HP StorageWorks
Fabric OS 5.x
command reference guide

hp

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Fabric OS 5.x command reference guide

Contents

About this guide

This reference guide provides information to help you:

- Understand and use Fabric Operating System (Fabric OS) commands
- Manage a switch or fabric

📝 **NOTE:** FICON is not supported on HP B-Series Fibre Channel switches. The FICON information in this document is included for reference only.

Intended audience

This guide is intended for:

- System administrators responsible for HP StorageWorks Fibre Channel Storage Area Network (SAN) switches
- Technicians responsible for maintaining the Fabric Operating System (OS)

Related documentation

Documentation, including white papers and best practices documents, is available on the HP web site:

http://www.hp.com/country/us/eng/prodserv/storage.html

📝 **IMPORTANT:** For late breaking, supplemental information, access the latest version of the *HP StorageWorks Fabric OS 5.x release notes* using the following steps.

To access current Fabric OS 5.x related documents:

1. Locate the **IT storage products** section of the web page.
2. Under **Networked storage**, click **SAN infrastructure**.
3. From the **SAN Infrastructure** web page, locate the **SAN Infrastucture products** section.
4. Click **Fibre Channel Switches**.
5. Locate the **B-Series Fabric-Enterprise Class** section. Click **4/256 SAN Director and 4/256 SAN Director power pack,** to access Fabric OS 5.x documents (such as this document).
   The switch overview page displays.
6. Go to the **Product Information section**, located on the right side of the web page.
7. Click **Technical documents**.
8. Follow the onscreen instructions to download the applicable documents.

HP StorageWorks Fabric OS 5.x master glossary

This guide uses industry standard SAN terminology. However, some terms are intrinsic to Fabric OS 5.x. Refer to the *HP StorageWorks Fabric OS 5.x master glossary* for a complete list of terms and definitions.

Access the master glossary from the HP StorageWorks SAN Switch Documentation CD that shipped with your switch. Also, access from the HP web site using the procedure outlined in "Related documentation".

Document conventions and symbols

Table 1 Document conventions

Convention	Element
Medium blue text: Figure 1	Cross-reference links and e-mail addresses
Medium blue, underlined text (http://www.hp.com)	Web site addresses
Bold font	• Key names • Text typed into a GUI element, such as into a box • GUI elements that are clicked or selected, such as menu and list items, buttons, and check boxes
Italics font	Text emphasis
`Monospace font`	• File and directory names • System output • Code • Text typed at the command-line
`Monospace, italic font`	• Code variables • Command-line variables
`Monospace, bold font`	Emphasis of file and directory names, system output, code, and text typed at the command line

⚠ **WARNING!**   Indicates that failure to follow directions could result in bodily harm or death.

△ **CAUTION:**   Indicates that failure to follow directions could result in damage to equipment or data.

☐ **IMPORTANT:**   Provides clarifying information or specific instructions.

☐ **NOTE:**   Provides additional information.

☼ **TIP:**   Provides helpful hints and shortcuts.

HP technical support

Telephone numbers for worldwide technical support are listed on the HP support web site: http://www.hp.com/support/.

Collect the following information before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

For continuous quality improvement, calls may be recorded or monitored.

HP strongly recommends that customers sign up online using the Subscriber's choice web site: http://www.hp.com/go/e-updates.

- Subscribing to this service provides you with e-mail updates on the latest product enhancements, newest versions of drivers, and firmware documentation updates as well as instant access to numerous other product resources.
- After signing up, you can quickly locate your products by selecting **Business support** and then **Storage** under Product Category.

HP-authorized reseller

For the name of your nearest HP-authorized reseller:

- In the United States, call 1-800-282-6672.
- Elsewhere, visit the HP web site: http://www.hp.com. Then click **Contact HP** to find locations and telephone numbers.

Helpful web sites

For other product information, see the following HP web sites:

- http://www.hp.com
- http://www.hp.com/go/storage
- http://www.hp.com/support/
- http://www.docs.hp.com

1 Fabric OS command line interface

This chapter explains the different methods used to manage HP SAN and HP StorageWorks switches. The following information is discussed:

- Understanding access levels, page 17

- Using the Fabric OS command line interface, page 18

- Using this guide, page 19

Understanding access levels

Fabric OS supports two classes of user accounts: default and multiple user account (MUA).

Default accounts, introduced in early versions of Fabric OS, include root, factory, admin, and user.

- The root and factory levels are reserved for support and manufacturing personnel.

- The admin accounts are intended for general switch and fabric administration activities. The admin role can perform all Fabric OS operations.

- The user accounts are intended for general switch and fabric administration activities. The user role performs observation-only operations.

- Each account has hard-coded permissions that define roles whose privileges correspond to the account name.

In HP's Fabric OS 3.x and earlier, multiple-user access to a switch is limited. Each switch enables only a single session per access method, regardless of the user's access level. Switches can, however, be accessed simultaneously from different connections; for example, through the command line interface (CLI) and HP Web Tools. If this happens, changes from one connection might not be updated to the other, and some changes might be lost. When you connect using simultaneous multiple connections, ensure that you do not overwrite the work of another connection.

In Fabric OS v5.x, multiple sessions are allowed. Each access level can have the number of simultaneous logins shown in Table 2.

Table 2 Fabric OS v5.x user access maximum sessions

User name	Maximum number of simultaneous sessions
admin	2
user	4

The MUA feature distinguishes between a user account and the role assigned to the account. The switchAdmin role, introduced in Fabric OS v5.x, has most of the existing administrative permissions,

except the ability to perform zone and security configuration and user management. See Table 3 for a high-level description of role permissions.

Table 3 Role permissions

Functional Area	user	switchAdmin	admin
Zone configuration	View	View	Modify
Environmental	View	Modify	Modify
Logs (RAS)	View	Modify	Modify
Security	View	View	Modify
Switch configuration	View	Modify	Modify
Switch management	View	Modify	Modify
Port configuration	View	Modify	Modify
SNMP	View	Modify	Modify
Diagnostics	View	Modify	Modify
Devices	View	Modify	Modify
User management	View	N.A.	Modify
Fabric Watch	View	Modify	Modify
Advanced Performance Monitor	View	Modify	Modify
Admin domain management	View	N.A.	Modify

The MUA feature was introduced in Fabric OS v3.2.0/v4.4.0 and the switchAdmin can log in; however, the role is restricted to user-level, observation-based functions.

This manual lists all the commands available to the user- and admin-level logins. See "MUA-based roles" on page 777 for commands available to the switchAdmin role.

NOTE: The admin access level has access to all the commands needed to manage and configure a switch or fabric. The admin account is the recommended login level.

Using the Fabric OS command line interface

The Fabric OS command line interface (CLI), accessed through either telnet or serial console, provides an administrator with full management capability on an HP StorageWorks 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. Selected commands must be issued from a sectelnet or SSH session, as indicated in the command description in this manual.

Access is controlled by a switch-level password for each access level. The commands available through the CLI are based on the user's login level and the license keys used to unlock certain features.

Fabric OS CLI is the complete fabric management tool for HP SANs and provides the following:

- Access to the full range of Fabric OS features, based on which license keys you purchase

- Assistance with configuration, monitoring, dynamic provisioning, and daily management of every aspect of storage area networks

- A deeper view of the tasks involved in managing a StorageWorks switch or director

- Configuration and management of the HP fabric on multiple levels

- Identification, isolation, and management of SAN events across every switch in the fabric

- Management switch licenses

Using this guide

This guide describes each command, including a synopsis of its syntax and the users to which it is available, and provides a description of command usage and behavior. The same information is available to you on your HP StorageWorks SAN Switch or Director, using the `help` command. For example, to display the help or man page for `aliAdd`, type:

```
switch:admin> help aliadd
```

2 Fabric OS commands

This chapter lists the Fabric OS commands. It also shows their syntax and operands, and provides examples of their usage.

aaaConfig

Manages RADIUS configuration information.

Synopsis

```
aaaconfig [action] [options]
```

Availability

admin

Description

Use this command to manage the RADIUS configuration for the authentication, authorization, and accounting (AAA) services. This command displays, adds, removes, changes, enables, or disables RADIUS configuration.

When the command completes, any new configuration is saved persistently. It is effective for the next AAA request. The configuration applies to all switch instances in a platform supporting multiple switch domains.

Use the centralized RADIUS servers to manage AAA services for a switch, as defined in RFC 2865.

> **NOTE:** This command can be executed when you are logged in through the console, or a serial or SSH connection.

Operands

The command takes as input an action and its associated options. Without any specified action, the command displays the usage. Specify `action` as one of following:

`--show`	Displays the current AAA service configuration.
`--add server [options]`	Adds a RADIUS server to the configuration.
`--remove server`	Removes a RADIUS server from the configuration.
`--change server [options]`	Changes a RADIUS server configuration.
`--move server to_position`	Moves a RADIUS server from the current position to a new position. When *server* is a required operand for an action, it must be either an IP address or a name in dot notation. If a name is used, DNS must be properly configured.
`--radius [on	off]`	Turns on or off the current RADIUS configuration.
`--switchdb [on	off]`	Turns on or off the switch local database as secondary authentication.

The following are the options for the `--add` and `--change` actions:

`-p port`	RADIUS server port number
`-s secret`	Common secret between the switch and RADIUS server
`-t timeout`	Response timeout for the RADIUS server
`-a [pap	chap]`	Use PAP or CHAP as authentication protocol

The following provides a detailed description of each `action` type:

`--show`   List the current RADIUS servers, along with their parameters.

`--add server [-p port] [-s secret] [-t timeout] [-a chap	pap]`	
	Add the specified server to the end of the RADIUS configuration list, with the specified port number, shared secret, timeout, and if PAP or CHAP is to be used as authentication protocol. `server` must be different from the servers in the existing configuration.
`--remove server`	Remove the specified server from the RADIUS configuration list.`server` must match a server in the existing configuration. To remove the last server, you must disable the RADIUS configuration first.
`--change server [-p port] [-s secret] [-t timeout] [-a chap	pap]`	
	Change parameters for the specified server in the existing RADIUS configuration list. `server` must match one in the existing configuration.
`--move server to_position`	Move the specified server in the existing RADIUS configuration list from the current position to the specified new position. This rearranges the order in which the specified RADIUS server is used.
`--radius [on	off]`	Enable or disable the current RADIUS configuration for AAA services. This is used to switch the primary AAA services between RADIUS and the switch local database. To enable the RADIUS configuration, there must be at least one server existing in the configuration.
`--switchdb [on	off]`	Enable or disable the switch local database as the secondary AAA services. When enabled, if RADIUS requests a timeout for all RADIUS servers, the switch local database is used for authentication; otherwise, requests are denied.

Examples

To display the current RADIUS configuration:

```
switch:admin> aaaconfig --show


Position    Server      Port    Secret   Timeout(s)    Auth-Protocol


1    192.168.233.48    1812    sharedsecret 3          CHAP
2    192.168.233.44    1812    sharedsecret 3          CHAP
3    radserver         1812    private      5          CHAP


Primary AAA Service: Switch database
Secondary AAA Service: None
```

To change the configuration for server 192.168.233.48:

```
switch:admin> aaaconfig --change 192.168.233.48 -p 3002 -s newsecret -t 1
```

See also

agtCfgDefault

Resets the SNMP agent configuration to default values.

Synopsis

    agtcfgdefault

Availability

admin

Description

Use this command to reset the SNMP agent configuration with the switch default values.

This command prompts the user and proceeds to reset only on the user's confirmation. All new values successfully configured by the command take effect immediately. These changes are persistent across power cycles and reboots. For dual-domain systems, `agtCfgDefault` operates on the SNMP agent associated with the current switch.

This command resets the following values (See the *HP StorageWorks Fabric OS 5.x MIB reference guide* for detailed `sysDescr`, `sysLocation`, and `sysContact` descriptions):

`sysDescr`	The system (switch) description. The default value is Fibre Channel Switch in most platforms; however, the default system description value is platform-specific. Different values might appear as the default for some specialized platforms.
`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.
`authTraps`	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 (rw) access and the last three are for read-only (ro) access. The default value for the trap recipient of each community is 0.0.0.0. The default values for the community strings are as follows:

- Community 1: Secret Code

- Community 2: OrigEquipMfr

- Community 3: private

- Community 4: public

- Community 5: common

- Community 6: FibreChannel

For an SNMP management station to receive a trap generated by the agent, the administrator must configure a trap recipient to correspond to the IP address of the management station. In addition, the trap recipient must be able to pass the access control list (ACL) check.

Trap recipient severity level

The trap severity level is associated with each trap recipient IP address. The event trap level is 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 event traps (`swEventTrap`, `swFabricWatchTrap`, and `connUnitEventTrap`)

are sent to the trap recipients. By default, this value is set to 0, implying that no such traps are sent. Possible values are as follows:

0	none
1	critical
2	error
3	warning
4	informational
5	debug

See errModuleShow for related information.

The ACL check is as follows: there are six ACLs to restrict SNMP get/set/trap operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing nonzero IP octets. For example, an ACL of 192.168.64.0 enables access by any hosts that start with the specified octets. The connecting host is enabled to set each host-subnet-area to be read-write or read-only. The highest privilege matched out of six entries is given to the access. The ACL check is turned off when all six entries contain 0.0.0.0.

NOTE: When secure mode is enabled, the access control list feature is incorporated into the WSNMP and RSNMP security policies. Community strings can be changed on the primary FCS switch only and will propagate changes across the fabric.

Operands

Examples

To reset the SNMP agent to default values:

```
switch: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 = sweng
             authTraps = 0 (OFF)


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```

```
SNMPv1 community and trap recipient configuration:
      Community 1: Secret C0de (rw)
        Trap recipient: 192.168.15.41
        Trap recipient Severity level: 4
      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
    Committing configuration...done.
    agent configuration reset to factory default
    Current SNMP Agent Configuration
    Customizable MIB-II system variables:
            sysDescr = Fibre Channel Switch.
         sysLocation = End User Premise
          sysContact = Field Support.
            authTraps = 0 (OFF)


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```

```
      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
```

See also

agtCfgSet

agtCfgShow

snmpConfig

agtCfgSet

Modifies the SNMP agent configuration.

Synopsis

    agtcfgset

Availability

    admin

Description

Use this command to modify the configuration of the SNMP agent in the switch.

All values successfully configured by this command take effect immediately. These values are persistent across power cycles and reboots. For dual-domain systems, this command operates on the SNMP agent associated with the current switch.

This command updates the following values (See the *HP StorageWorks Fabric OS 5.x MIB reference guide* for detailed `sysDescr`, `sysLocation`, and `sysContact` descriptions):

`sysDescr`	The system (switch) description. The default value is Fibre Channel Switch in most platforms; however, the default system description value is platform specific. Different values might appear as the default for some specialized platforms.
`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.
`authTrapsEnabled`	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 (rw) access and the last three are for read-only (ro) access. The default value for the trap recipient of each community is 0.0.0.0. The default values for the community strings are as follows:

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

For an SNMP management station to receive a trap generated by the agent, the administrator must configure a trap recipient to correspond to the IP address of the management station. In addition, the trap recipient must be able to pass the access control list (ACL) check.

Trap recipient severity level

The trap severity level is associated with each trap recipient IP address. The event trap level is 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 event traps (swEventTrap, swFabricWatchTrap, and connUnitEventTrap) are sent to the trap recipients. By default, this value is set to 0, implying that no such traps are sent. Possible values are as follows:

0	none
1	critical
2	error
3	warning
4	informational
5	debug

See errModuleShow for related information.

The ACL check is as follows: there are six ACLs to restrict SNMP get/set/trap operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing nonzero IP octets. For example, an ACL of 192.168.64.0 enables access by any hosts that start with the specified octets. The connecting host is enabled to set each host-subnet-area to be read-write or read-only. The highest privilege matched out of six entries is given to the access. The ACL check is turned off when all six entries contain 0.0.0.0.

> **NOTE:** When secure mode is enabled, the access control list feature is incorporated into the WSNMP and RSNMP security policies. Community strings can be changed on the primary FCS switch only and will propagate changes across the fabric.

Operands

Examples

To modify the SNMP configuration values:

```
switch:admin> agtcfgset

    Customizing MIB-II system variables ...

    At each prompt, do one of the followings:
      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.


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```

```
   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.]
       authTrapsEnabled (true, t, false, f): [true]
   SNMP community and trap recipient configuration:
       Community (rw): [Secret C0de]
       Trap Recipient's IP address in dot notation: [192.168.1.51]
       Trap recipient Severity level : (0..5) [0] 3
       Community (rw): [OrigEquipMfr]
       Trap Recipient's IP address in dot notation: [192.168.1.26]
       Trap recipient Severity level : (0..5) [0]
       Community (rw): [private]
       Trap Recipient's IP address in dot notation: [0.0.0.0] 192.168.64.88
       Trap recipient Severity level : (0..5) [0] 1
       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] 192.168.64.0
       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]
       Committing configuration...done.
       value = 1 = 0x1
```

See also

agtCfgDefault

agtCfgShow

snmpConfig

SW_v5_x.mib, Switch Management Information & Switch Enterprise Specific Trap

RFC1157, A Simple Network Management Protocol (SNMPv1)

RFC1213, Management information Base for Network Management of TCP/IP-based internets: MIB-II

agtCfgShow

Displays the SNMP agent configuration.

Synopsis

```
agtcfgshow
```

Availability

all users

Description

Use this command to display the configuration of the SNMP agent in the switch.

📝 **NOTE:** On a dual-switch chassis, there is one SNMP agent per logical switch. This command is specific to the logical switch you are logged in to.

The following information displays:

`sysDescr`	The system (switch) 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. See the *HP StorageWorks Fabric OS 5.x MIB reference guide* for detailed `sysDescr`, `sysLocation`, and `sysContact` descriptions.
`authTrapsEnabled`	When enabled, the authentication trap, `authenticationFailure`, is transmitted to a configured trap recipient in the event that 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, respective trap recipients, and trap recipients supported by the agent. The first three communities are for read-write (rw) access and the last three are for read-only (ro) access. The default value for the trap recipient of each community is 0.0.0.0. The community string length ranges from 2 to 16 characters. The default values for the community strings are:

- Community 1: Secret C0de
- Community 2: OrigEquipMfr
- Community 3: private
- Community 4: public
- Community 5: common
- Community 6: FibreChannel

For an SNMP management station to receive a trap generated by the agent, the administrator must configure a trap recipient to correspond to the IP address of the management station. In addition, the trap recipient must be able to pass the access control list (ACL) check.

Trap recipient severity level

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 configured trap recipients. By default, this value is set to 0, implying that no swEventTrap is sent. Possible values are:

0	none
1	critical
2	error
3	warning
4	informational
5	debug

See errShow for related information.

The ACL check is as follows: there are six ACLs to restrict SNMP get/set/trap operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing nonzero IP octets. For example, an ACL of 192.168.64.0 enables access by any hosts that start with the specified octets. The connecting host is enabled to set each host-subnet-area to be read-write or read-only. The highest privilege matched out of six entries is given to the access. The ACL check is turned off when all six entries contain 0.0.0.0.

> **NOTE:** When secure mode is enabled, the access control list feature is incorporated into the WSNMP and RSNMP security policies. Community strings can be changed on the primary FCS switch only and will propagate changes across the fabric.

Operands

Examples

```
switch:admin> agtcfgshow
Current SNMP Agent Configuration
        Customizable MIB-II system variables:
                sysDescr = FC Switch
              sysLocation = End User Premise
               sysContact = Field Support.
                 authTraps = 1 (ON)
SNMPv1 community and trap recipient configuration:
      Community 1: Secret C0de (rw)
        Trap recipient: 192.168.1.51
        Trap recipient Severity level: 4
      Community 2: OrigEquipMfr (rw)
        Trap recipient: 192.168.1.26
        Trap recipient Severity level: 0
      Community 3: private (rw)
        No trap recipient configured yet


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```

```
       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
```

See also

agtCfgDefault

agtCfgSet

snmpConfig

aliAdd

Adds a member to a zone alias.

Synopsis

```
aliadd "aliName", "member; member"
```

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

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 flash memory using the cfgSave command. For the change to become effective, an appropriate zone configuration must be enabled using the cfgEnable command.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following required operands:

"aliName"	Specify the name of a zone alias, in quotation marks.
"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.

- WWN

- QuickLoop AL_PAs

Examples

To add members to zone aliases array1, array2, and loop1:

```
switch:admin> aliadd "array1", "1,2"
switch:admin> aliadd "array2", "21:00:00:20:37:0c:72:51"
switch:admin> aliadd "loop1", "4,5[0x02]; 6,7[0xEF]"
```

See also

aliCreate

aliDelete

aliRemove

aliShow

aliasDelete

Deletes a port from all local groups.

Synopsis

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 its corresponding N_Ports.

Operands

The following aliasDelete argument is required.

portID   The port ID in its hexadecimal representation

Examples

To delete a port from an existing group:

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

Exit status

0   Successful operation

nonzero   Indicates the operation has failed

See also

aliasJoin

aliasShow

fabricShow

switchShow

aliasJoin

Creates a multicast alias group of N_Ports. If the group already exists, the N_Ports are added to the existing group.

Synopsis

```
aliasJoin
```

Availability

admin

Description

Use this command to create a multicast alias group of N_Ports or to add N_Ports to an existent 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, use the nsShow command to get list of ports associated with the local switch.

Operands

Examples

To create an alias group of N_Ports or to add N_Ports to an existing group:

```
switch: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 0xfffb00 succeeds
```

Exit status

0	Successful operation
nonzero	Indicates the operation has failed

See also

aliasDelete

aliasPurge

aliasShow

fabricShow

nsAllShow

nsShow

aliasPurge

Removes an alias group.

Synopsis

```
aliasPurge groupID
```

Availability

admin

Description

Use this command to remove an alias group.

Operands

The following `aliasPurge` argument is required.

groupID	It is the group ID in its hexadecimal representation

Examples

To remove an alias group:

```
switch:admin> aliasPurge 0xfffb00
aliasPurge: succeeded
```

Exit status

0	Successful operation
nonzero	Indicates the operation has failed

See also

aliasJoin

aliasShow

fabricShow

switchShow

aliasShow

Displays local alias server information.

Synopsis

```
aliasShow
```

Availability

all users

Description

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

Operands

Examples

To display the entries in the local alias server:

```
switch:admin> aliasShow
{AliasID Creator Token [rb, type, grptype, qlfr] Member List

  fffb00  fffffd [00, 05, 10, 10000060 69800228] { 019c00 }
 }
 The Local Alias Server has 1 entry
```

Exit status

0	Successful operation
nonzero	Indicates the operation has failed

See also

fabricShow

switchShow

aliCreate

Creates a zone alias.

Synopsis

    alicreate "aliName", "member; member"

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

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. See the zoneCreate command for more information on name and member specifications.

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

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

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. 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.

- WWN

- QuickLoop AL_PAs

This operand is required.

Examples

To create a zone alias:

```
switch:admin> alicreate "array1", "2,32; 2,33; 2,34"
switch:admin> alicreate "array2", "21:00:00:20:37:0c:66:23"
switch:admin> alicreate "loop1", "4,5[0x02]; 6,7[0xEF]; 5,4"
```

See also

aliAdd

aliDelete

aliRemove

aliShow

aliDelete

Deletes a zone alias.

Synopsis

alidelete "*aliName*"

Availability

admin

📝 **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to delete a zone alias.

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

📝 **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following operand:

"*aliName*"	Specify the name of zone alias to be deleted. This operand must be enclosed in quotation marks. This operand is required.

Examples

To delete the zone alias array2:

```
switch:admin> alidelete "array2"
```

See also

aliAdd

aliCreate

aliRemove

aliShow

aliRemove

Removes a member from a zone alias.

Synopsis

aliremove "*aliName*", "*member; member*"

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

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

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following operands:

"*aliName*"	Specify the name of the zone alias to have members removed, 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.

- WWN

- 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.

Examples

Remove a world wide name 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

Displays zone alias information.

Synopsis

```
alishow ["pattern"][, mode]
```

Availability

all users

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to display zone configuration information.

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.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following optional operands:

"pattern"	A POSIX-style regular expression used to match zone alias names. This operand must be enclosed in quotation marks. Patterns can contain:
	• Question mark (?), which is a placeholder for any single character
	• Asterisk (*), which is a placeholder for any string of characters
	• Ranges, which are a placeholder for any character within the range. Ranges must be enclosed in brackets: for example, [0-9] or [a-f].
mode	Specify 0 to display the contents of the transaction buffer (the contents of the current transaction), or specify 1 to display the contents of the flash memory. The default value is 0

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

Examples

To display 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

aptPolicy

Changes or displays the Advanced Performance Tuning (APT) policy.

Synopsis

```
aptpolicy [policy]
```

Availability

admin

Description

Use this command, which changes several internal parameters, to change the performance algorithm on the switch. (A detailed performance-tuning discussion is beyond the scope of this manual.) The default parameters are optimal for most SAN applications; typically, customers do not need to use this command.

When used with no arguments, this command displays a list of APT policies supported on this switch, as well as the current policy. This can be done at any time.

The switch must be disabled before using this command to change the current policy.

Operands

This command has the following operand:

policy   Specifies the new APT policy. The following polices are supported:

- Port-based routing policy

  With this policy, the path chosen for an ingress frame is based on:

  - Ingress port on which the frame was received

  - Destination domain for the frame

  The chosen path remains the same if Dynamic Load Sharing (DLS) feature is not enabled. If DLS is enabled, then a different path may be chosen on a fabric event. See dlsSet for the definition of a fabric event.

  This policy may provide better ISL utilization when there is little or no oversubscription of the ISLs.

  Note that static routes are supported only with this policy.

- Device-based routing policy

  With this policy, the path chosen for an ingress frame is based on:

  - Ingress port on which the frame was received

  - FC address of the source fabric device (SID) for this frame

  - FC address of the destination fabric device (DID) for this frame

  This policy allows for better utilization of the available paths as I/O traffic between different (SID, DID) pairs can use different paths. All frames received on a ingress port with the same (SID, DID) parameters takes the same path unless there is a fabric event. See dlsSet for the definition of a fabric event.

  This policy does not support static routes. DLS always is enabled and the DLS setting cannot change with this policy.

- Exchange-based routing policy

  With this policy, the path chosen for an ingress frame is based on:

  Ingress port on which the frame was received

  - FC address of the SID for this frame

  - FC address of the DID for this frame

  - FC Originator Exchange ID (OXID) for this frame

  This policy allows for optimal utilization of the available paths as I/O traffic between different (SID, DID, OXID) pairs can use different paths. All frames received on a ingress port with the same (SID, DID, OXID) parameters takes the same path unless there is a fabric event. See `dlsSet` for the definition of a fabric event.

  This policy does not support static routes. DLS always is enabled and the DLS setting cannot change with this policy.

Examples

To display the current policy and then change it from an exchange-based to a device-based policy:

```
switch:admin> aptpolicy
   Current Policy: 3

   3: Default Policy
   1: Port Based Routing Policy
   2: Device Based Routing Policy
   3: Exchange Based Routing Policy


switch:admin> aptpolicy 2


Switch must be disabled in order to modify this configuration
parameter. To disable the switch, use the "switchDisable" command.

 switch:admin> switchdisable


 switch:admin> aptpolicy 2
 Policy updated successfully.


 switch:admin> switchenable


 switch:admin> aptpolicy
   Current Policy: 2


   3: Default Policy
   1: Port Based Routing Policy
   2: Device Based Routing Policy
   3: Exchange Based Routing Policy
```

See also

dlsReset

dlsSet

dlsShow

switchDisable

authUtil

Displays and sets the authentication configuration.

Synopsis

```
authutil [--show][--set value]
```

Availability

admin

Description

Use this command to display and set local switch authentication parameters. Use `--set` to change authentication parameters, such as protocol and Diffie-Hellman group (DH group), which saves new configuration persistently. Authentication process uses the protocol that is set using this command.

When no protocol is set, the default setting of `fcap`, `dhchap` is used. The default setting of `"*"` (for example, `0,1,2,3,4`) is used when no group is set. The new configuration is effective with the next authentication request.

Use `--show` to display the current authentication configuration of the switch. Use the `portShow` command to display the authentication type and associated parameters, if applicable, used on the port at port online or when enabling security, whichever occurs last.

> **NOTE:** A security license is required to run this command in nonsecure as well as secure mode.

Operands

This command has the following operands:

`--show`	Displays local authentication configuration.
`--set`	Modifies authentication configuration. Values include:

    `-a`   Sets authentication protocol. Specify `fcap` to set only FCAP authentication, `dhchap` to set only DH-CHAP authentication, and `all` to set both FCAP and DH-CHAP (default). When authentication is set to `all`, implicit order is FCAP followed by DH-CHAP; for example, in authentication negotiation FCAP is given priority over DH-CHAP on the local switch, however a responder can still select DH-CHAP.

    `-g`   Sets DH group. Values `0` to `4` and `"*"` are valid values. DH group 0 is called NULL DH. A user can select other groups between 1 and 4. Each DH group specifies a key size and associated parameters implicitly. Higher group value provides stronger cryptography and higher level of security in authentication protocol. When DH group is set to a specified value, only that DH group is enabled in authentication. Specifying `"*"` as a group enables all DH groups 0, 1, 2, 3, and 4, in that order; for example, in authentication negotiation NULL DH is given priority over other groups, however a responder can still select other DH group.

Without any specified operands, the command displays the usage.

