12 through 12. This operand is optional.

`minuteOffset`     Specify the number of minutes relative to the hourOffset. This operand must be specified as an integer. Valid values are -30, 0, or 30. This operand is optional.

**Examples**     To display the current time zone setup, then changes them to GMT-3:30:

```
switch:admin> tsTimeZone
Time Zone Hour Offset: 0
Time Zone Minute Offset: 0
switch:admin> tsTimeZone -3, -30
switch:admin> tsTimeZone
Time Zone Hour Offset: -3
Time Zone Minute Offset: -30
```

**See Also**     `date`

## uptime

Display length of time the system has been operational.

**Synopsis** `uptime`

**Availability** All users

**Description** Use this command to display the length of time the system has been in operation (also known as “up time”), the total cumulative amount of “up time” since the system was first powered-on, the date and time of the last reboot, and the reason for the last reboot.

For up and powered-on times less than 60 seconds, the time is displayed in seconds. For times greater than or equal to 60 seconds, the time is displayed in minutes. The output format adjusts accordingly.

The reason for the last switch reboot is also recorded in the error log. Reasons are listed below. Not all reasons are applicable to all switch models:

Unknown	Reason is unknown.
Bus time-out*	Port ASIC was accessed and no response was received.
Bus error*	Non-existent system address was accessed.
Panic*	Firmware detected a critical hardware error or an internal inconsistency.
Fault*	CPU signaled a fault condition (critical firmware error).
Power-on	Last reboot was caused by a power-on.
Watchdog*	Watchdog timer caused a reset.
PushButtons	Push buttons 1 and 3 were depressed for two seconds, causing a system reset.
Reboot	Last reboot was caused by a user (from any management interface).
Powerfail NMI*	Power supply caused a nonmaskable interrupt.
Watchdog NMI*	Watchdog timer caused a nonmaskable interrupt.
PushButton NMI*	Push buttons 2 and 4 were depressed for two seconds, causing a nonmaskable interrupt.
Software NMI*	Firmware caused a nonmaskable interrupt.

**Note:** The items marked with an asterisk (\*) are usually caused by hardware or firmware failures. Information on the failure is stored in the switch. Follow the procedures in the switch manual.

**Operands** None.

**Example** To display the uptime for a switch:

```
switch:admin> uptime
Up for:          3 days, 18:35
Powered for:    30 days, 16:05
Last up at:     Mon Mar 22 12:00:00 1999
Reason:         Power-on
```

**See Also** [date](#)  
[errShow](#)  
[fastboot](#)  
[reboot](#)

## uRouteConfig

Configure a static route.

**Synopsis** `uRouteConfig portnumber, domainnumber, outputportnumber`

**Availability** admin

**Description** Use this command to configure static routes. A static route is assigned a specific path; the path does not change with a topology change unless the path becomes unavailable.

After this command is issued, and if `output_portnumber` is a usable port, all frames coming in from port `portnumber` addressed to `domainnumber` are forwarded through port `output_portnumber`. If `output_portnumber` is not usable, the routing assignment is not affected. When `output_portnumber` becomes usable the static route assignment for `portnumber` is enforced.

`output_portnumber` is usable if the associated neighbor associated is in `NB_ST_FULL` state. See `interfaceShow` for more information.

Using static routes can affect load sharing. If a large number of routes are statically configured to the same output port, the ability of the switch to achieve optimum load sharing may be impaired.

To prevent routing loops, static route configuration using a non-minimum cost path is not allowed. If you attempt to configure such a route, you are asked if the entry should be saved in the database.

**Operands** This command has the following operands:

`portnumber` Specify the port to be statically routed; can be either an `F_Port` or an `E_Port`. This operand is required.

`domainnumber` Specify the destination Domain. This operand is required.

`outputportnumber` Specify the output port where traffic is to be forwarded. This operand is required.

**Examples** To configures a static route for all traffic coming in from port 1 and addressed to Domain 2 to go through port 5:

```
switch:admin> uRouteConfig 1,2,5
The configuration will now contain the static route:
switch:admin> configShow "route"
route.ucastRoute.1.2: 5
route.ucastRouteCount: 1
```

**See Also** `configShow`

`interfaceShow`

`uRouteRemove`

`uRouteShow`

## uRouteRemove

Remove a static route.

**Synopsis** `uRouteRemove portnumber, domainnumber`

**Availability** admin

**Description** Use this command to remove a statically configured route.

When this command is issued, the route to `domainnumber` for `portnumber` may not change. It does not change if the previous static route was along a minimum cost path.

After this command is issued, the load sharing to Domain `domainnumber` is reevaluated.

**Operands** This command has the following operands:

`portnumber` Specify the port to be statically routed; can be either an `F_Port` or an `E_Port`. This operand is required.

`domainnumber` Specify the destination Domain. This operand is required.

**Examples** To remove a static route for all traffic coming in from port 1 and addressed to Domain 2:

```
switch:admin> uRouteRemove 1, 2
```

**See Also** `configShow`  
`uRouteConfig`  
`uRouteShow`

## uRouteShow

Display unicast routing information.

**Synopsis** `uRouteShow [portnumber],[domainnumber]`

**Availability** All users

**Description** Use this command to display the unicast routing information for a port, as it is known by the FSPF path selection/routing task. The routing information describes how a frame, that is received from a port on the local switch, is to be routed to reach a destination switch.

The following information is displayed:

Local Domain: Domain number of local switch.

In Port: Port from which a frame is received.

Domain: Destination Domain of incoming frame.

Out Port: Port to which incoming frame is to be forwarded.

Metric: Cost of reaching the destination Domain.

Hops: Number of hops required to reach the destination Domain.

Flags: Indicates if route is dynamic (D) or static (S). A dynamic route is discovered automatically by the FSPF path selection protocol. A static route is assigned using the command `uRouteConfig`.

Next (Dom, Port): Domain and port number of the next hop. These are the Domain number and the port number of the switch to which Out Port is connected.

**Operands** This command has the following operands:

No Operand Displays routing information for all active ports on the local switch, to all the Domains in the fabric.

`portnumber` Displays routing information for port `portnumber` to all the Domains in the fabric.

`portnumber, domainnumber`  
Displays routing information for port `portnumber` to Domain `domainnumber`.

**Examples** To display the unicast routing information:

```
switch:admin> uRouteShow
Local Domain ID: 1
In Port  Domain  Out Port  Metric  Hops  Flags  Next(Dom,Port)
-----
2         3           13       1000    1     D      3,7
Type <CR> to continue, Q<CR> to stop:
6         3           13       1000    1     D      3,7
Type <CR> to continue, Q<CR> to stop:
7         3           13       1000    1     D      3,7
Type <CR> to continue, Q<CR> to stop:
13        0           7        1000    1     D      0,8
          4           2        2000    2     D      0,13
switch:admin> uRouteShow 13

Local Domain ID: 1
In Port  Domain  Out Port  Metric  Hops  Flags  Next(Dom,Port)
-----
13        0           7        1000    1     D      0,8
          4           2        2000    2     D      0,13
```

**See Also** portRouteShow  
topologyShow  
uRouteConfig

## version

Display firmware version information.

**Synopsis** `version`

**Availability** All users

**Description** Use this command to display firmware version information and build dates.

The following is displayed:

Kernel:           Version of switch kernel operating system  
Fabric OS:        Version of switch Fabric OS  
Made on:          Build date of firmware running in switch  
Flash:            Build date of firmware stored in flash proms  
BootProm:         Build date of firmware stored in boot prom

Usually the `Made on` and `Flash` dates are the same, since the switch starts running flash firmware at power-on. However, in the time period between `firmwareDownload` and the next reboot, the dates can differ.

**Operands** None.

**Example** To display firmware version information:

```
switch:admin> version
Kernel:      5.3.1
Fabric OS:   v2.1
Made on:     Fri Jan 22 15:21:20 PST 1999
Flash:       Fri Jan 22 15:21:20 PST 1999
BootProm:    Tue Dec 29 17:32:00 PST 1998
switch:admin>
```

**See Also** `firmwareDownload`  
`reboot`



# Error Messages

---

This chapter explains the Fabric OS error message format and possible errors, including:

- *System Error Message Formats* on page 2-1
- *Displaying Error Messages Using Telnet* on page 2-2
- *Resetting Bad Ports* on page 2-2
- *Post Test Commands* on page 2-3
- *POST Test Failure and Recovery Actions* on page 2-3
- *Error Message Numbers* on page 2-4
- *Diagnostic Error Messages* on page 2-9
- *System Error Messages* on page 2-14

## System Error Message Formats

Error message formats for the switch are the same whether you are accessing the information from the local RS-232 serial port or using a remote telnet session.

Errors are listed in reverse chronological order. Up to 64 messages can be held in the buffer. Once the buffer limit is exceeded, the oldest message is deleted.

