

**EMC Connectrix
Departmental Switch DS-32B2
and Enterprise Director ED-12000B
Fabric OS
Version 4.0.2**

REFERENCE MANUAL

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Regulatory Agency Information

EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B systems have been extensively tested and certified to meet UL1950, CSA 22.2 No 950, IEC 60950/EN60950; Safety of Information Technology Equipment including Electrical Business Equipment, FCC Rules Part 15 Subpart B; CISPR22 Class A; European EMC Directive 89/336/EEC on, electromagnetic compatibility.

This class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Warning!

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Achtung!

Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

Attention!

Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

This equipment generates, uses, and may emit radio frequency energy. The equipment has been type tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC rules, which are designed to provide reasonable protection against such radio frequency interference.

Operation of this equipment in a residential area may cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Any modifications to this device - unless expressly approved by the manufacturer - can void the user's authority to operate this equipment under part 15 of the FCC rules.

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

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As part of its effort to continuously improve and enhance the performance and capabilities of the EMC product line, EMC periodically releases new versions of the EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Fabric OS. Therefore, some functions described in this guide may not be supported by all versions of Fabric OS currently in use. For the most up-to-date information on product features, see the product release notes.

If an EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B feature does not function properly or does not function as described in this guide, please contact the EMC Customer Support Center for assistance.

Audience

This guide is part of the EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B documentation set, and is intended for use by system administrators during installation and configuration of the DS-32B2 and ED-12000B switches.

Readers of this guide are expected to be familiar with the EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B operating environment

Organization

This manual provides the following information:

Chapter 1, *Telnet Commands* describes the various Telnet commands for EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B.

Chapter 2, *License Telnet Commands*, describes the commands that require a license key.

Chapter 3, *Fabric OS Version Comparison*, summarizes the commands available in v3.0 and v4.0.

Chapter 4, *Fabric and Switch Management*, explains the different methods used to manage a SAN for DS-32B2 and ED-12000B switches.

Chapter 5, *Control Processor Commands*, lists the commands available when logged into the Active CP and Standby CP in an ED-12000B.

Appendix A, *Customer Support*, describes the procedure for contacting EMC Corporation when you need help with the EMC Connectrix Departmental Switch DS32B2 and Enterprise Director ED-12000B.

The *Glossary* defines terminology used in this manual.

Related Documentation

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

- ◆ *EMC Connectrix Departmental Switch DS-32B2 Hardware Reference Manual*
- ◆ *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Management Information Base (MIB) Reference Manual*
- ◆ *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Web Tools User Guide*
- ◆ *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Zoning Reference Manual*
- ◆ *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Diagnostic and System Error Message Reference Manual*
- ◆ *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Fabric Watch Reference Manual*
- ◆ *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Extended Fabric User Guide*
- ◆ *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Inter-switch Link (ISL) Trunking User Guide*
- ◆ *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Performance Monitoring User Guide*
- ◆ *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Fabric OS Procedures Manual*

Conventions Used in this Guide

EMC uses the following conventions for notes, cautions, warnings, and danger notices.

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



CAUTION

A caution contains information essential to avoid data loss or damage to the system or equipment. The caution may apply to hardware or software.



WARNING

A warning contains information essential to avoid a hazard that can cause severe personal injury, death, or substantial property damage if you ignore the warning.



DANGER

A danger notice contains information essential to avoid a hazard that will cause severe personal injury, death, or substantial property damage if you ignore the message.

Typographical Conventions

EMC uses the following type style conventions in this guide:

Palatino, bold	<ul style="list-style-type: none"> ◆ Dialog box, button, icon, and menu items in text ◆ Selections you can make from the user interface, including buttons, icons, options, and field names
<i>Palatino, italic</i>	<ul style="list-style-type: none"> ◆ New terms or unique word usage in text ◆ Command line arguments when used in text ◆ Book titles
Courier, italic	Arguments used in examples of command line syntax.

Courier	System prompts and displays and specific filenames or complete paths. For example: working root directory [/user/emc]: c:\Program Files\EMC\Symapi\db
Courier, bold	User entry. For example: sympoll -p
AVANT GARDE	Keystrokes

Where to Get Help

Obtain technical support by calling your local sales office.

For service, call:

United States: (800) 782-4362 (SVC-4EMC)

Canada: (800) 543-4782 (543-4SVC)

Worldwide: (508) 497-7901

and ask for Customer Support.

If you are located outside the USA, call the nearest EMC office for technical assistance.

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Your Comments

Your suggestions will help us continue to improve the accuracy, organization, and overall quality of the user publications. Please send a message to techpub_comments@emc.com with your opinions of this guide.

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agtcfgDefault

Reset the SNMP agent configuration to default value.

Syntax `agtcfgDefault`

Availability Admin

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

There is one agent per logical switch. This command is specific to the logical switch you are logged into.

- ◆ `sysDescr` — The system description. The default value is `Fibre Channel Switch`.
- ◆ `sysLocation` — The location of the system. The default value is `End User Premise`.
- ◆ `sysContact` — The contact information for the system. The default value is `Field Support`.
- ◆ `swEventTrapLevel` — The event trap level in conjunction with the event's severity level. When an event occurs and if its severity level is at or below the set value, the SNMP trap, `swEventTrap`, is sent to configure trap recipients. The default value is 0 (off), implying that no `swEventTrap` is sent. Possible values are:
 - 0 — none
 - 1 — critical
 - 2 — error
 - 3 — warning
 - 4 — informational
 - 5 — debug
- ◆ `authTraps` — The default value is 0 (off). When enabled the authentication trap, `authenticationFailure`, is transmitted to a configured trap recipient in the event the agent received a protocol message that is not properly authenticated. In the context of SNMPv1 and SNMPv2c, this means that a request contains a community string that is not known to the agent. The default value for this parameter is 0 (disabled).

There are six communities and respective trap recipients supported by the agent. The first three communities are for read-write access (rw) and the last three are for read-only access (ro). Note that the factory default value for the trap recipient of each community is "0.0.0.0". The factory default values for the community strings are:

```
Community 1: Secret Code
Community 2: OrigEquipMfr
Community 3: private
Community 4: public
Community 5: common
Community 6: FibreChannel
```

In order for an SNMP Management Station to receive a trap generated by the agent, the administrator must configure a trap recipient value to correspond to the IP address of the Management Station.

There are six ACL (Access Control List) to restrict SNMP get/set operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing non-zero IP octets. For example, an ACL of "192.168.64.0" enables access for any hosts that start with "192.168.64.xx". An ACL check is turned off when all six entries contain "0.0.0.0".

Operands None

Example To set the SNMP agent configuration parameters to the default values, and verify the default values are set:

```
sw5:admin> agtcfgDefault
*****
This command will reset the agent's configuration back to
factory default
*****
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 C0de (rw)
    Trap recipient: 192.168.15.41
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

SNMP access list configuration:
Entry 0: Access host subnet area 192.168.64.0 (rw)]
Entry 1: No access host configured yet
Entry 2: No access host configured yet
Entry 3: No access host configured yet
Entry 4: No access host configured yet
Entry 5: No access host configured yet

*****
Are you sure? (yes, y, no, n): [no] y
switch:admin>
```

See Also agtcfgSet
agtcfgShow

agtcfgSet

Modify the SNMP agent configuration.

Syntax `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.

There is one agent per logical switch. This command is specific to the logical switch you are logged into.

- ◆ `sysDescr` — The system description. The default value is `Fibre Channel Switch`.
- ◆ `sysLocation` — The location of the system. The default value is `End User Premise`.
- ◆ `sysContact` — The contact information for the system. The default value is `Field Support`.
- ◆ `swEventTrapLevel` — The event trap level in conjunction with the event's severity level. When an event occurs and if its severity level is at or below the set value, the SNMP trap, `swEventTrap`, is sent to configure trap recipients. The default value is 0 (off), implying that no `swEventTrap` is sent. Possible values are:
 - 0 — none
 - 1 — critical
 - 2 — error
 - 3 — warning
 - 4 — informational
 - 5 — debug
- ◆ `authTraps` — The default value is 0 (off). When enabled the authentication trap, authentication Failure, is transmitted to a configured trap recipient in the event the agent received a protocol message that is not properly authenticated. In the context of SNMPv1 and SNMPv2c, this means that a request contains a community string that is not known to the agent. The default value for this parameter is 0 (disabled).

There are six communities and respective trap recipients supported by the agent. The first three communities are for read-write access (rw) and the last three are for read-only access (ro). Note that the factory default value for the trap recipient of each community is "0.0.0.0". The factory default values for the community strings are:

```
Community 1: Secret Code
Community 2: OrigEquipMfr
Community 3: private
Community 4: public
Community 5: common
Community 6: FibreChannel
```

In order for an SNMP Management Station to receive a trap generated by the agent, the administrator must configure a trap recipient value to correspond to the IP address of the Management Station.

There are six ACL (Access Control List) to restrict SNMP get/set operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing non-zero IP octets. For example, an ACL of "192.168.64.0" enables access for any hosts that start with "192.168.64.xx". An ACL check is turned off when all six entries contain "0.0.0.0".

Operands None

Example **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) [0] 3
authTrapsEnabled (true, t, false, f): [false] t
```

SNMP community and trap recipient configuration:

```
Community (rw): [Secret C0de]
  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]
```

SNMP access list configuration:

```
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
```

```
sysDescr = Fibre Channel Switch.
  sysLocation = End User Premise
  sysContact = Field Support.
swEventTrapLevel = 3
  authTraps = 1 (ON)
```

SNMPv1 community and trap recipient configuration:

```
Community 1: Secret C0de (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
```

SNMP access list configuration:

```
Entry 0: No access host configured yet
Entry 1: No access host configured yet
Entry 2: No access host configured yet
Entry 3: No access host configured yet
Entry 4: No access host configured yet
Entry 5: No access host configured yet
```

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

See Also agtcfgDefault
 agtcfgShow

agtcfgShow

Display the SNMP agent configuration.

Syntax agtcfgShow

Availability All users

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

There is one agent per logical switch. This command is specific to the logical switch you are logged into.

- ◆ `sysDescr` — The system description. The default value is `Fibre Channel Switch`.
- ◆ `sysLocation` — The location of the system. The default value is `End User Premise`.
- ◆ `sysContact` — The contact information for the system. The default value is `Field Support`.
- ◆ `swEventTrapLevel` — The event trap level in conjunction with the event's severity level. When an event occurs and if its severity level is at or below the set value, the SNMP trap, `swEventTrap`, is sent to configure trap recipients. The default value is 0 (off), implying that no `swEventTrap` is sent. Possible values are:
 - 0 — none
 - 1 — critical
 - 2 — error
 - 3 — warning
 - 4 — informational
 - 5 — debug
- ◆ `authTraps` — The default value is 0 (off). When enabled the authentication trap, authentication Failure, is transmitted to a configured trap recipient in the event the agent received a protocol message that is not properly authenticated. In the context of SNMPv1 and SNMPv2c, this means that a request contains a community string that is not known to the agent. The default value for this parameter is 0 (disabled).

There are six communities and respective trap recipients supported by the agent. The first three communities are for read-write access (rw) and the last three are for read-only access (ro).

The factory default value for the trap recipient of each community is "0.0.0.0". The factory default values for the community strings are:

```
Community 1: Secret Code
Community 2: OrigEquipMfr
Community 3: private
Community 4: public
Community 5: common
Community 6: FibreChannel
```

In order for an SNMP Management Station to receive a trap generated by the agent, the administrator must configure a trap recipient value to correspond to the IP address of the Management Station.

There are six ACL (Access Control List) to restrict SNMP get/set operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing non-zero IP octets. For example, an ACL of "192.168.64.0" enables access for any hosts that start with "192.168.64.xx". An ACL check is turned off when all six entries contain "0.0.0.0".

Operands None

Example To display SNMP agent configuration information:

```
switch:admin> agtcfgShow
```

```
sysDescr = FC Switch
sysLocation = End User Premise
sysContact = Field Support.
swEventTrapLevel = 3
authTraps = 1 (ON)
```

SNMPv1 community and trap recipient configuration:

```
Community 1: Secret C0de (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
```

SNMP access list configuration:

```
Entry 0: Access host subnet area 192.168.64.0 (rw)]
Entry 1: Access host subnet area 192.168.1.26 (rw)
Entry 2: No access host configured yet
Entry 3: No access host configured yet
Entry 4: No access host configured yet
Entry 5: No access host configured yet
```

See Also agtcfgDefault
 agtcfgSet

aliasDelete

Delete a port from all local groups.

Syntax `aliasDelete portID`

Availability Admin

Description Use this command to delete a local port from all local groups. The group is deleted if it becomes empty after deleting the local port.

Use the `aliasShow` command to show the existing groups with their corresponding `N_Ports`.

Operands This command has the following operand:

`portID` Specify in hexadecimal the port ID to be deleted from an alias group. This operand is required.

Example **To delete a port from an existing group:**

```
switch:admin> aliasdelete 0x19c00  
aliasDelete: succeeded
```

Exit Status 0 Indicates successful operation.

Non Zero Indicates that the operation has failed.

See Also `aliasJoin`
`aliasShow`
`fabricShow`
`switchShow`

aliasJoin

Create or add a member to a group of N_Ports.

Syntax aliasJoin

Availability Admin

Description Use this command to create an alias group of N_Ports or to add N_Ports to an existing group. Any online N_Port defined in the fabric can be part of a group. An N_Port can be added from any switch that is part of the fabric.

To get a list of online ports currently defined in the fabric, use the nsAllShow command. If the user wants to add only local ports associated with the local switch then use the nsShow command to get list of ports associated with the local switch.

Operands None

Example To create an alias group of N_Ports or to add N_Ports to an existing group enter the following command:

```
sw5:admin> aliasJoin
aliasJoin: To add ports to an existing or new multicast group
Number of ports in the group: (1..64) [1]
To set an authorization password? (yes, y, no, n): [no]
no password
Setting the authorization control

Add control: 0 by any, 1 only itself, 2 by creator: (0..2) [0]
Del control: 0 by any, 1 only itself, 2 by creator: (0..2) [0]
Lsn control: 0 by any, 1 by none: (0..1) [1]
Add control 0, Del control 0 Lsn control 1
Setting the Routing Bit: (0x0..0xc) [0x0]
using FC-4 Device Data ...
Setting FC-4 Type: (0x0..0x5d) [0x5]
using 0x05 ...
To set the alias qualifier in WWN format? (yes, y, no, n): [yes]
Qualifier (in hex): [10:00:00:60:69:80:02:28]
Port ID (in hex): (0x0..0xeffa00) [0] 0x19c00
npList[0] = 0x19c00
aliasJoin: Join request to Group Address 0xffffb00 succeeds
```

Exit Status 0 Indicates successful operation.

Non Zero Indicates that the operation has failed.

See Also aliasShow
 aliasDelete
 aliasPurge

aliasPurge

Remove an alias group.

Syntax `aliasPurge groupID`

Availability Admin

Description Use this command to remove an alias group. The alias group must be identified by its hexadecimal value.

Operands This command has the following operand:

groupID Specify in hexadecimal the alias group to be removed. This operand is required.

Example To remove an alias group:

```
sw5:admin> aliasPurge 0xffffb00  
aliasPurge: succeeded
```

Exit Status 0 Indicates successful operation.

Non Zero Indicates that the operation has failed.

See Also `aliasJoin`
`aliasShow`

aliasShow

Display alias server information.

Syntax `aliasShow`

Availability All users

Description Use this command to display local alias server information. If there is no local alias group, the following message is displayed:

`There is no entry in the Local Alias Server.`

If there are multiple entries in the local alias group, they are displayed.

The following fields are displayed as shown in Table 1-1:

Table 1-1 AliasShow Fields Displayed

Field	Description
Alias ID	Multicast address presented in format <code>FFFBxx</code> , where <code>xx</code> is the name of the multicast group
Creator	Fibre channel address ID of <code>Nx_Port</code> that created the alias group
Creator token	Alias token provided to map to the alias group; it consists of the following entries: <ul style="list-style-type: none"> • <code>rb</code> — Routing bits • <code>type</code> — Upper-level application types • <code>grptype</code> — Alias group type; can only be 10 for multicast • <code>qlfr</code> — Alias qualifier for a group • Member list — List of member address IDs

Operands None

Example To display the entries in the local alias server:

```
switch:admin> aliasShow

Alias ID Creator Token [rb, type, grptype, qlfr] Member List
ffffb01 fffffd [00, 05, 10, 10000060 69800228] { 019c00 }

The Local Alias Server has 1 entry
switch:admin>
```

Exit Status 0 Indicates successful operation.
Non Zero Indicates that the operation has failed.

See Also aliasdelete
aliasjoin
aliaspurge

aliAdd

Add a member to a zone alias.

Syntax `aliAdd aliName, member; member`

Availability Admin

Description Use this command to add one or more members to an existing zone alias. The alias member list cannot contain another zone alias.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

This command requires a Zoning License.

Operands This command has the following operands:

aliName Specify the name of a zone alias in quotation marks. This operand is required.

member Specify a member or list of members to be added to the alias, in quotation marks, separated by semicolons. An alias member can be specified by one or more of the following methods:

- ◆ A switch domain and port area number pair. View the area numbers for ports using the `switchShow` command.
- ◆ World Wide Names
- ◆ QuickLoop AL_PAs

This operand is required.

Example To add members to the following aliases:

```
switch:admin> aliAdd "array2", "1,2"
switch:admin> aliAdd "array1", "21:00:00:20:37:0c:72:51"
switch:admin> aliAdd "loop1", "0x02; 0xEF"
```

See Also `aliCreate`
`aliDelete`
`aliRemove`
`aliShow`

aliCreate

Create a zone alias.

Syntax `aliCreate aliName, member; member`

Availability Admin

Description Use this command to create a new zone alias.

The zone alias member list must have at least one member (empty lists are not allowed). The alias member list cannot contain another zone alias.

Zone Alias members can be specified using the Area number to represent a specific port and slot combination. Area numbers are automatically assigned to a port by the Fabric OS. You can view the Area numbers using the `switchShow` command.

This command requires a Zoning License.

Operands This command has the following operands:

aliName Specify a name for the zone alias in quotation marks. This operand is required. A zone alias name must begin with a letter and can be followed by any number of letters, digits and underscore characters. Names are case sensitive, for example “Ali_1” and “ali_1” are different zone aliases. Blank spaces are ignored.

member Specify a member or list of members to be added to the alias, in quotation marks, separated by semicolons.

An alias member can be specified by one or more of the following methods:

- ◆ A switch domain and port area number pair. View the area numbers for ports using the `switchShow` command.
 - ◆ World Wide Names
 - ◆ QuickLoop AL_PAs
- This operand is required.

Example To add zone aliases using member names:

```
switch:admin> aliCreate "array1", "32; 33; 34"  
switch:admin> aliCreate "array2", "21:00:00:20:37:0c:66:23"  
switch:admin> aliCreate "loop1", "0x02; 0xEF; 5,4"
```

See Also

- aliAdd
- aliDelete
- aliRemove
- aliShow

aliDelete

Delete a zone alias.

Syntax `aliDelete aliName`

Availability Admin

Description Use this command to delete a zone alias.

This command changes the defined configuration. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command. For the change to be preserved across switch reboots, it must be saved to flash memory using the `cfgSave` command.

This command requires a Zoning License.

Operands This command has the following operands:

aliName Specify the name of a zone alias in quotation marks. This operand is required.

Example **To delete the zone alias array2:**

```
switch:admin> aliDelete "array2"
```

See Also `aliAdd`
 `aliCreate`
 `aliRemove`
 `aliShow`

aliRemove

Remove a member from a zone alias.

Syntax `aliRemove aliName, member; member`

Availability Admin

Description Use this command to remove one or more members from an existing zone alias.

If all members are removed, the zone alias is deleted.

This command changes the defined configuration. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command. For the change to be preserved across switch reboots, it must be saved to flash memory using the `cfgSave` command.

This command requires a Zoning License.

Operands This command has the following operands:

aliName Specify the name of a zone alias in quotation marks. This operand is required.

member Specify a member or list of members to be removed from the alias, in quotation marks, separated by semicolons.

An alias member can be specified by one or more of the following methods:

- ◆ A switch domain and port area number pair. View the area numbers for ports using the `switchShow` command.
 - ◆ World Wide Names
 - ◆ QuickLoop AL_PAs
- This operand is required.

The member list is located by an exact string match; therefore, it is important to maintain the order when removing multiple members. For example, if a zone alias contains 1,2; 1,3; 1,4, then removing 1,3; 1,4 succeeds, but removing 1,4; 1,3 fails.

Example To remove a member from array1:

```
switch:admin> aliRemove "array1", "3,5"  
switch:admin> aliRemove "array1", "21:00:00:20:37:0c:76:8c"  
switch:admin> aliRemove "array1", "0xEF"
```

See Also

- aliAdd
- aliCreate
- aliDelete
- aliShow

aliShow

Display zone alias information.

Syntax `aliShow "pattern"`

Availability All users

Description Use this command to display zone configuration information.

If no parameters are specified, all zone configuration information (both defined and enabled) is displayed. See `cfgShow` for a description of this display.

If a parameter is specified, it is used as a pattern to match zone alias names; those that match in the defined configuration are displayed.

This command requires a Zoning License.

Operands This command has the following operands:

"pattern" A POSIX style regular expression used to match zone alias names. This operand must be enclosed in quotation marks.

Patterns may contain:

- ◆ Question mark (?) that matches any single character.
- ◆ Asterisk (*) that matches any string of characters.
- ◆ Ranges that match any character within the range. Ranges must be enclosed in brackets, for example, [0-9] or [a-f].

This operand is optional.

If no parameters are specified, all zone configuration information (both defined and effective) is displayed. See `cfgShow` for a description of this display.

Example To show all zone aliases beginning with arr:

```
switch:admin> aliShow "arr*"
alias: array1 21:00:00:20:37:0c:76:8c
alias: array2 21:00:00:20:37:0c:66:23
```

See Also aliAdd
aliCreate
aliDelete
aliRemove

backplanetest

Run Backplane connection test for multiple blade configured system.

Syntax `backplanetest [-passcnt count] [-payload bytes] [-pat type]
[-ports list] [-verbose boolean]`

Availability Admin

Description Use this command to verify the function of the backplane connection of the blades through the back-end external ports. This command is for the ED-12000B only. This command is not part of blade diagnostics; it is used to verify backplane connection by using the blade's frame transmitter/receiver features.

Operands This command has the following operands:

- `-passcnt count` Specify the number of times to perform this test. The default value is 1. This operand is optional.
- `-payload bytes` Specify the byte size of the test frame payload. The payload size must be in multiples of 4 and the minimum size is 16. The default value is 512 bytes. This operand is optional.

- `-pat type` Specify the test pattern type used in the test frame payload. The default test is 17(jCRPAT). The following test patterns can be specified:
- 1 byte fill
 - 2 word fill
 - 3 quad fill
 - 4 byte not
 - 5 word not
 - 6 quad not
 - 7 byte ramp
 - 8 word ramp
 - 9 quad ramp
 - 10 byte lfsr
 - 11 random
 - 12 crpat
 - 13 cspat
 - 14 chalf sq
 - 15 cqtr sq
 - 16 rdram pat
 - 17 jCRPAT (default)
 - 18 jCJTPAT
 - 19 jCSPAT
- `-ports list` Specify the blade port number(s). This command selects back-end external ports only from the list to perform this test. All back-end external ports are set in default.
- `-verbose boolean` Specify this operand with a value of 1, and the command then displays more detailed information. The default value is 0. This operand is optional.

Example To run a backplane connection test:

```
switch:admin> backplanetest -ports 2/16 2/18 2/20 -payload 2048 -verbose 1
```

```
Running Backplane Conn Test .....
Test frame info for Backplane Connection Test:
# of frames: 1
sid data:    0xfffffd
did data:    0xfffffd
payload size: 2048 bytes

passed.
Test Complete: "backplanetest" Pass 1 of 1
Duration 0 hr, 0 min & 1 sec (0:0:1:705).
switch:admin>
```

Diagnostics When this command detects failure(s), the subtest may report one or more of the following error messages:

```
0x29 XMIT
0x39 TIMEOUT
0x3b DATA
```

See Also backPort

backPort

Run test for back-end miniswitch-to-miniswitch links.

Syntax `backport [-nframes num] [-ports list] [-lb_mode mode] [-fr_type type] [-extonly enable]`

Availability Admin

Description Use this command to test the backplane routing and VC allocation. This test applies to single blade as well as multi-blade systems.

The following items are tested:

- ◆ Proper back-end port domain routing setup such that every user port has a valid path to every other user port. If a valid path does not exist between any two user ports then that path will fail to transmit the first frame between the two ports.
- ◆ Proper VC mapping such that an arbitrarily large number of frames may be transmitted without running out of credit. If the VC credit mapping is not correct, then the test will fail after enough frames have been sent to exhaust the initial credit. VC mapping is not tested if the `extonly` operand is enabled.
- ◆ Proper Trunking of backend ports. The frames are sent in bursts. If the trunking is not set up properly, the burst of frames will not arrive in order. Note: Since the frames are received without “spinning” first, this test is not as exhaustive as `spinFab`.
- ◆ ASIC errors along each path. The test will check for CRC and ENC errors for each port used between the source and destination ports to help isolate failures. It will also check that each member of every trunk group along the path has sent or received at least one frame.

Area routing between user ports is not tested.

Operands This command has the following operands:

- | | |
|---------------------------|--|
| <code>-nframes num</code> | Specify the number of frame sequences to send. The default value is 100. |
| <code>-ports list</code> | Specify a list of user ports. The default value is all user ports. |

- `-lb_mode mode` Specify the loopback mode for source and destination standard meanings. The default mode is 5. The valid modes are:
- 0 cable loopback
 - 1 plug loopback
 - 2 external loopback (SERDES)
 - 5 internal loopback (ASIC)
- `-fr_type type` Specify the frame types to send. The default type is 1. The valid types are:
- 0 single frame
 - 1 spinFab frames
 - 2 spinFab 1 K frames
- `-extonly enable` Specify 1 to enable external-test-only mode. The default value is 0. This command normally sends bursts of frames from each port under test to every other port in the list. In *extonly* mode `backPort` will send only one burst of frames to each port from each miniswitch-to-miniswitch link. This tests all of the external connections with only $K * N$ frames instead of the $N^{^2}$ frames required in the all to all mode.
- This mode is intended to be used in ESS/burn-in testing to optimize test time. This command tests only the external connections between each miniswitch and `txdpath` is used to test the internal bloom-to-bloom paths. In this mode, the test does *not* check all of the VC allocation, so it should not be used for software regression test.
- Valid values are:
- 0 Send frames from all ports to all other ports.
 - 1 Send only one burst of frames to each link.

Example To test for back-end miniswitch to miniswitch links:

```
switch:admin> backport
```

```
Running Backport Test .....
```

```
switch:admin>
```

Diagnostics When the command detects failure(s), the test may report one or more of the following error messages:

```
0x3a INIT
```

```
0x28 ERR_STAT
```

```
0x29 XMIT
```

```
0x2c PORT_DIED
```

```
0x2e PORT_STOPPED
```

```
0x38 ERR_STATS
```

See Also

```
crossPorttest  
portLoopbackTest  
spinSilk  
spinFab
```

bcastshow

Display broadcast routing information.

Syntax `bcastShow`

Availability All users

Description Use this command to display the broadcast routing information for all ports in the switch. 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 following fields are displayed:

Group	The multicast group ID of the broadcast group.
Member Ports	A map of all ports in broadcast tree.
Member ISL Ports	A map of all E_Ports in broadcast tree.
Static ISL Ports	Reserved.

The broadcast routing information for the ports is displayed as a set of hexadecimal bit maps. For more information on reading hexadecimal bitmaps, refer to the *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Fabric OS Procedures Manual*.

The output from this command varies depending on switch type.

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
             0x00000000        0x00000000            0x00000000
             0x00000000        0x00000000            0x00000000
```

See Also `mcastShow`
`portRouteShow`

bladeBeacon

Set blade beaconing mode on or off.

Syntax `bladeBeacon [blade] mode`

Availability Admin

Description Use this command to set the blade beaconing mode on or off. Specify mode 1 to enable beaconing mode, or specify mode 0 to disable beaconing.

When beaconing mode is enabled, the port LEDs will flash amber in a running pattern from port 0 through port 15 and back again. The pattern continues until the user turns it off. This can be used to locate a physical unit.

Beaconing mode only takes over the port LEDs, it does not change the switch's functional behavior. The normal flashing LED pattern (associated with an active, faulty, or disabled port for example) is suppressed and only the beaconing pattern is displayed. If a diagnostic frame-based test (such as `portLoopbackTest`, `crossPortTest`, or `spinSilk`) is executed, the two LED patterns are interwoven. The diagnostic test flickers the LEDs green and the beaconing mode runs the LEDs amber.

The `switchShow` command can be used to display if the status of blade beaconing mode is on or off.

Operands This command has the following operands:

blade Specify the slot number of the blade whose beacon mode is to be modified.

mode Specify a value of 1 to set beaconing mode On. Specify a value of 0 to set beaconing mode Off. This operand is required.

Example To turn the blade in slot 2 beaconing mode On and then Off:

```
switch:admin> bladeBeacon 2 1
```

See Also `switchShow`

bladeDiag

Run diagnostics on a switch blade.

Syntax `bladediag [[-slot] slot]`

Availability Admin

Description Use this command to run a suite of diagnostics tests on the specified switch blade. To run this command you must install loopback plugs on every port. The tests executed are:

- portregtest
- centralmemorytest
- cmitest
- camtest
- filtertest
- statstest
- portloopbacktest
- txdpath
- crossporttest
- spinsilk
- backport
- diagshow

Compared to `bladediagShort`, this is a comprehensive test for blade functionality which also involves backplane connections.

Operand This command has the following operand:

`-slot slot` Specify the slot number of the blade on which you want to run diagnostics. This operand is optional.

Example To run a suite of diagnostics on blade 7:

```
switch:admin> bladediag -slot 7
  Testing slot: 7, user ports: 3 2 1 0 7 6 5 4 11 10 9 8 15 14 13 12

  PortRegTest

  Running Port Register Test ....
  passed.
  Test Complete: "portregtest" Pass 1 of 1
  Duration 0 hr, 2 min & 23 sec (0:2:23:443).
  passed.
  Test return status: 0

  CentralMemoryTest

  Running centralmemorytest ..... passed.
  Test Complete: "centralmemorytest" Pass 1 of 1
  Duration 0 hr, 0 min & 19 sec (0:0:19:611).
  passed.
  Test return status: 0

  <output truncated>
```

See Also

- portRegTest
- centralMemoryTest
- cmiTest
- camTest
- filterTest
- statsTest
- portLoopbackTest
- crossPortTest
- spinSilk
- backPort
- diagShow
- bladeDiagShort

bladeDiagShort

Run diagnostics on a switch blade.

Syntax `bladediagshort [[-slot] slot]`

Availability Admin

Description Use this command to run a suite of diagnostics tests on the specified switch blade. To run this command you must install loopback plugs on every port. The tests executed are:

- portregtest
- centralmemorytest
- cmitest
- camtest
- filtertest
- statstest
- portloopbacktest
- txdpath
- crossporttest
- spinsilk
- backport
- diagshow

Compared to `bladediag`, this is a limited test for single blade functionality, which does not involve backplane connections.

Operands This command has the following operand:

`-slot slot` Specify the slot number of the blade on which you want to run diagnostics. If no slot is specified with this command, the slot specified with the `setSlot` command is used.

Example To run a suite of diagnostics on blade 7:

```
switch:admin> bladediagshort -slot 7
  Testing slot: 7, user ports: 3 2 1 0 7 6 5 4 11 10 9 8 15 14 13 12

  PortRegTest

  Running Port Register Test ....
  passed.
  Test Complete: "portregtest" Pass 1 of 1
  Duration 0 hr, 2 min & 23 sec (0:2:23:443).
  passed.
  Test return status: 0

  CentralMemoryTest

  Running centralmemorytest ..... passed.
  Test Complete: "centralmemorytest" Pass 1 of 1
  Duration 0 hr, 0 min & 19 sec (0:0:19:611).
  passed.
  Test return status: 0

  <output truncated>
```

See Also

- portRegTest
- centralMemoryTest
- cmiTest
- camTest
- filterTest
- statsTest
- portLoopbackTest
- crossPortTest
- spinSilk
- backPort
- diagShow
- bladeDiag

bladePropShow

Display blade property.

Syntax `bladePropShow [[-slot] slot]`

Availability All users

Description Use this command to display the properties of a blade.

Operands This command has the following operand:

`-slot slot` Specify the slot number of the blade you which you want to run diagnostics. This operand is optional.

Example **To display the blade properties for blade 7:**

```
switch:admin> bladepropshow -slot 7
```

```
Slot: 7
[2,4/8/64]
<0,1657/0001 1,1657/0001>
<2,1657/0001 3,1657/0001>
<4,1657/0001 5,1657/0001>
<6,1657/0001 7,1657/0001>
<0,8>=<1,9> <0,10>=<2,9> <0,6>=<3,7>
<1,9>=<0,8> <1,6>=<2,7> <1,10>=<3,9>
<2,9>=<0,10> <2,7>=<1,6> <2,10>=<3,11>
<3,7>=<0,6> <3,9>=<1,10> <3,11>=<2,10>
```

See Also `ptpropshow`
`minispropshow`
`chippropshow`

camTest

To test the functionality of Content Addressable Memory (CAM).

Syntax `camtest [-passcnt count] [-txport list]`

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.

When a CAM is presented with a data, it checks if the data is present in its memory. A hit means the data is found in the CAM. A miss means the data is not found.

In this test, the CAM is filled with 4 kinds of data patterns:

1. A walking 1,
2. A walking 0,
3. A random pattern,
4. An inverted version of the random pattern above.

Once filled with each of the patterns above, a frame is sent and looped back internally. If a hit is expected (when the random or inverted random pattern is used) the original SID in the frame transmitted is received translated with the domain and area fields of the SID zeroed. If a miss is expected (when the walking 1 or walking 0 pattern is used) the original SID in the frame transmitted is received unchanged.

This command may not be executed on an enabled switch. You must first disable the switch using the `switchDisable` command.

Operands This command has the following operands:

- | | |
|------------------------------------|--|
| <code>-passcnt <i>count</i></code> | Specify the number of times to execute this test. The default value is 1. |
| <code>-txports <i>list</i></code> | Specify the port number(s) to transmit data. The default value is all ports are set. |

Example To verify that Content Addressable Memory (CAM) is functioning correctly:

```
switch:admin> camTest
Running CAM Test ..... Test Completed: "camtest" Pass 1 of
1.
Duration 0 hr, 0 min & 58 sec (0:0:58:796)
passed.
```

Errors Below are possible error messages if failures are detected:

```
DIAG-CAMINIT
DIAG-CAMSID
DIAG-CAMSTAT
DIAG-CAMFLTR
DIAG-CANTXMIT
```

See Also

```
centralMemoryTest
cmemRetentionTest
cmiTest
crossPortTest
portLoopbackTest
portRegTest
spinSilk
sramRetentionTest
```


centralMemoryTest

Perform a bit write/read test of the ASIC central memory.

Syntax `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.

This command may not be executed on an enabled switch. You must first disable the switch using the `switchDisable` command.

The test consists of 6 subtests:

Subtest 1

The BISR subtest executes the Built-In-Self-Repair (BISR) circuitry in each ASIC. The BISR executes its own BIST, and cells found bad are replaced by redundant rows provided in each SRAM in the ASIC. Once replaced, the BIST is executed again.

The firmware merely sets up the hardware for the BISR/BIST operation and checks the results. If the done bit in each SRAM is not set within a time-out period, it reports the DIAG-CMBISRTO. If any of the SRAMs within the ASIC fails to map out the bad rows, its fail bit is set and the DIAG-CMBISR error generated.

Subtest 2

The data write/read subtest executes the address and data bus verifications by running a specified unique ramp pattern D to all SRAMs in all ASICs in the switch. When all SRAMs are written with pattern D, the SRAMs are read and compared against the data previously written. The above step is repeated with the complemented pattern ~D to ensure that each data bit is toggled during the test.

The default pattern used (by POST also) is a QUAD_RAMP with a seed value of 0.

Subtest 3

The ASIC-to-ASIC connection subtest verifies that any port can read the data from any of the ASICs in the switch; thus verifying both the logic transmitting and receiving the data and the physical transmit data paths on the main board connecting all the ASICs to each other.

Subtest 3 is not available on 2 G based switches.

The test method is as follows:

1. Fill the Central Memory of all ASICs with unique frames.
2. Set up the hardware such that each ASIC is read by all of the MAX number of ports in the switch. Data received is compared against the frame written into the ASIC.
 - Port 0 reads the Central Memory in ASIC 0
 - Port 1 reads the Central Memory in ASIC 0
 - Port 14 reads the Central Memory in ASIC 0
 - Port 15 reads the Central Memory in ASIC 0
 - Port 0 reads the Central Memory in ASIC 1
 - Port 1 reads the Central Memory in ASIC 1
 - Port 14 reads the Central Memory in ASIC 1
 - Port 15 reads the Central Memory in ASIC 1
 - Port 15 reads the Central Memory in ASIC 2
 - Port 15 reads the Central Memory in ASIC 3
3. Repeat the steps above for the complemented pattern.
4. Repeat for each mini-switch in the blade under test.

The pattern used is generated similarly as in subtest 2 above except that only 2112 bytes are generated.

Subtest 4

The forced bad parity error subtest verifies that a bad parity can be detected, its error flag set, and an interrupt bits are set.

The test method is as follows:

1. Clear the error and interrupt bits of all ASICs.
2. Write 64 bytes with bad parity to all ASICs at offset 0.
3. Read each of the ASICs at offset 0 & check that the error and interrupt bits are set.
4. Repeat the steps above for offset 1, 2, 3, ... 10.

Subtest 5

The forced bad buffer number error subtest verifies that the bad buffer number in the data packet can be detected, its error flag and interrupt bits are set.

The test method is as follows:

1. Clear the error and interrupt bits of all ASICs.
2. Set up the hardware so that transmission of data includes a bad buffer number.
3. For each ASIC X in the switch, do:
For each of the 11 possible offsets, do:
 - a. Write a 64 byte pattern in the Central Memory.
 - b. Read X from all ASIC Y in the switch.
 - c. Check that X has its:
 - interrupt bits are set.
 - error type is buffer number error.
 - the port number in error is the receiver port (which is the base port of asic Y).
 - d. Check that all other ASICs (~X) DO NOT get:
 - an interrupt, or
 - an error flagged.
 - e. Reading the error register clears the CMEM interrupt bit; ready for the next offset to test.

Subtest 6

The forced bad chip number error subtest verifies that the bad buffer number in the data packet can be detected, its error flag and interrupt bits are set.

The test method is as follows:

1. Clear the error and interrupt bits of all ASICs.
2. Set up the hardware so that transmission of data includes a bad buffer number.
3. For each ASIC X in the switch, do:
For each of the 11 possible offsets, do:
 - a. Write a 64 byte pattern in the Central Memory.
 - b. Read X from all ASIC Y in the switch.

- c. Check that all ASIC Y has its:
 - interrupt bits are set.
 - error type is chip number error.
 - the port number in error is the receiver port (which is the base port of asic Y).
- d. Reading the error register clears the CMEM interrupt bit; ready for the next offset to test.

Operands

This command has the following operands. If all are omitted, the default values used are 1 for *passCount*, *QUAD_RAMP* for *dataType*, and a random value for *dataSeed*.

<i>passCount</i>	Specify the number of test passes to run. By default the test will be run one time. The passes parameter may be used to run the specified number of passes.
<i>dataType</i>	Specify the type of data pattern to use. By default, type 9, <i>QUAD_RAMP</i> is used. For a complete list of supported data patterns run the <i>dataTypeShow</i> command. Some common settings are: <ul style="list-style-type: none"> • 1 Byte fill pattern. • 2 Word fill pattern. • 3 Quad fill pattern. • 9 Quad ramp (Addr=Data) pattern. • 11 Random data.
<i>dataSeed</i>	Specify the data pattern seed to be used. The default seed value is 0.

Example To test the ASIC central memory:

```
switch:admin> centralMemoryTest
```

```
Running Central Memory Test ... passed.
```

```
Test complete: "centrallymemorytest" Pass 1 of 1.
Duration 0 hr, 0 min & 19 sec (0:0:19:500)
passed.
```

Diagnostics When this command detects failure(s), each subtest may report one or more of the following error messages:

Subtest 2
0x20 LCMEM_ERR
0x22 LCMRS_ERR
0x23 LCMTO_ERR

Subtest 3
0x2c CM_NO_BUF
0x24 LCMTO_ERR
0x22 LCMRS_ERR
0x21 LCMEMTX_ERR

Subtest 4
0x2e TIMEOUT
0x26 BAD_INT
0x28 CM_ERR_TYPE
0x29 CM_ERR_PTN

Subtest 5
0x2e TIMEOUT
0x26 BAD_INT
0x28 CM_ERR_TYPE
0x29 CM_ERR_PTN

Subtest 6
0x2e TIMEOUT
0x26 BAD_INT
0x28 CM_ERR_TYPE
0x29 CM_ERR_PTN

See Also

camTest
cmemRetentionTest
cmiTest
crossPortTest
portLoopbackTest
portRegTest
spinSilk
sramRetentionTest

cfgAdd

Add a member to a zone configuration.

Syntax `cfgAdd "cfgName", "member; member"`

Availability Admin

Description Use this command to add one or more members to an existing zone configuration.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

This command requires a Zoning License.

Operands This command has the following operands:

cfgName Specify a name for the zone configuration in quotation marks. This operand is required.

member Specify a member or list of members to be added to zone configuration, in quotation marks, separated by semicolons.

Members can be specified in one or more of the following methods:

- ◆ Zone names
- ◆ QuickLoop names
- ◆ FA (Fabric Assist) zone names

This operand is required.

Example To add new zones to the configuration "Test_cfg":

```
switch:admin> cfgAdd "Test_cfg", "redzone; bluezone"
```

See Also

- `cfgClear`
- `cfgCreate`
- `cfgDelete`
- `cfgDisable`
- `cfgEnable`
- `cfgRemove`
- `cfgSave`
- `cfgShow`

cfgClear

Clear all zone configurations.

Syntax `cfgClear`

Availability Admin

Description This command clears all zone information in the transaction buffer. All defined zone objects in the transaction buffer are deleted. If you attempt to commit the empty transaction buffer while a zone configuration is enabled, a warning displays, to first disable the enabled zone configuration or to provide a valid configuration with the same name.

After clearing the transaction buffer using `cfgClear`, if you use `cfgSave` to commit the transaction, then the zone configuration in flash for all the switches will be cleared.

This command requires a Zoning License.

Operands None

Example To clear all zones, and then clear nonvolatile memory:

```
switch:admin> cfgClear
Do you really want to clear all configurations?
(Yes, y, no, n): [no] yes
switch:admin> cfgSave
```

See Also `cfgCreate`
`cfgEnable`
`cfgSave`

cfgCreate

Create a zone configuration.

Syntax `cfgCreate "cfgName", "member; member"`

Availability Admin

Description Use this command to create a new zone configuration.

A zone configuration name must begin with a letter and can be followed by any number of letters, digits, and underscore characters. Names are case-sensitive, for example Cfg_1 and cfg_1 are different zone configurations. Blank spaces are ignored.

The zone configuration member list must have at least one member (empty lists are not allowed).

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

This command requires a Zoning License.

Operands This command has the following operands:

cfgName Specify a name for the zone configuration in quotation marks. This operand is required.

member Specify a member or list of members to be added to zone configuration, in quotation marks, separated by semicolons.

Members can be specified in one or more of the following methods:

- ◆ Zone names
- ◆ QuickLoop name
- ◆ FA (Fabric Asssit) zone names

This operand is required.

Example To create a configuration containing three zones:

```
switch:admin> cfgCreate "Test_cfg", "redzone; bluezone;  
greenzone"
```

See Also

```
cfgAdd  
cfgClear  
cfgDelete  
cfgDisable  
cfgEnable  
cfgRemove  
cfgSave  
cfgShow
```

cfgDelete

Delete a zone configuration.

Syntax `cfgDelete cfgName`

Availability Admin

Description Use this command to delete a zone configuration.

This command changes the defined configuration. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

For the change to be preserved across switch reboots, it must be saved to flash memory using the `cfgSave` command.

This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

This command requires a Zoning License.

Operand This command has the following operand:

cfgName Specify the name of zone configuration to be deleted in quotation marks. This operand is required.

Example **To delete a zone configuration:**

```
switch:admin> cfgDelete "Test_cfg"
```

See Also `cfgAdd`
`cfgClear`
`cfgCreate`
`cfgDisable`
`cfgEnable`
`cfgRemove`
`cfgSave`
`cfgShow`

cfgDisable

Disables an effective zone configuration.

Syntax `cfgDisable`

Availability Admin

Description Use this command to disable the current zone configuration. The fabric returns to nonzoning mode where all devices see each other. It also commits the zone configuration in the transaction buffer to volatile and nonvolatile memory. This command ends the current zoning transaction.

If a transaction is open on a different switch in the fabric when this command is run on this switch, the transaction on the other switch is automatically aborted. A message is displayed on the other switch notifying the transaction abort.

This command requires a Zoning License.

Operands None

Example **To disable the current zone configuration:**

```
switch:admin> cfgDisable
```

See Also `cfgAdd`
`cfgClear`
`cfgCreate`
`cfgDelete`
`cfgEnable`
`cfgRemove`
`cfgSave`
`cfgShow`
`cfgTransAbort`

cfgEnable

Enables a zone configuration.

Syntax	<code>cfgEnable <i>cfgName</i></code>		
Availability	Admin		
Description	<p>This command commits the zone configuration in the transaction buffer to the volatile and nonvolatile memory and enables the specified zone configuration. This command ends the current zoning transaction.</p> <p>The specified zone configuration is built by checking for undefined zone names, zone alias names, or other inconsistencies; by expanding zone aliases, removing duplicate entries, and then installing the effective configuration.</p> <p>If the build fails, the previous state is preserved (zoning remains disabled, or the previous effective configuration remains in effect). If the build succeeds, the new configuration replaces the previous configuration.</p> <p>Execute the <code>cfgShow</code> command for a description of defined and effective configurations.</p> <p>If a transaction is open on a different switch in the fabric when this command is run on this switch, the transaction on the other switch is automatically aborted. A message is displayed on the other switch notifying the transaction abort.</p> <hr/> <p>This command requires a Zoning License.</p>		
Operand	<p>This command has the following operand:</p> <table> <tr> <td><code><i>cfgName</i></code></td> <td>Specify the name of a zone configuration in quotation marks. This operand is required.</td> </tr> </table>	<code><i>cfgName</i></code>	Specify the name of a zone configuration in quotation marks. This operand is required.
<code><i>cfgName</i></code>	Specify the name of a zone configuration in quotation marks. This operand is required.		
Example	<p>To enable zone configuration USA_cfg:</p> <pre>switch:admin> cfgEnable "TEST_cfg" zone config "Test_cfg" is in effect</pre>		
See Also	<p><code>cfgAdd</code> <code>cfgCreate</code> <code>cfgSave</code> <code>cfgShow</code></p>		

cfgRemove

Remove a member from a zone configuration.

Syntax `cfgRemove "cfgName", "member; member"`

Availability Admin

Description Use this command to remove a member from an existing zone configuration.

The member list is located by an exact string match, therefore, it is important to maintain the order when removing multiple members. For example, if a zone configuration contains `cfg2; cfg3; cfg4` then removing `cfg3; cfg4` succeeds, but removing `cfg4; cfg3` fails.

If all members are removed, the zone configuration is deleted.

This command requires a Zoning License.

Operands The following operands are required:

`"cfgName"` Specify a name of a zone configuration, in quotation marks.

`"member"` Specify a member or list of members to be deleted from the zone configuration, in quotation marks, separated by semicolons.

Members can be specified in one or more of the following methods:

- ◆ Zone names
- ◆ QuickLoop names
- ◆ FA (Fabric Assist) zone names

This operand is required.

Example To remove a zone from a configuration:

```
switch:admin> cfgRemove "Test_cfg", "redzone"
```

See Also

```
cfgAdd  
cfgClear  
cfgCreate  
cfgDelete  
cfgDisable  
cfgEnable  
cfgSave  
cfgShow  
cfgTransAbort
```

cfgSave

Save zone configuration to flash memory.

Syntax `cfgSave`

Availability Admin

Description Use this command to save the current zone configuration. The defined configuration and the name of the enabled configuration are written to flash memory in all switches in the fabric.

The saved configuration is automatically reloaded by the switch on power-up and, if a configuration was enabled at the time it was saved, the same configuration is reinstalled with an automatic `cfgEnable` command.

Because the saved configuration is reloaded at power-up, only valid configurations are saved. `cfgSave` verifies that the enabled configuration is valid by performing the same tests as `cfgEnable`. If the tests fail, an error is displayed and the configuration is not saved. Tests may fail if a configuration has been modified since the last `cfgEnable`.

This command ends and commits the current transaction. If a transaction is open on a different switch in the fabric when this command is run, the transaction on the other switch is automatically aborted. A message is displayed on the other switch notifying the transaction abort.

This command requires a Zoning License.

Operands None

Example To enable a zone configuration, then save it:

```
switch:admin> cfgEnable "Test_cfg"  
zone config "Test_cfg" is in effect  
switch:admin> cfgSave  
Updating flash...
```

See Also `cfgClear`
`cfgDisable`
`cfgEnable`
`cfgShow`

cfgShow

Display zone configuration information.