Examples

To display authentication configuration on the switch:

```
switch:admin> authutil --show
AUTH TYPE      HASH TYPE     GROUP TYPE
------------------------------------
dhchap          sha1,md5     0,1,2,3,4
```

To set DH-CHAP as authentication protocol:

```
switch:admin> authutil --set -a dhchap
Authentication is set to dhchap.
```

To set both protocols in order of `fcap,dhchap`:

```
switch:admin> authutil --set -a all
Authentication is set to fcap,dhchap.
```

To set DH group 3:

```
switch:admin> authutil --set -g 3
DH Group was set to 3.
```

To set all DH groups to be specified in auth negotiate in order of 0, 1, 2, 3, and 4:

```
switch:admin> authutil --set -g "*"
DH Group is set to 0,1,2,3,4
```

See also

portShow

secAuthSecret

backplaneTest

Tests the backplane connection for a multiple-blade configured system.

Synopsis

```
backplanetest [--slot number][-passcnt count][-payload value][-pat
type][-ports itemlist][-[-verbose mode]
```

Availability

admin

Description

Use this command to verify the backplane connection for each blade through the backend external (BE)
ports. This command can run only on a multiple-blade configured system. It assumes that all blades
available on the specified switch have passed the blade diagnostics tests. This command verifies the
backplane connection by using a functional blade's frame transmitter and receiver features.

> **NOTE:** No other diagnostic can be executed until this test is completed. This command is supported on
> the SAN Switch 2/8V, SAN Switch 2/16V, SAN Switch 2/32, Core Switch 2/64, and SAN Director
> 2/128. This command is not supported on the 4/16 SAN Switch, SAN Switch 4/32 and 4/256 SAN
> Director, which use the Condor ASIC.

Operands

This command has the following operands:

`--slot number`	Specifies the slot on which the diagnostic operates. The ports specified are relative to this slot number.
`-passcnt count`	Specifies the number of times to perform this test. The default value is 1.
`-payload value`	Specifies 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.
`-pat type`	Specifies the test-pattern type to use in the test frame payload. Twenty types of predefined patterns are provided with the test; the default is jCRPAT (type=17). Use `dataTypeShow` to display the pattern types supported with `backplaneTest`.
`-ports itemlist`	Specifies a list of blade ports to test. By default, all the blade ports in the specified slot are used. See `itemList` for further details
`-verbose mode`	Specifies verbose mode. If specified with a nonzero value, this mode displays the test progress in detail. The default value is to disable the mode. This operand is optional.

Examples

To test backplane connections on an HP StorageWorks Director:

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

Test frame info for Backplane Connection Test:
# of frames:  1
sid data:     0xffffffd
did data:     0xffffffd
payload size: 2048 bytes

Test Complete: backplanetest Pass 1 of 1
Duration 0 hr, 0 min & 1 sec (0:0:1:715).
 passed.
```

Diagnostics

When this command detects failures, the subtest might report one or more of the following error messages:

```
DATA
TIMEOUT
XMIT
```

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

itemList

backport

Tests for backend ASIC-to-ASIC links.

Synopsis

backport [-nframes *count*][-ports *itemlist*][-lb_mode *mode*][-fr_type
type][-extonly *mode*]

Availability

admin

Description

Use this command to test the backplane routing and virtual channel (VC) allocation. This test applies to
single blade as well as multiblade systems.

The following items are tested:

- Proper backend 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, that path will fail to transmit the
  first frame between the two ports.

- Proper virtual channel mapping such that an arbitrarily large number of frames might 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.

- Proper trunking of backend ports. The frames send in bursts. If the trunking is not set up properly, the
  burst of frames do not arrive in-order.

- ASIC errors along each path. The test checks for CRC and ENC errors for each port used between the
  source and destination ports to help isolate failures. It also checks 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. Use of this command assumes that the same database is
used for domain and area routes; therefore, domain results are indicative of area operation.

NOTE: Virtual channel mapping is not tested if -extonly is set to 1.

Operands

This command has the following options:

-nframes *count*	Specifies the number of frames per port to send. The test runs until the specified number of frames has been transmitted on each port. The total number of frames that this command circulates is determined at run time. The default value is 10 and the minimum value is 3. Any value less than the minimum is ignored and the minimum value is used.
-ports *itemlist*	Specifies a list of user ports. The default value is all user ports. See itemList for more information.
-lb_mode *mode*	Selects the loopback point for the test. By default, backport uses internal loopback.

Mode Description
1   Port loopback (loopback plugs)
2   External (SERDES) loopback
5   Internal (parallel) loopback

`-fr_type type`	Specifies the frame type to send. The default value is 1.
	Type Description 0 Single frame 1 spinfab frames 2 spinfab 1K frames
`-extonly mode`	Specifies external-test-only mode. The default value is 0, which disables this mode. This command normally sends bursts of frames from each port under test to every other port in the list. With -extonly mode set to 1, the command sends only one burst of frames to each port from each ASIC pair-to-ASIC pair link. This tests all of the external connections with only K * N frames instead of the N^2 frames required in all-to-all mode.
	This mode is intended to be used in ESS/burn-in testing to optimize test time. `backport` tests only the external connections between each ASIC pair. `txdPath` is used to test the internal ASIC pair-to-ASIC pair paths. The values are:
	0 Send frames from all ports to all other ports. 1 Send only one burst of frames to each link.

Examples

To test for backend ASIC pair links:

```
switch:admin> backport -ports 1/1-1/3 -nframes 10
One moment please ...
backport running...
backport: Completed 840 frames, status:  passed.
```

Diagnostics

When the command detects failures, the test can report one or more of the following error messages:

```
ERR_STAT
ERR_STATS
INIT
PORT_DIED
PORT_STOPPED
XMIT
```

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

crossPortTest

itemList

portLoopbackTest

spinFab

spinSilk

txdPath

bannerSet

Sets the banner on the local switch.

Synopsis

bannerset [*banner*]

Availability

admin

Description

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

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

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

If you enter the banner text using the interactive method, the valid length is 1022 characters. If the banner text length exceeds the maximum allowed, the software truncates the input. To close the banner text string, enter a period at the beginning of a new line.

Operands

This command has the following operand:

banner   Specify a text string to be displayed when a user logs in. If you
                            enter the banner text using the *banner* operand, the valid
                            length is 116 characters. This operand is optional.

Examples

To set a new banner for a switch:

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


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

See also

bannerShow

bannerShow

Displays the banner text.

Synopsis

```
bannershow
```

Availability

admin

Description

Use this command to display the contents of the banner.

Operands

Examples

To display the banner for a switch:

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

See also

bannerSet

bcastShow

Displays broadcast routing information.

Synopsis

```
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: 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_Port members of this tree in a manner designed to prevent broadcast routing loops.

The following fields appear:

Group	The multicast group ID of the broadcast group (always 256)
Member Ports	A map of all ports in broadcast tree
Member ISL Ports	A map of all E_Ports in broadcast tree

The broadcast routing information for the ports is displayed as a set of hexadecimal bit maps. Each bit in a bit map represents a port, with the least significant bit in each row representing port 0, 32, 64, and so on. For more information on reading hexadecimal bit maps, see the *HP StorageWorks Fabric OS 5.x administrator guide*.

> **NOTE:** The output from this command varies, depending on switch type.

Operands

Examples

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

```
switch:admin> bcastShow

Group   Member Ports    Member ISL Ports
--------------------------------------
256     0x00012083      0x00002080
        0x00000440      0x00000400
        0x00770000      0x00700000
        0x00008200      0x00000000
        0x00000001      0x00000000
```

In the previous example, from a switch with 128 ports, the member ports consist of ports 7, 13, 42, 84, 85, and 86. The final Member Ports bit set represents the embedded port (frames sent to be handled by firmware) and is typically set.

See also

portRouteShow

bladeBeacon

Sets blade beaconing mode on or off.

Synopsis

```
bladebeacon [slotnumber] mode
```

Availability

admin

> **NOTE:** This command is available only on the HP StorageWorks SAN Directors.

Description

Use this command to enable or disable blade beaconing or to display the current beaconing mode for one blade.

When beaconing is enabled, the port LEDs 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:

slotnumber	Specifies the slot number to enable bladeBeacon.
mode	Specifies a value of 1 to set beaconing mode on. Specifies a value of 0 to set beaconing mode off. This operand is optional; if omitted, the current mode appears.

Examples

To enable beaconing on slot 3, display the beaconing mode, the disable the slot:

```
switch:admin> bladebeacon 2 1
switch:admin> bladebeacon 2
value = 1
switch:admin> bladebeacon 2 0
```

See also

switchShow

bladeDisable

Disables all user ports on a blade.

Synopsis

```
bladedisable [slotnumber]
```

Availability

admin

Description

Use this command to disable all user ports on a blade. All Fibre Channel ports are taken offline. If the switch was connected to a fabric through this blade, the remaining switches reconfigure, and this switch will configure based on the other blade ports.

The blade must be disabled before making configuration changes or before running many of the diagnostic tests.

The blade does not need to be disabled before rebooting or powering off.

Observe and verify the disable process by watching the front panel LEDs change to slow flashing yellow as each port of the blade disables.

NOTE: A blade cannot be disabled or enabled when the switch is disabled or when the blade itself is disabled (using `slotOff`), faulted, powered off, or running diagnostics.

Operands

This command has the following operand:

slotnumber   Specifies the slot number on which the ports are to be disabled.

Examples

To disable blade 2 and then verify:

```
switch:admin> bladedisable 2
Blade 2 is being disabled...Done
switch:admin> slotshow

Slot    Blade Type   ID    Status
-------------------------------
  1      SW BLADE    2     ENABLED
  2      SW BLADE    2     ENABLED (User Ports Disabled)
  3      SW BLADE    2     ENABLED
  4      SW BLADE    2     ENABLED
  5      CP BLADE    1     ENABLED
  6      CP BLADE    1     ENABLED
  7      SW BLADE    2     ENABLED
  8      SW BLADE    2     ENABLED
  9      SW BLADE    2     ENABLED
 10      SW BLADE    2     ENABLED
```

See also

bladeEnable

portDisable

portEnable

slotOff

switchShow

bladeEnable

Enables all user ports on a blade.

Synopsis

```
bladeenable [slotnumber]
```

Availability

admin

Description

Use this command to enable all user ports on a blade. All Fibre Channel ports within the blade that did not fail the power-on self-test (POST) are enabled (except for persistently disabled ports); they might come online if connected to a device or remain offline if disconnected.

If the switch is connected to a fabric, it rejoins the fabric. If this switch remains the principal switch at the end of the countdown, 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.

Observe and verify the enable process by watching the front-panel LEDs change from slow flashing amber as each port enables. The LEDs change to green for online ports, unlighted for disconnected ports, or amber for ports that do not initialize.

NOTE: A blade cannot be disabled or enabled when the switch is disabled or when the blade itself is disabled (using `slotOff`), faulted, powered off, or running diagnostics.

Persistently disabled ports are not enabled by this command.

Operands

This command has the following operand:

slotnumber   Specifies the slot number to be enabled.

Examples

To display the slot status, enable the user ports in slot 4, and verify the setting:

```
switch:admin> slotshow


Slot    Blade Type   ID    Status

-------------------------------

  1      SW BLADE    2      ENABLED
  2      UNKNOWN            VACANT
  3      UNKNOWN            VACANT
  4      SW BLADE    2      ENABLED (User Ports Disabled)
  5      CP BLADE    1      ENABLED
  6      CP BLADE    1      ENABLED
  7      SW BLADE    2      ENABLED
(continued on next page)
```

```
    8       UNKNOWN             VACANT
    9       UNKNOWN             VACANT
   10       UNKNOWN             VACANT


switch:admin> bladeenable 4
slBlade 4 is being enabled...Done
switch:admin> slotshow

Slot    Blade Type   ID    Status
-------------------------------
    1       SW BLADE    2     ENABLED
    2       UNKNOWN            VACANT
    3       UNKNOWN            VACANT
    4       SW BLADE    2     ENABLED
    5       CP BLADE    1     ENABLED
    6       CP BLADE    1     ENABLED
    7       SW BLADE    2     ENABLED
    8       UNKNOWN            VACANT
    9       UNKNOWN            VACANT
   10       UNKNOWN            VACANT
```

See also

bladeDisable

portDisable

portEnable

slotOff

slotOn

switchShow

burninErrClear

Clears errors stored in the nonvolatile storage on the slot during burn-in.

Synopsis

burninErrClear *slotNum*

Availability

admin

Description

Use this command to clear errors stored in the nonvolatile storage on the slot during burn-in.

📝 **NOTE:** HP StorageWorks recommends running the burninErrClear command prior to running diagSetBurnin and diagSetCycle.

Operands

This command has the following operand:

slotNum   A nonzero value that specifies the slot number from which to clear burn-in errors.

Examples

To clear burn-in errors from slot 2.

```
switch:admin> burninErrClear 2
```

See also

burninErrShow

burninErrShow

Displays errors stored in the nonvolatile storage on the slot during burn-in.

Synopsis

```
burninErrShow slotNum
```

Availability

all users

Description

Use this command to display errors stored in the nonvolatile storage on the slot during burn-in.

Operands

This command has the following operand:

slotNum   A nonzero value that specifies the slot number from which to
                            display burn-in errors.

Examples

To display burn-in errors from slot 2:

```
switch:admin> burninErrShow 2
```

See also

burninErrClear

burninLevel

Sets the diagnostics burn-in level.

Synopsis

```
burninlevel [ level | -show ]
```

Availability

admin

Description

Use this command to select or display the burn-in level. When the burn-in level is set to a value other than 0, the diagnostic daemon program performs burn-in testing in place of the power-on self-test (POST) phase II each time a switch blade is powered on. The mode becomes active as soon as this command is executed so that it does not require a reboot to take effect.

When a burn-in level other than 0 is selected, actual behavior is determined by the configuration of the diagnostics daemon and the burn-in scripts run.

A useful application of this command is to store errors on the local persistent error storage on which the error occurs. This happens when the burn-in level is other than 0. This preserves the errors prior to returning a board for service. For multibladed products, this is the independent blade, and for fixed-port-count products, this is the chassis-persistent storage. The error logs are viewed using the burninErrShow command.

Operands

The following are optional:

level	The burn-in level is set to this value.
-show	If specified, or if level is not specified, the current burn-in level setting appears.

Examples

To set the diagnostic burn-in level:

```
switch:admin> burninlevel -show
Burnin level is 0.
```

See also

burninErrShow

diagDisablePost

diagEnablePost

diagSetBurnin

burninStatus

Displays the diagnostics burn-in status.

Synopsis

```
burninstatus [[ --slot ] slotnumber ]
```

Availability

admin

Description

Use this command to display the burn-in status of each blade in the system. The output contains the slot, state, current run number, current command in the run, total commands in a run, and the burn-in script name.

Operands

The following operands are optional:

--slot *slotnumber*   Optional specify to get the burn-in status of a single slot. If not specified, all slots are displayed.

Examples

To display the burn-in status for all slots:

```
switch:admin> burninstatus
Slot    State    Status  Run     Cmd     TotCmds PID     Script
1       ABORT    PASS    3       18      41      916     burnin
2       ABORT    PASS    3       18      41      920     burnin
3       ABORT    PASS    3       18      41      923     burnin
4       ABORT    FAIL    3       11      34      926     burnin
```

To display the burn-in status for slot 3:

```
switch:admin> burninstatus --slot 3
Slot    State    Status  Run     Cmd     TotCmds PID     Script
3       ABORT    PASS    3       18      41      923     burnin
```

See also

diagSetBurnin

camTest

Verifies QuickLoop's Content Addressable Memory (CAM) SID translation.

Synopsis

camtest [--slot *slotnumber*][-passcnt *count*][-txport *itemlist*]

Availability

admin

Description

Use this command to verify that the CAM is functionally OK by performing hit and miss tests. 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 four kinds of data patterns:

- A walking 1

- A walking 0

- A random pattern

- 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.

> **NOTE:** This command cannot be executed on an enabled switch. You must first disable the switch using the switchDisable command. This command is supported on the SAN Switch 2/8V, SAN Switch 2/16V, SAN Switch 2/32, Core Switch 2/64, and SAN Director 2/128. This command is not supported on the 4/16 SAN Switch, SAN Switch 4/32 and 4/256 SAN Director, which use the Condor ASIC.

Operands

This command has the following operand:

--slot *slotnumber*	Specifies the slot number on which the diagnostic will operate. The ports specified will be relative to this slot number. The default is set to 0 and designed to operate on fixed-port-count products.
-passcnt *count*	Specifies the number of times to perform this test. The default value is 1.
-txport *itemlist*	Specifies a list of blade ports to test. By default, all the blade ports in the specified slot (--slot) will be used. See itemList for more information.

Examples

To verify CAM is functioning correctly:

```
switch:admin> camtest -txports 1/1
Running camtest ..............
Test Complete: "camtest" Pass 1 of 1
Duration 0 hr, 0 min & 5 sec (0:0:5:14).
 passed.
```

Diagnostics

When failures are detected, the subtest might report one or more of the following error messages:

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

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

centralMemoryTest

cmemRetentionTest

cmiTest

crossPortTest

itemList

portLoopbackTest

portRegTest

spinSilk

sramRetentionTest

centralMemoryTest

Tests ASIC-pair central memory operation.

Synopsis

    centralmemorytest [--slot slotnumber][-passcnt count][-datatype
    type][-ports itemlist][-seed value]

Availability

admin

Description

Use this command to execute an address and data bus verification of the ASIC SRAMs that serve as the central memory.

NOTE: This command cannot be executed on an enabled switch. You must first disable the switch using the switchDisable command. This command is supported on the SAN Switch 2/8V, SAN Switch 2/16V, SAN Switch 2/32, Core Switch 2/64, and SAN Director 2/128. This command is not supported on the 4/16 SAN Switch, SAN Switch 4/32 and 4/256 SAN Director, which use the Condor ASIC.

The test consists of six subtests, each described next.

Built-in self-repair subtest

The built-in self-repair subtest executes the built-in self-repair (BISR) circuitry in each ASIC. The BISR executes its own BIST, and cells found to be bad are replaced by redundant rows provided in each SRAM in the ASIC. Once the cells are replaced, the BIST is executed again.

The firmware 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-CMBISRF error generated.

Data read/write subtest

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. This procedure 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.

ASIC-to-ASIC connection subtest

NOTE: This subtest is not available on 2 Gb/s-capable switches.

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.

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 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 step 1 and step 2 for the complemented pattern.

4. Repeat this procedure for each ASIC pair in the blade under test.

The pattern used is generated similarly as in data read/write subtest except that only 2112 bytes are generated.

Parity error subtest

The forced bad parity error subtest verifies that a bad parity can be detected, its error flag set, and interrupt bits 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 ASIC pairs at offset 0 and check that the error and interrupt bits are set.

4. Repeat step 1 through step 3 for offset 1 through 10.

Buffer number error subtest

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

3. For each of the 11 possible offsets for each ASIC X in the switch:

   a. Write a 64-byte pattern in the central memory.

   b. Read X from all ASIC Y in the switch.

   c. For ASIC X, ensure:

      - Interrupt status bits are set.

      - The 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 ASICs besides X are not interrupted or flagged with an error.

Reading the error register clears the CMEM interrupt bit, preparing for the next offset to test.

Chip number error subtest

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

3. For each of the 11 possible offsets for each ASIC X in the switch:

   a. Write a 64-byte pattern in the central memory.

   b. Read X from all ASIC Y in the switch.

   c. For all ASIC Y, ensure:

      • interrupt status bits set.

      • the error type is chip number error.

      • the port number in error is the receiver port (which is the base port of ASIC Y).

Reading the error register clears the CMEM interrupt bit, preparing for the next offset to test.

Operands

This command has the following operands:

--slot *slotnumber*	Specify the slot number on which the diagnostic will operate. The ports specified will be relative to this slot number. The default is set to 0 and designed to operate on fixed port-count products.
-passcnt *count*	Specify the number of test passes to run. By default, the test runs one time.
-datatype *type*	Specify the type of data pattern to use. By default, type 9, QUAD_RAMP, is used. For a complete list of supported data patterns, run the dataTypeShow command. Some common settings are:

1	BYTE_FILL pattern
2	WORD_FILL pattern
3	QUAD_FILL pattern
9	QUAD_RAMP (Addr=Data) pattern
11	RANDOM pattern

-ports *itemlist*	Specify a list of blade ports to test. The Ports list is translated into a matching Quad list before the test is run. By default, all the blade ports in the specified slot (--slot) are tested. See itemList for more information.
-seed *value*	Specify the data pattern seed to be used. The default seed value is 0.

Examples

To test the ASIC central memory:

```
switch:admin> centralmemorytest -ports 1/0-1/15

Running centralmemorytest ............

Test Complete: "centralmemorytest" Pass 1 of 1

Duration 0 hr, 0 min Duration 0 hr, 0 min Duration 0 hr, 0 min & 5 sec
(0:0:5:412). 5 sec (0:0:5:412). 5 sec (0:0:5:412).
 passed.
```

Diagnostics

When this command detects failures, each subtest can report one or more of the following error messages:

Subtest 2

      LCMEM_ERR

      LCMRS_ERR

      LCMTO_ERR

Subtest 3

      CM_NO_BUF

      LCMEMTX_ERR

      LCMRS_ERR

      LCMTO_ERR

Subtest 4

      BAD_INT

      CM_ERR_PTN

      CM_ERR_TYPE

      TIMEOUT

Subtest 5

      BAD_INT

      CM_ERR_PTN

      CM_ERR_TYPE

      TIMEOUT

Subtest 6

      BAD_INT

      CM_ERR_PTN

      CM_ERR_TYPE

      TIMEOUT

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

camTest

cmemRetentionTest

cmiTest

crossPortTest

itemList

portLoopbackTest

portRegTest

spinSilk

sramRetentionTest

cfgActvShow

Displays current zone configuration information.

Synopsis

```
cfgactvshow
```

Availability

all users

> **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to display the effective zone configuration information.

The *current configuration* is a single zone configuration that is currently in effect. The devices that an initiator sees are based on this configuration. The effective configuration is built when a specified zone configuration is enabled.

> **NOTE:** When security is enabled, this command can be issued on any switch in the fabric.

Operands

Examples

To display the effective zone configuration information:

```
switch:admin> cfgactvshow
    Effective configuration:
     cfg:    c4
     zone:   z3      33:07:06:05:04:03:02:01
     zone:   z4      44:01:23:45:67:89:a0:bc
                     40:01:23:45:67:89:a0:bc
```

See also

cfgClear

cfgDelete

cfgRemove

cfgSave

cfgShow

cfgAdd

Adds a member to a zone configuration.

Synopsis

cfgadd "*cfgName*", "*member; member*"

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

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

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

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following required operands:

cfgName	Specifies a name for the zone configuration, in quotation marks.
member	Specifies a zone member or list of zone members to be added to the configuration, in quotation marks and separated by semicolons. Members can be specified in one or more of the following ways:

- Zone names

- QuickLoop names

- FA (Fabric Assist) zone names

Examples

To add two 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

Clears all zone configurations.

Synopsis

```
cfgclear
```

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to clear all zone information in the transaction buffer. All defined zone objects in the transaction buffer are deleted. If an attempt is made to commit the empty transaction buffer while a zone configuration is enabled, you are warned to first disable the enabled zone configuration or to provide a valid configuration with the same name.

After clearing the transaction buffer using the cfgClear command, use the cfgDisable command to commit the transaction and then disable and clear the zone configuration in flash memory for all the switches in the fabric.

If no current zoning configuration exists, use the cfgSave command.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

Examples

To clear all zones and then clear flash memory:

```
switch:admin> cfgclear
The Clear All action will clear all Aliases, Zones, FA Zones
and configurations in the Defined configuration.
Do you really want to clear all configurations?  (yes, y, no, n): [no] n

switch:admin> cfgsave
You are about to save the Defined zoning configuration. This
action will only save the changes on Defined configuration.
Any changes made on the Effective configuration will not
take effect until it is re-enabled.
Do you want to save Defined zoning configuration only?  (yes, y, no, n):
[no] n
```

See also

cfgDisable

cfgEnable

cfgSave

cfgCreate

Creates a zone configuration.

Synopsis

cfgcreate "*cfgName*", "*member; member*"

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to create a new zone configuration.

A zone configuration name must begin with a letter that can be followed by any number of letters, numbers, and underscores. 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 member lists are not allowed.

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

See the zoneCreate command for more information on name and member specifications.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following required operands:

cfgName	Specify a name for the zone configuration, in quotation marks.
member	Specify a zone member or list of zone members to be added to the configuration, in quotation marks and separated by semicolons. Members can be specified in one or more of the following ways:

- Zone names

- QuickLoop names

- FA (Fabric Assist) zone names

Examples

To create a configuration containing three zones:

```
switch:admin> cfgcreate "USA_cfg", "Red_zone; Blue_zone; Green_zone"
```

See also

cfgAdd

cfgClear

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgShow

cfgDelete

Deletes a zone configuration.

Synopsis

```
cfgdelete "cfgName"
```

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to delete a zone configuration.

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

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following operand:

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

Examples

To delete a zone configuration:

```
switch:admin> cfgdelete "USA_cfg"
```

See also

cfgAdd

cfgClear

cfgCreate

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgShow

cfgDisable

Disables a zone configuration.

Synopsis

```
cfgdisable
```

Availability

admin

📝 **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to disable the current zone configuration. The fabric returns to nonzoning mode, in which all devices see each other.

This command ends and commits the current zoning transaction buffer to both volatile and flash memory. 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 switches to indicate the aborting of the transaction.

📝 **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

Examples

To disable the current zone configuration:

```
switch:admin> cfgdisable
You are about to disable zoning configuration. This
action will disable any previous zoning configuration enabled.
Do you want to disable zoning configuration? (yes, y, no, n): [no] y
```

See also

cfgClear

cfgEnable

cfgSave

cfgEnable

Enables a zone configuration.

Synopsis

cfgenable "*cfgName*"

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to enable a zone configuration. 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 current configuration.

If the build fails, the previous state is preserved (zoning remains disabled, or the previous configuration remains in effect). If the build succeeds, the new configuration replaces the previous configuration. See the cfgShow command for a description of defined and current configurations.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following operand:

cfgName   Specify the name of a zone configuration to enable, in quotation marks. This operand is required.

Examples

To enable the zone configuration "USA_cfg":

```
switch:admin> cfgenable "USA_cfg"
You are about to enable a new zoning configuration.
This action will replace the old zoning configuration with the
current configuration selected.
Do you want to enable 'USA_cfg' configuration  (yes, y, no, n): [no] y
zone config "USA_cfg" is in effect
Updating flash ...
```

See also

cfgClear

cfgDisable

cfgSave

cfgShow

cfgRemove

Removes a member from a zone configuration.

Synopsis

cfgremove "*cfgName*", "*member [; member ...]*"

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

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

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

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

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

The following operands are required:

cfgName	Specify a name for the zone configuration, in quotation marks.
member	Specify a zone member or list of zone members to be added to the configuration, in quotation marks and separated by semicolons. Members can be specified in one or more of the following ways:

- Zone names

- QuickLoop names

- FA (Fabric Assist) zone names

Examples

To remove a zone from a configuration:

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

See also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgDisable

cfgEnable

cfgSave

cfgShow

cfgTransAbort

cfgTransShow

cfgSave

Saves zone configuration to flash memory.

Synopsis

```
cfgsave
```

Availability

admin

NOTE: This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

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 on and, if a configuration was in effect at the time it was saved, the same configuration is reinstalled with an automatic cfgEnable command.

Because the saved configuration is reloaded at power on, 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 might 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 switches to indicate the aborting of the transaction.

NOTE: When security is enabled, this command can be issued only from the primary FCS switch.

Operands

Examples

To save a zone configuration:

```
switch:admin> cfgsave
You are about to save the Defined zoning configuration. This
action will only save the changes on Defined configuration.
Any changes made on the Effective configuration will not
take effect until it is re-enabled.
Do you want to save Defined zoning configuration only?  (yes, y, no, n):
[no] n
Updating flash ...
```

See also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgShow

cfgTransAbort

cfgTransShow

cfgShow

Displays zone configuration information.

Synopsis

```
cfgshow ["pattern"][, mode]
```

Availability

all users

> **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to display zone configuration information.

If no operand is specified, all zone configuration information (both defined and effective) appears. If the local switch has an outstanding transaction, this command displays the newly edited zone configuration that has not yet been saved. If the local switch has no outstanding transaction, this command displays the committed zone configuration.

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 appears.

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 might be inconsistencies in the definitions, zones, or aliases that are referenced but not defined, or there might be duplicate members. The defined configuration is the current state of the administrator input.

The effective configuration is the single zone configuration that is currently enabled. The devices that an initiator sees in the fabric are based on this configuration. The effective configuration is built when a specific zone configuration is enabled and all error checking has been completed successfully.

This command does not display any zoning configuration output the first time a transaction is aborted on a local switch. Instead, this command displays the following warning:

```
Warning: Current Zoning Transaction was aborted.

Reason code = Zone Config update received
```

For example, suppose a transaction is created on SW1 using the cfgCreate or zoneCreate commands. From another switch, SW2, in the fabric, execute a transaction-closing command such as cfgDisable, cfgEnable, or cfgSave. This sends a zone configuration update to all switches in the fabric and the open transaction on SW1 is aborted. If you then issue a cfgShow command on SW1, only the warning is displayed; no zoning configuration information is displayed.