The **errShow** command displays all detected errors. The **errShow** command output provides more information than the front panel display. The following information is displayed:

- Task ID
- Task name
- Date and time of the error
- Number of occurrences
- Error type
- Error level
- A description of the error
- The error number is displayed for diagnostic errors

**Note:** The error counter goes to a maximum of 999.

The display halts after each error is displayed, prompting you to either press <Enter> to continue or type a Q to quit. Continue pressing Enter until the prompt (=) is displayed.

**Note:** Duplicate error messages may be displayed in the shell if too many error messages are received consecutively, but the data in **errShow** or **errDump**, syslog, and SNMP are correct.

```
switch:admin> errshow
Error 11
-----
0x101f8fa0 (tShell): Jul 23 15:16:57 (4)
      Error DIAG-TBRAM_DEC_RWTEST, 1, TurboRam, pass 1,
Pt8 (Bm1.0) Failed Turbo RAM dec r/w test:
phy=0x811088a0 wrd cnt=448 dec size=8 bytes
rpt=0xaaaaaaaa wpt=0x55555555 msk=0x000001ff
Err# 0FA2
Type <CR> to continue, Q<CR> to stop:
```

In the above sample error message:

- 0x101f8fa0 is the Task ID.
- tShell is the Task Name.
- Jul 23 15:16:57 (4) is the date, time, and number of occurrences of the error.
- DIAG-TBRAM\_DEC\_RWTEST is the error type.
- Failed Turbo RAM dec r/w test is the error description.
- Err# 0FA2 is the error number.

## Displaying Error Messages Using Telnet

To display the error messages compiled by your system, perform the following procedure.

1. Login as an **admin** user to the switch, using a telnet connection.
2. From the prompt, enter the **errShow** command.
3. To scroll through the error list, type CR.
4. Scroll through error log to view the error messages. If no errors are encountered, this command displays “No Error”.

## Resetting Bad Ports

If any port fails during a diagnostic test, it is marked BAD in the status display.

To retest a port which has been marked BAD, clear the port and set to OK using the **diagClearError** (port#) command. This command clears the port status only and does not clear the logs or change the port’s condition. The **diagClearError** (port#) command should only be used during diagnostic procedures to reset a bad port for retest.

## Post Test Commands

When the switch is booted a series of commands are executed to test the hardware of the switch. This procedure is called the POST (power on self test).

The Fabric OS POST includes the following tests:

**Table 2-1** Post Tests

Command	Description
ramTest	Bit write / read test of SDRAMs in the switch.
portRegTest	Bit write / read test of the ASIC SRAMs and registers.
centralMemoryTest	Bit write / read test of the ASIC central memory.
cmiTest	ASIC to ASIC connection test of the CMI bus.
camTest	Functional test of the CAM memory.
portLoopbackTest	Functional test of switch by sending and receiving frames from the same port.

**Note:** The cold boot (power reset) runs the long ramTest while the warm boot (software reset) runs the short ramTest.

## POST Test Failure and Recovery Actions

The table below lists what actions to perform if the switch fails any of the POST tests.

**Note:** If you run the **portStatsShow** or the **diagShow** command prior to running an individual test, errors may appear as a result of the normal synchronization process. These errors should be addressed if the number of errors found increases after running the **portStatsShow** command again.

**Table 2-2** Post Test Recovery Action

Failed test	Recovery Action
ramTest *	replace DRAM module or mainboard assembly
portRegTest *	replace mainboard assembly
centralMemoryTest *	replace mainboard assembly
cmiTest *	replace mainboard assembly
cmemRetentionTest	replace mainboard assembly
srAmRetentionTest	replace mainboard assembly
camTest *	replace mainboard assembly

**Table 2-2** Post Test Recovery Action (Continued)

Failed test	Recovery Action
portLoopbackTest *	replace mainboard assembly
crossPortTest	replace mainboard assembly, GBIC, or fiber cable
spinSilk	replace mainboard assembly, GBIC, or fiber cable
* These tests are run during the POST (power on self test).	

## Error Message Numbers

An error number ERR#xxxx appears at the end of a diagnostic error message. The following table matches each error number with the test that caused the error and the name of the error. Look up the complete definition of the error name and the actions that will correct it in Table 2-4 on page 2-9.

**Table 2-3** Error Message Numbers

Error Number	Test Name	Error Name
0001	n/a	DIAG-CLEAR_ERR
0004	n/a	DIAG-POST_SKIPPED
0B15	sramRetentionTest	DIAG-REGERR
0B16		DIAG-REGERR_UNRST
0B0F		DIAG-BUS_TIMEOUT
1F25	cmemRetentionTest	DIAG-LCMRS
1F26		DIAG-LCMTO
1F27		DIAG-LCMEM
0110	ramTest *	DIAG-MEMORY
0111		DIAG-MEMSZ
0112		DIAG-MEMNULL
0415	portRegTest *	DIAG-REGERR
0416		DIAG-REGERR_UNRST
040F		DIAG-BUS_TIMEOUT

**Table 2-3** Error Message Numbers (Continued)

Error Number	Test Name	Error Name	
1020	centralMemoryTest *	DIAG-CMBISRTO	
1021		DIAG-CMBISRF	
1025		DIAG-LCMRS	
1026		DIAG-LCMTO	
1027		DIAG-LCMEM	
1028		DIAG-LCMEMTX	
1029		DIAG-CMNOBUF	
102A		DIAG-CMERRTYPE	
102B		DIAG-CMERRPTN	
102C		DIAG-INTNOTCLR	
1030		DIAG-BADINT	
106F		DIAG-TIMEOUT	
2030		cmiTest *	DIAG-BADINT
2031			DIAG-INTNIL
2032	DIAG-CMISA1		
2033	DIAG-CMINOCAP		
2034	DIAG-CMIINVCAP		
2035	DIAG-CMIDATA		
2036	DIAG-CMICKSUM		
223B	camTest *	DIAG-CAMINIT	
223C		DIAG-CAMSID	

**Table 2-3** Error Message Numbers (Continued)

Error Number	Test Name	Error Name
2640	portLoopbackTest *	DIAG-ERRSTAT (ENCIN)
2641		DIAG-ERRSTAT (CRC)
2642		DIAG-ERRSTAT (TRUNC)
2643		DIAG-ERRSTAT (2LONG)
2644		DIAG-ERRSTAT (BADEOF)
2645		DIAG-ERRSTAT (ENCOUT)
2646		DIAG-ERRSTAT (BADORD)
2647		DIAG-ERRSTAT (DISCC3)
264F		DIAG-INIT
265F		DIAG-PORT_DIED
266E		DIAG-DATA
266F		DIAG-TIMEOUT
2660		DIAG-STATS(FTX)
2661		DIAG-STATS(FRX)
2662		DIAG-STATS(C3FRX)
2670		DIAG-PORTABSENT
2671		DIAG-XMIT

**Table 2-3** Error Message Numbers (Continued)

Error Number	Test Name	Error Name
3040	crossPortTest	DIAG-ERRSTAT(ENCIN)
3041		DIAG-ERRSTAT(CRL)
3042		DIAG-ERRSTAT(TRUNC)
3043		DIAG-ERRSTAT(2LONG)
3044		DIAG-ERRSTAT(BADEOF)
3045		DIAG-ERRSTAT(ENCOUT)
3046		DIAG-ERRSTAT(BADORD)
3047		DIAG-ERRSTAT(DISC3)
304F		DIAG-INIT
305F		DIAG-PORTDIED
3060		DIAG-STATS (FTX)
3061		DIAG-STATS (FRX)
3062		DIAG-STATS (C3FRX)
306E		DIAG-DATA
306F		DIAG-TIMEOUT
3070		DIAG-PORTABSENT
3071		DIAG-XMIT
3078		DIAG-PORTWRONG

**Table 2-3** Error Message Numbers (Continued)

Error Number	Test Name	Error Name
3080	spinSilk	DIAG-PORTM2M
3081		DIAG-NOSEGMENT
384F		DIAG-INIT
385F		DIAG-PORTDIED
3840		DIAG-ERRSTAT (ENCIN)
3841		DIAG-ERRSTAT (CRC)
3842		DIAG-ERRSTAT (TRUNC)
3843		DIAG-ERRSTAT (2LONG)
3844		DIAG-ERRSTAT (BADEOF)
3845		DIAG-ERRSTAT (ENCOUT)
3846		DIAG-ERRSTAT (BADORD)
3847		DIAG-ERRSTAT (DISCC3)
3870		DIAG-PORTABSENT
3871		DIAG-XMIT
3874		DIAG-PORTSTOPPED
3880		DIAG-PORTM2M
3881		DIAG-NOSEGMENT
* These tests are run during the POST (power on self test). For more information about these tests, refer to the individual command description in Chapter 3.		



## Diagnostic Error Messages

This section provides information on the probable cause of a diagnostic error and what actions to take.