Syntax `cfgShow ["pattern" [, transflag]`

Availability All users

Description Use this command to display zone configuration information.

If no operand is specified, all zone configuration information (both defined and enabled) is displayed.

If an operand is specified, it is used as a pattern to match zone configuration names in the defined configuration; those that match the pattern are displayed.

The defined configuration is the complete set of all zone objects that have been defined in the fabric. There can be multiple zone configurations defined, but only one can be enabled at a time. There may be inconsistencies in the definitions, zones or aliases that are referenced but not defined, or there may be duplicate members.

The enabled configuration is the currently zone configuration enabled. The devices that an initiator sees in the fabric are based on this configuration. The enabled configuration is built when a specified zone configuration is enabled.

This command requires a Zoning License.

Operands This command has the following operands:

- "pattern"* Specify a POSIX-style regular expression enclosed in quotation marks and used to match zone configuration names. Patterns can contain:
- ◆ Question mark (?) that matches any single character.
 - ◆ Asterisk (*) that matches any string of characters.
 - ◆ Ranges that match any character within the range. For example, [0-9] or [a-f].
- This operand is optional.
- transflag* Specify 0 to display the information from the current transaction, or specify 1 to display information from the original buffer. This operand is optional and must be preceded by a pattern. This operand is optional.

Example To show all zone configuration information:

```
switch:admin> cfgShow
Defined configuration:
  cfg:   USA1      Blue_zone
  cfg:   USA_cfg  Red_zone; Blue_zone
  zone:  Blue_zone
        1,1; array1; 1,2; array2
  zone:  Red_zone
        1,0; loop1
  alias: array1  21:00:00:20:37:0c:76:8c; 21:00:00:20:37:0c:71:02
  alias: array2  21:00:00:20:37:0c:76:22; 21:00:00:20:37:0c:76:28
  alias: loop1   21:00:00:20:37:0c:76:85; 21:00:00:20:37:0c:71:df

Effective configuration:
  cfg:   USA_cfg
  zone:  Blue_zone
        1,1
        21:00:00:20:37:0c:76:8c
        21:00:00:20:37:0c:71:02
        1,2
        21:00:00:20:37:0c:76:22
        21:00:00:20:37:0c:76:28
  zone:  Red_zone
        1,0
        21:00:00:20:37:0c:76:85
        21:00:00:20:37:0c:71:df
```

To show only configuration names:

```
switch:admin> cfgShow "*"
  cfg:  Test1bluezone
  cfg:  Test_cfgredzone; blue_zone
```

See Also

- cfgAdd
- cfgClear
- cfgCreate
- cfgDelete
- cfgDisable
- cfgEnable
- cfgRemove
- cfgSave

cfgTransAbort

Abort the current zoning transaction.

Syntax `cfgTransAbort`

Availability Admin

Description Use this command to abort the current zoning transaction without committing it. All changes made since the transaction was started are removed and the zone configuration database restored to the state before the transaction was started.

If a transaction is open on a different switch in the fabric when this command is run, the transaction on the other switch remains open.

Operands None

Example **To abort the current transaction:**

```
switch:admin> cfgTransAbort
```

See Also

- `cfgAdd`
- `cfgClear`
- `cfgCreate`
- `cfgDelete`
- `cfgDisable`
- `cfgEnable`
- `cfgRemove`
- `cfgSave`
- `cfgShow`

cfgTransShow

Print information about the current transaction.

Syntax	cfgTransShow
Availability	Admin
Description	Use this command to show the ID of the current transaction. It will indicate whether or not the transaction is abortable. The transaction is not abortable if it is an internal zoning transaction.
Operands	None
Example	To display information about the current transaction: <pre>switch:admin> cfgTransShow</pre>
See Also	cfgAdd cfgClear cfgCreate cfgDelete cfgDisable cfgEnable cfgRemove cfgSave cfgShow cfgTransAbort

chassisName

Display or set the chassis name for an ED-12000B.

Syntax `chassisName [name]`

Availability Admin (set)
All users (display)

Description Use this command to change the name associated with the chassis ED-12000B. In the ED-12000B, there are two logical switches associated with a single chassis.

Enter this command with no parameter to display the current name.

Enter this command with a name specified to set the chassis name to the new value.

Operands This command has the following operand:

name Specify a new name for the chassis. Chassis names can be up to 16 characters long and must begin with a letter. The name must consist of letters, digits or underscore characters.

Example To changes the chassis's name to "echo":

```
switch:admin> chassisName echo  
Please wait while committing configuration...  
switch:admin>
```

See Also `switchName`

chassisShow

Display all field replaceable units (FRUs).

Syntax `chassisShow`

Availability All users

Description Use this command to inventory and display the field replaceable unit (FRU) header content for each object in the chassis. On some platforms for certain FRU types, a few items may not be available. In these cases the lines will be suppressed. Possibly affected are lines 2, 3, 4, 5, 6, 8, and 10 through 13. In addition, for lines 10 through 13, if there is no data set, these lines will be suppressed.

The header data is formatted into a record consisting of (up to) 13 lines. The lines and their meaning are shown in Table 1-2. (Also see `chassisShow` example.)

Table 1-2 ChassisShow Line Numbers

Line Number	Description	Example
1	Contains object ID.	Object type: CHASSIS, FAN, POWER SUPPLY, SW BLADE (switch) CP BLADE (Control Processor), WWN (World Wide Name), or UNKNOWN; and Object number: Slot <nn> (for blades) Unit <nn> (for everything else)
2	Displays FRU header version number.	Header Version: <x>
3	Displays the value used to calculate the object's power consumption; positive for power supplies; negative for consumers.	Power Consume Factor: <-xxx>
4	Displays ED-12000B part number (up to 14 characters).	ED-12000B Part Num: <xx-yyyyyy-zz>
5	Displays ED-12000B serial number (up to 12 characters).	Ed-12000B Serial Num: <xxxxxxxxxx>

Table 1-2 ChassisShow Line Numbers (*continued*)

6	Displays the date the FRU was manufactured.	Manufacture: Day: <dd> Month: <mm> Year: <yyyy>
7	Displays the date the FRU header was last updated.	Update: Day: <dd> Month: <mm> Year: <yyyy>
8	Displays cumulative time, in days, that the FRU has been powered on.	Time Alive: <dddd> days
9	Displays the current time, in days, since the FRU was last powered on.	Time Awake: <dddd> days
10	Displays the externally supplied ID (up to 10 characters)	ID: <xxxxxxxxxx>
11	Displays the externally supplied part number (up to 20 characters).	Part Num: <xxxxxxxxxxxxxxxxxxxx>
12	Displays the externally supplied serial number (up to 20 characters).	Serial Num: <xxxxxxxxxxxxxxxxxxxx>
13	Displays the externally supplied revision number (up to 4 characters).	Revision Num: <xxxx>

Operands None

Example To display all Field Replaceable Units for a switch:

```
switch12k:admin> chassisShow
SW BLADE Slot: 3
Header Version:          1
Power Consume Factor:    -180
Brocade Part Num:        60-0001532-03
Brocade Serial Num:      1013456800
Manufacture:             Day: 12 Month: 6 Year: 2001
Update:                  Day: 15 Month: 7 Year: 2001
Time Alive:              28 days
Time Awake:              16 days
ID:                      555-374757
Part Num:                234-294-12345
Serial Num:              2734658
Revision Num:            A.00

CP BLADE Slot: 6
Header Version:          1
Power Consume Factor:    -40
Brocade Part Num:        60-0001604-02
Brocade Serial Num:      FP00X600128
Manufacture:             Day: 12 Month: 6 Year: 2001
Update:                  Day: 15 Month: 7 Year: 2001
Time Alive:              61 days
Time Awake:              16 days
ID:                      555-374757
Part Num:                236-296-12350
Serial Num:              2836542
Revision Num:            A.00

<output truncated>
```

See Also slotShow

chippropshow

Display ASIC chip property contents.

Syntax `chippropshow [slot/]chip | [slot] -all`

Availability All users

Description Use this command to display the ASIC chip property contents for the specified chip on the specified blade slot. If the slot operand is not specified, then the slot defined using the `setslot` command is used.

Operands This command has the following operands:

slot Specify the slot number for the blade for which you want to view the chip properties. This operand is optional.

chip Specify the index of the chip within the blade to be displayed. This operand is optional.

-all Specify this operand to display the properties for all minis on the blade. This operand is optional.

Example To view the chip properties on blade 7:

```
switch:admin> chippropshow 7 -all
Looking for chip 0 in path: /proc/fabos/blade/7
slot: 7, minis: 0, chip: 0
[1657/0001,0104,2/8]
slot: 7, minis: 0, chip: 1
[1657/0001,0104,2/8]
slot: 7, minis: 1, chip: 0
[1657/0001,0104,2/8]
slot: 7, minis: 1, chip: 1
[1657/0001,0104,2/8]
slot: 7, minis: 2, chip: 0
[1657/0001,0104,2/8]
slot: 7, minis: 2, chip: 1
[1657/0001,0104,2/8]
slot: 7, minis: 3, chip: 0
[1657/0001,0104,2/8]
slot: 7, minis: 3, chip: 1
[1657/0001,0104,2/8]
san95:admin>
```

See Also `ptpropshow`
`minispropshow`

chipregshow

Display port registers of a given chip number.

Syntax `chipregshow [slot/]chip [filter]`

Availability All users

Description Use this command to display the ASIC register contents for the specified chip on the specified blade slot.

Operands This command has the following operands:

<i>slot</i>	Specify the slot number of the blade that houses the chip you want to test.
<i>chip</i>	Specify the index of the chip within the blade to be displayed.
<i>filter</i>	Specify a filter string.

Example To display the port registers of chip 1 on slot 9:

```
switch:admin> chipregshow 9/1
Looking for port 1 in path: /proc/fabos/blade/9
Found file: /proc/fabos/blade/9/0/1/7/asic1/reg

Port Registers for slot: 9, port: 1

0xcacaa000: chip_id          0104          0xcacaa002: port_config    0a3e
0xcacaa004: did_vc_map      0800          0xcacaa008: int_mask          064f
0xcacaa00a: int_status      1020          0xcacaa00c: err_status          0000
0xcacaa00e: vc_config       00c0          0xcac4a010: buf_error           00000000
0xcacaa014: mem_buflin     00080008     0xcacaa018: mem_ctl             1954
<output truncated>
```

See Also `chippromshow`
`ptregshow`
`minisregshow`

cmemRetentionTest

Run data retention test of the central memory SRAMs.

Syntax	<code>cmemRetentionTest [passCount]</code>
Availability	Admin
Description	Use this command to verify for data retention in the central memory SRAMs in the ASIC. <hr/> This command may not be executed on an enabled switch. You must first disable the switch using the <code>switchDisable</code> command. <hr/>
Operand	This command has the following operand: <i>passCount</i> 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	<code>camTest</code> <code>centralMemoryTest</code> <code>cmiTest</code> <code>crossPortTest</code> <code>portLoopbackTest</code> <code>ramTest</code> <code>spinSilk</code> <code>sramRetentionTest</code>

cmiTest

Test the quad connections between two ASIC connections.

Syntax `cmitest [-passcnt passcnt] [-txport list] [-rxport list] [-skip mask]`

Availability Admin

Description Use this command to verify that the multiplexed four-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.

The Control Message Interface (CMI) is used to send transmission requests or completion messages between the transmitter and receiver.

Use the `setslot` command to define the default slot.

Operands This command has the following operand:

<code>-passcnt passcnt</code>	Specify the number of times to execute this test. The default value is 1. This operand is optional.
<code>-txports list</code>	Specify the port number(s) to transmit data. The default is all ports are set. This operand is optional.
<code>-rxports list</code>	Specify the port number(s) to receive data. The default is all ports are set. This operand is optional.
<code>-skip mask</code>	Specify the particular test by using the following bit weight data: <ul style="list-style-type: none"> • 1 CMI data test(ignore checksum) • 2 CMI checksum test • 3 Enable all tests This operand is optional.

Example To run a CMI test between two ASICs:

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

Errors When it detects failure(s), the subtest may report one or more of the following error messages:

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.

Syntax `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 customization
- ◆ SNMP configuration
- ◆ System name
- ◆ World Wide Name
- ◆ Zoning configuration

Refer to the `Configure` command for more information on default values for configuration parameters.

Do not execute this command on an enabled system; first disable the system 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.

Syntax `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 FTP.

In Fabric OS v3.0, RSHD protocol is also supported. FSHD does not require the *passwd* operand. FTP, however, always requires the *passwd* operand.

In Fabric OS v4.0, no spaces are allowed between operands.

To restore the configuration file from a Windows NT system using FTP, the FTP server may have to be installed from the distribution media and enabled.

This command can be invoked without any operands, and becomes an interactive session where you are prompted for input.

A switch's identity cannot be changed by `configDownload`. These parameters (such as the switch's name and IP address) are ignored.

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 case `cfgClear` must be invoked before `configDownload`.

Operands	This command has the following operands:
<i>host</i>	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.
<i>user</i>	Specify a username in quotation marks; for example, "jdoe". This username is used to gain access to the host. This operand is optional.
<i>file</i>	Specify a file name in quotation marks; for example, "config.txt". Absolute pathnames may be specified using forward slash (/). Relative pathnames 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.
<i>passwd</i>	Specify a password in quotation marks. This operand is optional.

Example To download a backup configuration from a host system:

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

Errors Listed 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.

Syntax	<code>configShow ["filter"]</code>
Availability	All users
Description	Use this command to view system configuration settings set by the <code>configure</code> command.
Operand	This command has the following operand: <i>filter</i> Specify a text string, in quotation marks, that limits the output of the command to only those entries that contain the text string. This operand is optional.
Example	To display system configuration settings:

```
switch:admin> configShow
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.fcpProbeDisable: 0
fabric.ops.mode.isolate: 0
fabric.ops.mode.tachyonCompat: 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:      192.168.65.62
fc4.fcIp.mask:         255.255.255.0
fcAL.fanFrameDisable: 0
fcAL.useAltBBCredit:   0
lcdContrast:          128
licenseKey:           none
rpc.rstatd:           1
rpc.rusersd:           1
```

Configuration parameters vary depending on system model and configuration.

See Also agtcfgShow
configure
diagDisablePost
diagEnablePost
ipAddrShow
licenseShow
syslogdIpShow

configUpload

Create a backup file of switch configuration information on a host workstation.

Syntax `configUpload ["host", "user" ,"file" [,"passwd"]]`

Availability Admin

Description Use this command to upload the switch configuration to a host file. The upload process uses FTP.

If the command is entered without operands, it becomes interactive and prompts the user for input.

The configuration file is written as three sections. The first section contains the switch boot parameters. It has variables such as the switch's name and IP address. This section corresponds to the first few lines of output of the `configShow` command.

The second section contains general switch configuration variables, such as diagnostic settings, fabric configuration settings, and SNMP settings. This section corresponds to the output of the `configShow` command (after the first few lines), although there are more lines uploaded than shown by the command.

The third sections contains the zoning configuration parameters.

Fabric OS v3.0 also supports RSHD protocol for configuration uploads. RSHD does not require the *passwd* operand.

In Fabric OS v4.0 no spaces are allowed between operands.

Operands This command has the following operands:

host Specify a hostname 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 username in quotation marks; for example, jdoe. This username is used to gain access to the host. This operand is optional.

- file* Specify a filename in quotation marks; for example, "config.txt". Absolute pathnames may be specified using forward slash (/). Relative pathnames 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. This operand is optional.

Example To create a backup file of switch configuration information:

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

If you enter the command with no operands, the system prompts you for the appropriate values:

```
swd154:admin> configUpload  
Server Name or IP Address [citadel]: 192.168.15.42  
User Name [none]: user21  
File Name [config.txt]: config-switch.txt  
Password:xxxxxxx  
upload complete  
swd154:admin>
```

Errors Listed below are possible reasons for this upload 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 FTP server is not running on the host.

See Also configDefault
configDownload
configShow
configure

configure

Modify system configuration settings.

Syntax	<code>configure</code>
Availability	Admin
Description	<p>Use this command to change the following system configuration settings:</p> <ul style="list-style-type: none"> ◆ Fabric parameters ◆ Virtual channel settings ◆ Switch Operating Mode ◆ Zoning Operation parameters ◆ RSCN Transmission Mode ◆ NS Pre-zoning Mode ◆ Arbitrated Loop parameters ◆ System services ◆ Portlog events enable

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.

End-of-file (control-D) * When entered at a prompt with no preceding input, terminates the command and saves changes made.

* However, on many computers the settings could be different.

Fabric Parameters

There are a number of settings that 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 shown in Table 1-3:

Table 1-3 Configure Command Fabric Parameters

Field	Default	Range
Domain	1	1 to 239
BB Credit	16	1 to 16
R_A_TOV	10000	4000 to 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. 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.

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-out 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

The 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 that involve ATM gateways that don't support Class F traffic.

SYNC IO mode

When this 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 this mode is set to 1, frame source and destination address utilize an address format compatible with 1000 switches. Set this mode only if the fabric includes this type of switch.

EMC does not support this mode.

Virtual Channel Settings

Core Switch PID Format

This is used to set the 256 port PID format that is used for core switches.

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 this mode 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 100 km 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 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.

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.



CAUTION

Changing the default values can degrade performance. Do not change these settings without fully understanding the effects of the changes.

The Virtual Channel Setting fields as show in Table 1-4:

Table 1-4 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

Switch Operating Mode

The functionality of this parameter is currently not supported.

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.

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.

RSCN Transmission Mode

The RSCN Transmission Mode fields is as follows:

End-device RSCN Transmission Mode

Specify 0 for RSCN with single PID, 1 for RSCN with multiple PIDs, or 2 Fabric RSCN. The default value is 0.

NS Pre-zoning Mode The NS Prezoning Mode field is as follows:

Pre-zoned responses Mode

Specify 0 for Standard Mode, or 1 for Pre-zoning On. The default value is 0.

Arbitrated Loop Settings The Arbitrated Loop Setting fields are shown in Table 1-5:

Table 1-5 Configure Command Arbitrated Loop Settings

Field	Default	Range
Alternate BB Credit?	0	0 or 1
Send FAN frames?	1	0 or 1
Always send RSCN?	0	0 or 1
Enable CLOSE on OPEN received?	0	0 or 1
Do Not Allow AL_PA 0x00?	0	0 or 1
Initialize All Looplets? (v3.0 only)	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, an 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 OPEN if no buffers are available. This is required for TachLite.

Do Not Allow AL_PA 0x00?

This option disallows ALPA values from being 0.

Initialize All Looplets?

When this is set, all looplets including the ones not in the same zone are always re-initialized. This is required for certain RAID subsystems to work properly during failover.

System Services

The System Services fields are shown in Table 1-6:

Table 1-6 Configure Command System Services Parameters

Field	Default	Range
<code>rstatd</code>	Off	On/Off
<code>rusersd</code>	Off	On/Off
<code>rapid</code>	On	On/Off
<code>thad</code>	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 (RPCs). 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 that 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 (RPCs). 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 that 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

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 shown in Table 1-7:

Table 1-7 Configure Command Portlog Events Parameters

Field	(Valid Values) Default Value
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]
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]

Table 1-7 Configure Command Portlog Events Parameters (*continued*)

Field	(Valid Values) Default Value
nbrfsm: neighbor state transition	(on, off): [on]
timer: timer	(on, off): [on]
sn: speed negotiation state	(on, off): [on]
fcin: Fibre Channel input	(on, off): [on]
fcout: Fibre Channel output	(on, off): [on]
read: Fibre Channel read	(on, off): [on]
write: Fibre Channel write	(on, off): [on]
err: Fibre Channel error	(on, off): [on]
frame: Fibre Channel frame payload	(on, off): [on]
nsRemQ: inter-sw NS query	(on, off): [on]
nsRemR: inter-sw NS response	(on, off): [on]
rscn: RSCN	(on, off): [on]
state: Fibre Channel state	(on, off): [on]
xalloc: alloc an exchange	(on, off): [on]
xfree: free an exchange	(on, off): [on]
xerr: exchange error	(on, off): [on]
xstate: exchange state	(on, off): [on]
seq: sequence	(on, off): [on]
seqst: sequence state	(on, off): [on]
iu: iu	(on, off): [on]
payload: frame payload	(on, off): [on]

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]
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]
BB credit: (1..27) [16]

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

crossPortTest

Test the functional operation of the switch.

Syntax `crossPortTest [passCount, loopbackmode, speedmode]`

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 SFP, from the SFP to the fiber cable, from the fiber cable to the SFP, and from the SFP, back to the main board.

References to GBIC in this manual can also be considered references to SFPs.

With the lb_mode operand set to 1 it is also possible to test ports with loopback plugs that connect each port back to itself.

The cables can be connected to any port combination as long as the cables and SFPS connected are of the same technology — a short wavelength SFP port is connected to another short wavelength SFP port using a short wavelength cable, and a long wavelength port is connected to a long wavelength port.

For complete testing, ports connected should be from different ASICs.

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 which ports are connected to each other.
2. Enable ports for cabled loopback mode.
3. Create a frame F of maximum data size (2112 bytes).
4. Transmit frame F via 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 if any of the 8 statistic error counters are non-zero: ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out, BadOrdSet, DiscC3.
7. Check if the transmit, receive or class 3 receiver counters are stuck at some value.
8. Check if the number of frames transmitted is not equal to the number of frames received.
9. Repeat steps 3 through 8 for all ports present until:
 - a. Number of frames requested is reached
 - b. All ports are marked bad

At each pass, the frame is created from a different data type. There are seven data types:

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,	...

If seven passes are requested, the seven different data types are used in the test. If eight passes are requested, the first seven frames are unique data types, and the eighth is the same as the first.

The `crossPortTest` command behaves differently according to the mode activated.

SwitchOnline and SwitchOffline Mode

The `crossPortTest` command can be executed when the switch is enabled or disabled.

In ONLINE mode (where the switch is enabled prior to executing the `crossPortTest` command), only ports that are cable loopbacked to ports in the same switch are tested. Ports connected outside of the switch are ignored.

To run the `crossPortTest` command successfully the test must find at least one port (if `singlePortAlso` loopback mode is active) or two ports (if `singlePortAlso` loopback mode is not active) cable loopbacked to each other. If this criteria is not met, one of the following messages is displayed:

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

```
Need at least two port(s) cross-connected to run this test
```

In OFFLINE mode (when the switch is disabled prior to executing the `crossPortTest` command), all ports are assumed to be cross-port cabled to different 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 SFPs or cables, bad SFPs or cables, or improper connection), the following message is displayed:

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

SFP Mode Use the `setSFPMode` command (`setGBICMode` in v3.0) to activate SFP mode by executing the following command prior to executing `crossPortTest`:

```
sw:admin> setGbicMode 1
```

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

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

```
sw:admin> setSFPMode 0
```

Operands	This command has the following operands:
<code>passCount</code>	Specify the number of times to execute this test. The default value is 1. This operand is optional.
<code>lbmode</code>	Select the loopback point for the test. By default, <code>crossporttest</code> uses cable loopback as described above. However for debug purposes you can select other loopback modes as follows: <ul style="list-style-type: none">◆ 0 Cable Loopback◆ 1 Port Loopback (loopback plugs)◆ 2 External (series) loopback◆ 3 Silkscreen loopback◆ 4 Serial link wrapback◆ 5 Internal (parallel) loopback

sp

Select the speed mode for the test. This parameter is only used for 2 Gb/s capable products where it controls the speed at which each port is operated.

For 1 Gb/s only products it is ignored. The exact operation of modes 3-6 depends upon the loopback mode selected. When speed modes 3-6 are used with cables, they must be connected even to odd or the test will fail.

- ◆ 0 - set all ports' speed for auto-negotiate
- ◆ 1 - set all ports' speed to lock at 1 Gb/s
- ◆ 2 - set all ports' speed to lock at 2 Gb/s

For lbMode = 0,1 the following speed modes are available to test the speed negotiation:

- ◆ 3 - set all even ports' speed for auto-negotiate, set all odd ports' speed for 1 Gb/s.
- ◆ 4 - set all even ports' speed for auto-negotiate, set all odd ports' speed for 2 Gb/s.
- ◆ 5 - set all odd ports' speed for auto-negotiate, set all even ports' speed for 1 Gb/s.
- ◆ 6 - set all odd ports' speed for auto-negotiate, set all even ports' speed for 2 Gb/s.

For lbMode = 2,3 the following speed modes are available to test FIFO underrun:

- ◆ 3,5 - set all even ports' speed for 2 Gb/s, set all odd ports' speed for 1 Gb/s.
- ◆ 4,6 - set all even ports' speed for 1 Gb/s, set all odd ports' speed for 2 Gb/s.

<code>-gbic_mode mode</code>	The <code>gbic_mode</code> parameter may be used to override the global GBIC mode described above for the duration of this test. Specify 1 enable <code>gbic_mode</code> , and the testing is limited to user ports with GBICs or SFPs installed.
<code>-no_restore nr_mode</code>	The <code>nr_mode</code> parameter may be set in order to force the test to skip part of the post-test cleanup normally performed. This may be helpful during debug. This parameter should normally be left at the default value of 0.
<code>-ports list</code>	A list of user ports to test. By default all of the user ports in the current switch will be tested. This option may be used to restrict testing to the specified ports.

Example To execute a functional test of all the ports on a switch 100 times:

```
switch:admin> crossporttest  
Running Cross Port Test .... passed.
```

Diagnostics Below are possible error messages if failures are detected:

```
0x20 ERR_STAT_ENCIN  
0x21 ERR_STAT_CRC  
0x22 ERR_STAT_TRUNC  
0x23 ERR_STAT_2LONG  
0x24 ERR_STAT_BADEOF  
0x25 ERR_STAT_ENCOUT  
0x26 ERR_STAT_BADOS  
0x27 ERR_STAT_C3DISC  
0x28 ERR_STAT  
0x29 XMIT  
0x2a PORT_M2M  
0x2b PORT_ABSENT  
0x2c PORT_DIED  
0x2d PORT_ENABLE  
0x2e PORT_STOPPED
```

```
0x2f PORT_WRONG
0x30 ERR_STATS_ENCIN
0x31 ERR_STATS_CRC
0x32 ERR_STATS_TRUNC
0x33 ERR_STATS_2LONG
0x34 ERR_STATS_BADEOF
0x35 ERR_STATS_ENCOUT
0x36 ERR_STATS_BADOS
0x37 ERR_STATS_C3DISC
0x38 ERR_STATS
0x3a INIT
0x3b DATA
0x3c NO_SEGMENT
0x39 TIMEOUT
0x3d STATS_FTX
0x3e STATS_FRX
0x3f STATS_C3FRX
0x40 STATS
0x41 MBUF_STATE_ERR
0x42 FINISH_MSG_ERR
0x43 RXQ_RAM_PERR
0x44 RXQ_FRAME_ERR
0x45 FDET_PERR
0x46 MBUF_STATUS_ERR
0x47 EPI1_STATUS_ERR
0x48 LESSN_STATUS_ERR
0x49 FTPRT_STATUS_ERR
```

See Also

```
camTest
portLoopbackTest
portRegTest
ramTest
spinSilk
sramRetentionTest
```


dataTypeShow

Display sample data stream types used in some diagnostic commands.

Syntax 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 **To 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 7e
CHALF_SQ	14	4a 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 78
RDRAM_PAT	16	ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00
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 7e
jCSPAT	19	7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f

```
switch:admin>
```

See Also centralMemoryTest

date

Display or set system date and time.

Syntax	<code>date ["newdate"]</code>										
Availability	All users (display) Admin (set)										
Description	<p>Use this command with no operands to display date and time. Use the <i>newdate</i> operand to set the date and time. Date and time are specified as a quoted string in the format:</p> <pre>"mmdhhmmyy"</pre> <p>where:</p> <table> <tr> <td><i>mm</i> is the month</td> <td>01-12</td> </tr> <tr> <td><i>dd</i> is the day</td> <td>01-31</td> </tr> <tr> <td><i>hh</i> is the hour</td> <td>00-23</td> </tr> <tr> <td><i>mm</i> is minutes</td> <td>00-59</td> </tr> <tr> <td><i>yy</i> is the year</td> <td>00-99</td> </tr> </table> <p>Year values greater than 69 are interpreted as 1970-1999. Year values less than 70 are interpreted as 2000-2069.</p> <p>The date function does not support daylight saving time or time zones.</p> <p>All switches maintain current date and time in nonvolatile 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.</p>	<i>mm</i> is the month	01-12	<i>dd</i> is the day	01-31	<i>hh</i> is the hour	00-23	<i>mm</i> is minutes	00-59	<i>yy</i> is the year	00-99
<i>mm</i> is the month	01-12										
<i>dd</i> is the day	01-31										
<i>hh</i> is the hour	00-23										
<i>mm</i> is minutes	00-59										
<i>yy</i> is the year	00-99										
Operand	<p>This command has the following operand:</p> <table> <tr> <td><i>newdate</i></td> <td>Specify the new date and time in quotation marks. This operand is optional.</td> </tr> </table>	<i>newdate</i>	Specify the new date and time in quotation marks. This operand is optional.								
<i>newdate</i>	Specify the new date and time in quotation marks. This operand is optional.										
Example	<p>To display the current date and time, then change it to February 27 12:30:00 2001:</p> <pre>switch:admin> date Fri Jan 29 17:01:48 1999 switch:admin> date "0227153101" Thu Feb 27 15:31:00 2001</pre>										

See Also `errLogShow`
 `portLogShow`
 `uptime`

diagClearError

Clear the diag software flag to allow for retest.

Syntax `diagclearerror [[-slot] slot][-switch switch] | -all`

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 will skip 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, the following message is for a diagnostic error cleared from port 3:

```
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 operands:

<code>slot</code>	Specify the port where you want to clear diagnostic error messages. This operand is for v3.0 only. This operand is optional.
<code>-slot slot</code>	Specify the slot to clear the diagnostic failure status. This operand is for v4.0 only. This operand is optional.
<code>-switch switch</code>	Specify the logical switch number to operate on. If omitted, then all blades will be cleared. This operand is for v4.0 only. This operand is optional.
<code>-all</code>	If specified, all blades will be cleared. This operand is for v4.0 only.

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

```
switch:admin> > diagclearerror 1
0x1lbc (fabos): Switch: 0, Error DIAG-CLEARERR, 3,
Pt5 S11 Ch0 Qd1 Diagnostics Error Cleared
Err# 0120041 0105
```

See Also `diagShow`

diagCommandShow

Display a list of diagnostic commands.

Syntax diagCommandShow

Availability Admin

Description Use this command to display a list of diagnostic commands for v4.0.

Operands None

Example **To display a list of v4.0 diagnostic commands:**

```
switch:admin> diagcommandshow
diagCommandShow - Display diagnostics command parameter and error info.
```

To show the parameters for a diagnostic test enter:

```
diagCommandShow -name <test_name>
```

LIST OF DIAGNOSTIC COMMANDS WITH DESCRIPTION:

diagmodeshow	Display diagnostic burnin controls
statsclear	Clear statistics counters
diagclearerror	Clear diagnostics errors
diagshow	Display diagnostics status of ports
diagcommandshow	Display diagnostics help info
diaghelp	Display diagnostics help info
diagstatus	Display info about running diagnostics
diagoktorun	Check to see if it is ok to run diagnostics
datatypeshow	Display available data patterns
portregtest	Port register diagnostic
mulregdump	Dump the contents of the general purpose registers
ramdump	Dump the contents of specified RAM register or all
sramretentiontest	SRAM Data Retention diagnostic
spinsilk	Cross-connected line-speed exerciser
minicycle	Cross-connected line-speed exerciser
spinjitter	line-speed jitter measurement
crossporttest	Cross-connected port diagnostic
loopporttest	L-port diagnostic
portloopbacktest	Port internal loopback diagnostic
txdpath	Miniswitch TX data path diagnostic
spinfab	circulates frames between live switches
backport	backplane routing and VC allocation test
centralmemorytest	Central memory diagnostic
cmemretentiontest	Central Mem Data Retention diagnostic
cmitest	CMI bus connection diagnostic
camtest	Quickloop CAM diagnostic

turboramtest	Turbo speed asic SRAM diagnostic
statstest	Statistics counter diagnostic
portledtest	User Ports LED exerciser
filtertest	Frame filter diagnostic
backplanetest	Backplane connection diagnostic
switch:admin>	

diagDisablePost

Disable POST execution at reboot.

Syntax `diagDisablePost`

Availability Admin

Description Use this command to disable power nn 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
```

Operands None

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

```
switch:admin> diagDisablePost
Config update Succeeded
Post disable is now 1 (Disabled).
```

See Also `diagHelp`
`diagEnablePOST`

diagEnablePost

Enable POST execution at next reboot.

Syntax `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.

Operands None

Example To enable the POST during future power ups:

```
switch:admin> diagEnablePost  
Config update Succeeded  
Post disable is now 0 (Enabled).
```

See Also `diagHelp`
`diagDisablePost`

diagesdports

Set ESD skip ports list.

Syntax `diagesdports [list | -show]`

Availability Admin

Description Use this command to set the ESD IDLE PORTS list. The list is saved in nonvolatile memory and stays in that mode until the next execution of `diagesdports`.

The ESD IDLE ports are used by several of the functional test methods to disable testing on the specified list of ports when ESD mode is enabled (see `setesdmode`). The exact type of port list and the exact use of this list are determined by each test method.

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

Operands This command has the following operands:

<code>list</code>	Specify a valid port list. This must be a list of ports separated with commas (for example, 2, 3, 4, 5, 6), or a range of ports indicated with a hyphen character (for example, 2-6). This operand is optional.
<code>-show</code>	Specify this operand to display ESD idle ports list. This operand is optional.

Example To add ports 1 through 3 to the ESD Idle port list:

```
switch:admin> diagesdports 1-3
ESD Idle Port list is now 1-3.
Config update Succeeded
switch:admin> diagesdports -show
ESD Idle Port list is 1-3.
```

See Also `diaghelp`

diagfaillimit

Set diagnostics fail limit.

Syntax `diagfaillimit [limit | -show]`

Availability Admin

Description Use this command to set the diagnostics fail limit to a specified value. The fail limit is saved in nonvolatile memory and stays set until the next execution of `diagfaillimit`.

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

The fail limit is used to control the number of failures before certain diagnostics test methods will abort. The normal setting is 1 so that the tests will abort on the first failure. The exact use of this configuration setting depends on the test method.

Operands This command has the following operands:

limit Specify the number of failures before diagnostics test methods abort. The limit value must be greater than 1. This operand is optional.

-show Specify this operand to display the current fail limit setting. This operand is optional.

If no operand is specified the current value is displayed.

Example **To change the fail limit from 1 to 5:**

```
switch:admin> diagfaillimit
  Fail Limit is 1.
  switch:admin> diagfaillimit 5
  Fail Limit is now 5.
  Config update Succeeded
  switch:admin>
```

See Also `diaghelp`

diagHelp

Display diagnostic commands information.

Syntax 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 information about diagnostic commands:**

```
switch:admin> diagHelp
diagCommandShow - Display diagnostics command parameter and error
info.
To show the parameters for a diagnostic test enter:
```

```
diagCommandShow -name <test_name>
```

LIST OF DIAGNOSTIC COMMANDS WITH DESCRIPTION:

diagmodeshow	Display diagnostic burnin controls
statsclear	Clear statistics counters
diagclearerror	Clear diagnostics errors
diagshow	Display diagnostics status of ports
diagcommandshow	Display diagnostics help info
diaghelp	Display diagnostics help info
diagstatus	Display info about running diagnostics
diagoktorun	Check to see if it is ok to run diagnostics
datatypeshow	Display available data patterns
portregtest	Port register diagnostic
mulregdump	Dump contents of the general purpose registers
ramdump	Dump contents of specified RAM register or all
sramretentiontest	SRAM Data Retention diagnostic
spinsilk	Cross-connected line-speed exerciser
minicycle	Cross-connected line-speed exerciser
spinjitter	line-speed jitter measurement
crossporttest	Cross-connected port diagnostic
loopporttest	L-port diagnostic
portloopbacktest	Port internal loopback diagnostic
txdpath	Miniswitch TX data path diagnostic
spinfab	circulates frames between live switches
backport	backplane routing and VC allocation test
centralmemorytest	Central memory diagnostic
cmemretentiontest	Central Mem Data Retention diagnostic
cmittest	CMI bus connection diagnostic
camtest	Quickloop CAM diagnostic

turboramtest	Turbo speed asic SRAM diagnostic
statstest	Statistics counter diagnostic
portledtest	User Ports LED exerciser
filtertest	Frame filter diagnostic
backplanetest	Backplane connection diagnostic

See Also diagcommandshow

diagloopid

Set the diagnostics loop ID.

Syntax `diagloopid [id | -show]`

Availability Admin

Description Use this command to select the loop ID to be used by FL mode diagnostics. The value entered will be converted from a loop ID to the corresponding ALPA and used as the port address for any diagnostics that operate in FL port mode.

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

Operands This command has the following operands:

<i>id</i>	Specify the loop ID for FL mode diagnostics. This operand is optional.
<code>-show</code>	Specify this operand to display the current loop ID. This operand is optional.

If no operand is specified the current value is displayed.

Example To change the loop ID from 125 to 120:

```
switch:admin> diagloopid
FL mode Loop ID is 125.
switch:admin> diagloopid 120
FL mode Loop ID is now 120.
Config update Succeeded
switch:admin>
```

See Also `diaghelp`

diagmodepr

Enable or disable mode messages.

Syntax `diagmodepr [mode | -show]`

Availability Admin

Description Use this command to enable print mode. The mode is saved in nonvolatile memory and stays in that mode until the next execution of `diagmodepr`.

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

Print mode when enabled will cause extra messages to be displayed in the burn-in and post scripts. The exact behavior varies depending on the script being run.

Operands This command has the following operands:

<code>mode</code>	Specify 1 to enable print mode; specify 0 to disable print mode. This operand is optional
<code>-show</code>	Specify this operand to display the current mode. This operand is optional.

If no operand is specified the current value is displayed.

Example **To enable print mode messages:**

```
switch:admin> diagmodepr 1
Mode print disable is now 0 (Enabled).
Config update Succeeded
switch:admin> diagmodepr 0
Mode print disable is now 1 (Disabled).
Config update Succeeded
switch:admin>
```

See Also `diagHelp`

diagpost

Enable or disable POST testing.

Syntax `diagpost [mode | -show]`

Availability Admin

Description Use this command to enable or disable POST testing. The mode is saved in non-volatile memory and stays in that mode until the next execution of `diagpost`.

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

POST mode modifies the behavior of the diagnostics daemon program to inhibit testing of switch blades when the system is first powered on or a new blade is added.

Operands This command has the following operands:

<code>mode</code>	Specify 1 to enable POST test; specify 0 to disable POST test. This operand is optional
<code>-show</code>	Specify this operand to display the current mode. This operand is optional.

If no operand is specified the current value is displayed.

Example **To enable and then disable the POST:**

```
switch:admin> diagpost 1
  Config update Succeeded
  Post disable is now 0 (Enabled).
san95:admin> diagpost 0
  Config update Succeeded
  Post disable is now 1 (Disabled).
```

See Also `diagDisablePost`
`diagEnablePost`

diagretry

Enable or disable retry mode.

Syntax `diagretry [mode | -show]`

Availability Admin

Description Use this command to enable or disable retry mode. The mode is saved in nonvolatile memory and stays in that mode until the next execution of `diagretry`.

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

When enabled, retry mode modifies the behavior of the diagnostic test methods, POST, and burn-in scripts. The exact behavior depends on the tests and scripts that are run, but the most common result is that `spinsilk` tests are skipped when retry mode is enabled.

Operands This command has the following operands:

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

`-show` Specify this operand to display the current mode. This operand is optional.

If no operand is specified, the current value is displayed.

Example **To view the current retry mode value:**

```
switch:admin> diagretry
  Retry disable mode is 0 (Enabled).
```

See Also `diagHelp`

diagsetburnin

Initializes the blade for a burn-in run.

Syntax `diagsetburnin [-slot slot] scriptname`

Availability Admin

Description Use this command to set up the blade burn-in parameters for the registered burn-in script. Once this is known, then the blade parameters are initialized.

The errors and activity logs are stored in nonvolatile memory. The errors produced are available from `burninerrshow` command on a per blade basis. When power cycles occur, the burn-in activity is restarted at the test that was interrupted at the time of the power cycle.

This command does not require a reboot to take effect.

Operands This command has the following operands:

<code>-slot <i>slot</i></code>	Specify the slot number to initialize. If this option is not specified, then all slots on the switch are setup for burn-in. This operand is optional.
<code><i>scriptname</i></code>	Specify the name of the burn-in script to run. The default is <code>switchburnin.sh</code> . This operand is optional.

Example **To view the current burn-in settings for a switch:**

```
switch:admin> diagsetburnin -current
existing script is: switchburnin.sh
Enabling burnin on switch: 1, slots: 7 9
Burnin level is now 1.
Burnin mode is Enabled.
Removing all log files in /var/log for slot 7
Slot 7 burnin name is now switchburnin.sh
Removing all log files in /var/log for slot 9
Slot 9 burnin name is now switchburnin.sh
Config update Succeeded
switch:admin>
```

See Also `diagHelp`

diagsetcycle

Set diagnostic script parameters.

Syntax `diagSetCycle <script_name> [-show|-default|<-keyword value>..]`

Availability Admin

Description Use this command to update diagnostic command parameters. With only the script operand specified, this command displays all configuration variables used by the specified script. Each variable can be modified. For each variable, the current value, default value, and description of purpose of the variable are displayed. If no new value is specified, then the current value is left unchanged. If a new value is entered, then it is validated, and stored in the configuration database for that blade type.

The changes implemented by this command are saved to nonvolatile memory and do not require a reboot to take effect.

Operands This command has the following operands:

<i>script_name</i>	Specify the script where you want to modify the parameters. If no filename is specified, then this command lists all scripts containing the keyword DIAGSETCYCLE_CAPABLE. This operand is optional.
-show	Specify this operand to display the parameters for a selected script file. This operand is optional.
-default	Specify this operand to set the values to the default.
-keyword value	Specify this option to set the value of a specific keyword (for example, -number_of_runs 3). This operand is optional.

Example To view the parameters for a script:

```
switch:admin> diagsetcycle -show
```

```
Syntax: diagSetCycle <script_name> [ -show | -default | <-keyword value>.. ]  
-show           Outputs the values of the variables (No editing)  
-default        Sets the values to the default value  
-keyword value  Sets the value of a specific keyword (-number_of_runs 3)
```

Please specify what diag cycles to set.

Choices are:

- 0) EXIT
- 1) switchburnin.sh

Make selection (0-1)

1

script selection: switchburnin.sh

```
CURRENT - KEYWORD      : DEFAULT  
1       - number_of_runs : 1  
2       - vib           : 2  
10      - thermal       : 10  
BURNIN - label : BURNIN  
1       - tbr_passes    : 1  
1       - prt_on        : 1  
1       - cntmem_on     : 1  
1       - cmi_on        : 1  
1       - retention_on  : 1  
1       - cam_on        : 1  
50      - flt_passes    : 50  
25      - sta_passes    : 25  
100     - plb_nframes   : 100  
50      - txd_nframes   : 50  
200     - xpt_nframes   : 200  
20      - bpt_nframes   : 20  
50      - slk_nmegs     : 50  
30      - bpt_all_nframes : 30  
50      - slk_all_nmegs  : 50
```

```
switch:admin>
```

See Also diagHelp

diagShow

Print diagnostic results since the last boot.

Syntax `diagshow [-slot slot] [-uports itemlist] [-bports itemlist] [-use_bports value]`

Availability All users

Description Use this command to display the diagnostics status for the specified list of blade or user ports.

Operands This command has the following operands:

<i>nSeconds</i>	Specify the repeat interval (in seconds) between executions of <code>diagShow</code> . The default value if no operand is specified or operand value is 0 is to print the information once only. This operand is optional.
<code>-slot slot</code>	Specify the slot to display. If no slot is specified this command executes on all slots in the logical switch. This operand is optional.
<code>-uports itemlist</code>	Specify a list of user ports to display. This operand is optional.
<code>-bports itemlis</code>	Specify a list of blade ports to display. This operand is optional.
<code>-use_bports value</code>	If value is set to none zero, then the diagnostics status for the blade ports specified in <code>-bports</code> will be displayed, otherwise the UI ports specified in <code>-uports</code> is displayed. The default value is 0. This operand is optional.

Example To display diagnostic status on switch blade 7:

```
switch:admin> diagshow -slot 7
```

```
Diagnostics Status: Wed Feb 13 16:12:27 2002
```

```
Slot: 7 UPORTS
```

Port	BPort	Diag	Active	Speed	FrTX	FrRX	LLI	Errs	loopback
0	15	OK	DN	2G Auto	--	--		--	
1	14	OK	DN	2G Auto	--	--		--	
2	13	OK	DN	2G Auto	--	--		--	
3	12	OK	UP	2G Auto	39	40		2944	
4	31	OK	UP	2G Auto	2175	2180		15	
5	30	OK	UP	2G Auto	2169	2168		15	
6	29	OK	UP	2G Auto	2193	2188		19	
7	28	OK	UP	2G Auto	2168	2156		33	
8	47	OK	DN	2G Auto	--	--		--	
10	45	OK	DN	2G Auto	--	--		--	
11	44	OK	DN	2G Auto	--	--		--	
12	63	OK	DN	2G Auto	--	--		--	
13	62	OK	DN	2G Auto	--	--		--	
14	61	OK	DN	2G Auto	--	--		--	
15	60	OK	DN	2G Auto	--	--		--	

```
Central Memory: OK
```

```
Total Diag Frames Tx: 0
```

```
Total Diag Frames Rx: 0
```

See Also `diagHelp`

diagshowtime

Enable or disable elapsed time messages.

Syntax `diagshowtime [mode | -show]`

Availability Admin

Description Use this command to enable or disable show time mode. The mode is saved in nonvolatile memory and stays in that mode until the next execution of `diagshowtime`.

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

Show time mode when enabled causes each test to display elapsed time messages. It is normally used during burn-in and for test method debug.

Operands This command has the following operands:

mode Specify 1 to enable show time mode, specify 0 to disable show time mode. This operand is optional.

`-show` Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example **To enable show time mode:**

```
switch:admin> diagshowtime
  Show Time mode is 0 (Disabled).
switch:admin> diagshowtime 1
  Config update Succeeded
  Show Time mode is now 1 (Enabled).
switch:admin>
```

See Also `diagHelp`

diagsilkworm

Enable or disable silkworm mode.

Syntax `diagsilkworm [mode | -show]`

Availability Admin

Description Use this command to enable or disable silkworm mode. The mode is saved in nonvolatile memory and stays in that mode until the next execution of `diagsilkworm`.

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

When enabled, silkworm mode notifies the diagnostics environment and test methods that the tests are running in silkworm mode. For proper operation, FCSW mode must also be disabled.



WARNING

This mode may not be used by burn-in or POST scripts for multi-bladed products because it is a switch wide configuration.

Operands This command has the following operands:

`mode` Specify 1 to enable silkworm mode, specify 0 to disable silkworm mode. This operand is optional.

`show` Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example **To enable silkworm mode:**

```
switch:admin> diagsilkworm
Silkworm mode is 0 (Disabled).
switch:admin> diagsilkworm 1
Config update Succeeded
Silkworm mode is now 1 (Enabled).
san95:admin>
```

See Also `diagHelp`

diagskiptests

Enable or disable diagnostics skip test flags.

Syntax `diagskiptests [limit | -show]`

Availability Admin

Description Use this command to enable or disable the diagnostics skip test flags. The skip test flags are saved in nonvolatile memory and stay set until the next execution of `diagskiptests`.

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

The skip test flags are used to skip the execution of certain POST tests that may prove hazardous to normal switch operation. The exact use of this flag is determined by the POST scripts and the specific test methods that are used.

Operands This command has the following operands:

<i>limit</i>	Specify 1 to enable skip tests mode; specify 0 to disable print mode. This operand is optional.
-show	Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example **To enable or disable the diagnostics skip test flags:**

```
switch:admin> diagskiptests
Skip tests is 0.
switch:admin> diagskiptests 1
Config update Succeeded
Skip tests is now 1.
switch:admin>
```

See Also `diagHelp`

diagstopburnin

Terminate a blade burn-in run.

Syntax `diagstopburnin [-slot slot]`

Availability Admin

Description This determines which PID is running burn-in on a blade and terminates that activity. It is expected that the burn-in script handles the logging cleanup.

This command does not require a reboot to take effect.

Operand This command has the following operand:

`-slot slot` Specify the slot to stop burn-in. If no slot is specified this command executes on all slots in the logical switch. This operand is optional.

Example **To stop burn-in mode on a switch:**

```
switch:admin> diagstopburnin
fabric: Domain 6
Stopping burnin on switch: 1, slots: 7 9
No burnin script active on slot 7
No burnin script active on slot 9
switch:admin>
```

See Also `diagHelp`

dlsReset

Turn off dynamic load sharing option.

Syntax `dlsReset`

Availability Admin

Description Use this command to turn off DLS when a fabric change occurs.

Routing is generally based on the incoming port and the destination domain. 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 routing, when there are multiple equivalent paths to a remote switch, traffic is shared among all the paths. Load sharing is recomputed when a switch is booted up or 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 Fx_Port going up or down.