> **NOTE:** When security is enabled, this command can be issued on any FCS switch in the fabric.

Operands

This command has the following optional operands:

pattern   A POSIX-style regular expression used to match zone configuration names. The pattern must be enclosed in quotation marks, and can contain:

- Question mark (?), which is a placeholder for any single character

- Asterisk (*), which is a placeholder for any string of characters

- Ranges, which are a placeholder for any character within the range. Ranges must be enclosed in brackets: for example, [0-9] or [a-f].

mode   Specify 0 to display the contents of the transaction buffer (the contents of the current transaction) or specify 1 to display the contents of flash memory. The default value is 0.

Examples

To display all zone configurations that start with "Test":

```
switch:admin> cfgshow "Test*"
cfg:    Test1 Blue_zone
cfg:    Test_cfg Red_zone; Blue_zone
```

To display 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 display only configuration names:

```
switch:admin> cfgshow "*"
cfg:    USA1     Blue_zone
cfg:    USA_cfg Red_zone; Blue_zone
```

See also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgTransAbort

cfgTransShow

cfgSize

Displays zone database size details.

Synopsis

```
cfgsize [integer]
```

Availability

all users

> **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to display the size details of the zone database. All sizes are in bytes.

The size details include the following:

Zone DB max size	The upper limit for the defined configuration, determined by the amount of flash memory available for storing the defined configuration.
Transaction size	The size of the uncommitted defined configuration. This value will be nonzero if the defined configuration is being modified by telnet, API, and so forth; otherwise it is 0.
Committed size	The size of the defined configuration currently stored in flash.

See cfgShow for a description of defined and effective configurations.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following optional operand:

integer	If a nonzero integer is specified as the parameter, the size of the flash memory allocated for the zone database is displayed. The zone database includes both the defined and effective configurations. This size is in kilobytes.

Examples

To display size details of the defined configuration:

```
switch:admin> cfgsize
Zone DB max size - 127726 bytes
committed - 8812
transaction - 0
switch:admin> cfgsize 1
Zone DB flash size - 131028 bytes
```

See also

cfgShow

cfgTransAbort

Aborts the current zoning transaction.

Synopsis

cfgtransabort [*token*]

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to abort the current zoning transaction without committing it. All changes made since the transaction was started will be 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 and unaffected.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following operand:

token	Specify the token ID of an abortable transaction. Use the cfgTransShow command to obtain the token ID of a transaction.

Examples

To abort the current transaction:

```
switch:admin> cfgtransabort
```

See also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgShow

cfgTransShow

cfgTransShow

Displays information about the current zoning transaction.

Synopsis

```
cfgtransshow
```

Availability

all users

📝 **NOTE:** This command requires HP Advanced Zoning, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to display the ID of the current zoning transaction. This command also gives information about whether or not a transaction can be aborted or not. The transaction cannot be aborted if it is an internal zoning transaction.

📝 **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

Examples

To display the current transaction:

```
switch:admin> cfgtransshow
There is no outstanding zone transactions
switch:admin> cfgclear
Do you really want to clear all configurations?  (yes, y, no, n): [no] y
Clearing All zoning configurations...
switch:admin> cfgtransshow
Current transaction token is 271010736
It is abortable
```

See also

cfgAdd
cfgClear
cfgCreate
cfgDelete
cfgDisable
cfgEnable
cfgRemove
cfgSave
cfgShow
cfgTransAbort

chassisConfig

Displays or sets the configuration of the chassis.

Synopsis

```
chassisconfig [ -f ] [ option ]
```

Availability

admin   (set)

all users (display)

Description

Use this command to set the chassis configuration for products that support both single-switch and dual-switch operation.Each configuration specifies whether the chassis runs as one logical switch or two. Each configuration also specifies the port blade ID that is permitted on each logical switch. Any port blade ID that does not match the current configuration is considered incompatible, and does not power up.

When no arguments are provided, this command displays the current configuration of the chassis as well as a list of the supported configurations. When a specific option is provided to this command, all CPs currently in the system are *immediately* rebooted, returning in the mode that the user specified. This can result in some blades being faulted as incompatible, based on the new configuration option. This command rejects without causing a reboot, if an option is not supported by the platform. See the "Operands" section for supported options.

Of the following options, HP StorageWorks SAN Director 2/128 supports options 1 through 4 and HP StorageWorks 4/256 SAN Directors support options 1 and 5:

1. One 128-port switch (blade ID 4, 17 on slots 1 through 4 and 7 through 10; blade ID 5, 16 on slots 5 and 6)

2. Two 64-port switches (blade ID 4 on slots 1 through 4 and 7 through 10; blade ID 5 on slots 5 and 6)

3. Two 64-port switches (blade ID 4 on slots 1 through 4, blade ID 2 on slots 7 through 10; blade ID 5 on slots 5 and 6)

4. Two 64-port switches (blade ID 2 on slots 1 through 4, blade ID 4 on slots 7 through 10; blade ID 5 on slots 5 and 6)

5. One 256-port switch (blade ID 17, 18 on slots 1 through 4 and 7 through 10; blade ID 16 on slots 5 and 6)

Use the slotShow command to display the current set of blades in the system.

When the system changes from single to multiple domains and vice versa, configuration parameters that are not compatible are restored to factory defaults. The configuration data includes, but not limited to routing, port swap, fabric, zoning, port configuration, passwords, security, HP Fabric Watch, management server, time server, SNMP, performance monitoring, and general HP Fabric OS configuration values. It is recommended that the current configuration be saved using configUpload as a guide for adjustments after the configuration change.

Certain configuration values that are not considered switch based and determined not to cause adverse effects are left untouched for user convenience. These include SSL certificates, PKI certificates, licenses, and IP address.

When the -f (force) option is omitted, this command prompts for user consent to proceed further with the configuration change. It also prompts the user to upload the configuration data to a host so it can be used as a guide to re-establishing the configuration data in the new mode. Use the -f option to proceed without the interactive step.

Unless the chassis is currently configured as Option 1 (a single 128-port switch with blade IDs 4 and 17 and CP blade IDs 5 and 16), both CP blades should always contain firmware that supports this command. Use of earlier versions will adversely affect switch operation.

Because this is a disruptive operation and has profound effect on the behavior of the chassis, it needs to be used selectively.

Users running secure mode should be particularly careful in using this command to change the number of domains on the local chassis, because security is disabled on all resulting local switches. These switches are not able to participate in a secure fabric until secure mode is restored. Therefore, the fabric should have a primary FCS outside this chassis, to manage security throughout the fabric during this transition.

Operands

The operands are as follows:

-f	If specified, forces configuration changes without asking for confirmation or requesting a configuration upload.
option	Specifies the new configuration option to apply to the chassis. This operand is optional; if omitted, this command displays the current configuration option and a list of all valid options. Values include:

1	One 128-port switch (blade ID 4, 17 on slots 1 through 4 and 7 through 10; blade ID 5, 16 on slots 5 and 6)
2	Two 64-port switches (blade ID 4 on slots 1 through 4 and 7 through 10; blade ID 5 on slots 5 and 6)
3	Two 64-port switches (blade ID 4 on slots 1 through 4, blade ID 2 on slots 7 through 10; blade ID 5 on slots 5 and 6)
4	Two 64-port switches (blade ID 2 on slots 1 through 4, blade ID 4 on slots 7 through 10; blade ID 5 on slots 5 and 6)
5	One 256-port switch (blade ID 17, 18 on slots 1 through 4 and 7 through 10; blade ID 16 on slots 5 and 6)

Examples

To display the current configuration option on an HP StorageWorks SAN Director 2/128 and to change the option:

```
switch:admin> chassisconfig


Current Option: 1


All Supported Options (With Blade ID 5 on slots 5-6)
----------------------------------------------------


Option 1: One 128-port switch
(Blade ID 4, 17 on slots 1-4, 7-10, Blade ID 5, 16 on slots 5-6)
Option 2: Two 64-port switches
(Blade ID 4 on slots 1-4, 7-10, Blade ID 5 on slots 5-6)
Option 3: Two 64-port switches
(Blade ID 4 on slots 1-4, ID 2 on slots 7-10, Blade ID 5 on slots 5-6)
Option 4: Two 64-port switches
(Blade ID 2 on slots 1-4, ID 4 on slots 7-10, Blade ID 5 on slots 5-6)


Please use slotshow to see the Blade IDs of the SW and CP blades and
check with
customer support on the list of all available SW and CP Blade IDs and
their
marketing names.


switch:admin> chassisconfig 2


This will reboot all the CPs and the configuration data will be restored
to
factory defaults if moved between single and multiple domains. This
includes,
but are not limited to, port swap, routing, zoning, performance
monitoring, port
config, fabric watch, management server, time server, snmp, security,
fabric and
other FabOs configuration parameters.


Traffic will be disrupted and both the CPs comes up and will vary in the
number
of switches and the Blade IDs they recognize based on the configuration
selected. Some configuration values are applicable to both single-domain
and
multiple-domain switches, and are therefore not modified. (Examples:
licenses,
IP addresses, host and switch names, SSL certificates, PKI
certificates.) Please
read the man page for further information.

(continued on next page)
```

```
      Please upload switch 0 configuration...
      Server Name or IP Address [host]: 192.168.79.240
      User Name [user]: ckonchad
      File Name [config.txt]:
      Password:
      Upload complete

      Are you sure you want to continue? (Y/N): y

      Current Option changed to 2
      Restoring switch 0 configuration to factory defaults... done.

      (Telnet connection goes down at this point.)
```

See also

configDownload

configUpload

slotShow

chassisName

Displays or sets the chassis name for a switch.

Synopsis

```
chassisname [name]
```

Availability

admin (set)

all users (display)

Description

Use this command to change the name associated with the chassis. In the HP StorageWorks Core Switch 2/64 and HP StorageWorks SAN Director 2/128, 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 operand to set the chassis name.

Operands

This command has the following operand:

name   Specifies a new name for the chassis. Chassis names can be up to 15 characters long and must begin with a letter. The name must consist of letters, digits, or underscore characters and no spaces.

Examples

To change the chassis name to "dilbert":

```
switch:admin> chassisname dilbert
Please wait while committing configuration...
switch:admin> chassisname
dilbert
```

See also

switchName

chassisShow

Displays all field replaceable units (FRUs).

Synopsis

```
chassisshow
```

Availability

all users

Description

Use this command to inventory and display the FRU header content for each object in the chassis and chassis backplane version.

The header data is formatted into a record consisting of up to 13 lines. See Table 4 for more information about the lines and their meaning.

Table 4   Command output descriptions

Line	Description
1	If applicable, the first line displays the chassis backplane version number, in hexadecimal.
2	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). If the FRU is part of an assembly, a brief description, in parentheses, displays.
3	FRU header version number: Header Version: *x*
4	Value to calculate the object's power consumption: positive for power supplies and negative for power consumers. Power Consume Factor: -*xxx*
5	Part number (up to 14 characters): Factory Part Num: *xx-xxxxxx-xx*
6	Serial number (up to 12 characters): Factory Serial Num: *xxxxxxxxxx*
7	FRU manufacture date: Manufacture: Day: *dd* Month: *mm* Year: *yyyy*
8	Date of the last FRU header update: Update: Day: *dd* Month: *mm* Year: *yyyy*
9	Cumulative time, in days, that the FRU has been powered on: Time Alive:*dddd* days
10	Current time, in days, since the FRU was last powered on: Time Awake:*ddd* days
11	Externally supplied ID (up to 10 characters): ID: *xxxxxxxxxx*
12	Externally supplied part number (up to 20 characters): Part Num: *xxxxxxxxxxxxxxxxxxxx*
13	Externally supplied serial number (up to 20 characters): Serial Num:*xxxxxxxxxxxxxxxxxxxx*

NOTE: On some platforms, for certain FRU types, a few items might be unavailable. In these cases, the lines are suppressed. Possibly affected lines are 1, 3 through 7, 9, and 11 through 14. In addition, for lines 11 through 14, if there is no data set, these lines are suppressed.

Operands

Examples

To display all FRUs for a switch:

```
switch:user> chassisshow

Chassis Backplane Revision: 1C

SW BLADE   Slot: 3
Header Version:        1
Power Consume Factor:  -180
Factory Part Num:      60-0001532-03
Factory 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
Factory Part Num:      60-0001604-02
Factory 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
. . .
POWER SUPPLY   Unit: 2
Header Version:        1
Power Consume Factor:  1000
Factory Part Num:      60-0001536-02
Factory Serial Num:    A013450700
Manufacture:           Day: 14  Month:  6  Year: 2001
Update:                Day: 15  Month:  7  Year: 2001
Time Alive:            50 days
Time Awake:            16 days
ID:                    555-374757
Part Num:              238-298-12360
Serial Num:            1234567
. . .
(continued on next page)
```

```
FAN   Unit: 1
Header Version:          1
Power Consume Factor:    -50
Factory Part Num:        20-123456-12
Factory Serial Num:      B014934500
Manufacture:             Day:  6  Month:  7  Year: 2001
Update:                  Day: 15  Month:  7  Year: 2001
Time Alive:              88 days
Time Awake:              16 days
ID:                      456-777888
Part Num:                230-290-12370


(output truncated)
```

See also

slotShow

chipRegShow

Displays the port registers for a given chip number.

Synopsis

```
chipregshow [slotnumber/]chipnumber [filter]
```

Availability

all users

Description

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

📝 **NOTE:** The output of this command is only for support use only.

Operands

This command has the following operands:

[slotnumber/]chipnumber	Specifies the index of the chip within the specified blade to display. The default is set to 0 and designed to operate on fixed-port-count products.
filter	Specifies a filter string.

Examples

To display the port registers of a chip:

```
switch:admin> chipregshow 1/1 ffffffff
```

See also

minisPropShow

cmemRetentionTest

Tests the data retention of the central memory SRAMs.

Synopsis

```
cmemretentiontest [--slot slotnumber][-passcnt count][-datatype
type][-ports itemlist][-seed value]
```

Availability

admin

Description

Use this command to verify that data written into the central memory SRAMs in the ASIC pair is retained after a 10-second wait. The method used is to write a fill-pattern to all SRAMs, wait 10 seconds, and then read all SRAMs to verify that the data read matches the data previously written. The process is then repeated using the reverse version of the pattern.

> **NOTE:** This command cannot be executed on an enabled switch. You must first disable the switch using the switchDisable command. This command is not supported on the 4/16 SAN Switch, SAN Switch 4/32 and 4/256 SAN Director, which use the Condor ASIC.

Operands

This command has the following operands:

Operand	Description
--slot *slotnumber*	Specify the slot number on which the diagnostic will operate. The ports specified will be relative to this slot number. The default is set to 0 and designed to operate on fixed-port-count products.
-passcnt *count*	Specify the number of test passes to run. By default, the test will be run one time.
-datatype *type*	Specify the type of data pattern to use. By default, type 9, QUAD_RAMP, is used. For a complete list of supported data patterns, run the dataTypeShow command. Some common settings are:

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
QUAD_RAMP	9	00000000 00000001 00000002 00000003
RANDOM	11	55 16 fc d7 17 65 a9 87 5f 44 be 5a d0 de bc a5

Operand	Description
-ports *itemlist*	Specifies a list of blade ports to test. The ports list is translated into a matching quad list before the test is run. By default, all the blade ports in the specified slot (--slot) are tested. See the itemList help pages for further details.
-seed *value*	Specify the data pattern seed to be used. The default seed value is 0.

Examples

To run the data-retention test on the central memory SRAMS:

```
switch:admin> cmemretentiontest --slot 3


Running cmemretentiontest ..............
Test Complete: cmemretentiontest Pass 2 of 2
Duration 0 hr, 2 min Duration 0 hr, 2 min Duration 0 hr, 2 min & 13 sec
(0:2:13:234). 13 sec (0:2:13:234). 13 sec (0:2:13:234).
 passed.
```

Diagnostics

The following are possible error messages:

LCMEM_ERR

LCMRS_ERR

LCMTO_ERR

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

camTest

centralMemoryTest

cmiTest

crossPortTest

dataTypeShow

itemList

portLoopbackTest

spinSilk

sramRetentionTest

cmiTest

Verifies the control message interface (CMI) bus between ASICs.

Synopsis

    cmitest [--slot slotnumber][-passcnt count][-txports itemlist][-rxports
    itemlist][-skip mask]

Availability

admin

Description

Use this command to test:

- Multiplexed 4-bit CMI point-to-point connection between two ASICs.

- Message sent with a bad checksum sets the error and interrupt bits of the destination ASIC.

- Message sent with a good checksum does not set any error or interrupt bit in any ASIC pair.

The CMI is used to send transmission requests or completion messages between the ASIC transmitter and receiver.

📝 **NOTE:** This command is not supported on the 4/16 SAN Switch, SAN Switch 4/32 and 4/256 SAN Director, which use the Condor ASIC.

Options

This command has the following options:

--slot slotnumber	Specifies the slot number to test. The default is set to 0 and designed to operate on fixed-port-count products.
-passcnt count	Specifies the number of test passes to run. By default, the test runs one time.
-txports itemlist	Specifies a list of ports to transmit data. By default, all the ports in the specified slot (--slot) are used. See itemList help pages for further details.
-rxports itemlist	Specifies a list of ports to receive data. By default, all the ports in the specified slot (--slot) are used. See itemList for more information.
-skip mask	Specifies tests to skip using a bit map as follows:

    1   CMI data test (ignore checksum)

    2   CMI checksum test

    3   Enable all tests

Examples

To run a CMI test between two ASIC pairs:

```
switch:admin> cmitest -txports 3/0-3/7 -rxports 3/8-3/15
Running cmitest ..............
Test Complete: cmitest Pass 1 of 1
Duration 0 hr, 0 min & 2 sec (0:0:2:591).
passed.
```

Diagnostics

Listed below are possible error messages if failures are detected:

DIAG-BADINT

DIAG-CMICKSUM

DIAG-CMIDATA

DIAG-CMIINVCAP

DIAG-CMINOCAP

DIAG-CMISA1

DIAG-INTNIL

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

camTest

centralMemoryTest

cmemRetentionTest

crossPortTest

itemList

portLoopbackTest

spinSilk

sramRetentionTest

configDefault

Restores the system configuration to default.

Synopsis

```
configdefault
```

Availability

admin

Description

Use this command to reset a subset of configuration settings to the default values.

All configuration parameters, with the following exceptions, are reset:

- Ethernet MAC address, IP address, and subnetmask

- IP gateway address

- License keys

- OEM customization

- Product ID and vendor ID

- SNMP configuration

- System name

- world wide name

- HP Advanced Zoning configuration

- Security parameters and policies

- User account passwords

- Switch PID format

- Ethernet link mode

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

📝 NOTE: See the `configure` command for more information on default values for configuration parameters.

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

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

Operands

Examples

To restore the system configuration to default values:

```
switch:admin> configdefault
Committing Configuration ...done.
```

See also

agtCfgDefault

configure

switchDisable

switchEnable

configDownload

Downloads a switch configuration file from a host file.

Synopsis

```
configdownload [-p ftp] "host","user","file","passwd"

configdownload -p scp "host","user","file"

configdownload
```

Availability

admin

NOTE: The switchAdmin role is not allowed to change the zoning and security configuration. Therefore, zoning and security sections in the configuration being downloaded to the switch are ignored. See "MUA-based roles" on page 777 for more information.

Description

Use this command to download a switch configuration file from a host file. The configuration file is ASCII text and might have been generated using `configUpload`, or it might have been created by a user to download specific configuration changes. See `configUpload` for a configuration file format description.

To restore the configuration file from a Microsoft® Windows NT® system using file transfer protocol (FTP), the FTP server might have to be installed from the distribution media and enabled. The FTP service is widely available on UNIX® hosts but less so on Windows® hosts. The FTP server must be running before a download can occur.

Use `-p scp` to securely download the file through an SSH connection. Instead of entering a password on the command line, SCP prompts you for the password, if necessary. The SSH service is available on both UNIX and Windows hosts.

This command can be invoked without any operands, creating an interactive session.

The download might fail for the following reasons:

- The switch has not been disabled.

- 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 FTP server is not running on the host.

- The configuration data contains errors.

When the switch is in secure mode, the following rules and restrictions apply:

- Both defined security policies and active security policies sections must exist and contain the FCS_POLICY.

- In the defined security policies section, at least one member of the FCS_POLICY must be the same as a member in the previous FCS_POLICY.

- In the active security policy section, the FCS_POLICY must be exactly the same as the previous FCS_POLICY. Order of members must be maintained.

- If either security policies section has a RSNMP_POLICY, then that section must have a WSNMP_POLICY.

- After the switch is enabled, if the switch is the primary FCS, then its security and zoning information will be propagated to all other switches in the fabric.

- After the switch is enabled, if the switch is a non-FCS or a backup FCS, then its security and zoning information will be overwritten by the primary FCS.

NOTE: A license key is only accepted if the boot.mac line matches the world wide name of the switch performing the download; otherwise, it is ignored.

Security parameters and the switch's identity cannot be changed by configDownload. Parameters such as the switch name and IP address are ignored; they are lines in the configuration file that begin with "boot". Security parameters such as secure mode setting and version stamp are ignored; they are the lines in the configuration file that begin with "sec".

configDownload does not enable security mode, even if the configuration file is saved in security mode.

After configDownload, the policy might require up to 8 minutes to download.

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.

The R_A_TOV, E_D_TOV, WAN_TOV, and MAX_HOPS configuration parameters are interrelated. Assigning a specific value to one or more of these parameters might change the range of allowed values that can be assigned to the other parameters. As a result, the user might not be able to set all the values within the range displayed against each parameter. This utility validates the modified values of these four parameters and terminates the download operation, if the validation check fails.

This is particularly important when downloading a zoning configuration. Since the new zoning information is added to the current configuration, there might not be any conflicts. If the current zoning configuration is to be replaced, the keyword "clear:" might be inserted into the configuration file immediately before the zoning lines (starting from the line "[Zoning]").

If the configuration file contains the keyword "enable: <zone_configuration>", then that zoning configuration enables in the fabric. If there is no "enable:" keyword in the configuration file or no zoning configuration by that name exists, or if enable fails for any reason (such as dangling aliases), then:

- The effective configuration remains as it was prior to configDownload; that is, all the "enable:" information is discarded.

- The defined configuration changes to reflect new zoning configuration.

Operands

This command has the following optional operands:

-p	Specifies the use of the FTP or SCP protocol. If a protocol is not specified, FTP is the default.

host	Specifies 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.
user	Specifies the user name, in quotation marks: for example, "jdoe". This user name is used to gain access to the host system.
file	Specifies the file name, in quotation marks: for example, "config.txt". Absolute path names might be specified using a forward slash (/). Relative path names search for the file in the user's home directory on UNIX hosts and in the directory on which the FTP server is running on Windows hosts.
passwd	Specifies the password for the FTP login.

Examples

To download a configuration file using FTP from host "citadel", using account "jdoe", and file "config.txt":

```
switch:admin> configdownload -p ftp
"citadel","jdoe","config.txt","passwd"
Committing configuration...done.
download complete
```

To download the same configuration file using SCP:

```
switch:admin> configDownload -p scp "citadel","jdoe","config.txt"
jdoe@citadel's password: ********
Committing configuration...done.
download complete
```

See also

configDefault

configShow

configUpload

configure

configShow

Displays system configuration settings.

Synopsis

```
configshow ["filter"]
```

Availability

all users

Description

Use this command to view the system configuration settings set by the configure command.

Operands

This command has the following optional operand:

'
filter   Specify a text string, in quotation marks, that limits the output of
                                the command to only those entries that contain the text string.

Examples

To display system configuration settings:

> 📝 **NOTE:** Not all values displayed are applicable to all system models and configurations.

```
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.max_hops:     7
fabric.ops.mode.fcpProbeDisable:         0
fabric.ops.mode.isolate:         0
fabric.ops.mode.pidFormat:1
fabric.ops.mode.tachyonCompat:   0
fabric.ops.mode.unicastOnly:     0
fabric.ops.mode.useCsCtl:        0
fabric.ops.vc.class.2:  2
fabric.ops.vc.class.3:  3
fabric.ops.vc.config:   0xc0


(continued on next page)
```

```
switch:admin> configshow
diag.postDisable:         0
fabric.domain:  1
fabric.ops.vc.linkCtrl: 0
fabric.ops.vc.multicast:          7
fabric.ops.wan_tov:       0
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
```

See also

agtCfgShow

configure

diagDisablePost

diagEnablePost

ipAddrShow

licenseShow

syslogdIpShow

configUpload

Uploads the switch configuration file to a host file.

Synopsis

```
configupload [-p ftp | scp][host,user,file[,passwd]]
```

Availability

admin

Description

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

To upload the configuration file from a Microsoft Windows NT system using file transfer protocol (FTP), the FTP server might have to be installed from the distribution media and enabled. The FTP service is widely available on UNIX hosts but less so on Windows hosts. The FTP server must be running before a download can occur.

Use `-p scp` to securely upload the file through an SSH connection. Instead of entering a password on the command line, SCP prompts you for the password, if necessary. The SSH service is available on both UNIX and Windows hosts.

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

The upload might fail for the following reasons:

- The host name is not known to the switch.

- The host IP address cannot be contacted.

- The user does not have permission on the host.

- The user runs a script that prints something at login.

- The FTP server is not running on the host.

There are three types of lines in the configuration file:

- License keys are encrypted ASCII strings and are listed one key per line.

- Comments have a bracket ([ ) as the first character of the line. (When read by configDownload, a line beginning with any punctuation is treated as a comment.)

- Name:value pairs have the following syntax:

line	*name : value*
name	component {"." component}
space	{" "	t"}
component	{"a" - "z"	"A" - "Z"	"0" - "9"	"_"	"-"}
value	{<any character not including n">}

NOTE: Elements enclosed in curly braces ({...}) indicate zero or more occurrences of the enclosed elements.

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 zoning configuration parameters.

NOTE: In Fabric OS 5.x, no spaces are allowed between operands. None of the operands use quotation marks.

Operands

This command has the following optional operands:

host	Specify a host name or IP address, in quotation marks: for example, "`citadel`" or "`192.168.1.48`". The configuration file is downloaded from this host system.
user	Specify a user name in quotation marks: for example, "`jdoe`". This user name is used to gain access to the host.
file	Specify a file name in quotation marks; for example: "`config.txt`". Absolute path names might 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.
passwd	Specify a password, in quotation marks.

Examples

To upload a configuration file using FTP to host "`citadel`", using account "`jdoe`", and file "`config.txt`":

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

To upload the same configuration file using SCP:

```
switch:admin> configupload -p scp "citadel","jdoe","config.txt"
jdoe@citadel's password: ********
upload complete
```

To upload the configuration file interactively:

```
sw5:admin> configUpload
Protocol (scp or ftp) [ftp]: ftp
Server Name or IP Address [host]: 123.123.123.123
User Name [None]: user21
File Name [config.txt]: config-switch.txt
Password: xxxxxxxx
upload complete
```

See also

configDefault

configDownload

configShow

configure

configure

Modifies system configuration parameters.

Synopsis

```
configure
```

Availability

admin

Description

Use this command to change the following system configuration parameters:

- Switch fabric settings
- Virtual channel settings
- Zoning operation parameters
- RSCN transmission mode
- Arbitrated loop parameters
- System services
- Portlog events settings
- Application attributes

NOTE: If executed on an enabled switch, only the application attribute can be configured. To access all parameters controlled by this command, you must disable the switch using the `switchDisable` command.

The `configure` command is navigated using a series of menus. Top-level 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 (Ctrl-C)`	Aborts the command immediately and ignores all changes made. This keystroke is common on many computers but can be different on your system.
`End-of-file (Ctrl-D)`	When entered at a prompt with no preceding input, terminates the command and saves changes made. This keystroke is common on many computers but might be different on your system.

Switch fabric settings

There are several settings that control the overall behavior and operation of the fabric. Some of these, such as the domain, are assigned automatically by the fabric and might 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.

Table 5 lists the fabric parameters fields and their settings.

Table 5 Configure command fabric parameters fields

Field	Type	Default	Range
Domain	number	1	varies
R_A_TOV	number	10000	E_D_TOV * 2 to 120000
E_D_TOV	number	2000	1000 to R_A_TOV / 2
WAN_TOV	number	0	0 to R_A_TOV / 4
MAX_HOPS	number	7	7 to 19
Data Field Size	number	2112	256 to 2112
Sequence Level Switching	boolean	0	0 or 1
Disable Device Probing	boolean	0	0 or 1
Suppress Class F Traffic	boolean	0	0 or 1
Switch PID Format	number	1	1 to 2
Per-frame Route Priority	boolean	0	0 or 1
Long Distance Fabric	boolean	0	0 or 1
BB Credit	number	16	1 to 27
Insistent Domain ID Mode	boolean	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.

R_A_TOV
: The resource allocation time out value (R_A_TOV) is displayed in milliseconds. This variable works with the variable E_D_TOV to determine switch actions when presented with an error condition.

  Allocated circuit resources with detected errors are not released until the time value has expired. If the condition is resolved prior to the time out, the internal time-out clock resets and waits for the next error condition.

E_D_TOV
: Error detect time out value (E_D_TOV) is displayed in milliseconds. This timer is used to flag a potential error condition when an expected response is not received (an acknowledgment or reply in response to packet receipt, for example) within the set time limit. If the time for an expected response exceeds the set value, then an error condition occurs.

WAN_TOV
: Wide area network time out value (WAN_TOV) displays in milliseconds. This timer is the maximum frame time out value for a WAN, if any, interconnecting the Fibre Channel islands.