**Table 2-4** Diagnostic Error Messages

Message	Description	Probable Cause	Action
DIAG-BADINT Err#1030, 2030 [centralMemoryTest, cmiTest]	Port received an unexpected interrupt	ASIC failure	Replace mainboard assembly
DIAG-BUS_TIMEOUT Err#0BoF, 4040F [portRegTest, sramRetentionTest]	ASIC register or ASIC SRAM did not respond to an ASIC data access	ASIC failure	Replace mainboard assembly
DIAG-CAMINIT Err#223B [camTest]	Port failed to initialize due to one of the following reasons: <ul style="list-style-type: none"> <li>• Switch not disabled</li> <li>• Diagnostic queue absent</li> <li>• Malloc failed</li> <li>• Chip is not present</li> <li>• Port is not in loopback mode</li> <li>• Port is not active</li> </ul>	Software operational setup error or main board failure	Retry, reboot or replace mainboard assembly
DIAG-CAMSID Err#223C [camTest]	ASIC failed SID NO translation test	ASIC failure	Replace mainboard assembly
DIAG-CLEAR_ERR Err#0001	Port's diag error flag (OK or BAD) is cleared	Informational Only	None required
DIAG-CMBISRF Err#1021 [centralMemoryTest]	ASIC's Central Memory SRAMs did not complete the BISR within the timeout period	ASIC failure	Replace mainboard assembly
DIAG-CMBISRTO Err#1020 [centralMemoryTest]	ASIC's Central Memory SRAMs did not complete the BISR within the timeout period	ASIC failure	Replace mainboard assembly
DIAG-CMERRPTN Err#102B [centralMemoryTest]	Error detected at the wrong port	ASIC failure	Replace mainboard assembly

**Table 2-4** Diagnostic Error Messages (Continued)

<b>Message</b>	<b>Description</b>	<b>Probable Cause</b>	<b>Action</b>
DIAG-CMERRTYPE Err#102A [centralMemoryTest]	Port got the wrong CMEM error type	ASIC failure	Replace mainboard assembly
DIAG-CMICKSUM Err#2036 [cmiTest]	CMI message received failed bad checksum test	ASIC or mainboard failure	Replace mainboard assembly
DIAG-CMIDATA Err#2035 [cmiTest]	CMI data received did not match data transmitted	ASIC or mainboard failure	Replace mainboard assembly
DIAG-CMIINVCAP Err#2034 [cmiTest]	Unintended ASIC erroneously got CMI capture flag	ASIC or mainboard failure	Replace mainboard assembly
DIAG-CMINOCAP Err#2033 [cmiTest]	CMI intended receiver ASIC failed to get CMI capture flag	ASIC or mainboard failure	Replace mainboard assembly
DIAG-CMISA1 Err#2032 [cmiTest]	An attempt to send a CMI message from ASIC to ASIC failed	ASIC failure	Replace mainboard assembly
DIAG-CMNOBUF Err#1029 [centralMemoryTest]	Port could not get any buffer	ASIC failure	Replace mainboard assembly
DIAG-DATA Err#266E, 306E [portLoopbackTest, crossPortTest]	Payload received by port did not match payload transmitted	mainboard, GBIC module or fiber cable failure	Replace mainboard assembly, GBIC module or fiber cable

Table 2-4 Diagnostic Error Messages (Continued)

Message	Description	Probable Cause	Action
DIAG-ERRSTAT Err#2640-2647, 3040-3047, 3840-3847  [portLoopbackTest, crossPortTest, spinSilk]	Port Error Statistics counter is non-zero, meaning an error was detected when receiving frames.  One of the following status errors occurred. <ul style="list-style-type: none"> <li>• <b>Enc_in</b> – Encoding error, inside frame</li> <li>• <b>CRC_err</b> – Cyclic redundancy check on frame failed</li> <li>• <b>TruncFrm</b> – Truncated frame</li> <li>• <b>FrmTooLong</b> – Frame too long</li> <li>• <b>BadEOF</b> – Bad end of file</li> <li>• <b>Enc_out</b> – Encoding error, outside frame</li> <li>• <b>BadOrdSet</b> – Bad symbol on fiber-optic cable</li> <li>• <b>DiscC3</b> – Discarded Class 3 frames</li> </ul>	ASIC, mainboard, GBIC module or fiber cable failure	Replace mainboard assembly, GBIC module or fiber cable
DIAG-INIT Err#264F, 304F, 384F  [portLoopbackTest, crossPortTest, spinSilk]	Port failed to go active in the loopback mode requested	ASIC, main board, GBIC module or fiber cable failure	Replace mainboard assembly, GBIC module or fiber cable
DIAG-INTNIL Err#2031  [cmiTest]	ASIC failed to get a CMI error (interrupt)	ASIC failure	Replace mainboard assembly
DIAG-INTNOTCLR Err#102C  [centralMemoryTest]	The interrupt bit could not be cleared	ASIC failure	Replace mainboard assembly
DIAG-LCMEM Err#1027  [centralMemoryTest, cmemRetentionTest]	Data read from the Central Memory location did not match data previously written into the same location	ASIC failure	Replace mainboard assembly
DIAG-LCMEMTX Err#1F27, 1028  [centralMemoryTest]	Central Memory transmit path failure: ASIC 1 failed to read ASIC 2 using the transmit path	mainboard failure	Replace mainboard assembly

Table 2-4 Diagnostic Error Messages (Continued)

Message	Description	Probable Cause	Action
DIAG-LCMRS Err#1F25, 1025 [centralMemoryTest, cmemRetentionTest]	Central Memory Read Short: M bytes requested but not received	ASIC failure	Replace mainboard assembly
DIAG-LCMTO Err#1F26, 1026 [centralMemoryTest, cmemRetentionTest]	Central Memory Timeout: Data transfer initiated did not complete within the timeout period	ASIC failure	Replace mainboard assembly
DIAG-MEMNULL Err#0112 [ramTest]	Test failed to malloc	mainboard failure	Replace mainboard assembly
DIAG-MEMSZ Err#0111 [ramTest]	Memory size to be tested is less than or equal to zero	mainboard failure	Replace mainboard assembly
DIAG-MEMORY Err#0110 [ramTest]	Data read from RAM location did not match previously written data into same location	CPU RAM failure	Replace mainboard assembly or DRAM module
DIAG-NOSEGMENT Err#3081,3881 [crossPortTest, spinSilk]	Port failed to go into loopback mode	Improper GGIC or cable connection	Reseat GBICs and cables and re-execute test
DIAG-PORTABSENT Err#2670, 3070, 3870 [portLoopbackTest, crossPortTest, spinSilk]	Port is not present	ASIC or mainboard failure	Replace mainboard assembly
DIAG-PORTDIED Err#265F, 305F, 385F [portLoopbackTest, crossPortTest, spinSilk]	Port was in loopback mode and then went inactive	ASIC, GBIC module or fiber cable failure	Replace mainboard assembly, GBIC module or fiber cable
DIAG-PORTM2M Err#3080, 3880 [crossPortTest, spinSilk]	Port is found to be connected to itself (self loopback). This Port M to Port M connection is not allowed by the test	Improper cable connection	Reconnect port (M) to another port (N) and re-execute the test

Table 2-4 Diagnostic Error Messages (Continued)

Message	Description	Probable Cause	Action
DIAG-PORTSTOPPED Err#3874 [spinSilk]	Port is no longer transmitting, as indicated by the Number Of Frames Transmitted counter being stuck at N frames	ASIC, GBIC module or fiber cable failure	Replace mainboard assembly, GBIC module or fiber cable
DIAG-PORTWRONG Err#3078 [crossPortTest]	Frame erroneously received by port M instead of the intended port N	ASIC failure	Replace mainboard assembly
DIAG-POST_SKIPPED Err# 0004 [switch initialization]	POST is skipped	Informational Only	None required
DIAG-REGERR Err#0B15, 0415 [portRegTest, sramRetentionTest]	Data read from ASIC register or ASIC SRAM did not match data previously written into same location	ASIC failure	Replace mainboard assembly
DIAG-REGERR_UNRST Err#0B16, 0416 [portRegTest, sramRetentionTest]	Port failed to unreset	ASIC failure	Replace mainboard assembly
DIAG-STATS Err#2660-2662, 3060 - 3062 [portLoopback Test, crossPortTest]	Port counter value did not match the number of frames actually transmitted. Possible counters reporting: <ul style="list-style-type: none"> <li>• FramesTx - number of frames transmitted</li> <li>• FramesRx - number of frames received</li> <li>• Cl3FrmRx - number of Class 3 frames received</li> </ul>	ASIC, GBIC module or fiber cable failure	Replace mainboard assembly, GBIC module or fiber cable
DIAG-TIMEOUT Err#266F, 306F, 386F [portLoopbackTest, crossPortTest, centralMemoryTest]	For portLoopbackTest and crossPortTest: <ul style="list-style-type: none"> <li>• Port failed to receive frame within timeout period</li> <li>• For centralMemoryTest</li> <li>• Port failed to detect an interrupt within the timeout period</li> </ul>	ASIC, GBIC module or fiber cable failure	Replace mainboard assembly, GBIC module or fiber cable
DIAG-XMIT Err#2271, 2671, 3071, 3871 [portLoopbackTest, crossPortTest, spinSilk, camTest]	Port failed to transmit frame	ASIC failure	Replace mainboard assembly

## System Error Messages

This section provides information on the probable cause of a system error and what actions to take.