If DLS is turned off (using `dlsReset`), load sharing is performed only at boot time or when an Fx_Port comes up. Optimal load sharing is rarely achieved with DLS disabled.

If DLS is turned on (using `dlsSet`), 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 further affect the performance of the fabric if the in-order delivery (IOD) option is on. With the IOD option (refer to the `iodSet` command), routes are not available for a few seconds after a fabric change. The time needed to reset the fabric routing varies based on the size of the fabric. Some frame loss may occur because as the fabric is recalculating routes, frames are dropped to avoid being delivered out of order. No frame loss occurs if IOD 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 IOD is on, and is usually less than 1 second.

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.

Syntax	<code>dlsSet</code>
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 DLS is turned off (using `dlsReset`), load sharing is performed only at boot time or when an Fx_Port comes up. Optimal load sharing is rarely achieved with DLS disabled.

If DLS is turned on (using `dlsSet`), 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 further affect the performance of the fabric if the in-order delivery (IOD) option is on. With the IOD option (refer to the `iodSet` command), routes are not available for a few seconds after a fabric change. The time needed to reset the fabric routing varies based on the size of the fabric. Some frame loss may occur because as the fabric is recalculating routes, frames are dropped to avoid being delivered out of order. No frame loss occurs if IOD 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 IOD is on, and is usually less than 1 second.

Operands	None
-----------------	------

Example 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 (DLS) option.

Syntax `dlsShow`

Availability All users

Description Use this command to display whether DLS is on or off. There can be two messages displayed:

`DLS is set`

The DLS option is turned on. Load sharing is reconfigured with every change in the fabric.

`DLS is not set`

The DLS option is turned off. Load sharing is only reconfigured when the switch is rebooted or an Fx_Port comes up.

Operands None

Example **To display the current DLS option setting:**

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

See Also `dlsSet`
`dlsReset`

errDump

Display the error log without page breaks.

Syntax `errDump [-s swinst] [-p] [-a]`

Availability Admin

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 `ENTER`.

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

The output of the `errdump` command includes the display of errors/events history recorded in the persistent error log and error/events logged in the current run time cycle. This command also provides options to display **ONLY** those error/event messages that are saved in the persistent error log, or **ONLY** those messages generated during the current run time cycle.

All important error log messages, regardless of their message severity level, are stored in a persistent storage as they are logged. Both the persistent error log and the run time log are limited in space and managed as circular buffers. When either log overflows, old entries are replaced by new entries.

The persistent error log is saved across system reboots and power cycles and can be resized at run time.

When this command is executed from the Standby CP of an ED-12000B, the switch instance number operand is required. The switch instance number is supplied by specifying the `-s swinst` operand. This operand is not required when logged into the Active CP.

Operands This command has the following operand:

- s `swinst` Specify a non-zero value to display the saved error log from the previous switch system reboot. This operand is optional. This operand is only available in v4.0.
- p This is an optional parameter to specify a switch instance number in an ED-12000B switch. This parameter is required on the Standby CP. This parameter should not be used on the Active CP. You must follow -s with the switch instance number where the command is to be executed. Valid values for switch instance are 0 (for the switch instance associated with slots 1 through 4) or 1 (for the switch instance associated with slots 7 through 10).
- a Display messages from the active error log. This displays error log messages logged during the current run time cycle that are present in the volatile memory (RAM).

Example To display the error log without page breaks:

```
switch: switch:admin> errDump
```

```
Error 03
```

```
-----
```

```
0x2a5 (fabos): Jun 14 12:03:51
```

```
Switch: 0, Debug HAMKERNEL-IP_UP, 5, (session=3) Heartbeat up from  
Standby CP
```

```
Error 02
```

```
-----
```

```
0x2a5 (fabos): Jun 14 12:03:50
```

```
Switch: 0, Info HAM-REDUNDANT_INFO, 4,  
(Heartbeat Up) System in REDUNDANT state
```

```
Error 01
```

```
-----
```

```
0x28b (fabos): Jun 14 12:01:27
```

```
Switch: 0, Error EM-CP_ERR, 2, CP in slot 5 set to faulty because of  
CP ERROR
```

```
switch:switch:admin>
```

See Also `errShow`
`uptime`

errShow

Scroll through the error log.

Syntax `errShow [-s swinst] [-p] [-a]`

Availability Admin

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.

The output of `errshow` command includes the display of errors/events recorded in the persistent error log during previous run time cycles and the display of error/event messages logged in the current run time cycle.

This command also provides options to display ONLY those error log messages that are saved in the persistent log and to display ONLY those messages that are logged during the current run time cycle.

All important error log messages, regardless of their message severity level, are stored in a persistent storage as they are logged. Both the persistent error log and the run time log are limited in space and managed as circular buffers. When either log overflows, old entries are replaced by new entries.

The persistent error log is saved across system reboots and power cycles and can be resized at run time.

When this command is executed from the Standby CP of an ED-12000B, the switch instance operand is required. The switch instance number is supplied by specifying the `-s swinst` operand. This operand is not required when logged into the Active CP

Each entry in the log follows the format below:

```
Error Number
-----

taskId (taskName): Time Stamp (count)

Error Type, Error Level, Error Message

Diag Err#
```

Table 1-8 lists the `errShow` entries:

Table 1-8 `errShow` Entries

Entry	Description
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 uppercase 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.

Table 1-9 lists the error code numbers for v4.0, the POST test that generates this number, and the type of error.

Table 1-9 Error Codes for v4.0

Entry	Description
Diag Err#	A hexadecimal four-digit code representing error type generated by diagnostic only as follows:
	Err#
	0001
	0002
	0003
	0004

Table 1-9 Error Codes for v4.0 (*continued*)

Entry	Description
	0110
	0111
	0112
	040F
	0415
	0416
	Err#
	0B0F
	0B15
	0B16
	1020
	1021
	1025
	1026
	1027
	1028
	1029
	102A
	102B
	102C
	1030
	106F
	1F25
	1F26
	1F27

Table 1-9 Error Codes for v4.0 (*continued*)

Entry	Description
	2030
	2031
	2032
	2033
	2034
	2035
	2036
	223B
	223C
	2271
	2640
	2641
	2642
	2643
	2644
	Err#
	2645
	2646
	2647
	264F
	265F
	2660
	2661
	2662
	266E

Table 1-9 Error Codes for v4.0 (*continued*)

Entry	Description
	266F
	2670
	2671
	3040
	3041
	3042
	3043
	3044
	3045
	3046
	3047
	304F
	305F
	3060
	3061
	3062
	306E
	306F
	3070
	3071
	3078
	3840
	3841
	3842
	3843

Table 1-9 Error Codes for v4.0 (*continued*)

Entry	Description
	3844
	3845
	3846
	3847
	384F
	385F
	3870
	3871
	3874

Operands This command has the following operands:

- s *swinst* This is an optional parameter to specify a switch instance number in a Silkworm 12000 switch. This parameter is required on the Standby CP. This parameter should not be used on the Active CP. You must follow -s with the switch instance number where the command is to be executed. Valid values for switch instance are 0 (for the switch instance associated with slots 1 through 4) or 1 (for the switch instance associated with slots 7 through 10).
- p Display messages from the persistent error log.
- a Display messages from the active error log. This displays the error log messages generated during the current run time cycle.

Example The following illustrates entries in the error log:

```
switch:admin> errShow
Error 14
-----
0x304 (fabos): Jun 14 11:57:52
Switch: 0, Warning FW-STATUS_SWITCH, 3,
Switch status changed from HEALTHY/OK to
Marginal/Warning
```

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

See Also

errDump
firmwareDownload
reboot
uptime

fabricShow

Displays fabric membership information.

Syntax 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:

Switch ID	The switch Domain_ID and embedded port D_ID.
World Wide Name	The switch WWN.
Enet IP Addr	The switch Ethernet IP address.
FC IP Addr	The switch FC IP address.
Name	The switch symbolic name. An arrow (>) indicates the principal switch.

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

Group ID	The alias group number and D_ID
TokenT	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
-----
3: fffc43 10:00:00:60:69:10:60:1f 192.168.64.187  0.0.0.0         "sw187"
2: fffc42 10:00:00:60:69:00:05:91 192.168.64.60   192.168.65.60   "sw60"
1: fffc41 10:00:00:60:69:00:02:0b 192.168.64.180  192.168.65.180 >"sw180"
0: fffc40 10:00:00:60:69:00:06:56 192.168.64.59   192.168.65.59   "sw5"
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

fabStatsShow

Display the fabric statistics information.

Syntax	fabStatsShow
Availability	All users
Description	<p>Use this command to display the statistics information of fabric. The following information is displayed:</p> <ul style="list-style-type: none"> ◆ Number of times a switch domain ID has been forcibly changed ◆ Number of E_Port offline transitions ◆ Number of fabric reconfigurations ◆ Number of fabric segmentations due to: <ul style="list-style-type: none"> • Loopback • Incompatibility • Overlap • Zoning • Routing • Licensing • Disabling E_Port
Operand	None
Example	<p>To display the fabric statistics information:</p> <pre>switch:admin> fabstatsshow Description Count ----- Domain ID forcibly changed: 0 E_Port offline transitions: 0 Reconfigurations: 1 Segmentations due to: Loopback: 6 < Incompatibility: 0 Overlap: 0 Zoning: 0 Routing: 0 Licensing: 0 Disabling E_Port: 0 switch:admin></pre>
See Also	psShow tempShow

fanDisable

Disable a fan unit.

Syntax `fanDisable unit`

Availability Admin

Description Use this command to disable a nonfaulty fan unit by setting the RPM speed to 0.

Operand This command has the following operand:

unit Specify the fan's unit number. View the fan unit numbers using the `fanShow` command. This operand is required.

Example **To disable a fan unit:**

```
switch:admin> fanDisable 1
```

```
Fan unit 1 has been disabled
```

```
switch:admin> fanshow
```

```
Fan #1 is OK, speed is 0 RPM
```

```
Fan #2 is OK, speed is 2537 RPM
```

```
Fan #3 is OK, speed is 2463 RPM
```

```
switch:admin>
```

See Also `fanShow`
`fanEnable`

fanEnable

Enable a fan unit.

Syntax `fanEnable unit`

Availability Admin

Description Use this command to set the fan unit back to the default RPM speed only if the fan unit has been previously disabled using the `fanDisable` command.

Operand This command has the following operand:

unit Specify the fan's unit number. View the fan unit numbers using the `fanShow` command. This operand is required.

Example **To enable a fan that has been disabled:**

```
switch:admin> fanenable 1

Fan unit 1 has been enabled
switch:admin> fanshow

Fan #1 is OK, speed is 2237 RPM
Fan #2 is OK, speed is 2537 RPM
Fan #3 is OK, speed is 2463 RPM
```

See Also `fanShow`
`fanDisable`

fanShow

Display fan status.

Syntax fanShow

Availability All users

Description Use this command to display the current status of the switch fans. The format of the display varies according to the number of fans installed. 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.
unknown	Unknown fan unit installed.
faulty	Fan has exceeded hardware tolerance.

The output from this command varies depending on switch type and number of fans present.

Operand None

Example To display the status and RPMs for the fans:

```
switch:admin> fanShow
Fan 1 is OK, speed is 2721 RPM
Fan 2 is OK, speed is 2721 RPM
Fan 3 is OK, speed is 2657 RPM
```

See Also fanDisable
fanEnable
psShow
tempShow
chassisshow

fastboot

Reboot the switch, bypassing POST.

Syntax `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-up 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`.

Because `fastboot` reboots the CP a WARNING message and a confirmation is displayed. The command only takes place if the user responds positively.

For the ED-12000B, the `fastboot` command will reboot both logical switches and both CPs.

Operands None

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

```
switch:admin>fastboot
```

```
Warning: This command is being run on a control processor (CP)
based system and will cause the active CP to reboot. This will
cause disruption to devices attached to both switch 0 and switch 1.
To just reboot a logical switch on this system, use command
switchreboot(1M) on the logical switch you intend to reboot.
```

```
Are you sure you want to reboot the active CP [y/n]?y
```

See Also `diagDisablePost`
 `diagEnablePost`
 `reboot`

fazoneAdd

Add a member to a Fabric Assist zone.

EMC does not support this command.

Syntax `fazoneAdd "fazoneName" , "member; member"`

Availability Admin

Description Use this command to add one or more members to an existing Fabric Assist zone.

This command does not change the defined configuration (which you can view using the `cfgShow` command) until the `cfgSave` command is issued. For the change to become effective, an appropriate Fabric Assist zone configuration must be enabled using the `cfgEnable` command. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the `cfgSave` command.

Operands This command has the following operands:

<i>fazoneName</i>	Specify the name for the Fabric Assist zone in quotation marks. This operand is required.
<i>member</i>	Specify a list of Fabric Assist zone members. The list must be enclosed in quotation marks, and each member must be separated by a semicolon. A member can be specified by one or more of the following methods: <ul style="list-style-type: none">◆ Enter a fabric domain and area number pair. View the area numbers for ports using the <code>switchShow</code> command.◆ WWNs.◆ Fabric Assist zone alias names.◆ Exactly one Fabric Assist host member. This operand is required.

Example To add aliases for some disk arrays to “Blue_fazone”:

```
switch:admin> fazoneAdd “Blue_fazone”, “array3; array4; array5”
```

To add a Fabric Assist host member to “Blue_fazone”:

```
switch:admin> fazoneAdd “Blue_fazone”, “H{5,6}”
```

See Also

- fazoneCreate
- fazoneDelete
- fazoneRemove
- fazoneShow

fazoneCreate

Create a Fabric Assist zone.

EMC does not support this command.

Syntax `fazoneCreate "fazoneName", "member; member"`

Availability Admin

Description Use this command to create a new Fabric Assist zone. You must specify a name and member list for a Fabric Assist zone. The FA zone name must be unique from any previously used Fabric Assist zone object. The member list must be enclosed in quotation marks and each member must be separated by a semicolon.

A Fabric Assist zone name is a C language-style name. It must begin with a letter and be followed by any number of letters, digits, and underscore characters. Names are case-sensitive, for example "Zone_1" and "fazone_1" are different Fabric Assist zones. White space is ignored.

The Fabric Assist zone member list must have at least one member. Empty lists are not allowed.

When a Fabric Assist zone member is specified by physical fabric port number, then any and all devices connected to that port are in the Fabric Assist zone. If this port is an arbitrated loop, then all devices on the loop are in the Fabric Assist zone.

WWNs are specified as eight hex numbers separated by colons, for example "10:00:00:60:69:00:00:8a". Zoning has no knowledge of the fields within a WWN; the eight bytes are simply compared with the node and port names presented by a device in a login frame (FLOGI or PLOGI).

When a Fabric Assist zone member is specified by node name, then all ports on that device are in the Fabric Assist zone. When a Fabric Assist zone member is specified by port name, only that single device port is in the Fabric Assist zone. Zone alias names have the same format as Fabric Assist zone names and are created with the `aliCreate` command. The alias must resolve to a list of one or more physical fabric port numbers, WWNs, or a Fabric Assist host.

A Fabric Assist host member is defined by wrapping the physical fabric port or a physical device (a WWN) between “H{” and “}”. For example, “H{5,6}” or “H{10:00:00:60:69:00:00:8a}” is a Fabric Assist host. The type of Fabric Assist zone members used to define a Fabric Assist zone may be mixed and matched. For example, a Fabric Assist zone defined with the following members: “2,12; 2,14; 10:00:00:60:69:00:00:8a” would contain devices connected to switch 2, ports 12 and 14, and the device with a WWN of “10:00:00:60:69:00:00:8a” (either node name or port name - whichever port in the fabric it is connected to).

This command does not change the defined configuration (which you can view using the `cfgShow` command) until the `cfgSave` command is issued. For the change to become effective, an appropriate Fabric Assist zone configuration must be enabled using the `cfgEnable` command. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the `cfgSave` command.

Operands

The following operands are required:

fazoneName

Specify the name for the Fabric Assist zone. The name must be enclosed in quotation marks. This operand is required.

member

Specify a member or list of members to add to a Fabric Assist zone. The list must be enclosed in quotation marks, and each member must be separated by a semicolon. A member can be specified by one or more of the following methods:

- ◆ Enter a fabric domain and area number pair. View the area numbers for ports using the `switchShow` command.
- ◆ WWNs.
- ◆ Fabric Assist zone alias names.
- ◆ Exactly one Fabric Assist host member. This operand is required.

Example To create three Fabric Assist zones using a mixture of port numbers and Fabric Assist zone aliases:

```
switch:admin> fazoneCreate "fazone1", "H{1,0}; loop1"
```

```
switch:admin> fazoneCreate "fazone2", "H{1,1}; array1; 1,2; array2"
```

```
switch:admin> fazoneCreate "fazone3", "1,0; loop1; H{1,2}; array2"
```

See Also

- fazoneAdd
- fazoneDelete
- fazoneRemove
- fazoneShow

fazoneDelete

Delete a Fabric Assist mode zone.

EMC does not support this command.

Syntax `fazoneDelete "fazoneName"`

Availability Admin

Description Use this command to delete an existing Fabric Assist mode zone on a fabric.

This command does not change the defined configuration (which you can view using the `cfgShow` command) until the `cfgSave` command is issued. For the change to become effective, an appropriate Fabric Assist zone configuration must be enabled using the `cfgEnable` command. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the `cfgSave` command.

Operand The following operand is required:

fazoneName Specify the name of the zone to be deleted, in quotation marks.

Example To delete a Fabric Assist zone:

```
switch:admin> fazoneDelete "Blue_fazone"
```

See Also `fazoneCreate`
`faShow`
`faStatsShow`

fazoneRemove

Remove members from a Fabric Assist mode zone.

EMC does not support this command.

Syntax `fazoneRemove "fazoneName", "member; member"`

Availability Admin

Description Use this command to remove one or more members from an existing Fabric Assist zone.

Each deleted member must be found by an exact string match. Order is important when removing multiple members of a Fabric Assist zone. For example, if a Fabric Assist zone contains "array2; array3; array4" then removing "array4; array3" fails, but removing "array3; array4" succeeds. If issuing this command results in all members being removed, the Fabric Assist zone is deleted.

This command does not change the defined configuration (which you can view using the `cfgShow` command) until the `cfgSave` command is issued. For the change to become effective, an appropriate Fabric Assist zone configuration must be enabled using the `cfgEnable` command. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the `cfgSave` command.

Operands The following operands are required:

fazoneName Specify a name for the Fabric Assist zone in quotation marks. This operand is required.

member Specify a member or list of members to remove from a Fabric Assist zone. The list must be enclosed in quotation marks, and each member must be separated by a semicolon. A member can be specified by one or more of the following methods:

- ◆ Enter a fabric domain and area number pair. View the area numbers for ports using the `switchShow` command.
- ◆ WWNs.
- ◆ Fabric Assist zone alias names.
- ◆ Exactly one Fabric Assist host member.

This operand is required.

Example To remove “array2” from “Blue_fazone”:

```
switch:admin> fazoneRemove “Blue_fazone”, “array2”
```

See Also `fazoneAdd`
`fazoneCreate`
`fazoneDelete`
`fazoneShow`

fazoneShow

Display fazone information.

EMC does not support this command.

Syntax `fazoneShow ["pattern" [, transflag]]`

Availability All users

Description Use this command to display fazone information. Specifying this command with no parameters or with the second parameter set to zero displays all fazone configuration information for both defined and effective configurations. Defined configuration information is shown from the transaction buffer. Refer to the `cfgShow` command for a description of this display.

The pattern operand must be in quotation marks for v3.0. Quotation marks are not required for v4.0.

If a parameter is specified, it is used as a pattern to match fazone names, and those that match in the defined configuration are displayed.

Operands This command has the following operands:

<i>pattern</i>	Specify a value to search for the name of an fazone. This can be any POSIX style expression. This operand must be in quotation marks in v3.0. Patterns can contain: <ul style="list-style-type: none">◆ Question mark "?" that matches any single character.◆ Asterisk "*" that matches any string of characters.◆ Ranges that match any character within the range. For example, [0-9] or [a-f].
----------------	---

This operand is optional.

transflag

Specify 0 to display the information from the current transaction, or specify 1 to display information from the original buffer. This operand must be preceded by a pattern.

Example To display all fazones beginning with the letters A through C:

```
switch:admin> fazoneShow "[A-C] *"
      fazone: Blue_fazone
      1,1; array1; 1,2; array2
```

See Also

fazoneAdd
fazoneCreate
fazoneDelete
fazoneRemove

filterTest

Run frame filter test for 3000 ASICs.

Syntax `filterTest [-passcnt passcnt] [-txports list] [-scamoff offset] [-dcamoff offset] [-fdefoff offset]`

Availability Admin

Description Use this command to verify that the 3000 ASIC frame-level filtering logic includes every type of filter actions:

- ◆ FLTACT_LIST_A — action to handle the subgroup A based filtering
- ◆ FLTACT_LIST_B — action to handle the subgroup B based filtering
- ◆ FLTACT_FROZEN — action to handle the frame frozen process
- ◆ FLTACT_DISCARD — action to discard frame
- ◆ FLTACT_FORWARD — action to forward frame

This command can be run on every port, and send the frame in internal loop back mode. The filter test requires two different ports in the same quadrant because the filter logic sits in a transmitter port and cannot work if the frame is sent directory from the embedded port.

In this test, the filter definition covers the different filtering conditions shown in Table 1-10:

Table 1-10 Filtering Conditions

Number	Filter Definition
0	unconditional match
1	unconditional match
2	unconditional match
3	unconditional match
4	unconditional match
5	SCAM no match and ALPA match
6	SCAM&DCAM match and ALPA match

Table 1-10 Filtering Conditions (*continued*)

Number	Filter Definition
7	Zone A match and ALPA match
8	Zone B match and ALPA match
9	Zone A&B match and ALPA match
10	Zone AIB match and ALPA match
11	Zone AIB match and ALPA match

Operands

This command has the following operands:

-passcnt passcnt	Specify the number of times to execute this test. The default value is 1. This operand is optional.
-txports list	Specify the user port number(s) to perform this test. All user ports are set in default.
-scamoff offset	Specify the program location to write SCAM test data in SCAM memory. The default value is 0. The maximum offset number is set if the specified number is larger than limit.
-dcamoff offset	Specify the program location to write DCAM test data in DCAM memory. The default value is 0. The maximum offset number is set if the specified number is larger than limit.
-fdefoff offset	Specify the program location to write filter test definition data in filter definition memory. The default value is 0. The maximum offset number is set if the specified number is larger than limit.

Diagnostics

When it detects failure(s), the subtest may report one or more of the following error messages:

DIAG-FLTINIT
 DIAG-FLTXMIT
 DIAG-FLTRCV
 DIAG-ACTTEST
 DIAG-NUMTEST

Example To run the `filterTest`:

```
switch:admin> filterTest  
Running Filter Test ..... passed.
```

See Also

```
ramTest  
portRegTest  
cmiTest  
centralMemoryTest  
sramRetentionTest  
turboRamTest  
camTest  
statsTest  
portLoopbackTest  
spinSilk
```

firmwareCommit

Commit switch firmware update.

Syntax `firmwareCommit`

Availability Admin

Description Use this command to propagate an updated firmware image in the primary partition to the secondary partition in an individual CP blade.

For the ED-12000B, each CP has two partitions. The `firmwareDownload` command will always load the image into the secondary partition of a CP and then will swap the secondary to be the new primary. After the system successfully boots from this partition, a user should run `firmwarecommit` to replicate the downloaded image in the primary partition to the secondary partition.

The `firmwareDownload` command intentionally does *not* write both partitions to avoid having both corrupted during one firmware download. The `firmwareDownload` command loads firmware only into the primary partition. This protects the secondary partition so that in case of corruption the CP can be successfully booted up from the secondary partition, if the attempt to do so from the primary fails.

The functionality of this command is to propagate an updated firmware image in the primary partition to the secondary partition.

Operands None

Example **To commit a firmware file:**

```
switch12k:admin> firmwarecommit
Doing firmwarecommit now.
Please wait ...
.....
.....
.....
.....
.....
Replicating kernel image.
.....
FirmwareCommit completes successfully.
switch12k:admin>
```

See Also `firmwareDownload`

firmwareDownload

Download a switch firmware file from a host.

Syntax `firmwareDownload [[-sbni] host,user,pfile [, passwd]]`

Availability Admin

Description Use this command to download switch firmware from a remote host or from a local directory to the switch's non-volatile storage area.

Fabric OS v4.x supports only FTP protocol for firmware downloads.

Both the DS-32B2 and each CP of the ED-12000B have a primary and secondary partition. The `firmwaredownload` command by default updates both partitions at once.

If you select to disable the auto-commit option when running `firmwaredownload`, then, after the CP is rebooted, you must execute either:

- ◆ The `firmwarecommit` command to copy the primary partition (with new firmware) to the secondary, and commit the new firmware to both partitions of the CP, or
- ◆ The `firmwarerestore` command to restore the secondary partition (with the old firmware) to the primary, and back out of the new firmware download.

The v4.0 firmware is in the form of RPM packages with names defined in `pfile`. The package list file (that is, `release.plist` file) is a binary file which contains specific firmware information such as the release version, time stamp, and platform code, and the names of packages to be downloaded.

When the Fabric OS zip or tar.gz file is uncompressed it creates a directory named for the release version of the firmware. When executing a `firmwaredownload` specify the path to this directory and the filename `release.plist`. For example, `/v4.0.0c/release.plist`.

This command supports both non-interactive and interactive modes. If no operands are specified, or if there is any syntax error in the operands, the command will go into the interactive mode and prompt you for input. In the interactive mode, all of the optional operands are presented to the user.

Operands

This command has the following operands:

- s Specify this option to enable Single CP Mode. This option is available in v4.0 only. In the ED-12000B, by default, `firmwareDownload` will upgrade both CPs. This mode enables the users to upgrade a single CP in the switch. In the DS-32B2, this mode has no effect.
- b Specify this operand to activate auto-reboot mode. This operand is only available in v4.0. After downloading firmware the system must be rebooted. If this operand is not specified, the user must issue the `reboot` command manually in order to activate the downloaded image. If Auto-reboot mode is enabled, the switch reboots automatically after the `firmwareDownload` command has been run.
- n Specify this operand to de-activate auto-commit mode. This operand is only available in v4.0. By default, after running this command and after `reboot`, the switch will perform a `firmwareCommit` command automatically. When this mode is disabled, the user needs to issue the `firmwareCommit` command manually to replicate the downloaded image from the primary partition to the secondary partition of a CP.
- i Specify this operand to enable Incremental Install Mode. By default, `firmwareDownload` will do a full install of the whole firmware regardless of what the original firmware version was on the system. In Incremental Install Upgrade Mode the names of packages in `pfile` are compared to what already installed on the switch and only the packages which are different from those already stored or not on the switch yet are installed.
- 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. If this operand is not used, the `pfile` is considered to be accessible through a local directory. This operand is required.

user	Specify a user name in quotation marks; for example, "jdoe". This user name is used to gain access to the host computer or directory where the firmware package resides. This operand is required.
file	Specify a path and file name in quotation marks; for example, "/pub/dist/v2.6.0". Absolute pathnames may be specified using forward slash (/). Relative pathnames 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 required. This operand is specific to v3.0.
pfile	Specify a fully qualified path and file name; for example, "/pub/dist/system.plist". 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 required. This operand is specific to v4.0.
passwd	Specify a password. The passwd is only required for FTP firmware downloads. This operand is required, but may be NULL.

If no operand is specified, the operation becomes interactive and you are prompted for input.

Example To download a firmware file:

```
switch:admin> firmwaredownload
Server Name or IP Address: 192.168.166.30
User Name: johndoe
File Name: /v4.0.2/release.plist
Password: xxxxxx
Full Install (Otherwise upgrade only) [Y]:
Do Auto-Commit after Reboot [Y]:
Reboot system after download [N]: y
Start to install packages.....
dir #####
terminfo #####
<output truncated>
glibc #####
sin #####
Write kernel image into flash.
file verification SUCCEEDED
Firmwaredownload completes successfully.
switch:admin>
```

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 file does not exist on the host.
- ◆ The file is not a switch firmware file.
- ◆ The file is corrupted.
- ◆ The RSHD (v3.0) or FTP (v3.0 and v4.0) server is not running on the host.

See Also

reboot
version

firmwareRestore

Restore old active firmware image from the secondary partition.

Syntax `firmwareRestore`

Availability Admin

Description Use this command to restore the old active firmware image. This is only possible if the last `firmwareDownload` was not committed.

After a `firmwareDownload` and a `reboot`, the downloaded firmware will become active. If you then do not want to commit the firmware, and instead want to restore the old firmware, run `firmwareRestore`. After running `firmwareRestore`, you can run `firmwareDownload` again.

This command will reboot the system and make the old firmware active. After reboot, both active and backup images should be restored to the old firmware.

This command will only take action if the system is booted after a `firmwareDownload`. Otherwise, it will return with an error code.

Operands None

Example **To restore old active firmware image:**

```
switch:admin> firmwarerestore
Restore Kernel Image...
.....
switch:admin>
```

See Also `firmwareDownload`
`firmwareCommit`

fspfShow

Display FSPF protocol information.

Syntax `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`.

Table 1-11 shows the fields displayed:

Table 1-11 fspfShow Fields

Field	Description
<code>version</code>	Version of FSPF protocol.
<code>domainID</code>	Domain number of local switch.
<code>switchOnline</code>	State of the local switch. v4.0 only.
<code>domainConfirmed</code>	Domain of the local switch is currently confirmed.v4.0 only.
<code>isl_ports</code>	Bit map of all E_Ports.
<code>trunk_ports</code>	Bit map of all the trunk ports. v4.0 only.
<code>f_ports</code>	Bit map of all the Fx_Ports. v4.0 only.
<code>seg_ports</code>	Bit map of all the segmented ports. v4.0 only.
<code>active_ports</code>	Bit map of all the ONLINE ports. v4.0 only.
<code>minLSArrival</code>	FSPF constant.
<code>minLSInterval</code>	FSPF constant.
<code>LSoriginCount</code>	Internal variable.
<code>startTime</code>	Start time of <code>tFspf</code> task (milliseconds from boot).
<code>fspfQ</code>	FSPF input message queue.
<code>fabP</code>	Pointer to fabric data structure.

Table 1-11 fspfShow Fields

Field	Description
agingTID	Ager timer ID.
agingTo	Ager time out value, in milliseconds.
lsrDlyTID	Link State Record delay timer ID.
lsrDelayTo	Link State Record delay time out value, in milliseconds.

Operands None

Examples To display FSPF protocol information:

```
switch:admin> fspfshow

version          = 2
domainID         = 1
switchOnline     = TRUE
domainValid      = TRUE
domainConfirmed  = TRUE
isl_ports[0]     = 0x00000000
isl_ports[1]     = 0x74000000
trunk_ports[0]   = 0x00000000
trunk_ports[1]   = 0x00000000
f_ports[0]       = 0x00000000
f_ports[1]       = 0x00000000
seg_ports[0]     = 0x00000000
seg_ports[1]     = 0x00000000
active_ports[0]  = 0x00000000
active_ports[1]  = 0x76000000
minLSArrival     = 3
minLSInterval    = 5
LSoriginCount    = 3
startTime        = 50222
fspfQ            = 0x1003e640
fabP             = 0x1003e630
agingTID         = 0x1004ca28
agingTo          = 10000
lsrDlyTID        = 0x100507a8
lsrDelayTo       = 5000
lsrDelayCount    = 1
ddb_sem          = 0x1003e6e8
fabP:
event_sch        = 0x0
lsrRefreshCnt    = 0
```

See Also

bcastShow
mcastShow
topologyShow
uRouteShow

fwAlarmsFilterSet

Show which alarms are enabled for Fabric Watch.

Syntax `fwAlarmsFilterSet [mode]`

Availability Admin

Description Use this command to configure alarm filtering. By turning off the alarms, all nonenvironment class alarms are suppressed. By turning on the alarms, all class alarms are generated.

This command requires a Fabric Watch License.

Operand The following operand is optional:

mode Specify 1 to enable the alarms, 0 to disable the alarms. If no operand is specified, the default value is 0 (alarms are deactivated). This operand is optional.

Example To enable Fabric Watch alarms:

```
switch:admin> fwAlarmsFilterSet
FW: Alarms are disabled
switch:admin> fwAlarmsFilterSet 1
FW: Alarms are enabled
```

See Also `fwAlarmsFilterShow`

fwAlarmsFilterShow

Show alarm filtering for Fabric Watch.

Syntax `fwAlarmsFilterShow`

Availability All users

Description Use this command to show alarm filtering status for Fabric Watch.

This command requires a Fabric Watch license.

Operands None

Example To display the status of alarm filtering in Fabric Watch:

```
sw:admin> fwAlarmsFilterShow
FW: Alarms are enabled
```

```
sw:admin> fwAlarmsFilterShow
FW: Alarms are disabled
```

See Also `fwAlarmsFilterSet`

fwClassInit

Initialize all classes under Fabric Watch.

Syntax `fwClassInit`

Availability Admin

Description Use this command to initialize all classes under Fabric Watch.

This command requires a Fabric Watch license.

Operands None

Example **To initialize all classes under Fabric Watch:**

```
switch:admin> fwClassInit
fwClassInit: Fabric Watch is updating...
fwClassInit: Fabric Watch has been updated
```

See Also `fwConfigReload`
`fwConfigure`
`fwShow`

fwConfigReload

Reload the Fabric Watch configuration.

Syntax fwConfigReload

Availability Admin

Description Use this command to initialize reload the Fabric Watch configuration. This command should only be used after downloading a new Fabric Watch configuration file from a host.

This command requires a Fabric Watch license.

Operands None

Example To reload the saved Fabric Watch configuration:

```
switch:admin> fwConfigReload
fwConfigReload: Fabric Watch configuration reloaded.
```

See Also configDownload
configUpload
fwClassInit
fwConfigure
fwShow

fwConfigure

Display and modify the Fabric Watch configuration and status.

Syntax `fwConfigure`

Availability Admin

Description Use this command to display and modify threshold information for the Fabric Watch configuration. Switch elements monitored by Fabric Watch are divided into classes, which are further divided into areas. In addition, each area can include multiple thresholds.

This command requires a Fabric Watch license.

The Fabric Watch classes and areas are provided in Table 1-12 :

Table 1-12 Fabric Watch Classes and Areas

Class	Area
Environmental class	Temperature Fan Power supply
SFP class	Temperature Received power Transmitted power Current
Port class	Link failure count Loss of synchronization count Loss of signal count Primitive sequence protocol error Invalid transmission word Invalid CRC count Receive performance Transmit performance State changes

Table 1-12 Fabric Watch Classes and Areas (continued)

Class	Area
Fabric class	Loss of E_Port Fabric reconfigure Segmentation changes Domain ID changes Zoning changes Fabric to QuickLoop changes. v3.0 only. Fabric logins SFP state change
E_Port class	Link failure count Loss of synchronization count Loss of signal count Primitive sequence protocol error Invalid transmission word Invalid CRC count Receive performance Transmit performance State changes
F/FL_Port (optical) class	Link failure count Loss of synchronization count Loss of signal count Primitive sequence protocol error Invalid transmission word Invalid CRC count Receive performance Transmit performance State changes
F/FL_Port (copper) class (This class is available in v3.0 only.)	Link failure count Loss of synchronization count Loss of signal count Primitive sequence protocol error Invalid transmission word Invalid CRC count Receive performance Transmit performance State changes

Table 1-12 Fabric Watch Classes and Areas (*continued*)

Class	Area
Fabric class	Loss of E_Port Fabric reconfigure Segmentation changes Domain ID changes Zoning changes Fabric to QuickLoop changes. v3.0 only. Fabric logins SFP state change
E_Port class	Link failure count Loss of synchronization count Loss of signal count Primitive sequence protocol error Invalid transmission word Invalid CRC count Receive performance Transmit performance State changes
F/FL_Port (optical) class	Link failure count Loss of synchronization count Loss of signal count Primitive sequence protocol error Invalid transmission word Invalid CRC count Receive performance Transmit performance State changes
F/FL_Port (copper) class (This class is available in v3.0 only.)	Link failure count Loss of synchronization count Loss of signal count Primitive sequence protocol error Invalid transmission word Invalid CRC count Receive performance Transmit performance State changes

Table 1-12 Fabric Watch Classes and Areas (continued)

Class	Area
Alpa Performance Monitor class (This class is available in v4.0 only.)	Invalid CRCS
EE Performance Monitor class (This class is available in v4.0 only.)	Invalid CRCS RXPerformance TXPerformance
Filter Performance Monitor class (This class is available in v4.0 only.)	Customer Define

Operands None

Example To reload the saved Fabric Watch configuration:

```
switch:admin> fwConfigure
 1 : Environment class
 2 : SFP class
 3 : Port class
 4 : Fabric class
 5 : E-Port class
 6 : F/FL Port (Optical) class
 7 : Alpa Performance Monitor class
 8 : EE Performance Monitor class
 9 : Filter Performance Monitor class
10: Quit
```

```
Select a class => : (1..10) [10] 1
```

```
1 : Temperature
2 : Fan
3 : Power Supply
4 : return to previous page
```

```
Select an area => : (1..4) [4] 1
```

Index	ThresholdName	Status	CurVal	LastEvent	LasteventTime	LastVal	LastState
1	envTemp001	enabled	25 C				
	inBetween		30 C	Thu Aug 1 10:49:44 2002			Normal
2	envTemp002	enabled	25 C				

```
      inBetween      Thu Aug  1 10:49:44 2002      30 C      Normal
3     envTemp003      enabled      42 C
      inBetween      Thu Aug  1 10:49:44 2002      47 C      Normal
5     envTemp005      enabled      38 C
      inBetween      Thu Aug  1 10:49:44 2002      43 C      Normal
```

```
1 : refresh
2 : disable a threshold
3 : enable a threshold
4 : advanced configuration
5 : return to previous page
Select choice => : (1..5) [5]
```

See Also fwClassInit
 fwConfigReload
 fwShow

fwFruCfg

Display or modify FRU state alert configuration.

Syntax fwFruCfg

Availability Admin

Description Use this command to configure FRU states and actions. Based on these configuration settings, Fabric Watch generates action when the FRU state changes. To configure email alerts, use fwMailCfg.

This command requires a Fabric Watch license.

Operands None

Example To change FRU state alert configuration:

```
switch:admin> fwFruCfg
```

```
 1 : Slot
 2 : Power Supply
 3 : Fan
 4 : WWN
 5 : Configure All
 6 : Quit
```

```
Select an item => : (1..6) [6] 1
```

Id	Label	Status	State	Alarm Action	Freq	TimeBase
1	Slot #1	enable	48	17	5	Minute
2	Slot #2	enable	8	16	1	Minute
3	Slot #3	enable	16	16	1	Minute
4	Slot #4	enable	48	17	5	Minute

```
1 : change fru alarm state      5 : change fru status
2 : change fru alarm level     6 : apply fru configuration
3 : change alarm frequency     7 : cancel fru configuration changes
4 : change fru timebase       8 : return to previous page
```

```
Select Id => : (1..8) [8] 1
```

```
Enter Slot Number : (1..4) [4] 1
```

```
Absent-1, Inserted-2, Ready-4
```

```
Up-8, On-16, Off-32, Faulty-64
```

```
Enter fru alarm state => : (1..127) [48] 32
```

Id	Label	Status	State	Action	Freq	TimeBase
=====						

1	Slot #1	enable	32	17	5	Minute
2	Slot #2	enable	8	16	1	Minute
3	Slot #3	enable	16	16	1	Minute
4	Slot #4	enable	48	17	5	Minute

1	: change fru alarm state	5	: change fru status
2	: change fru alarm level	6	: apply fru configuration
3	: change alarm frequency	7	: cancel fru configuration changes
4	: change fru timebase	8	: return to previous page

See Also fwMailCfg
 fwConfigure

fwHelp

Display Fabric Watch command information.

Syntax fwHelp

Availability All users

Description Use this command to display commands used to configure Fabric Watch.

Operands None

Example To display a summary of Fabric Watch Telnet commands:

```
switch:admin> fwHelp

fwAlarmsFilterSet      Configure alarms filtering for Fabric Watch
fwAlarmsFilterShow    Show alarms filtering for Fabric Watch
fwClassInit           Initialize all Fabric Watch classes
fwConfigure           Configure Fabric Watch
fwConfigReload        Reload Fabric Watch configuration
fwSetToCustom         Set boundary & alarm level to custom
fwSetToDefault        Set boundary & alarm level to default
fwShow               Show thresholds monitored by Fabric Watch
fwMailCfg            Configure Fabric Watch Email Alert
fwFruCfg             Configure FRU state and notification
switchStatusPolicyShow Show switch status policy parameters
switchStatusPolicySet Set switch status policy parameters
switchStatusShow     Show overall switch status
tempShow             Show switch temp readings
sensorShow           Show sensor readings

switch:admin>
```

The previous example includes commands that are only available in v4.0.

See Also diagHelp

fwMailCfg

Configure email alerts in Fabric Watch.

Syntax fwMailCfg

Availability Admin

Description Use this command to configure email alerts in Fabric Watch.

This command requires a Fabric Watch License.

When this command is executed, a menu of configuration tasks is displayed. Select the configuration task by entering a value 1 through 6:

```
1 : Show Mail Configuration Information
2 : Disable Email Alert
3 : Enable Email Alert
4 : Send Test Mail
5 : Set Recipient Mail Address for Email Alert
6 : Set Domain Name and Name Server
7 : Show Domain Namd and Name Server
8 : quit
Select an item => : (1..8) [8]
```

These are the classes that you can set email alerts for:

```
0 : Environment class
1 : SFP class
2 : Port class
3 : Fabric class
4 : E-Port class
5 : F/FL Port (Optical) class
6 : Alpha Performance Monitor class
7 : End-to-End Performance Monitor class
8 : Filter Performance Monitor class
9 : FRU class
10 : Quit
```

When configuring an email alert for a specific class, you must specify the following information:

<i>Mail Server</i>	Specify the IP address of the mail server.
<i>Domain Name</i>	Specify the domain name of the mail server. For example, <code>emc.com</code> .
<i>Mail Recipients</i>	Specify the name of the users who will be notified. The format should be <code>user@domain.com</code> . For example, <code>johndoe@emc.com</code> .

You must choose option 3 to enable email alert. Email alert is not activated automatically after an mail address is configured.

If the switch is rebooted using `switchboot`, `reboot`, or `fastboot`, the email alert is set to disabled and must be reenabled again.

Operands None

Example To configure an email address recipient in Fabric Watch:

```
switch:admin> fwMailCfg
1 : Show Mail Configuration Information
2 : Disable Email Alert
3 : Enable Email Alert
4 : Send Test Mail
5 : Set Recipient Mail Address for Email Alert
6 : Set Domain Name and Name Server
7 : Show Domain Name and Name Server
8 : quit
Select an item => : (1..8) [8] 5
Mail Config Menu
-----
0 : Environment class
1 : SFP class
2 : Port class
3 : Fabric class
4 : E-Port class
5 : F/FL Port (Optical) class
6 : Alpa Performance Monitor class
7 : End-to-End Performance Monitor class
8 : Filter Performance Monitor class
9 : FRU class
10 : Quit
Select an item => : (0..10) [10] 0
Mail To: [NONE] jdoe@emc.com
Email Alert configuration Succeeded!
1 : Show Mail Configuration Information
2 : Disable EmailAlert
3 : Enable EmailAlert
4 : Send Test Mail
5 : Set Mail Address for EmailAlert
6 : Set Domain Name and Name Server
7 : Show Domain Namd and Name Server
8 : quit
Select an item => : (1..8) [8] 8
switch:admin>
```

See Also fwhelp

fwSetToCustom

Set boundary and alarm levels to custom values.

Syntax `fwSetToCustom`

Availability Admin

Description Use this command to set boundary and alarm levels to custom values for all classes and areas for Fabric Watch.

This command requires a Fabric Watch License.

Operands None

Example **To set alarm levels to custom values:**
`sw:admin> fwSetToCustom`
Committing configuration...done.

See Also `fwSetToDefault`

fwSetToDefault

Set boundary and alarm levels to the default values.

Syntax `fwSetToDefault`

Availability Admin

Description Use this command to set boundary and alarm levels to default values for all classes and areas for Fabric Watch.

This command requires a Fabric Watch License.

Operands None

Example **To set alarm levels to default values:**

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

See Also `fwSetToCustom`

Counter:

Access via: Function call
Address: 0x100187dc
Argument: 0x00000002

Previous: 0x00000bc5 (3013)
Current: 0x00000bc5 (3013)

Events:

Style: Triggered
Event 0 occurred 1 time, last at 19:08:31 on 12/03/1999
Event 1 occurred 80 times, last at 19:47:06 on 12/03/1999
* Event 5 occurred 1 time, last at 19:08:37 on 12/03/1999

Callbacks:

No callbacks are registered.

1 : Show class thresholds
2 : Detail threshold information
3 : Quit
Select an item => : (1..3) [3] 3

See Also fwClassInit
 fwConfigReload
 fwConfigure

gbicShow

Display serial ID GBIC information.

Syntax `gbicShow [slotnumber/] [portnumber]`

Availability All users

References to GBIC also apply to SFP.

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.

GBICs are polled by a background process. The `gbicshow` command retrieves the latest information from cache. The cache values for each GBIC are updated when the GBIC is hot plugged, when it is removed, or when the Fabric OS polls the GBICs. In the ED-12000B, if there is a lot of activity on the switch, poll updates may take several minutes.

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.

Operand This command has the following operand:

slotnumber

Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

portnumber

Specify the port number to be displayed. Valid values for port number vary, depending on the switch type. This operand is optional.

Example To display GBIC summary information, followed by detailed information for a single GBIC:

```
switch12k:admin> gbicshow
```

```
Area 0: id (id) Vendor: Serial No:
Area 1: id (sw) Vendor: FINISAR CORP. Serial No: H1149T2
Area 2: id (sw) Vendor: FINISAR CORP. Serial No: H112TUD
Area 3: id (sw) Vendor: FINISAR CORP. Serial No: H112YFR
Area 4: id (sw) Vendor: IBM Serial No: 21P53380BR0BE
Area 5: id (sw) Vendor: IBM Serial No: 21P53380BS18A
Area 6: id (sw) Vendor: IBM Serial No: 21P53380BS170
Area 7: id (sw) Vendor: IBM Serial No: 21P53380BS26B
Area 8: --
Area 9: --
Area 10: --
Area 11: --
Area 12: --
Area 13: --
Area 14: --
Area 15: --
Area 16: id (sw) Vendor: AGILENT Serial No: 0105091301045274
Area 17: id (sw) Vendor: AGILENT Serial No: 0105091258486386
Area 18: id (sw) Vendor: FINISAR CORP. Serial No: H114KY0
Area 19: id (sw) Vendor: FINISAR CORP. Serial No: H114LNP
Area 20: id (sw) Vendor: FINISAR CORP. Serial No: H112VPM
Area 21: id (sw) Vendor: FINISAR CORP. Serial No: H112VMZ
Area 22: id (sw) Vendor: FINISAR CORP. Serial No: H112U0L
Area 23: id (sw) Vendor: FINISAR CORP. Serial No: H112VL5
Area 24: --
Area 25: --
Area 27: --
Area 28: --
Area 29: --
Area 30: --
Area 31: --
```

```
switch12k:admin> gbicshow 1/3
Identifier: 3    GBIC
Connector: 7    LC
Transceiver: 050c402000000000 100,200_MB/s M5,M6 sw Inter_dist
Encoding: 1     8B10B
Baud Rate: 21   (units 100 megabaud)
Length 9u: 0    (units 100 meters)
Length 50u: 30  (units 10 meters)
Length 625u: 13 (units 10 meters)
Length Cu: 0    (units 1 meter)
Vendor Name: FINISAR CORP.
Vendor OUI: 00:90:65
Vendor PN:  FTRJ-8519-3-2.5
Vendor Rev: X1
Options:    0012 Loss_of_Sig,Tx_Disable
BR Max:     0
BR Min:     0
Serial No:  H112YFR
Date Code:  010418
switch12k:admin>
```

See Also switchShow

h

Display shell history.