MAX_HOPS	Maximum hops (MAX_HOPS) is an integer that denotes the upper limit on the number of hops a frame might have to traverse to reach any destination port from any source port across the fabric.

> **NOTE:** The R_A_TOV, E_D_TOV, WAN_TOV, and MAX_HOPS configuration parameters are inter-related. Assigning a specific value to one or more of these parameters can change the range of allowed values that can be assigned to the other parameters. As a result, the user might not be able to set all the values within the range displayed against each parameter. To reduce problems, the configuration utility validates the modified parameter values and prompts the user to re-enter some values, if the validation check fails.

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 might 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 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, which don't support class F traffic.
Switch PID Format	The formats are as follows:

	0	Native PID format (16 based, 16 port format), for fabrics with legacy low-count-port switches.
	1	Core PID format (0 based, 256 port format), preferred mode for mixed fabrics with legacy and new switches.
	2	Extended edge PID format (16 based, 256 port format), used in mixed fabrics with legacy and new switches to avoid need to reboot host systems when static PID binded is used.

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

NOTE: An HP Extended Fabrics license is required to set this 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.
Insistent Domain ID mode	This mode enables a flag for the domain ID, so that the current domain setting for the switch is insistent: that is, remains the same over switch reboots, power cycles, CP failovers, firmware downloads, and fabric reconfigurations. If a switch does not get the selected insistent domain ID during a fabric reconfiguration, it segments itself out of the fabric

Virtual channel settings

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

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

Table 6 lists the virtual channel fields and their settings.

Table 6   Configure command virtual channel fields

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

VC Priority specifies the class of frame traffic given priority for a virtual channel.

Zoning operation parameters

The zoning operation parameter field is as follows:

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 0. This value must be set to 1 for interoperability.

RSCN Transmission mode

Table 7 lists the RSCN Transmission Mode fields and their settings.

Table 7 RSCN transmission modes

Field	Type	Default	Range
End-device RSCN Transmission Mode	number	1	0 to 2
Domain RSCN to End-device for switch IP address or name change	number	0	0 to 1

Descriptions of the RSCN Transmission Mode field values are as follows:

End-device RSCN Transmission Mode	Values:	
	0	RSCN with single PID
	1	RSCN with multiple PIDs
	2	Fabric RSCN
Domain RSCN to End-device for switch IP address or name change	Values :	
	0	Disabled. No domain RSCN is sent to the end-device for the switch IP address or name change.
	1	Enabled. Domain RSCN is sent to the end-device for the switch IP address or name change.

Arbitrated Loop parameters

Table 8 lists the Arbitrated Loop Parameter fields.

Table 8 Configure command arbitrated loop settings

Field	Default	Range
Send FAN frames?	1	0 or 1
Enable CLOSE on OPEN received?	4	0 to 4
Always send RSCN?	0	0 or 1

Descriptions of the Arbitrated Loop Parameter fields are as follows:

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.
Enable CLOSE on OPEN received?	If this is set, a CLS is returned immediately to an OPN if no buffers are available. This is required for TachLite.
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 preexisting devices. When set, a RSCN is issued upon completion of loop initialization, regardless of the presence or absence of new or pre-existing devices.

System Services

Table 9 lists the system services fields and their settings.

Table 9 Configure command system services fields

Field	Default	Range
rstatd	Off	On/Off
rusersd	Off	On/Off
telnetd	On	On/Off

Descriptions of the system service (setting) fields are as follows:

`rstatd`	Dynamically enables or disables a server that returns system operation information through remote procedure calls (RPC). The protocol provides for a wide range of system statistics.
	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, and so on.) use the RUP and RSYSINFO commands to retrieve the information. See your local system documentation for the appropriate usage of the these or equivalent commands.
`rusersd`	Dynamically enables or disables a server that returns information about the user logged into the system through remote procedure calls (RPC). The information returned includes user login name, 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, and so on.) the command to retrieve the information is rusers. See your local system documentation for the appropriate usage of this or an equivalent command.
`telnetd`	Used to enable or disable the telnet interface to a switch, including sectelnet. If you are using SSH to manage a switch, you can disable the telnet interface for greater security. The default value is on (telnet enabled).

Portlog Events Enable

Port events can be disabled from logging. The default is enabled (on). When disabled, this event is not logged by the port log.

Application Attributes

Application attributes HTTP, SNMP, and RPCd are configurable; by default, all three attributes are enabled. See Table 10 for the application attributes that can be changed.

Table 10 Configurable application attributes

Application	File	Type	Default	Range
SSL	Certificate File	string	not set	varies
	CA Certificate File	string	not set	varies
	Length of crypto key	number	128	40, 56, 128

Table 10 Configurable application attributes (continued)

Application	File	Type	Default	Range
SNMP	SNMP Security Level	number	0	0, 1, 2
cfgload	Secure Config Upload and Download	boolean	off	on/off

NOTE: The secure protocols must not be enabled before setting SSL attributes correctly.

Operands

Examples

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
WAN_TOV: (0..30000) [0] 0
MAX_HOPS: (7..19) [7]
Data field size: (256..2112) [2112]
Sequence Level Switching: (0..1) [0] 1
Disable Device Probing: (0..1) [0]
Switch PID Format: (1..2) [1]
Per-frame Route Priority: (0..1) [0]
BB credit: (1..16) [16]


Insistent Domain ID Mode (yes, y, no, n): [no]
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]
VC Priority 7: (2..3) [3]


Switch Operating Mode (yes, y, no, n): [no] yes


Interoperability Mode: (0..1) [0]


Zoning Operation parameters (yes, y, no, n): [no] yes


Disable NodeName Zone Checking: (0..1) [0]


RSCN Transmission Mode (yes, y, no, n): [no] yes


End-device RSCN Transmission Mode
(0 = RSCN with single PID, 1 = RSCN with multiple PIDs, 2 = Fabric
RSCN): (0..2) [0]

(continued on next page)
```

```
    Arbitrated Loop parameters(yes, y, no, n): [no] yes
    Alternate BB credit: (0..1) [0]
    Send FAN frames?: (0..1) [1]
    Enable CLOSE on OPEN received?: (0..1) [0]
    Always send RSCN?: (0..1) [0]
    Do Not Allow AL_PA 0x00?: (0..1) [0]


    System services(yes, y, no, n): [no] yes


    rstatd(on, off): [off]
    rusersd(on, off): [off]
    telnetd (on, off): [on]
    Portlog events enable  (yes, y, no, n): [no] yes
    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]


    (output truncated)


    Committing configuration...done.
```

See also

    agtCfgDefault

    agtCfgSet

    agtCfgShow

    configDefault

    configShow

    ipAddrSet

    portCfgLongDistance

    switchDisable

    switchEnable

    upTime

crossPortTest

Tests functional operation of port external transmit and receive path.

Synopsis

```
crossporttest [-nframes count][-lb_mode mode][-spd_mode mode][-norestore
mode][-ports itemlist]
```

Availability

admin

Description

This command verifies the intended functional operation of the switch by sending frames from port M's transmitter and looping them back through an external fiber cable into port N's receiver, thus exercising all the switch components, from the main board, to the media, to the fiber cable, to the media, and back to the main board. With -lb_mode 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 with the one condition; the cables and media connected must be of the same technology. This means a short wave-length media port must be connected to another short wave-length media port, using a short wave-length cable, a long wave-length port must be connected to a long wave-length port, and a copper port must be connected to a copper port.

For best coverage, connected ports should be from different ASICs. For example, Ports 0 through 3 belong to ASIC 0, ports 4 through 7 belong to ASIC 1, and so forth. A connection from port 0 to port 15 exercises the transmit path between ASICs. A connection from port 0 to port 3 tests only the internal transmit path in ASIC 0.

Only one frame is transmitted and received at any one time. 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 through Port M.
5. Pick up the frame from its cross-connected Port N. An error is reported if any port other than N actually received the frame.
6. Check if any of the eight statistic error counters are nonzero: ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out, BadOrdSet, or 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 the number of frames requested is reached or all ports are marked bad.

At each pass, a different data type is used to create the frame from a palette of seven types meaning that if a pass of seven is requested, seven different frames are used in the test. If eight passes, the first seven frames are unique, and the eighth is the same as the first. The data palette of seven are:

```
CSPAT:          0x7e, 0x7e, 0x7e, 0x7e, ...
BYTE_LFSR:      0x69, 0x01, 0x02, 0x05, ...
CHALF_SQ:       0x4a, 0x4a, 0x4a, 0x4a, ...
QUAD_NOT:       0x00, 0xff, 0x00, 0xff, ...
CQTR_SQ:        0x78, 0x78, 0x78, 0x78, ...
CRPAT:          0xbc, 0xbc, 0x23, 0x47, ...
RANDOM:         0x25, 0x7f, 0x6e, 0x9a, ...
```

The crossPortTest command behavior depends on the modes activated.

SwitchEnable or SwitchDisable mode

In online mode (in which 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 (lb_mode = 1, this is the default) or two ports (lb_mode = 0) cable loopbacked to each other. If this criteria is not met, one of the following message is displayed:

```
Need at least 1 port(s) connected to run this test.
Need at least 2 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 cable loopbacked to different ports in the same switch. If one or more ports are not connected, the test aborts.

📝 **NOTE:**   All ports must be connected using loopback plugs or loopback cables for this test to run correctly in offline mode.

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 or improper connection of SWL to LWL), the following message is displayed:

```
One or more ports is not active, please double check
fibre channel connections on all ports.
```

Since this test includes the media and the fiber cable in its test path, its results combined with the results of portLoopbackTest and spinSilk can be used to determine which components of the switch are faulty. It is also possible to use loopback modes 3 and 5 to further isolate failures; see -lb_mode, below.

Operands

This command has the following operands:

-nframes *count*   Specify the number of frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value is 10.

-lb_mode *mode*   Specify the loopback mode for the test. By default, crossPortTest uses mode 1 port loopback. Valid values are:

0	Cable loopback
1	Port loopback (loopback plugs)
2	External (SERDES) loopback
3	Silkscreen loopback
5	Internal (parallel) loopback

-spd_mode *mode*	Specify the speed mode for the test. This parameter is used only for Bloom and Condor ASIC-based products, for which it controls the speed at which each port is operated. For 1 Gb/s-only products it is ignored. The exact operation of each mode 5 through 8 depends upon the loopback mode selected. When speed modes 5 through 8 are used with cables, they must be connected even to odd or the test will fail. Valid values are:

0	Run test at both 1 Gb/s, 2 Gb/s, and 4 Gb/s (default)
1	Set all port speeds to 1 Gb/s
2	Set all port speeds to 2 Gb/s
4	Set all port speeds to 4 Gb/s

For -lb_mode set to 0 or 1, the following speed modes are available to test the speed negotiation:

3	Set all even ports speed to AN; set all odd ports speed to 1 Gb/s.
4	Set all even ports speed to AN; set all odd ports speed to 2 Gb/s.
5	Set all odd ports speed to AN; set all even ports speed to 1 Gb/s.
6	Set all odd ports speed to AN; set all even ports speed to 2 Gb/s.

For -lb_mode set to 2,3, the following speed modes are available to test FIFO underrun:

3,5	Set all even ports speed to 2 Gb/s; set all odd ports speed to 1 Gb/s.
4,6	Set all even ports speed to 1 Gb/s; set all odd ports speed to 2 Gb/s.

-norestore *mode*	Specify 1 to force the test to skip part of the POST cleanup normally performed. This might be helpful during debug. This parameter should normally be left at the default value of 0.
-ports *itemlist*	Specify a list of user ports to test. By default, all the user ports in the current switch will be used. See itemList for more information.

Examples

To run a functional test of all the ports on a switch:

```
switch:admin> crossporttest -ports 1/0-1/15


Running crossporttest .............


Ports Segmented (0)
Executing test ...
Test Complete: "crossporttest" Pass 10 of 10
Duration 0 hr, 0 min & 8 sec (0:0:8:725).
 passed.
```

See also

camTest

centralMemoryTest

cmemRetentionTest

cmiTest

itemList

portLoopbackTest

portRegTest

spinSilk

sramRetentionTest

dataTypeShow

Displays sample data stream types used in some diagnostic commands.

Synopsis

datatypeshow [-seed *value*]

Availability

all users

Description

Use this command to display sample data stream types used in diagnostic commands. There are 20 different sample data types. The command displays an example of each data stream.

Operands

This command has the following operand:

-seed *value*   Specify the data pattern seed value. If no seed is specified, then a seed value of 0 is used.

Examples

To display 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      55 16 fc d7 17 65 a9 87 5f 44 be 5a d0 de bc 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 7e
CHALF_SQ      14      4a 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 78
RDRAM_PAT     16      00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff
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 7e
jCSPAT        19      7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f
PRED_RAND     20      00000000      11111111      22222222      33333333
```

date

Displays or sets the switch date and time.

Synopsis

```
date ["newdate"]
```

Availability

all users (display)

admin (set)

Description

Use this command to set the date and time. All switches maintain the current date and time in flash memory. If the security feature (secure mode) is not enabled, switch operation does not depend on the date and time. A switch with incorrect date values continues to function properly. The date and time are only used to record events in the various logs: for example, the error log and the port log.

To enable secure mode the fabric must be synchronized. Every switch in the fabric must receive a fabric timestamp from the primary FCS switch.

Use this command with no operands to display the local switch date and time. Specify an operand to set the date and time.

This command sets a common date and time for the entire fabric. If secure mode is not enabled, a change in date or time to one switch is forwarded to the principal switch and distributed to the fabric. If secure mode is enabled, date or time changes can be made only on the primary FCS switch and distributed to the fabric.

It might take up to 64 seconds for the switches in the fabric to be synchronized.

If the switches in the fabric are 4.1.x, 3.1.x, or 2.6.x or higher, this command sets date and time for all switches in the fabric. If secure mode is disabled, a change in date and time to one switch is forwarded to the principal switch and distributes to the fabric.

NOTE: This command becomes read-only if external NTP synchronization is enabled. For more information, see tsClockServer.

The date specified is always the local switch time, taking into account daylight saving time and the time zone setup of the switch. Each switch takes care of converting the GMT time distributed fabric-wide to its local time. See tsTimeZone for more information on time zone support.

If the switch is operating in FICON Management Server mode (fmsmode), setting the date is subject to the director clock alert mode (DCAM). If DCAM is 1, the operator issues a warning that the switch date is about to change. The operator then prompts to confirm the change with a yes or no response.

The date and time are specified in the following format, as used on many UNIX systems:

```
mmddHHMMyy
```

where:

mm is the month, 01-12

dd is the date, 01-31

HH is the hour, 00-23

MM is minutes, 00-59

yy is the year, 00-99

If you enter any value in the range 00-69, then the year displayed will be 2000–2069. For example, if you enter the value 04, then the year displayed will be 2004. If you enter any value between 70-99 in the year field (yy), the year displayed will be in the range 1970–1999. For example if you enter 80 for yy, then the year displayed will be 1980.

Operands

This command has the following operand:

newdate   Specify the new date and time, in quotation marks. This operand is optional.

Examples

To display the current date and time and then modify it:

```
switch:admin> date
Fri Jan 29 17:01:48 UTC 2000
switch:admin> date "0227123003"
Thu Feb 27 12:30:00 UTC 2003
```

See also

errShow

ficoncupset

ficoncupshow

portLogShow

tsClockServer

tsTimeZone

upTime

dbgShow

Displays current values of debug and verbosity levels of the specified module.

Synopsis

```
dbgshow module_name
```

Availability

all users

Description

Use this command to display the current values of debug and verbosity levels of the specified module. If no module name is specified, displays debug and verbosity levels of all modules.

Operands

This command has the following operands:

module_name   Specify the name of the module for which you want to view the debug and verbosity levels. Module names are case sensitive. This operand is optional.

Examples

To display information about a specific module named NS:

```
switch:admin> dbgshow NS
Module NS,      debug level = 1, verbose level = 1
```

See also

setDbg

diagClearError

Clears the diagnostics failure status.

Synopsis

```
diagclearerror [[--slot] slotnumber] -all
```

Availability

admin

Description

Use this command to clear the diagnostics failure status.

Operands

This command has the following operands:

[--slot] *slotnumber*   Specify the slot to clear the diagnostics failure status. The default is set to 0 and designed to operate on fixed-port-count products.

-all   If specified, all blades clear.

If no operand is specified, the default is to clear all bad port flags.

Examples

To clear the diag software flag:

```
switch:admin> diagclearerror 1
 0x1bcb (fabos):  Switch: 0, Error DIAG-CLEARERR, 3,
Pt5 Sl1 Ch0 Qd1 Diagnostics Error Cleared
Err# 0120041 0105
```

See also

diagCommandShow

Displays diagnostic command descriptions.

Synopsis

    diagcommandshow [command]

Availability

all users

Description

Use this command to display a short description of a diagnostic command.

> 📝 **NOTE:** Use `diagHelp` to look up diagnostic command help pages.

Options

This command has the following options:

  command   Specify a command name to display more detailed information.

Examples

To display a list of diagnostic commands, with descriptions:

```
switch:admin> diagcommandshow
bladepropshow          display blade properties
chippropshow           display chip properties
chipregshow            display contents of port registers
datatypeshow           display available diagnostic data types
diagcommandshow        display diagnostic command descriptions
diaghelp               display diagnostic command descriptions
diagmodeshow           display diagnostic mode configuration
diagoktorun          check to see if it is ok to run a diagnostic test
diagshow               display diagnostics status
diagstatus             display currently running diagnostic tests
itemlist               diagnostic list parameter syntax and grammar
                       information
minispropshow          display mini-switch ASIC property
minisregshow           display contents of mini-switch registers.
ptbufshow              dump port buffer contents
(output truncated)
```

See also

diagHelp

diagDisablePost

Disables power-on self-test (POST).

Synopsis

```
diagdisablepost
```

Availability

admin

Description

Use this command to disable POST. A reboot is not required for this command to take effect.

📝 **NOTE:** This command disables POST on both Core Switch 2/64 logical switches.

Operands

Examples

To disable the POST during future powerons:

```
switch:admin> diagdisablepost
Config update Succeeded
Diagnostic POST is now disabled.
```

See also

diagEnablePost

diagEnablePost

Enables power-on self-test (POST) execution at next reboot.

Synopsis

```
diagenablepost
```

Availability

admin

Description

Use this command to enable POST. A reboot is not required for this command to take effect. POST includes two phases: POST Phase I mainly tests hardware and POST Phase II tests system functionality.

> **NOTE:** This command disables POST on both Core Switch 2/64 logical switches.

Operands

Examples

To enable the POST during future power-ons:

```
switch:admin> diagenablepost
Config update Succeeded
Diagnostic POST is now enabled.
```

See also

diagDisablePost

diagEnv

Diagnostic debug parameters management package.

Synopsis

```
diagsetdebug value

diagdebughelp

diagsetdebugnoncheck value

diagsetdebugnorestore value

diagsetfaillimit value

diagsetfrcerr value

diagshowusr
```

… more commands …

Availability

admin

Description

All of diagnostic parameters can be set either by running relevant user commands or by setting them directly in some way. The latter method is supposed to be run only by in-house technicians but users. Diagnostic parameters are used primarily for debugging purposes and users should not tamper with those if not told so.

To display the values of diagnostic parameters, run `diagshowusr` as shown in the "Examples" section. For a complete list of the `diagEnv` commands, use `diagdebughelp`.

Each of these commands is an alias that evaluates the output of diagenv to set the diagnostic parameter for the current shell. For example the following alias is created to implement `diagsetdebug`.

```
function diagsetdebug () { eval `diagenv write USR_DEBUG $*` }
```

These aliases are created by `diagEnv` as well by including the following command in the shell start-up script:

```
eval `diagenv alias`
```

For proper operation the output `diagEnv` sends to stdout should be processed by the eval command to set the appropriate variables.

⚠ **CAUTION:**   Your use of the functionality made available through this package is at your sole risk and you assume all liability resulting from such use.

📝 **NOTE:**   The effects of diagnostic parameters might be changed without notice.

Operands

This command has the following operand:

value	Specify the value for the relevant diagnostic environment variable.

Examples

To display the values of the diagnostic parameters:

```
switch:admin> diagshowusr
Name                Environment                 Value
USR_DILATION        DIAG_USR_DLY_DILATION       1
USR_MEMDLY          DIAG_USR_MEMDLY             10
USR_SEED            DIAG_USR_SEED               0x0
USR_SPECIAL         DIAG_USR_SPECIAL            0x0
(output truncated)
```

See also

diagFailLimit

Sets the diagnostics fail limit.

Synopsis

```
diagfaillimit [limit | -show]
```

Availability

admin

Description

Use this command to set the diagnostics fail limit to a specified value. The fail limit controls the number of failures before certain diagnostic test methods aborts. The exact use of this configuration setting depends on the test method.

The fail limit is saved in flash memory and stays set until the next execution of diagFailLimit.

The new fail limit 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:

limit	Specify the number of failures before a diagnostic test aborts. The limit value must be 1 or greater. 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.

Examples

To change the fail limit from 1 to 5:

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

See also

diagHelp

Displays diagnostic command information.

Synopsis

```
diaghelp [command]
```

Availability

all users

Description

Use this command to display a short description of diagnostic commands that are available to the user if *command* is not specified. The command builds a database of command information during the first execution. This process takes a few seconds to complete.

> **NOTE:** Use default operands when running diagnostics commands. Nondefault settings require detailed knowledge of the underlying hardware and are intended for support personnel only. Contact HP customer support if you wish to use these operands.

Operands

This command has the following operand:

command   Specify a command name to display more detailed information.

Examples

To display diagnostic command information:

```
switch:admin> diaghelp
bladepropshow          display blade properties
chippropshow           display chip properties
chipregshow            display contents of port registers
datatypeshow           display available diagnostic data types
diagcommandshow        display diagnostic command descriptions
diaghelp               display diagnostic command descriptions
diagmodeshow           display diagnostic mode configuration
diagoktorun          check to see if it is ok to run a diagnostic test
diagshow               display diagnostics status
diagstatus             display currently running diagnostic tests
minispropshow          display ASIC pair property
minisregshow           display contents of ASIC pair registers.
ptbufshow              dump port buffer contents
(output truncated)
```

See also

diagLoopId

Sets the diagnostics loop ID.

Synopsis

```
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 AL_PA 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.

The actual behavior of `diagLoopId` depends on the test methods that use it.

> **NOTE:** Currently, no FL mode tests exist.

Operands

This command has the following optional operands:

`id`	Specify the loop ID for FL_Port mode diagnostics.
`-show`	Specify `-show` to display the current loop ID.

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

Examples

To display the loop ID:

```
switch:admin> diagloopid -show
FL mode Loop ID is 125.
```

Notes

Currently, no FL_Port mode tests exist.

diagModeShow

Displays diagnostic mode configuration.

Synopsis

```
diagmodeshow
```

Availability

all users

Description

Use this command to display the current settings for several diagnostic configuration parameters. This command is most often used by burn-in scripts to display a summary of the configuration settings that were in effect when the script was run.

> 📝 **NOTE:** Any automated use of this command should rely only on the names of the specific variables, not on their exact positions in the output. Earlier versions of this command listed *diag.mode.burnin.nExec* instead of *Burnin nExec* and listed *diag.mode.burnin.nExec* instead of *Burnin passnum*.

Operands

Examples

To display the diagnostic mode:

```
switch:admin> diagModeShow
diag.mode* parameters saved in flash:
        diag.mode.burnin              = 0
        diag.mode.burnin.level        = 0
        diag.mode.burnin.firstPowerUp = Thu Feb 28 01:36:12 2002
        diag.mode.esd                 = 0
        diag.mode.gbic                = 0
        diag.mode.splb                = 0
        diag.mode.lab                 = 0
        diag.mode.mfg                 = 0
        diag.mode.bplb                = 0
        diag.ports                 = TEST (type=INDEX, sz=512): 100.
        Burnin passnum             = 1
        Burnin nExec               = 0
        Silkworm Mode             = OFF
        Disable Modes Print       = OFF
```

See also

burninLevel

setEsdMode

setGbicMode

setSplbMode

diagPost

Sets or displays diagnostic POST configuration.

Synopsis

```
diagpost [mode | -show]
```

Availability

admin

Description

Use this command to enable or disable POST testing. The mode is saved in flash 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.

NOTE: To enable or disable diagnostic POST, the recommended method is to use `diagEnablePost` and `diagDisablePost`.

Operands

This command has the following optional operands:

mode	Specify 1 to enable, 0 to disable POST test.
-show	Specify this operand to display the current mode.

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

Examples

To enable and then disable the POST test:

```
switch:admin> diagpost
Diagnostic POST is currently disabled.
switch:admin> diagpost 1
Config update Succeeded
Diagnostic POST is now enabled.
```

See also

diagDisablePost

diagEnablePost

diagRetry

Sets or displays diagnostic retry mode.

Synopsis

```
diagretry [mode | -show]
```

Availability

admin

Description

Use this command to enable retry mode if the mode value is nonzero and to disable the retry mode if the mode value is 0. The mode is saved in flash 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.

Retry mode modifies the behavior of the diagnostic test methods, power-on self-test (POST), and burn-in scripts. The exact behavior depends on the tests and scripts that are run.

Operands

This command has the following optional operands:

mode	Specify 1 to enable, 0 to disable retry mode.
-show	Specify this operand to display the current mode setting.

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

Examples

To view the current retry mode value:

```
switch:admin> diagretry -show
Diagnostic Retry Mode is currently enabled.
```

diagSetBurnin

Initializes the blade for a burn-in run.

Synopsis

```
diagsetburnin [--slot slotnumber][script | -current]
```

Availability

admin

Description

This sets up the blade burn-in parameters for the registered burn-in script. The burn-in will start at the next run of power-on self-test (POST) on the designated blades.

The errors and activity logs are stored in flash memory. The activity log of the script is saved in */var/log/scriptname.slot.log*. The errors produced are available from the 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.

> **NOTE:** Boards must be installed prior to running this command and diagSetCycle must be run prior to diagSetBurnin if you want to use both commands.

> **NOTE:** HP StorageWorks recommends running the burninErrClear command prior to running diagSetBurnin and diagSetCycle.

Operands

This command has the following operands:

--slot *slotnumber*	Specify which slot number to update. If this option is not specified at all, then all slots on the switch are set up for burn-in.
script	Specify the name of the burn-in script to run.
-current	Set the name of burn-in script to current burn-in script.

Examples

To set the burn-in script and mode:

```
switch:admin> diagsetburnin --slot 1 -current
existing script is: /fabos/share/switchess.sh
Burnin mode is Enabled.
Removing all log files in /var/log for slot 1
Slot 1 burnin name is now /fabos/share/switchess.sh
Config update Succeeded
```

See also

burninErrShow

diagSetCycle

diagSetCycle

Sets diagnostic script parameters.

Synopsis

```
diagsetcycle script [-show | -default | [-keyword value]]
```

Availability

admin

Description

Use this command to provide an interactive method to update diagnostic command parameters. If only *script* is specified, the command displays all configuration variables used by the specified script and enters an interactive session. If all parameters are used, variables can be updated manually.

In interactive mode, the current value, default value, and description of purpose of the variable are displayed for each variable. If no new value is specified, the current value is left unchanged. If a new value is entered, its value is updated and stored in the configuration database for that blade type. This command does not require a reboot to take effect.

> **NOTE:** HP StorageWorks recommends running the `burninErrClear` command prior to running `diagSetBurnin` and `diagSetCycle`.

Operands

This command has the following operands:

script	Specify a script in which you want to change parameters.
-show	Specify this operand to display the parameters for the specified diagnostic script.
-default	Specify this operand to set the script parameters to default values.
-keyword *value*	The script parameters can be updated noninteractively using this style of option list. *value* is the keyword to update; the value should be specified manually in this case.

Examples

To update diagnostic command parameters:

```
switch:admin> diagsetcycle switchburnin.sh -show
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
```

See also

burninLevel

diagSetBurnin

diagStopBurnin

diagSetEsdMode

Enables or disables ESD mode.

Synopsis

```
diagsetcycle script [-show | -default | [-keyword value]]

setesdmode [mode | -show]
```

Availability

admin

Description

Use this command to enable or disable ESD mode. The mode is saved in flash 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.

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 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, 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 displays.

Examples

```
switch:admin> setesdmode -show
Esd Mode is 0 (Disabled).
```

See also

spinSilk

diagShow

Displays diagnostics status.

Synopsis

diagshow [--slot *number*][-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:

-slot *number*	Specify which slot to operate on. If this option is not specified, the default slot 0 is used. The default slot is designed to operate on fixed-port-count products. By default, this command displays all user ports in the system.
-uports *itemlist*	Specify a list of user ports to display. This operand is optional.
-bports *itemlist*	Specify a list of blade ports to display. This operand is optional.
-use_bports *value*	If this value is not 0 the diagnostics status for the blade ports specified in -use_bports displays; otherwise, the user ports specified in -uports displays. The default value is 0. This operand is optional.

Examples

To display diagnostic status on a switch blade:

```
switch:admin> diagshow
Diagnostics Status:  Fri Feb 08 15:25:24 2002
Slot: 1 UPORTS
Port      BPort     Diag      Active    Speed     ......
 0         15       OK        UP        2G Auto   ......
 1         14       OK        UP        2G Auto   ......
 2         13       OK        UP        2G Auto   ......
 3         12       OK        UP        2G Auto   ......
 4         31       OK        UP        2G Auto   ......
 5         30       OK        UP        2G Auto   ......
 6         29       OK        UP        2G Auto   ......
 7         28       OK        UP        2G Auto   ......
 8         47       OK        UP        2G Auto   ......
(output truncated)
```

See also

itemList

diagShowTime

Sets or displays diagnostic show-time mode.