**Table 2-5** System Error Messages

Message	Description	Probable Cause	Action
ASIC, MINI_BUFFER, LOG_WARNING	ASIC Failure	Bad main board	Contact customer support
CONFIG CORRUPT	The switch configuration information has become irrevocably corrupted.	OS error	The system automatically resorts to the default configuration settings.
CONFIG OVERFLOW	The switch configuration information has grown too large to be saved or has an invalid size.	OS error	Contact customer support
CONFIG VERSION	The switch has encountered an unrecognized version of the switch configuration.	OS error	The system automatically reverts to the default configuration settings.
FABRIC, SEGMENTED, LOG_WARNING	Fabric segmented.	Incompatible fabric parameters/switches Conflict zones	Reconfigure fabric or zones. See “configure” on page 21.
FABRIC, BADILS, LOG_WARNING	Bad ISL-ELS size	The ISL-ELS payload is wrong.	Contact customer support
FABRIC, NO_ALIASID, LOG_WARNING	No free multicast alias	Too many multicast groups in use	Remove some of the groups
FANS, 1_FAILED, LOG_WARNING	Switch overheated	Fan Failure	Contact customer support
FANS, 2_FAILED, LOG_ERROR	Switch overheated	Fan Failure	Contact customer support
FANS, 3_FAILED, LOG_CRITICAL	Switch overheated	Fan Failure	Contact customer support
FANS, 4_FAILED, LOG_CRITICAL	Switch overheated	Fan Failure	Contact customer support
FANS, 5_FAILED, LOG_CRITICAL	Switch overheated	Fan Failure	Contact customer support
FANS, 6_FAILED, LOG_CRITICAL	Switch overheated	Fan Failure	Contact customer support
FCIU, IUBAD, L, S	Invalid IU	OS error	Contact customer support
FCIU, IUCOUNT, L, S	Total number of IUs Count < 0	OS error	Contact customer support

**Table 2-5** System Error Messages (Continued)

Message	Description	Probable Cause	Action
FCPH, EXCHBAD, L, S	Bad exchange	OS error	Contact customer support
FCPH, EXCHFREE, L, S	Unable to free an exchange	OS error	Contact customer support
FLANNEL, PHANTOM, LOG_WARNING	Port's PLT limit exceeded	OS error	Contact customer support
FLASH, BAD_MIRROR, LOG_WARNING	The system's flash memory has encountered an error.	OS error	The system attempts to recover from its mirrored backup. Contact customer support.
FLOOD, INVLSU, LOG_WARNING	Discard received LSU	OS error	Contact customer support
FLOOD, INVLSR, LOG_WARNING	Unknown LSR type	OS error	Contact customer support
FLOOD, LSRLen, LOG_ERROR	Excessive LSU length	OS error	Contact customer support
FSPF, INPORT, LOG_ERROR	Input port out of range	OS error	Contact customer support
FSPF, NBRCHANGE, LOG_WARNING	Wrong neighbor ID in Hello message from port	OS error	Contact customer support
FSPF, REMDOMAIN, LOG_ERROR	Remote Domain ID out of range	OS error	Contact customer support
FSPF, SCN, LOG_WARNING	Illegal SCN	OS error	Contact customer support
FSPF, SECTION, LOG_ERROR	Wrong Section Id	OS error	Contact customer support
FSPF, VERSION, LOG_ERROR	FSPF version not supported	OS error	Contact customer support
HLO, DEADTIMEOUT, LOG_ERROR	Incompatible Inactivity timeout from port	OS error	Contact customer support
HLO, HLOTIMEOUT, LOG_ERROR	Incompatible Hello timeout from port	OS error	Contact customer support
HLO, INVHLO, LOG_ERROR	Invalid Hello received from port	OS error	Contact customer support
LSDB, LSID, LOG_ERROR	Link State ID 'd out of range	OS error	Contact customer support
LSDB, MAXINCARN, LOG_WARNING	Local Link State Record reached max incarnation	OS error	Contact customer support
LSDB, NOLOCALENTRY, LOG_CRITICAL	No database entry for local Link State Record	OS error	Contact customer support

Table 2-5 System Error Messages (Continued)

Message	Description	Probable Cause	Action
LSDB, NOLSR, LOG_WARNING	No Link State Record for domain	OS error	Contact customer support
MCAST, ADDBRANCH, LOG_ERROR	Add Branch failed	OS error	Contact customer support
MCAST, ADDPORT, LOG_WARNING	Add Port failed	OS error	Contact customer support
MCAST, REMBRANCH, LOG_ERROR	Remove branch failed	OS error	Contact customer support
MCAST, REMPORT, LOG_WARNING	Remove port failed	OS error	Contact customer support
MCAST, NOPARENT, LOG_ERROR	Null parent	OS error	Contact customer support
MCAST, NOPARENTLSR, LOG_ERROR	Null lsrP	OS error	Contact customer support
MQ, QWRITE, L, M	Message queue overflow	Task blocked	Contact customer support
MQ, QREAD, L, M	Message queue unread	OS error	Contact customer support
MQ, MSGTYPE, E, M	Unknown message type	OS error	Contact customer support
NBFSM, NGBRSTATE, LOG_ERROR	Wrong input to neighbor FSM	OS error	Contact customer support
PANIC, TASKSPAWN, LOG_PANIC	Task creation failed	OS error	Contact customer support
PANIC, SEMCREATE, LOG_PANIC	Semaphore creation failed	OS error	Contact customer support
PANIC, SEMDELETE, LOG_PANIC	Semaphore deletion failed	OS error	Contact customer support
PANIC, QCREATE, LOG_PANIC	Message queuer failed	OS error	Contact customer support
PANIC, QDELETE, LOG_PANIC	Message queuer deletion failed	OS error	Contact customer support
PANIC, MALLOC, LOG_PANIC	Memory allocation failed	OS error	Contact customer support
PANIC, FREE, LOG_PANIC	Memory free failed	OS error	Contact customer support
PANIC, INCONSISTENT, LOG_PANIC	Data out of sync	OS error	Contact customer support



Table 2-5 System Error Messages (Continued)

Message	Description	Probable Cause	Action
PANIC, INTCONTEXT, LOG_PANIC	Data out of sync	OS error	Contact customer support
PANIC, ZOMTIMSET, LOG_PANIC	Attempt to set a zombie timer	OS error	Contact customer support
PANIC, ZOMTIMKILL, LOG_PANIC	Zombie timer destroyed	OS error	Contact customer support
PANIC, FREETIMRLSD, LOG_PANIC	Free timer released	OS error	Contact customer support
PANIC, TIMEUSECNT, LOG_PANIC	Timer use count exceeded	OS error	Contact customer support
PANIC, LSDB_CKSUM, LOG_PANIC	Link State Database checksum failed	OS error	Contact customer support
POWER, 1_FAILED, LOG_CRITICAL	Switch Power Failure	Power Supply Failure	Contact customer support
POWER, 2_FAILED, LOG_CRITICAL	Switch Power Failure	Power Supply Failure	Contact customer support
QL, QUICKLOOP PARTNER INCOMPATIBLE	The Quick loop partner switch is running a lower (than v2.1.3) version of the software.	OS error	Upgrade to a higher version of the Fabric OS.
RPC, SVC_EXIT	An RPC service daemon has terminated prematurely or unexpectedly.	OS error	Contact customer support
RPC, SVC_REG	An RPC service daemon could not establish service for a particular protocol handler.	OS error	Contact customer support
SEMA, SEMGIVE, L, M	Unable to give a semaphore	OS error	Contact customer support
SEMA, SEMTAKE, L, M	Unable to take a semaphore	OS error	Contact customer support
SEMA, SEMFLUSH, L, M	Unable to flush a semaphore	OS error	Contact customer support
SYS, NOMEM, LOG_CRITICAL	No memory	OS error	Contact customer support
SYS, SYSCALL, LOG_ERROR	System call failed	OS error	Contact customer support
SYS, BADPTR, LOG_ERROR	Bad system pointer	OS error	Contact customer support

Table 2-5 System Error Messages (Continued)

Message	Description	Probable Cause	Action
SYS, INTRPT, LOG_CRITICAL	Bad system interrupt	OS error	Contact customer support
SYS, FLASHRD, LOG_ERROR	FLASH memory read error	OS error	Contact customer support
SYS, FLASHWR, LOG_ERROR	FLASH memory write error	OS error	Contact customer support
TEMP, 1_FAILED, LOG_WARNING	Switch overheated	Fan Failure	Contact customer support
TEMP, 2_FAILED, LOG_ERROR	Switch overheated	Fan Failure	Contact customer support
TEMP, 3_FAILED, LOG_CRITICAL	Switch overheated	Fan Failure	Contact customer support
TEMP, 4_FAILED, LOG_CRITICAL	Switch overheated	Fan Failure	Contact customer support
TEMP, 5_FAILED, LOG_CRITICAL	Switch overheated	Fan Failure	Contact customer support
TIMERS, ENQFAIL, LOG_CRITICAL	Invalid timeout value	OS error	Contact customer support
TIMERS, MSG, LOG_WARNING	Invalid message	OS error	Contact customer support
UCAST, ADDPATH, LOG_CRITICAL	Add path failed	OS error	Contact customer support
UCAST, ADDPORT, LOG_WARNING	Add port failed	OS error	Contact customer support
UCAST, REMPORT, LOG_WARNING	Remove port failed	OS error	Contact customer support
UCAST, RRTIM, LOG_CRITICAL	Invalid reroute timer ID	OS error	Contact customer support
UCAST, SPFCOST, LOG_WARNING	No minimum cost path in candidate	OS error	Contact customer support
UCAST, RELICPDB, LOG_WARNING	Relic PDB to Domain	OS error	Contact customer support

## Feature Telnet Commands

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This chapter summarizes the commands that are only available with a license key.