Syntax h

Availability All users

Description 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
```

haDisable

Disable the high-availability feature in the switch.

Syntax haDisable

Availability Admin

Description Use this command to disable the high-availability (HA) feature in the switch. If the HA feature is already disabled, this command is ignored.

Operands None

Example **To disable the high availability feature:**

```
switch:admin> haDisable
Disabling HA ...
Done.
```

See Also haEnable
 haFailover
 haShow

haEnable

Enable the high-availability feature in the switch.

Syntax haEnable

Availability Admin

Description Use this command to enable the high-availability (HA) feature in the Switch. If the HA feature is already enabled, this command is ignored.

Operands None

Example To enable the high-availability feature in the switch:

```
switch:admin> haEnable
Enabling HA ...
Done.
```

See Also haDisable
haFailover
haShow

haFailover

Force the failover mechanism so that the standby CP becomes the active CP.

Syntax haFailover

Availability Admin

Description Use this command to force the failover mechanism to occur so that the standby CP becomes the active CP. Because `hafailover` results in CP reboot, a warning message and a confirmation are displayed. If the user answers positively, then the failover takes place.

Operands None

Example To force the failover of the active CP to the standbyCP in the switch:

```
switch:admin> hafailover
```

```
Warning: This command is being run on a control processor(CP)
based system and will cause the active CP to reset. This will
cause disruption to devices attached to both switch 0 and switch 1.
To just reboot a logical switch on this system, use command
switchreboot(1M) on the logical switch you intend to reboot.
```

```
Are you sure you want to reboot the active CP [y/n]? n
failover not confirmed!
switch:admin>
```

See Also haDisable
haEnable
haShow

haShow

Display control processor (CP) status.

Syntax haShow

Availability Admin

Description Use this command to display the control processor status, which includes:

- ◆ Local CP state (slot number and CP ID)
- ◆ Remote CP state (slot number and CP ID)
- ◆ High Availability Enabled/Disabled
- ◆ Heartbeat Up/Down

Operands None

Example **To display control processor (CP) status:**

```
switch:admin> haShow
Local CP (Slot 6, CP1): Active
Remote CP (Slot 5, CP0): Standby
HA Enabled, Heartbeat Up
```

See Also haDisable
haEnable
haFailover
haShow

help

Display help information for commands.

Syntax `help [command]`

Availability All users

Description Use this command without an 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.

Operand This command has the following operand:

command Specify the command name, with or without quotation marks. This operand is optional.

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`

historyLastShow

Display last history record.

Syntax `historyLastShow`

Availability All users

Description Use this command to display the contents of the last history log record. A history record contains three lines of information:

The first line of each record contains the following data-sets:

- ◆ Object type: CHASSIS, FAN, POWER SUPPLY, SW BLADE (switch), CP BLADE (control processor), WWN (world wide name), or UNKNOWN.
- ◆ Object number: Slot *<nn>* (for blades), Unit *<nn>* (for everything else).
- ◆ Event: Inserted, Removed, or Invalid.
- ◆ Time of the event: at *<Dow>* *<Mon>* *<dd>* *<hh:mm:ss>* *<yyyy>*

The second and third lines of a record each contain one data set, preceded by its name:

Brocade Part Number: *<xx-yyyyyyyy-zz>* or Unknown

Brocade Serial Number: *<xxxxxxxxxxxx>* or Unknown

Operands None

Example To display the last history record:

```
switch12K:admin> historyLastShow
```

```
POWER SUPPLY Unit 2      Inserted at Tue Aug 14 15:52:10 2001
Brocade Part Number:     60-0001536-02
Brocade Serial Number:   1013456800
```

```
Records: 11
```

See Also `historyShow`

historyShow

Display the history log.

Syntax `historyShow`

Availability All users

Description Use this command to display the history log. Each history record contains three lines of information:

- ◆ The first line of each record contains the following data sets:
 - Object type: CHASSIS, FAN, POWER SUPPLY, SW BLADE (switch), CP BLADE (control processor), WWN (world wide name), or UNKNOWN.
 - Object number: Slot *<nn>* (for blades), Unit *<nn>* (for everything else).
 - Event: Inserted, Removed, or Invalid.
 - Time of the event: at *<Dow>* *<Mon>* *<dd>* *<hh:mm:ss>* *<yyyy>*
- ◆ The second contains one data set, Brocade Part Number:
 - Brocade Part Number: *<xx-yyyyyyyy-zz>* or Unknown
- ◆ The third line contains one data set, Brocade Serial Number:
 - Brocade Serial Number: *<xxxxxxxxxxx>* or Unknown

Operands None

Example To display the entire contents of the history file:

```
switch:admin> historyShow
```

```
FAN Unit 3                Removed at Tue Aug 14 10:05:37 1970
Brocade Part Number:     20-123456-12
Brocade Serial Number:   1013456800

POWER SUPPLY Unit 1      Inserted at Tue Aug 14 10:52:10 1970
Brocade Part Number:     60-0001536-02
Brocade Serial Number:   Unknown

FAN Unit 3                Inserted at Tue Aug 14 10:23:45 2001
Brocade Part Number:     20-123456-12
Brocade Serial Number:   1013456800

WWN Unit 1               Inserted at Tue Aug 14 11:03:45 2001
Brocade Part Number:     40-0000031-03
Brocade Serial Number:   1013456800

. . .

SW BLADE Slot 3          Removed at Tue Aug 14 12:10:09 2001
Brocade Part Number:     60-0001532-03
Brocade Serial Number:   1013456800

CP BLADE Slot 6          Removed at Tue Aug 14 13:45:07 2001
Brocade Part Number:     60-0001604-02
Brocade Serial Number:   FP00X600128

SW BLADE Slot 3          Inserted at Tue Aug 14 13:53:40 2001
Brocade Part Number:     60-0001532-03
Brocade Serial Number:   1013456800

CP BLADE Slot 6          Inserted at Tue Aug 14 13:59:50 2001
Brocade Part Number:     60-0001604-02
Brocade Serial Number:   FP00X600128

POWER SUPPLY Unit 2      Inserted at Tue Aug 14 15:52:10 2001
Brocade Part Number:     60-0001536-02
Brocade Serial Number:   1013456800

Records: 11
```

See Also historyLastShow

i

Display task summary.

Syntax `i [taskId]`

Availability All users

Description This command displays information of all of the processes or of a specific process if a process ID is supplied. One line is displayed per process. Table 1-13 explains the fields displayed with this commands:

Table 1-13 i Fields

Field	Description
F	Process Flags: ALIGNWARN 001 print alignment warning msgs STARTING 002 being created EXITING 004 getting shut down PTRACED 010 set if ptrace (0) has been called TRACESYS 020 tracing system calls FORKNOEXEC 040 forked but didn't exec SUPERPRIV 100 used super-user privileges DUMPCORE 200 dumped core SIGNALLED 400 killed by a signal
S	Process state codes: D uninterruptible sleep (usually IO) R runnable (on run queue) S sleeping T traced or stopped Z a defunct ("zombie") process
UID	The effective user ID number of the process.
PID	The process ID of the process.

Table 1-13 **i Fields** (*continued*)

Field	Description
PPID	The process ID of the parent process.
C	Processor utilization for scheduling.
PRI	Priority number of the process. Higher numbers mean lower priority.
NI	Nice value used in priority computation.
ADDR	Memory address of the process.
SZ	The total size of the process in virtual memory in pages.
WCHAN	The address of an event for which process is sleeping (if blank, the process is running.).
TTY	The controlling terminal of the process (? is printed for no controlling terminal).
TIME	The cumulative execution time for the process.
CMD	The command name of the process.

Operands This command has the following operand:
taskId Specify the task name or task ID for the task to be displayed.

Example To display information about process ID 433:

```
switch:admin> i 433
  F  S  UID  PID  PPID  C  PRI  NI  ADDR  SZ  WCHAN  TTY  TIME  CMD
000 S   0  433   1  0  69   0   - 1283  5c64 ?   00:00:02 fabricd
switch:admin>
```

See Also diagHelp
routeHelp

ifModeSet

Set the link operating mode for a network interface.

Syntax `ifModeSet ["eth0"]`

Availability Admin

Description Use this command to set the link operating mode for the ethernet 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 `eth0` interfaces.



CAUTION

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.

Operand This command has the following operand:

`eth0` Specify the Ethernet interface in quotation marks. For example, "eth0", where *eth* is the ethernet network interface, and *0* is the physical unit. The Ethernet interface is the only interface that can be modified on the ED-12000B.

Example To force the link for the eth0 Ethernet interface to auto negotiate and to advertise all possible operating modes:

```
switch:admin> ifModeSet "eth0"
```

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.

It is recommended that you only use this command from the serial console port.

```
Are you sure you really want to do this? (yes, y, no, n): [no] y
Proceed with caution.
Auto-negotiate (yes, y, no, n): [no] y
Advertise 100 Mbps / Full Duplex (yes, y, no, n): [yes] y
Advertise 100 Mbps / Half Duplex (yes, y, no, n): [yes] y
Advertise 10 Mbps / Full Duplex (yes, y, no, n): [yes] y
Advertise 10 Mbps / Half Duplex (yes, y, no, n): [yes] y
Committing configuration...done.
```

To force 10 Mb/s Half Duplex:

```
cp0:admin> ifModeSet eth0
```

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.

It is recommended that you only use this command from the serial console port.

```
Are you sure you really want to do this? (yes, y, no, n): [no] y
Proceed with caution.
Auto-negotiate (yes, y, no, n): [no] n
Force 100 Mbps / Full Duplex (yes, y, no, n): [no]
Force 100 Mbps / Half Duplex (yes, y, no, n): [no]
Force 10 Mbps / Full Duplex (yes, y, no, n): [no]
Force 10 Mbps / Half Duplex (yes, y, no, n): [no] y
Committing configuration...done.
cp0:admin>
```

Important It is recommended that you only use this command from the serial console port.

See Also ifModeShow
ifShow

ifModeShow

Display the link operating mode for a network interface.

Syntax `ifModeShow ["eth0"]`

Availability All users

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

Operand This command has the following operand:

eth0 Specify the Ethernet interface in quotation marks. For example, "eth0", where *eth* is the ethernet network interface, and *0* is the physical unit. The Ethernet interface is the only interface that can be modified on the ED-12000B.

Example To display the link operating mode for the `fei0` Ethernet interface:

```
switch:admin> ifModeShow "eth0"  
Link mode: Auto-negotiation, 10baseT-HD, link ok
```

See Also `ifModeSet`
`ifShow`

interfaceShow

Display FSPF interface information.

Syntax `interfaceShow [slotnumber/] [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 as shown in Table 1-14:

Table 1-14 interfaceShow Fields

Field	Description
<code>idbP:</code>	Pointer to IDB.
<code>nghbP:</code>	Pointer to neighbor data structure.
<code>ifNo:</code>	Interface number.
<code>masterPort</code>	Port number of the trunk master port, if present, of the trunk group this port is a part of.
<code>defaultCost</code>	The default cost of sending a frame over the ISL connection to this interface.
<code>cost:</code>	Cost of sending a frame over the ISL connected to this interface. The value 1000 indicates a 1 Gb/s link.

Table 1-14 interfaceShow Fields (*continued*)

Field	Description
delay:	Conventional delay incurred by a frame transmitted on this ISL. A fixed value required by the FSPF protocol.
lastScn:	Type of the last State Change Notification received on this interface.
lastScnTime:	Time the last State Change Notification was received on this interface.
upCount:	Number of times this interface came up, with respect to FSPF.
lastUpTime:	Last time this interface came up.
downCount:	Number of times this interface went down.
lastDownTime:	Last time this interface went down.
downReason:	Type of last State Change Notification that caused this interface to go down.
iState:	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.
state:	Current state of this interface. This E_Port is used to route traffic to other switches only if the state is NB_ST_FULLL.
nghbCap:	Neighbor capabilities. Should be 0.
nghbId:	Domain ID of the neighbor (adjacent) switch.
idbNo:	IDB number. Should be equal to <i>port_number</i>
remPort:	Port number on the remote switch connected to this port.
nflags:	Internal FSPF flags.
initCount:	Number of times this neighbor was initialized, without the interface going down.

Table 1-14 interfaceShow Fields (*continued*)

Field	Description
&dbRetransList:	Pointer to the database retransmission list.
&lSrRetransList:	Pointer to the Link State Records (LSR) retransmission list.
&lSrAckList:	Pointer to the Link State Acknowledgements (LSA) retransmission list.
inactTID:	Inactivity timer ID.
helloTID:	Hello timer ID.
dbRtxTID:	Database retransmission timer ID.
lSrRtxTID:	LSR retransmission timer ID.
inactTo:	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.
helloTo:	Hello time-out value, in milliseconds. When this time out expires, a Hello frame is sent to the neighbor switch through this port.
rXmitTo:	Retransmission time-out value, in milliseconds. It is used to transmit topology information to the neighbor switch. If no acknowledgement is received within rXmitTo, frame is retransmitted.
nCmdAcc:	Total number of commands accepted from the neighbor switch. Number includes Hellos, Link State Updates (LSUs), and Link State Acknowledgements.
nInvCmd:	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.
nHloIn:	Number of Hello frames received from the neighbor switch.

Table 1-14 interfaceShow Fields (*continued*)

Field	Description
nInvHlo:	Number of invalid Hello frames (Hello frames with invalid parameters) received from the neighbor switch.
nLsuIn:	Number of LSUs received from the neighbor switch.
nLsaIn:	Number of LSAs received from the neighbor switch.
attHloOut:	Number of attempted transmissions of Hello frames to the neighbor switch.
nHloOut:	Number of Hello frames transmitted to the neighbor switch.
attLsuOut:	Number of attempted transmissions of LSUs to the neighbor switch.
nLsuOut:	Number of LSUs transmitted to the neighbor switch.
attLsaOut:	Number of attempted transmissions of LSAs to the neighbor switch.
nLsaOut:	Number of LSAs transmitted to the neighbor switch.

Operands

This command has the following operands:

slotnumber Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED- 12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

portnumber Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

When no slot number and port number are specified, this command displays the interface information for all ports on the switch (including non E_Ports).

Example To display FSPF interface information:

```
switch:admin> interfaceshow 7/5

idbP                = 0x10057718

Interface 5 data structure:

nghbP                = 0x1005a510
ifNo                 = 5
masterPort           = 4
defaultCost          = 500
cost                  = 500
delay                 = 1
lastScn              = 8
lastScnTime          = Aug 06 09:02:44.019
upCount              = 42
lastUpTime           = Aug 06 08:52:41.272
downCount            = 42
lastDownTime         = Aug 06 08:57:47.097
downReason           = 2
iState               = DOWN
switch:admin>
```

See Also `portShow`
`switchShow`

interopmode

Enable or disable switch interoperability with switches from other manufacturers.

Syntax `interopMode [mode]`

Availability Admin

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

This command must be executed on all switches in the fabric. The switch must be rebooted after changing interoperability mode. In a heterogeneous fabric, several features are not available in order to provide maximum compatibility between switches.

Domain IDs must be in the 97 to 127 value range for successful connection to other switches. The firmware automatically assigns a valid domain ID, if necessary, when interoperability mode is enabled on the switch.

Before enabling interoperability mode, the individual fabrics should be inspected for compatibility. Zones should be inspected to ensure that they meet the zone criteria and restrictions. Remove or disable any unsupported optional features. Disable the Platform Management functions using the `msPlMgmtDeactivate` command.

Operand This command has the following operand:

<i>mode</i>	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 and then enable interoperability mode:

```
switch:admin> interopmode
InteropMode: Off
Usage: InteropMode 0|1
    0: to turn it off
    1: to turn it on
switch:admin> interopmode 1
done.
Interopmode is enabled.
switch:admin> reboot
```

See Also `configure`

iodReset

Turn off the in-order delivery (IOD) option.

Syntax `iodReset`

Availability Admin

Description Use this command to turn off the IOD option. The IOD option is turned off by default. If the IOD option was turned on using `iodSet`, this command can be used to turn it off again. Setting the IOD option to its default value will result in fast re-routing after a fabric topology change.

This command may cause out-of-order delivery of frames during fabric topology changes.

Operands None

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

```
switch:admin> iodshow

IOD is set

switch:admin> iodreset
done.
switch:admin> iodshow

IOD is not set

switch:admin>
```

See Also `iodSet`
 `iodShow`

iodSet

Turn on in-order delivery option.

Syntax `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 will be delivered out of order. This command ensures that frames will not be 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 will 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.

Important EMC strongly recommends that this option *not* be modified unless told to do so by Technical Support personnel.

Operands None

Example **To turn on the IOD option:**

```
switch:admin> iodSet  
done.
```

See Also `iodReset`
 `iodShow`

iodShow

Display the state of the in-order Delivery (IOD) option.

Syntax `iodShow`

Availability All users

Description Use this command to display whether the in-order delivery option during topology changes is on or off.

Operands None

Example **To display the current setting of the IOD option:**

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

See Also `iodSet`
 `iodReset`

ipAddrSet

Set Ethernet and FC IP addresses.

Syntax ipAddrSet [option]

Availability Admin

Description For v4.0 you must set values for both logical switches and both CP cards in the ED- 12000B chassis. The option operand is available in v4.0. If the option operand is not specified, the command becomes interactive.

In v4.0, you are prompted to set the values as shown in Table 1-15:

Table 1-15 Values

Values	Description
Ethernet IP Address	Set the Ethernet IP Address for both logical switches and both CP blades.
Ethernet Subnetmask	Set the Ethernet Subnetmask address for both logical switches and both CP blades.
Fibre Channel IP Address	Set the Fibre Channel IP Address for both logical switches.
Fibre Channel Subnetmask	Set the Fibre Channel Subnetmask for both logical switches.
Hostname of CP	Set the Hostname for both CP blades.
Gateway IP Address	Set the Gateway IP Address for both CP blades.

The default values for hostname, ipaddress, subnet address (for CP only), mask (for switch only), and gateway address (for CPs only) are:

- ◆ sw0 = hostname SW12000_1, ip 10.77.77.77, mask 255.0.0.0
- ◆ sw1 = hostname SW12000_2, ip 10.77.77.76, mask 255.0.0.0

- ◆ cp0 = hostname cp0, ip 10.77.77.75, subnet 255.0.0.0, gateway 0.0.0.0
- ◆ cp1 = hostname cp1, ip 10.77.77.74, subnet 255.0.0.0, gateway 0.0.0.0

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 CTRL-C to cancel changes.
- ◆ Press CTRL-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

This command has the following operand:

option

Specify which option you would like to configure. This operand is only available in v4.0. Valid options are as follows:

- ◆ Option 0 sets the Ethernet IP Address, Ethernet Subnetmask, Fibre Channel IP address and Fibre Channel Subnetmask of logical switch 0.
- ◆ Option 1 sets the Ethernet IP Address, Ethernet Subnetmask, Fibre Channel IP address and Fibre Channel Subnetmask of logical switch 1.
- ◆ Option 2 sets the Ethernet IP Address, Ethernet Subnetmask, gateway IP address and Hostname of CP0.
- ◆ Option 3 sets the Ethernet IP Address, Ethernet Subnetmask, gateway IP address and Hostname of CP1.

If no operand is specified the command becomes interactive.

Example To set the IP address details for logical switch number 1:

```
switch:admin> ipAddrSet 1
  Ethernet IP Address [0.0.0.0]: 192.168.166.148
  Ethernet Subnetmask [0.0.0.0]: 255.255.255.0
  Fibre Channel IP Address [0.0.0.0]: 192.168.58.135
  Fibre Channel Subnetmask [0.0.0.0]: 192.168.166.134
  Committing configuration...Done...
switch:admin>
```

You cannot have a Fibre Channel IP address on the same network as an Ethernet IP address.

See Also `ipAddrShow`

ipAddrShow

Display ethernet and FC IP addresses.

Syntax ipAddrShow [*option*]

Availability All users

Description In an ED-12000B, this command shows the Ethernet IP Address, Ethernet Subnetmask, Fibre Channel IP Address and Fibre Channel Subnetmask for logical switches. It shows the Ethernet IP Address, Ethernet Subnetmask, Hostname and Gateway IP address for the CPs.

In the ED-12000B, the CPs communicate to each other through an Ethernet in the backplane. When the option operand is specified to be '4', the fixed Backplane IP addresses for CP0 & CP1 are also shown.

Use the option operand to specify the logical switch or CP you want to view. If the option operand is not specified, then the command becomes interactive.

The default values for hostname, ipaddress, subnet address (for CP only), mask (for switch only), and gateway address (for CPs only) are:

- ◆ sw0 = hostname SW12000_1, ip 10.77.77.77, mask 255.0.0.0
- ◆ sw1 = hostname SW12000_2, ip 10.77.77.76, mask 255.0.0.0
- ◆ cp0 = hostname cp0, ip 10.77.77.75, subnet 255.0.0.0, gateway 0.0.0.0
- ◆ cp1 = hostname cp1, ip 10.77.77.74, subnet 255.0.0.0, gateway 0.0.0.0

Operands This command has the following operand:

option	Specify the option you would like to view. The option operand is not available in v3.0. Valid option values for v4.0 are: <ul style="list-style-type: none">◆ Option 0 means display information for switch0.◆ Option 1 means display information for switch1.◆ Option 2 means display information for cp0.◆ Option 3 means display information for cp1.◆ option 4 means display information all IP addresses in the system.
--------	--

Example To display the IP addresses for logical switch number 0:

```
switch12000:admin> ipAddrShow 0
Ethernet IP Address: 192.168.166.147
Ethernet Subnetmask: 255.255.255.0
Fibre Channel IP Address: none
Fibre Channel Subnetmask: none
switch12000:admin>
```

See Also ipAddrSet

islShow

Display ISL information.

Syntax `islShow`

Availability All users

Description Use this command to display the current connections and status of the ISL of each port on this switch. The following information is displayed:

- ◆ The WWN where the ISL is connected
- ◆ The speed of the connection
- ◆ Whether this ISL is trunked

Operands None

Example **To show ISL link information on a switch:**

```
switch:admin> islShow
1:  3 -> 5   10:00:00:60:69:20:3a:a5   switch_13  sp: 2G  bw: 2G
2:  6 -> 11  10:00:00:60:69:04:11:25   switch_22  sp: 2G  bw: 2G
3: 11 -> 6   10:00:00:60:69:04:11:25   switch_22  sp: 2G  bw: 2G
switch:admin>
```

See Also `switchShow`

licenseAdd

Add license key to switch.

Syntax `licenseAdd "license"`

Availability Admin

Description Use this command to add a license key to a switch.

Some features of the switch and of the fabric to which it is connected are optional licensed products. Without a license installed for such products, the services are not available.

A license key is a string of approximately 16 upper and lower case letters and numbers. The license key string is case-sensitive; it must be entered exactly as issued. If mistyped, the license may be accepted, but licensed products will not function.

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. If no licensed products are shown, then the license is invalid.

After entering a license, the licensed product is available immediately and the system does not need to be rebooted. The exception is a QuickLoop-only system; these must be rebooted after adding a fabric license to allow fabric logins.

Operands This command has the following operand:

license Specify a 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"  
  done.
```

See Also `licenseHelp`
`licenseIDShow`
`licenseRemove`
`licenseShow`
`lutil`

licenseHelp

Display commands used to administer license keys.

Syntax	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 licenseIdShow Show system license ID licenseRemove Remove a license key from this switch licenseShow Show current license key
See Also	licenseAdd licenseIDShow licenseRemove licenseShow lutil

licenseIdShow

Display system license ID.

Syntax `licenseIdShow`

Availability All users

Description Some features of the ED-12000B and the fabric are optional, licensed products. Without a license installed for such products, the services provided by these features are not available. Other switch products require the WWN to generate a license. A single license allows both logical switches in an ED-12000B chassis to use these products. That is, the chassis is assigned a license ID from which a license is generated.

Such licenses are locked and are only functional on the specific system for which they were issued.

This command displays to standard output the system license ID used for both generating and validating licenses on the system. The license ID format is 8 pairs of hexadecimal values separated by colons. Each hexadecimal value is between 00 (0) and FF (255).

While the format of this identifier may be similar or identical to other identifiers in the system, no inferences should be made about the relationships between them as they are subject to change independent of one another.

Operands None

Example **To display the license ID:**

```
switch:admin> licenseIdShow
a4:f8:69:33:22:00:ea:18
```

See Also `licenseAdd`
 `licenseHelp`
 `licenseRemove`
 `licenseShow`
 `lutil`

licenseRemove

Remove the license key from a switch.

Syntax `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 a 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"
```

See Also `licenseAdd`
`licenseHelp`
`licenseShow`
`lutil`

licenseShow

Display current license keys.

Syntax `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
  cQebzbRdScRfc0iK:
    Web license
    Zoning license
  AybbzQQ9edTzcc0X:
    Fabric license
```

See Also `licenseAdd`
 `licenseRemove`

linkCost

Set or print the FSPF cost of a link.

Syntax `linkCost [slotnumber/] [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 1 Gb/s ISL, the default cost is 1000. For a 2 Gb/s ISL, the default cost is 500.

All currently active ISLs have an additional suffix of `E_PORT` attached to their interface numbers. If the link has a static cost assigned to it, then the link cost for that link has a suffix of `STATIC` attached to its link cost.

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.

If no operands are specified, the command displays the actual cost of all the ISLs in the (logical) switch. Specify the `[slot/]port` operand to view the cost of that specific port. Specify `[slot/]port` and `cost` operand to set the cost of a specific ISL.

Setting the cost to zero removes a static cost from the database and reverts the cost of the link to its default value.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number. This operand is optional.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`portnumber` Specify the port number to display or set the FSPF cost of a link. Valid values for port number vary depending on the switch type. This operand is optional.

`cost` Specify the new cost of the link connected to the specified port number. This operand is optional.

If no operands are specified, the current values for all ports on the switch are displayed.

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

```

switch:admin> linkCost
  Slot      Interface      Cost
  -----
    2         0             500 (STATIC)
    2         1             1000
    2         2             500 (STATIC)
    2         3             200 (STATIC)
    2         4             1000
    2         5             1000
    2         6             1000
    2         7             1000
    2         8             1000
    2         9             1000
    2        10             1000
    2        11 (E_PORT)    2000 (STATIC)
    2        12             1000
    2        13             1000
    2        14             1000
    2        15             1000
switch:admin> linkCost 2/4 500
switch:admin> linkcost 2/4
Slot 2      Interface 4      Cost  500 (STATIC)
switch:admin> linkcost 2/4 0
Slot 2      Interface 4      Cost  1000

```

See Also interfaceShow
 LSDbShow
 topologyShow
 uRouteShow

login

Log in as a new user.

Syntax login

Availability All users

Description Use this command to log in to the switch with another username and password, without first logging out from the original session. If the user was originally connected using a Telnet 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

Log out from a Telnet, rlogin, or serial port session.

Syntax `logout`

Availability All users

Description Use this command to log out 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 a rlogin session:**

```
switch:admin> logout
Connection to host lost.
```

See Also `login`

loopdiagStart

Start loopdiag application.

Syntax `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 must be online prior to initiating the command. The command will place the port in testing mode 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 information from the failure.

Operand This comand has the following operand required:

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`

LSDbShow

Display the FSPF link state database.

Syntax 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.

Table 1-16 shows the fields displayed:

Table 1-16 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.

Table 1-16 LSDBShow Display Fields (*continued*)

Field	Description
uOutIfs	Internal variable.
uPathCost	Internal variable.
uOldHopCount	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.
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.

Table 1-16 LSDBShow Display Fields (*continued*)

Field	Description
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. This operand is optional.

Example 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):

```
switch:admin> lsdbshow
```

```
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
uOldHopCount = -1161889074
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

lutil

Run the license administration utility.

Syntax `lutil [-h-v] [[-i] | [[-a|-r]key ...]]`

Availability Admin

Description Use this command to add, display, and remove license keys. Some features of the switch and of the fabric to which it is connected are optional, licensed products. Without a license installed for such products, the services provided by them will not function.

Operands This command has the following operands:

- h Display the command syntax help. This operand is optional.
- v Specify verbose output. This operand is optional.
- i Display the WWN of this switch. This operand is optional.
- a *key* Add a license key. This operand is optional.
- r *key* Remove a license key. This operand is optional.

Example **To add a license to the system:**

```
switch:admin> lutil -a bQebzbRdScRfc0iK
adding license key "bQebzbRdScRfc0iK"
```

To remove a license from the system:

```
switch:admin> lutil -r cQzQQ9ecRQdR0dSG
removing license key "cQzQQ9ecRQdR0dSG"
```

To display the system license ID:

```
switch:admin> lutil -i
a4:f8:69:33:22:00:ea:18
```

See Also licenseAdd
 licenseHelp
 licenseIdShow
 licenseRemove
 licenseShow

mcastShow

Display multicast routing information.

Syntax `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 bitmaps. Each bit in the bitmap 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 ISL Ports	Bitmap of all E_Ports in the multicast tree for that multicast group.
Member Ports	Bitmap of all ports in the multicast tree for that multicast group.
Static ISL Ports	Reserved. It should be all zeroes.

Operand This command has the following operand:

group_ID Specify the multicast group to be displayed.
This operand is optional.

Examples To display multicast routing information:

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

See Also bcastShow
portRouteShow

memshow

Display the amount of free and used memory in switch.

Syntax memshow [-b | -k | -m]

Availability All Users

Description Use this command to display free and used memory on the system, as well as the shared memory and buffers used by the kernel.

Operands This command has the following operands:

- b Specify this operand to display memory usage in bytes.
- k Specify this operand to display memory usage in kilobytes.
- m Specify this operand to display memory usage in megabytes.

By default the memory usage is displayed in bytes.

Example To view the memory usage in an ED-1200B:

```
switch:admin> memshow
      total      used      free      shared      buffers      cached
Mem: 128720896  87588864  41132032  87621632  6295552  38514688
Swap:0          0          0
```

See Also savecore

minispropshow

Display the properties of the miniswitches.

Syntax `minispropshow {slot/} minis | {slot} -all`

Availability All users

Description Use this command to display the ASIC miniswitch properties for the specified minis on the specified blade slot.

Operands This command has the following operands:

`[slot]`
`/minis` Specify the slot and the index of the mini within the blade to be displayed. This operand is optional.

`[slot] -all` Specify this operand to display the ASIC minis property contents for the entire chipset in the slot specified. This operand is optional.

Example To view the miniswitch properties on blade 8:

```
switch12k:admin> minispropshow 8 -all
```

```
Looking for miniS 0 in path: /proc/fabos/blade/8
```

```
slot: 8, miniS: 0
```

```
[2/16]
```

```
<0,1657/0001 1,1657/0001>
```

```
(be,5) (be,4) (be,3) (be,2) (be,1) (be,0) (bi,55) (bi,54)
```

```
(bi,25) (bi,24) (bi,41) (bi,40) (fe,3) (fe,2) (fe,1) (fe,0)
```

```
slot: 8, miniS: 1
```

```
[2/16]
```

```
<2,1657/0001 3,1657/0001>
```

```
(be,11) (be,10) (be,9) (be,8) (be,7) (be,6) (bi,39) (bi,38)
```

```
(bi,9) (bi,8) (bi,57) (bi,56) (fe,7) (fe,6) (fe,5) (fe,4)
```

```
slot: 8, miniS: 2
```

```
[2/16]
```

```
<4,1657/0001 5,1657/0001>
```

```
(be,17) (be,16) (be,15) (be,14) (be,13) (be,12) (bi,23) (bi,22)
```

```
(bi,11) (bi,10) (bi,59) (bi,58) (fe,11) (fe,10) (fe,9) (fe,8)
```

```
slot: 8, miniS: 3
```

```
[2/16]
```

```
<6,1657/0001 7,1657/0001>
```

```
(be,23) (be,22) (be,21) (be,20) (be,19) (be,18) (bi,7) (bi,6)
```

```
(bi,27) (bi,26) (bi,43) (bi,42) (fe,15) (fe,14) (fe,13) (fe,12)
```

See Also minisregshow

minisregshow

Display port registers for a specified miniswitch.

Syntax `minisregshow [slot/]mini_switch {filter}`

Availability All users

Description Use this command to display the ASIC register contents for the specified miniswitch on the specified blade slot.

Operands This command has the following operands:

slot Specify the slot of the blade for which you want to view the port registers for. This operand is optional.

mini_switch Specify the index of the mini within the blade to be displayed. This operand is required.

filter Specify filter criteria for the port registers to be displayed. This operand is optional.

Example To view the port registers for blade 8:

```
switch12k:admin> minisregshow 8/1
Looking for port 29 in path: /proc/fabos/blade/8
Found file: /proc/fabos/blade/8/1/1/5/asic29/reg

Port Registers for slot: 8, port: 29

0xca83b000: chip_id          0104          0xca83b002: port_config    0a38
0xca83b004: did_vc_map      0800          0xca83b008: int_mask        264f
0xca83b00a: int_status      1020          0xca83b00c: err_status      0002
<output truncated>
```

See Also `minispropshow`

msCapabilityShow

Display the management server capability.

Syntax msCapabilityShow

Availability All users

Description Use this command to query a fabric for the Management Server capability. Based on the result of this command, you can then decide whether to activate the Platform 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 service is displayed.

Platform service is available in firmware v2.3 and above. Lower-level firmware releases do not support it.

Operands None

Example To display Management Server capability on a fabric:

```
switch:admin> msCapabilityShow
Switch WWN                      Capability  Switch Name
=====
10:00:00:60:69:80:02:22         0x0000008f "swd83"*
```

Capability Bit Definitions:

- Bit 0: Basic Config Service Supported.
- Bit 1: Platform Management Service Supported.
- Bit 2: Topology Discovery Service Supported.
- Bit 3: Unzoned Name Service Supported.
- Bit 4: M.S. Fabric Zone Service Supported.
- Bit 5: Fabric Lock Service Supported.
- Bit 6: Timer Service Supported.
- Bit 7: RSCN Small Payload Supported.
- Others: Reserved.

Done.

```
switch:admin>
```

See Also

- msPlMgmtActivate
- msPlMgmtDeactivate
- msPlatShow
- msPlClearDB
- msTdEnable
- msTdDisable
- msTdReadConfig

msConfigure

Configure the Management Server.

Syntax	msConfigure
Availability	Admin
Description	<p>Use this command to display and configure parameters used to access the Management Server. The Management Server allows an enterprise storage network (ESN) management application to retrieve and administer fabric and interconnect elements such as switches. It is located at the Fibre Channel address, FFFFFAh.</p> <p>If the access control list (ACL) is empty (this is the default value), 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.</p> <p>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.</p> <p>This command is interactive and provides the following choices:</p> <ul style="list-style-type: none">0 — Done (with the administration)1 — Display the access control list (ACL)2 — Add member based on its Port/Node WWN3 — Delete member based on its Port/Node WWN <p>If a change is made, you are prompted to save the changed ACL to flash memory. The saved ACL is restored on future reboot.</p>
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
- msTdDisable
- msTdEnable

msPlatShow

Display the Management Server platform database.

Syntax msPlatShow

Availability Admin

Description Use this command to display the Management Server platform database. It displays the platform name and associated attributes of each platform object in the database.

Limitations Platform database management is available in firmware version 2.3 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
- msPlatShow

msPIClearDB

Clear the Management Server platform database on all switches in the fabric.

Syntax msPlClearDB

Availability Admin

Description Use this command 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 version 2.3 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
MS Platform Management Service is currently enabled.
This will erase Platform databases in the entire fabric.
Would you like to continue this operation? (yes, y, no, n): [no] y
Fabric-wide Platform DB Clear operation in progress.....
```

See Also msPlMgmtDeactivate
msPlatShow
msPlCapabilityShow
msPlMgmtActivate

msPlMgmtActivate

Activate the Platform Database Management service on all switches in the fabric.

Syntax `msPlMgmtActivate`

Availability Admin

Description Use this command 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 cannot handle 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 nonvolatile storage of each switch, so even after a reboot, a switch will boot with Platform Management service ENABLED.

By default, the Platform Database Management service is DISABLED.

Limitation Platform Database Management is available in firmware version 2.3 and later. 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
  Activating Platform Management Service in the fabric
  is in progress...
  * Completed activating Platform Management Service in fabric!
switch:admin>
```

See Also `msPlMgmtDeactivate`
`msPlatShow`
`msPlCapabilityShow`
`msPlClearDB`

msPIMgmtDeactivate

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

Syntax `msPlMgmtDeactivate`

Availability Admin

Description Use this command to deactivate the Platform Database Management service. This command deactivates the Platform Database Management service of each switch in the fabric and commits the changes to the nonvolatile 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 Database Management is available in firmware version 2.3 and later. 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
MS Platform Management Service is currently enabled. This
will erase Platform Configuration information as well as
Platform databases in the entire fabric.
Would you like to continue disabling? (yes, y, no, n): [no]
switch:admin>
```

See Also `msPlatShow`
`msPlCapabilityShow`
`msPlMgmtActivate`
`msPlClearDB`

msTDDisable

Disable the Management Server Topology Discovery Management service.

Syntax `msTdDisable ["ALL"]`

Availability Admin

Description Use this command to disable the Management Server Topology Discovery Management Service locally or fabric-wide. This command will disable the Topology Discovery Management Service of the local switch and commit the changes to flash memory of the local switch. If the optional parameter "ALL" is given, then the command is executed on the entire fabric.

Once disabled, even in the event of a power boundary, the switch will boot with the Management Server Topology Discovery Management Service DISABLED.

Topology Discovery Management requires the attached devices that include attached switches to support the RNID ELS command.

Operands This command has the following operand:

"ALL"	Specify "ALL" to disable the Topology Discovery Management function on all switch's in the fabric. The operand "ALL" must be enclosed in quotation marks and must be in capital letters. This operand is optional.
-------	--

Example **To disable the Management Server Topology Discovery service locally or fabric-wide:**

```
switch:admin> msTdDisable
This will erase all NID entries. Are you sure? (yes, y, no, n): [no] y
Committing configuration...done.
switch:admin> msTdDisable "ALL"
This will erase all NID entries. Are you sure? (yes, y, no, n): [no] y
Committing configuration...done.
```

See Also `msTdEnable`
`msTdReadConfig`

msTDEnable

Enable the Management Server Topology Discovery Management service.

Syntax `msTdEnable ["ALL"]`

Availability Admin

Description Use this command to enable the Management Server Topology Discovery Management Service locally or fabric-wide. This command enables the Topology Discovery Management Service on the local switch and commits the change to the flash memory of the local switch. If the optional operand ALL is given, then the command is executed on the entire fabric.

Once enabled, even in the event of a reboot, the switch will boot with the Management Server Topology Discovery Management Service enabled.

Topology Discovery Management requires the attached devices that include attached switches to support the RNID ELS command.

Operands This command has the following operand:

"ALL" Specify "ALL" to enable the Topology Discovery Management function on all switch's in the fabric. The operand "ALL" must be enclosed in quotation marks and must be in capital letters. This operand is optional.

Example **To enable the Management Server Topology Discovery service locally or fabric-wide:**

```
switch:admin> msTdEnable
  Committing configuration...done.
switch:admin> msTdEnable "ALL"
  Committing configuration...done.
```

See Also `msTdDisable`
`msTdReadConfig`

msTDReadConfig

Display the status of Management Server Topology Discovery service.

Syntax `msTdReadConfig`

Availability All users

Description Use this command to check whether the Management Server Topology Discovery service is enabled.

Operands None

Example **To display the status of the Topology Discovery service:**

```
switch:admin> msTdReadConfig
*MS Topology Discovery is Enabled.
switch:admin>
```

See Also `msTdEnable`
`msTdDisable`

myid

Display the current login session details.

Syntax `myid`

Availability Admin

Description Use this command to display the status of the system and the login session details. The status shows whether the system is Redundant, Non-Redundant, or Unknown.

The login session gives details of the following:

- ◆ Which CP/Switch (or console/serial port) was used to log in
- ◆ The IP address of the current login session for Telnet or the name of the current Console port or the serial port (if modem login used).
- ◆ The current CP's mode (Active , Standby ,or Unknown)
- ◆ The current system status (Redundant, Non-Redundant ,or Unknown).

Operands None

Example **To display current login information:**

```
switch:admin> myid
Current Switch: switch0
Session Detail: Console Port (/dev/ttyS0) Active Redundant
```

See Also `version`

nbrStatsClear

Reset FSPF interface counters.

Syntax `nbrStatsClear [slotnumber/] [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 operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

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

When this command is specified with no operand, the statistics are cleared for all interfaces.

Example To display how to reset the counters on port 4:

```
switch:admin> nbrstatsclear 1/4
```

See Also interfaceShow
portShow
switchShow

nbrStateShow

Display FSPF neighbor's state.

Syntax `nbrStateShow [slotnumber/] [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.

Table 1-17 shows the fields displayed:

Table 1-17 nbrStateShow 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 operands:

slotnumber Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

portnumber Specify the port on the local switch that connects to the neighbor being displayed. Valid values for port number vary depending on the switch type. This operand is optional.

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

```
switch:admin> nbrStateShow 2/0
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.

Syntax	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 operand type is supplied, only devices of specified FC-PH type are displayed. If type is omitted, all devices are displayed.

Specifying the type operand causes the switch to send out a query to every switch in the fabric. On a large fabric, it is recommended *not* to run a script that repeatedly issues the nsAllShow command with a type operand specified.

Operand This command has the following operand:

type Specify the FC-PH type code. This operand is optional. The valid values for this operand are 0 to 255. Below are two specific FC-PH device type codes:

8 = FCP type device
4, 5 = FC-IP type device

Other FC-PH types are displayed in the format *x* ports supporting FC4 code where *x* is the number of ports of a type, and code is the FC-PH type code.

Example To display all devices in the Fabric, followed by all type 8 (SCSI-FCP) devices and all type 5 (SCSI-FCIP) devices:

```
switch:admin> nsAllShow
  12 Nx_Ports in the Fabric {
  011200 0118e2 0118e4 0118e8 0118ef 021200
  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.

Syntax 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 command nsAllShow displays information from all switches.

Each line of output is shown in Table 1-18:

Table 1-18 nsShow Output

Output	Description
*	Indicates a cached entry from another switch.
Type	U for unknown, N for N_Port, NL for NL_Port.
COS	List of classes of service supported by device.
PID	24-bit Fibre Channel address.
PortName	Device port World Wide Name.
NodeName	Device node World Wide 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
- ◆ Hard address and/or port IP address

Operands None

Example To display local name server information:

```
switch:admin> nsShow
}The Local Name Server has 1 entry {
Type Pid    COS    PortName                NodeName                TTL(sec)
N    060300;   2,3;10:00:00:00:c9:24:0d:b3;20:00:00:00:c9:24:0d:b3; na
FC4s: FCP
Fabric Port Name: 20:03:00:60:69:00:54:e9
```

See Also nsAllShow
 switchShow

passwd

Change system login name and password.

Syntax `passwd [-o] ["user"]`

Availability All users

Description Use this command to change the system passwords. The login names cannot be modified in v4.0.

To change the password for a specific user, enter the command with the optional "user" operand.

The password must have 6 to 8 characters. If more than 8 characters are entered, only the first 8 characters are used for password validation at user login.

The new password must fulfill these rules:

- ◆ Must not be the same as the previous password;
- ◆ Must not match either the username or any word of the realname, either in normal or in reverse order, or at the beginning or at the end.
- ◆ Must contain characters out of at least two of the following classes: upper and lower case letters, digits, or nonalphanumeric characters.

The currently logged in user can change the passwords for their own security level, and any security level below. The hierarchy of user login levels is as follows:

1. root
2. factory
3. admin
4. user

Use the following options to control input:

ENTER	When entered at a prompt with no preceding input, accepts the default value (if applicable) and moves to the next prompt.
CONTROL-D (end of file)	When entered at a prompt with no preceding input, terminates the command and saves changes made. This key combination may be different on your system.

Operands This command has the following operands:

-o	Specify this operand to turn off simplicity checks on the new password. This is intended to allow simple initial passwords given by the system. This option is only available to the root or admin user.
user	Specify the name of the user, in quotation marks, for whom the login name and password are to be changed. In v3.0, you can also modify the name of the user login ID. This operand is optional.

Example To change the admin user name and password:

```
switch:admin> passwd "admin"  
Changing password for admin  
Enter new password: *****  
Re-type new password: *****  
Password changed.  
Saving password to stable storage.  
Password saved to stable storage successfully.
```

Errors All error messages are preceded by the command name with one of the messages appended as shown in Table 1-19:

Table 1-19 Error Messages

Error Message	Description
User is not a valid user name.	You have not specified a username that is a valid, recognized use 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 username 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 pressed ENTER, choosing not to change the password.
Passwords do not match.	You have not correctly verified the new password.

See Also login
logout

perfAddEEMonitor

Add end-to-end monitor to a port.

Syntax `perfAddEEMonitor [slotnumber/]portnumber, "SourceID", "DestID"`

Availability Admin

Description Use this command to add an end-to-end monitor to a port. The monitor counts the number of words received, number of words transmitted, and number of CRC errors detected with frames qualified using either of following two conditions.

- ◆ For frames received at the port (with end-to-end monitor installed) the frame SID is the same as *SourceID* and frame DID is the same as *DestID*. Both RX_COUNT and CRC_COUNT will be updated accordingly.
- ◆ For frames transmitted from the port (with End-to-End monitor installed) the frame DID is the same as *SourceID* and frame SID is the same as *DestID*, TX_COUNT will be updated accordingly.

Depending on the application, any port along the routing path can be selected for such monitoring.

For example, to monitor traffic flowing from point A, receiving at port C transmitting at port D to reach point B, and flowing back from B to A. You can install a monitor on port C, specify point A as *SourceID* and point B as *DestID*. Then RX_COUNT counts the traffic flow from A to B, and CRC_COUNT counts the frames with CRC error from A to B. TX_COUNT counts the traffic from B to A.

Similarly, you can install a monitor on port D, specify point B as *SourceID* and point A as *DestID*. Then, RX_COUNT counts the traffic from B to A, CRC_COUNT counts the frames with CRC errors from B to A, and TX_COUNT counts the traffic from A to B.

End-to-end monitors traffic on the receiving port, respective to *SourceID*, only, which implies in the above example, install a monitor on port D with point A as *SourceID* and point B as *DestID* will not generate any counts.

Both RX_COUNT and CRC_COUNT are associated with frames received at port. TX_COUNT is associated with frames transmitted from port.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these performance monitors.

This command requires a Performance Monitoring license.

Operands

This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`portnumber` Specify the port number where you want to add an EE frame monitor. Valid values for the port number vary depending on the switch type. This operand is required.

`SourceID` Specify the 3-byte SID (Source ID) of the originator device. It should be in 0xDDAAPP format, where DD is Domain ID, AA is Area ID, and PP is ALPA ID. For example, 0x058e0f, has a Domain ID of 5, an Area ID of 8e, and an ALPA ID of f.

`DestID` Specify the 3-byte DID (Destination ID) of the destination device. It should be in 0xDDAAPP format, where DD is Domain ID, AA is Area ID and PP is ALPA ID. For example, 0x058e0f, has a Domain ID of 5, an Area ID of 8e, and an ALPA ID of f.

Example To add an end-to-end monitor to blade 7, pot 2:

```
switch:admin> perfAddEEMonitor 7/2, "0x058e0f", "0x1182ef"  
End-to-End monitor number 0 added.  
switch:admin>
```

See Also

- perfAddIPMonitor
- perfAddReadMonitor
- perfAddRWMonitor
- perfAddSCSIMonitor
- perfAddUserMonitor
- perfAddWriteMonitor

perfAddIPMonitor

Add a filter-based monitor for IP frame count.

Syntax `perfAddIPMonitor [slotnumber/]portnumber[, "alias"]`

Availability Admin

Description Use this command to define filter-based monitors to count the number of IP traffic frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user-defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be displayed with the `perfShowFilterMonitor` command.

There is no need to define multiple IP frame monitors on a port.

This command requires a Performance Monitoring License.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

- `portnumber` Specify the port number where you want to add an IP frame monitor. Valid values for port numbers vary depending on the switch type. This operand is required.
- `alias` Specify a name for this monitor. This character string can be a maximum of 10 characters long and must be enclosed in quotation marks. This operand is optional. The default alias is IPFRAME.

Example To add an IP monitor to blade 2, port 4:

```
switch:admin> perfAddIPMonitor 2/4, 2
IP traffic frame monitor #0 added
switch:admin>
```

See Also

```
perfAddEEMonitor
perfAddReadMonitor
perfAddRWMonitor
perfAddSCSIMonitor
perfAddUserMonitor
perfAddWriteMonitor
```

perfAddReadMonitor

Add a filter-based monitor for the SCSI Read command.

Syntax `perfAddReadMonitor [slotnumber/]portnumber[, "alias"]`

Availability Admin

Description Use this command to define filter-based monitors to count the number of SCSI FCP Read commands in Fibre Channel frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user-defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the `perfShowFilterMonitor` command.

The maximum number of filters is eight per port, including user-defined filters, read filters, write filters, and read/write filters.

This command requires a Performance Monitoring license.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

portnumber	Specify the port number where you want to add a SCSI Read frame monitor. Valid values port numbers vary depending on the switch type. This operand is required
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI_RD.

Example **To add a SCSI Read monitor to port 2:**

```
switch:admin> perfAddReadMonitor 2/4, 2
SCSI Read filter monitor #2 added
switch:admin>
```

See Also

```
perfAddEEMonitor
perfAddIPMonitor
perfAddRWMonitor
perfAddSCSIMonitor
perfAddUserMonitor
perfAddWriteMonitor
```

perfAddRWMonitor

Add a monitor for the SCSI Read and Write commands.

Syntax `perfAddRWMonitor [slotnumber/]portnumber[, "alias"]`

Availability Admin

Description Use this command to define filter-based monitors to count the number of SCSI FCP Read and Write commands in Fibre Channel frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the `perfShowFilterMonitor` command.

The maximum number of filters is eight per port including user defined filters, read filters, write filters, and read/write filters.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

portnumber	Specify the port number where you want to add a SCSI Read and Write frame monitor. Valid values for port numbers vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI_RW.

Example To add a SCSI Read and Write monitor to blade 2, port 4:

```
switch:admin> perfAddRWMonitor 2/4
  SCSI Read/Write monitor #1 is added
switch:admin>
```

See Also

```
perfAddEEMonitor
perfAddIPMonitor
perfAddReadMonitor
perfAddSCSIMonitor
perfAddUserMonitor
perfAddWriteMonitor
```

perfAddSCSIMonitor

Add a monitor for SCSI frame count.

Syntax `perfAddSCSIMonitor [slotnumber/]portnumber[, "alias"]`

Availability Admin

Description Use this command to define filter-based monitors to count the number of SCSI traffic frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user-defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the `perfShowFilterMonitor` command.

There is no need to define multiple SCSI frame counters on a port.

This command requires a Performance Monitoring license.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

portnumber	Specify the port number where you want to add a SCSI traffic frame monitor. Valid values for port numbers vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI_Frame.