Synopsis

    diagshowtime [mode | -show]

Availability

admin

Description

Use this command to enable show-time mode (if the mode value is not 0) or disable the show-time mode (if the mode value is set to 0). The mode is saved in flash 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 debugging.

> **NOTE:** diagsetshowtime is an alias of diagshowtime.

Operands

This command has the following optional operands:

mode	Specify 1 (or any nonzero value) to enable show-time mode; specify 0 to disable show-time mode.
-show	Specify this operand to display the current mode setting.

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

Examples

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).
```

diagSkipTests

Enables or disables diagnostics skip test flags.

Synopsis

```
diagskiptests [value | -show]
```

Availability

admin

Description

Use this command to enable or disable the diagnostics skip test flags. The skip test flags are saved in flash 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 POSTs that might prove hazardous to normal switch operation. The exact use of this flag is determined by the POST scripts and the specific test methods used.

Operands

This command has the following operands:

value	Specify a bit mask for tests to skip.
-show	If specified or no value is given, the current skip test flags displays.

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

Examples

To display the current skip test flags:

```
switch:admin> diagskiptests -show
Skip tests is 1.
```

diagStatus

Displays currently running diagnostic tests.

Synopsis

```
diagstatus [ slotnumber ]
```

Availability

all users

Description

Use this command to display currently running diagnostic test names.

Operands

This command has the following optional operand:

slotnumber   Specifies the slot to display. If omitted, all blades in the system
                      are assumed.

Examples

To display currently running diagnostic tests:

```
switch:admin> diagstatus

Diagnostic status for slot: 1.
Diag executing "NONE"

Diagnostic status for slot: 2.
Diag executing "NONE"

Diagnostic status for slot: 3.
Diag executing "NONE"

Diagnostic status for slot: 4.
Diag executing "NONE"
(output truncated)
```

diagStopBurnin

Terminates a blade burn-in run.

Synopsis

```
diagstopburnin [--slot number]
```

Availability

admin

Description

Use this command to determine which PID is running burn-in on a blade and terminate that activity. The burn-in script handles the logging cleanup.

This command does not require a reboot to take effect.

Operands

This command has the following optional operand:

--slot *number*   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.

Examples

To stop burn-in mode on a switch:

```
switch:admin> diagstopburnin --slot 1
No burn-in script active on slot 1
 1 burninErrShow output:
0x1eea (fabos): Dec 19 14:42:18
Switch: 0, Error DIAG-MANUAL1, 1, " 1 Starting switchess ...
Err# 0140042 0100:101:000:001:24:37:


0xc84 (fabos): Dec 20 08:57:27
Switch: 0, Error DIAG-MANUAL1, 1, " 1 switchess: ABORT   ...
Err# 0140042 0100:101:000:000:25:41:


0x1b61 (fabos): Feb 07 19:02:28
Switch: 0, Error DIAG-MANUAL1, 1, " 1 Starting switchess ...
Err# 0140042 0100:101:000:001:26:39:


0x47ff (fabos): Feb 07 21:45:36
Switch: 0, Error DIAG-MANUAL1, 1, " 1 switchess: ABORT   ...
Err# 0140042 0100:101:000:002:26:41:1N
```

See also

diagSetBurnin

dlsReset

Disables the dynamic load sharing (DLS) option.

Synopsis

```
dlsreset
```

Availability

admin

Description

Use this command to turn off DLS when a fabric change occurs. See `dlsSet` for a full description of load sharing.

📝 **NOTE:** This command should be used only if devices connected to the fabric cannot handle occasional routing changes correctly.

DLS is not supported in certain routing policies. See `aptPolicy` for more information on routing policies.

Operands

Examples

To disable the dynamic load sharing option:

```
switch:admin> dlsreset
Committing configuration...done.
switch:admin> dlsshow
DLS is not set
```

See also

`aptPolicy`

`dlsSet`

`dlsShow`

dlsSet

Enables the dynamic load sharing (DLS) option.

Synopsis

```
dlsset
```

Availability

admin

Description

Use this command to turn on 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 an E_Port or an 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.

During load sharing, recomputation, existing routes might be moved to maintain optimal balance. This can cause momentary frame loss along these routes.

In contrast, if DLS is turned off (using dlsReset), load sharing calculations are used only to place new routes. Once placed, existing routes are never moved from one output E_Port to another unless the original output E_Port is no longer a recognized path to the remote domain. Optimal balance is rarely achieved with this setting.

> **NOTE:** DLS is not supported in certain routing policies. See aptPolicy for more information on routing policies.

Operands

Examples

To enable the dynamic load sharing option:

```
switch:admin> dlsset
switch:admin> dlsshow
DLS is set
```

See also

aptPolicy
dlsReset
dlsShow
iodReset
iodSet
iodShow
uRouteShow
topologyShow

dlsShow

Display the setting of the dynamic load sharing (DLS) option.

Synopsis

    dlsshow

Availability

all users

Description

Use this command to display whether DLS is on or off. One of two messages displays:

DLS is set	The DLS option is turned on. Load sharing is reconfigured with every change in the fabric, and existing routes can be moved to maintain optimal balance.
DLS is not set	The DLS option is turned off. Once placed, existing routes are never moved to maintain optimal balance.

See dlsSet for a description of load sharing.

Operands

Examples

To display the current DLS option setting:

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

See also

dlsSet

dlsReset

dnsConfig

Sets or displays domain name service (DNS) parameters.

Synopsis

```
dnsconfig
```

Availability

admin

Description

Use this command to display or set the DNS parameters.

The domain name service parameters are the domain name and the name server IP address for primary and secondary name servers.

Operands

Examples

To set the DNS parameters for the system:

```
switch:admin> dnsconfig


Enter option
1 Display Domain Name Service (DNS) configuration
2 Set DNS configuration
3 Remove DNS configuration
4 Quit
Select an item: (1..4) [4] 2


Enter Domain Name: [] domain.com
Enter Name Server IP address in dot notation: [] 123.123.123.123
Enter Name Server IP address in dot notation: [] 123.123.123.124
DNS parameters saved successfully


Enter option
1 Display Domain Name Service (DNS) configuration
2 Set DNS configuration
3 Remove DNS configuration
4 Quit
Select an item: (1..4) [4] 4
```

See also

configDownload

configUpload

firmwareDownload

ipAddrSet

ipAddrShow

enclosureShow

Displays attributes of the switch enclosure.

Synopsis

```
enclosureShow attribute
```

Availability

all users

Description

Use this command to display attributes of the switch enclosure. Currently, supported attributes are the vendor-specific enclosure identifier and the identifier of the enclosure interface to which the switch is attached.

Operands

This command has the following operands:

attribute		Attribute of the enclosure to display:
	id	Displays the vendor-specific enclosure identifier.
	modelname	Displays the vendor-specific enclosure model name.
	slotid	Displays the identifier of the enclosure interface to which the switch is attached.

Examples

To display the identifier of the enclosure interface to which the switch is attached:

```
switch:admin> enclosureShow slotid


Bay 4
```

See also

errClear

Clears all error log messages for all switch instances on this control processor (CP).

Synopsis

```
errclear
```

Availability

admin

Description

Use this command to clear all internal and external error log messages for all switch instances on this CP.

Operands

Examples

To clear the error log messages:

```
switch:admin> errclear
```

See also

errDump

errShow

errDelimiterSet

Sets the error log start and end delimiter for messages sent to the console and syslog.

Synopsis

errdelimiterset [-s "*start_delimiter_string*"] [-e "*end_delimiter_string*"]

Availability

admin

Description

Use this command to set the error log start and end delimiter for log messages sent to the console and syslog. An empty string clears the start and the end delimiters (including the colon) so that they are not displayed.

If no arguments are supplied to the command, it instead displays the existing errDelimiterSet configuration. These delimiters are stored persistently.

Operands

This command has the following optional operands:

-s *start_delimiter_string*   Specifies the alphanumeric string for the start delimiter; up to 10 characters are allowed.

-e *end_delimiter_string*   Specifies the alphanumeric string for the end delimiter; up to 10 characters are allowed.

Examples

To display the start and end delimiter:

```
switch:admin> errdelimiterset

delimiter start string: <none>

delimiter end string: <none>
```

To change the start and end delimiter (with sample output):

```
switch:admin> errdelimiterset -s "Start" -e "End"

Start:2003/03/10-09:54:03, [NS-1002], 1035,, ERROR, SWITCH43, Name
Server received an invalid request from device 10:02:32:A3:78:23:23:End
```

See also

errDump

errFilterSet

errShow

errDump

Displays the error log, without pagination.

Synopsis

```
errdump [-s switch_instance] [-r]
```

Availability

all users

Description

Use this command to display external error log messages for all switch instances and the chassis, without pagination. The `-r` operand displays the messages in reversed order. The following information displays in each message:

Start delimiter	Delimiter string for the start of a message.
Timestamp	Timestamp for the message.
Message ID	Message identifier.
External sequence number	Sequence number for the message
Security audit flag	Security audit logged. AUDIT displays in the field.
Severity	Severity of the message. Valid values include INFO, WARNING, ERROR, and CRITICAL.
Switch name	Switch name for the generator of this message, or "chassis".
Message	Message body.
End delimiter	Delimiter string for the end of a message.

Operands

This command has the following optional operands:

-s switch_instance	Specifies to display messages only from one switch instance. Valid values are `0` or `1`. If this option is omitted, messages from all switch instances are displayed.
-r	Specifies to display messages in reversed order. If this option is omitted, the messages display in the normal order.

Examples

To display the error log, without pagination:

```
switch:user> errdump
Version: 4.4.0
2004/07/14-22:24:08, [HAMK-1003], 1,, INFO, switch1, Heartbeat up

2004/07/14-22:24:47, [FSSM-1002], 2,, INFO, switchChassis, HA
State is in sync

2004/07/14-22:25:29, [SEC-1192], 3,, INFO, switch2, Security
violation: Login failure attempt via SERIAL.
```

See also

errDelimiterSet

errFilterSet

errShow

errFilterSet

Sets a filter for an error log destination.

Synopsis

errFilterSet [-d "*destination*"][-v "*severity*"]

Availability

admin

Description

Use this command to set a filter for an error log destination. A filter is set based on the severity level of the messages.

If no parameters are specified, this command displays the filters that are currently in use.

Operands

This command has the following operands:

-d "*destination*"	Specifies the destination to set the filter. The "console" string is the only valid value at this time.
-v "*severity*"	Specifies the minimum severity of the message to pass through the filter. Valid values are "INFO", "WARNING", "ERROR", and "CRITICAL".

Examples

To display the current filter settings:

```
switch:admin> errfilterset

console: filter severity = WARNING
```

To set the filter severity level for the console:

```
switch:admin> errfilterset -d "console" -v "WARNING"
```

See also

errDump

errModuleShow

errModuleShow

Displays all the defined error log modules.

Synopsis

```
errmoduleshow
```

Availability

user

Description

Use this command to display a list of all defined error log modules.

Operands

Examples

To display a list of all defined error log modules:

```
switch:user> errmoduleshow

KT
UT
TRCE
KTRC
LOG
CDR
BLPU
PISP
PIXE
EGR
BL
PIC
PS
RTE
AS
AUTH
BLDE
BLM
BPRT
CER
CFLD
CFMN
CHPS
CONF
CPT
DIAG
EM
ERRL
FABR
FABS
FCIU
FCMC
FCPD
FCPH
FICU
FILB
FKLB

(output truncated)
```

See also

errDump
errShow

errShow

Displays the error log messages, with pagination.

Synopsis

```
errshow [-s switch_instance] [-r]
```

Availability

all users

Description

Use this command to display external error log messages for all switch instances and the chassis, one at a time. The `-r` operand displays the messages in a reversed order. The following information displays in each message:

Start delimiter	Delimiter string for the start of a message.
Timestamp	Timestamp for the message.
Message ID	Message identifier.
External sequence number	Sequence number for the message
Security audit flag	Security audit logged. AUDIT displays in the field.
Severity	Severity of the message. Valid values include INFO, WARNING, ERROR, and CRITICAL.
Switch name	Switch name for the generator of this message, or "chassis".
Message	Message body.
End delimiter	Delimiter string for the end of a message.

Operands

This command has the following optional operands:

-s	Specifies to display messages only from one switch instance. Valid values are 0 or 1. If this operand is omitted, messages from all switch instances are displayed.
-r	Specifies to display messages in reversed order. If this operand is omitted, the messages display in the normal order.

Examples

To display the error log, with pagination:

```
switch:user> errshow


Version: 4.4.0
2004/07/14-22:24:08, [HAMK-1003], 1,, INFO, switch1, Heartbeat up


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


2004/07/14-22:24:47, [FSSM-1002], 2,, INFO, switchChassis, HA State is
in sync


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


2004/07/14-22:25:29, [SEC-1192], 3,, INFO, switch2, Security violation:
Login failure attempt via SERIAL.
Type <CR> to continue, Q<CR> to stop:
```

See also

errDelimiterSet

errDump

errFilterSet

exit

Logs out from a shell session.

Synopsis

```
exit
```

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 `exit` command is an accepted synonym for `logout`, as is pressing **Ctrl-D** at the beginning of a line.

Operands

Examples

To exit from a shell session:

```
switch:admin> exit
Connection to host lost.
```

See also

`logout`

fabPortShow

Displays fabric port information.

Synopsis

```
fabportshow [slotnumber/]portnumber
```

Availability

all users

Description

Use this command to display the state of a port, relative to the fabric, as well as a list of pending commands. The following information displays:

Port	Displays the port number.

State	The state of the port:	
	P0	Port Offline
	P1	Port Online
	P2	ELP ACC Received
	P3	Link Reset Done
	I0	Trunk Initiator: EMT Sent
	I1	Trunk Initiator: ETP ACC Received
	I2	Trunk Initiator: ETP Sent
	I3	Trunk Initiator: Link Reset
	T0	Trunk Target: EMT Received
	T1	Trunk Target: ETP Received
	T2	Trunk Target: Link Reset
	LD	Dynamic long distance: ECP sent or received
	T3	Trunk Target: Link reset done on slave
	I4	Trunk Initiator: Link reset done on slave

List	IU list pointer

Flags	Port flags:	
	0x00000001	Slave connection
	0x00000002	Loopback connection
	0x00000004	Incompatible connection
	0x00000008	Overlapping domains
	0x00000010	Overlapping zones
	0x00000020	Done PTIO ioctl
	0x00000040	Sent an RJT to ELP
	0x00000080	BF received from the port
	0x00000200	Segmented by routing code
	0x00000800	Zoning has completed
	0x00001000	Segmented by Platform Management
	0x00002000	Segmented due to no license
	0x00004000	Segmented due to E_Port disabling
	0x00008000	DIA already sent for that port
	0x00010000	RDI already sent
	0x00020000	Port is true T port
	0x00040000	Port received an ELP
	0x00080000	Port received an ELP RJT
	0x00100000	LR pending due to ELP RJT rcv
	0x00200000	Received a DIA on this port
	0x00400000	Port is the EMT Initiator
	0x00800000	Security violation
	0x01000000	Security incompatibility
	0x02000000	Rcv a DIA ACC
	0x040000000	Port is security authenticating
	0x080000000	ECP RJT or retires exceeded
	0x100000000	Segmented due to duplicated WWN
	0x200000000	Segmented due to E_Port isolation

nbrWWN   Neighboring switch's WWN

nbrPort   Neighboring switch's port

lr_tid   Link reset timer identifier and current state.

red_ports   All E_Ports that are connected to the same neighboring switch

Operands

This command has the following operands:

slotnumber   For bladed systems only, specifies the slot number of the port to display, followed by a slash (/).

portnumber   Specifies the port number to display, relative to its slot for bladed systems. Use switchShow to list valid ports.

Examples

To display fabric port information:

```
switch:admin> fabportshow 4/14
Fabric Port Information:
========================


Port:        62
State:       P3
List:        0x10068418
List Count:  0
Flags:       0x280120
nbrWWN:      10:00:00:60:69:80:06:cf
red_ports:
10 11 62 63


Open commands pending:
======================
No commands pending
```

See also

portShow

fabRetryShow

Displays the retry count of the fabric commands.

Synopsis

```
fabretryshow
```

Availability

all users

Description

Use this command to display the retry count of the fabric commands. The SW_ISL (ISL ports) information displays the retry count for the following fabric commands:

ELP	Exchange Link Parameters
ELP	Exchange Link Parameters
HA_EFP	Exchange Fabric Parameters
DIA	Domain Identifier Assigned
RDI	Request Domain Identifier
BF	Build Fabric
RSCN	Remote State Change Notification
FWD	Fabric Controller Forward
EMT	Fabric Controller Mark Timestamp
ETP	Fabric Controller Trunk Parameters
RAID	Return Address Identifier
GAID	Get Address Identifier
INQ	Inquiry Command
ELP_TMR	Used internally for fabric application (not a SW_ISL)
GRE	Get Route Entry
ECP	Exchange Credit Parameters
FWN	Firmware Notification

Operands

Examples

To display the retry count of Fabric OS commands:

```
switch:user> fabretryshow


                  E_Ports
SW_ISL         21       31       40       44


ELP            0        0        0        0
EFP            0        1        0        0
HA_EFP         0        0        0        0
DIA            0        0        0        0
RDI            0        0        0        0
BF             0        0        0        0
RSCN           0        0        0        0
FWD            0        0        0        0
EMT            0        0        0        0
ETP            0        0        0        0
RAID           0        0        0        0
GAID           0        0        0        0
INQ            0        0        0        0
ELP_TMR        0        0        0        0
GRE            0        0        0        0
ECP            0        0        0        0
FWN            0        0        0        0
```

See also

fabStatsShow

fabricLog

Displays (all users) or manipulates (admin) the fabric log.

Synopsis

```
fabricLog -s | -c | -d | -e | -r size
```

Availability

all users
admin

Description

Use this command to display, clear, disable, enable, or resize the fabric log.

Operands

This command has the following operands:

`-s | --show`	Displays fabric log (all users).
`-c | --clear`	Clears fabric log.
`-d | --disable`	Disables fabric log. By default, the fabric log is enabled.
`-e | --enable`	Enables fabric log.
`-r size | --resize size`	Changes the maximum number of log entries. The given size has to be at least 2 and a power of 2; otherwise, the command fails.

Examples

To change the number of entries:

```
switch:admin> fabriclog -s

Time Stamp  Input and *Action                      S, P   Sn,Pn  Port
Xid

=======================================================================
====
11955:655   SCN Switch Online                      F2,NA  F2,NA  NA    NA

11955:657   *Start 2 * F_S_TOV Timer               F2,NA  F2,NA  NA    NA

11955:657   *Start 60 * F_S_TOV Timer              F2,NA  F2,NA  NA    NA

11955:669   RSCN Rcv addr: 0x3000000               F2,NA  F2,NA  NA    NA

11957:65    SCN Port Online                        F2,P0  F2,P1  21    NA

11957:69    *ELP Send                              F2,P1  F2,P1  21
0x277

11957:69    SCN Port Online                        F2,P0  F2,P1  44    NA

11957:75    *ELP Send                              F2,P1  F2,P1  44
0x279

11957:77    ELP Receive                            F2,P1  F2,P1  44
0x277

11957:78    *ELP Sending ACC                       F2,P1  F2,P2  44
0x277

11957:82    ELP Receive                            F2,P1  F2,P1  21
0x279

11957:83    *ELP Sending ACC                       F2,P1  F2,P2  21
0x279

11957:87    ELP ACC Receive                        F2,P2  F2,P2  21
0x277

switch:admin> fabriclog -r 64


Warning: This command will clear the logs.


Are your sure you want to do the resize [y/n]? y


switch:admin> fabriclog -s

Time Stamp  Input and *Action                      S, P   Sn,Pn  Port
Xid

=======================================================================
```

See also

fabPortShow

fabStatsShow

fabricPrincipal

Sets principal switch selection mode.

Synopsis

```
fabricprincipal [-fhq][ mode ]
```

Availability

all users (display current setting)

admin (modify current setting)

Description

Use this command to set principal switch selection mode for the switch.

The implementation of the `fabricPrincipal` command is based solely on mechanisms specified in the Fibre Channel standards. These mechanisms provide a *preference* for a switch requesting to be the principal switch in a fabric, but they do not provide an absolute guarantee that a switch requesting to be the principal switch will actually achieve this status.

When dealing with larger fabrics, the selection of the principal switch is less deterministic. In these cases, to help ensure that the desired switch is selected as the principal switch, a small selection of switches should be connected together first, followed by the addition of the rest of the fabric.

Operands

This command has the following operands:

-f	Specify the -f option to force a fabric rebuild. This option is required when enabling principal switch mode. This option is not valid when disabling principal switch mode.
-h	Specify the -h option to display command usage summary.
-q	Specify the -q option to display the current mode state.
mode	Specify 1 to enable, or 0 to disable principal switch mode (the mode activates when the fabric rebuilds). This operand is optional.

Examples

To display the current mode setting:

```
switch:admin> fabricprincipal -q
Principal Selection Mode: Enable
```

To disable the principal selection mode setting:

```
switch:admin> fabricprincipal 0
Principal Selection Mode disabled
```

To enable the principal selection mode setting:

```
switch:admin> fabricprincipal 1
Principal Selection Mode enabled
```

To enable the principal selection mode setting and force fabric rebuild:

```
switch:admin> fabricprincipal -f 1
Principal Selection Mode enabled (Forcing fabric rebuild)
```

See also

fabricShow

fabricShow

Displays fabric membership information.

Synopsis

```
fabricshow
```

Availability

all users

Description

Use this command to display information about switches in the fabric.

If the switch is initializing or disabled, the message `no fabric` is displayed. If the fabric is reconfiguring, some or all switches might not display; otherwise, the following fields display:

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.

Operands

Examples

The following example illustrates a fabric of four switches. "`sw180`" is the principal switch. Three of the switches are configured to run IP over Fibre Channel.

```
switch:admin> fabricshow
Switch ID   Worldwide Name          Enet IP Addr    FC IP Addr      Name
-------------------------------------------------------------------------
64: fffc40 10:00:00:60:69:00:06:56  192.168.64.59   192.168.65.59    "sw5"
65: fffc41 10:00:00:60:69:00:02:0b  192.168.64.180  192.168.65.180 >"sw180"
66: fffc42 10:00:00:60:69:00:05:91  192.168.64.60   192.168.65.60    "sw60"
67: fffc43 10:00:00:60:69:10:60:1f  192.168.64.187  0.0.0.0          "sw187"


The Fabric has 4 switches
```

See also

switchShow

fabStateClear

Clears the fabric state information.

Synopsis

```
fabstateclear
```

Availability

admin

Description

Use this command to clear the queue of fabric state information logged by the fabric.

> **NOTE:** This command is obsoleted by `fabricLog` -c.

Operands

Examples

To clear the fabric state information:

```
switch:admin> fabstateshow
Time Stamp  Input and *Action                              S, P   Sn,Pn  Port  Xid
=======================================================================
11955:655   SCN Switch Online                              F2,NA  F2,NA  NA    NA
11955:657   *Start 2 * F_S_TOV Timer                       F2,NA  F2,NA  NA    NA
11955:657   *Start 60 * F_S_TOV Timer                      F2,NA  F2,NA  NA    NA
11955:669   RSCN Rcv addr: 0x3000000                       F2,NA  F2,NA  NA    NA
11957:65    SCN Port Online                                F2,P0  F2,P1  21    NA
11957:69    *ELP Send                                      F2,P1  F2,P1  21    0x277
11957:69    SCN Port Online                                F2,P0  F2,P1  44    NA
11957:75    *ELP Send                                      F2,P1  F2,P1  44    0x279
11957:77    ELP Receive                                    F2,P1  F2,P1  44    0x277
11957:78    *ELP Sending ACC                               F2,P1  F2,P2  44    0x277
11957:82    ELP Receive                                    F2,P1  F2,P1  21    0x279
11957:83    *ELP Sending ACC                               F2,P1  F2,P2  21    0x279
11957:87    ELP ACC Receive                                F2,P2  F2,P2  21    0x277
switch:admin> fabstateclear
switch:admin> fabstateshow
Time Stamp  Input and *Action                              S, P   Sn,Pn  Port  Xid
=======================================================================
```

See also

fabStatsShow

fabricLog

fabStateResize

Changes the number of state entries.

Synopsis

```
fabStateResize num
```

Operands

This command has the following operand:

num   The switch Domain_ID and embedded port D_ID

Examples

To change the number of entries:

```
switch:admin> fabstateshow

Time Stamp  Input and *Action                        S, P   Sn,Pn  Port
Xid

=========================================================================
====
11955:655   SCN Switch Online                        F2,NA  F2,NA  NA    NA

11955:657   *Start 2 * F_S_TOV Timer                 F2,NA  F2,NA  NA    NA

11955:657   *Start 60 * F_S_TOV Timer                F2,NA  F2,NA  NA    NA

11955:669   RSCN Rcv addr: 0x3000000                 F2,NA  F2,NA  NA    NA

11957:65    SCN Port Online                          F2,P0  F2,P1  21    NA

11957:69    *ELP Send                                F2,P1  F2,P1  21
0x277

11957:69    SCN Port Online                          F2,P0  F2,P1  44    NA

11957:75    *ELP Send                                F2,P1  F2,P1  44
0x279

11957:77    ELP Receive                              F2,P1  F2,P1  44
0x277

11957:78    *ELP Sending ACC                         F2,P1  F2,P2  44
0x277

11957:82    ELP Receive                              F2,P1  F2,P1  21
0x279

11957:83    *ELP Sending ACC                         F2,P1  F2,P2  21
0x279

11957:87    ELP ACC Receive                          F2,P2  F2,P2  21
0x277

switch:admin> fabstateresize 64


Warning: This command will clear the logs.