- *Zoning Commands* on page 3-1
- *QuickLoop Commands* on page 3-2
- *QuickLoop Fabric Assist Mode Commands* on page 3-3
- *Extended Fabric Command* on page 3-3
- *Fabric Watch Commands* on page 3-4
- *Security Commands* on page 3-4
- *Silkworm 6400 Commands* on page 3-5

**Note:** For detailed information about the telnet commands for a Zoning, Quickloop, Extended Fabrics, or Fabric Watch, refer to the specific user guide for that feature.

## Zoning Commands

The following commands are available with the purchase of a Brocade Zoning license key. For detailed information about these commands refer to the *Brocade Zoning User's Guide*.

**Table 3-1** Zoning Commands

Command	Description
<b>Zone Alias</b>	
aliAdd	Add a member to a zone alias.
aliCreate	Create a zone alias.
aliDelete	Delete a zone alias.
aliRemove	Remove a member from a zone alias.
aliShow	Show zone alias definition.
<b>Zoning</b>	
zoneAdd	Add a member to a zone.
zoneCreate	Create a zone.
zoneDelete	Delete a zone.
zoneRemove	Remove a member from a zone.
zoneShow	Show zone information.

**Table 3-1** Zoning Commands (Continued)

Command	Description
<b>QuickLoop Zoning</b>	
qloopAdd	Add a member to a QuickLoop.
qloopCreate	Create a QuickLoop.
qloopDelete	Delete a QuickLoop.
qloopRemove	Remove a member from a QuickLoop.
qloopShow	Show QuickLoop information.
<b>Zone Configuration and Management</b>	
cfgAdd	Add a zone to a zone configuration.
cfgClear	Clear all zone configurations.
cfgCreate	Create a zone configuration.
cfgDelete	Delete a zone configuration.
cfgDisable	Disable a zone configuration.
cfgEnable	Enable a zone configuration.
cfgRemove	Remove a zone from a zone configuration.
cfgSave	Save zone configurations in flash memory.
cfgShow	Show zone configuration definition.
cfgTransAbort	Aborts the current zoning transaction.

## QuickLoop Commands

The following commands are available with the purchase of a Brocade QuickLoop license key. For detailed information about these commands refer to the *Brocade QuickLoop User's Guide*.

**Table 3-2** QuickLoop Commands

Command	Description
qlDisable	Disables QuickLoop mode on the switch.
qlEnable	Enables QuickLoop mode on the switch.
qlPartner	Specifies a partner for a QuickLoop or displays information about the existing partner.
qlPortDisable	Disables a port from QuickLoop mode.
qlPortEnable	Enables a QuickLoop port to QuickLoop mode
qlShow	Displays QuickLoop information.
qlStatsShow	Displays QuickLoop statistics.
qlPortShowAll	Displays QuickLoop port information

## QuickLoop Fabric Assist Mode Commands

The following commands are for QuickLoop Fabric Assist Mode. For detailed information about these commands refer to the *Brocade QuickLoop User's Guide*.

**Table 3-3** QuickLoop Fabric Assist Mode Commands

Command	Description
fazoneAdd	Add member(s) to an existing QuickLoop Fabric Assist zone.
fazoneCreate	Creates a QLFA zone.
fazoneDelete	Delete an existing QuickLoop Fabric Assist zone.
fazoneRemove	Remove member or members from an existing QuickLoop Fabric Assist zone.
fazoneShow	Display QuickLoop Fabric Assist zone information.
faShow	Displays the port number and PID for each Fabric Assist host port located on this switch. It will also display a listing of each Target that has a Fabric Assist phantom on the host's port. The target's PID, assigned phantom ALPA and current online/offline status will all be displayed.
faStatsShow	Displays a set of statistics for each QLFA host on the switch.

## Extended Fabric Command

The following commands are available with the purchase of a Brocade Extended Fabrics license key. For detailed information about this command refer to the *Brocade Distributed Fabrics User's Guide*.

**Table 3-4** Extended Fabric Commands

Command	Description
portCfgLongDistance	Configure a port to support long distance links.

## Fabric Watch Commands

The following commands are available with the purchase of a Brocade Fabric Watch license key. For detailed information about these commands refer to the *Brocade Fabric Watch User's Guide*.

**Table 3-5** Fabric Watch Commands

Command	Description
fwClassInit	Initializes all classes under Fabric Watch.
fwConfigReload	Reloads the Fabric Watch configuration.
fwConfigure	Displays and allows modification of the Fabric Watch configuration and status.
fwShow	Displays the thresholds monitored by Fabric Watch.

## Security Commands

The following commands are available with the purchase of a Brocade Secure Fabric OS license key. For detailed information about this feature refer to the *Brocade Secure Fabric OS User's Guide*.

**Table 3-6** Security Commands

Command	Description
secFabricShow	Display security related fabric information.
secFCSFailover	Change the Primary FCS switch.
secHelp	Display a list of Security commands.
secModeEnable	Enable security mode.
secModeDisable	Disable security mode.
secModeShow	Show current mode of security.
secNonFCSPasswd	Set non-FCS password.
secPolicyAbort	Abort policy changes to defined or active policy set.
secPolicyActivate	Activate all policy sets.
secPolicyAdd	Add members to a policy.
secPolicyCreate	Create a policy.
secPolicyDelete	Delete a policy.
secPolicyDump	Display all policy information.
secPolicyMoveFCS	Move an FCS member in the FCS list.
secPolicyRemove	Remove members from a policy.
secPolicySave	Save all policy sets and send to switches.

**Table 3-6** Security Commands (Continued)

Command	Description
secPolicyShow	Show members of one or more policies.
secStatsReset	Reset security statistics.
secStatsShow	Display security statistics.
secTempPasswdReset	Reset temporary password to default value.
secTempPasswdSet	Set a temporary password for a switch.
secTransAbort	Abort current security transaction.
secVersionReset	Reset version stamp.

## Silkworm 6400 Commands

These commands do not require a specific license key, but are specific to the administration of the Silkworm 6400 switch. For more detailed information on these commands refer to the *Silkworm 6400 Product Guide*.

**Table 3-7** Silkworm 6400 Commands

Command	Description
islTopoCheck	Display ISL switch group connections for a switch.
islTopoShow	Displays ISL switch group topology and status.
sgroupDelete	Delete a switch group.
sgroupRename	Rename a switch group.
sgroupSet	Create a switch group.
sgroupShow	Display switch group configuration information.
sgroupSupportShow	Display information about the 6400 switch for support purposes.
sgroupSwReplace	Replace a member of a switch group.