Example To add a SCSI traffic frame monitor to blade 2, port 4:

```
switch:admin> perfAddSCSIMonitor 2/4
  SCSI traffic frame monitor #0 added
switch:admin>
```

See Also

```
perfAddEEMonitor
perfAddIPMonitor
perfAddReadMonitor
perfAddRWMonitor
perfAddUserMonitor
perfAddWriteMonitor
```

perfAddUserMonitor

Add a user-defined filter-based monitor.

Syntax `perfAddUserMonitor [slotnumber/]portnumber,
"grouplist" [, "alias"]`

Availability Admin

Description Use this command to define a special mechanism to qualify frames for statistics gathering to fit your own special need.

Each group of elements with the same offset will have their comparison result (OR-ed) together before the combined result of each group gets (AND-ed) together for final comparison result. If the final result is logic 1, then the monitor counter will be increased by one.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user-defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the `perfShowFilterMonitor` command.

The maximum number of filters is eight per port, including user defined filters, read filters, write filters, and read/write filters. In addition, there should be no more than six different offsets for each port, and no more than four different values per Offset, user-defined.

This command requires a Performance Monitoring license.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`portnumber` Specify the port number where you want to add a user defined monitor. Valid values for port numbers vary depending on the switch type. This operand is required.

grouplist Specify up to 6 sets of Offset, Mask, and ValueList separated by a semicolon (;). The entire grouplist operand must be enclosed in quotation marks. This operand is required.

The grouplist operand must be specified in the following format:

```
"offset, Mask, ValueList; offset, Mask, ValueList"
```

For example:

```
"4, 0xff, 0x22; 12, 0xff, 0x01"
```

The *grouplist* component values are as follows:

Offset - Specify the offset within the frame. Offset **0** is the first byte of the SOF, and offset **4** is the first byte of the frame header. The Offset must be in decimal format. Valid values for Offset are **0, [4-63]**. Offset **0** is a special case which can be used to monitor the first 4 bytes SOFx frames. EOF can not be monitored.

Mask - Specify the mask value to be applied (ANDed) to frame contents.

ValueList - Specify up to four values that need to be captured from frame contents. The *ValueList* can be either hexadecimal or decimal format.

SOFx frames are considered a special case. The Offset is specified as 0x0, *valueList* are specified with:

- 0 - SOFf
- 1 - SOFc1
- 2 - SOFi1
- 3 - SOFn1
- 4 - SOFi2
- 5 - SOFn2
- 6 - SOFi3
- 7 - SOFn3

alias Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional.

Example To add a filter based monitor for all Extended Link Service request (R_CTL=0x22 and TYPE=0x01) to blade 2, port 4:

```
switch:admin> perfAddUserMonitor 2/4, "4, 0xff, 0x22; 12, 0xff, 0x01"  
User monitor #0 added  
switch:admin>
```

As a special case, to add a filter-based monitor for SOFi3 on blade 2, port 4:

```
switch:admin> perfAddUserMonitor 2/4, "0, 0xff, 6"  
User monitor #1 added  
switch:admin>
```

See Also

- perfAddEEMonitor
- perfAddIPMonitor
- perfAddReadMonitor
- perfAddRWMonitor
- perfAddSCSIMonitor
- perfAddWriteMonitor

perfAddWriteMonitor

Add a filter-based monitor for the SCSI Write command.

Syntax `perfAddWriteMonitor [slotnumber/]portnumber[, "alias"]`

Availability Admin

Description Use this command to define filter-based monitors to count the number of SCSI FCP Write commands in Fibre Channel frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user-defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the `perfShowFilterMonitor` command.

The maximum number of filters is eight per port, including user-defined filters, read filters, write filters and read/write filters.

This command requires a Performance Monitoring license.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

portnumber	Specify the port number where you want to add a SCSI Write command monitor. Valid values for port numbers vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI_Write.

Example **To add a SCSI Write command monitor to blade 2, port 4:**

```
switch:admin> perfAddWriteMonitor 2/4
SCSI Write filter monitor #0 added
switch:admin>
```

See Also

```
perfAddEEMonitor
perfAddIPMonitor
perfAddReadMonitor
perfAddRWMonitor
perfAddSCSIMonitor
perfAddUserMonitor
```

perfCfgClear

Clear the previously saved performance monitoring configuration settings from flash memory.

Syntax perfCfgClear

Availability Admin

Description Use this command to clear the previously saved end-to-end and filter configuration settings (data structures) of performance monitoring from flash memory.

This command requires a Performance Monitoring license.

Operands None

Example To clear the performance monitoring information from flash memory:

```
switch:admin> perfCfgClear
This will clear Performance Monitoring settings in FLASH ROM.
The RAM settings won't change. Do you want to continue? [y|n]y
Please wait ...
done.
Performance Monitoring configuration cleared from FLASH.
switch:admin>
```

See Also perfCfgRestore
perfCfgSave

perfCfgRestore

Restore performance monitoring configuration settings from flash memory.

Syntax perfCfgRestore

Availability Admin

Description Use this command to restore the performance monitoring configuration information from flash memory.

This command requires a Performance Monitoring license.

Operands None

Example **To restore the performance monitoring configuration information from flash memory:**

```
switch:admin> perfCfgRestore
This will overwrite current Performance Monitoring
settings in RAM. Do you want to continue? [y|n]y
Please wait ...
Performance monitoring configuration restored from FLASH ROM.
switch:admin>
```

See Also perfCfgClear
 perfCfgSave

perfCfgSave

Save performance monitoring configuration settings to flash memory.

Syntax perfCfgSave

Availability Admin

Description Use this command to save the current end-to-end and filter configuration settings (data structures) of performance monitoring into flash memory. This enables the performance monitoring configuration to be saved over power off cycles.

This command requires a Performance Monitoring license.

Operands None

Example To save the current performance monitoring configuration to firmware:

```
switch:admin> perfCfgSave
This will overwrite previously saved Performance Monitoring
settings in FLASH ROM. Do you want to continue? [y|n]y
Please wait ...
Committing configuration...done.
Performance monitoring configuration saved in FLASH ROM.
switch:admin>
```

See Also perfCfgClear
perfCfgRestore

perfClrAlpaCrc

Clear an ALPA device's CRC count by the port and ALPA.

Syntax `perfClrAlpaCrc [slotnumber/]portnumber[, ALPA]`

Availability Admin

Description Use this command to clear specific ALPA device's CRC error counter. If the *ALPA* is provided as an operand, only the counters for that device are reset; if no *ALPA* is specified this command clears the CRC counters for all *ALPA* devices on the specified port.

This command requires a Performance Monitoring license.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`portnumber` Specify the port number where you want to reset the CRC error counters. Valid values for port numbers vary depending on the switch type. This operand is required.

`ALPA` Specify the ALPA address if you want to clear the CRC error counter for a particular device. This operand is optional.

Example To clear CRC count on a particular ALPA on port 15, and then clear CRC count for all ALPAs on blade 2, port 15:

```
switch:admin> perfClrAlpaCrc 2/15, 0x59
CRC error count at ALPA 0x59 on port 15 is cleared.
switch:admin>
switch:admin> perfClrAlpaCrc 2/15
This will clear all ALPA CRC Counts on port 15
Do you want to continue? [y|n]y
Please wait ...
All alpa CRC counts are cleared on port 15.
switch:admin>
```

See Also perfShowAlpaCrc

perfDeIEEMonitor

Delete an end-to-end monitor on port.

Syntax `perfDeIEEMonitor [slotnumber/]portnumber[, monitorId]`

Availability Admin

Description Use this command to delete an end-to-end monitor on a port.

This command requires a Performance Monitoring license.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`portnumber` Specify the port number where you want to delete an end-to-end monitor. Valid values for port numbers vary depending on the switch type. This operand is required.

`monitorId` Specify the monitor number you want to delete. Monitor numbers are defined when you create the monitor on a port. This operand is optional. When not specified, all monitors on the port are deleted.

Example To delete an end-to-end monitor on blade 7, port 2:

```
switch:admin> perfDeleEEMonitor 7/2, 5  
End-to-End monitor number 5 deleted  
switch:admin>
```

See Also perfShowEEMonitor
perfAddEEMonitor

perfDelFilterMonitor

Delete a filter-based monitor.

Syntax `perfDelFilterMonitor [slotnumber/]portnumber [, monitorId]`

Availability Admin

Description Use this command to delete a filter-based monitor.

After a successful execution of this command, the telnet shell confirms that this monitor has successfully been deleted. Prior to issuing this command, verify all the valid monitor numbers and user-defined aliases on a specific port using the `perfShowFilterMonitor` command to make sure that the right monitor will be deleted.

This command requires a Performance Monitoring license.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

portnumber	Specify the port number where you want to remove a filter monitor. Valid values for port numbers vary depending on the switch type. This operand is required.
monitorId	Specify the monitor number you want to delete. Monitor numbers are defined when you create the monitor on a port. This operand is optional. If not specified, all monitors on the port are deleted.

Example **To delete filter monitor 4 on blade 2, port 3:**

```
switch:admin> perfDelFilterMonitor 2/3, 4
The specified filter-based monitor is deleted.
switch:admin>
```

See Also

perfShowFilterMonitor
perfAddUserMonitor

perfHelp

Display performance monitoring help information.

Syntax perfHelp

Availability All users

Description Use this command to display the available performance monitoring help commands.

This command requires a Performance Monitoring license.

Operands None

Example To display commands related to performance monitoring:

```
switch:admin> perfHelp
perfCfgSave          Save Performance configuration
perfCfgRestore       Restore Performance configuration
perfCfgClear         Clear Performance settings from RAM
perfClrAlpaCrc       Clear ALPA device's CRC count
perfShowAlpaCrc      Get ALPA CRC count by port and ALPA
perfAddEEMonitor     Add end-to-end monitor to a port
perfDeleEEMonitor    Delete an end-to-end monitor on port
perfShowEEMonitor    Show user-defined end-to-end monitors
perfSetPortEEMask    Set overall mask for E-to-E monitors
perfShowPortEEMask   Show the current end-to-end mask
perfAddUserMonitor   Add filter-based monitor
perfAddReadMonitor   Add filter-based monitor - SCSI Read
perfAddWriteMonitor  Add filter-based monitor - SCSI Write
perfAddRWMonitor     Add monitor - SCSI Read and Write
perfAddSCSIMonitor   Add monitor for SCSI frame count
perfAddIPMonitor     Add monitor for IP traffic frame count
perfDelFilterMonitor Remove filter-based monitor
perfShowFilterMonitor Show filter-based monitors

switch:admin>
```

perfSetPortEEMask

Set overall mask for end-to-end (EE) monitors.

Syntax `perfSetPortEEMask [slotnumber/]portnumber,
"TxSIDMsk", "TxDIDMsk", "RxSIDMsk", "RxDIDMsk"`

Availability Admin

Description Use this command to set the mask for the EE monitors of a port. This command enables a user to selectively choose the kind of Fibre Channel frames in which the number of words are to be counted.

EE monitors are defined by the `perfAddEEMonitor` command using SID and DID pairs. This command can be used to match the entire SID or DID to trigger the monitor to count Fibre Channel words. It can also be used to match one or two of the three fields (Domain ID, Area ID, and ALPA ID) in SID and DID pair to trigger the monitor.

The EE mask is used to set up a flag on each field to control whether the field is used to trigger the monitor.

When a flag bit is set (ff), the corresponding field will be used to qualify the triggering of the monitor. If a flag is reset (00), then that field is ignored and its value will not be used to qualify monitor triggering.

There is only one EE mask per port. The mask is applied to all eight EE monitors available on a port. The default EE mask value upon poweron is all eight EE monitors set. When you reset mask, the counters are also reset to 0.

This command requires a Performance Monitoring license.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`portnumber` Specify a port number. Valid values for port numbers vary depending on the switch type. This operand is required.

`TxSIDMsk` Specify the source ID mask in *dd:aa:pp* format, where *dd* is Domain ID mask, *aa* is Area ID mask and *pp* is ALPA ID mask. For example, 00:ff:00 uses TxSID Area ID to trigger EE monitor comparison.

Specify the following values to turn on or off a specific field:

00 - Specifies that the field does not trigger EE monitors.

ff - Specifies that the field triggers EE monitors.

This operand must be enclosed in quotation marks. This operand is required.

STxDIDMsk	Specify the destination ID mask in <i>dd:aa:pp</i> format. This operand must be enclosed in quotation marks. This operand is required.
RxSIDMsk	Specify the source ID mask in <i>dd:aa:pp</i> format. This operand must be enclosed in quotation marks. This operand is required.
RxDIDMsk	Specify the destination ID mask in <i>dd:aa:pp</i> format. This operand must be enclosed in quotation marks. This operand is required.

Example To set the overall mask for end-to-end monitors on blade 2, port 4:

```
switch:admin> perfSetPortEEMask 2/4, "00:00:00", "ff:ff:ff", "00:00:ff",  
"ff:00:00"
```

The EE mask on port 6 is set and EE counters are reset.
switch:admin>

See Also perfAddEEMonitor

perfShowAlpaCrc

Display the ALPA CRC count by port or by ALPA.

Syntax `perfShowAlpaCrc [slotnumber/]portnumber[, ALPA]`

Availability Admin

Description Use this command to display a specific *ALPA* device CRC error count by the port or *ALPA*. If the *ALPA* operand is specified, only the CRC count for that *ALPA* device is displayed. If the *ALPA* operand is not specified, the CRC count for all the *ALPA* devices on a specified port are displayed. CRC count is a 64-bit counter. When the count is over 32 bits, the CRC count value is displayed in hexadecimal. Otherwise, CRC count is displayed in decimal format.

This command requires a Performance Monitoring license.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

portnumber	Specify the port number where you want to count the CRC errors. Valid values for port numbers vary depending on the switch type. This operand is required.
ALPA	Specify the ALPA address if you want to get the CRC errors for a particular device. This operand is optional.

Example To display the CRC error count for all ALPA devices on blade 2, port 4:

```
switch:admin> perfShowAlpaCrc 2/4
AL_PA  CRC count
-----
0x01   0
switch:admin>
```

See Also perfClrAlpaCrc

perfShowEEMonitor

Display end-to-end monitor information and frame traffic on a port.

Syntax `perfShowEEMonitor [slotnumber/]portnumber[, interval]`

Availability Admin

Description Use this command to display end-to-end monitor information and frame traffic on a port. This command can display (if no *interval* operand is specified):

- ◆ Key — Monitor number
- ◆ SID — Sending ID
- ◆ DID — Destination ID
- ◆ Owner_app — TELNET or WEB_TOOLS
- ◆ Owner_ip_addr — IP address of the owner of the filter monitor
- ◆ Tx_count — Transmitting frame count
- ◆ Rx_count — Receiving frame count
- ◆ Crc_count — CRC error count

If you do not specify a value for the *interval* operand, this command displays end-to-end monitor information and a cumulative count of the traffic detected by the monitor. If you specify a value for the *interval* operand this command displays a snapshot of the traffic at the specified interval.

This command requires a Performance Monitoring license.

Operands

This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`portnumber` Specify the port number where you want to display the end-to-end traffic. Valid values for port numbers vary depending on the switch type. This operand is required.

`interval` Specify an interval in seconds. This operand is optional.

Example To display end to end monitor frame traffic on blade 4, port 5 at an interval of every 6 seconds:

```
switch:admin> perfShowEEMonitor 4/5, 6
perfShowEEMonitor 4 1: Tx/Rx are # of bytes and crc is # of crc errors
      0          1          2          3          4
-----
crc Tx  Rx   crc Tx  Rx   crc Tx  Rx   crc Tx  Rx   crc Tx  Rx
=====
0   0   0     0   0   0     0   0   0     0   0   0     0   0   0
0 53m 4.9m   0 53m 4.9m   0 53m 4.9m   0 53m 4.9m   0 53m 4.9m   0 53m 0
0 53m 4.4m   0 53m 4.4m   0 53m 4.4m   0 53m 4.4m   0 53m 4.4m   0 53m 0
0 53m 4.8m   0 53m 4.8m   0 53m 4.8m   0 53m 4.8m   0 53m 4.8m   0 53m 0
0 53m 4.6m   0 53m 4.6m   0 53m 4.6m   0 53m 4.6m   0 53m 4.6m   0 53m 0
0 53m 5.0m   0 53m 5.0m   0 53m 5.0m   0 53m 5.0m   0 53m 5.0m   0 53m 0
0 53m 4.8m   0 53m 4.8m   0 53m 4.8m   0 53m 4.8m   0 53m 4.8m   0 53m 0
0 53m 4.5m   0 53m 4.5m   0 53m 4.5m   0 53m 4.5m   0 53m 4.5m   0 53m 0
0 52m 4.5m   0 52m 4.5m   0 52m 4.5m   0 52m 4.5m   0 52m 4.5m   0 52m 0
0 52m 5.0m   0 52m 5.0m   0 52m 5.0m   0 52m 5.0m   0 52m 5.0m   0 52m 0
0 52m 4.5m   0 52m 4.5m   0 52m 4.5m   0 52m 4.5m   0 52m 4.5m   0 52m 0
0 52m 4.6m   0 52m 4.6m   0 52m 4.6m   0 52m 4.6m   0 52m 4.6m   0 52m 0
```

To display EE monitors on blade 4, port 5:

```
switch:admin> perfShowEEMonitor 4/5
There are 7 end-to-end monitor(s) defined on port 5.
KEY   SID     DID     OWNER_APP  OWNER_IP_  TX_COUNT  RX_COUNT  CRC_COUNT
      ADDR
-----
0 0x21300 0x21dda TELNET    N/A       0x00000004d0ba9915 0x0000000067229e65 0x0000000000000000
1 0x21300 0x21ddc TELNET    N/A       0x00000004d0baa754 0x0000000067229e65 0x0000000000000000
2 0x21300 0x21de0 TELNET    N/A       0x00000004d0bab3a5 0x0000000067229e87 0x0000000000000000
3 0x21300 0x21de1 TELNET    N/A       0x00000004d0bac1e4 0x0000000067229e87 0x0000000000000000
4 0x21300 0x21de2 TELNET    N/A       0x00000004d0bad086 0x0000000067229e87 0x0000000000000000
```

If you do not specify an interval the EE-based monitor traffic count is displayed in 64-bit format and is cumulative.

See Also `perfAddEEMonitor`

perfShowFilterMonitor

Display filter-based monitor information and frame traffic for a port.

Syntax `perfShowFilterMonitor [slotnumber/]portnumber [, interval]`

Availability Admin

Description Use this command to display all the filter-based monitors defined on the specified port and the traffic count values. This command can display (if no *interval* operand is specified):

- ◆ Key — Monitor number
- ◆ Alias — Monitor alias name
- ◆ Owner_app— TELNET or WEB_TOOLS
- ◆ Owner_ip_addr — IP address of the owner of the filter monitor
- ◆ Frame_count — Cumulative 64-bit frame count

If you do not specify a value for the *interval* operand, this command displays a cumulative count of the traffic detected by the monitor. If you specify a value for the *interval* operand, this command displays a snapshot of the traffic at the specified interval.

This command requires a Performance Monitoring license.

Operands This command has the following operand:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`portnumber` Specify the port number where you want to display the filter monitors. Valid values for port numbers vary depending on the switch type. This operand is required.

`interval` Specify an interval in seconds. This operand is optional.

Example To display filter monitor traffic on blade 2, port 5 at an interval of every 6 seconds:

```
switch:admin> perfshowfiltermonitor 2/5, 6
```

```
perfShowFilterMonitor 5 1
  0          1          2          3          4          5          6
#Frames    #CMDs     #CMDs     #Frames  #Frames  #CMDs     #CMDs
-----
  0          0          0          0          0          0          0
26k        187         681         682         682         494         187
26k        177         711         710         710         534         176
26k        184         734         734         734         550         184
26k        182         649         649         649         467         182
26k        188         754         755         755         567         184
26k        183         716         716         717         534         183
26k        167         657         656         655         488         167
26k        179         749         749         749         570         179
26k        164         752         752         752         588         164
26k        190         700         700         700         510         190
26k        181         701         701         701         520         181
26k        200         750         750         751         550         201
26k        180         692         692         691         512         179
26k        179         696         696         696         517         179
26k        187         720         720         720         533         187
26k        200         722         722         722         522         200
26k        204         717         717         717         513         204
```

To display filter monitor information on blade 2, port 5:

```
switch:admin> perfshowfiltermonitor 2/5
```

There are 7 filter-based monitors defined on port 5.

KEY	ALIAS	OWNER_APP	OWNER_IP_ADDR	FRAME_COUNT
0	SCSI_Frame	TELNET	N/A	0x00000000002c2229
1	SCSI_WR	TELNET	N/A	0x000000000000464a
2	SCSI_RW	TELNET	N/A	0x000000000000fd8c
3	SCSI_RW	WEB_TOOLS	192.168.169.40	0x0000000000007ba3
4	SCSI_RW	WEB_TOOLS	192.168.169.190	0x0000000000004f0e
5	SCSI_RD	WEB_TOOLS	192.168.169.40	0x0000000000002208
6	SCSI_WR	WEB_TOOLS	192.168.169.40	0x000000000000033a

```
switch:admin>
```

If you do not specify an *interval*, the filter-based monitor frame count is displayed in 64-bit format and is cumulative.

See Also `perfAddUserMonitor`

perfShowPortEEMask

Displays the current end-to-end mask of a port.

Syntax `perfShowPortEEMask [slotnumber/]portnumber`

Availability Admin

Description Use this command to display the current end-to-end mask of a port. There are only two commands that can modify the value of EE mask: `perfSetPortEEMask` and `perfCfgRestore`.

The end-to-end mask has 12 fields:

```
TxSID Domain:  on
TxSID Area:    on
TxSID ALPA:    on
TxDID Domain:  on
TxDID Area:    on
TxDID ALPA:    on
RxSID Domain:  on
RxSID Area:    on
RxSID ALPA:    on
RxDID Domain:  on
RxDID Area:    on
RxDID ALPA:    on
```

The fields that are marked on are used to trigger end-to-end monitors. The default value of the EE mask is all fields set on.

This command requires a Performance Monitoring license.

Operands This command has the following operands:

slotnumber Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

portnumber Specify the port number where you want to display the end-to-end mask. Valid values for port number vary depending on the switch type. This operand is required.

Example To display the port end-to-end mask on blade 2, port 4:

```
switch:admin> perfShowPortEEMask 2/4
TxSID Domain: on
TxSID Area: on
TxSID ALPA: off
TxDID Domain: on
TxDID Area: on
TxDID ALPA: off
RxSID Domain: on
RxSID Area: on
RxSID ALPA: off
RxDID Domain: on
RxDID Area: on
RxDID ALPA: off
switch:admin>
```

See Also

- perfAddEEMonitor
- perfDeleteEEMonitor
- perfShowEEMonitor
- perfSetPortEEMask
- perfShowPortEEMask

portCfgEport

Enable or disable a port from becoming an E_Port.

Syntax `portCfgEport [slotnumber/]portnumber, mode`

Availability Admin

Description This command allows a user to enable/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 nonvolatile memory and is persistent across switch reboot or power cycle.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

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 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 <i>port</i> operand is present, this operand must also be present. This operand is required.

When no operands are specified, the command reports a list of ports that are disabled from becoming E_Ports.

Example To disable blade 2 port 3 from becoming an E_Port:

```
switch:admin> portCfgEport 2/3, 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.

Syntax `portCfgEport [slotnumber/]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 nonvolatile memory and is persistent across switch reboot or power cycle.

Operands This command has the following operands:

slotnumber Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

<i>portnumber</i>	Specify the port number to be configured. Valid values for port number vary depending on the switch type. This operand is required.
<i>mode</i>	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 sblade 2, port 3 as a locked G_Port:

```
switch:admin> portCfgGport 2/3, 1
done.
```

See Also

```
portShow
switchShow
configure
portCfgShow
```

portCfgLongDistance

Configure a port to support long distance links.

Syntax `portCfgLongDistance [slot/]port [, distance_level]
[, VC_translation_link_init]`

Availability Admin

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 nonvolatile memory and is persistent across switch reboot or power cycle.

The Extended Fabrics license key is required to use the full functionality of this command. Refer to the *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Extended Fabric User Guide* for more information.

When this command is invoked without the *port* operand, you are prompted to enter the long-distance level number. The level value must be one of the levels shown in Table 1-20:

Table 1-20 Level Values

Level	Description
L0	Deconfigure port to be a regular switch port. This option supports up to 10 km for 1 G, or 5 km for 2 G.
LE	Level E mode is for E_ports for distances beyond 5 km and up to 10 km especially for 2 G link speeds. LE does not require ExtendedFabric license.
L1	Level-one long distance, up to 50 km for a 1 Gb and a 2 Gb link.
L2	Level-two long distance, up to 100 km for a 1 Gb link and 50 km for a 2 Gb link.

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`.

Operands This command has the following operands:

<code>slotnumber</code>	<p>Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.</p> <p>The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).</p> <p>This operand is not required for switches that do not have blades.</p>
<code>portnumber</code>	<p>The port number to be configured. Valid values for port number vary depending on the switch type. This operand is required.</p>
<code>distance</code>	<p>This operand indicates the distance to the connected port. This operand is required. The valid values for this operand are:</p> <p>L0 = Deconfigure port to be regular switch port. This option supports up to 10 km links for 1 G, or 5 km links for 2 G.</p> <p>LE = Level E mode is for E_ports for distances beyond 5km and up to 10km especially for 2 G link speeds. LE does not require extended fabric license.</p> <p>L1 =Level-one long distance, up to 50 km for a 1 Gb and a 2 Gb link.</p> <p>L2 = Level-two long distance, up to 100 km for a 1 Gb link and 50 km for a 2 Gb link.</p>
<code>vc_translation_</code> <code>link_init</code>	<p>Specify 1 to activate long distance link initialization mode. Specify 0 to deactivate this mode. The default value is 0 (disabled). This operation is optional.</p>

Limitations Since the total number of frame buffers is limited in quad, when one of the ports in the quad is configured as a long distance port, all remaining ports must be level zero ports only (that is, none of the remaining ports in the quad can be a long distance port). Further more, if one port is configured as a level 2 long distance port, none of the remaining ports in the quad can be used as an E_Port.

A quad is defined as a group of four adjacent ports that share a common pool of frame buffers. Port 0-3 belong to a quad, so do port 4-7, and so on.

Certain buffers are dedicated for each port, and others are shared among the ports. In Extended Fabric mode, one port is given an increase of dedicated buffers from this pool. Refer to the *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Extended Fabric User Guide* for more information on limitations in port configurations.

Example The following example is for a 100 km link on a port in a v4.0 switch:

```
switch:admin> portCfgLongDistance 2/3, L2
done.
```

The following example is for a 100km link on a port in a v4.0 switch with long distance link initialization protocol enabled:

```
switch:admin> portCfgLongDistance 2/3 L2 1
done.
```

See Also configure
portShow
switchShow

portCfgLport

Lock a port as an L_PORT.

Syntax portCfgLport [slotnumber/]portnumber, lockmode[,
privatemode]

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 never attempts 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:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

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

<code>lockmode</code>	Specify 1 to configure the specified port as a locked L_PORT. Specify 0 to de-configure the specified port from its previous role as a locked L_PORT. This operand is required.
<code>privatemode</code>	Specify 1 to configure the L_PORT as a private L_PORT (then FLOGI will be rejected). Specify 0 to configure the L_PORT as a normal public L_PORT. The default value is 0. This operand is optional.

Example To configure switch blade 2 port 3 as a locked L_PORT:

```
switch:admin> portCfgLport 2/3, 1
done.
```

See Also

```
portShow
switchShow
configure
```

portcfgMcastLoopback

Configure a port to receive multicast frames.

Syntax `portCfgMcastLoopback port, 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 KB/s 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 loopback 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 nonvolatile memory and is persistent across switch reboot or power cycle.

The user will be prompted in the following cases:

- ◆ 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 slowly blink green indicating a loopback state. Its laser, if optical GBICed, 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.

port, mode Specify the value 1 to dedicate the port number as a multicast loopback port. Specify the value 0 to deconfigure the portnumber from its previous role as a multicast loopback port. This operand is required.

Example To configure port 3 as a multicast loopback port:

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

See Also `portShow`
`switchShow`
`mcastShow`
`configure`

portCfgShow

Display port configuration settings.

Syntax `portCfgShow [slotnumber/] [portnumber]`

Availability All users

Description Use this command to display the current configuration of all ports.

The following configuration information is displayed:

- ◆ Port Speed is displayed as 1 G, 2 G, or AN (when in Auto speed Negotiation mode). This value is set by the `portCfgSpeed` command.
- ◆ Trunk Port is displayed as ON when port is set for trunking or blank (..) when trunking is disabled on the port. This value is set by the `portCfgTrunkport` command.
- ◆ The Long Distance setting of the port is shown as blank (..) when long distance mode is off, L1 when the 1 Gb and 2 Gb link is up to 50 km, or L2 when the 1 Gb link is up to 100 km and the 2 Gb link is up to 50 km. This value is set by the `portCfgLongDistance` command.
- ◆ The VC Link Init mode data is shown as blank (..) when the long distance link initialization option is turned off and (ON) when it is turned on. This value is set by the `portCfgLongDistance` command.
- ◆ Locked L_Port is displayed as ON when port is locked to L_Port only or blank (..) when L_Port lock mode is disabled (and it behaves as a U_Port). This value is set by the `portCfgLport` command.
- ◆ Locked G_Port is displayed as ON when the port is locked to G_Port only or blank (--) when G_Port lock mode is disabled (and it behaves as a U_Port). This command is set by the `portCfgGport` command.
- ◆ Disabled E_Port is displayed as ON when the port is not allowed to be an E_Port, or blank (--) when the port is allowed to function as an E_Port. This command is set by the `portCfgEport` command.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

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

Example To display the configuration settings of port 5 on blade 7 on a v4.0 switch:

```
switch:admin> portCfgShow 7/15
Area Number:          15
Speed Level:          AUTO
Trunk Port            ON
Long Distance         OFF
VC Link Init          OFF
Locked L_Port         OFF
Locked G_Port         OFF
Disabled E_Port       OFF
Mcast LoopBack        OFF
Delay Flogi           OFF
switch:admin>
```

See Also

- `portCfgEport`
- `portCfgGport`
- `portCfgLport`
- `portCfgLongDistance`
- `portCfgTrunkport`
- `portCfgSpeed`

portCfgSpeed

Configure the port speed level.

Syntax `portCfgSpeed [slotnumber/]portnumber, speed_level`

Availability Admin

Description Use this command to configure the speed of a port to a particular level. After this command is issued, the port is disabled and enabled so that the port comes up with the new speed setting. The configuration is saved in the nonvolatile memory and is persistent across switch reboot or power cycle.

If the command is specified without an operand, you are prompted to enter the speed value.

The output of the `portShow` command displays the current achieved speed of a port and the `portCfgShow` command displays the user desired speed setting for a port.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`portnumber` Specify the port number where you want to set the speed. Valid values for number number vary depending on the switch type. This operand is required.

`speed_level` Specify the speed of a port. This operand is optional. Valid values are one of the following:

- 0** Auto-sensing mode. The port automatically configures for the highest speed.
- 1** 1 Gb/s mode. The port will be at fixed speed of 1 Gb/s.
- 2** 2 Gb/s mode. The port will be at fixed speed of 2 Gb/s.

Example To configure the speed of blade 2, port 5 to 2 Gb/s:

```
switch:admin> portCfgSpeed 2/5, 2  
done.
```

See Also `switchCfgSpeed`
`portShow`

portCfgTrunkport

Configure a port to be enabled or disabled for trunking.

Syntax	<code>portCfgTrunkport [slotnumber/]portnumber, mode</code>
Availability	Admin
Description	Use this command to configure a port to be enabled or disabled for trunking.

This command requires a Trunking license.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`portnumber` Specify the port number where you want to enable or disable trunking. Valid values for port number vary depending on the switch type. This operand is required.

`mode` Specify 1 to enable this port for trunking. Specify 0 to disable this port for trunking. This operand is required.

Example To enable blade 2, port 5 for trunking:

```
switch:admin> portCfgTrunkport 2/5, 1  
done.
```

See Also switchCfgTrunk
portShow
portCfgShow
switchShow

portDisable

Disable a switch port.

Syntax `portDisable [slotnumber/]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 on line 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:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`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 blade 2, port 4:

```
switch:admin> portDisable 2/4  
switch:admin
```

See Also portEnable
portShow
switchShow

portEnable

Enable a switch port.

Syntax `portEnable [slotnumber/]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 on line 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.

Operand This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`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 2/4  
switch:admin
```

See Also

```
portDisable  
portShow  
switchShow
```

portErrShow

Display port error summary.

Syntax `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 as shown in Table 1-21:

Table 1-21 portErrShow Fields

Fields	Description
<code>frames tx</code>	Frames transmitted.
<code>frames rx</code>	Frames received.
<code>enc in</code>	Encoding errors inside frames.
<code>crc err</code>	Frames with CRC errors.
<code>too shrt</code>	Frames shorter than minimum.
<code>too long</code>	Frames longer than maximum.
<code>bad eof</code>	Frames with bad end-of-frame delimiters.
<code>enc out</code>	Encoding error outside of frames.
<code>disc c3</code>	Class 3 frames discarded.
<code>link fail</code>	Link failures (LF1 or LF2 states).
<code>loss sync</code>	Loss of synchronization.
<code>loss sig</code>	Loss of signal.
<code>frjt</code>	Frames rejected with F_RJT.
<code>fbsy</code>	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:    0    0    0    0    0    0    0    0    0    0    0    1    0    0
2:    0    0    0    0    0    0    0    0    0    0    0    1    0    0
3:    0    0    0    0    0    0    0    0    0    0    0    1    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
8:    0    0    0    0    0    0    0    0    0    0    0    1    0    0
9:    0    0    0    0    0    0    0    0    0    0    0    1    0    0
10:   0    0    0    0    0    0    0    0    0    0    0    1    0    0
11:   0    0    0    0    0    0    0    0    0    0    0    1    0    0
12:   0    0    0    0    0    0    0    0    0    0    0    1    0    0
13:   0    0    0    0    0    0    0    0    0    0    0    1    0    0
14:   0    0    0    0    0    0    0    0    0    0    0    1    0    0
15:   0    0    0    0    0    0    0    0    0    0    0    1    0    0
```

See Also `portShow`
`portStatsShow`

portLEDTest

Exercise the user port LEDs.

Syntax `portLEDTest [-npass count | -port portlist]`

Availability Admin

Description Use this command to exercise the LEDs on a switch blade. This command flashes the switch User Ports LEDs on and off by setting the ATTN LEDs to green for **on** condition and black for **off** condition. The SPEED LEDs are initially set to black before the command is executed. The SPEED LEDs are set to green once the command is executed.

Disable the switch using `switchDisable` before using this command. After the command has finished, the ATTN LEDs flash amber indicating the command has finished. Enable the switch using `switchEnable` to set the ATTN LEDs back to black.

Options This command has the following operands:

`-npass count` Specify the number of times to perform this test. The default value is 1. This operand is optional.

`-ports portlist` Specify user port number to exercise the LEDs. The default value is to exercise LEDs all active user ports. This operand is optional.

Example **To flash the user port LEDs for a blade:**

```
switch:admin> portledtest
```

See Also `switchdisable`
`switchenable`

portLogClear

Clear the port log.

Syntax `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 `portLogShow` 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 overwritten).

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.

Syntax `portLogDump [count[, saved[, portid]]]`

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 press ENTER between each page.

Refer to `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. Refer to `uptime` for conditions that cause a fault. `count` is ignored when displaying the saved log. This operand is optional.

`portid` Specify the port to be displayed. All other ports will not be displayed. 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
switch:admin>
```

See Also portLogClear
portLogShow
uptime

portLogShow

Display the port log.

Syntax `portLogShow [count[, saved, portid]]`

Availability All users

Description Use this command to display the port log; 22 entries are displayed at a time.

The `portLogShow` command displays the same information as `portLogDump`, but it allows you to press ENTER after each page of output.

If the port log is disabled, the following message appears as the first line. Refer to `portLogClear` on page 1-337 command for more information.

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

The fields are shown Table 1-22:

Table 1-22 portLogShow Command Field Descriptions

Field	Possible Values	Description
Date 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.	

Table 1-22 portLogShow Command Field Descriptions (*continued*)

Field	Possible Values	Description
Event	Possible events are: start disable enable ioct Tx Rx scn pstate rejec busy ctin ctout erlog loopscn create debug nbrfsm sn fcin fcout read write err frame nsRemQ rscn xalloc xfree xerr xstate payload	switch start or re-start event port is disabled port is enabled lport I/O control is executed frame is transmitted (class is indicated) frame is received (class is indicated) state change notification is posted port changes physical state received frame is rejected received frame is busied CT based request is received CT based response is transmitted message is added to the error log loop state change notification is posted task is created debug message neighbor state transition speed negotiation states income Fibre Channel information unit outgoing Fibre Channel information unit information unit header log from read operation information unit header log from write operation information unit header log of an fc error frame fc frame payload interswitch name server query RSCN allocate an exchange free an exchange exchange error exchange state frame payload
Port	Port number of the affected port.	

Table 1-22 portLogShow Command Field Descriptions (*continued*)

Field	Possible Values	Description
Cmd	Command value description depends on event type: ioctl Tx & Rx scn pstate ctin ctout errlog loopscn	 debug message frame payload size new state (see state codes below) new physical state. Refer to Table 1-24 for a list of pstate code values. CT-subtype: fc = Simple Name Server, f8 = Alias Server same as ctin above error level (see errShow) Current loop state during loop initialization. Possible values are: OLP — offline (disconnected or nonparticipating) LIP — FL_Port entered INITIALIZING or OPEN_INIT state LIM — LISM completed, FL_Port became the loop master BMP — loop initialization completed, FL_Port in MONITORING state OLD — port transited to the OLD_PORT state TMO — loop initialization times out

Table 1-22 portLogShow Command Field Descriptions (*continued*)

Field	Possible Values	Description
Args	The command arguments description depends on event type:	
	start	start type: 0 = enable ports, 100 = disable ports disablestate can be one of the following: 1 - Online, 2 - Offline, 3 - Testing, 4 - Faulty, 5 - E_Port, 6 - F_Port, 7 - Segmented. enablemode: 0 = normal, non-zero = loopback
	ioct	II/O control arguments. v.3.0 only.
	Tx & Rx reject busyFC-PH busy reason ctin	first two header words and first payload word FC-PH reject reason FC-PH busy reason 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 errShow)
	loopsn	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. Refer to Table 1-26 on page 1-345 for a list of LIP code values.

Table 1-23 State Codes

State Code	Description
1	Online
2	Offline
3	Testing
4	Faulty
5	E_Port
6	F_Port
7	Segmented

Table 1-24 Pstate Codes

Pstate Code	Description
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 1-25 Speed Negotiation States

Speed Negotiation State	Description
ITTT	start negotiation
NM	negotiate master
WS	wait for signal
NF	negotiation follow
NC	negotiation complete

Table 1-26 Lip Reason Codes

LIP Reason 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 reinitialization

Operands This command has the following operands:

<i>count</i>	Specify the maximum number of lines to display. Only the most recent count entries are displayed. This operand is optional.
<i>saved</i>	Specify a nonzero value to display the saved port log from the last switch fault. See <code>uptime</code> for a list of conditions that cause a fault. <i>count</i> is ignored when displaying the saved log. This operand is optional.
<i>portid</i>	Specify the area number of ports to be displayed. This operand is only valid for v4.0. If a port area number is specified, all other ports on the switch are ignored. This operand is optional.

Example The following example shows 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 24
```

time	task	event	port	cmd	args
17:05:30.384	PORT	Rx	0	40	02ffffffd,00ffffffd,08fbffff,14000000
17:05:30.384	PORT	Tx	0	0	c0ffffffd,00ffffffd,08fb0e02
17:05:30.384	PORT	debug	0		00c0ffee,00fd0118,00000000,00000001
17:05:30.389	PORT	Rx	1	40	02ffffffd,00ffffffd,08fdffff,14000000
17:05:30.389	PORT	Tx	1	0	c0ffffffd,00ffffffd,08fd0e03
17:05:30.389	PORT	debug	1		00c0ffee,00fd013c,00000000,00000001
17:05:30.504	PORT	Rx	2	40	02ffffffd,00ffffffd,08feffff,14000000
17:05:30.504	PORT	Tx	2	0	c0ffffffd,00ffffffd,08fe0e04
17:05:30.504	PORT	debug	2		00c0ffee,00fd0182,00000000,00000001
17:05:30.507	PORT	Rx	3	40	02ffffffd,00ffffffd,08ffffff,14000000
17:05:30.507	PORT	Tx	3	0	c0ffffffd,00ffffffd,08ff0e05
17:05:30.508	PORT	debug	3		00c0ffee,00fd0148,00000000,00000001
17:05:31.081	PORT	Tx	0	40	02ffffffd,00ffffffd,0e06ffff,14000000
17:05:31.082	PORT	debug	0		00c0ffee,00fd0188,14000000,00000001
17:05:31.084	PORT	Rx	0	0	c0ffffffd,00ffffffd,0e060902
17:05:31.772	PORT	Tx	1	40	02ffffffd,00ffffffd,0e07ffff,14000000
17:05:31.772	PORT	debug	1		00c0ffee,00fd014a,14000000,00000001
17:05:31.774	PORT	Rx	1	0	c0ffffffd,00ffffffd,0e070906

```
17:05:31.775  PORT      Tx      2    40  02ffffffd,00ffffffd,0e08ffff,14000000
17:05:31.775  PORT      debug   2     0  00c0ffee,00fd015c,14000000,00000001
17:05:31.777  PORT      Rx      2     0  c0ffffffd,00ffffffd,0e080907
17:05:31.778  PORT      Tx      3    40  02ffffffd,00ffffffd,0e09ffff,14000000
17:05:31.779  PORT      debug   3     0  00c0ffee,00fd015e,14000000,00000001
17:05:31.782  PORT      Rx      3     0  c0ffffffd,00ffffffd,0e090908
```

See Also portLogClear
 portLogDump
 uptime

portLoopbackTest

Run functional test of port N->N path.

Syntax `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 eight 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.

Operand 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

ramTest
portRegTest
centralMemoryTest
cmiTest
sramRetentionTest
turboRamTest
camTest
statsTest
filterTest
spinSilk

portPerfShow

Display port throughput performance in bytes, kilobytes, or megabytes.

Syntax `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 until ENTER, 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).

Operand 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 16- port switch:

```
switch:admin> portPerfShow
 0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
-----
0   0   0   0   0   0   0  76m  0   0   0   0   0   0   0  76m
96  0  96  0   0  96  0  76m  0   0   0   0   0   0   0  76m
0   0   0   0   0   0   0  76m  0   0   0   0   0   0   0  76m
```

To display port throughput for an ED-12000B:

```
switch:admin> portPerfShow
 0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
=====
slot 1: 0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
slot 2: 0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
```

See Also `portStatsShow`

portRegTest

Bit write/read test of the ASIC SRAMs and registers.

Syntax `portRegTest [-ports list] [-skiptests mask]`

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 This command has the following operands:

<code>-ports list</code>	Specify a list of ports to test. By default all of the ports on the current blade will be tested. This option may be used to restrict the testing to specific ports.
<code>skiptests masks</code>	Specify a bit mask that defines which of the register test subtests to skip. By default all subtests will be performed. Valid mask values include one or more of the following: <ul style="list-style-type: none">0x2) Skip retry register test.0x4) Skip statistics register test.0x8) Skip walk-1 test.0x10) Skip credit counter test.

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:

```
0x20 BUS_TIMEOUT
0x21 REGERR
0x22 REGERR_UNRST
```

See Also

- `centralMemoryTest`
- `cmiTest`
- `sramRetentionTest`
- `turboRamTest`
- `camTest`
- `statsTest`
- `filterTest`
- `portLoopbackTest`
- `spinSilk`

portRouteShow

Display routing tables for a port.

Syntax `portRouteShow [slotnumber/]portnumber`

Availability All users

Description Use this command to display the port address ID and the contents of the port routing tables as shown in Table 1-27:

Table 1-27 Port Routing Table

Port Address ID	Description
External unicast routing table	<p>Shows unicast frame routing to another switch element in the fabric. Output format is</p> <pre>domain_number: ports_bitmap</pre> <p>where:</p> <p>domain_number is the switch element number that a unicast frame can reach from the portnumber port.</p> <p>ports_bitmap contains all output ports, in bitmap hex format, that can forward unicast frames from port number to domain number.</p> <p>This table contains at least one entry for each active port:</p> <pre>local_switch_domain_number: 0x10000</pre> <p>This is for routing unicast frames designated to the embedded port of the local switch element.</p>
Internal unicast routing table	<p>Lists all ports in the local switch that a unicast frame can reach from portnumber. Format is</p> <pre>destination_port: output_ports_bitmap</pre> <p>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.</p>

Table 1-27 Port Routing Table (*continued*)

Port Address ID	Description
External unicast routing table	<p>Shows unicast frame routing to another switch element in the fabric. Output format is</p> <pre>domain_number: ports_bitmap</pre> <p>where:</p> <p>domain_number is the switch element number that a unicast frame can reach from the portnumber port.</p> <p>ports_bitmap contains all output ports, in bitmap hex format, that can forward unicast frames from port number to domain number.</p> <p>This table contains at least one entry for each active port:</p> <pre>local_switch_domain_number: 0x10000</pre> <p>This is for routing unicast frames designated to the embedded port of the local switch element.</p>
Multicast routing table	<p>Shows multicast frame routing to the destination multicast group. Output format is:</p> <pre>mcast_group_number: (mcast_group_id) ports_bitmap</pre> <p>where</p> <p>mcast_group_number is the multicast group number.</p> <p>mcast_group_id is the multicast frame destination ID.</p> <p>ports_bitmap is a hex bitmap of all output port numbers that can forward a multicast frame from the portnumber to mcast_group_id.</p>
Broadcast routing table	<p>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.</p>

Operands This command has the following operands:

slotnumber Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

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 port routing tables for blade 4, port 15:

```
switch:admin> portRouteShow 4/15
port address ID: 0x02bf00
external unicast routing table:
1: 0x4 (vc=3)
2: 0x10000 (vc=0)
internal unicast routing table:
60: 0x8000 (vc=2)
63: 0x1000 (vc=5)
multicast routing table:
0-255: (all mcast aliases) 0x40
broadcast routing table:
0x19040
san116:user>
```

See Also

- bcastShow
- fabricShow
- mcastShow
- switchShow
- topologyShow
- uRouteShow

portShow

Display port status.

Syntax `portShow [slotnumber/]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 is shown in Table 1-28:

Table 1-28 PortShow Display Fields

Field	Description
portFlags	Bitmap of port status flags.
portType	Port type and revision numbers.
portState	Port SNMP state:
	On line — up and running
	Offline — not online, portPhys gives details
	Testing — running diagnostics
	Faulty — failed diagnostics
portPhys	Port physical state:
	No_Cardno — interface card present
	No_Moduleno — module (GBIC or other) present
	No_Lightmodule — not receiving light
	No_Syncreceiving — light but out of sync
	In_Syncreceiving — light and in sync
	Laser_Fltmodule — is signaling a laser fault
	Port_Fltport — marked faulty
Diag_Fltport — failed diagnostics	
	Lock_Ref — locking to the reference signal
portScn	Last state change notification for port.

Table 1-28 PortShow Display Fields (*continued*)

Field	Description
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.
Speed	The port's fixed speed level or negotiated speed level: 1 Gb/s - fixed speed of 1 Gb/s. N1 Gb/s - negotiated speed of 1 Gb/s. 2 Gb/s - fixed speed of Gb/s. N2 Gb/s - negotiated speed of 2 Gb/s. Negotiating - the speed of the port is being determined.
Interrupts	Total number of interrupts.
Unknown	Interrupts that are not counted elsewhere.
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.

Table 1-28 PortShow Display Fields (*continued*)

Field	Description
Overrun	Buffer overrun interrupts.
Suspended	Transmission suspended interrupts.
Parity_err	Real Tx data parity error.
2ndary_parity_err	Secondary Tx data parity error. These are not real Tx data parity errors but rather forced by the ASIC due to certain central memory errors so that the transmitter will abort the frame. This field will only be displayed when there are errors.

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`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 2/15
  portCFlags: 0x0
    portFlags: 0x20001      PRESENT DISABLED LED
    portType: 1.1
    portState: 2      Offline
    portPhys: 2      No_Module
    portScn: 0
    portId: 815f00
    portWwn: 20:1f:00:60:69:80:04:30
    Distance: normal
    portSpeed: 2Gbps

  Interrupts:      0      Link_failure: 0      Frjt: 0
  Unknown:        0      Loss_of_sync: 0      Fbsy: 0
  Lli:            0      Loss_of_sig: 0
  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
  2_parity_err:  0      Ols_out: 0
  CMI_bus_err:   0
switch:admin>

```

See Also switchShow

portStatsShow

Display port hardware statistics.

Syntax `portStatsShow [slotnumber/]portnumber`

Availability All users

Description Use this command to display port hardware statistics counters.

Table 1-29 **portStatsShowHardware Statistics**

<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 time-outs.
<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.