Are your sure you want to do the resize [y/n]? y


switch:admin> fabstateshow

Time Stamp  Input and *Action                        S, P   Sn,Pn  Port
Xid

=========================================================================
```

See also

fabricLog

fabStateClear

fabStateShow

fabStateShow

Displays the fabric state information.

Synopsis

```
fabstateshow
```

Availability

all users

Description

Use this command to display the queue of fabric state information logged by the fabric.

📝 **NOTE:** This command is obsoleted by `fabricLog` **-s**.

Operands

Examples

To display the fabric state information:

```
switch:admin> fabstateshow
Time Stamp   Input and *Action                         S, P   Sn,Pn  Port  Xid
========================================================================
11955:655    SCN Switch Online                         F2,NA  F2,NA  NA    NA
11955:657    *Start 2 * F_S_TOV Timer                  F2,NA  F2,NA  NA    NA
11955:657    *Start 60 * F_S_TOV Timer                 F2,NA  F2,NA  NA    NA
11955:669    RSCN Rcv addr: 0x3000000                  F2,NA  F2,NA  NA    NA
11957:65     SCN Port Online                           F2,P0  F2,P1  21    NA
11957:69     *ELP Send                                 F2,P1  F2,P1  21    0x277
11957:69     SCN Port Online                           F2,P0  F2,P1  44    NA
11957:75     *ELP Send                                 F2,P1  F2,P1  44    0x279
11957:77     ELP Receive                               F2,P1  F2,P1  44    0x277
11957:78     *ELP Sending ACC                          F2,P1  F2,P2  44    0x277
11957:82     ELP Receive                               F2,P1  F2,P1  21    0x279
11957:83     *ELP Sending ACC                          F2,P1  F2,P2  21    0x279
11957:87     ELP ACC Receive                           F2,P2  F2,P2  21    0x277
11957:92     ELP ACC Receive                           F2,P2  F2,P2  44    0x279
11957:94     SCN AC_PORT                               F2,P2  F2,P3  44    NA
11957:99     SCN AC_PORT                               F2,P2  F2,P3  21    NA
11957:106    SCN AC_PORT                               F2,P3  F2,P3  21    NA
11957:106    SCN AC_PORT                               F2,P3  F2,P3  44    NA
11957:364    SCN Port Online                           F2,P0  F2,P1  31    NA
11957:366    *ELP Send                                 F2,P1  F2,P1  31    0x27b
11957:382    ELP ACC Receive                           F2,P1  F2,P2  31    0x27b
11957:404    SCN AC_PORT                               F2,P2  F2,P3  31    NA
11957:406    *EFP Send                                 F2,P3  F2,P3  31    0x27c
11957:434    EFP ACC Receive                           F2,P3  F2,P3  31    0x27c
11957:514    SCN E_PORT                                F2,P3  F2,P3  31    NA
11957:987    SCN Domain 4 reachable                    F2,NA  F2,NA  NA    NA
11958:435    ELP Receive                               F2,P0  F2,P0  40    0x1bb
11958:436    *ELP Sending ACC                          F2,P0  F2,P2  40    0x1bb
11958:437    SCN Port Online                           F2,P0  F2,P1  25    NA
11958:465    SCN AC_PORT                               F2,P2  F2,P3  40    NA
11958:467    *EFP Send                                 F2,P3  F2,P3  40    0x294
(output truncated)
```

See also

fabPortShow

fabStateClear

fabricLog

fabStatsShow

Displays the fabric statistics.

Synopsis

```
fabstatsshow
```

Availability

all users

Description

Use this command to display the statistics for the fabric. The information appears as follows:

- 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:

  - Loopback

  - Incompatibility

  - Overlap

  - Zoning

  - E_Port segment

  - Licensing

  - Disabling E_Port

  - Platform DB

  - Security incompatibility

  - Security violation

  - ECP error

  - Duplicate WWN

  - E_Port isolated

Operands

Examples

To display the fabric statistics:

```
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
        E_Port Segment:            0
            Licensing:             0
        Disabled E_Port:           0
           Platform DB:            0
   Sec Incompatibility:            0
         Sec Violation:            0
             ECP Error:            0
         Duplicate WWN:            0
        Eport Isolated:            0
```

See also

fabRetryShow

fabSwitchShow

Displays the fabric switch state structure information.

Synopsis

```
fabswitchshow
```

Availability

all users

Description

Use this command to display the fabric switch state structure information.

📝 **IMPORTANT:** This command is provided strictly for debugging purposes; it is not intended as a user command.

Operands

Examples

To display fabric switch state structure:

```
switch:admin> fabswitchshow
Fabric Switch State Structure Information
========================================
State:                 D0
Stage:                 warm done
Rdi Receive Timer:     0x10069400, IDLE STATE
Unconfirmed Sw Timer:  0x10069508, IDLE STATE
NTP Timer:             0x100695b8, IDLE STATE
ME Timer:              0x10069610, IDLE STATE
Principal Domain:      2
Upstream Port:         64
Principal Wwn:         10:00:00:60:69:80:06:ce
Principal Priority:    0x2
Flags:                 0x40
me retry count:        0
inq_sem count:         1
dbg_sem count:         1
ha efp count:          0
fab_q current count:   0
fab_q high water:      8
fab_q age:             0 (sec)


(continued on next page)
```

```
    dup xid occurrence:      0

    iu nodes outstanding:  0

    EFP update port:       2

    FWN frames pending     0

    test check point:      No check point set

    fabric license:        TRUE

    fabric EFP version:    7

    last message:
    20:30:29.826 *Snd inquiry (4)                        D0,NA  D0,NA  NA
    NA


    NTP ports online:


    RSCN domain recovery list:


    no domain RSCN's to recover

    reachable domains:

    1 3 4

    3 domains reachable

    Ports used for EFP/BF/DIA flood:

    (output truncated)
```

See also

supportShow

fanDisable

Disables a fan unit.

Synopsis

```
fandisable unit
```

Availability

admin

Description

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

📝 **NOTE:** This command is not available on nonbladed systems except for the HP StorageWorks SAN Switch 4/32.

Operands

This command has the following operand:

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

Examples

To disable a fan unit:

```
switch:admin> fandisable 1


Fan unit 1 has been disabled
```

See also

fanEnable

fanShow

fanEnable

Enables a fan unit.

Synopsis

```
fanenable unit
```

Availability

admin

Description

Use this command to return the fan unit to the default RPM speed (only if the fan unit has been previously disabled using the fanDisable command).

📝 **NOTE:** This command is not available on nonbladed systems except for the StorageWorks SAN Switch 4/32.

Operands

This command has the following operand:

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

Examples

To enable a fan unit:

```
switch:admin> fanenable 1


Fan unit 1 has been enabled
```

See also

fanDisable

fanShow

fanShow

Displays fan status and speed.

Synopsis

```
fanshow
```

Availability

all users

Description

Use this command to display the current status and speed of each fan in the system.

Fan status is displayed as:

OK	Fan is functioning correctly.
absent	Fan is not present.
below minimum	Fan is present but rotating too slowly or stopped.
above minimum	Fan is rotating too quickly.
unknown	Unknown fan unit installed.
faulty	Fan has exceeded hardware tolerance and has stopped. In this case, the last known fan speed is displayed.

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

Operands

Examples

To display information on the fans in the system:

```
switch:admin> fanshow
Fan #1 is OK, speed is 2721 RPM
Fan #2 is OK, speed is 2657 RPM
Fan #3 is OK, speed is 2700 RPM
```

See also

chassisShow

fanDisable

fanEnable

psShow

fastBoot

Reboots the control processor (CP), bypassing power-on self-test (POST).

Synopsis

    fastboot

Availability

    admin

Description

Use this command to reboot the CP. The reboot takes effect immediately as the CP resets and executes normal power-on booting sequence. However, POST is skipped, reducing boot time significantly.

If POST has been disabled using the diagDisablePost command, then fastBoot is the same as reboot.

Operands

Examples

To perform a reboot without executing POST:

```
switch:admin> fastboot
```

See also

diagDisablePost

diagEnablePost

reboot

faZoneAdd

Adds a member to a Fabric Assist zone.

Synopsis

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 agtCfgShow command). 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 flash memory using the cfgSave command.

NOTE: When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following required operands:

fazoneName	Specify the name of the Fabric Assist zone, in quotation marks.
member	Specify a list of Fabric Assist zone members. The whole list must be enclosed in quotation marks and members separated by semicolons. A member can be specified by one or more of the following methods:

- Enter a fabric domain and area number pair (for example, "1,2"). View the area numbers for ports using the switchShow command.

- WWNs (for example, "10:49:00:00:00:20:3f:2e"). See faZoneCreate for more details on the use of WWNs in Fabric Assist zones.

- Fabric Assist zone alias names.

- Exactly one Fabric Assist host member (for example, "H{1,2}").

Examples

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}"
```

To add another target member to "Blue_fazone":

```
switch:admin> fazoneadd "Blue_fazone", "10:49:00:00:00:20:3f:2e"
```

See also

faZoneCreate

faZoneDelete

faZoneRemove

faZoneShow

faZoneCreate

Creates a Fabric Assist zone.

Synopsis

```
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. The FA zone name must be unique among all Fabric Assist zone objects. The member list must be enclosed in quotation marks members separated by a semicolons.

A Fabric Assist zone name is in C language style. 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. Spaces are ignored.

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

When a Fabric Assist zone member is specified by physical fabric port number, then 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 might 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). 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 flash memory using the cfgSave command.

NOTE: When security is enabled, this command can be issued only from the primary FCS switch.

Operands

The following operands are required:

fazoneName   Specify a name for the Fabric Assist zone. The name must be enclosed in quotation marks.

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

- Enter a fabric domain and area number pair (for example, "`1,2`"). View the area numbers for ports using the `switchShow` command.

- WWNs (for example, "`10:49:00:00:00:20:3f:2e`").

- Fabric Assist zone alias names.

- Exactly one Fabric Assist host member (for example, "`H{1,2}`").

Examples

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

```
switch:admin> fazoneCreate "Red_fazone", "H{1,0}; loop1"
switch:admin> fazoneCreate "Blue_fazone", "H{1,1}; array1; 1,2; array2"
switch:admin> fazoneCreate "Green_fazone", "1,0; loop1; H{1,2}; array2"
```

See also

faZoneAdd

faZoneDelete

faZoneRemove

faZoneShow

faZoneDelete

Deletes a Fabric Assist zone.

Synopsis

`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). 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 flash memory using the `cfgSave` command.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

The following operand is required:

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

Examples

To delete a Fabric Assist zone:

```
switch:admin> fazonedelete "Blue_fazone"
```

See also

faZoneAdd

faZoneCreate

faZoneRemove

faZoneShow

faZoneRemove

Removes members from a Fabric Assist zone.

Synopsis

`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`", 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). 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 flash memory using the `cfgSave` command.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

The following operands are required:

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

- Enter a fabric domain and area number pair (for example, "`1,2`"). View the area numbers for ports using the `switchShow` command.

- WWNs (for example, "`10:49:00:00:00:20:3f:2e`"). See `faZoneCreate` for more details on the use of WWNs in Fabric Assist zones.

- Fabric Assist zone alias names.

- Exactly one Fabric Assist host member (for example, "`H{1,2}`").

Examples

To remove "`array2`" from "`Blue_fazone`":

```
switch:admin> fazoneremove "Blue_fazone", "array2"
```

See also

faZoneAdd

faZoneCreate

faZoneDelete

faZoneShow

faZoneShow

Displays Fabric Assist zone information.

Synopsis

```
fazoneshow ["pattern"[, transflag]]
```

Availability

all users

Description

Use this command to display Fabric Assist zone information. Specifying this command with no parameters or with the second parameter set to 0 displays all Fabric Assist zone configuration information for both defined and effective configurations. Defined configuration information is shown from the transaction buffer. See the `cfgShow` command for a description of this display.

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

NOTE: When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following optional operands:

pattern	Specify a value to search for the name of a Fabric Assist zone. This can be any POSIX-style expression. Patterns can contain:
	• Question mark (?), which matches any single character
	• Asterisk (*), which matches any string of characters
	• Ranges, which match any character within the range: for example, `[0-9]` or `[a-f]`
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*. If this operand is omitted, the value defaults to 0.

Examples

To display all Fabric Assist zones 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

fcPing

Sends a Fibre Channel Extended Link Service (ELS) ECHO request to a pair of ports.

Synopsis

```
fcPing [ -hbq ][ -n frames ][ -l length ][ -i wait ][ -p pattern ] source
destination
```

Availability

all users

Description

Use this command to perform a zoning check between the *source* and *destination*. In addition, two Fibre Channel ELS requests are generated. The first ELS request is from the domain controller to the *source* port identifier. The second ELS request is from the domain controller to the *destination* port identifiers. The ELS ECHO request elicits an ELS ECHO response from a port identifier in the fabric and is useful for validating link connectivity.

The *source* and *destination* port identifiers can be specified as 24-bit Fibre Channel port identifiers, port world wide names, or node world wide names. The two port identifiers are then used to determine if they are zoned together.

The ELS ECHO requests comprise a 24-byte Fibre Channel frame header, a 4-byte ELS request header, an 8-byte timestamp from `gettimeofday`, and an arbitrary number of bytes (as specified by `-l length`) to fill out the request frame. The source identifier in the ELS ECHO request is the domain controller and the destination identifier is either *source* or *destination*.

The echo ELS might not be supported on all devices. In such cases, the response could be either an ELS reject or a request timeout.

By default, `fcPing` sends five ELS ECHO requests to each port.

> **NOTE:** When a device does not respond to the ELS request, further debugging is necessary to understand if this is due to the device not *supporting* this ELS request. The user should not assume that the device is not FC-connected.

Operands

This command has the following optional operands:

`-n frames`	Specifies the number of ELS ECHO requests to send.
`-l length`	Specifies requests containing length bytes of data. The default is 0 bytes of data. Without data, the Fibre Channel ECHO request frame size is 12 total bytes. This is a combination of four bytes from the ECHO request header and eight bytes from the timestamp. The maximum allowed value is 2,036 bytes. The length must be word aligned.
`-h`	Causes the program to display the proper command line usage syntax information and then terminate.
`-i wait`	Specifies the interval, in seconds, between successive ELS ECHO requests. The default is 0 seconds.

-p *pattern*	Specifies up to 16 "pad" bytes, which are used to fill out the request frame payload that is sent. This is useful for diagnosing data-dependent problems in the fabric link. The *pattern* bytes are specified as hexadecimal characters. For example, *-p ff* causes the request frame to be filled with all 1s.
-b	Specifies to bypass the zone check functionality.
-q	Specifies quiet output. Only the zoning information and the summary line appear upon program termination.
source	Specifies the source port ID, port WWN, or node WWN.
destination	Specifies the destination port ID, port WWN, or node WWN.

Examples

```
switch:admin> fcPing 10:00:00:00:c9:29:0e:c4 21:00:00:20:37:25:ad:05
Source:        10:00:00:00:c9:29:0e:c4
Destination:   21:00:00:20:37:25:ad:05
Zone Check:    Not Zoned


Pinging 10:00:00:00:c9:29:0e:c4 [0x20800] with 12 bytes of data:
received reply from 10:00:00:00:c9:29:0e:c4: 12 bytes time:1162 usec
received reply from 10:00:00:00:c9:29:0e:c4: 12 bytes time:1013 usec
received reply from 10:00:00:00:c9:29:0e:c4: 12 bytes time:1442 usec
received reply from 10:00:00:00:c9:29:0e:c4: 12 bytes time:1052 usec
received reply from 10:00:00:00:c9:29:0e:c4: 12 bytes time:1012 usec
5 frames sent, 5 frames received, 0 frames rejected, 0 frames timeout
Round-trip min/avg/max = 1012/1136/1442 usec


Pinging 21:00:00:20:37:25:ad:05 [0x211e8] with 12 bytes of data:
Request rejected
Request rejected
Request rejected
Request rejected
Request rejected
5 frames sent, 0 frames received, 5 frames rejected, 0 frames timeout
Round-trip min/avg/max = 0/0/0 usec
```

To display one device that accepts the request and another device that does not respond to the request:

```
switch:admin> fcPing 0x020800 22:00:00:04:cf:75:63:85
Source:        0x20800
Destination:   22:00:00:04:cf:75:63:85
Zone Check:    Zoned


Pinging 0x20800 with 12 bytes of data:
received reply from 0x20800: 12 bytes time:1159 usec
received reply from 0x20800: 12 bytes time:1006 usec
received reply from 0x20800: 12 bytes time:1008 usec
received reply from 0x20800: 12 bytes time:1038 usec
received reply from 0x20800: 12 bytes time:1010 usec
5 frames sent, 5 frames received, 0 frames rejected, 0 frames timeout
Round-trip min/avg/max = 1006/1044/1159 usec


Pinging 22:00:00:04:cf:75:63:85 [0x217d9] with 12 bytes of data:
Request timed out
Request timed out
Request timed out
Request timed out
Request timed out
5 frames sent, 0 frames received, 0 frames rejected, 5 frames timeout
Round-trip min/avg/max = 0/0/0 usec
```

See also

gettimeofday

ping

fcpLogClear

Clears the FCPD debug information log (debug command).

Synopsis

```
fcpLogClear
```

Availability

admin

Description

Use this command to clear the debug information logged by FCPD.

Operands

Examples

To clear the FCPD debug information log:

```
switch:admin> fcplogclear
```

See also

fcpLogDisable

fcpLogEnable

fcpLogShow

fcpLogDisable

Disables the FCPD debug information log (debug command).

Synopsis

```
fcpLogDisable
```

Availability

admin

Description

Use this command to disable the debug information logged by FCPD.

Operands

Examples

To disable the FCPD debug information log:

```
switch:admin> fcpLogDisable
```

See also

fcPing

fcpLogEnable

fcpLogShow

fcpLogEnable

Enables the FCPD debug information log (debug command).

Synopsis

```
fcpLogEnable
```

Availability

admin

Description

Use this command to enable the debug information logged for FCPD. Debug information logging is enabled by default.

Operands

Examples

To enable the FCPD debug information log:

```
switch:admin> fcpLogEnable
```

See also

fcPing

fcpLogDisable

fcpLogShow

fcpLogShow

Displays the FCPD debug information log (debug command).

Synopsis

```
fcpLogShow
```

Availability

all users

Description

Use this command to display the debug information logged at various stages of FCP device probing.

Operands

Examples

To display the FCPD debug information log:

```
switch:admin> fcpLogShow
Time Stamp     Event        Port  file&lineno arg0      arg1       arg2      arg3      arg4
================================================================================
22:34:10.824 FlshOrProbe    26    1  459       81        :0         :0        :0        :0
22:34:10.824 ProbeFlsh      26    1  2755      0         :0         :0        :0        :0
22:34:10.825 SCNRcvd        26    1  3436      2         :0         :0        :0        :0
22:34:14.232 FlshOrProbe    26    1  459       80        :0         :0        :0        :0
22:34:14.232 PrbMsg         26    1  494       0         :0         :0        :0        :0
22:34:14.233 StartProbe     26    1  961       1         :0         :0        :0        :0
22:34:14.233 StartProbe     26    1  999       0         :0         :0        :8000     :0
22:34:14.233 ProbeFlsh      26    1  2755      1         :0         :0        :0        :0
22:34:14.234 SndPLOGI       26    1  1431      1002a690:11ace     :1        :0        :20526
22:34:14.236 AsyResp        26    1  1540      1002a690:1002a768:80          :1        :10526
22:34:14.236 ElsRsp         26    1  1606      11ace    :2000000 :20        :0        :980000
22:34:14.238 SndPRLI        26    1  2026      1002a690:11ace     :2        :527      :0
22:34:14.239 AsyResp        26    1  1540      1002a690:1002a8e8:80          :2        :10527
22:34:14.239 ElsRsp         26    1  1606      11ace    :2100014 :0         :21       :980000
22:34:14.240 SndINQ         26    1  2504      1002a690:2         :528       :0        :0
22:34:14.244 AsyResp        26    1  1540      1002a690:1002a5f0:80          :5        :10528
22:34:14.244 INQRsp         26    1  1852      1        :11ace    :880008   :11ace    :0
22:34:14.244 AsyResp        26    1  1540      1002a690:1002a768:80          :5        :10528
22:34:14.244 INQRsp         26    1  1852      7        :11ace    :980000   :11ace    :0
22:34:14.245 SndLOGO        26    1  1939      11ace    :1002a690:0         :0        :20529
22:34:14.245 SndLOGO        26    1  1946      74f      :0        :0        :0        :0
22:34:14.247 AsyResp        26    1  1540      1002a690:1002a768:80          :4        :10529
22:34:14.247 ElsRsp         26    1  1606      11ace    :2000000 :0         :0        :980000
22:34:14.247 IUDel          26    1  1731      1002a690:1002a690:0         :0        :1
```

See also

fcPing

fcpLogDisable

fcpLogEnable

fcpProbeShow

Displays the Fibre Channel Protocol (FCP) probe information.

Synopsis

```
fcpprobeshow [slotnumber/]portnumber
```

Availability

all users

Description

Use this command to display the FCP probing information for the devices attached to the specified F_Port or FL_Port. This information includes the number of successful logins and SCSI INQUIRY commands sent over this port and a list of the attached devices.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the port to display, followed by a slash (/).
portnumber	Specify the port number to display, relative to its slot for bladed systems. Use switchShow to list valid ports. This operand is required.

Examples

To display the FCP probe information:

```
switch:admin> fcpprobeshow 4/4


port 52 is L-Port and it is online.
nodes probed:          2
successful PLOGIs:     2
successful PRLIs:      2
successful INQUIRies:  2
successful LOGOs:      2
outstanding IUs:       0
probing state:         3
probing TOV:           0
probing count:         0
probing next:          0
pmap:                  0x00000000, 0x00000000, 0x00000000, 0x00000010
update map:            0x00000000, 0x00000000, 0x00000000, 0x00000010



list of devices(may include old devices on the loop):
0x2b4e2: IBM     DDYF-T09170R     F60N
0x2b4e4: IBM     DDYF-T09170R     F60N
```

See also

portLoginShow

portLogShow

fcpRlsShow

Display the Fibre Channel Protocol (FCP) Read Link Status (RLS) information.

Synopsis

fcprlsshow [*slotnumber/*]*portnumber*

Availability

all users

Description

Use this command to display the FCP RLS information for a particular device, which should be either an F_Port or FL_Port. This information describes the number of loss-of-signal, loss-of-sync, CRC-error, and other failure events that have been detected on this port.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the port to display, followed by a slash (/).
portnumber	Specify the port number to display, relative to its slot for bladed systems. Use switchShow to list valid ports. This operand is required.

Examples

To display the FCP RLS information:

```
switch:admin> fcprlsshow 2/5

          link fail   loss sync   loss sig   prtc err   bad word   crc err
0xda              0           5          0          0        525         0
0xdc              0           3          0          0        330         0
```

See also

portLoginShow

portLogShow

fdmiCacheShow

Displays abbreviated remote FDMI device information, according to remote domain ID.

Synopsis

```
fdmicacheshow
```

Availability

all users

Description

Use this command to display FDMI cache information for remote domains only.

The state of each remote domain, identified by its domain ID, is shown to be unknown, known, unsupported, or error.

The revision of the switch also displays, followed by the world wide name of the switch.

For HBAs, only the HBA identifiers and registered port lists are displayed. No detailed HBA attributes are displayed. For registered ports, only port identifier and corresponding HBA are shown; no detailed port attributes are displayed.

Operands

Examples

To display the FDMI cache:

```
switch:admin> fdmicacheshow
Switch entry for domain 3
  state:   known
  version: v310
  wwn:     10:00:00:60:69:90:03:c7


  HBAs:
    10:00:00:00:c9:25:9b:96


    Ports: 1
      10:00:00:00:c9:25:9b:96


  Total count of devices on the switch is 1
```

See also

fdmiShow

fdmiShow

Displays detailed FDMI device information.

Synopsis

```
fdmishow
```

Availability

all users

Description

Use this command to display FDMI information for all HBAs and ports.

Detailed FDMI information is displayed for local HBAs and ports. This information includes the HBA with its corresponding ports, along with their respective attributes.

Only abbreviated FDMI information is shown for HBA and ports on remote switches.

Operands

Examples

To display FDMI information on a local switch:

```
switch:admin> fdmishow
Local HBA database contains:
  10:00:00:00:c9:25:9b:96
  Ports: 1
    10:00:00:00:c9:25:9b:96
    Port attributes:
      FC4 Types: 0x0001000001000000000000000000000000000000000000000000000000000000
      Supported Speed: 0x00000001
      Port Speed: 0x00000001
      Frame Size: 0x00000800
  HBA attributes:
    Node Name: 20:00:00:00:c9:25:9b:96
    Manufacturer: Emulex Network Systems
    Serial Number: 0000c9259b96
    Model: LP9000
    Model Description: Emulex LightPulse LP9000 1 Gigabit PCI Fibre
    Hardware Version: 00000001
    Driver Version: SLI-2 SW_DATE:May  3 2002, v5-2.11a2 **CT_TEST 1**
    Firmware Version: 03814101
    OS Name and Version: Window 2000
    Max CT Payload Length: 0x00061300

(continued on next page)
```

```
Local Port database contains:
  10:00:00:00:c9:25:9b:96


Remote HBA database contains no entry.


Remote Port database contains no entry.
```

See also

fdmiCacheShow

ficonClear

Clears the records from the specified FICON database.

Synopsis

```
ficonclear [database]
```

Availability

all users

Description

Use this command to remove records from the local FICON database. The command effect depends on the specified database.

Operands

The operand is as follows:

database	Specifies the name of the FICON database. The databases are:	
	RLIR	Removes all entries from the link incidents database.
	RNID	Removes all the *not current* entries from the device node identification database. There are four devices that are *not* removed from the RNID database.

Examples

To clear the RLIR database:

```
switch:user> ficonclear RLIR
successfully clear local RLIR Database.
```

To clear RNID database:

```
switch:user> ficonclear RNID
successfully clear not current
 entries from local RNID Database.
```

See Also

ficonHelp

ficonShow

ficoncupset

Sets FICON-CUP parameters for a switch.

Synopsis

```
ficoncupset fmsmode enable | disable

ficoncupset modereg bitname 0 | 1
```

Availability

admin

Description

Use this command to set FICON-CUP (Control Unit Port) parameters for a switch. All the parameters described below can be set while the switch is online. Changes to parameters are effective immediately. A reboot is not required for the changes to take effect.

Operands

The following operands are supported:

fmsmode	Enable or disable the FICON Management Server (FMS) mode for the switch. When parameter is `fmsmode`, argument is either `enable` or `disable`.
modereg	Set a bit in the FICON-CUP mode register. When parameter is `modereg`, one of the following `bitname` operands should be specified, followed by `0` or `1`:

POSC	Programmed offline state control
UAM	User alert mode
ASM	Active=saved mode
DCAM	Director clock alert mode
ACP	Alternate control prohibited
HCP	Host control prohibited

Examples

To enable FMS mode for the switch:

```
switch:admin> ficoncupset fmsmode enable
fmsmode for the switch is now Enabled
```

To set ASM bit in the mode register for the switch:

```
switch:admin> ficoncupset modereg ASM 1
Active=Saved Mode bit is set to 1
```

See Also

ficoncupshow

ficoncupshow

Displays FICON-CUP parameters for a switch.

Synopsis

```
ficoncupshow fmsmode

ficoncupshow modereg [bitname]
```

Availability

all users

Description

Use this command to display FICON-CUP (Control Unit Port) parameters for a switch.

Operands

The following operands are supported:

fmsmode	Display the FICON Management Server (FMS) mode for the switch.
modereg	Display the FICON-CUP mode register. When parameter is modereg, one of the following arguments can be specified as `bitname`:

POSC	Programmed offline state control
UAM	User alert mode
ASM	Active=saved mode
DCAM	Director clock alert mode
ACP	Alternate control prohibited
HCP	Host control prohibited

If no argument is specified, all the mode register bits are displayed. If a mode register bit is specified, then only the value of that bit is displayed. A value of 1 indicates that a given mode register bit is set, and 0 indicates that it is not set.

Examples

To display FMS mode for the switch:

```
switch:user> ficoncupshow fmsmode
fmsmode for the switch: Enabled
```

To display mode register for the switch:

```
switch:user> ficoncupshow modereg
 POSC  UAM  ASM  DCAM  ACP  HCP
 ----------------------------
    1    0    1    1    1    0
```

To display ASM bit in the mode register for the switch:

```
switch:user> ficoncupshow modereg ASM
 ASM
 ---
   1
```

See Also

ficoncupset

ficonHelp

Displays a list of FICON support commands.

Synopsis

```
ficonhelp
```

Availability

all users

Description

Use this command to display a list of FICON support commands, with descriptions.

Operands

Examples

To display a list of FICON commands:

```
switch:admin> ficonhelp

ficonshow RNID           Displays all RNID (Registered Node Identification
                          Data) for FICON devices connected to the local switch.

ficonshow RNID fabric    Displays all RNID entries within the fabric.

ficonshow LIRR           Displays all LIRR (Link Incident Record Registration)
                          entries for FICON hosts that registered with the
                          local switch.

ficonshow LIRR fabric    Displays all LIRR entries within the fabric.

ficonshow SwitchRNID     Displays switch node identification data of the local
                          switch.

ficonshow SwitchRNID fabric    Displays switch node identification data of
                          each switch in the fabric.

ficonshow RLIR           Displays all RLIR (Registered Link Incident Record)
                          entries within the local switch.

ficonshow RLIR fabric    Displays all RLIR entries within the fabric.