# Glossary

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<b>8b/10b encoding</b>	An encoding scheme that converts each 8-bit byte into 10 bits. Used to balance ones and zeros in high-speed transports.
<b>address identifier</b>	A 24-bit or 8-bit value used to identify the source or destination of a frame.
<b>AL_PA</b>	Arbitrated loop physical address. A unique 8-bit value assigned during loop initialization to a port in an arbitrated loop.
<b>alias</b>	An alternate name for an element or group of elements in the fabric. Aliases can be used to simplify the entry of port numbers and WWNs when creating zones.
<b>alias address identifier</b>	An address identifier recognized by a port in addition to its standard identifier. An alias address identifier may be shared by multiple ports. See also <i>alias</i> .
<b>alias AL_PA</b>	An AL_PA value recognized by an L_Port in addition to the AL_PA assigned to the port. See also <i>AL_PA</i> .
<b>alias server</b>	A fabric software facility that supports multicast group management.
<b>ANSI</b>	American National Standards Institute. The governing body for fibre channel standards in the U.S.A.
<b>API</b>	Application programming interface. A defined protocol that allows applications to interface with a set of services.
<b>arbitrated loop</b>	A shared 100 MBps fibre channel transport structured as a loop. Can support up to 126 devices and one fabric attachment. See also <i>topology</i> .
<b>ASIC</b>	Application specific integrated circuit.
<b>ATM</b>	Asynchronous transfer mode. A transport used for transmitting data over LANs or WANs that transmit fixed-length units of data. Provides any-to-any connectivity, and allows nodes to transmit simultaneously.
<b>authentication</b>	The process of verifying that an entity (such as a switch) in a fabric is what it claims to be. See also <i>digital certificate</i> , <i>switch-to-switch authentication</i> .
<b>AW_TOV</b>	Arbitration wait time-out value. The minimum time an arbitrating L_Port waits for a response before beginning loop initialization.
<b>backup FCS switch</b>	Backup fabric configuration server switch. The switch or switches assigned as backup in case the primary FCS switch fails. See also <i>FCS switch</i> , <i>primary FCS switch</i> .
<b>bandwidth</b>	The total transmission capacity of a cable, link, or system. Usually measured in bps (bits per second). May also refer to the range of transmission frequencies available to a link or system. See also <i>throughput</i> .
<b>BB_Credit</b>	Buffer-to-buffer credit. The number of frames that can be transmitted to a directly connected recipient or within an arbitrated loop. Determined by the number of receive buffers available. See also <i>buffer-to-buffer flow control</i> , <i>EE_Credit</i> .

<b>beacon</b>	When all the port LEDs on a switch are set to flash from one side of the switch to the other, to enable identification of an individual switch in a large fabric. A switch can be set to beacon by telnet command or through Brocade Web Tools.
<b>beginning running disparity</b>	The disparity at the transmitter or receiver when the special character associated with an ordered set is encoded or decoded. See also <i>disparity</i> .
<b>BER</b>	Bit error rate. The rate at which bits are expected to be received in error. Expressed as the ratio of error bits to total bits transmitted. See also <i>error</i> .
<b>block</b>	As applies to fibre channel, upper-level application data that is transferred in a single sequence.
<b>broadcast</b>	The transmission of data from a single source to all devices in the fabric, regardless of zoning. See also <i>multicast</i> , <i>unicast</i> .
<b>buffer-to-buffer flow control</b>	Management of the frame transmission rate in either a point-to-point topology or in an arbitrated loop. See also <i>BB_Credit</i> .
<b>CA</b>	Certificate authority. A trusted organization that issues digital certificates. See also <i>digital certificate</i> .
<b>cascade</b>	Two or more interconnected fibre channel switches. SilkWorm 2000 and later switches can be cascaded up to 239 switches, with a recommended maximum of seven interswitch links (no path longer than eight switches). See also <i>fabric</i> , <i>ISL</i> .
<b>chassis</b>	The metal frame in which the switch and switch components are mounted.
<b>circuit</b>	An established communication path between two ports. Consists of two virtual circuits capable of transmitting in opposite directions. See also <i>link</i> .
<b>Class 1</b>	The class of frame switching service for a dedicated connection between two communicating ports (also called connection-oriented service), with acknowledgement of delivery or nondelivery of frames.
<b>Class 2</b>	A connectionless class of frame switching service that includes acknowledgement of delivery or nondelivery of frames.
<b>Class 3</b>	A connectionless class of frame switching service that does not include acknowledgement of delivery or nondelivery of frames. Can be used to provide a multicast connection between the frame originator and recipients, with acknowledgement of delivery or nondelivery of frames.
<b>Class F</b>	The class of frame switching service for a direct connection between two switches, allowing communication of control traffic between the E_Ports, with notification of delivery or nondelivery of data.
<b>class of service</b>	A specified set of delivery characteristics and attributes for frame delivery.
<b>CLI</b>	Command line interface. Interface that depends entirely on the use of commands, such as through telnet or SNMP, and does not involve a GUI.
<b>comma</b>	A unique pattern (either 1100000 or 0011111) used in 8B/10B encoding to specify character alignment within a data stream. See also <i>K28.5</i> .
<b>community (SNMP)</b>	A relationship between a group of SNMP managers and an SNMP agent, in which authentication, access control, and proxy characteristics are defined. See also <i>SNMP</i> .

<b>CRC</b>	Cyclic redundancy check. A check for transmission errors that is included in every data frame.
<b>credit</b>	As applies to fibre channel, the number of receive buffers available for transmission of frames between ports. See also <i>BB_Credit</i> , <i>EE_Credit</i> .
<b>cut-through</b>	A switching technique that allows the route for a frame to be selected as soon as the destination address is received. See also <i>route</i> .
<b>data word</b>	A type of transmission word that occurs within frames. The frame header, data field, and CRC all consist of data words. See also <i>frame</i> , <i>ordered set</i> , <i>transmission word</i> .
<b>defined zone configuration</b>	The set of all zone objects defined in the fabric. May include multiple zone configurations. See also <i>enabled zone configuration</i> , <i>zone configuration</i> .
<b>digital certificate</b>	An electronic document issued by a CA (certificate authority) to an entity, and containing the public key and identity of the entity. Entities in a secure fabric are authenticated based on these certificates. See also <i>authentication</i> , <i>CA</i> , <i>public key</i> .
<b>disparity</b>	The proportion of ones and zeros in an encoded character. “Neutral disparity” means an equal number of each, “positive disparity” means a majority of ones, and “negative disparity” means a majority of zeros.
<b>DLS</b>	Dynamic load sharing. Dynamic distribution of traffic over available paths. Allows for recomputing of routes when an Fx_Port or E_Port changes status.
<b>domain ID</b>	Unique identifier for all switches in a fabric, used in routing frames. Usually automatically assigned by the principal switch, but can be assigned manually. The domain ID for a SilkWorm switch can be any integer between 1 and 239.
<b>E_D_TOV</b>	Error detect time-out value. The minimum amount of time a target waits for a sequence to complete before initiating recovery. Can also be defined as the maximum time allowed for a round-trip transmission before an error condition is declared. See also <i>R_A_TOV</i> , <i>RR_TOV</i> .
<b>E_Port</b>	Expansion port. A type of switch port that can be connected to an E_Port on another switch to create an ISL. See also <i>ISL</i> .
<b>EE_Credit</b>	End-to-end credit. The number of receive buffers allocated by a recipient port to an originating port. Used by Class 1 and 2 services to manage the exchange of frames across the fabric between source and destination. See also <i>BB_Credit</i> , <i>end-to-end flow control</i> .
<b>EIA rack</b>	A storage rack that meets the standards set by the Electronics Industry Association.
<b>enabled zone configuration</b>	The currently enabled configuration of zones. Only one configuration can be enabled at a time. See also <i>defined zone configuration</i> , <i>zone configuration</i> .
<b>end-to-end flow control</b>	Governs flow of class 1 and 2 frames between N_Ports. See also <i>EE_Credit</i> .
<b>error</b>	As applies to fibre channel, a missing or corrupted frame, time-out, loss of synchronization, or loss of signal (link errors). See also <i>loop failure</i> .
<b>exchange</b>	The highest level fibre channel mechanism used for communication between N_Ports. Composed of one or more related sequences, and can work in either one or both directions.

<b>F_Port</b>	Fabric port. A port that is able to transmit under fabric protocol and interface over links. Can be used to connect an N_Port to a switch. See also <i>FL_Port</i> , <i>Fx_Port</i> .
<b>fabric</b>	A fibre channel network containing two or more switches in addition to hosts and devices. May also be referred to as a switched fabric. See also <i>cascade</i> , <i>SAN</i> , <i>topology</i> .
<b>fabric name</b>	The unique identifier assigned to a fabric and communicated during login and port discovery.
<b>FC-AL-3</b>	The Fibre Channel Arbitrated Loop standard defined by ANSI. Defined on top of the FC-PH standards.
<b>FC-FLA</b>	The Fibre Channel Fabric Loop Attach standard defined by ANSI.
<b>FCIA</b>	Fibre Channel Industry Association. An international organization of fibre channel industry professionals. Among other things, provides oversight of ANSI and industry developed standards.
<b>FCP</b>	Fibre channel protocol. Mapping of protocols onto the fibre channel standard protocols. For example, SCSI FCP maps SCSI-3 onto fibre channel.
<b>FC-PH-1, 2, 3</b>	The Fibre Channel Physical and Signalling Interface standards defined by ANSI.
<b>FC-PI</b>	The Fibre Channel Physical Interface standard defined by ANSI.
<b>FC-PLDA</b>	The Fibre Channel Private Loop Direct Attach standard defined by ANSI. Applies to the operation of peripheral devices on a private loop.
<b>FCS switch</b>	Fabric configuration server switch. One or more designated SilkWorm switches that store and manage the configuration and security parameters for all switches in the fabric. FCS switches are designated by WWN, and the list of designated switches is communicated fabric-wide. See also <i>backup FCS switch</i> , <i>primary FCS switch</i> .
<b>FC-SW-2</b>	The second generation of the Fibre Channel Switch Fabric standard defined by ANSI. Specifies tools and algorithms for the interconnection and initialization of fibre channel switches in order to create a multi-switch fibre channel fabric.
<b>fibre channel transport</b>	A protocol service that supports communication between fibre channel service providers. See also <i>FSP</i> .
<b>Fill Word</b>	An IDLE or ARB ordered set that is transmitted during breaks between data frames to keep the fibre channel link active.
<b>firmware</b>	The basic operating system provided with the hardware.
<b>FL_Port</b>	Fabric loop port. A port that is able to transmit under fabric protocol and also has arbitrated loop capabilities. Can be used to connect an NL_Port to a switch. See also <i>F_Port</i> , <i>Fx_Port</i> .
<b>FLOGI</b>	Fabric login. The process by which an N_Port determines whether a fabric is present, and if so, exchanges service parameters with it. See also <i>PLOGI</i> .
<b>frame</b>	The fibre channel structure used to transmit data between ports. Consists of a start-of-frame delimiter, header, any optional headers, data payload, cyclic redundancy check (CRC), and end-of-frame delimiter. There are two types of frames: Link control frames (transmission acknowledgements, etc.) and data frames.
<b>FRU</b>	Field-replaceable unit. A component that can be replaced on site.