Table 1-29 portStatsShowHardware Statistics (*continued*)

fl_open	Number of OPNyx sent.
fl_opened	Number of OPNyx received.
fl_openfr	Number of OPNfr sent.
fl_cls_idle	CLS sent due to loop idle.
fl_cls_rx	CLS received when OPEN.
fl_bb_stall	OPN/CLS BB_Credit stalls.
fl_cf_alloc	Number of CFIFOs allocated.
fl_cf_opn	CFIFOs delivered when OPENED.
fl_cf_full	Number of CFIFOs full stalls.
fl_cf_na	CFIFO not available stalls.
fl_trig_age	Number of age count triggers.
fl_trig_lp	Number of loop not busy triggers.
open	Number of times the FL_Port entered OPEN state.
transfer	Number of times the FL_Port entered TRANSFER state.
opened	Number of times the FL_Port entered OPENED state.
starve_stop	Loop tenancies stopped due to starvation.
fl_tenancy	Number of times FL_Port had loop tenancy.
nl_tenancy	Number of times NL_Port had loop tenancy.
frame_nozone	Frames rejected due to zone protection.

Operands This command has the following operand:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

`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 basic set of statistics for blade 2, port 3:

```
switch:admin> portStatsShow 2/3
```

```

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 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 frames
er_disc_c3        0         Class 3 frames discarded

open              621461745    loop_open
transfer          621459041    loop_transfer
opened            621449530    FL_Port opened
starve_stop       0         tenancies stopped due to starvation
fl_tenancy        1023103300  number of times FL has the tenancy
nl_tenancy        1118689630  number of times NL has the tenancy
switch:admin>
```

See Also portErrShow
 portShow

powerOffListSet

Set slot power off list order

Syntax `powerOffListSet`

Availability Admin

Description Use this command to set the physical power off slot order. The system available power is compared to the system demand power to determine if there is enough power to operate. If there is less power available than the demand, then the power off list is processed until there is enough power for the system to operate. The format of the display varies depending on the switch model and the number of slots present.

When this command is executed, the first item displayed is the current power off list order. You are then prompted to make any changes, and finally the new power off list order is displayed. The command then prompts to verify and commit the changes.

Operands None

Example To modify the power off list order:

```
switch12k:admin> powerOffListSet
```

```
Slot      Current POL
-----
10        1st
9         2nd
8         3rd
7         4th
4         5th
3         6th
2         7th
1         8th
```

```
1st slot to be powered off: (1..10) [10] 1
2nd slot to be powered off: (2..10) [9] 2
3rd slot to be powered off: (3..10) [8] 3
4th slot to be powered off: (4..10) [7] 4
5th slot to be powered off: (7..10) [7] 10
6th slot to be powered off: (7..9) [8] 9
7th slot to be powered off: (7..8) [8] 8
8th slot to be powered off: (7..7) [7] 7
```

Old POL	New POL	Power Off Order
10	1	1st
9	2	2nd
8	3	3rd
7	4	4th
4	10	5th
3	9	6th
2	8	7th
1	7	8th

```
Proceed to change the POL order? (yes, y, no, n): [no] y
```

See Also

- powerOffListShow
- chassisShow
- psShow
- slotShow
- slotPowerOn
- slotPowerOff

powerOffListShow

Syntax `powerOffListShow`

Availability All users

Description Use this command to display the order in which the physical slots will be powered off. The system available power is compared to the system demand power to determine if there is enough power to operate. If there is less power available than the demand, then the power off list is processed until there is enough power for the system to operate. The format of the display varies depending on the switch model and the number of slots present.

Operands None

Example To display the slot power off list order:

```
switch12k:admin> powerofflistshow

Slot 10 will be powered off 1st
Slot 9 will be powered off 2nd
Slot 8 will be powered off 3rd
Slot 7 will be powered off 4th
Slot 6 will be powered off 5th
Slot 5 will be powered off 6th
Slot 4 will be powered off 7th
Slot 3 will be powered off 8th
Slot 2 will be powered off 9th
Slot 1 will be powered off 10th
```

See Also `powerOffListSet`
`slotPowerOn`
`slotPowerOff`
`slotShow`
`chassisShow`

psShow

Display power supply status.

Syntax	psShow
Availability	All users
Description	Use this command to display the switch power supply status.

The display format varies with the number of power supplies present. Optionally, depending upon switch model, the OEM Serial ID Data is displayed after each power supply status line.

The status of each supply is shown as:

OK	Power supply present and functioning correctly.
absent	Power supply not present.
unknown	Unknown power supply unit installed.
Predicting Failure	Power supply is present but predicting failure.
faulty	Power supply present but faulty (no power cable, power switch turned off, fuse blown, or other internal error).

Refer to the *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director Model ED-12000B Hardware Reference Manual* for power supply locations.

Operands None

Example To view the status of the power supply for the current switch:

```
switch:admin> psShow
Power Supply #1 is OK
  DELTA DPS-1001AB-1E 23000000601 S1   IXD0111000088
Power Supply #2 is faulty
  DELTA DPS-1001AB-1E 23000000601 S1   IXD0111000162
Power Supply #3 is OK
  DELTA DPS-1001AB-1E 23000000601 S1   IXD0111000120
Power Supply #4 is absent
```


See Also fanShow
tempShow

ptdatashow

Display port data structure.

Syntax `ptdatashow [slot]/port`

Availability All users

Description Use this command to display the ASIC data structure contents for the specified port.

Operands This command has the following operands:

slot Specify the slot number of the blade where you want to view the port data structure. This operand is optional.

port Specify the port within the blade to be displayed. Valid values for port number vary depending on switch type. This operand is required.

Example To display the port data structure for slot 8 port 1 in a v4.0 switch:

```
switch:admin> ptdatashow 8/1
Looking for port 1 in path: /proc/fabos/blade/8
Found file: /proc/fabos/blade/8/0/0/1/asic1/cebs

Port Data Structure for slot: 8, port: 1

Bloom Data Pointers: bloomp = 0xc52f4200 (fbloomp = 0x00000000)
-----
blm_regs          0xca637000      blm_proc_dir      0xc50ff0a0
fab_ptr           0xc65c8000      fab_Iop           0xc65c8050
qdbl             0xc52f6400      chblm            0xc53fc5c0
pt                0xc52fcbc0      blm_miniS_handle 0xc52fc740
<output truncated>
```

See Also

- ptphantomshow
- ptpropshow
- ptregshow
- ptrouteshow
- ptstatsshow

ptphantomshow

Display port routing tables.

Syntax `ptphantomshow [slot/]port`

Availability All Users

Description Use this command to display the ASIC routing table contents for the specified port. If the slot is not specified, then the slot specified with `setslot` is used.

Operands This command has the following operands:

slot Specify the slot number of the blade where you want to view the port routing tables. This operand is optional.

port Specify the port within the blade to be displayed. Valid values for port number vary depending on switch type. This operand is required.

Example To display the port routing tables for slot 8 port 1:

```
switch:admin> ptphantomshow 8/1
Looking for port 1 in path: /proc/fabos/blade/8
Found file: /proc/fabos/blade/8/0/0/1/asic1/phantom

Port Routing table for slot: 8, port: 1

The following alphas are private on some switch ports:(alpha, UI port bitmap on
the blade)

plt_cam table and plt_alpha table:
index      sid          plt_alphas(UI port 15 - 0 w 1 byte/port)

plt_did table for this port:
ali alpha sid          ali alpha sid          ali alpha sid

my_alpha:
switch:admin>
```

See Also `ptdatashow`
`ptpropshow`
`ptregshow`
`ptrouteshow`
`ptstatsshow`

ptpropshow

Display port properties.

Syntax `ptpropshow [slot/]port | [slot] -all`

Availability All Users

Description Use this command to display the ASIC port properties for the specified port. If the slot is not specified, then the slot specified with `setslot` is used.

Operands This command has the following operands:

`[slot/]port` Specify the slot number and port area number where you want to view the port properties. This operand is optional.

`[slot] -all` Specify this operand to display the ASIC port property contents for the entire chips in the slot.

Example To display the port properties for slot 8 port 1:

```
switch:admin> ptpropshow 8/1
Port Property for slot: 8, port: 1
```

```
Looking for port 1 in path: /proc/fabos/blade/8
P1: [be,4,0],SP,CAP:[1,1,1,(1,1,0)],WWN: 00:00:00:00:00:00:00:00
switch:admin>
```

See Also

- ptdatashow
- ptphantomshow
- ptregshow
- ptrouteshow
- ptstatsshow

ptregshow

Display ASIC port registers.

Syntax `ptpropshow [slot]/port`

Availability All Users

Description Use this command to display the ASIC register contents for the specified port. If the slot is not specified, then the slot specified with `setslot` is used.

Operands This command has the following operands:

slot Specify the slot number of the blade where you want to view the ASIC register contents. This operand is optional.

port Specify the port within the blade to be displayed. Valid values for port number vary depending on switch type. This operand is required.

Example To display the ASIC port registers for slot 8 port 1:

```
switch:admin> ptregshow 8/1
Looking for port 1 in path: /proc/fabos/blade/8
Found file: /proc/fabos/blade/8/0/0/1/asic1/reg
```

```
Port Registers for slot: 8, port: 1
```

```
0xca637000: chip_id          0104          0xca637002: port_config      0001
0xca637004: did_vc_map       0000          0xca637008: int_mask              0000
0xca63700a: int_status        1020          0xca63700c: err_status           0003
0xca63700e: vc_config         00c0          0xca637010: buf_error            00000000
<output truncated>
```

See Also `ptdatashow`
`ptphantomshow`
`ptpropshow`
`ptrouteshow`
`ptstatsshow`

ptrouteshow

Display port routing properties.

Syntax `ptrouteshow [slot]/port`

Availability All Users

Description Use this command to display the ASIC port routing properties for the specified port. If the slot is not specified, then the slot specified with `setslot` is used.

Operands This command has the following operands:

slot Specify the slot number of the blade where you want to view the port routing properties. This operand is optional.

port Specify the port within the blade to be displayed. Valid values for port number vary depending on switch type. This operand is required.

Example **To display the port routing properties for slot 8 port 1:**

```
switch:admin> ptrouteshow 8/1
Looking for port 1 in path: /proc/fabos/blade/8
Found file: /proc/fabos/blade/8/0/0/1/asic1/route

Port Routing table for slot: 8, port: 1

port address ID: 0x000000
external unicast routing table:
internal unicast routing table:
multicast routing table:
broadcast routing table:
    0x0
switch:admin>
```

See Also `ptdatashow`
`ptphantomshow`
`ptpropshow`
`ptregshow`
`ptstatsshow`

ptstatshow

Display port statistics properties.

Syntax `ptstatshow [slot]/port`

Availability All Users

Description Use this command to display the ASIC port statistic properties for the specified port. If the slot is not specified, then slot specified with `setslot` is used.

Operands This command has the following operands:

slot Specify the slot number of the blade where you want to view the port statistic properties.

port Specify the port within the blade to be displayed. Valid values for port number vary depending on switch type. This operand is required.

Example To view port statistics properties on port 1 on slot 8:

```

switch:admin> portstatsshow 8/1
  stat_wtx           8657           4-byte words transmitted
  stat_wrx           10118          4-byte words received
  stat_ftx           557            Frames transmitted
  stat_frx           566            Frames received
  stat_c2_frx        0              Class 2 frames received
  stat_c3_frx        2              Class 3 frames received
  stat_lc_rx         284            Link control frames received
  stat_mc_rx         1              Multicast frames received
  stat_mc_to         0              Multicast timeouts
  stat_mc_tx         0              Multicast frames transmitted
  tim_rdy_pri        0              Time R_RDY high priority
  tim_txcrd_z        1              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         10             Encoding error outside of frames
  er_disc_c3         0              Class 3 frames discarded
  open               0              loop_open
  transfer           0              loop_transfer
  opened             0              FL_Port opened
  starve_stop        0              tenancies stopped due to starvation
  fl_tenancy         0              number of times FL has the tenancy
  nl_tenancy         0              number of times NL has the tenancy
switch:admin>

```

See Also

- ptdatashow
- ptphantomshow
- ptpropshow
- ptregshow
- ptrouteshow

qloopAdd

Add a member to a QuickLoop.

EMC does not support this command.

Syntax `qloopAdd "qloopname", "member;member"`

Availability Admin

Description Use this command to add one or more members to an existing QuickLoop.

When a configuration is enabled, all QuickLoops defined in the configuration must resolve to one or two switch worldwide names.

Zone alias names entered as members of this QuickLoop must be defined with WWNs. Zone alias names that are defined by domain and port number, or AL_PA are not accepted as members of the QuickLoop.

This command requires a Zoning license.

Operands The following operands are required:

<i>qloopname</i>	Specify the name of QuickLoop, in quotation marks.
<i>member</i>	Specify a list of QuickLoop members, in quotation marks, separated by semicolons. Include one or more of the following: <ul style="list-style-type: none">◆ World Wide Names◆ Zone alias names

Example To add an alias for a second worldwide name to "qlp1":

```
switch:admin> qloopAdd "qlp1", "wwn2"
```

See Also `qloopCreate`
`qloopDelete`
`qloopRemove`
`qloopShow`

qloopCreate

Create a QuickLoop.

EMC does not support this command.

Syntax `qloopCreate "qloopname" , "member;member"`

Availability Admin

Description Use this command to create a QuickLoop.

A QuickLoop name must begin with a letter and be followed by any number of letters, digits, and underscore characters. Names are case sensitive, for example "Qloop_1" indicates a different QuickLoop than "qloop_1". Blank spaces are ignored.

The QuickLoop member list must have one or two members; an empty list is not allowed.

When a configuration is enabled, all QuickLoops defined in the configuration must resolve to a maximum of two switch worldwide names.

Zone alias names entered as members of this QuickLoop must be defined with WWNs. Zone alias names that are defined by domain and port number, or AL_PA are not accepted as members of the QuickLoop.

This command requires a Zoning license.

Operands The following operands are required:

qloopname Specify the name of QuickLoop to be created, in quotation marks. The qloopname cannot be used for another zone object.

member Specify a list of members to be added to QuickLoop, in quotation marks, separated by semicolons. Include one or more of the following:

- ◆ World Wide Names
- ◆ Zone alias names

Example To create two QuickLoops, a single switch and one dual switch:

```
switch:admin> qloopCreate "qlp1", "10:00:00:60:69:00:60:11"  
switch:admin> qloopCreate "qlp2", "wnn2; wnn3"
```

See Also

- qloopAdd
- qloopDelete
- qloopRemove
- qloopShow

qloopDelete

Delete a QuickLoop.

EMC does not support this command.

Syntax	<code>qloopDelete "qloopName"</code>		
Availability	Admin		
Description	<p>Use this command to delete a QuickLoop.</p> <p>This command changes the Defined Configuration. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the <code>cfgSave</code> command. For the change to become effective, an appropriate zone configuration must be enabled using the <code>cfgEnable</code> command.</p> <hr/> <p>This command requires a Zoning license.</p>		
Operands	<p>The following operand is required:</p> <table><tr><td><code>qloopname</code></td><td>Specify the name of QuickLoop, in quotation marks. This operand is required.</td></tr></table>	<code>qloopname</code>	Specify the name of QuickLoop, in quotation marks. This operand is required.
<code>qloopname</code>	Specify the name of QuickLoop, in quotation marks. This operand is required.		
Example	<p>To delete QuickLoop "qloop2":</p> <pre>switch:admin> qloopDelete "qloop2"</pre>		
See Also	<code>qloopAdd</code> <code>qloopCreate</code> <code>qloopRemove</code> <code>qloopShow</code>		

qloopRemove

Remove a member from a QuickLoop.

EMC does not support this command.

Syntax `qloopRemove "qloopName" , "member;member"`

Availability Admin

Description Use this command to remove one or more members from a QuickLoop.

The member list is identified through an exact string match; therefore, when removing multiple members, order is important. For example, if a QuickLoop contains "wwn3; wwn4", removing "wwn3; wwn4" succeeds, but removing "wwn4; wwn3" fails.

If all members are removed, the QuickLoop is deleted.

When a configuration is enabled, all QuickLoops defined in the configuration must resolve to one or two switch World Wide Names.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

This command requires a Zoning license.

Operands The following operands are required:

`"qloopname"` Specify the name of QuickLoop, in quotation marks.

`"member"` Specify a list of QuickLoop members to be removed, in quotation marks, separated by semicolon. Include one or more of the following:

- ◆ World Wide Names
- ◆ Zone alias names

Example To remove member “wwn2” from “qlp1”:

```
switch:admin> qloopRemove "qlp1", "wwn2"
```

See Also

- qloopAdd
- qloopCreate
- qloopDelete
- qloopShow

qloopShow

Display QuickLoop information.

EMC does not support this command.

Syntax `qloopShow [pattern] [, mode]`

Availability All users

Description Use this command to display QuickLoop configuration information.

If no parameters are specified, all zone configuration information (defined and enabled) is displayed. See `cfgShow` for a description of this display.

If a parameter is specified, it is used as a pattern to match QuickLoop names; those that match in the defined configuration are displayed.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

This command requires a Zoning license.

Operands The following operands are optional:

pattern Specify a POSIX style expression used to match QuickLoop names. Patterns may contain the following special characters:

- ◆ Question mark “?” that matches any single character
- ◆ Asterisk “*” that matches any string of characters
- ◆ Ranges “[0-9a-f]” that match any character within the range

This operand is optional.

mode Specify 1 to display the contents of RAM; specify 0 to display the contents of the transaction buffer. The default value is 0. This operand is optional.

Example To display all QuickLoops beginning with the letter “q”:

```
switch:admin> qloopShow "q*"
  qloop: qlp1      10:00:00:60:69:00:60:11
                  10:00:00:60:69:00:30:02
  qloop: qlp2      10:00:00:60:69:00:60:13
```

See Also qloopAdd
qloopCreate
qloopDelete
qloopRemove

ramTest

Bit write and read test of SDRAMs in the switch.

Syntax `ramTest [patternSize]`

Availability Admin

Description Use this command to verify the address and data bus of the SDRAMs that serve as CPU memory in the switch.

The test consists of two subtests:

- ◆ 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, ...
```

- ◆ 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 nine patterns:

- 0x55555555
- 0x69696969
- 0x3c3c3c3c
- 0x1e1e1e1e
- 0x87878787
- 0x14284281
- 0x137ffec8
- 0x0f0f0f0f
- 0x00000000

Since the test requires the operating system to operate, and the operating system is loaded in the same memory, the test 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.

Operand This command has the following operand:

patternSize Specify a number from 0 to 9 to determine the number of patterns used for the data subtest. The default value is 0 which runs all nine patterns. A value from 1 to 9 will execute the specified number of patterns. Any value over 9 is truncated to 9. Only the data subtest is configurable. The address subtest is always executed. This operand is optional.

Example To run the RAM test on a switch:

```
switch:admin> ramTest
Running System DRAM Test ..... passed
```

Errors Listed below are possible error messages if failures are detected:

```
DIAG-MEMORY
DIAG-MEMSZ
DIAG-MEMNULL
```

See Also

```
portRegTest
centralMemoryTest
cmiTest
sramRetentionTest
turboRamTest
camTest
statsTest
filterTest
portLoopbackTest
spinSilk
```

reboot

Reboot the switch.

Syntax `reboot`

Availability Admin

Description The `reboot` command will reboot both logical switches and both CPs. Use this command to reboot both logical switches and both CPs. The `reboot` takes effect immediately as the switch resets, and 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.

A confirmation message is displayed to verify that you want to reboot the switch.

Operands None

Example This example is for the DS-32B2:

```
switch:admin> reboot
```

```
Broadcast message from root (pts/1) Mon Aug 12 16:53:14 2002...
```

```
The system is going down for reboot NOW!!  
switch:admin
```

Example This example is for the ED-12000B:

```
switch:admin> reboot
```

```
Warning: This command is being run on a control processor (CP)  
based system and will cause the active CP to reboot. This will  
cause disruption to devices attached to both switch 0 and switch 1.  
To just reboot a logical switch on this system, use command  
switchreboot(1M) on the logical switch you intend to reboot.  
Are you sure you want to reboot the active CP [y/n]? y
```

See Also `fastboot`

routeHelp

Display routing help commands.

Syntax 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
uRouteShow

savecore

Save or remove core files created by daemons.

Syntax `savecore`

Availability Admin

Description Use this command to transfer (by way of FTP) or remove core files that were created by daemons during signal processing such as SIGSEGV, SIGILL, etc. This command is menu driven so no operands are required.

Operands None

Example **To remove core files from the current switch:**

```
switch:admin> savecore

      Welcome to core files management utility.

      Menu
      1. Remove core files
      2. Ftp these files to a host

Your choice: 1
No core files found!
switch:admin>
```

See Also `diagHelp`

sensorShow

Display sensor readings.

Syntax `sensorShow`

Availability All users

Description Use this command to display the current temperature, fan and power supply status and readings from sensors located on the switch. The actual location of the sensors varies depending on the switch type.

In the ED-12000B, the information returned with `sensorShow` is specific to the logical switch you are logged in to:

- ◆ If you are logged in to Logical switch 0, sensors 1 through 4 are for switch blade slots 1 through 4, respectively. Sensors 5 and 6 are for the two CPs in slots 5 and 6, respectively.
- ◆ If you are logged in to Logical switch 1, sensors 1 and 2 are for the two CPs in slots 5 and 6, respectively. Sensors 3 through 6 are for switch blade slots 7 through 10, respectively.
- ◆ If you are logged in to the Active CP through the console port, you are prompted to specify the logical switch this command is executed on. If you log in to the Active CP through the Fabric OS shell, this command always executes on the default switch (logical switch 0).

Regardless of logical switch, sensors 7 through 9 are for the three chassis fans, left to right, and sensors 10 through 13 are for the four chassis power supplies, bottom to top.

Operands None

Example The output of this command is different between v3.0 and v4.0.

Below is an example of the output of this command from v4.0:

```
switch40:admin> sensorshow
  sensor 1: (Temperature) is Ok, value is 32 C
  sensor 2: (Temperature) is Absent
  sensor 3: (Temperature) is Ok, value is 44 C
  sensor 4: (Temperature) is Absent
  sensor 5: (Temperature) is Ok, value is 40 C
  sensor 6: (Temperature) is Absent
  sensor 7: (Fan          ) is Ok, speed is 3125 RPM
  sensor 8: (Fan          ) is Ok, speed is 2986 RPM
  sensor 9: (Fan          ) is Ok, speed is 3013 RPM
  sensor 10: (Power Supply ) is Ok
  sensor 11: (Power Supply ) is Ok
  sensor 12: (Power Supply ) is Absent
  sensor 13: (Power Supply ) is Ok
switch40:admin>
```

See Also fanShow
tempShow

setesdmode

Enable or disable ESD mode.

Syntax `setesdmode [mode | -show]`

Availability Admin

Description Use this command to enable or disable ESD mode. The mode is saved in nonvolatile memory and stays in that mode until the next execution of `setesdmode`.

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

When enabled, ESD mode modifies the behavior of the diagnostic test methods and post scripts. The exact behavior varies, but most commonly consists of disabling the ports defined with `diagsetports` when `spinsilk` or other functional tests are run for ESD or EMI testing purposes.

Operands This command has the following operands:

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

`-show` Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example **To set ESD mode:**

```
switch:admin> setesdmode
Esd Mode is 0 (Disabled).
switch:admin> setesdmode 1
Config update Succeeded
Esd Mode is now 1 (Enabled).
switch:admin>
```

See Also `spinsilk`

setgbicmode

Enable or disable GBIC mode.

SSyntax `setgbicmode [mode | -show]`

Availability Admin

Description Use this command to enable or disable the GBIC mode. If the mode operand is 1, GBIC mode is enabled; if the mode operand is 0, GBIC mode is disabled. The mode is saved in flash memory and stays in the GBIC 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. Consequently, testing is limited to those ports with a suspected problem.

Operands This command has the following operand:

<code>mode</code>	Specify 1 to enable GBIC mode or 0 to disable GBIC mode. If no mode is specified the current value is displayed. The mode is saved in non-volatile memory and remains unchanged until the next execution of the <code>setgbicmode</code> command. This operand is optional.
<code>-show</code>	Specify the <code>-show</code> operand to display the current setting. This operand is optional.

Example **To enable or disable GBIC mode:**

```
switch:admin> setgbicmode 1
Config update Succeeded
GBIC mode is now 1 (Enabled).

switch:admin> setgbicmode
GBIC mode is now 1 (Enabled).
switch:admin>
```

See Also `crossPortTest`
`spinSilk`

setmfgmode

Enable or disable Mfg mode.

Syntax `setmfgmode [mode | -show]`

Availability Admin

Description Use this command to enable or disable Mfg mode. The mode is saved in non-volatile memory and stays in that mode until the next execution of `setmfgmode`.

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

When enabled, Mfg mode modifies the behavior of the diagnostic test methods and post scripts. The exact behavior varies but most commonly consists of enabling extra manufacturing specific tests and data patterns.

Operands This command has the following operands:

mode Specify 1 to enable Mfg mode or 0 to disable Mfg mode. This operand is optional.

`-show` Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example **To set Mfg mode:**

```
switch:admin> setmfgmode
Mfg Mode is 0 (Disabled).

switch:admin> setmfgmode 1
Config update Succeeded
Mfg Mode is now 1 (Enabled).
switch:admin>
```

See Also `diagHelp`

setsfpmode

Enable or disable SFP mode.

Syntax `setsfpmode [mode | -show]`

Availability Admin

Description Use this command to enable or disable the SFP mode. If the mode operand is 1, SFP mode is enabled; if the mode operand is 0, SFP mode is disabled. The mode is saved in nonvolatile memory and the SFP remains in that mode until the next execution of `setsfpmode`.

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

When enabled, SFP mode forces `crossPortTest` and `spinSilk` to limit testing to ports with SFPs present. Consequently, testing is limited to those ports with a suspected problem.

Operands v4.0 This command has the following operands:

mode Specify 1 to enable SFP mode or 0 to disable SFP mode. If no mode is specified the current value is displayed. This operand is optional.

`-show` Specify this operand to display the current setting. This operand is optional.

Example To enable or disable SFP mode:

```
switch:admin> setSFPMoDe 1
SFP mode is now 1 (Enabled).
switch:admin> setSFPMoDe 0
SFP mode is now 0 (disabled).
switch:admin> setSFPMoDe -show
SFP mode is now 0 (disabled).
```

See Also `crossPortTest`
`spinSilk`

setSlot

Set the default slot number for diagnostic commands.

Syntax `setslot slot`

Availability Admin

Description Use this command to set the default slot number for diagnostic commands. This command will set the current slot, which will affect the default slot number for diagnostic commands until the next issue of this command.

This command is for multi-blade systems, and should not be used in nonmulti-blade systems.

This command does not save to non-volatile memory, so the designation of a particular slot as the default is only valid per login session.

Operands This command has the following operand:

slot Specify a slot number as the default slot for diagnostic commands. The default value is slot 1. This operand is required.

Example To set the default slot to slot 2:

```
switch:admin> setslot 2
```

See Also `diagHelp`

setSplbMode

Enable or disable two port loopback.

Syntax `setSplbMode [mode | -show]`

Availability Admin

Description Use this command to enable or disable SPLB mode. 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.

When enabled, the SPLB mode forces the `spinSilk` command to disable two-port loopback for M-to-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.

When disabled, the SPLB mode forces the `spinSilk` command to circulate frames between pairs of M-to-M connected ports as follows:

```
P1 TX >>> P1 RX -> P2 TX >>> P2 RX -> P1 TX
```

where:

>>> is a cable or internal loopback

-> is a routing table entry

The connections between pairs of M-to-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-to-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
```

Operand This command has the following operands:

<code>mode</code>	Specify 1 to enable SPLB mode or 0 to disable SPLB mode. The default (if no operand specified) is SPLB disabled. This operand is optional.
<code>-show</code>	Specify to display the current setting. This operand is optional.

Example To enable or disable a two-port loopback:

```
switch:admin> setSplbMode 1
Config update Succeeded.
SPLB mode is now 1 (Enabled).
switch:admin> setSplbMode 0
Config update Succeeded.
SPLB mode is now 0 (disabled).
```

See Also `setSfpMode`
`setGbicMode`
`spinSilk`

sfpShow

Display serial ID SFP information.

Syntax `sfpShow [slotnumber/] [portnumber]`

Availability All users

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

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

Use this command with the *slotnumber* and *portnumber* operands to display detailed information about the Serial ID SFP in that port.

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

Operands This command has the following operands:

`slotnumber` Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. Each switch card has 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

portnumber Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

Example To display SFP summary information and detailed information for an SFP:

```
switch12k:admin> sfpshow
Area 0: id (id) Vendor: Serial No:
Area 1: id (sw) Vendor: FINISAR CORP. Serial No: H1149T2
Area 2: id (sw) Vendor: FINISAR CORP. Serial No: H112TUD
Area 3: id (sw) Vendor: FINISAR CORP. Serial No: H112YFR
Area 4: id (sw) Vendor: IBM Serial No: 21P53380BR0BE
Area 5: id (sw) Vendor: IBM Serial No: 21P53380BS18A
Area 6: id (sw) Vendor: IBM Serial No: 21P53380BS170
Area 7: id (sw) Vendor: IBM Serial No: 21P53380BS26B
Area 8: --
Area 9: --
Area 10: --
Area 11: --
Area 12: --
Area 13: --
Area 14: --
Area 15: --
Area 16: id (sw) Vendor: AGILENT Serial No: 0105091301045274
Area 17: id (sw) Vendor: AGILENT Serial No: 0105091258486386
Area 18: id (sw) Vendor: FINISAR CORP. Serial No: H114KY0
Area 19: id (sw) Vendor: FINISAR CORP. Serial No: H114LNP
Area 20: id (sw) Vendor: FINISAR CORP. Serial No: H112VPM
Area 21: id (sw) Vendor: FINISAR CORP. Serial No: H112VMZ
Area 22: id (sw) Vendor: FINISAR CORP. Serial No: H112U0L
Area 23: id (sw) Vendor: FINISAR CORP. Serial No: H112VL5
Area 24: --
Area 25: --
Area 27: --
Area 28: --
Area 29: --
Area 30: --
Area 31: --
```



```
switch12k:admin> sfpshow 1/3
Identifier: 3      SFP
Connector: 7      LC
Transceiver: 050c402000000000 100,200_MB/s M5,M6 sw Inter_dist
Encoding: 1       8B10B
Baud Rate: 21     (units 100 megabaud)
Length 9u: 0      (units 100 meters)
Length 50u: 30    (units 10 meters)
Length 625u: 13   (units 10 meters)
Length Cu: 0      (units 1 meter)
Vendor Name: FINISAR CORP.
Vendor OUI: 00:90:65
Vendor PN:  FTRJ-8519-3-2.5
Vendor Rev: X1
Options:    0012 Loss_of_Sig,Tx_Disable
BR Max:     0
BR Min:     0
Serial No:  H112YFR
Date Code:  010418
switch12k:admin>
```

See Also `switchShow`

slotOff

Disable a blade slot.

Syntax `slotOff slot`

Availability Admin

Description Use this command to disable a nonfaulty blade unit while leaving the blade unit powered on.

Operand This command has the following operand:

`slot` Specify the physical slot number of the blade to be disabled. This operand is required.

Example **To power off blade unit 3:**

```
switch:admin> slotOff 3
Slot 3 is being disabled.
```

See Also `slotShow`
`slotOn`

slotOn

Enable a blade slot.

Syntax `slotOn slot`

Availability Admin

Description Use this command to reenable a blade unit that was previously disabled.

Operand This command has the following operand:

slot Specify the physical slot number of the blade to be enabled. This operand is required.

Example **To reenable blade unit 3:**

```
switch:admin> sloton 3  
Slot 3 is being enabled.
```

See Also `slotShow`
`slotOff`

slotpoweroff

Power off a blade unit.

Syntax `slotPowerOff slot`

Availability Admin

Description Use this command to turn off the power to a blade unit. The slot must have a valid blade unit present and the blade unit must be of a type that can be powered off.

Operand This command has the following operand:

slot Specify the physical slot number of the blade to be powered down. This operand is required.

Example **To power off blade unit 3:**

```
switch:admin> slotPowerOff 3
Slot 3 is being powered off
```

See Also `slotShow`
`slotPowerOn`

slotpoweron

Power on a blade unit.

Syntax `slotPowerOn slot`

Availability Admin

Description Use this command to turn on the power to a blade unit. The slot must have a valid blade unit present and the blade unit must be currently powered off.

Operand This command has the following operand:

slot Specify the physical slot number of the blade to be powered on. This operand is required.

Example To power on blade unit 3:

```
switch:admin> slotPowerOn 3  
Powering on slot 3.
```

See Also `slotShow`
`slotPowerOff`

slotShow

Display slot status.

Syntax `slotShow`

Availability All users

Description Use this command to inventory and display the current status of each slot in the system. The format of the display includes a header and four fields for each slot. The fields and their possible values are as follows:

<code>slot</code>	The physical slot number.
<code>Blade Type</code>	The blade type: <ul style="list-style-type: none"> ◆ SW BLADE The blade is a Switch. ◆ CP BLADE The blade is a control processor. ◆ UNKNOWN Blade not present or its type is not recognized.
<code>ID</code>	The hardware ID of the blade type.

Status	<p>The status of the blade:</p> <ul style="list-style-type: none"> ◆ VACANT The slot is empty. ◆ INSERTED, NOT POWERED ON The blade is present in the slot but is turned off. ◆ DIAG RUNNING POST1 The blade is present, powered on, and running the post initialization power-on self tests. ◆ DIAG RUNNING POST2 The blade is present, powered on, and running the POST (power-on self tests). ◆ ENABLED The blade is on and enabled. ◆ DISABLED The blade is powered on but disabled. ◆ FAULTY The blade is faulty because an error was detected. ◆ UNKNOWN The blade is inserted but its state cannot be determined.
--------	--

Operands None

Example To display a blade inventory and status:

```
switch:admin> slotshow
Slot  Blade Type  ID    Status
-----
  1    UNKNOWN
  2    SW BLADE    2    ENABLED
  3    UNKNOWN
  4    SW BLADE    2    ENABLED
  5    CP BLADE    1    ENABLED
  6    CP BLADE    1    ENABLED
  7    SW BLADE    2    ENABLED
  8    UNKNOWN
  9    SW BLADE    2    ENABLED
 10    UNKNOWN
      VACANT

switch:admin>
```

See Also

```
chassisShow  
slotOn  
slotOff  
slotPowerOn  
slotPowerOff
```


snmpMibCapSet

View and modify options for configuring SNMP MIB/Trap capability.

Syntax `snmpMibCapSet`

Availability Admin

Description Use this command 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.

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] y  
SW-TRAP (yes, y, no, n): [yes] y  
FA-TRAP (yes, y, no, n): [yes] y  
SW-EXTTRAP (yes, y, no, n): [no] y  
SB5_12000B_0:admin>
```

See Also `agtcfgShow`
`agtcfgSet`
`agtcfgDefault`

spinFab

Test for Cascaded switch ISLs.

Syntax `spinfab [-nmegs nmill] [-ports list] [-setfail failmode]
[-domain domain]`

Availability Admin

Description Use this command to verify the intended functional operation of the ISLs between switches at the maximum speed of 2 Gb/s by setting up the routing hardware such that test frames received by each E_Port retransmitted on the same E_Port. Several frames are then sent to the neighbor port attached to each active E_Port specified. Since the default action for such frames (which never occur for normal traffic) is to route them back to the sender, the frames that are sent in this manner will circulate until the test stops them.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running. While the frames are circulating, the RX frame count and port CRC and encoder error statistics will be monitored and errors will be generated if a port stops or a low-level error occurs. Every one-million frames the circulating frames will be captured to verify that they are still circulating and that they are still in order. In this manner the entire path to the remote switch may be verified.

The switch remains in normal operation while this test runs; however some performance degradation occurs due to the ISLs being saturated with test frames. Because of this, you should use caution when running this test on live fabrics. Consider only testing one ISL at a time, and do not run the tests for extended periods of time.

This test is best combined with the online `crossPorttest` for ISL failure isolation. If this test fails, replace the cable with a loop-back plug and run the `crossport` test to verify the local switch and GBIC. If these pass, then the fault lies in the cable or remote switch/GBIC.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running.

Operands This command has the following operands:

<code>nmil</code>	The number of million frames per port to execute this test. If omitted, the default value used is 100. This operand is optional.
<code>ePortBeg</code>	First port to test, if omitted 0 will be used. This operand is optional.
<code>ePortEnd</code>	The last port to test. The test will be performed on <code>ePortBeg</code> to <code>ePortEnd</code> inclusive. If <code>ePortEnd</code> is omitted then the default will be to test all ports. This operand is optional. This operand is only used in v3.0.
<code>-ports list</code>	A list of user ports to test. By default all of the ISL ports in the current switch will be tested. This option may be used to restrict testing to the specified ports. This operand is optional. This operand is only used in v4.0.
<code>failmode</code>	This parameter may be used to cause <code>spinFab</code> to mark failing ports as bad like a normal diagnostic. 1 = Mark failing ports as BAD, 0 = do not mark failed ports as bad. To minimize the impact on live fabrics this test normally logs errors but does not set the port status to FAILED. This parameter is provided to force the failing ports to be marked as BAD in the same manner as other diagnostics. In test or qualification environments without live traffic this may be useful with large values of <code>nmil</code> . This mode is disabled by default.
<code>-domain domain</code>	The domain parameter is used to specify a specific remote domain that the switch is connected to. The default is to automatically determine the remote domain number, but this does not work properly in some conditions. This operand is optional. This operand is only used in v4.0.

Examples This example is for v4.0. To run spinFab on ports 0-4:

```
switch:admin> spinfab -nmegs 3 -ports 0-4
spinfab running...

spinfab: Completed 3 megs, status: passed.
port 0 test status: 0x00000000 -- passed.
port 1 test status: 0x00000000 -- passed.
port 2 test status: 0x00000000 -- passed.
port 3 test status: 0x00000000 -- passed.
port 4 test status: 0x02000000 -- SKIPPED!
Test...
```

Diagnostics When it detects failure(s), the test may report one or more of the following error messages:

```
0x20 ERR_STAT_ENCIN
0x21 ERR_STAT_CRC

0x22 ERR_STAT_TRUNC
0x23 ERR_STAT_2LONG
0x24 ERR_STAT_BADEOF
0x25 ERR_STAT_ENCOUT
0x26 ERR_STAT_BADOS
0x27 ERR_STAT_C3DISC
0x28 ERR_STAT
0x29 XMIT
0x2a PORT_M2M
0x2b PORT_ABSENT
0x2c PORT_DIED
0x2d PORT_ENABLE
0x2e PORT_STOPPED
0x2f PORT_WRONG

0x30 ERR_STATS_ENCIN
0x31 ERR_STATS_CRC
0x32 ERR_STATS_TRUNC
0x33 ERR_STATS_2LONG
0x34 ERR_STATS_BADEOF
0x35 ERR_STATS_ENCOUT
0x36 ERR_STATS_BADOS
0x37 ERR_STATS_C3DISC
0x38 ERR_STATS
0x3a INIT
0x3b DATA
0x3c NO_SEGMENT
0x39 TIMEOUT
0x3d STATS_FTX
0x3e STATS_FRX
```

```
0x3f STATS_C3FRX
0x40 STATS
0x41 MBUF_STATE_ERR
0x42 FINISH_MSG_ERR
0x43 RXQ_RAM_PERR
```

See Also

```
crossPortTest
portLoopbackTest
spinSilk
setDbg
```

spinSilk

Run functional test of port-to-port path at maximum switch speed.

Syntax `spinSilk [-nmegs nmill] [-gbic_mode gbicmode] [-lb_mode lbmode] [-spd_mode spdmode] [-ports list]`

Availability Admin

Description Use this command to verify the functional operation of the switch components.

The `spinsilk` command may not be executed on an operational switch. You must first disable the switch using the `switchDisable` command.

This command verifies the functional operation of the switch by setting up the routing hardware such that frames received by port M are retransmitted through port N. Likewise, frames received by port N are retransmitted through port M. Each port M sends four frames to its partner port N through an external fiber cable; thus exercising all the 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 with the condition that the cables and GBICs connected are of the same technology. For example, a short wavelength GBIC port must be connected to another short wavelength GBIC port through a short wavelength cable; or a long wavelength port must be connected to another long wavelength port.

Optimum test coverage occurs with `lb_mode 1`, M-to-M loopback plugs, and `sp1bMode` disabled. In this case every port will exchange frames with every other port and all of the ASIC-to-ASIC connections are tested.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running.

At each pass, the frame is created from a different data type. There are seven data types:

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, ...

If seven passes are requested, the 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.

spinSilk Modes

There are the test modes. These modes can be used together to test specific ports.

- ◆ Loopback mode
- ◆ SFP mode

LoopBack Mode

Four loopback modes can be used when executing the `spinSilk` command. The modes are specified by entering:

- ◆ **0** for cable mode. This loopback mode is the default mode and tests only M-to-N connections. It requires that the user connect a cable from one port to a different port.
- ◆ **1** for singleportalso loopback mode. This `lb_mode` tests M-to-N and M-to-M connections.

If M-to-N cable connections are used, the `spinsilk` command operates identically in `lb_mode 0` and `lb_mode 1`.

If M-to-M loopback plugs are used with SPLB mode disabled the `spinsilk` command will circulate frames between pairs of M-to-M connected ports as follows:

```
P1 TX >>> P1 RX -> P2 TX >>> P2 RX -> P1 TX
```

where:

>>> is a cable or internal loopback

-> is a routing table entry

The connections between pairs of M-to-M ports are chosen to exercise the connections between as many ASICs as possible subject to the availability of pairs of M-to-M ports.

- ◆ In mode **1** with SPLB mode disabled, the `spinsilk` command only circulates frames within each single port and none of the ASIC-to-ASIC connections are tested. This mode should only be used for fault isolation.
- ◆ **2** for external loopback mode. The external loopback test creates a test loop between two ports on different ASICs and also tests the Serializer Deserializer functionality.
- ◆ **5** for internal loopback mode. The internal loopback test creates a test loop between two ports on a single ASIC.

Refer to the `setSplbmode` command for more information on how the loopback mode setting changes the execution of this command.

SFP/GBIC Mode

If the `spinsilk` command is executed with GBIC mode activated, only ports containing GBICs are tested. To activate GBIC mode, execute the following command prior to executing the `spinsilk` command:

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

The state of the GBIC mode is saved in flash and remains active over a reboot until it is disabled as follows:

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

Prior to running this command make sure you disable the switch, set the GBIC mode to 1, and install loopback cables on all GBIC ports you want to test.

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 are not functioning properly.

Operands This command has the following operands:

- `nmill` Specify the number of million frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value for `nmill` is 10, so the number of frames sent will be at least 10 million.
- `lb_mode` Specify the loopback point for the test. By default, **spinsilk** uses loopback plugs as described above. However for debug purposes you can select other loopback modes as follows:
- 0: Cable Loopback.
 - 1: Port Loopback (loopback plugs).
 - 2: External (serdes) loopback.
 - 3: Silkscreen loopback.
 - 4: Serial link wrapback.
 - 5: Internal (parallel) loopback.

`spdmode` Specify the speed mode for the test. This parameter is only used for v3.0 and v4.0 series based switches where it controls the speed at which each port is operated. For 1G only products it is ignored. The exact operation of modes 3 through 6 depends upon the loopback mode selected. When speed modes 3 through 6 are used with cables, they must be connected EVEN to ODD or the test will fail.

- ◆ 0: set all ports' speed for auto-negotiate.
- ◆ 1: set all ports' speed to lock at 1 GBit.
- ◆ 2: set all port's speed to lock at 2 GBit.

For `lbMode == 0,1` the following speed modes are available to test the speed negotiation:

- ◆ 3: set all even ports' speed for auto-negotiate, set all odd ports' speed for 1 Gb/s.
- ◆ 4: set all even ports' speed for auto-negotiate, set all odd ports' speed for 2 Gb/s.
- ◆ 5: set all odd ports' speed for auto-negotiate, set all even ports' speed for 1 Gb/s.
- ◆ 6: set all odd ports' speed for auto-negotiate, set all even ports' speed for 2 Gb/s.

For `lbMode == 2,3` the following speed modes are available to test fifo underrun.

- ◆ 3,5: set all even ports' speed for 2 G/s, set all odd ports' speed for 1 Gb/s.
- ◆ 4,6: set all even ports' speed for 1 Gb/s, set all odd ports' speed for 2 Gb/s.

`gbicmode` Specify the GBIC mode for the test. The `GBICmode` parameter may be used to override the global GBIC mode described above for the duration of this test. When it is enabled (1) testing is limited to user ports with GBICs or SFPs installed.

`-ports list` Specify a list of user ports to test. By default all of the user ports in the current switch are tested. This option may be used to restrict testing to the specified ports.

Example To run spinsilk on a switch:

```
switch:admin> switchdisable
switch:admin> spinsilk
Running Spin Silk .....
One moment please ...
Waiting for Port(s) to Segment.
*****
<output truncated>
```

Errors The possible error messages if failures are detected are:

```
DIAG-INIT
DIAG-PORTDIED
DIAG-XMIT
DIAG-PORTSTOPPED
DIAG-ERRSTAT
DIAG-ERRSTATS
```

See Also

```
portRegTest
centralMemoryTest
cmiTest
sramRetentionTest
turboRamTest
camTest
statsTest
filterTest
portLoopbackTest
```

sramRetentionTest

Run data retention test of the miscellaneous SRAMs in ASIC.

Syntax `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 test method 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. Then the test is repeated 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.
Test Complete: "sramretentiontest" Pass 1 of 1
Duration 0hr, 2 min & 30 sec (0:2:30:.72).
```

Errors The possible error messages if failures are detected are:

```
DIAG-REGERR
DIAG-REGERR_UNRST
DIAG-BUS_TIMEOUT
```

See Also

- ramTest
- portRegTest
- centralMemoryTest
- cmiTest
- turboRamTest
- camTest
- statsTest
- filterTest
- portLoopbackTest
- spinSilk

statsTest

Run a statistics counter diagnostic test.

Syntax `statsTest [-passcnt passcount] [-ports list]`

Availability Admin

Description Use this command to verify the bloom statistics counter logic. It can run on every base port of quadrant, and send the frame through internal loopback with no CRC data to induce the CRC error. This command is also called from `camtest`.

This test covers following statistics counter functionality.

1. The number of received frames with CRC error that matched the SID-DID pair specified in the LINK table. There are a total 16 of these statistics counters (0-15), respectively.
2. The number of received words in frames that matched the SID-DID pair specified in the LINK table. There are a total 16 of these statistics counters (0-15), respectively.
3. The number of transmitted words in frames that matched the SID-DID pair specified in the LINK table. There are a total 16 of these statistics counters (0-15), respectively.
4. The number of frames with CRC error that matched the corresponding ALI (0-127), respectively.

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

There is a LINK table that stores 16 pairs of SID-DID address. Each of the SID-DID pair is named a LINK. This table is used for gathering statistics that match the LINK.

Operands This command has the following operands:

<code>passcount</code>	Specify the number of times to perform this test. The default value is 1. This operand is optional.
<code>-ports list</code>	Specify the port number(s) to perform this test. All ports are set in default.

Diagnostics When it detects failure(s), the subtest may report one or more of the following error messages:

```
DIAG-STSEINIT
DIAG-STSENULL
DIAG-STSESSID
DIAG-STSEXMIT
DIAG-STSERCV
DIAG-STSEFRMCNT
DIAG-STSEWRDCNT
DIAG-STSEALPACNT
```

Example To run a statistics counter test on a switch:

```
switch:admin> statsTest
Running Statistics Cnt Test ... passed.
switch:admin>
```

See Also

```
portRegTest
centralMemoryTest
cmiTest
sramRetentionTest
turboRamTest
camTest
filterTest
portLoopbackTest
spinSilk
```

supportShow

Display multiple test results for customer debugging.

The `supportShow` command is used to gather switch information for debugging purposes. Your EMC Customer Service representative may ask you to run this command and capture the output. This information will aid Customer Service in diagnosing problems that could occur on the switch.

Syntax	<code>supportShow [slot/Port1-Port2] [lines]</code>
Availability	All users
Description	Use this command to display multiple perselected Telnet user command results with a range of port specified in the user input
Operands	This command has the following operands:
<i>slot</i>	Specify the range of ports within the blade specified by the slot to be displayed. Slot must be provided by users, except for non-ED-12000B products. The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
<i>port 1</i>	Specify the first port of a range of ports to display information. Enter the port area number. The default (if no operand specified) is to print state of port 0. If only <code>port1</code> is specified, only information for <code>port1</code> is printed. This operand is required for v4.0.
<i>port 2</i>	Specify the last port of range of ports to display information. Enter the port area number. If <code>port1</code> is specified but <code>port2</code> is not specified, only <code>port2</code> information is printed for the port based commands (<code>portShow</code> , <code>portRegShow</code> , <code>portRouteShow</code>). If no operand is supplied, <code>port1</code> is set to 0 and <code>port2</code> is set to maximum port of switch. This operand is required for v4.0.
<i>lines</i>	Specify the number of lines for portlogdump output.