(continued on next page)
```

```
ficonshow ILIR          Displays all ILIR (Implicit Link Incident Record)
                        entries within the local switch.

ficonshow ILIR fabric   Displays all ILIR entries within the fabric.

ficonclear RLIR         Clears the RLIR entries from the local RLIR database

ficonclear RNID         Clears the 'not current' entries from the local
                        RNID database.
```

ficonShow

Displays the contents of the specified FICON database.

Synopsis

```
ficonshow RNID [fabric]

ficonshow LIRR [fabric]

ficonshow SwitchRNID [fabric]

ficonshow RLIR [fabric]

ficonshow ILIR [fabric]
```

Availability

all users

Description

Use this command to display the contents of a FICON database. The `ficonShow` *database* operand is the name of the database to display. If the `fabric` operand is absent, the command displays the members of the named database that are local to the switch on which the command was issued. If the `fabric` operand is present, it must be entered exactly as shown, and this specifies that all members are displayed, both local and remote.

The following information might be displayed, depending on which database you enter and which operands you use with the command:

Domain	Displays the domain ID.
Fabric WWN	Displays the fabric WWN.
Flag	Indicates if the node is valid, not valid, or not current. Flag values are as follows:

	0x00	Indicates node ID of the storage port for RNID switch for SwitchRNID is valid.
	0x10	Indicates node ID of the channel port is valid.
	0x20	Indicates the node ID of the storage port is not current.
	0x30	Indicates the node ID of the channel port is not current.
	0x40	Indicates the node ID of the storage port for RNID switch for RLIR is not valid.
	0x50	Indicates the node ID of the channel port is not valid.

Fmt	Displays the record-registration format.
FRU Failure Description	Indicates the FRU failure type as one of the following:

- WWN card [unit number]

- Power Supply [unit number]

- Hardware Slot [unit number]

- Blower [unit number]

FRU Part Number	Displays the FRU part number.

FRU Serial Number	Displays the FRU serial number.		
Incident Count	Displays the incident count. This number increases by 1 for each incident within the individual switch.		
Link Incident Description	Same as Link Incident Type.		
Link Incident Type	Indicates the link incident type as one of the following:		

- Bit-error-rate threshold exceeded

- Loss of signal or synchronization

- NOS recognized

- Primitive sequence timeout

- Invalid primitive sequence for port state

Listener PID	Same as PID.		
Listener Port Type	Same as Port Type.		
Listener Port WWN	Displays the channel HBA port world wide name.		
Listener Type	Indicates the listener type as follows:		
l	Conditiona		This port receives a link incident record if no other recipients from the established registration list have been chosen.
	Unconditional		This port is always chosen as a recipient of a link incident record.
Manufacturer	Displays the manufacturer name or code.		
Model Number	Displays the model number.		
Node Parameters	Same as Parameters.		
Parameters	Displays the node type for the switch in three bytes, 0xAABBCC:		
	Byte AA	0x20	FC-SB-2 and updates.
	Byte BB	0x0a	Switch.
	Byte CC	0x00	Port number. It is dynamically assigned whenever a link incident occurs.
Parm	Displays the incident node parameters type in three bytes, 0xAABBCC:		
	Byte AA	0x00	Reserved.
		0x20	FC-SB-2 and updates.
		0x40	Other FC-4s including FCP and updates.
		0x60	FC-SB-2 and updates and other FC-4s including FCP and updates.
		0x80	FC-4 support not specified.
		0xa0	Reserved.
		0xc0	Reserved.
		0xe0	Vendor specific.
	Byte BB	0x00	Unspecified class.
		0x01	Direct access storage device, if it is an storage port; otherwise, not channel-to-channel capable.
		0x02	Magnetic tape, if it is an storage port; otherwise, a reserved field for a channel port.

	0x03	Input unit record, if it is an storage port; otherwise, a reserved field for a channel port.
	0x04	Output unit, if it is an storage port; otherwise, a reserved field for a channel port
	0x05	Reserved field for a channel port.
	0x06	Controller, if it is an storage port; otherwise, a reserved field for a channel port.
	0x07	Terminal - Full screen if it is an storage port; otherwise, a reserved field for a channel port.
	0x08	Terminal - Line mode if it is an storage port; otherwise, an emulated control unit support only.
	0x09	Reserved.
	0x10	Switch, if it is a switch device; otherwise, reserved.
	0x0b-0xff	Reserved.
Byte CC	0x00	If storage CU port has registered with the switch.
	0xID	CHIPID if channel port has registered with the switch.
	0xPN	If switch has registered with the channel, PN represents the FL port number.

Part Number	Displays the switch chassis part number.
PID	Displays the 24-bit Fibre Channel port address in 0xDDAAPP format. DD is Domain ID. AA is Area ID. PP is AL_PA ID.
Plant of Manufacture	Displays the manufacturer plant name or code.
Port	Physical port number
Port Status	Displays the status of the port:

- Link degraded but operational

- Link not operational

Port Type	Displays the port type:

- U is unknown.

- N is N_Port.

- NL is NL_Port.

Protocol	Displays whether the traffic is using FICON or FCP.
Registered Node WWN	Displays the device's node world wide name associated with the device HBA.
Registered Port WWN	Displays the device's channel or storage CU port world wide name associated with the device HBA.
Sequence Number	Displays the sequence number of the self describing node.
Serial Number	Displays the switch serial number.
Switch node WWN	Displays the switch node world wide name.
Switch Port WWN	Displays the switch port world wide name.
Switch WWN	Displays the switch WWN.
Tag	Displays the physical identifier for the self-describing node interface.
TS Format	Displays the Time Server format.

Time Stamp	Displays the timestamp, expressed in date format.
Type	Same as Port Type.
Type Number	Displays the type number of the self describing node. It also describes the machine type.

Operands

This command has the following operands:

database   Specify the database to display. Valid values are:

- RNID

- LIRR

- SwitchRNID

- RLIR

- ILIR

This operand is required.

fabric   Specify *fabric* to display both local and remote information; if omitted, only members of the named database that are local to the switch on which the command is issued displays.

Examples

To display the local RNID database:

```
switch:admin> ficonshow RNID
{
 {Fmt  Type PID   Registered Port WWN     Registered  Node WWN    flag Parm
  0x18 N    502b00 50:05:07:64:01:00:15:8d 50:05:07:64:00:c1:69:ca 0x10 0x200110
  Type number:          002064
  Model number:         101
  Manufacturer:         IBM
  Plant of Manufacture: 02
  Sequence Number:      0000000169CA
  tag:                  102b
 }
 {Fmt  Type PID   Registered Port WWN     Registered  Node WWN    flag Parm
  0x18 N    502e00 50:05:07:64:01:40:0f:ca 50:05:07:64:00:c1:69:ca 0x10 0x200105
  Type number:          002064
  Model number:         101
  Manufacturer:         IBM
  Plant of Manufacture: 02
  Sequence Number:      0000000169CA
  tag:                  052e
 }
}
```

To display the local and remote LIRR database:

```
switch:admin> ficonshow LIRR fabric
{Fmt  Type PID     Listener Port WWN       Switch Port WWN         Listener Type
 0x18 N    502b00 50:05:07:64:01:00:15:8d 20:2b:00:60:69:80:1e:4e Conditional
 0x18 N    502e00 50:05:07:64:01:40:0f:ca 20:2e:00:60:69:80:1e:4e Conditional
 0x18 N    511b00 50:05:07:64:01:00:0f:ca 20:1b:00:60:69:80:1e:4f Conditional
 0x18 N    511c00 50:05:07:64:01:40:0d:d0 20:1c:00:60:69:80:1e:4f Conditional
 0x18 N    531800 50:05:07:64:01:40:13:70 20:18:00:60:69:33:33:33 Conditional
}
The LIRR database has 5 entries.
```

To display the local SwitchRNID database:

```
switch:admin> ficonshow SwitchRNID
{
 {Switch WWN                  flag Parm
  10:00:00:60:69:80:1e:4e        00    200a00
  Type number:         002109
  Model number:        M12
  Manufacturer:        BRD
  Plant of Manufacture: CA
  Sequence Number:     0FT02X801E4E
  tag:                 00ff
 }
}
The Local switch RNID database has 1 entries.
```

To display the local RLIR database:

```
switch:user> ficonshow RLIR


{
 {Fmt   Type PID      Port Incident Count TS Format    Time Stamp
   0x18 N     502e00    46                   1 Time server Mon Jan 13 04:29:33 2003
   Port Status:        Link not operational
   Link Failure Type:    Loss of signal or synchronization


   Registered Port WWN     Registered Node WWN      Flag   Node Parameters
   50:05:07:64:01:40:0f:ca 50:05:07:64:00:c1:69:ca   0x50   0x200105
   Type Number:        002064
   Model Number:       101
   Manufacturer:       IBM
   Plant of Manufacture: 02
   Sequence Number:      0000000169CA
   tag:                2e00


   Switch Port WWN         Switch Node WWN          Flag   Node Parameters
   20:2e:00:60:69:80:1e:4e 10:00:00:60:69:80:1e:4e  0x00   0x200a2e
   Switch Part Number:    060-0001501-05
   Switch Serial Number: 0FT02X801E4E
   Domain:             20480
 }
}
The local RLIR database has 1 entry.
```

To display the local ILIR database:

```
switch:user> ficonshow ILIR
{
 {FRU Failure [2]: Power Supply[2] failure occurred on Mon Jan 13 12:11:38 2003


  Fmt    Protocol Domain Fabric WWN               Switch WWN
  0x18   FICON    80      10:00:00:60:69:33:33:33 10:00:00:60:69:80:1e:4e


  FRU part number:       23000000602
  FRU serial number:     FL2L0001071


        {Listener Port Type Listener PID Listener Port WWN
         N                  0x502b00      50:05:07:64:01:00:15:8d

        }
 }
 {FRU Failure [3]: Power Supply[4] failure occurred on Mon Jan 13 12:11:38 2003


  Fmt    Protocol Domain Fabric WWN               Switch WWN
  0x18   FICON    80      10:00:00:60:69:33:33:33 10:00:00:60:69:80:1e:4e


  FRU part number:       23000000602
  FRU serial number:     FL2L0001060


        {Listener Port Type Listener PID Listener Port WWN
         N                  0x502b00      50:05:07:64:01:00:15:8d

        }
 }
}
The Local ILIR database has 2 entries.
```

See Also

ficonClear

filterTest

Tests frame filters.

Synopsis

```
filtertest [--slot slotnumber][-passcnt passcnt][-txports
itemlist][-scamoff offset][-dcamoff offset][-fdefoff offset]
```

Availability

admin

Description

Use this command to verify the ASIC frame–level filtering logic including 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 loopback mode. The filter test requires two different ports in the same quadrant because the filter logic in the transmitter port 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 11.

Table 11   List of filter test numbers, definitions, and action types

Number	Filter definition	Action type
0	unconditional match	Forward
1	unconditional match	List A
2	unconditional match	List B
3	unconditional match	Frozen
4	unconditional match	Discard
5	SCAM no match and AL_PA match	List A
6	SCAM&DCAM match and AL_PA match	List A
7	Zone A match and AL_PA match	List A
8	Zone B match and AL_PA match	List B
9	Zone A&B match and AL_PA match	List B
10	Zone A|B match and AL_PA match	Frozen
11	Zone A|B match and AL_PA match	Discard

Operands

This command has the following operands:

`--slot slotnumber`	Specify the slot number on which the diagnostic operates. The port specified are relative to this slot number. The default is 0 and designed to operate on fixed-port-count products.
`-passcnt passcnt`	Specify the number of times to perform this test. The default value is 1.
`-txports itemlist`	Specify the user port numbers to perform this test. All user ports are set by 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 the 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 the 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 the limit.

Examples

To run a frame filter test:

```
switch:admin> filtertest -txports 3/1-3/3


Running filtertest ..............
Test Complete: filtertest Pass 1 of 1
Duration 0 hr, 0 min & 2 sec (0:0:2:679).
 passed.
```

Diagnostics

When it detects failures, the subtest might report one or more of the following error messages:

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

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

itemList

firmwareCommit

Commits switch firmware.

Synopsis

```
firmwarecommit
```

Availability

admin

Description

Use this command to commit a firmware download to a CP. This command copies an updated firmware image to the secondary partition and commits both partitions of the CP to an updated version of the firmware. This must be done after each firmware download and after the switch has been rebooted and a sanity check is performed to make sure the new image is fine.

For switches that have flash memory set into two equal partitions, the primary partition is the where the system boots from; the secondary partition is where a copy of the firmware is stored, in case the primary partition is damaged.

To maintain the integrity of the firmware image in the flash memory, the `firmwareDownload` command updates the secondary partition only. When `firmwareDownload` completes successfully and the CP is rebooted, the system switches the primary partition (with the old firmware) to the secondary, and the secondary partition (with the new firmware) to the primary.

The default behavior of the `firmwareDownload` command is to automatically run the `firmwareCommit` command after the reboot. If you decide to disable the autocommit option when running `firmwareDownload`, after the CP is rebooted, you must execute one of two commands:

- `firmwareCommit` copies the primary partition (with new firmware) to the secondary and commits the new firmware to both partitions of the CP.

- `firmwareRestore` copies the secondary partition (with the old firmware) to the primary and backs out of the new firmware download. The `firmwareRestore` command can be run only if autocommit was disabled during the firmware download. Autocommit can be disabled only when you run `firmwareDownload` in single mode.

Operands

Examples

To commit a new version of the firmware:

```
switch:admin> firmwarecommit
Validating primary partition...
Doing
firmwarecommit now.
Please wait ...
Replicating kernel image
...............
FirmwareCommit completes successfully.
```

See also

firmwareDownload

firmwareRestore

firmwareDownload

Downloads switch firmware from a remote host or local directory.

Synopsis

```
firmwaredownload [[ -s [ -b -n -i ] ] host,user,pfile,passwd
```

Availability

admin

Description

Use this command to download switch firmware from an FTP server or from a local NFS directory to the switch's nonvolatile storage area.

The new firmware is in the form of RPM packages with names defined in *pfile*, a binary file that contains specific firmware information (time stamp, platform code, version, and so forth) and the names of packages of the firmware to be downloaded. These packages are made available periodically to add features or to remedy defects. Contact customer support to obtain information about available firmware versions.

In dual-domain systems, this command by default downloads the firmware image to both CPs in rollover mode, to prevent disruption to application services. This operation depends on HA support. If HA is not available, a user can still upgrade the CPs one at a time, using the -s option.

All systems supported by this firmware have two partitions of nonvolatile storage areas, a primary and a secondary, to store two firmware images. firmwareDownload always loads the new image into the secondary partition and swaps the secondary partition to be the primary. It then reboots the CP and activates the new image. Finally, it performs the firmwareCommit procedure automatically, to copy the new image to the other partition, unless -n is used.

The command supports both noninteractive and interactive modes. If it is invoked without any command line parameters, or if there is any syntax error in the parameters, the command goes into interactive mode, in which you are prompted for input.

> △ **CAUTION:** For each non-director-class switch in your fabric, complete all firmware download changes before issuing the firmwareDownload command on the next switch to ensure a nondisruptive download.

> 📝 **NOTE:** See the *HP StorageWorks Fabric OS 5.x procedures user guide* for information about limitations when changing Fabric OS versions. When installing Fabric OS, the procedure might vary, depending on which version of the Fabric OS you are migrating from.

Operands

By default, firmwareDownload performs a full installation, autoreboot, and autocommit. These modes are selectable only in single-CP (-s) mode, in which case, autoreboot is off by default. A user can change these settings interactively or by using the following options:

-s   Specify this operand to enable single-CP mode. In dual-CP systems, this mode enables a user to upgrade a single CP and to select full install, autoreboot, and autocommit.

-b	Specify this operand to activate autoreboot mode. After downloading firmware, the system must be rebooted. If single-CP mode is enabled and this operand is not specified, the user must issue the reboot command manually to activate the downloaded image. If autoreboot mode is enabled, the switch reboots automatically after the firmwareDownload command has been run.
-n	Specify this operand to deactivate autocommit mode. By default, after running this command and after the reboot, the switch performs a firmwareCommit command automatically. When this mode is disabled, the user needs to issue the firmwareCommit command manually to replicate the downloaded image to both partitions of a CP.
-i	Specify to activate incremental upgrade mode. By default, this command installs all the packages in the *pfile*. When this mode is enabled, the names of the packages in *pfile* are compared to those installed on the switch, and only the packages whose names are different are installed.
host	Specify a host server name or IP address: for example, citadel or "192.168.166.30". The *pfile* is downloaded from this host. If this operand is not used, the *pfile* is considered to be accessible through a local directory.
user	Specify a user name for FTP server access: for example, "jdoe". This user name is used to gain access to the host. This operand can be omitted if *pfile* is accessible through a local directory or if the FTP user ID is anonymous.
pfile	Specify a fully qualified path and file name: for example, /v5.0.1/release.plist. Absolute path names might be specified using forward slash (/).
passwd	Specify a password. This operand can be omitted if *pfile* is accessible through a local directory or if no password is required by the FTP server.

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

Examples

To download the firmware to an HA switch:

```
switch:admin> firmwareDownload
192.168.166.30,johndoe,/pub/dist/release.plist,12345

This command will upgrade both CPs in the switch. If you

want to upgrade a single CP only, please use -s option.


You can run firmwareDownloadStatus to get the status of

this command.


This command will cause the active CP to reset and will

require that existing telnet, secure telnet or SSH sessions

be restarted.


Do you want to continue [Y]:


FirmwareDownload has started in Standby CP. It may take up to 10
minutes.


And you will the following on Standby CP:


 Start to install packages......
 dir          ################################################
 terminfo     ################################################
 termcap      ################################################
 glibc        ################################################
 ......
 sin          ################################################
 Write kernel image into flash.
 ........
 Verification SUCCEEDED
 Firmwaredownload completes successfully.
```

Diagnostics

The following can cause the download to fail:

- Host is not known to the switch

- Host cannot be reached by the switch

- User does not have permission on host

- The *pfile* does not exist on host

- The *pfile* is not in the right format

- Package specified in the *pfile* does not exist

- The FTP server is not running on host

- Running firmwareDownload during POST

- A loss of power to the switch

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

firmwareCommit

firmwareDownloadStatus

firmwareRestore

firmwareShow

reboot

version

firmwareDownloadStatus

Displays the status of a firmware download.

Synopsis

```
firmwaredownloadstatus
```

Availability

admin

Description

Use this command to display an event log that records the progress and status of the current firmwareDownload command. The event log is created by the current firmwareDownload command and is kept until another firmwareDownload command is issued. There is a timestamp associated with each event.

In systems with two control processor (CP) cards, when firmwareDownloadStatus is run, the event logs whether the two CPs are synchronized. The command can be run from either CP.

Operands

Examples

To display the status of a firmware download:

```
switch:admin> firmwaredownloadstatus
[1]: Tue Jan 18 13:21:25 2004
cp1: Firmwaredownload has started on Standby CP. This step will take
up to 30 minutes.


[1]: Tue Jan 18 13:21:35 2004
cp1: Firmwaredownload has completed successfully on Standby CP.


[2]: Tue Jan 18 13:21:37 2004
cp1: Standby CP reboots.


[3]: Tue Jan 18 13:24:44 2004
cp1: Standby CP boots up.


[4]: Tue Jan 18 13:24:45 2004
cp1: Standby CP booted up with new firmware.


[5]: Tue Jan 18 13:24:51 2004
cp0: Active CP forced failover succeeded. Now this CP is becoming
Active.


(coninued on next page)
```

```
[6]: Tue Jan 18 13:27:07 2004

cp0: Firmwaredownload has started on Standby CP. This step will take
up to 30 minutes.


[7]: Tue Jan 18 13:31:20 2004

cp0: Firmwaredownload has completed successfully on Standby CP.


[8]: Tue Jan 18 13:31:23 2004

cp0: Standby CP starts reboot.


[9]: Tue Jan 18 13:33:54 2004

cp0: Standby CP booted up with new firmware.


[10]: Tue Jan 18 13:33:56 2004

cp0: Firmwarecommit has started on both Active and Standby CPs.


[11]: Tue Jan 18 13:38:29 2004

cp0: Firmwarecommit has completed successfully on Active CP.


[12]: Tue Jan 18 13:38:30 2004

cp0: Firmwaredownload has completed successfully.
```

See also

firmwareCommit

firmwareDownload

firmwareRestore

firmwareShow

firmwareRestore

Restores the former active firmware image.

Synopsis

```
firmwarerestore
```

Availability

admin

Description

Use this command to restore the former active firmware image. This command can only be run if autocommit was disabled during the firmwareDownload.

After a firmwareDownload and a reboot (with autocommit disabled), the downloaded firmware becomes active. If you then do not want to commit the firmware and want to restore the former firmware, run firmwareRestore. After running firmwareRestore, you can run firmwareDownload again.

This command reboots the system and makes the former firmware active. After reboot, both primary and secondary partitions restore to the former firmware.

This command only takes action if the system is booted after a firmwareDownload; otherwise, it returns with an error code.

Operands

Examples

To restore the former active firmware image:

```
switch:admin> firmwarerestore
Restore old image to be active ...
Restore both primary and secondary image after reboot.
The system is going down for reboot NOW !!
Broadcast message from root (ttyS0) Fri Oct 26 23:48:54 2001...


Doing firmwarecommit now.
Please wait ...
```

See also

firmwareCommit

firmwareDownload

firmwareShow

Displays the Fabric OS versions on both partitions of the local and remote CPs.

Synopsis

```
firmwareshow
```

Availability

admin

Description

Use this command to display the Fabric OS versions on primary and secondary partitions. For systems with multiple control processor (CP) cards, this command displays this information for both local and remote CPs.

Operands

Examples

To display the firmware version of a single-CP system:

```
switch:admin> firmwareshow
Primary partition: v5.0.1
Secondary Partition: v5.0.1
```

To display the firmware version of a dual-CP system:

```
switch:admin> firmwareshow
    Local CP (Slot 5, CP 1):  Active
        Primary partition:     v5.0.1
        Secondary Partition:   v5.0.1


    Remote CP (Slot 6, CP 0): Standby
        Primary partition:     v5.0.1
        Secondary Partition:   v5.0.1


    Note: If Local CP and Remote CP have different versions
    of firmware, please retry firmwaredownload command.
```

See also

firmwareDownload

firmwareDownloadStatus

fportTest

Functional test of F->N, N->F point-to-point path.

Synopsis

```
fporttest [-nframes count][-ports itemlist][-seed payload_pattern][-width
pattern_width][-size pattern_size]
```

Availability

admin

Description

Use this command to verify the functional operation of the switch by sending ELS ECHO frames from the switch F_Port transmitter and receiving ELS ECHO ACC from the N_Port device into the F_Port receiver. This exercises all the switch components, from the main board, to the SFP, to the fiber cable, to the SFPs (of the N_Port devices and the switch F_Port), and back to the main board.

The cables and SFPs connected should be of the same technology; that is, a short wavelength SFP (switch) port is connected to another short wavelength SFP (device) port using a short wavelength cable, a long wavelength port is connected to a long wavelength port; and a copper port is connected to a copper port.

Only one frame is transmitted and received at any one time. The port LEDs rapidly flicker green while the test is running.

The test method is as follows:

1. Determine which ports are F_Ports.
2. Create an ELS_ECHO frame with payload size, data pattern build in or payload size, data pattern.
3. Transmit frame F through the F_Port, with D_ID, to the N_Port device.
4. Wait for the N_Port device to respond ECHO ACC.
5. Compare ECHO data transmitted to ECHO data received.
6. Repeat steps 3 through 5 for all ports present until either the number of frames requested is reached, or all ports are marked bad.

You can specify a payload pattern to be used when executing this test. If the pattern is not user specified, then at every 30 pass, a different data type from a palette of seven is used to generate a different data pattern to create the frame. The data pattern is generated based on data type. Some data types might generate a different data pattern on every pass; other data types might not change the data pattern in every pass. These seven data types are repeated every 210 pass. The data palette is as follows:

```
CSPAT(0):       0x7e, 0x7e, 0x7e, 0x7e, ...
BYTE_LFSR(1):   0x69, 0x01, 0x02, 0x05, ...
CHALF_SQ(2):    0x4a, 0x4a, 0x4a, 0x4a, ...
QUAD_NOT(3):    0x00, 0xff, 0x00, 0xff, ...
CQTR_SQ(4):     0x78, 0x78, 0x78, 0x78, ...
CRPAT(5):       0xbc, 0xbc, 0x23, 0x47, ...
RANDOM(6):      0x25, 0x7f, 0x6e, 0x9a, ...
```

Operands

This command has the following optional operands:

-nframes *count*	Specify the number of times (or number of frames per port) to execute this test. If *count* is omitted, the default of 10 is used.
-ports *itemlist*	Specify the ports to test. If *itemlist* is omitted, the test is executed on all online F_Ports in the specified slot.
-seed *payload_pattern*	Specify the pattern of the test packets payload. Valid values are:

0	CSPAT (default)
1	BYTE_LFST
2	CHALF_SQ
3	QUAD_NOT
4	CQRT_SQ
5	CRPAT
6	RANDOM

-width *pattern_width*	Specify the width of the pattern. Valid values are:

1	byte
2	word
4	quad

-size *pattern_size*	Specify the number of words in the test packet payload. If *pattern_size* is omitted, the default value is 512.

Examples

To run fportTest on a switch:

```
switch:admin> fporttest -ports 1/0-1/15
Running fPortTest .......
Test Complete: "fporttest" Pass 10 of 10
Duration 0 hr, 0 min & 1 sec (0:0:0:127).
passed.
```

Diagnostics

The following are possible error messages if failures are detected:

```
DATA
INIT
PORT_DIED
EPI1_STATUS_ERR
ERR_STAT
ERR_STATS
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
```

```
ERR_STAT_BADOS

ERR_STAT_C3DISC

ERR_STAT_CRC

ERR_STAT_ENCIN

ERR_STAT_ENCOUT

ERR_STAT_TRUNC

FDET_PERR

FINISH_MSG_ERR

FTPRT_STATUS_ERR

LESSN_STATUS_ERR

MBUF_STATE_ERR

MBUF_STATUS_ERR

NO_SEGMENT

PORT_ABSENT

PORT_ENABLE

PORT_M2M

PORT_STOPPED

PORT_WRONG

RXQ_FRAME_ERR

RXQ_RAM_PERR

STATS

STATS_C3FRX

STATS_FRX

STATS_FTX

TIMEOUT

XMIT
```

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

crossPortTest

itemList

loopPortTest

portTest

spinFab

fruReplace

Interactive interface to replace a field replaceable unit (FRU).

Synopsis

```
frureplace FRU
```

Availability

admin

Description

Use this command to guide the user in replacing an FRU. The command automatically performs the necessary backup and restore (steps to accommodate the replacement).

Operands

This the following operand is required:

FRU   Specify the type of hardware component being replaced. WWN is the only supported value; it specifies the replacement of the WWN card.

Examples

To replace the world wide name card:

```
switch:admin> frureplace wwn
This is the WWN card hot swap interface.
Continuing from this point will require
the whole process to be completed.
If this process is not complete due to a
power cycle, or CP failover, please follow
the recovery procedure in
Core Switch  WWN Card Removal and
Replacement document.
Do you wish to continue [y/n]? y

Backing up WWN card data, please
wait about 25 seconds for further
instruction.

Please install the new FRU now.

(continued on next page)
```

```
         If this session lost for any reason,
         please re-enter the frureplace command and
         follow the instructions to complete the
         operation.

         Please enter the word `continue' after the
         new WWN card has been installed: continue
         Restoring the information to the
         replacement FRU now, please wait about
         20 seconds to complete
         Verifying the replacement FRU now...
         WWN card hot swap is now complete.
         FRU replacement completed successfully!
```

See also

fspfShow

Displays Fabric Shortest Path First (FSPF) protocol information.

Synopsis

```
fspfshow
```

Availability

all users

Description

Use this command to display the FSPF protocol information and internal data structures to the FSPF module.

Table 12 describes the information that this command displays.

Table 12 `fspfshow` display fields

Field	Description
version	Version of FSPF protocol.
domainID	Domain number of local switch.
switchOnline	State of the local switch.
domainValid	TRUE if the domain of the local switch is currently confirmed.
isl_ports	Bit map of all the ISL ports. Bit positions correspond to the default areas of the ports. Bit 0 refers to default area of the switch, bit 1 refers to default area 1, and so forth.
trunk_ports	Bit map of all the trunk slave ports.
f_ports	Bit map of all the Fx_Ports.
seg_ports	Bit map of all the segmented ports.
active_ports	Bit map of all the ONLINE ports.
minLSArrival	FSPF constant.
minLSInterval	FSPF constant.
LSoriginCount	Internal variable.
startTime	Start time of the FSPF task from boot time, in milliseconds.
fspfQ	FSPF input message queue.
fabP	Pointer to fabric data structure.
agingTID	Aging timer ID.
agingTo	Aging time out value, in milliseconds.
lsrDlyTID	Link State Record delay timer ID.

Table 12 `fspfshow` display fields

Field	Description
lsrDelayTo	Link State Record delay time out value, in milliseconds.
lsrDelayCount	Counter of delayed Link State Records.
ddb_sem	FSPF semaphore ID.
event_sch	FSPF scheduled events bit map.

Operands

Examples

To display FSPF protocol information:

```
switch:admin> fspfshow

    version       = 2
    domainID      = 131
    switchOnline  = TRUE
    domainValid   = TRUE
    isl_ports[0]  = 0x00000000
    isl_ports[1]  = 0x74000000
    trunk_ports[0] = 0x00000000
    trunk_ports[1] = 0x02000000
    f_ports[0]    = 0x00400000
    f_ports[1]    = 0x00000000
    seg_ports[0]  = 0x00000000
    seg_ports[1]  = 0x00000000
    active_ports[0] = 0x00400000
    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
```

See also

bcastShow

topologyShow

uRouteShow

fwAlarmsFilterSet

Enables or disables alarms for Fabric Watch.

Synopsis

```
fwalarmsfilterset [mode]
```

Availability

admin

> **NOTE:** This command requires a Fabric Watch license.

Description

Use this command to configure alarm filtering for Fabric Watch. By turning off the alarms, all non-environment class alarms are suppressed. By turning on the alarms, all class alarms are generated.

Operands

This command has the following operand:

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

Examples

To enable alarms in Fabric Watch:

```
switch:admin> fwalarmsfilterset
Committing configuration...done.
FW: Alarms are disabled


switch:admin> fwalarmsfilterset 1
Committing configuration...done.
FW: Alarms are enabled
```

See also

fwAlarmsFilterShow

fwAlarmsFilterShow

Displays alarm filtering for Fabric Watch.

Synopsis

```
fwalarmsfiltershow
```

Availability

all users

📝 **NOTE:** This command requires a Fabric Watch license.

Description

Use this command to display whether alarm filtering is enabled or disabled.

Operands

Examples

To display the status of alarm filtering in Fabric Watch:

```
switch:user> fwalarmsfiltershow
FW: Alarms are enabled


switch:user> fwalarmsfiltershow
FW: Alarms are disabled
```

See also

fwAlarmsFilterSet

fwClassInit

Initializes all classes under Fabric Watch.

Synopsis

```
fwclassinit
```

Availability

admin

> 📝 **NOTE:** This command requires a Fabric Watch license.

Description

Use this command to initialize all classes under Fabric Watch. The command should be used only after installing a Fabric Watch license to start licensed Fabric Watch classes. See fwConfigure for a list of classes.

Operands

Examples

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

Reloads the Fabric Watch configuration.

Synopsis