<b>FS</b>	Fibre channel service. A service that is defined by fibre channel standards and exists at a well-known address. For example, the Simple Name Server is a fibre channel service. See also <i>FSP</i> .
<b>FSP</b>	Fibre channel service protocol. The common protocol for all fabric services, transparent to the fabric type or topology. See also <i>FS</i> .
<b>FSPF</b>	Fabric shortest path first. Brocade's routing protocol for fibre channel switches.
<b>full-duplex</b>	A mode of communication that allows the same port to simultaneously transmit and receive frames. See also <i>half-duplex</i> .
<b>Fx_Port</b>	A fabric port that can operate as either an F_Port or FL_Port. See also <i>F_Port</i> , <i>FL_Port</i> .
<b>G_Port</b>	Generic port. A port that can operate as either an E_Port or F_Port. A port is defined as a G_Port when it is not yet connected or has not yet assumed a specific function in the fabric.
<b>GBIC</b>	Gigabit interface converter. A removable serial transceiver module that allows gigabaud physical-level transport for fibre channel and gigabit ethernet.
<b>Gbps</b>	Gigabits per second (1,062,500,000 bits/second).
<b>GBps</b>	GigaBytes per second (1,062,500,000 bytes/second).
<b>half-duplex</b>	A mode of communication that allows a port to either transmit or receive frames at any time, but not simultaneously (with the exception of link control frames, which can be transmitted at any time). See also <i>full-duplex</i> .
<b>hard address</b>	The AL_PA that an NL_Port attempts to acquire during loop initialization.
<b>hardware translative mode</b>	A method for achieving address translation. The following two hardware translative modes are available to a QuickLoop enabled switch: <ul style="list-style-type: none"> <li>• Standard translative mode: Allows public devices to communicate with private devices that are directly connected to the fabric.</li> <li>• QuickLoop mode: Allows initiator devices to communicate with private or public devices that are not in the same loop.</li> </ul>
<b>HBA</b>	Host bus adapter. The interface card between a server or workstation bus and the fibre channel network.
<b>hub</b>	A fibre channel wiring concentrator that collapses a loop topology into a physical star topology. Nodes are automatically added to the loop when active and removed when inactive.
<b>idle</b>	Continuous transmission of an ordered set over a fibre channel link when no data is being transmitted, to keep the link active and maintain bit, byte, and word synchronization.
<b>initiator</b>	A server or workstation on a fibre channel network that initiates communications with storage devices. See also <i>target</i> .
<b>Integrated Fabric</b>	The fabric created by a SilkWorm 6400, consisting of six SilkWorm 2250 switches cabled together and configured to handle traffic as a seamless group.
<b>IOD</b>	In-order delivery. A parameter that, when set, guarantees that frames are either delivered in order or dropped.
<b>ISL</b>	Interswitch link. A fibre channel link from the E_Port of one switch to the E_Port of another. See also <i>cascade</i> , <i>E_Port</i> .

<b>isolated E_Port</b>	An E_Port that is online but not operational due to overlapping domain IDs or nonidentical parameters (such as E_D_TOVs). See also <i>E_Port</i> .
<b>IU</b>	Information unit. A set of information as defined by either upper-level process protocol definition or upper-level protocol mapping.
<b>JBOD</b>	Just a bunch of disks. Indicates a number of disks connected in a single chassis to one or more controllers. See also <i>RAID</i> .
<b>K28.5</b>	A special 10-bit character used to indicate the beginning of a transmission word that performs fibre channel control and signaling functions. The first seven bits of the character are the comma pattern. See also <i>comma</i> .
<b>key</b>	A string of data (usually a number) shared between two entities and used to control a cryptographic algorithm. Usually selected from a large pool of possible keys to make unauthorized identification of the key difficult. See also <i>key pair</i> .
<b>key pair</b>	In public key cryptography, a pair of keys consisting of an entity's public and private key. The public key can be publicized, but the private key must be kept secret. See also <i>public key cryptography</i> .
<b>L_Port</b>	Loop port. A node port (NL_Port) or fabric port (FL_Port) that has arbitrated loop capabilities. An L_Port can be in one of two modes: <ul style="list-style-type: none"> <li>• Fabric mode: Connected to a port that is not loop capable, and using fabric protocol.</li> <li>• Loop mode: In an arbitrated loop and using loop protocol. An L_Port in loop mode can also be in participating mode or non-participating mode.</li> </ul> See also <i>non-participating mode</i> , <i>participating mode</i> .
<b>latency</b>	The period of time required to transmit a frame, from the time it is sent until it arrives. Together, latency and bandwidth define the speed and capacity of a link or system.
<b>LED</b>	Light emitting diode. Used to indicate status of elements on switch.
<b>link</b>	As applies to fibre channel, a physical connection between two ports, consisting of both transmit and receive fibres. See also <i>circuit</i> .
<b>link services</b>	A protocol for link-related actions.
<b>LIP</b>	Loop initialization primitive. The signal used to begin initialization in a loop. Indicates either loop failure or resetting of a node.
<b>LM_TOV</b>	Loop master time-out value. The minimum time that the loop master waits for a loop initialization sequence to return.
<b>loop failure</b>	Loss of signal within a loop for any period of time, or loss of synchronization for longer than the time-out value.
<b>loop initialization</b>	The logical procedure used by an L_Port to discover its environment. Can be used to assign AL_PA addresses, detect loop failure, or reset a node.
<b>Loop_ID</b>	A hex value representing one of the 127 possible AL_PA values in an arbitrated loop.
<b>looplet</b>	A set of devices connected in a loop to a port that is a member of another loop.
<b>LPSM</b>	Loop port state machine. The logical entity that performs arbitrated loop protocols and defines the behavior of L_Ports when they require access to an arbitrated loop.

<b>LWL</b>	Long wavelength. A type of fiber optic cabling that is based on 1300nm lasers and supports link speeds of 1.0625 Gbps. May also refer to the type of GBIC or SFP. See also <i>SWL</i> .
<b>MIB</b>	Management information base. An SNMP structure to help with device management, providing configuration and device information.
<b>multicast</b>	The transmission of data from a single source to multiple specified N_Ports (as opposed to all the ports on the network). See also <i>broadcast, unicast</i> .
<b>multimode</b>	A fiber optic cabling specification that allows up to 500 meters between devices.
<b>N_Port</b>	Node port. A port on a node that can connect to a fibre channel port or to another N_Port in a point-to-point connection. See also <i>NL_Port, Nx_Port</i> .
<b>name server</b>	Frequently used to indicate Simple Name Server. See also <i>SNS</i> .
<b>NL_Port</b>	Node loop port. A node port that has arbitrated loop capabilities. Used to connect an equipment port to the fabric in a loop configuration through an FL_Port. See also <i>N_Port, Nx_Port</i> .
<b>node</b>	A fibre channel device that contains an N_Port or NL_Port.
<b>node name</b>	The unique identifier for a node, communicated during login and port discovery.
<b>non-participating mode</b>	A mode in which an L_Port in a loop is inactive and cannot arbitrate or send frames, but can retransmit any received transmissions. This mode is entered if there are more than 127 devices in a loop and an AL_PA cannot be acquired. See also <i>L_Port, participating mode</i> .
<b>Nx_Port</b>	A node port that can operate as either an N_Port or NL_Port.
<b>ordered set</b>	A transmission word that uses 8B/10B mapping and begins with the K28.5 character. Ordered sets occur outside of frames, and include the following items: <ul style="list-style-type: none"> <li>• Frame delimiters: Mark frame boundaries and describe frame contents.</li> <li>• Primitive signals: Indicate events.</li> <li>• Primitive sequences: Indicate or initiate port states.</li> </ul> Ordered sets are used to differentiate fibre channel control information from data frames and to manage the transport of frames.
<b>packet</b>	A set of information transmitted across a network. See also <i>frame</i> .
<b>participating mode</b>	A mode in which an L_Port in a loop has a valid AL_PA and can arbitrate, send frames, and retransmit received transmissions. See also <i>L_Port, non-participating mode</i> .
<b>path selection</b>	The selection of a transmission path through the fabric. Brocade switches use the FSPF protocol. See also <i>FSPF</i> .
<b>phantom address</b>	An AL_PA value that is assigned to a device that is not physically in the loop. Also known as phantom AL_PA.
<b>phantom device</b>	A device that is not physically in an arbitrated loop but is logically included through the use of a phantom address.
<b>PKI</b>	Public key infrastructure. An infrastructure that is based on public key cryptography and CA (certificate authority), and uses digital certificates. See also <i>CA, digital certificate, public key cryptography</i> .