Example To display switch information for debugging:

```
switch:admin> supportShow 4/0, 15
version:
Kernel:      2.4.2
Fabric OS:   4.0.0
Made on:     Thu Oct 25 00:58:55 2001
Flash:       Thu Oct 25 00:58:55 2001
BootProm:    Unknown

uptime:
 11:46pm up 4:39, 3 users, load average: 1.85, 1.45, 1.15

tempshow:
Index  Slot  State          Centigrade  Fahrenheit
=====
 1     1     Absent
 2     2     Absent
 3     3     Absent
 4     4     Ok             40          104
 5     5     Ok             27          80
 6     6     Absent

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

See Also switchShow

switchBeacon

Set switch beaconing mode on or off.

Syntax `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.

Operand This command has the following operand:

`mode` Specify 1 to enable beaconmode 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`

switchCfgSpeed

Configure all ports of the switch to a particular speed level.

Syntax `switchCfgSpeed speed_level`

Availability Admin

Description Use this command to configure the speed of all the ports on a switch to a particular level. The configuration is saved in the non-volatile memory and persists across switch reboot or power cycle.

If the command is specified without an operand, you are prompted to enter the speed value. An input of CTRL-D cancels the configuration update.

The output of `portShow` and `portCfgShow` displays the speed level. In the `portShow` output, the speed level is indicated as the current port speed of 1 Gbs or 2 Gbs. In the `portCfgShow` output, the speed level is indicated as 1 GB, 2 GBs, or AN (Auto-Negotiate).

Operand This command has the following operand:

speed_level Specify the speed of a port. This operand is optional. Valid values are one of the following:

- ◆ **0** — Auto-sensing mode. The port automatically configures for the highest speed.
- ◆ **1** — 1 Gb/s mode. The port will be at fixed speed of 1 Gb/s.
- ◆ **2** — 2 Gb/s mode. The port will be at fixed speed of 2 Gb/s.

If the command is specified without an operand, you are prompted to enter a value.

Example To set the speed level for all ports on a switch:

```
switch:admin> switchCfgSpeed 2
done.
switch:admin>
```

See Also `portCfgSpeed`
`switchShow`

switchCfgTrunk

Enable or disable trunking on all the ports of a switch.

Syntax	<code>switchCfgTrunk [mode]</code>		
Availability	Admin		
Description	Use this command to enable or disable trunking on all the ports of a switch. <hr/> <u>This command requires the Trunking license.</u>		
Operand	This command has the following operand: <table><tr><td><code>mode</code></td><td>Specify 1 to enable trunking on all the ports on this switch. Specify 0 to disable trunking on all the ports on this switch. This operand is required.</td></tr></table>	<code>mode</code>	Specify 1 to enable trunking on all the ports on this switch. Specify 0 to disable trunking on all the ports on this switch. This operand is required.
<code>mode</code>	Specify 1 to enable trunking on all the ports on this switch. Specify 0 to disable trunking on all the ports on this switch. This operand is required.		
Example	To enable trunking on a switch: <pre>switch:admin> switchCfgTrunk 1 done.</pre>		
See Also	<code>portCfgTrunkPort</code> <code>portShow</code> <code>portCfgShow</code> <code>switchShow</code>		

switchdiag

Run diagnostics on a DS-32B2 switch.

Syntax `switchdiag`

Availability Admin

Description Use this command to run a suite of diagnostics tests on the specified switch. To run this command you must install loopback plugs on every port. The tests executed are:

- ◆ portregtest
- ◆ centralmemorytest
- ◆ cmitest
- ◆ camtest
- ◆ filtertest
- ◆ statstest
- ◆ portloopbacktest
- ◆ txddata
- ◆ crossporttest
- ◆ spinsilk
- ◆ backport
- ◆ diagshow

Compared to `switchdiagshort`, this is a comprehensive test for switch functionality which also involves backplane connections. The switch must be disabled to run this command.

Options None

Example To run a suite of diagnostics on a DS-32B2:

```
switch:admin> switchdiag
Testing: user ports: 3 2 1 0 7 6 5 4 11 10 9 8 15 14 13 12

PortRegTest

Running Port Register Test ....
passed.
Test Complete: "portregtest" Pass 1 of 1
Duration 0 hr, 2 min & 23 sec (0:2:23:443).
```

```
passed.  
Test return status: 0  
  
CentralMemoryTest  
  
Running centralmemorytest ..... passed.  
Test Complete: "centralmemorytest" Pass 1 of 1  
Duration 0 hr, 0 min & 19 sec (0:0:19:611).  
passed.  
Test return status: 0  
  
<output truncated>
```

See Also

```
portregtest  
centralmemorytest  
cmitest  
camtest  
filtertest  
statstest  
portloopbacktest  
txdpath  
crossporttest  
spinsilk  
backport  
diagshow  
switchdiagshort
```

switchdiagshort

Run diagnostics on a DS-32B2.

Syntax `switchdiagshort`

Availability Admin

Description Use this command to run a suite of diagnostics tests on the specified switch. To run this command you must install loopback plugs on every port. The tests executed are:

- ◆ portregtest
- ◆ centralmemorytest
- ◆ cmitest
- ◆ camtest
- ◆ filtertest
- ◆ statstest
- ◆ portloopbacktest
- ◆ txddata
- ◆ crossporttest
- ◆ spinsilk
- ◆ backport
- ◆ diagshow

Compared to `switchdiag`, this is a limited test for switch functionality which does not involve backplane connections. The switch must be disabled to run this command.

Options None

Example **To run a suite of diagnostics on the DS-32B2:**

```
switch:admin> switchdiagshort
Testing: user ports: 3 2 1 0 7 6 5 4 11 10 9 8 15 14 13 12

PortRegTest

Running Port Register Test ....
passed.
Test Complete: "portregtest" Pass 1 of 1
Duration 0 hr, 2 min & 23 sec (0:2:23:443).
```

```
passed.  
Test return status: 0  
  
CentralMemoryTest  
  
Running centralmemorytest ..... passed.  
Test Complete: "centralmemorytest" Pass 1 of 1  
Duration 0 hr, 0 min & 19 sec (0:0:19:611).  
passed.  
Test return status: 0  
  
<output truncated>
```

See Also

```
portregtest  
centralmemorytest  
cmitest  
camtest  
filtertest  
statstest  
portloopbacktest  
txdpath  
crossporttest  
spinsilk  
backport  
diagshow  
switchdiag
```

switchDisable

Disable the switch.

Syntax `switchDisable`

Availability Admin

Description Use this command to disable the switch. All Fibre Channel ports are taken off line; 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.

Syntax `switchEnable`

Availability Admin

Description Use this command to enable the switch. All Fibre Channel ports that passed POST are enabled. They can come on line if connected to a device, or remain off line 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 ID. If another switch assumes the principal role, then this switch becomes a subordinate switch, and accepts a domain ID 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.

Syntax `switchName ["newName"]`

Availability All users (display)
Admin (set)

Description Use this command without an operand to display the current switch name. This name is also shown in the Telnet prompt, under each switch icon on the Web Tools Fabric View, and in the output of many Telnet commands.

Use this command with the *newName* operand to assign a new switch name. Switch names can be up to 19 characters long, must begin with an alpha character, and can consist of a combination of alpha, numeric, and underscore characters.

Changing the switch name causes a domain address format RSCN to be issued (see FC-FLA for a description of RSCNs).

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"
  Committing configuration ...
  Done.
sw10:admin>
```

See Also `switchShow`
`fabricShow`

switchReboot

Halt and bring down the operational switch.

Syntax switchReboot

Availability Admin

Description Use this command to reboot the operational switch without disrupting the other switch in the ED-12000B chassis. Use this command when you cannot determine the problem with the switch and want to bring it back to an operational state without disturbing the software state of the system in general.

This command is equal to running `switchShutdown` and `switchStart`.

For the ED-12000B, the `switchreboot` command will reboot only the logical switch you are currently logged in to, the other logical switch and both CPs remain unaffected.

Operands None

Example To bring down an operational switch:

```
switch12000:admin> switchreboot
switch12000:admin> Selecting i2c bus...Done.
Stopping all switch daemons...Done.
Releasing i2c bus...Done.
Powering off slot 2...Done.
Powering off slot 4...Done.
Checking all slots are powered off...Done.
Cleaning up kernel modules...Done.
Initializing kernel modules...Done.
setup FCIP IP: ifconfig fcl ip=192.168.69.190, netmask=255.255.255.0
Starting all switch daemons... fabricd zoned fspfnd nsd msd asd psd fcpd evmd err
logd track_changes webd snmpstartd fwdDone.
Powering on slot 2...Done.
Powering on slot 4...Done.
Checking diagnostics.....
```

.See Also `switchShutdown`
 `switchStart`

switchShow

Display switch and port status.

Syntax `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.

Table 1-30 shows switch summary information:

Table 1-30 Switch Summary

Switch	Description
<code>switchName</code>	Switch symbolic name.
<code>switchType</code>	Switch type designation.
<code>switchState</code>	Switch state: online, offline, testing, faulty.
<code>switchRole</code>	Switch role: principal, subordinate, disabled.
<code>switchMode</code>	Switch mode: native, interop. This value is only displayed in v3.0
<code>switchDomain</code>	Switch domain ID: 1-239.
<code>switchId</code>	Switch embedded port D_ID.
<code>switchWwn</code>	Switch World Wide Name.
<code>switchBeacon</code>	The switch's beaconing state (either ON or OFF).
<code>blade_n:Beacon</code>	Blade's beaconing state (either ON or OFF). Each blade is numbered by its position in the ED-12000B chassis (from 1 to 10). This parameter is for v4.0 only.
<code>Zoning</code>	Displays the switch zoning mode (ON or OFF). This value is only displayed in v3.0.

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 speed 1 G — 1 G per second fixed transfer speed

2 G — 2 G per second fixed transfer speed

N1 — 1 G per second negotiated transfer speed

N2 — 2 G per second negotiated transfer speed

AN— Auto negotiating

port state ◆ Port state information

- ◆ 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	<p>The comment field may be blank, or it may display:</p> <ul style="list-style-type: none">◆ Disabled — port is disabled◆ Bypassed — port is bypassed (loop only)◆ Loopback — port is in loopback mode◆ E_Port — fabric port, shows WWN and name 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◆ (Trunk master) — This port is the master port in a group of trunking ports◆ (Trunk port, master is port #x) — This port is configured as a trunking port, the master port is port number x.◆ (upstream) — This E-Port is an upstream path towards the principal switch of the fabric.◆ (downstream) — This E-Port is a downstream path away from the principal switch of the fabric.◆ WWN — This is the WWN of the switch connected to the E-Port.◆ switch_name — This is the switch name of the connected switch.
---------	--

Operands None

Example The following example shows an ED-12000B:

```
switch12000:admin> switchshow
```

```
switchName:      switch12000
switchType:      10.1
switchState:     Online
switchRole:      Principal
switchDomain:     4
switchId:        fffc04
switchWwn:       10:00:00:60:69:00:54:e9
switchBeacon:    OFF
blade7: Beacon:  OFF
```

```
Area Slot Port Gbic Speed State
```

```
=====
 0   7   0   --   N2   No_Module
 1   7   1   --   N2   No_Module
 2   7   2   --   N2   No_Module
 3   7   3   id   N2   Online  F-Port  10:00:00:00:c9:27:2e:9b
 4   7   4   id   N2   Online  E-Port  10:00:00:60:69:00:54:e8 "switch94"
(downstream)(Trunk master)
 5   7   5   id   N2   Online  E-Port  (Trunk port, master is Slot 7 Port 4)
 6   7   6   id   N2   Online  E-Port  (Trunk port, master is Slot 7 Port 4)
 7   7   7   id   N2   Online  E-Port  (Trunk port, master is Slot 7 Port 4)
 8   7   8   --   N2   No_Module
 9   7   9   --   N2   No_Module
10   7  10   --   N2   No_Module
11   7  11   --   N2   No_Module
12   7  12   id   N2   No_Light
13   7  13   id   N2   No_Light
14   7  14   id   N2   No_Light
15   7  15   id   N2   Online  L-Port  8 public
32   9   0   --   N2   No_Module
33   9   1   --   N2   No_Module
34   9   2   --   N2   No_Module
35   9   3   --   N2   No_Module
36   9   4   --   N2   No_Module
37   9   5   --   N2   No_Module
38   9   6   --   N2   No_Module
39   9   7   --   N2   No_Module
40   9   8   id   N2   Online  E-Port  (Trunk port, master is Slot 9 Port 10)
41   9   9   id   N2   Online  E-Port  (Trunk port, master is Slot 9 Port 10)
42   9  10   id   N2   Online  E-Port  10:00:00:60:69:50:08:d5 "switch95"
(downstream)(Trunk master)
43   9  11   id   N2   Online  E-Port  (Trunk port, master is Slot 9 Port 10)
44   9  12   --   N2   No_Module
45   9  13   --   N2   No_Module
46   9  14   --   N2   No_Module
47   9  15   id   N2   No_Light
switch12000:admin>
```


The following example shows a DS-32B2:

```
switch3900:admin> switchshow
switchName:      switch3900
switchType:      12.1
switchState:     Online
switchRole:      Principal
switchDomain:     1
switchId:        fffc01
switchWwn:       10:00:00:60:69:90:02:3e
switchBeacon:    OFF
```

Port Gbic Speed State

```
=====
 0 id N2 Online
 1 id N2 Online
 2 id N2 Online Loopback->Port 2
 3 id N2 Online
 4 id N2 Online
 5 id N2 Online
 6 id N2 Online
 7 id N2 Online
 8 id N2 Online
 9 id N2 No_Light
10 id N2 No_Light
11 id N2 No_Light
12 id N2 No_Light
13 id N2 Online
14 id N2 Online Loopback->Port 14
15 id N2 No_Light
16 id N2 No_Light
17 id N2 No_Light
18 id N2 No_Light
19 id N2 No_Light
20 id N2 No_Light
21 id N2 Online
22 id N2 Online
23 id N2 Online
24 id N2 Online
25 id N2 Online
26 id N2 Online
27 id N2 Online
28 id N2 No_Light
29 id N2 No_Light
30 id N2 No_Light
31 id N2 No_Light
```

```
switch3900:admin>
```

See Also

switchDisable
switchEnable
switchName

switchShutdown

Halt the operational switch.

Syntax `switchShutdown`

Availability Admin

Description This command halts the switch operation without disrupting the other switch in the ED-12000B chassis.

This command must be used in combination with `switchStart`.

This command brings down all the daemons associated with the switch; frees the resources and object states associated with the switch to a clear state and disables all the ports and blades associated with the switch.

Operands None

Example **To bring down the operational switch:**

```
switch:admin> switchShutdown  
Stopping Switch 1 daemons:done.
```

See Also `switchStart`
 `switchReboot`

switchStart

Initialize the switch to operational.

Syntax `switchStart`

Availability Admin

Description This command initializes a logical switch without disrupting the other switch in the ED-12000B chassis.

This command must be used in combination with `switchShutdown`.

This command starts all the daemons associated with the switch, initializes the object states associated with the switch to a clear state, and enables all the ports/blades associated with the switch.

Operands None

Example **To initialize the switch to operational:**

```
switch:admin> switchStart  
Starting Switch 1 daemons: fabricd zoned fspfd nsd msd asd  
psd fcpd rpcd evmd
```

See Also `switchShutdown`
 `switchReboot`

switchStatusPolicySet

Set the policy parameters that determine the overall switch status.

Syntax `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 1-31 Contributor Value and Status

Contributor	Default Value for DOWN	Default Value for MARGINAL
FaultyPorts	2	1
MissingGBICs	0	0
PowerSupplies	3	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. For example, assuming that the switch contributor values are set to the default values, if there is one faulty port in a switch, then this contributor would set the overall switch

status to DOWN. If two ports were faulty, then this contributor would set the overall switch status to DOWN.

This command enables you to set a threshold for each contributor, so that a certain number of failures are required to change the overall status of the switch.

If the value of a policy parameter is set to 0, then 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 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.

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 Missing SFPs 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
    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..64) [2]
FaultyPorts contributing to MARGINAL status: (0..64) [1]
MissingGBICs contributing to DOWN status: (0..64) [0]
MissingGBICs contributing to MARGINAL status: (0..64) [0] 1
Bad PowerSupplies contributing to DOWN status: (0..4) [2]
Bad PowerSupplies contributing to MARGINAL status: (0..4) [1]
Bad Temperatures contributing to DOWN status: (0..8) [2]
Bad Temperatures contributing to MARGINAL status: (0..8) [1]
Bad Fans contributing to DOWN status: (0..3) [2]
Bad Fans contributing to MARGINAL status: (0..3) [1]
Down PortStatus contributing to DOWN status: (0..8) [0]
Down PortStatus contributing to MARGINAL status: (0..64) [0]
Down ISLStatus contributing to DOWN status: (0..64) [2]
Down ISLStatus contributing to MARGINAL status: (0..64) [1]
```

Policy parameter set has been changed

See Also switchStatusPolicyShow
 switchStatusShow

switchStatusPolicyShow

Display the policy parameters that determine the overall switch status.

Syntax `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 nonoperational 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 1-32 Contributor Value and Status

Contributor	Default Value for DOWN	Default Value for MARGINAL
FaultyPorts	1	0
MissingGBICs	0	0
PowerSupplies	2	1
Temperatures	2	1
Fans	2	1
PortStatus	0	0
sgroup ISLStatus	0	0

The policy parameters determine the number of failed or nonoperational 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
    ISLStatus  2          1
```

See Also switchStatusShow
 switchStatusPolicySet

switchStatusShow

Display the overall status of the switch.

Syntax `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 SFPs (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 There are two examples below. The first shows a switch with a status of MARGINAL, the second shows the same switch after all the errors have been fixed.

```
switch:admin> switchStatusShow  
The overall switch status is Marginal/Warning  
Contributing factors:  
* 1 missing power supply triggered the Marginal/Warning status  
* 1 bad fan, 2 good fans triggered the Marginal/Warning status  
* 1 missing GBIC triggered the Marginal/Warning status  
  
switch:admin> switchStatusShow  
The overall switch status is HEALTHY/OK
```

See Also `switchStatusPolicyShow`
`switchStatusPolicySet`

switchuptime

Display the amount of time the switch has been operating.

Syntax	switchuptime
Availability	All users
Description	Use this command to display the current time and the amount of time the switch has been operational.
Operands	None
Example	To view the uptime for the switch: <pre>switch:admin> switchuptime 2:00pm up for 17 hrs 44 mins switch:admin></pre>
See Also	switchStart switchShutdown switchReboot

syslogdIpAdd

Add the IP address of a syslog daemon.

Syntax `syslogdIpAdd IPaddress`

Availability Admin

Description Use this command to add the IP address of a syslog daemon, that is, the IP address of the server that 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.

Operand This command has the following operand:

IPaddress 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"
```

See Also `errShow`
`syslogdIpRemove`
`syslogdIpShow`

syslogdIpRemove

Remove the IP address of a syslog daemon.

Syntax `syslogdIpRemove IPaddress`

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:

`IPaddress` 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"
```

See Also `errShow`
`syslogdIpAdd`
`syslogdIpShow`

syslogdIpShow

Display all syslog daemon IP addresses.

Syntax `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: 191.168.1.60  
  syslog.IP.address.2: 191.168.1.88  
  syslog.IP.address.3: 191.168.2.77
```

See Also `errShow`
`syslogdIpAdd`
`syslogdIpRemove`

systemtest

Run diagnostics on a switch blade.

Syntax `systemtest [-slot slot]`

Availability Admin

Description Use this command to run a suite of diagnostics tests on the specified switch blade. To run this command you must install loopback plugs on every port. The tests executed are:

- ◆ PortRegTest
- ◆ CentralMemoryTest
- ◆ CmiTest
- ◆ CamTest
- ◆ FilterTest
- ◆ StatisticsTest
- ◆ PortLoopbackTest -- internal
- ◆ PortLoopbackTest -- serdes
- ◆ Txdpath -- internal
- ◆ CrossPortTest -- serdes
- ◆ SpinSilk -- internal
- ◆ SpinSilk -- serdes
- ◆ BackPort -- current blade
- ◆ BackPort -- all blades

After the command has executed the above commands, it lists an overall summary of the slot status.

Operands This command has the following operand:

`-slot slot` Specify the slot to to which run diagnostics. If no operand is specified, the current slot is used. You can set the current slot using the `setslot` command.

Example To run a suite of diagnostics on blade 7:

```
switch:admin> systemtest -slot 7
  Testing slot: 7, user ports: 3 2 1 0 7 6 5 4 11 10 9 8 15 14 13 12

  PortRegTest

  Running Port Register Test ....
  passed.
  Test Complete: "portregtest" Pass 1 of 1
  Duration 0 hr, 2 min & 23 sec (0:2:23:443).
  passed.
  Test return status: 0

  CentralMemoryTest

  Running centralmemorytest ..... passed.
  Test Complete: "centralmemorytest" Pass 1 of 1
  Duration 0 hr, 0 min & 19 sec (0:0:19:611).
  passed.
  Test return status: 0

  <output truncated>
```

See Also setslot
 diagHelp

tempShow

Display temperature readings.

Syntax tempShow

Availability All users

Description Use this command to display the current temperature readings from each of the 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 an ED-12000B:

```
switch:admin> tempshow
  Index  Slot  State          Centigrade  Fahrenheit
  =====
  1      5      Ok             27          80
  2      6      Ok             27          80
  3      7      Ok             44          111
  4      8      Absent
  5      9      Ok             40          104
  6     10      Absent
```

```
switch:admin>
```

See Also fanShow
psShow

timeOut

Set or clear the idle Telnet connection time-out value.

Syntax `timeOut [timeval]`

Availability All users (display)

Admin (show/set)

Description Use this command with no operands to display the current telnet timeout value. Use this command with an operand to sets the idle timeout value to the specified minutes. Using a timeout value of zero will disable the timeout functionality so that login sessions would never be disconnected.

The default value for timeout in the ED-12000B is 5 minutes.

Operands This command has the following operands

timeval Specify a number of minutes before an idle Telnet session is timed out. This operand is optional.

Example **To display the current telnet timeout value, then change it to 10 minutes:**

```
switch:admin> timeOut 10
  IDLE Timeout Changed to 10 minutes
  The modified IDLE Timeout will be in effect after NEXT
  login.
```

See Also `help`
`version`

topologyShow

Display the unicast fabric topology.

Syntax `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 fields shown in Table 1-33:..

Table 1-33 TopologyShow Fields

Field	Description
Local Domain ID:	Domain number of local switch.
Domain:	Domain number of destination switch.
Metric:	Cost of reaching destination domain.
Name:	Name of destination switch.
Path Count:	Number of currently active paths to the destination domain.
Hops:	The maximum number of hops to reach destination domain.

Table 1-33 TopologyShow Fields (*continued*)

Field	Description
Out Port:	Area number of the port that incoming frame will be forwarded to, in order to reach the destination domain. Use the <code>switchshow</code> command to view the area numbers for the switch.
In Ports:	Area number of the input ports that use the corresponding Out Port to reach the destination domain. This is the same information provided by <code>portRouteShow</code> and <code>uRouteShow</code> . Use the <code>switchshow</code> command to view the area numbers for the switch.
Total Bandwidth:	The maximum bandwidth of the out port.
Bandwidth Demand:	The maximum bandwidth demand by the in ports.
Flags:	Always D, indicating a dynamic path. A dynamic path is discovered automatically by the FSPF path selection protocol.

Operand This command has the following operand:

domainnumber Specify the destination domain for which topology information is to be displayed. This operand is optional. When no domain number is specified, this command displays the topology information of all the domains in the fabric.

Examples To display the unicast fabric topology:

```
switch:admin> topologyShow
```

```
2 domains in the fabric; Local Domain ID: 1
Domain:          6
Metric:          500
Name:            cylon218
Path Count:     4
  Hops:          1
  Out Port:      60
  In Ports:      None
  Total Bandwidth: 2 Gbps
  Bandwidth Demand: 0 %
  Flags:         D
  Hops:          1
  Out Port:      61
  In Ports:      None
  Total Bandwidth: 2 Gbps
  Bandwidth Demand: 0 %
  Flags:         D
  Hops:          1
  Out Port:      62
  In Ports:      None
  Total Bandwidth: 2 Gbps
  Bandwidth Demand: 0 %
  Flags:         D
  Hops:          1
  Out Port:      58
  In Ports:      None
  Total Bandwidth: 2 Gbps
  Bandwidth Demand: 0 %
  Flags:         D
```

See Also portRouteShow
 uRouteShow

trackChangesSet

Enable configuring of Track Changes feature.

Syntax `trackChangesSet [mode], [snmptrapmode]`

Availability Admin

Description Use this command to enable or disable 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

The output from the Track Changes feature is dumped to the error log for the switch. Use the `errDump` command or `errShow` command to view the error log.

Operands This command has the following operands:

<code>mode</code>	Specify 1 to enable the Track Changes feature or specify 0 to disable the feature. The default (if no operand is specified) is to disable the Track Changes feature. This operand is optional.
<code>snmptrapmode</code>	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. This operand is optional.

Example The following example shows how to use this command in v4.0:

```
switch12000:admin> trackchangeset 1, 1
  Committing configuration...done.
switch12k:admin> trackchangesshow
Track changes status: ON
Track changes generate SNMP-TRAP: YES
switch12000:admin>
```

See Also agtcfgSet
agtcfgShow

trackChangesShow

Display status of Track Changes feature.

Syntax `trackChangesShow`

Availability All users

Description Use this command to display status of the Track Changes feature. It shows if the feature is turned on or off and if SNMP trap are generated.

The output from the Track Changes feature is dumped to the error log for the switch. Use the `errDump` command or `errShow` command to view the error log.

Example **To display the status of the Track Changes feature:**

```
switch:admin> trackChangesShow
Track changes status: ON
Track changes generate SNMP-TRAP: YES
```

See Also `trackChangesSet`

trunkDebug

Debug a trunk link failure.

Syntax `trunkDebug port1, port2`

Availability Admin

Description Use this command to debug a trunk link failure. This command reports one of the following messages based on the trunking properties of the two specified ports:

- ◆ Switch does not support trunking
- ◆ Trunking license required
- ◆ port<port_id> is not E_Port
- ◆ port<port_id> trunking disabled
- ◆ port<port_id> speed is not 2 G
- ◆ port<port_id> and port<port_id> are not on same quad
- ◆ port<port_id> and port<port_id> connect to different switches
- ◆ port<port_id> is not Trunking port due to: E_Port being disabled, or trunking may be disabled at remote port
- ◆ port<port_id> and port<port_id> can't trunk, please check link length to make sure difference is less than 400 m

Operands This command has the following operands:

port1 Use the area number to specify port1. Use the `switchshow` command to view the area numbers for a port. This operand is required.

port2 Use the area number to specify port2. Use the `switchshow` command to view the area numbers for a port. This operand is required.

Example **To debug a trunk connection:**

```
switch:admin> trunkDebug 3, 4
port 3 is not E port
```

See Also `trunkShow`
`portCfgTrunkport`
`switchCfgTrunk`

trunkShow

Display trunking information.

Syntax trunkShow

Availability All users

Description Use this command to display trunking information. The fields displayed are shown in Table 1-34:

Table 1-34 trunkShow Fields

Fields	Description
Trunking Group Number	Trunking groups on a switch. All the ports that are part of this trunking group are displayed.
Port to port connections	Port-to-port trunking connections.
WWN	WWN of the connected port.
deskew	Single trip time difference between trunked links. Each number corresponds to 10 ns.
Master	Whether this trunking port connection is the master port connection for the trunking group.

Operands None

Example To display trunking information for a switch:

```
switch:admin> trunkShow
 1: 1 -> 1 10:00:00:60:69:04:10:83 deskew 16 MASTER
    0 -> 0 10:00:00:60:69:04:10:83 deskew 55
 2: 4 -> 4 10:00:00:60:69:04:01:94 deskew 45 MASTER
    5 -> 5 10:00:00:60:69:04:01:94 deskew 34
    7 -> 7 10:00:00:60:69:04:01:94 deskew 22
    6 -> 6 10:00:00:60:69:04:01:94 deskew 65
 3:14 -> 14 10:00:00:60:69:04:10:83 deskew 46 MASTER
    15 -> 15 10:00:00:60:69:04:10:83 deskew 33
```

See Also portCfgTrunkport
switchCfgTrunk

turboRamTest

Run the turbo SRAM logic test for 2Gb ASICs.

Syntax `turboRamTest [passcount]`

Availability Admin

Description This command verifies the on-chip SRAM located in the 2 Gb ASIC using the Turbo-Ram BIST circuitry. These SRAMS are tested by `portRegTest` and `sramRetentionTest` using PCI operations, but for this test the BIST controller is able to perform the SRAM write and read operations at a much faster rate. It is also able to test one SRAM in each quadrant of every chip in parallel.

The test flow for each SRAM is as follows:

1. Fill RAM with alternating FFFF 0000 pattern. (Subtest 1: turboram memory fill)
2. For each incrementing address read FFFF 0000 pattern and write 0000 FFFF. (Subtest 2: turbo-ram r-m-w inc 1)
3. For each incrementing address read 0000 FFFF pattern and write FFFF 0000. (Subtest 3: turbo-ram r-m-w inc 2)
4. For each decrementing address read FFFF 0000 pattern and write 0000 FFFF. (Subtest 4: turbo-ram r-m-w dec 1)
5. For each decrementing address read 0000 FFFF pattern and write FFFF 0000. (Subtest 5: turbo-ram r-m-w dec 2)
6. Repeat steps 1-5 with AAAA 5555 pattern.

Operands This command has the following operands:

- | | |
|--------------------------|--|
| <code>--slot slot</code> | Specify which slot to test. This operand is optional when you specify the default slot using the <code>setslot</code> command. |
| <code>passcount</code> | Specify the number of times to perform this test. The default value is 1. This operand is optional. |
| <code>-ports list</code> | Specify which blade ports to test. All ports on the current slot is the default. |

Example To execute this test:

```
switch:admin> turboRamTest
Running Turbo RAM Test ..... passed.
```

Diagnostics When it detects failure(s), the subtest may report one or more of the following error messages:

DIAG-WTEST — Memory fill operation failed.

DIAG-IN_RWTEST — Memory r-m-w increment subtest failed.

DIAG-DEC_RWTEST — Memory r-m-w decrement subtest failed.

DIAG-RAMINIT_TO — Memory initialization timed out.

See Also

```
portRegTest
centralMemoryTest
cmiTest
camTest
sramRetentionTest
```

uptime

Display length of time the system has been operational.

Syntax uptime

Availability All users

Description Use this command to show the current time, how long the system has been up, the number of users currently logged in, and the system load averages for the last 1, 5, or 15 minutes.

Operands None

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

```
switch12000:admin> uptime
```

```
5:24pm up 43 days, 6:39, 5 users, load average: 1.62, 1.49, 1.54
```

```
switch12000:admin>
```

See Also date
 errShow
 fastboot
 reboot

uRouteConfig

Configure a static route.

Syntax `uRouteConfig InArea, Domain, OutArea`

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 OutArea is a usable port, all frames coming in from InArea port addressed to Domain will be forwarded through OutArea port.

If OutArea port is not usable, the routing assignment is not affected. When OutArea port becomes usable again, the static route assignment for the InArea is enforced.

OutArea port is usable if it is on a minimum cost path to the destination domain.

InArea port can be either an F_Port or an E_Port.

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 nonminimum 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:

<i>InArea</i>	Specify the port to be statically routed. This operand is required.
<i>Domain</i>	Specify the destination domain. This operand is required.
<i>OutArea</i>	Specify the output port where traffic is to be forwarded. This operand is required.

Examples To configure 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
done.
switch:admin> configShow
route.ucastRoute.1.2:5
route.ucastRouteCount: 1
```

See Also

```
configShow
interfaceShow
uRouteRemove
uRouteShow
```


uRouteRemove

Remove a static route.

Syntax `uRouteRemove InArea, Domain`

Availability Admin

Description Use this command to remove a configured static route.

When this command is issued, the route to Domain for InArea may or may not change. It changes if the previous static route was not along a minimum cost path.

After this command is issued, the load sharing to the domain is re-evaluated.

InArea can be either an F_Port or an E_Port.

Operands This command has the following operands:

`InArea` Specify the port to be statically routed. This operand is required.

`Domain` 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  
done.
```

See Also `configShow`
`uRouteConfig`
`uRouteShow`

uRouteShow

Display unicast routing information.

Syntax `uRouteShow [slotnumber/] [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 and 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.

If no operand is specified, this command displays routing information for all active ports on the local switch, to all the domains in the fabric.

When only slot number and port number are specified, this command displays the routing information for the specified port to all the domains connected to it.

When slot number, port number, and domain number are all specified, this command only displays the routing information for the specified port to the specified domain.

The information is displayed as shown in Table 1-35:

Table 1-35 uRouteShow Fields

Fields	Description
Local Domain ID:	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.

Table 1-35 uRouteShow Fields (*continued*)

Fields	Description
Hops:	Maximum 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 <code>uRouteConfig</code> .
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 <code>Out Port</code> is connected.

The information provided by this command should match what is provided by `portRouteShow` and `topologyShow`.

Operands This command has the following operands:

slotnumber Specify the slot number in an ED-12000B switch. The slot number must be followed by a slash (/) and the port number.

The ED-12000B has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).

This operand is not required for switches that do not have blades.

<i>portnumber</i>	Specify the port number you want to view the unicast routing information for. Valid values for port number vary depending on the switch type. This operand is optional.
<i>domainnumber</i>	Displays routing information for the specified port and domain. This operand is optional. This operand should only be specified when the port number is specified.

Examples The first example displays the routing information of all the active ports, The second command displays the routing information of port 11 on slot 1, and the third command displays the routing information of port 11 to domain 4 only:

```
switch:admin> uRouteShow
```

```
Local Domain ID: 3
```

In Port	Domain	Out Port	Metric	Hops	Flags	Next (Dom, Port)
0	1	11	1000	1	D	1,0
11	2	0	1500	2	D	4,0
	4	0	500	1	D	4,0
16	1	27	1000	1	D	1,1
27	2	16	1500	2	D	4,16
	4	0	500	1	D	4,0

```
switch:admin> uRouteShow 1/11
```

```
Local Domain ID: 3
```

In Port	Domain	Out Port	Metric	Hops	Flags	Next (Dom, Port)
11	2	16	1500	2	D	4,16
	4	16	500	1	D	4,16

```
switch:admin> uRouteShow 1/11, 4
```

```
Local Domain ID: 3
```

In Port	Domain	Out Port	Metric	Hops	Flags	Next (Dom, Port)
11	4	16	500	1	D	4,16

See Also portRouteShow
topologyShow
uRouteConfig

version

Display firmware version information.

Syntax `version`

Availability All users

Description Use this command to display firmware version information and build dates.

The following is displayed as shown in Table 1-36:

Table 1-36 Firmware Version Information

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:	Displays the 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 on a DS-32B2:**

```
switch3900:admin> version
Kernel:      2.4.2
Fabric OS:   v4.0.2
Made on:     Wed Aug 7 11:13:43 2002
Flash:       Fri Aug 9 10:14:37 2002
BootProm:    3.1.17
switch3900:admin>
```

Example To display firmware version information on an ED-12000B:

```
switch12k:admin> version
Kernel:      2.4.2
Fabric OS:   v4.0.0
Made on:     Fri Feb 1 23:02:08 2002
Flash:      Fri Feb 1 18:03:35 2002
BootProm:   3.1.13b
switch12000:admin>
```

See Also `firmwareDownload`
`reboot`

wwn

View a switch WWN.

Syntax `wwn`

Availability All users

Description Use this command to display the WWN of a switch. All switches have a numeric address that is the unique Fibre Channel address used for communicating with the switch. The WWN is shown in the output of the `switchShow` command.

Operands None

Example **To display the switch WWN:**

```
switch:admin> wwn
10:00:00:60:69:00:54:e9

switch:admin>
```

See Also `switchShow`

zoneAdd

Add a member to the zone.

Syntax `zoneAdd "zoneName", "member/member"`

Availability Admin

Description Use this command to add one or more members to an existing zone.

This command requires a Zoning license.

Operands This command has the following operands:

zoneName Specify the name of an existing zone, in quotation marks.

member Specify a member or list of members to be added, in quotation marks, separated by semicolons. Valid values can be one or more of the following:

- ◆ A switch domain and port area number pair. For example, "2,20". View the area numbers for ports using the switchShow command.
- ◆ Node or port WWN.
- ◆ QuickLoop AL_PA.
- ◆ Zone alias name.

Example To add aliases for three disk arrays to "Blue_Zone":

```
switch:admin> zoneAdd "Blue_Zone", "array3; array4;
array5"
```

See Also zoneCreate
zoneDelete
zoneRemove
zoneShow

zoneCreate

Create a zone.

Syntax `zoneCreate "zoneName", "member/member"`

Availability Admin

Description Use this command to create a new zone.

This command requires a Zoning license.

A zone name is a C-style name beginning with a letter and followed by any number of letters, digits, and underscore characters. Names are case-sensitive; for example, "Zone_1" indicates a different zone than "zone_1". Blank spaces are ignored.

The zone member list must have at least one member (empty lists are not allowed). The members are described by a list of member definitions separated by semicolons.

In v3.0, specify ports by domain and port number. The values are entered as a pair of numbers: "*s,p*" where "*s*" is the switch number (domain ID) and "*p*" is the port number. For example, "2,12" specifies port 12 on switch number 2. When a zone member is specified by physical fabric port number, then all devices connected to that port are in the zone. If this port is an arbitrated loop, then all devices on the loop are in the zone.

In v4.0, specify ports by domain and port area number. The values are entered as a pair of numbers: "*s,p*" where "*s*" is the switch number (domain ID) and "*p*" is the port area number. For example, "2,20" specifies port area number 20 on switch domain 2. When a zone member is specified by port area number, then all devices connected to that port are in the zone. If this port is an arbitrated loop, then all devices on the loop are in the zone.

Specify a *World Wide Name* as eight hex numbers separated by colons, for example, "10:00:00:60:69:00:00:8a". Zoning has no knowledge of the fields within a World Wide Name; the eight bytes are simply compared with the node and port names presented by a device in a login frame (FLOGI or PLOGI). When a zone member is specified by node name, then all ports on that device are in the zone. when a zone member is specified by port number, then only that single device port is in the zone.

Specify a QuickLoop AL_PA as a QuickLoop name followed by a list of AL_PAs, for example "qloop1[01,02]". QuickLoop names have the same format as zone names, and are created with the `qloopCreate` command to define a switch or pair of switches that form the QuickLoop.

Specify a zone alias name using the same format as a zone name. It is created with the `aliCreate` command. The alias must resolve to a list of one or more of the following:

- For v3.0, a switch domain and physical port number pair.
- For v4.0, a switch domain and port area number pair. View the area numbers for ports using the `switchShow` command.
- World Wide Names.
- QuickLoop AL_PAs.

The types of zone members used to define a zone may be mixed. For example, a zone defined with the following members: "2,12; 2,14' 10:00:00:60:69:00:00:8a" would contain all devices connected to switch 2, ports 12 and 14, and to the device with the World Wide Name "10:00:00:60:69:00:00:8a (either node name or port name), at the port in the fabric to which it is connected.

Use this command to create a *broadcast* zone. This is a special zone used to specify those nodes that can receive broadcast traffic. Broadcast traffic is usually meant for servers and not for storage devices. This zone must be named "broadcast". Only one *broadcast* zone can exist within a fabric. This type of zone is hardware enforced; the switch controls data transfer to a port.

Operands This command has the following operands:

<i>zoneName</i>	Name for a zone to be created, in quotation marks. This name cannot be used for any other zone object.
<i>member</i>	Specify a member or list of members to be added, in quotation marks, separated by semicolons. Valid values can be one or more of the following: <ul style="list-style-type: none">◆ A switch domain and port area number pair. For example, "2,20". View the area numbers for ports using the <code>switchShow</code> command.◆ Node or port WWN.◆ QuickLoop AL_PA.◆ Zone alias name.

Example: To create three zones using a combination of port numbers and zone aliases:

```
switch:admin> zoneCreate "Red_zone", "1,0; loop1"  
switch:admin> zoneCreate "Blue_zone", "1,1; array1; 1,2; array2"  
switch:admin> zoneCreate "Green_zone", "1,0; loop1; 1,2; array2"
```

See Also

- zoneAdd
- zoneDelete
- zoneRemove
- zoneShow

zoneDelete

Delete a zone.

Syntax `zoneDelete "zoneName"`

Availability Admin

Description Use this command to delete a zone.

This command requires a Zoning license.

Operand This command has the following operand:

zoneName Name for a zone to be deleted, in quotation marks. This operand is required.

Example To delete the zone "Blue_zone":

```
Switch:admin> zoneDelete "Blue_zone"
```

See Also `zoneAdd`
`zoneCreate`
`zoneRemove`
`zoneShow`

zoneHelp

Display help information on zone commands.

Syntax zoneHelp

Availability All users

Description Use this command to display help information on zone commands.

Operands None

Example To display zone command help information:

```
switch:admin> zoneHelp
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         Print zone alias information

cfgAdd          Add a member to a configuration
cfgCreate       Create a zone configuration
cfgDelete       Delete a zone configuration
cfgRemove       Remove a member from a configuration
cfgShow         Print zone configuration information

qloopAdd        Add a member to a qloop
qloopCreate     Create a qloop
qloopDelete     Delete a qloop
qloopRemove     Remove a member from a qloop
qloopShow      Print qloop information

zoneAdd         Add a member to a zone
zoneCreate      Create a zone
zoneDelete      Delete a zone
zoneRemove      Remove a member from a zone
zoneShow        Print zone information

fazoneAdd       Add a member to a fabric assist zone
fazoneCreate    Create a fabric assist zone
fazoneDelete    Delete a fabric assist zone
fazoneRemove    Remove a member from a fabric assist zone
fazoneShow      Print Fabric Assist Zone information
```

cfgClear	Clear all zone configurations
cfgDisable	Disable a zone configuration
cfgEnable	Enable a zone configuration
cfgSave	Save zone configurations in flash
cfgTransAbort	Abort zone configuration transaction

switch:admin>

See Also

- zoneAdd
- zoneCreate
- zoneRemove
- zoneShow

zoneRemove

Remove a member from a zone.

Syntax `zoneRemove "zoneName", "member;member"`

Availability Admin

Description Use this command to remove one or more members from an existing zone.

A member list is located by an exact string match, therefore, it is important to maintain the order when removing multiple members. For example, if a zone contains "array2; array3; array4", removing "array3; array4" succeeds, but removing "array4; array3" fails.

If all members are removed, the zone is deleted.

This command requires a Zoning license.

Operands The following operands are required:

<code>"zoneName"</code>	Name for a zone, in quotation marks.
<code>"member"</code>	List of members to be removed from a zone, in quotation marks, separated by semicolons. Can be one or more of the following: <ul style="list-style-type: none"> ◆ A switch domain and port area number pair. For example, "2,20". View the area numbers for ports using the switchShow command. ◆ Node or port WWN. ◆ QuickLoop AL_PA. ◆ Zone alias name.

Example To remove "array2" from "Blue_zone":

```
switch:admin> zoneRemove "Blue_zone", "array2"
switch:admin> zoneRemove "Blue_zone", "2,20"
```

See Also:

- zoneAdd
- zoneCreate
- zoneDelete
- zoneShow

zoneShow

Display zone information.

Syntax `zoneShow ["pattern"], [, mode]`

Availability All users

Description Use this command to display zone configuration information.

If no parameters are specified, all zone configuration information (both defined and enabled) is displayed. See `cfgShow` for a description of this display.

If a parameter is specified, it is used as a pattern to match zone configuration names, and those that match in the defined configuration are displayed.

This command requires a Zoning license.

Operands This command has the following operands:

"pattern"

A POSIX style regular expression used to match zone configuration names. The pattern must be enclosed in quotation marks. patterns may contain:

- Question mark (?) that matches any single character
- Asterisk (*) that matches any string of characters
- Ranges (0-9a-f) that match any character within the range

This operand is optional.

"mode"

Specify 1 to display the contents of the transaction buffer, or specify 0 to display the contents of the RAM. The default value is 0. This operand is optional.

Example To show all zones beginning with the letters "A" through "C":