<b>PKI certification utility</b>	Public key infrastructure certification utility. A utility that makes it possible to collect certificate requests from switches and load certificates to switches. See also <i>digital certificate</i> , <i>PKI</i> .
<b>PLOGI</b>	Port login. The port-to-port login process by which initiators establish sessions with targets. See also <i>FLOGI</i> .
<b>point-to-point</b>	A fibre channel topology that employs direct links between each pair of communicating entities. See also <i>topology</i> .
<b>Port_Name</b>	The unique identifier assigned to a fibre channel port. Communicated during login and port discovery.
<b>POST</b>	Power on self-test. A series of tests run by a switch after it is turned on.
<b>primary FCS switch</b>	Primary fabric configuration server switch. The switch that actively manages the configuration and security parameters for all switches in the fabric. See also <i>backup FCS switch</i> , <i>FCS switch</i> .
<b>private device</b>	A device that supports arbitrated loop protocol and can interpret 8-bit addresses, but cannot log into the fabric.
<b>private key</b>	The secret half of a key pair. See also <i>key</i> , <i>key pair</i> .
<b>private loop</b>	An arbitrated loop that does not include a participating FL_Port.
<b>private NL_Port</b>	An NL_Port that communicates only with other private NL_Ports in the same loop and does not log into the fabric.
<b>protocol</b>	A defined method and set of standards for communication.
<b>public device</b>	A device that supports arbitrated loop protocol, can interpret 8-bit addresses, and can log into the fabric.
<b>public key</b>	The public half of a key pair. See also <i>key</i> , <i>key pair</i> .
<b>public key cryptography</b>	A type of cryptography which uses a key pair, with the two keys in the pair called at different points in the algorithm. The sender uses the recipient's public key to encrypt the message, and the recipient uses the recipient's private key to decrypt it. See also <i>key pair</i> , <i>PKI</i> .
<b>public loop</b>	An arbitrated loop that includes a participating FL_Port, and may contain both public and private NL_Ports.
<b>public NL_Port</b>	An NL_Port that logs into the fabric, can function within either a public or a private loop, and can communicate with either private or public NL_Ports.
<b>quad</b>	A group of four adjacent ports that share a common pool of frame buffers.
<b>R_A_TOV</b>	Resource allocation time-out value. The maximum time a frame can be delayed in the fabric and still be delivered. See also <i>E_D_TOV</i> , <i>RR_TOV</i> .
<b>RAID</b>	Redundant array of independent disks. A collection of disk drives that appear as a single volume to the server and are fault tolerant through mirroring or parity checking. See also <i>JBOD</i> .
<b>request rate</b>	The rate at which requests arrive at a servicing entity. See also <i>service rate</i> .
<b>route</b>	As applies to a fabric, the communication path between two switches. May also apply to the specific path taken by an individual frame, from source to destination. See also <i>FSPF</i> .



<b>routing</b>	The assignment of frames to specific switch ports, according to frame destination.
<b>RR_TOV</b>	Resource recovery time-out value. The minimum time a target device in a loop waits after a LIP before logging out a SCSI initiator. See also <i>E_D_TOV</i> , <i>R_A_TOV</i> .
<b>RSCN</b>	Registered state change notification. A switch function that allows notification of fabric changes to be sent from the switch to specified nodes.
<b>SAN</b>	Storage area network. A network of systems and storage devices that communicate using fibre channel protocols. See also <i>fabric</i> .
<b>sectelnet</b>	A protocol similar to Telnet but with encrypted passwords for increased security.
<b>security policy</b>	A set of rules that determine how security is implemented in a fabric. Security policies can be customized.
<b>sequence</b>	A group of related frames transmitted in the same direction between two N_Ports.
<b>service rate</b>	The rate at which an entity can service requests. See also <i>request rate</i> .
<b>SI</b>	Sequence initiative.
<b>SilkWorm</b>	The brand name for the Brocade family of switches.
<b>single mode</b>	The fiber optic cabling standard that corresponds to distances of up to 10 km between devices.
<b>SNMP</b>	Simple network management protocol. An internet management protocol that uses either IP for network-level functions and UDP for transport-level functions, or TCP/IP for both. Can be made available over other protocols, such as UDP/IP, because it does not rely on the underlying communication protocols. See also <i>community (SNMP)</i> .
<b>SNS</b>	Simple name server. A switch service that stores names, addresses, and attributes for up to 15 minutes, and provides them as required to other devices in the fabric. SNS is defined by fibre channel standards and exists at a well-known address. May also be referred to as directory service. See also <i>FS</i> .
<b>switch</b>	Hardware that routes frames according to fibre channel protocol and is controlled by software.
<b>switch name</b>	The arbitrary name assigned to a switch.
<b>switch port</b>	A port on a switch. Switch ports can be E_Ports, F_Ports, or FL_Ports.
<b>switch-to-switch authentication</b>	The process of authenticating both switches in a switch-to-switch connection using digital certificates. See also <i>authentication</i> , <i>digital certificate</i> .
<b>SWL</b>	Short wavelength. A type of fiber optic cabling that is based on 850nm lasers and supports 1.0625 Gbps link speeds. May also refer to the type of GBIC or SFP. See also <i>LWL</i> .
<b>target</b>	A storage device on a fibre channel network. See also <i>initiator</i> .
<b>tenancy</b>	The time from when a port wins arbitration in a loop until the same port returns to the monitoring state. Also referred to as loop tenancy.
<b>throughput</b>	The rate of data flow achieved within a cable, link, or system. Usually measured in bps (bits per second). See also <i>bandwidth</i> .

<b>topology</b>	As applies to fibre channel, the configuration of the fibre channel network and the resulting communication paths allowed. There are three possible topologies: <ul style="list-style-type: none"> <li>• Point to point: A direct link between two communication ports.</li> <li>• Switched fabric: Multiple N_Ports linked to a switch by F_Ports.</li> <li>• Arbitrated loop: Multiple NL_Ports connected in a loop.</li> </ul>
<b>translative mode</b>	A mode in which private devices can communicate with public devices across the fabric.
<b>transmission character</b>	A 10-bit character encoded according to the rules of the 8B/10B algorithm.
<b>transmission word</b>	A group of four transmission characters.
<b>trap (SNMP)</b>	The message sent by an SNMP agent to inform the SNMP management station of a critical error. See also <i>SNMP</i> .
<b>tunneling</b>	A technique for enabling two networks to communicate when the source and destination hosts are both on the same type of network, but are connected by a different type of network.
<b>U_Port</b>	Universal port. A switch port that can operate as a G_Port, E_Port, F_Port, or FL_Port. A port is defined as a U_Port when it is not connected or has not yet assumed a specific function in the fabric.
<b>UDP</b>	User datagram protocol. A protocol that runs on top of IP and provides port multiplexing for upper-level protocols.
<b>ULP</b>	Upper-level protocol. The protocol that runs on top of fibre channel. Typical upper-level protocols are SCSI, IP, HIPPI, and IPI.
<b>ULP_TOV</b>	Upper-level time-out value. The minimum time that a SCSI ULP process waits for SCSI status before initiating ULP recovery.
<b>unicast</b>	The transmission of data from a single source to a single destination. See also <i>broadcast, multicast</i> .
<b>well-known address</b>	As pertaining to fibre channel, a logical address defined by the fibre channel standards as assigned to a specific function, and stored on the switch.
<b>workstation</b>	A computer used to access and manage the fabric. May also be referred to as a management station or host.
<b>WWN</b>	Worldwide name. An identifier that is unique worldwide. Each entity in a fabric has a separate WWN.
<b>zone</b>	A set of devices and hosts attached to the same fabric and configured as being in the same zone. Devices and hosts within the same zone have access permission to others in the zone, but are not visible to any outside the zone.
<b>zone configuration</b>	A specified set of zones. Enabling a configuration enables all zones in that configuration. See also <i>defined zone configuration, enabled zone configuration</i> .

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