```
switch:admin> zoneShow "[A-C] *"
zone: Blue_zone 1,1; array1; 1,2; array2
```

See Also

- zoneAdd
- zoneCreate
- zoneDelete
- zoneRemove

This chapter summarizes the commands that are only available with a license key.

- ◆ Zoning Commands 2-2
- ◆ Extended Fabric Command 2-4
- ◆ Extended Fabric Command 2-4
- ◆ Fabric Watch Commands 2-5
- ◆ Trunking Commands 2-6
- ◆ Performance Monitoring Commands 2-7

For more information about Zoning, Extended Fabrics, Fabric Watch, Trunking, or Performance Monitoring refer to the specific user guide for that feature.

Zoning Commands

The following commands are available with the purchase of a Zoning license key. For detailed information about zoning, refer to the *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Zoning User Guide*.

Table 2-1 Zoning Commands

Command	Description
Zone Alias	
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.
Zoning	
zoneAdd	Add a member to a zone.
zoneCreate	Create a zone.
zoneDelete	Delete a zone.
zoneHelp	Display information on zone commands.
zoneRemove	Remove a member from a zone.
zoneShow	Show zone information.
Zone Configuration	
cfgAdd	Add a zone to a zone configuration.
cfgCreate	Create a zone configuration.
cfgDelete	Delete a zone configuration.
cfgRemove	Remove a zone from a zone configuration.
cfgShow	Show zone configuration definition.
Zone Management	
cfgClear	Clear all zone configurations.

Table 2-1 Zoning Commands (*continued*)

Command	Description
<code>cfgDisable</code>	Disable a zone configuration.
<code>cfgEnable</code>	Enable a zone configuration.
<code>cfgSave</code>	Save zone configurations in flash memory.
<code>cfgTransAbort</code>	Abort the current zoning transaction.

Extended Fabric Command

The following command is available with the purchase of a Extended Fabrics license key. For detailed information about Extended Fabrics refer to the *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Extended Fabrics User Guide*.

Table 2-2 Extended Fabric Command

Command	Description
portCfgLongDistance	Configure a port to support long distance links.

Fabric Watch Commands

The following commands are available with the purchase of a Fabric Watch license key. For detailed information about Fabric Watch, refer to the *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Fabric Watch User Guide*.

Table 2-3 Fabric Watch Commands

Command	Description
<code>fwAlarmsFilterSet</code>	Enable or disable alarms for Fabric Watch.
<code>fwAlarmsFilterShow</code>	Display alarm filtering for Fabric Watch.
<code>fwClassInit</code>	Initialize all classes under Fabric Watch.
<code>fwConfigReload</code>	Reload the Fabric Watch configuration.
<code>fwConfigure</code>	Display and allows modification of the Fabric Watch configuration and status.
<code>fwFruCfg</code>	Display or modify FRU state alert configuration.
<code>fwHelp</code>	Display Fabric Watch command information.
<code>fwMailCfg</code>	Configure email alerts in Fabric Watch.
<code>fwSetToCustom</code>	Set boundary and alarm levels to custom values.
<code>fwSetToDefault</code>	Set boundary and alarm levels to default values.
<code>fwShow</code>	Display the thresholds monitored by Fabric Watch.

Trunking Commands

The following commands are available with the purchase of a Trunking license key. For more detailed information about trunking, refer to the *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B ISL Trunking User Guide*.

Table 2-4 Trunking Commands

Command	Description
<code>portCfgTrunkport</code>	Configure a port for trunking.
<code>switchCfgTrunk</code>	Configure a switch for trunking.
<code>trunkDebug</code>	Debug a trunking connection.
<code>trunkShow</code>	Display information about trunking on a switch.

Performance Monitoring Commands

The following commands are available with the purchase of an Advanced Performance Monitoring license key. For more detailed information about Performance Monitoring, refer to the *EMC Connectrix Departmental Switch DS-32B2 and Enterprise Director ED-12000B Performance Monitoring User Guide*.

Table 2-5 Performance Monitoring Commands

Command	Description
<code>perfAddeEMonitor</code>	Add an end-to-end monitor to a port.
<code>perfAddIPMonitor</code>	Add an IP monitor to a port.
<code>perfAddReadMonitor</code>	Add a SCSI Read monitor to a port.
<code>perfAddRWMonitor</code>	Add a SCSI Read and Write monitor to a port.
<code>perfAddSCSIMonitor</code>	Add a SCSI traffic frame monitor to a port.
<code>perfAddUserMonitor</code>	Add a user-defined monitor to a port.
<code>perfAddWriteMonitor</code>	Add a SCSI Write monitor to a port.
<code>perfCfgClear</code>	Clear the performance monitoring settings from flash memory.
<code>perfCfgRestore</code>	Restore performance monitoring settings from flash memory.
<code>perfCfgSave</code>	Save the current performance monitoring settings to flash memory.
<code>perfClrAlpaCrc</code>	Clear an ALPA device CRC count by the port and ALPA.
<code>perfDeleEMonitor</code>	Delete an end-to-end monitor on port.
<code>perfDelFilterMonitor</code>	Delete a filter-based monitor.
<code>perfHelp</code>	Display performance monitoring help information.
<code>perfSetPortEEMask</code>	Set overall mask for end-to-end (EE) monitors.
<code>perfShowAlpaCrc</code>	Display the ALPA CRC count by port or by ALPA.
<code>perfShowEEMonitor</code>	Display user-defined end-to-end monitors on a port.
<code>perfShowFilterMonitor</code>	Display filter-based monitors for a port.
<code>perfShowPortEEMask</code>	Display the current end-to-end mask of a port.

Fabric OS Version Comparison

This chapter summarizes the commands available in v3.0 and v4.0.

- ◆ Command Differences Between Versions.....3-2

Command Differences Between Versions

This table provides a list of which commands are available in v3.0 and in v4.0. It also provides notes on differences that may exist for a particular command between versions.

Table 3-1 Fabric OS Command Version Support

Command	Supported in v3.0	Supported in v4.0	Notes
agtcfgDefault	Yes	Yes	
agtcfgSet	Yes	Yes	
agtcfgShow	Yes	Yes	
aliasDelete	Yes	No	Not supported in v4.0
aliasJoin	Yes	No	Not supported in v4.0
aliasPurge	Yes	No	Not supported in v4.0
aliasShow	Yes	No	Not supported in v4.0
aliAdd	Yes	Yes	Specify members using area number in v4.0
aliCreate	Yes	Yes	Specify members using area number in v4.0
aliDelete	Yes	Yes	
aliRemove	Yes	Yes	Specify members using area number in v4.0
aliShow	Yes	Yes	
backplantest	No	Yes	Specific to the ED-12000B
backPort	No	Yes	Specific to the ED-12000B
backSpace	Yes	No	Not supported in v4.0
bcastShow	Yes	Yes	
bladeBeacon	No	Yes	Specific to the ED-12000B
bladeDiag	No	Yes	Specific to the ED-12000B
bladeDiagShort	No	Yes	Specific to the ED-12000B
bladePropShow	No	Yes	Specific to the ED-12000B

Table 3-1 Fabric OS Command Version Support (*continued*)

Command	Supported in v3.0	Supported in v4.0	Notes
bsn	Yes	No	Not supported in v4.0. Functionality was replaced by chassisshow command in v4.0.
camTest	Yes	Yes	
centralMemoryTest	Yes	Yes	New operands in v4.0
cfgAdd	Yes	Yes	
cfgClear	Yes	Yes	
cfgCreate	Yes	Yes	
cfgDelete	Yes	Yes	
cfgDisable	Yes	Yes	
cfgEnable	Yes	Yes	
cfgRemove	Yes	Yes	
cfgSave	Yes	Yes	
cfgShow	Yes	Yes	
cfgTransAbort	Yes	Yes	
chassisName	No	Yes	Specific to the ED-12000B
chassisShow	No	Yes	Specific to the ED-12000B
chippropshow	No	Yes	New command for v4.0
chipregshow	No	Yes	New command for v4.0
cmemRetentionTest	Yes	Yes	New operands in v4.0
cmiTest	Yes	Yes	New operands in v4.0
configDefault	Yes	Yes	
configDownload	Yes	Yes	v4.0 no longer supports RSHD
configShow	Yes	Yes	
configUpload	Yes	Yes	v4.0 no longer supports RSHD
configure	Yes	Yes	Parameter modifications in v4.0

Table 3-1 Fabric OS Command Version Support (*continued*)

Command	Supported in v3.0	Supported in v4.0	Notes
crossPortTest	Yes	Yes	New operands in v4.0
dataTypeShow	Yes	Yes	
date	Yes	Yes	
diagClearError	Yes	Yes	
diagCommandShow	No	Yes	New command for v4.0
diagDisablePost	Yes	Yes	
diagEnablePost	Yes	Yes	
diagesdPorts	No	Yes	New command for v4.0
diagfailLimit	No	Yes	New command for v4.0
diagHelp	Yes	Yes	
diagloopid	No	Yes	New command for v4.0
diagmodepr	No	Yes	New command for v4.0
diagpost	No	Yes	New command for v4.0
diagretry	No	Yes	New command for v4.0
diagsetburinin	No	Yes	New command for v4.0
diagsetcycle	No	Yes	New command for v4.0
diagshowtime	No	Yes	New command for v4.0
diagsilkworm	No	Yes	New command for v4.0
diagskiptests	No	Yes	New command for v4.0
diagstopburnin	No	Yes	New command for v4.0
diagShow	Yes	Yes	
dlsReset	Yes	Yes	
dlsSet	Yes	Yes	
dlsShow	Yes	Yes	
errDump	Yes	Yes	

Table 3-1 Fabric OS Command Version Support (*continued*)

Command	Supported in v3.0	Supported in v4.0	Notes
errShow	Yes	Yes	
fabricShow	Yes	Yes	
fabStatsShow	Yes	Yes	
fanDisable	No	Yes	New command for v4.0
fanEnable	No	Yes	New command for v4.0
fanShow	Yes	Yes	
faStatsShow	Yes	No	Not supported in v4.0
fastboot	Yes	Yes	
fazoneAdd	Yes	Yes	Specify members using area number in v4.0
fazoneCreate	Yes	Yes	Specify members using area number in v4.0
fazoneDelete	Yes	Yes	
fazoneRemove	Yes	Yes	Specify members using area number in v4.0
fazoneShow	Yes	Yes	
filterTest	Yes	Yes	New operands in v4.0
firmwareCommit	No	Yes	New command for v4.0
firmwareDownload	Yes	Yes	v4.0 has new operands, no longer supports RSHD, and uses new file format
firmwareRestore	Yes	Yes	New command for v4.0
fspfShow	Yes	Yes	
fwAlarmsFilterSet	Yes	Yes	
fwAlarmsFilterShow	Yes	Yes	
fwClassInit	Yes	Yes	
fwConfigReload	Yes	Yes	

Table 3-1 Fabric OS Command Version Support (*continued*)

Command	Supported in v3.0	Supported in v4.0	Notes
fwConfigure	Yes	Yes	New Environmental Classes in v4.0
fwFruCfg	No	Yes	New command for v4.0
fwHelp	Yes	Yes	
fwMailCfg	Yes	Yes	
fwSetToCustom	Yes	Yes	
fwSetToDefault	Yes	Yes	
fwShow	Yes	Yes	Output modified in v4.0
h	Yes	Yes	
haDisable	No	Yes	Specific to the ED-12000B
haEnable	No	Yes	Specific to the ED-12000B
haFailover	No	Yes	Specific to the ED-12000B
haShow	No	Yes	Specific to the ED-12000B
help	Yes	Yes	
historyLastShow	No	Yes	New command for v4.0
historyShow	No	Yes	New command for v4.0
i	Yes	Yes	
ifModeSet	Yes	No	Not supported in v4.0
ifModeShow	Yes	No	Not supported in v4.0
ifShow	Yes	No	Not supported in v4.0
interfaceShow	Yes	Yes	Addition of the slot operand
interopmode	Yes	Yes	
iodReset	Yes	Yes	
iodSet	Yes	Yes	
iodShow	Yes	Yes	

Table 3-1 Fabric OS Command Version Support (*continued*)

Command	Supported in v3.0	Supported in v4.0	Notes
ipAddrSet	Yes	Yes	This command has unique parameters based on switch type
ipAddrShow	Yes	Yes	This command displays unique information based on switch type
licenseAdd	Yes	Yes	
licenseHelp	Yes	Yes	
licenseIdShow	No	Yes	New command for v4.0
licenseRemove	Yes	Yes	
licenseShow	Yes	Yes	
linkCost	Yes	Yes	Addition of the slot operand
logout	Yes	Yes	
loopdiagClear	Yes	No	Not supported in v4.0
loopdiagDone	Yes	No	Not supported in v4.0
loopdiagRestore	Yes	No	Not supported in v4.0
loopdiagStart	Yes	No	Not supported in v4.0
loopdiagStop	Yes	No	Not supported in v4.0
LSDbShow	Yes	Yes	
lutil	No	Yes	New command for v4.0
mcastShow	Yes	Yes	
memshow	No	Yes	New command for v4.0
minispropshow	No	Yes	New command for v4.0
minisregshow	No	Yes	New command for v4.0
msCapabilityShow	No	Yes	Renamed in v4.0 from the msPLCapabilityShow command
msConfigure	Yes	Yes	
msPlatShow	Yes	Yes	

Table 3-1 Fabric OS Command Version Support (*continued*)

Command	Supported in v3.0	Supported in v4.0	Notes
msPlCapabilityShow	Yes	No	Renamed in v4.0 to the msCapabilityShow command
msPlClearDB	Yes	Yes	
msPlMgmtActivate	Yes	Yes	
msPlMgmtDeactivate	Yes	Yes	
msTdDisable	Yes	Yes	
msTdEnable	Yes	Yes	
msTdReadConfig	No	Yes	New command for v4.0
myid	No	Yes	New command for v4.0
nbrStatsClear	Yes	Yes	Addition of the slot operand
nbrStateShow	Yes	Yes	Addition of the slot operand
nsAllShow	Yes	Yes	
nsShow	Yes	Yes	
parityCheck	Yes	No	Not supported in v4.0
passwd	Yes	Yes	
perfAddEEMonitor	Yes	Yes	Addition of the slot operand
perfAddIPMonitor	Yes	Yes	Addition of the slot operand
perfAddReadMonitor	Yes	Yes	Addition of the slot operand
perfAddRWMonitor	Yes	Yes	Addition of the slot operand
perfAddSCSIMonitor	Yes	Yes	Addition of the slot operand
perfAddUserMonitor	Yes	Yes	Addition of the slot operand
perfAddWriteMonitor	Yes	Yes	Addition of the slot operand
perfCfgClear	Yes	Yes	
perfCfgRestore	Yes	Yes	
perfCfgSave	Yes	Yes	
perfClrAlpaCrc	Yes	Yes	Addition of the slot operand

Table 3-1 Fabric OS Command Version Support (*continued*)

Command	Supported in v3.0	Supported in v4.0	Notes
perfDeLEEMonitor	Yes	Yes	Addition of the slot operand
perfDelFilterMonitor	Yes	Yes	Addition of the slot operand
perfHelp	Yes	Yes	
perfSetPortEEMask	Yes	Yes	Addition of the slot operand
perfShowAlpaCrc	Yes	Yes	Addition of the slot operand
perfShowEEMonitor	Yes	Yes	Addition of the slot operand
perfShowFilterMonitor	Yes	Yes	Addition of the slot operand
perfShowPortEEMask	Yes	Yes	Addition of the slot operand
portCfgeport	Yes	Yes	Addition of the slot operand
portCfGport	Yes	Yes	Addition of the slot operand
portCfGLongDistance	Yes	Yes	Addition of the slot operand
portCfGLport	Yes	Yes	Addition of the slot operand
portcFgMcastLoopback	Yes	Yes	Addition of the slot operand
portCfGShow	Yes	Yes	Addition of the slot operand
portCfGSpeed	Yes	Yes	Addition of the slot operand
portCfGTrunkport	Yes	Yes	Addition of the slot operand
portDisable	Yes	Yes	Addition of the slot operand
portEnable	Yes	Yes	Addition of the slot operand
portErrShow	Yes	Yes	
portLEDtest	Yes	Yes	
portLogClear	Yes	Yes	
portLogDump	Yes	Yes	
portLogDumpPort	Yes	Yes	
portLogShow	Yes	Yes	
portLoopbackTest	Yes	Yes	

Table 3-1 Fabric OS Command Version Support (*continued*)

Command	Supported in v3.0	Supported in v4.0	Notes
portPerfShow	Yes	Yes	
portRegTest	Yes	Yes	New operands for v4.0
portRouteShow	Yes	Yes	Addition of the slot operand
portShow	Yes	Yes	Addition of the slot operand
portStatsShow	Yes	Yes	Addition of the slot operand
powerOffListSet	No	Yes	New command for 4.0
powerOffListShow	No	Yes	New command for 4.0
psShow	Yes	Yes	
ptdatashow	No	Yes	New command for v4.0
ptphantomshow	No	Yes	New command for v4.0
ptpropshow	No	Yes	New command for v4.0
ptregshow	No	Yes	New command for v4.0
ptrouteshow	No	Yes	New command for v4.0
ptstatsshow	No	Yes	New command for v4.0
qlDisable	Yes	No	Not supported in v4.0
qlEnable	Yes	No	Not supported in v4.0
qloopAdd	Yes	Yes	
qloopCreate	Yes	Yes	
qloopDelete	Yes	Yes	
qloopRemove	Yes	Yes	
qloopShow	Yes	Yes	
qlPartner	Yes	No	Not supported in v4.0
qlPortDisable	Yes	No	Not supported in v4.0
qlPortEnable	Yes	No	Not supported in v4.0
qlPortShowAll	Yes	No	Not supported in v4.0

Table 3-1 Fabric OS Command Version Support (*continued*)

Command	Supported in v3.0	Supported in v4.0	Notes
qlShow	Yes	No	Not supported in v4.0
qlStatsShow	Yes	No	Not supported in v4.0
quietMode	Yes	No	Not supported in v4.0
ramTest	Yes	No	Not supported in v4.0
reboot	Yes	Yes	Reboots entire chassis in ED-12000B
routeHelp	Yes	Yes	
sensorShow	Yes	Yes	
setesdmode	No	Yes	New command for v4.0
setmfgmode	No	Yes	New command for v4.0
setSfpMode	Yes	Yes	
setSplbMode	Yes	Yes	
sfpShow	Yes	Yes	Addition of the slot operand
slotOff	No	Yes	Specific to the ED-12000B
slotOn	No	Yes	Specific to the ED-12000B
slotpoweroff	No	Yes	Specific to the ED-12000B
slotpoweron	No	Yes	Specific to the ED-12000B
slotShow	No	Yes	Specific to the ED-12000B
snmpMibCapSet	Yes	Yes	
spinFab	Yes	Yes	New operands in v4.0
spinSilk	Yes	Yes	New operands in v4.0
sramRetentionTest	Yes	Yes	New operands in v4.0
statsTest	Yes	Yes	New operands in v4.0
supportShow	Yes	Yes	Addition of the slot operand
switchBeacon	Yes	Yes	
switchCfgSpeed	Yes	Yes	

Table 3-1 Fabric OS Command Version Support (*continued*)

Command	Supported in v3.0	Supported in v4.0	Notes
switchCfgTrunk	Yes	Yes	
switchDisable	Yes	Yes	
switchEnable	Yes	Yes	
switchName	Yes	Yes	
switchReboot	No	Yes	Reboots the current logical switch in ED-12000B
switchShow	Yes	Yes	
switchShutdown	No	Yes	Specific to the ED-12000B
switchStart	No	Yes	Specific to the ED-12000B
switchStatusPolicySet	Yes	Yes	
switchStatusPolicyShow	Yes	Yes	
switchStatusShow	Yes	Yes	
switchuptime	No	Yes	New command in v4.0
syslogdIpAdd	Yes	Yes	
syslogdIpRemove	Yes	Yes	
syslogdIpShow	Yes	Yes	
systemtest	No	Yes	New command in v4.0
tempShow	Yes	Yes	
topologyShow	Yes	Yes	
trackChangesSet	Yes	Yes	
trackChangesShow	Yes	Yes	
trunkDebug	Yes	Yes	
trunkShow	Yes	Yes	
turboRamTest	Yes	Yes	Addition of the slot operand
txdpath	No	Yes	New command for v4.0
uptime	Yes	Yes	

Table 3-1 Fabric OS Command Version Support (*continued*)

Command	Supported in v3.0	Supported in v4.0	Notes
uRouteConfig	Yes	Yes	Addition of the area parameter
uRouteRemove	Yes	Yes	Addition of the area parameter
uRouteShow	Yes	Yes	Addition of the slot operand
version	Yes	Yes	Output modified in v4.0
wwn	Yes	Yes	
zoneAdd	Yes	Yes	Specify members using area number in v4.0
zoneCreate	Yes	Yes	Specify members using area number in v4.0
zoneDelete	Yes	Yes	
zoneHelp	Yes	Yes	
zoneRemove	Yes	Yes	Specify members using area number in v4.0
zoneShow	Yes	Yes	

Fabric and Switch Management

This chapter explains the different methods used to manage a SAN for DS-32B2 and ED-12000B switches.

- ◆ Overview 4-2
- ◆ User Access Level..... 4-3
- ◆ Fabric OS Command Line Interface 4-4
- ◆ Web Tools 4-5
- ◆ Fabric Watch 4-6
- ◆ Management Server..... 4-7

Overview

The DS-32B2 and ED-12000B switches can be managed using several local and remote access methods. In order to manage a switch, you must have access to one of the available management methods:

- ◆ Fabric OS command line interface
- ◆ Web Tools
- ◆ Fabric Watch
- ◆ Management Server

Telnet, SNMP, and Web Tools require that the switch be accessible using a network connection. The network connection can be from the switch Ethernet port (out of band). The switch must be configured with an IP address to allow for the network connection. Refer to the hardware manual for your specific switch for information on physically connecting to the switch.

Before changing any of the factory default settings, become familiar with the operations described in this chapter, including both the switch functions and interactive characteristics.

Switches can be accessed simultaneously from different connections. If this happens, changes from one connection may not be updated to the other, and some modifications may be lost. Make sure when connecting with simultaneous multiple connections, that you do not overwrite the work of another connection.

User Access Level

There are two levels of user access for the DS-32B2 and ED-12000B switches.

- ◆ Admin
- ◆ User

In Fabric OS v4.0, each user access level can have the following number of simultaneous logins:

Table 4-1 DS-32B2 and ED-12000B User Access Maximum Sessions

User Name	Maximum Number of Simultaneous Sessions
Admin	2
User	4
Web Tools	4

In Fabric OS v3.0 and earlier, multiple user access to a switch is limited. Each switch allows only a single session per management access method, regardless of user level. Switches can, however, be accessed simultaneously from different connections (for example, through the CLI and Web Tools). If this happens, changes from one connection may not be updated to the other, and some changes may be lost. Make sure when connecting with simultaneous multiple connections, that you do not overwrite the work of another connection.

Fabric OS Command Line Interface

The Fabric OS command line interface (CLI) accessed through telnet or serial console provides the user with the full range of management capability on a DS-32B2 and ED-12000B switch. The Fabric OS CLI enables an administrator to monitor and manage entire fabrics, individual switches, and ports from a standard workstation. The entire suite of Fabric OS features and capabilities is available across an entire fabric, from a single access point.

Access is controlled by a switch-level password for each user level (admin, user). The commands available through the CLI are based on the user's login level, and the license keys used to unlock certain features.

Generally speaking, all configuration and management tasks are available using the admin or user level ID. This manual lists all the commands available to the User and Admin level login IDs.

Fabric OS CLI is the complete fabric management tool for SANs, and provides the following advantages to administrators:

- ◆ Access to the full range of Fabric OS features, based on which license keys you purchase.
- ◆ A full set of tools to assist administrators with the configuration, monitoring, dynamic provisioning, and daily management of every aspect of Enterprise Storage Networks.
- ◆ Provides a deeper view of the tasks involved with managing an ED-12000B switch.
- ◆ Configure and manage the fabric on multiple efficient levels.
- ◆ Identify, isolate, and manage SAN events across every switch in the fabric.
- ◆ Manage switch licenses
- ◆ Perform Fabric Stamping

Web Tools

Web Tools provides a graphical interface that allows the administrator to monitor and manage entire fabrics and individual switches and ports from a standard workstation. It is an optionally licensed product that runs on Fabric OS. All switches in the fabric are displayed in the main window of Web Tools, including switches that do not have a Web Tools license. However, only switches that have a Web Tools license installed can be managed through Web Tools (other switches must be managed through Telnet).

Web Tools is an excellent partner to the traditional Fabric OS CLI commands, and in many ways can provide faster and more effective results than can be achieved strictly through the CLI. Following are some of the features that make Web Tools an important part of the switch management and administration process:

- ◆ Web Tools can be used simultaneously with Fabric OS CLI commands. Simply open a second window and you can take advantage of the benefits of both interfaces at the same time.
- ◆ Web Tools can help you find the appropriate Fabric OS CLI command to perform a desired function. For instance, you can perform a function using Web Tools, and watch in a second window as the Fabric OS CLI commands are displayed.
- ◆ Web Tools can be used from a standard workstation and provides the user the advantage of being “virtually” in front of any fabric, switch, or port.
- ◆ Web Tools makes zoning a simple click and drag process, rather than having to tediously type out IP addresses and port numbers to put in a configuration.
- ◆ Web Tools provides the Performance Monitor feature. This feature allows you to view the status and traffic of a switch or port in seconds by easily creating a variety of effective graphs.
- ◆ Web Tools is easy and intuitive to use.

Fabric Watch

Fabric Watch software monitors the performance and status of Fibre Channel networks and DS-32B2 and ED-12000B switches, and can alert SAN managers when problems arise. The real-time alerts from Fabric Watch software help SAN managers solve problems before they become costly failures. SAN managers can configure Fabric Watch software to monitor any of the following:

- ◆ Fabric events (such as topology reconfigurations and zone changes)
- ◆ Physical switch conditions (such as fans, power supplies, and temperature)
- ◆ Port behavior (such as state changes, errors, and performance)
- ◆ SFPs behavior

With Fabric Watch software, SAN managers can place limits, or *thresholds*, on the behavior of different switch and fabric elements. Fabric Watch then monitors these behavior variables, or *counters*, and issues an alarm to address problems when a counter exceeds a threshold. An alarm may email the SAN manager or lock out a port log, depending on how the manager configures the alarm.

Management Server

The Management Server allows an Storage Area Network (SAN) management application to retrieve and administer the fabric and interconnect elements such as switches, servers, and storage devices.

An access control list (ACL) of WWN addresses determines which systems have access to the Management Server database. If the list is empty (default), the Management Server is accessible to all systems connected in-band to the fabric. For a more secured access, an administrator may specify WWNs in the ACL. These WWNs are usually associated with the management applications. If any WWNs are entered into the ACL, then access to the Management Server is restricted to only those WWNs listed in the ACL.

Control Processor Commands

This chapter lists the commands available when logged into the Active CP and Standby CP in an ED-12000B.

- ◆ Active CP Commands5-2
- ◆ Standby CP Commands5-3

Active CP Commands

When logged into the Active CP, the full suite of commands are supported (subject to which license keys are installed).

When logged in to the Active CP, most commands are still specific to a single logical switch. That is, they are executed on one logical switch but not the other. If you are logged in to the Active CP through the console port, you are prompted to specify the logical switch on which commands are executed on. If you login to the Active CP through the Fabric OS Telnet shell, commands always execute on the default switch (logical switch 0).

Some commands, when executed from the Active CP, affect the entire chassis. For example, when the `reboot` command is issued on the Active CP, the command reboots both logical switches and the Active CP.

Standby CP Commands

The following commands are supported when logged in to the Standby CP.

Table 5-1 ED-1200B Standby CP Commands

Command	Notes
<code>date</code>	Print/set the system date and time.
<code>fastboot</code>	Reboot switch, bypassing the POST.
<code>firmwarecommit</code>	Commit firmware to stable storage.
<code>firmwaredownload</code>	Download firmware into the switch.
<code>h</code>	Display shell history.
<code>hashow</code>	Display high-availability status.
<code>help</code>	Display help commands available in the standby CP.
<code>reboot</code>	Reboot this processor. When executed from the Standby CP, only the Standby CP is rebooted.
<code>myid</code>	Display current login ID details.
<code>savecore</code>	Transfer by way of FTP, or remove core files generated by daemons.
<code>uptime</code>	Display how long switch has been up.
<code>version</code>	Display firmware version information.

This appendix reviews the EMC process for detecting and resolving software problems, and provides essential questions that you should answer before contacting the EMC Customer Support Center.

This appendix covers the following topics:

- ◆ Overview of Detecting and Resolving ProblemsA-2
- ◆ Troubleshooting the ProblemA-3
- ◆ Before Calling the Customer Support CenterA-4
- ◆ Documenting the Problem.....A-5
- ◆ Reporting a New ProblemA-6
- ◆ Sending Problem Documentation.....A-7

Overview of Detecting and Resolving Problems

EMC software products are supported directly by the EMC Customer Support Center in the United States.

EMC uses the following process to resolve customer problems with its software products (Figure A-1).

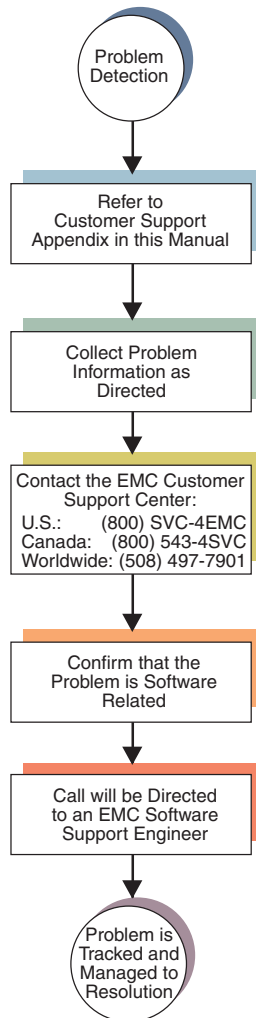


Figure A-1 Problem Detection and Resolution Process

Troubleshooting the Problem

Please perform the relevant diagnostic steps before you contact the EMC Customer Support Center:

1. Read the documentation carefully.
2. Reconstruct the events leading up to the problem and describe them in writing.
3. Run some test cases to reproduce the problem.

If you encounter a problem that requires technical programming or analysis, call the nearest EMC office or contact the EMC Customer Support Center at one of the following numbers:

United States: **(800) 782-4362 (SVC-4EMC)**

Canada: **(800) 543-4782 (543-4SVC)**

Worldwide: **(508) 497-7901**

Please do not request a specific support representative unless one has already been assigned to your particular system problem.

For additional information on the EMC products and services available to customers and partners, refer to the EMC Powerlink Web site at:

<http://powerlink.emc.com>

Before Calling the Customer Support Center

Have the following information available before calling the Customer Support Center or your support representative (if one has been assigned to you):

- Your company name
- Your name
- Your phone number
- For an existing problem, the problem tracking system ID, if one was previously assigned to the problem by a support representative

Documenting the Problem

If the EMC Customer Support Center requests information regarding the problem, please document it completely, making sure to include the following information:

- Your company name and address
- Your name
- Your telephone number
- The importance of the problem, so that it can be assigned a priority level

To expedite the processing of your support request, you can photocopy this list and include it with the package.

Reporting a New Problem

For a new problem, please provide the following information:

- Release level of the software that you are running
- Software installation parameters
- Host type on which you are running
- Operating system you are running and its release number
- Functions of the software that you are running
- Whether you can reproduce the problem
- Previous occurrences of the problem
- Whether the software has ever worked correctly
- Time period that the software did work properly
- Conditions under which the software worked properly
- Changes to your system between the time the software worked properly and the problem began
- Exact sequence of events that led to the system error
- Message numbers and complete text of any messages that the system produced
- Log file dated near the time the error occurred
- Results from tests that you have run
- Other related system output
- Other information that may help solve the problem

Sending Problem Documentation

Use one of the following methods to send documentation of the problem to the EMC Customer Support Center:

- ◆ Email
- ◆ FTP
- ◆ U.S. Mail to the following address:

EMC Customer Support Center
45 South Street
Hopkinton, MA 01748-9103

If the problem was assigned a number or a specific support representative, please include that information in the address as well.

The terms in the glossary relate to the switch and Fibre Channel connections. Many of these terms are used in this manual.

Numbers

8b/10b Encoding An encoding scheme that converts each 8-bit byte into 10 bits. Used to balance ones and zeros in high speed transports.

16-Port Card The fibre channel port card provided with ED-12000B. Contains 16 fibre channel ports and the corresponding LEDs indicating port status and speed. See also *Port Card*.

A

Access Control List Enables an organization to bind a specific WWN to a specific switch port or set of ports, preventing a port in another physical location from assuming the identity of a real WWN. May also refer to a list of the read/write access of a particular community string. See also *Device Connection Controls*.

Address Identifier A 24-bit value or 8-bit value used to identify the source or destination of a frame.

Admin Account A login account intended for use by the customer to control switch operation.

Alias 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.

Alias Address Identifier	An address identifier recognized by a port in addition to its standard identifier. An alias address identifier may be shared by multiple ports.
Alias Server	A fabric software facility that supports multicast group management.
AL_PA	Arbitrated loop physical address. A unique 8-bit value assigned during loop initialization to a port in an arbitrated loop.
ANSI	American National Standards Institute. The governing body for Fibre Channel standards in the U.S.A.
API	Application programming interface. A defined protocol that allows applications to interface with a set of services.
Arbitrated Loop	A shared Fibre Channel transport structured as a loop. Supports up to 126 devices and one fabric attachment. See also <i>Topology</i> .
Area Number	A number assigned to each potential port location in the ED- 12000B. Used to distinguish ED- 12000B ports that have the same port number but are on different port cards.
ASIC	Application-specific integrated circuit.
ATM	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.
Auto-Negotiate Speed	Process that allows two devices at either end of a link segment to negotiate common features, speed (e.g., 1 or 2 Gb/s) and functions.
Autosense	Process during which a network device automatically senses the speed of another device.
B	
Backup FCS Switch	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> and <i>Primary FCS Switch</i> .
Bandwidth	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 network. See also <i>Throughput</i> .

BB_Credit	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> and <i>EE_Credit</i> .
Beacon	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 tTlnet command or through Web Tools.
Beginning Running Disparity	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> .
BER	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> .
Blade	See <i>16-Port Card</i> .
Block	As applies to Fibre Channel, upper-level application data that is transferred in a single sequence.
Blower Assembly	A fan that prevents a switch (or individual elements within a switch) from over heating.
Boot Flash	Flash memory that stores the boot code and boot parameters. The processor executes its first instructions from boot flash. Data is cached in RAM.
Boot Monitor	Code used to initialize the CP (control processor) environment after powering on. Identifies the amount of memory available and how to access it, and retrieves information about system buses.
Broadcast	The transmission of data from a single source to all devices in the fabric, regardless of zoning. See also <i>Multicast</i> and <i>Unicast</i> .

Buffer to Buffer Flow Control Management of the frame transmission rate in either a point-to-point topology or in an arbitrated loop. See also *BB_Credit*.

C

Cascade The interconnection means through which data flows from one switch to another in a fabric.

Chassis The metal frame in which the switch and switch components are mounted.

Circuit An established communication path between two ports. Consists of two virtual circuits capable of transmitting in opposite directions. See also *Link*.

Class 1 The class of frame-switching service that provides a dedicated connection between two communicating ports (also called connection-oriented service), with acknowledgment of delivery or nondelivery of frames.

Class 2 A connectionless class of frame switching service that includes acknowledgment of delivery or nondelivery of frames.

Class 3 A connectionless frame switching service that does not include acknowledgment of delivery or nondelivery of frames. Can be used to provide a multicast connection between the originator and recipients, with acknowledgment of delivery or nondelivery of frames.

Class F 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.

Class of Service A specified set of delivery characteristics and attributes for frame delivery.

CLI Command line interface. Interface that depends entirely on the use of commands, such as through Telnet or SNMP, and does not involve a graphical user interface.

Comma A unique pattern (either 1100000 or 0011111) used in 8b/10b encoding to specify character alignment within a data stream. See also *K28.5*.

Community (SNMP)	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> .
Compact Flash	Flash memory that stores the run time operating system and is used like hard disk storage. Not visible within the processor's memory space. Data is stored in file system format.
Configuration	How a system is set up. May refer to hardware or software. Hardware: The number, type, and arrangement of components that make up a system or network. Software: The set of parameters that guide switch operation. May include general system parameters, IP address information, domain ID, and other information. Modifiable by any login with administrative privileges.
Connection Initiator	A port that has originated a Class 1 dedicated connection and received a response from the recipient.
Connection Recipient	A port that has received a Class 1 dedicated connection request and transmitted a response to the originator.
Control Panel	Refers to the left-side panel of Web Tools, which accesses fabric-wide functions such as zoning and events.
Core Switch	A switch whose main task is to interconnect other switches. See also <i>Edge Switch</i> .
CP Card	Control processor card. The central processing unit of the ED-12000B contains two CP card slots to provide redundancy. Provides ethernet, serial, and modem ports with the corresponding LEDs.
CRC	Cyclic redundancy check. A check for transmission errors included in every data frame.
Credit	As applies to Fibre Channel, the number of receive buffers available for transmission of frames between ports. See also <i>BB_Credit</i> and <i>EE_Credit</i> .
Cut-through	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> .

D

Data Word	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> , and <i>Transmission Word</i> .
DB-9 Connector	A 9-pin version of the RS-232C port interface. May be either the male or female interface. See also <i>RS-232 Port</i> .
dBm, dBW	Logarithmic units of power used in electronics. Indicates signal strength in decibels above the reference level, which is 1 milliwatt for dBm, and 1 watt for dBW. An increase of 10 dBm or 10 dBW represents a 10-fold increase in power.
DCE Port	A data communications equipment port capable of interfacing between a DTE (data terminal equipment) port and a transmission circuit. DTE devices with an RS-232 (or EIA-232) port interface transmit on pin 3, and receive on pin 2. See also <i>DTE Port</i> and <i>RS-232 Port</i> .
Defined Zone Configuration	The set of all zone objects defined in the fabric. May include multiple zone configurations. See also <i>Zone Configuration</i> .
Device	A disk, a RAID, or an HBA.
Device Connection Controls	Enables organizations to bind an individual device port to a set of one or more switch ports. Device ports are specified by a WWN and typically represent HBAs (servers). See also <i>Access Control List</i> .
Disparity	The relationship 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.
DLS	Dynamic load sharing. Dynamic distribution of traffic over available paths. Allows for recomputing of routes when an Fx_Port or E_Port changes status.
Domain ID	As applies to Departmental Switches, a unique number between 1 and 239 that identifies the switch to the fabric and is used in routing frames. Usually automatically assigned by the switch, but can be manually assigned.

DTE Port	A data terminal equipment port capable of interfacing to a transmission circuit through a connection to a DCE (data communications equipment) port. DTE devices with an RS-232 (or EIA-232) port interface transmit on pin 3, and receive on pin 2 in a 9-pin connection (reversed in 25-pin connectors). See also <i>DCE Port</i> and <i>RS-232 Port</i> .
DWDM	Dense wavelength multiplexing. A means to concurrently transmit more than one stream of data through a single fiber by modulating each stream of data on to a different wavelength of light.
E	
Edge Switch	A switch whose main task is to connect nodes to the fabric. See also <i>Core Switch</i> .
E_D_TOV	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> .
E_Port	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> .
EE_Credit	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>End-to-End Flow Control</i> and <i>BB_Credit</i> .
Effective Zone Configuration	The currently enabled configuration of zones. Only one configuration can be enabled at a time. See also <i>Defined Zone Configuration</i> and <i>Zone Configuration</i> .
EIA Rack	A storage rack that meets the standards set by the Electronics Industry Association.
End-to-End Flow Control	Governs flow of Class 1 and 2 frames between N_Ports. See also <i>EE_Credit</i> .
Error	As applies to Fibre Channel, a missing or corrupted frame, time-out, loss of synchronization, or loss of signal (link errors).

ESN	Enterprise Storage Network. A storage network implementation that integrates products, technology, and services offering universal data access for every major computing platform, operating system, and application across any combination of SCSI, Ultra SCSI, Fibre Channel, and ESCON technologies.
Exchange	The highest level Fibre Channel mechanism used for communication between N_Ports. Composed of one or more related sequences, and can work in one or both directions.
Extended Fabrics	A product that runs on Fabric OS and allows creation of a Fibre Channel fabric interconnected over distances of up to 100 kilometers.
F	
F_Port	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> and <i>Fx_Port</i> .
Fabric	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>Topology</i> , <i>ESN</i> , and <i>Cascade</i> .
Fabric Access	Allows the application to control the fabric directly for functions such as discovery, access (zoning) management, performance, and switch control. Consists of a host-based library that interfaces the application to switches in the fabric over an out-of-band TCP/IP connection or in-band using an IP-capable host bus adapter (HBA).
Fabric Name	The unique identifier assigned to a fabric and communicated during login and port discovery.
Failover	The act that causes control to pass from one redundant unit to another.
FC-AL-3	The Fibre Channel Arbitrated Loop standard defined by ANSI. Defined on top of the FC-PH standards.
FCIA	Fibre Channel Industry Association. An international organization of Fibre Channel industry professionals. Provides oversight of ANSI and industry-developed standards, among other tasks.
FC-FLA	The Fibre Channel Fabric Loop Attach standard defined by ANSI.

FCP	Fibre Channel Protocol. Mapping of protocols onto the Fibre Channel standard protocols. For example, SCSI FCP maps SCSI-3 onto Fibre Channel.
FC-PH-1, 2, 3	The Fibre Channel Physical and Signalling Interface standards defined by ANSI.
FC-PI	The Fibre Channel Physical Interface standard defined by ANSI.
FC-PLDA	The Fibre Channel Private Loop Direct Attach standard defined by ANSI. Applies to the operation of peripheral devices on a private loop.
FCS Switch	Fabric configuration server switch. One or more designated 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> and <i>Primary FCS Switch</i> .
FC-SW-2	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 multiswitch Fibre Channel fabric.
Fibre Channel Transport	A protocol service that supports communication between Fibre Channel service providers. See also <i>FSP</i> .
FIFO	First in, First out. May also refer to a data buffer that follows the first in, first out rule.
Fill Word	An IDLE or ARB ordered set that is transmitted during breaks between data frames to keep the Fibre Channel link active.
Firmware	The basic operating system provided with the hardware.
Firmware Download	The process of loading firmware down from a server into the switch.
Flash	Programmable NVRAM memory that maintains its contents.
Flash Partition	Two redundant usable areas, called partitions, into which firmware can be downloaded.

- FLOGI** 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 *PLOGI*.
- FL_Port** 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 *F_Port* and *Fx_Port*.
- Frame** The Fibre Channel structure used to transmit data between ports. Consists of a start-of-frame delimiter, header, any optional headers, the data payload, a cyclic redundancy check (CRC), and an end-of-frame delimiter. There are two types of frames: link control frames (transmission acknowledgements, etc.) and data frames.
- FRU** Field replaceable unit. A component that can be replaced on site.
- FS** 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 *FSP*.
- FSP** Fibre Channel Service Protocol. The common protocol for all fabric services, transparent to the fabric type or topology. See also *FS*.
- FSPF** Fabric Shortest Path First. A routing protocol for Fibre Channel switches.
- Full Duplex** A mode of communication that allows the same port to simultaneously transmit and receive frames. See also *Half Duplex*.
- Full Fabric** The EMC software license that allows multiple E_Ports on a switch, making it possible to create multiple ISLs.
- Fx_Port** A fabric port that can operate as either an F_Port or FL_Port. See also *F_Port* and *FL_Port*.
- G**
- G_Port** 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.

Gateway	Hardware that connects incompatible networks by providing translation for both hardware and software. For example, an ATM gateway can be used to connect a Fibre Channel link to an ATM connection.
GBIC	Gigabit interface converter. A removable serial transceiver module that allows gigabaud physical level transport for Fibre Channel and Gigabit Ethernet. GBIC and SFP terms are used interchangeably throughout the documentation, although they are different types of optics and the hardware is not interchangeable. See also <i>SFP</i> .
Gb/s	Gigabits per second (1,062,500,000 bits/second).
GB/s	GigaBytes per second (1,062,500,000 bytes/second).
H	
Half Duplex	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> .
HBA	Host bus adapter. The interface card between a server or workstation bus and the Fibre Channel network.
High Availability	An attribute of equipment that identifies it as being capable of conducting customer operations well in excess of 99% of the time. Typically, high availability is identified by the number of nines in that percentage. Five nines means the equipment is rated as being capable of conducting customer operations 99.999% of the time without failure.
Host	A computer that accesses storage devices over the fabric. May also be referred to as a server. See also <i>Workstation</i> .
Hot Pluggable	A FRU capability that indicates it may be extracted or installed while customer data is otherwise flowing in the chassis.
Hub	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.

I

Idle 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.

Initiator A server or workstation on a Fibre Channel network that initiates communications with storage devices. See also *Target*.

Integrated Fabric The fabric created by connecting multiple switches with multiple ISL cables, and configuring the switches to handle traffic as a seamless group.

IOD In-order delivery. A parameter that, when set, guarantees that frames are either delivered in order or dropped.

ISL Interswitch link. A Fibre Channel link from the E_Port of one switch to the E_Port of another. See also *E_Port* and *Cascade*.

Isolated E_Port An E_Port that is online but not operational due to overlapping domain IDs or nonidentical parameters (such as E_D_TOVs). See also *E_Port*.

IU Information unit. A set of information as defined by either upper-level process protocol definition or upper-level protocol mapping.

J

JBOD Just a bunch of disks. A number of disks connected in a single chassis to one or more controllers. See also *RAID*.

K

K28.5 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 *Comma*.

Kernel Flash Flash memory that stores the bootable kernel code and is visible within the processor's memory space. Data is stored as raw bits.

L

L_Port 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:

- Fabric mode: Connected to a port that is not loop capable, and using fabric protocol.
- Loop mode: In an arbitrated loop and using loop protocol. An L_Port in loop mode can also be in participating mode or nonparticipating mode .

See also *Nonparticipating Mode* and *Participating Mode*.

Latency The period of time required to transmit a frame, from the time it is sent until it arrives.

LED Light-emitting diode. Used to indicate status of elements on switch.

Link As applies to Fibre Channel, a physical connection between two ports, consisting of both transmit and receive fibres. See also *Circuit*.

Link Services A protocol for link-related actions.

LWL Long wavelength. A type of fiber-optic cabling that is based on 1300nm lasers and supports link speeds of 1.0625 Gb/s and 2.125 Gb/s. May also refer to the type of GBIC or SFP. See also *SWL*.

M

Media See *Transceiver*.

MIB Management Information Base. An SNMP structure to help with device management, providing configuration and device information.

Modem Serial Port The upper serial port on the CP card. Can be used to connect the CP card to a country-specific modem. Has a DB-9 connector wired as a ttyS1 DTE device, and can be connected by serial cable to a DCE device. Can be connected to a modem using a standard 9-pin modem cable. A Hayes-compatible modem or Hayes-emulation is required. See also *DCE Port* and *Terminal Serial Port*.

Multicast The transmission of data from a single source to multiple specified N_Ports (as opposed to all the ports on the network). See also *Broadcast* and *Unicast*.

Multimode A fiber-optic cabling specification that allows up to 500 meters for 1 GB Fibre Channel and 300 meters for 2 GB Fibre Channel between devices.

N

N_Port 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 *NL_Port* and *Nx_Port*.

Name Server The term frequently used to indicate Simple Name Server. See also *SNS*.

Node A Fibre Channel device that contains an N_Port or NL_Port.

Negotiate See *Auto-Negotiate Speed* and *Autosense*.

NL_Port 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 *N_Port* and *Nx_Port*.

Nonparticipating Mode 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 *L_Port* and *Participating Mode*.

Nx_Port A node port that can operate as either an N_Port or NL_Port.

O

Ordered Set 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:

- Frame delimiters mark frame boundaries and describe frame contents.
- Primitive signals indicate events.
- Primitive sequences indicate or initiate port states.

Ordered sets are used to differentiate Fibre Channel control information from data frames and to manage the transport of frames.

P

Packet	A set of information transmitted across a network. See also <i>Frame</i> .
Participating Mode	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</i> and <i>Nonparticipating Mode</i> .
Path Selection	The selection of a transmission path through the fabric. EMC switches use the FSPF protocol.
PLOGI	Port Login. The port-to-port login process by which initiators establish sessions with targets. See also <i>FLOGI</i> .
Point-to-Point	A Fibre Channel topology that employs direct links between each pair of communicating entities. See also <i>Topology</i> .
Port_Name	The unique identifier assigned to a Fibre Channel port. Communicated during login and port discovery.
Port Cage	The metal casing extending out of the optical port on the switch, and in which the GBIC or SFP can be inserted.
Port Card	A Fibre Channel card that contains optical port interfaces. See also <i>16-Port Card</i> .
Port Module	A collection of ports in a switch.
POST	Power-on self test. A series of tests run by a switch after it is turned on.
Principal Switch	The switch that assumes the responsibility to assign Domain IDs. The role of Principle Switch is negotiated after a Build Fabric event.
Primary FCS Switch	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> and <i>FCS Switch</i> .
Private Device	A device that supports arbitrated loop protocol and can interpret 8-bit addresses, but cannot log in to the fabric.
Private Loop	An arbitrated loop that does not include a participating FL_Port.

Private NL_Port	An NL_Port that communicates only with other private NL_Ports in the same loop and does not log in to the fabric.
Protocol	A defined method and a set of standards for communication.
Public Device	A device that supports arbitrated loop protocol, can interpret 8-bit addresses, and can log in to the fabric.
Public Loop	An arbitrated loop that includes a participating FL_Port, and may contain both public and private NL_Ports.
Public NL_Port	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.
Q	
Quad	A group of four adjacent ports that share a common pool of frame buffers.
R	
R_A_TOV	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> .
R_RDY	Receiver ready. A primitive signal indicating that the port is ready to receive a frame.
RAID	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> .
Remote Fabric	A fabric that spans across WANs by using protocol translation (a process also known as tunneling) such as Fibre Channel over ATM or Fiber Channel over IP.
Request Rate	The rate at which requests arrive at a servicing entity. See also <i>Service Rate</i> .
Root Account	A login used for debugging purposes and is not intended for customer use.

- Route** 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 *SFP*.
- Routing** The assignment of frames to specific switch ports, according to frame destination.
- RS-232 Port** A port that conforms to a set of EIA (Electrical Industries Association) standards. Used to connect DTE and DCE devices for communication between computers, terminals, and modems. See also *DCE Port* and *DTE Port*.
- RSCN** Registered state change notification. A switch function that allows notification of fabric changes to be sent from the switch to specified nodes.
- S**
- SAN** Storage area network. A network of systems and storage devices that communicate using Fibre Channel protocols. See also *Fabric*.
- SCSI** Small computer systems interface. A parallel bus architecture and protocol for transmitting large data blocks to a distance of 15-25 meters.
- SDRAM** Synchronous dynamic random access memory. The main memory for the switch. Used for volatile storage during switch operation. See also *Flash*.
- Sequence** A group of related frames transmitted in the same direction between two N_Ports.
- Service Rate** The rate at which an entity can service requests. See also *Request Rate*.
- SES** A Brocade product that runs on Fabric OS and allows monitoring, configuring, and maintenance of the Departmental Switch family using SCSI 3 Enclosure Services.
- SFP** Small form factor pluggable. Optical transceiver used to convert signals between optical fiber cables and switches. GBIC and SFP terms are used interchangeably throughout the documentation, although they are different types of optics and the hardware is not interchangeable. See also *GBIC*.

SI	Sequence initiative.
SID/DID	Source identifier/destination identifier. S_ID is a 3-byte field in the frame header that is used to indicate the address identifier of the N_Port from which the frame was sent.
Single Mode	A Fibre Channel optic cabling standard for use with long-wavelength lasers operating in the infrared portion of the spectrum at 1300 nonmeters (nm).
SNMP	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> .
SNS	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> .
Subordinate Switch	All switches in the fabric other than the principal switch. See also <i>Principal Switch</i> .
Switch	Hardware that routes frames according to Fibre Channel protocol and is controlled by software.
Switch Name	The arbitrary name assigned to a switch.
Switch Port	A port on a switch. Switch ports can be E_Ports, F_Ports, or FL_Ports.
SWL	Short wavelength. A type of fiber-optic cabling that is based on 850nm lasers and supports link speeds of 1.0625 Gb/s and 2.125 Gb/s. May also refer to the type of GBIC or SFP. See also <i>LWL</i> .
T	
Target	A storage device on a Fibre Channel network. See also <i>Initiator</i> .

Terminal Serial Port	The lower serial port on the CP card. Receives error messages. Can be used to connect the CP card to a computer terminal. Has a DB-9 connector wired as a ttyS0 DTE device, and can be connected by serial cable to a DCE device. The connector has pins two and three swapped so that a straight-through cable can be used to connect to a terminal. See also <i>DB-9 Connector</i> , <i>DCE Port</i> , and <i>Modem Serial Port</i> .
Throughput	The rate of data flow achieved within a cable, link, or system. Usually measured in bps (bits per second). See also <i>Bandwidth</i> .
Topology	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">• Point-to-point — A direct link between two communication ports.• Switched fabric — Multiple N_Ports linked to a switch by F_Ports.• Arbitrated loop — Multiple NL_Ports connected in a loop.
Transceiver	Device that converts one form of signaling to another for transmission and reception. In fiber optics, it refers to optical and electrical.
Transmission Character	A 10-bit character encoded according to the rules of the 8b/10b algorithm.
Transmission Word	A group of four transmission characters.
Trap (SNMP)	The message sent by an SNMP agent to inform the SNMP management station of a critical error. See also <i>SNMP</i> .
Tunneling	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.
U	
U_Port	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.
UDP	User Datagram Protocol. A protocol that runs on top of IP and provides port multiplexing for upper-level protocols.

ULP	Upper-level Protocol. The protocol that runs on top of Fibre Channel. Typical upper-level protocols are SCSI, IP, HIPPI, and IPI.
ULP_TOV	Upper-level time-out value. The minimum time that a SCSI ULP process waits for SCSI status before initiating ULP recovery.
Unicast	The transmission of data from a single source to a single destination. See also <i>Broadcast</i> and <i>Multicast</i> .
User Account	A login intended for use by the customer to monitor, but not control, switch operation.
V	
VC	Virtual circuit. A one-way path between N_Ports that allows fractional bandwidth.
W	
Well-Known Address	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.
Workstation	A computer used to access and manage the fabric. May also be referred to as a management station or host.
WWN	World Wide Name. An identifier that is unique worldwide. Each entity in a fabric has a separate WWN.
Z	
Zone	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.
Zone Alias	A name assigned to a device or group of devices in a zone. Aliases can greatly simplify the zone administrative process.
Zone Configuration	A specified set of zones. Enabling a configuration enables all zones in that configuration. See also <i>Defined Zone Configuration</i> .
Zone Member	A port, node, WWN, or alias, which is part of a zone.

- Zone Schemes** The level of zoning granularity selected. For example, zoning may be done by switch/port, WWN, or a mixture. See also *Zone Configuration*.
- Zone Set** See *Zone Configuration*.

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