```
fwconfigreload
```

Availability

admin

📝 **NOTE:** This command requires a Fabric Watch license.

Description

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

Operands

Examples

To reload the saved Fabric Watch configuration:

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

See also

configDownload

configUpload

fwClassInit

fwConfigure

fwShow

fwConfigure

Displays and modifies the Fabric Watch configuration.

Synopsis

fwconfigure [--enable --port *portNumber*] | [--disable --port *portNumber*]

Availability

admin

> **NOTE:** This command requires a Fabric Watch license.

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. Each area can include multiple thresholds. In addition, the command can be used to disable or enable all thresholds associated with a given port.

The Fabric Watch classes and areas are provided in Table 13.

> **NOTE:** Not all platforms support fans or power supplies. If you attempt to configure values for these items, an ERROR: No threshold available error message is displayed.

Table 13 fwConfigure fabric watch classes and areas

Class	Area
Environmental	Temperature
	Fan
	Power Supply
SFP	Temperature
	RXP
	TXP
	Current
	Voltage

Table 13 `fwConfigure` fabric watch classes and areas (continued)

Class	Area
Port	Link loss
	Sync loss
	Signal loss
	Protocol error
	Invalid words
	Invalid CRCS
	RXPerformance
	TXPerformance
	State Changes
Fabric	E_Port downs
	Fabric reconfigure
	Domain ID changes
	Segmentation changes
	Zone changes
	Fabric<->QL
	Fabric logins
	SFP state changes
E_Port	Link loss
	Sync loss
	Signal loss
	Protocol error
	Invalid words
	Invalid CRCS
	RXPerformance
	TXPerformance
	State Changes

Table 13   `fwConfigure` fabric watch classes and areas (continued)

Class	Area
F/FL_Port (Optical)	Link loss
	Sync loss
	Signal loss
	Protocol error
	Invalid words
	Invalid CRCS
	RXPerformance
	TXPerformance
	State Changes
AL_PA Performance Monitor	Invalid CRCS
EE Performance Monitor	Invalid CRCS
	RXPerformance
	TXPerformance
Filter Performance Monitor	Customer Define

Table 13 `fwConfigure` fabric watch classes and areas (continued)

Class	Area
Security	Telnet Violations
	HTTP Violations
	API Violations
	RSNMP Violations
	WSNMP Violations
	SES Violations
	MS Violations
	Serial Violations
	Front Panel Violations
	SCC Violations
	DCC Violations
	Login Violations
	Invalid Timestamps
	Invalid Signatures
	Invalid Certificates
	SLAP Failures
	SLAP Bad Packets
	TS Out of Sync
	No-FCS
	Incompatible Security DB
	Illegal Command
Resource	Flash

Operands

This command has the following optional operands:

--enable --port *portNumber*	Enables all thresholds associated with a certain port.
--disable --port *portNumber*	Disables all thresholds associated with a certain port.

Examples

To configure thresholds:

```
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 : Security class
    11 : Resource class
    12 : Quit
    Select a class => : (1..12) [1] 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        33 C
                 started    10:28:59 on 02/01/2000          0 C    Informative
         2    envTemp002                    enabled        34 C
                 started    10:28:59 on 02/01/2000          0 C    Informative
         3    envTemp003                    enabled        36 C
                 started    10:28:59 on 02/01/2000          0 C    Informative
         4    envTemp004                    enabled        35 C
                 started    10:28:59 on 02/01/2000          0 C    Informative
         5    envTemp005                    enabled        36 C
                 started    10:28:59 on 02/01/2000          0 C    Informative


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


switch:admin> fwconfigure --disable --port 1
```

See also

    fwClassInit

    fwConfigReload

    fwShow

fwConfigReload

fwFruCfg

Displays or modifies FRU state alert configuration.

Synopsis

```
fwfrucfg [--show]
```

Availability

admin

> **NOTE:** This command requires a Fabric Watch license.

Description

Use this command to configure FRU states and actions. Based on these configuration settings, Fabric Watch generates action when an FRU state changes. To configure e-mail alerts, use fwMailCfg.

> **NOTE:** This command is not applicable to platforms without FRUs.

Operands

This command has the following operand:

--show   Displays the current FRU configuration setting.

If no operand is specified, the configuration prompt appears.

Examples

To change the FRU state alert configuration:

```
switch:admin> fwfrucfg


The current FRU configuration:
                    Alarm State      Alarm Action

-----------------------------------------------
          Slot          0                1
   Power Supply         0                0
          Fan           0                0
          WWN           0                0


Note that the value 0 for a parameter means that
it is NOT used in the calculation


Configurable Alarm States are:
Absent-1, Inserted-2, On-4, Off-8, Faulty-16


Configurable Alarm Actions are:
Errlog-1, E-mail-16
Slot Alarm State: (0..31) [0] 3
Slot Alarm Action: (0..17) [1]
Power Supply Alarm State: (0..31) [0]
Power Supply Alarm Action: (0..17) [0]
Fan Alarm State: (0..31) [0]
Fan Alarm Action: (0..17) [0]
WWN Alarm State: (0..31) [0]
WWN Alarm Action: (0..17) [0]



Fru configuration successfully changed
```

See also

fwConfigure

fwMailCfg

fwHelp

Displays Fabric Watch command information.

Synopsis

```
fwhelp
```

Availability

all users

📝 **NOTE:** This command requires a Fabric Watch license.

Description

Use this command to display the commands that configure Fabric Watch.

Operands

Examples

To display a summary of Fabric Watch commands:

```
switch:user> fwhelp

  fanShow                 Show fan speeds
  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
  fwFruCfg                Configure FRU state and notification
  fwMailCfg               Configure Fabric Watch Email Alert
  fwPortDetailShow        Create a report with detailed port information
  fwSamShow               Show availability monitor information
  fwSet                   Set port persistence time
  fwSetToCustom           Set boundary & alarm level to custom
  fwSetToDefault          Set boundary & alarm level to default
  fwShow                  Show thresholds monitored or port persistence time
  sensorShow              Show sensor readings
  switchStatusPolicySet   Set switch status policy parameters
  switchStatusPolicyShow  Show switch status policy parameters
  switchStatusShow        Show overall switch status
  tempShow                Show switch temp readings
```

See also

fwMailCfg

Displays and configures Fabric Watch e-mail alerts.

Synopsis

```
fwmailcfg
```

Availability

admin

📝 **NOTE:** This command requires a Fabric Watch license.

Description

Use this command to display or modify the configuration and status of the Fabric Watch e-mail alert in the switch.

Switch elements monitored by Fabric Watch are divided into classes, and e-mail alerts are based on the classes. Each class can configure one e-mail address as the alert message's receiver.

For an e-mail alert to function correctly, add the CP0 and CP1 IP addresses and hostname to DNS and also set the domain name and name server. The `ipAddrShow` and `dnsConfig` commands can be used to set and check this information.

Operands

Examples

To configure an e-mail settings:

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


(continued on next page)
```

```
      Config Show Menu
  ------------------------------------
    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  : End-to-End Performance Monitor class
    9  : Filter Performance Monitor class
   10  : Security class
   11  : Resource class
   12  : FRU Class
   13  : Quit
  Select an item => : (0..13) [11] 1


   mail configuration information
  -------------------------------------------
    Email Alert = disable
    Mail Recipients = NONE
  -------------------------------------------


  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  : Quit
  Select an item => : (1..6) [6] 5


(continued on next page)
```

```
Mail Config Menu

   ------------------------------------
      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  : End-to-End Performance Monitor class
      9  : Filter Performance Monitor class
     10  : Security class
     12  : FRU Class
     13  : Quit
   Select an item => : (0..13) [11] 1
   Mail To: [NONE] JoeDoe@bogus.com


   Email Alert configuration succeeded!
```

See also

fwConfigure

ipAddrSet

ipAddrShow

fwPortDetailShow

Displays the port information for specified user ports.

Synopsis

```
fwportdetailshow [--p portNumber] | [--s portState]
```

Availability

all users

> 📝 **NOTE:** This command requires a Fabric Watch license.

Description

Use this command to print the overall status of the ports specified. The overall status is calculated based on the following contributors:

Port Errors

LFA	Number of link loss occurrences exceeded limit for time period
LSY	Number of sync loss occurrences exceeded limit for time period
LSI	Number of signal loss occurrences exceeded limit for time period
PER	Number of protocol errors exceeded limit for time period
INW	Number of invalid words exceeded limit for time period
CRC	Number of invalid CRC errors exceeded limit for time period
PSC	Port hardware state changed too often
BLP	Buffer limit port

SFP Errors

STM	SFP temperature is out of specification
SRX	SFP receive power is out of specification
STX	SFP transmit power is out of specification
SCU	SFP current is out of specification
SVO	SFP voltage is out of specification

The overall status can be in one of the followings:

Healthy	Every contributor is healthy
Marginal	One or more contributors are in this status
Faulty	Faulty hardware
Offline	Port has no connectivity or is disabled

If the overall status is not healthy, the contributing factors also are listed.

Operands

If no operand is specified, all ports are displayed.

This command has the following operands:

--p portNumber	Yields a port detail report for a specific port.

| --s *portState* | Yields a port detail report for the specified portState. Valid *portState* entries are: |
| | |

h	Report based on all healthy ports
m	Report based on all marginal ports
f	Report based on all faulty ports
o	Report based on all offline ports

Examples

To retrieve a port detail report:

```
switch:user> fwportdetailshow --s h
  Port Detail Report                       Report time: 06/07/2004 03:11:44 PM
  Switch Name:    switch
  IP address:     10.255.255.255
  Port Exception report [by Healthy]


                              --------Port-Errors------------
  -----SFP-Errors----
  Port# Type  State   Dur(H:M) LFA LSY LSI PER INW CRC PSC BLP STM SRX STX SCU
SV0


--------------------------------------------------------------------------------
--
  000    E   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  001    E   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  002    F   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  003    F   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  004    E   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  005    E   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  006    E   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  007    E   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  008    E   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  009    F   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  022    F   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  023    F   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  024    E   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  025    E   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  026    F   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  027    F   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  028    E   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  029    E   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  031    F   HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -


(continued on next page)
```

```
switch:user> fwportdetailshow --s h
  Port Detail Report                    Report time: 06/07/2004 03:11:44 PM
  Switch Name:     switch
  IP address:      10.255.255.255
  Port Exception report [by Healthy]


                            --------Port-Errors------------
  -----SFP-Errors----
  Port# Type  State    Dur(H:M) LFA LSY LSI PER INW CRC PSC BLP STM SRX STX SCU
  SV0

  --------------------------------------------------------------------------------
  --
  000   E    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  001   E    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  002   F    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  003   F    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  004   E    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  005   E    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  006   E    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  007   E    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  008   E    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  009   F    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  022   F    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  023   F    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  024   E    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  025   E    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  026   F    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  027   F    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  028   E    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  029   E    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
  031   F    HEALTHY   001:11   -   -   -   -   -   -   -   -   -   -   -   -   -
```

See also

switchStatusShow

fwSamShow

Displays switch availability monitor information.

Synopsis

```
fwsamshow
```

Availability

all users

📝 **NOTE:** This command requires a Fabric Watch license.

Description

Use this command to display information about port availability. The information displayed includes total uptime, total downtime, number of faulty occurrences, and total percent of downtime for each port.

Operands

Examples

To display port summary information on an eight port switch:

```
switch:user> fwsamshow

                          Total      Total      Down         Total
    Port#          Type   Up Time    Down Time  Occurrence   Offline Time
                          (Percent)  (Percent)  (Times)      (Percent)


==============================================================================
=
    0              U_PORT      0          0          0           100
    1              U_PORT      0          0          0           100
    2              U_PORT      0          0          0           100
    3              E_PORT     21          0          0            78
    4              E_PORT     20          0          0            80
    5              U_PORT      0          0          0           100
    6              U_PORT      0          0          0           100
    7              U_PORT      0          0          0           100
```

See also

portShow

switchShow

fwSet

Sets the parameters controlled by Fabric Watch.

Synopsis

```
fwset [--port --persistence seconds]
```

Availability

all users

> **NOTE:** This command requires a Fabric Watch license.

Description

Use this command to set parameters controlled by Fabric Watch. It allows the user to set the port persistence time (time in which a port must persistently be in a marginal state before being labeled as such)

Operands

The operand is as follows:

`--port --persistence seconds`   Set port parameters. Currently only port persistence time can be set with this option. Port persistence time is the time period in which a port must be persistently in a state before being actually being recognized as such.

Examples

To set message levels and port persistence time:

```
switch:user> fwset --port --persistence 18
```

See also

fwShow

fwSetToCustom

Sets boundary and alarm levels to custom values.

Synopsis

```
fwsettocustom
```

Availability

admin

📝 **NOTE:** This command requires a Fabric Watch license.

Description

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

Operands

Examples

To set alarm levels to custom values:

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

See also

fwSetToDefault

fwSetToDefault

Returns boundary and alarm levels to the default values.

Synopsis

```
fwsettodefault
```

Availability

admin

📝 **NOTE:** This command requires a Fabric Watch license.

Description

Use this command to return boundary and alarm levels to defaults for all classes and areas in Fabric Watch.

Operands

Examples

To return alarm levels to default values:

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

See also

fwSetToCustom

fwShow

Displays the thresholds monitored by Fabric Watch.

Synopsis

```
fwshow [--port --persistence] | [--disable --port]
```

Availability

all users

📝 **NOTE:** This command requires a Fabric Watch license.

Description

Use this command to display the thresholds monitored by Fabric Watch. This command also displays the port persistence time and ports with all thresholds disabled.

Operands

The operands are as follows:

--port --persistence	Displays the time that a port must be persistently in a state before being marked as such.
--disable --port	Displays the ports that have all associated thresholds disabled.

Examples

To display thresholds and port persistence time:

```
switch:user> fwshow
   1  : Show class thresholds
   2  : Detail threshold information
   3  : Show console message level
   4  : Show port persistence time
   5  : Quit
Select an item  => : (1..3) [3] 1


   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  : End-to-End Performance Monitor class
   9  : Filter Performance Monitor class


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```

```
  10 : Security class

  11 : Resource class

  12 : Quit


  Select an item  => : (1..12) [11] 1
1 : Temperature

  2 : Fan

  3 : Power Supply

  4 : return to previous page

  Select an area => : (1..4) [4] 2

  ===================================================================

  Name                 Label                   Last value

  -------------------  ----------------------  -------------------

  envFan001            Env Fan 1               2576 RPM

  envFan002            Env Fan 2               2518 RPM

  envFan003            Env Fan 3               2481 RPM


switch:user> fwshow

  1  : Show class thresholds

  2  : Detail threshold information

  3  : Show console message level

  4  : Show port persistence time

  5  : Quit

  Select an item  => : (1..3) [3] 2


Enter Threshold Name : [] envFan001


    Env Temperature 1:


        Monitored for:      1283 (21 mins)

         Last checked:   10:50:21 on 02/01/2000


          Lower bound:          0 C

          Upper bound:         75 C

          Buffer Size:         10


        Value history:        33 C


            Disabled? No

              Locked? No


   (continued on next page)
```

```
                  Raw history:         38 C
                                  38 C
                                  38 C
                   Flags: 0x     40 TRIGGERED
         Counter:
                Access via: Function call
                Address: 0x100155a8
               Argument: 0x00000001


                Previous: 0x00000026 (38)
                 Current: 0x00000026 (38)


           Events:
            Style: Triggered
               Event 0 occurred 1 time, last at 16:30:17 on 12/09/2011
               Event 1 occurred 10 times, last at 16:49:02 on 12/09/2011
             * Event 5 occurred 1 time, last at 16:30:23 on 12/09/2011


         Callbacks:
            No callbacks are registered.

   switch:user> fwshow --port --persistence
     FW: current port persistence time = 18s


   switch:user> fwshow --port --persistence
     FW: current port persistence time = 18s
   switch:user> fwShow --disable --port
     Port     Threshold Status
     ========================
      1          disabled
```

See also

fwClassInit

fwConfigReload

fwConfigure

fwSet

h

Displays shell history.

Synopsis

h

Availability

all users

Description

Use this command to view the shell history. The shell history mechanism is similar to the UNIX Korn shell history facility. It has a built-in line editor similar to UNIX vi that enables previously typed commands to be edited. The h command displays the 20 most recent commands typed into the shell; the oldest commands are replaced as new ones are entered.

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

Basic vi commands are as follows:

k	Move the cursor up
j	Move the cursor down
h	Move the cursor left
l	Move the cursor right
a	Append
i	Insert
x	Delete
u	Undo

Operands

Examples

To display previous shell commands:

```
switch:admin> h
1 version
2 switchshow
3 portdisable 2
4 portenable 2
5 switchshow
```

See also

haDisable

Disables the High Availability feature in the switch.

Synopsis

```
hadisable
```

Availability

admin

Description

Use this command to disable the High Availability feature in the switch. If the HA feature is already disabled, this command does nothing.

Operands

Examples

To disable the High Availability feature:

```
switch:admin> hadisable
HA is disabled
```

See also

haEnable

haDump

Displays information about the status of the High Availability feature in the switch.

Synopsis

```
hadump
```

Availability

all users

Description

Use this command to display information about the status of the High Availability feature in the switch. This command displays the following information:

- Local CP state (slot number and CP ID)

- Remote CP state (slot number and CP ID)

- High Availability enabled/disabled

- Heartbeat up/down

- Health of standby CP:

Healthy	The standby CP is running and the background health diagnostic has not detected any errors.
Failed	The standby CP is running, but the background health diagnostic has discovered a problem. Failover is disabled until the standby CP is repaired. The information of the failing device in the standby CP is displayed.
Unknown	The standby CP healthy state is unknown due to not existing, heartbeat is down, or healthy monitor detects a configuration file error.

- HA synchronization status:

HA State Synchronized	The system is currently fully synchronized. If a failover became necessary, it would be nondisruptive.
HA State Not In Sync	The system is unable to synchronize the two CPs, due to a faulty standby CP or another system error. If a failover becomes necessary at this time, the standby CP reboots, causing a disruptive failover.

- IP and Fibre Channel addresses configured for the switch.

- Additional internal HA state information, subject to change.

Operands

Examples

To view information about the High Availability feature:

```
switch:admin> hadump


hashow:
Local CP (Slot 6, CP1): Active
Remote CP (Slot 5, CP0): Standby, Healthy
HA enabled, Heartbeat Up, HA State synchronized

ipaddrshow:
SWITCH0
Ethernet IP Address: 10.64.118.104
Ethernet Subnetmask: 255.255.240.0
Fibre Channel IP Address: 0.0.0.0
Fibre Channel Subnetmask: 0.0.0.0

SWITCH1
Ethernet IP Address: 10.64.118.105
Ethernet Subnetmask: 255.255.240.0
Fibre Channel IP Address: 0.0.0.0
Fibre Channel Subnetmask: 0.0.0.0
(output truncated)
```

See also

haFailover

haShow

haEnable

Enables the High Availability feature in the switch.

Synopsis

```
haenable
```

Availability

admin

Description

Use this command to enable the High Availability feature in the switch. If the HA feature is already enabled, this command does nothing.

Operands

Examples

To enable the High Availability feature in the switch:

```
switch:admin> haenable
HA is enabled
```

See also

haDisable

haFailover

Forces the failover mechanism so that the standby control processor (CP) becomes the active CP.

Synopsis

```
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 an active CP reboot, a warning message and confirmation are displayed. If the user confirms, the failover takes place.

When HA synchronization is enabled and the CPs are in sync, the port traffic light does not flash during the failover, even while traffic is continuing to flow.

> **NOTE:** This command is supported only on systems with dual CP cards.

Operands

Examples

To force the failover of the active CP to the standby CP in the switch:

```
switch:admin> hafailover
Local CP (Slot 6, CP1): Active
Remote CP (Slot 5, CP0): Standby, Healthy
HA enabled, Heartbeat Up, HA State synchronized

Warning: This command is being run on a redundant control
processor(CP) system. If the above status does not indicate
'HA State synchronized', then the CPs are not synchronized
and this operation will cause the active CP to reset. This
will cause disruption to devices attached to both switch 0
and switch 1 and will require that existing telnet sessions
be restarted. To reboot a single logical switch on this
system, use the switchreboot command while logged in to
that logical switch.

Are you sure you want to fail over to the standby CP [y/n]?  y
```

See also

haDisable
haEnable
haShow

haShow

Displays control processor (CP) status.

Synopsis

```
hashow
```

Availability

all users

Description

Use this command to display 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

- Health of standby CP:

Healthy	The standby CP is running and the background health diagnostic has not detected any errors.
Failed	The standby CP is running, but the background health diagnostic has discovered a problem with the blade. The logs should be checked to determine the appropriate repair action. Failover is disabled until the standby CP is repaired.
Unknown	The standby CP healthy state is unknown due to not existing, heartbeat is down, or healthy monitor detects a configuration file error.

- HA synchronization status:

HA State Synchronized	The system is currently fully synchronized. If a failover became necessary, it would be nondisruptive.
HA State Not In Sync	The system is unable to synchronize the two CPs, due to the standby CP being faulty or another system error. If a failover became necessary, at this time, the standby CP reboots, and the failover is disruptive.

> **NOTE:** This command might not be supported on nonbladed systems.

Operands

Examples

To display CP status:

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

switch:admin> hashow
Local CP (Slot 6, CP1): Active
Remote CP (Slot 5, CP0): Standby, Failed
                         Backplane PCI fail, severity: CRITICAL
HA enabled, Heartbeat Up, HA State not in sync
```

See also

haDisable

haEnable

haFailover

haSyncStart

Enables HA state synchronization.

Synopsis

```
hasyncstart
```

Availability

admin

Description

Use this command to enable the HA state synchronization.

Operands

Examples

To enable the HA state synchronization:

```
switch:admin> hasyncstart
HA State synchronization has started
```

See also

haFailover

haShow

haSyncStop

haSyncStop

Disables the HA state synchronization.

Synopsis

```
hasyncstop
```

Availability

admin

Description

Use this command to temporarily disable the HA synchronization. The next failover that takes place after
might be disruptive.

Operands

Examples

To disable the HA state synchronizing process:

```
switch:admin> hasyncstop
```

See also

haFailover

haShow

haSyncStart

help

Displays help information for commands.

Synopsis

```
help [command]
```

Availability

all users

Description

Use this command without a operand to display an alphabetical list of individual commands. At the end of the list are commands that display groups of commands; for example, diagShow displays a list of diagnostic commands.

The list displays only commands that are available to the current user; this can vary, according to:

- Login user level
- License key
- Switch model

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

Operands

This command has the following optional operand:

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

Examples

To display help information for the passwd command:

```
switch:admin> help passwd
```

See also

diagHelp

fwHelp

licenseHelp

perfHelp

routeHelp

zoneHelp

historyLastShow

Displays the latest entry in the field replaceable unit (FRU) history log.

Synopsis

```
historylastshow
```

Availability

all users

Description

Use this command to display the contents of the latest 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 (port blade), CP BLADE (control processor), WWN (world wide name card), or UNKNOWN.
Object number	Slot number for blades and unit number for everything else.
Event	Inserted, Removed, or Invalid.
Time of the event	at *Day Mon dd hh:mm:ss yyyy*
The second and third lines of a record each contain one data set, preceded by its name:	
Factory Part Number	*xx-yyyyyyy-zz* or Unknown
Factory Serial Number	*xxxxxxxxxxx* or Unknown

Operands

Examples

To display the late FRU insertion or removal event:

```
switch:admin> historylastshow


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


Records:  11
```

See also

historyShow

historyMode

Displays the mode of the history log.

Synopsis

```
historymode
```

Availability

all users

Description

Use this command to display the mode of the history buffer:

| Rotating mode | New messages overwrite the oldest messages in the log. |
| First-in mode | Once the log is full, all additional logs are discarded so that the first set of logs to fill the buffer are preserved. |

Operands

Examples

To change the history mode to first-in from rotating:

```
switch:admin> historymode
History Mode is: Rotating.
```

See also

historyLastShow

historyShow

historyShow

Displays the entire field replaceable unit (FRU) history log.

Synopsis

```
historyshow
```

Availability

all users

Description

Use this command to display the entire history log, which records insertion and removal events for blades, power supplies, fans, and world wide name (WWN) cards. Each history record contains three lines of information. The first line of each record contains the following:

Object type	CHASSIS, FAN, POWER SUPPLY, SW BLADE (port blade), CP BLADE (control processor), WWN (WWN card), or UNKNOWN
Object number	Slot number for blades and unit number for everything else.
Event type	Inserted, Removed, or Invalid
Time of the event	Format: *Day Mon dd hh:mm:ss yyyy*

The second and third lines of a record respectively contain the factory part number and factory serial number, if applicable:

Factory Part Number	*xx-yyyyyyy-zz* or Unknown
Factory Serial Number	*xxxxxxxxxxxx* or Unknown

Operands

Examples

To display the entire contents of the history file:

```
switch:admin> historyshow


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


POWER SUPPLY  Unit 1    Inserted at Tue Aug 14 10:52:10 1970
Factory Part Number:    60-0001536-02
Factory Serial Number:  Not Available


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


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


(output truncated)


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


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


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


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


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


Records:  11
```

See also

     historyLastShow

httpCfgShow

Displays the Java™ plug-in version.

Synopsis

```
httpcfgshow
```

Availability

all users

Description

Use this command to display the version of the Java plug-in supported by Web Tools. This command also displays the URL from which the plug-in can be downloaded.

Operands

Examples

To display the Java plug-in version:

```
switch:admin> httpcfgshow
Current HTTP configuration
javaplugin.version = 1,3,1
javaplugin.homeURL = http://java.sun.com/products/plugin
```

See also

i

Displays a task summary.

Synopsis

```
i [processID]
```

Availability

all users

Description

Use this command to display information about all of the processes or about a specific process (if a process ID) is supplied. One line is displayed per process. Fields displayed with this commands include those shown in Table 14.

Table 14   i command field descriptions

Field	Description
F	Process flags: ALIGNWARN 001 print alignment warning messages 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 did not exec SUPERPRIV 100 used super-user privileges DUMPCORE 200 dumped core SIGNALED 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
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

Table 14 i command field descriptions (continued)

Field	Description
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, process is running)
TTY	The controlling terminal of the process (? 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:

processID   Specify the process name or process ID for the process to display.

Examples

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
```

See also

diagHelp

routeHelp

ifModeSet

Sets the link operating mode for a network interface.

Synopsis

```
ifmodeset ["interface"]
```

Availability

admin

Description

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

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.

Changing the link mode is not supported for all network interfaces or for all Ethernet network interfaces. This command is only functional for the eth0 interface.

When selecting auto-negotiation, you can choose the specific link operating modes that are advertised to the link partner. At least one common link operating mode must be advertised by both sides of the link.

When forcing the link operating mode, both sides of the link must be forced to the exact same mode. The link does not work reliably if one side is set to auto-negotiate and the other side is set to forced mode.

Exercise care when using this command. Forcing the link to an operating mode not supported by the network equipment to which it is attached might result in an inability to communicate with the system through its Ethernet interface. It is recommended that this command only is used from the serial console port. When used through an interface other than the serial console port, the command displays a warning message and prompts the user to for verification before continuing. this warning is not displayed and the user is not prompted when the command is used through the serial console port.

For dual-CP systems, the `ifModeSet` command affects the CP that you are currently logged in to. To set the link operating mode on the active CP, you must issue this command on the active CP; to set the link operating mode on the standby CP, you must issue this command on the standby CP. During failover, the link operating mode is retained separately for each CP, because the physical links might be set to operate in different modes.

> **NOTE:** This command is not supported on the HP StorageWorks SAN Switch 4/32 switch and HP StorageWorks SAN Director 2/128 and 4/256 directors that use a Broadcom PHY transceiver.

Operands

This command has the following operand:

interface	Specify the name of the interface. You can specify the name with quotation marks, but using them is not required. For example, you can use either `eth0` or "eth0", where *eth* is the network interface and *0* is the physical unit.

Examples

To advertise all modes of operation, when not entering this command through the serial console port, follow this scenario for the `ifModeSet` command:

```
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 the link for the eth0 interface from auto-negotiation to 10 Mbit/sec half-duplex operation, when entering this command through the serial console port:

```
switch:admin> ifModeSet eth0

Auto-negotiate (yes, y, no, n): [yes] n

Force 100 Mbps / Full Duplex (yes, y, no, n): [no] n

Force 100 Mbps / Half Duplex (yes, y, no, n): [no] n

Force 10 Mbps / Full Duplex (yes, y, no, n): [no] n

Force 10 Mbps / Half Duplex (yes, y, no, n): [no] y

Committing configuration...done.
```

See also

ifModeShow

ifModeShow

Displays the link operating mode for a network interface.

Synopsis

```
ifmodeshow [interface]
```

Availability

all users

Description

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

Operands

This command has the following operand:

interface	Specify the name of the interface. You might specify the name with quotation marks, but using them is not required. For example, you can use either `eth0` or "`eth0`", where *eth* is the network interface and *0* is the physical unit.

Examples

To display the link operating mode for the eth0 Ethernet interface:

```
switch:admin> ifmodeshow eth0
Link mode: negotiated 100baseTx-HD, link ok
```

See also

ifModeSet

interfaceShow

Displays FSPF interface information.

Synopsis

```
interfaceshow [slotnumber/][portnumber]
```

Availability

all users

Description

Use this command to display the two data structures associated with FSPF interfaces (E_Ports) on the switch:

- The permanently allocated Interface Descriptor Block (IDB).

- The neighbor data structure. This data structure 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 an adjacent switch.

This command displays the content of both data structures, if they have been allocated.

The following fields are displayed:

idbP	Pointer to IDB.
nghbP	Pointer to neighbor data structure.
ifNo	Interface number.
masterPort	Port number of the trunk master port, if present, of the trunk group of which this port is a part.
defaultCost	Default cost of sending a frame over the ISL connection to this interface.
cost	Cost of sending a frame over the ISL connected to this interface. A value of 1000 indicates a 1-Gb/sec link. A value of 500 indicates a 2-Gb/sec link.
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_FULL.

nghbCap	Neighbor capabilities. Should be 0.
nghbId	Domain ID of the neighbor (adjacent) switch.
idbNo	IDB number. Should be equal to *port_number*.
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.
lastInit	Time the last initializing state, NB_ST_INIT, on this interface.
firstHlo	Time the first hello sent on this interface.
nbstFull	Time the last finishing state, NB_ST_FULL, on this interface.
&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 timeout value, in milliseconds. When this timeout expires, the adjacency with the neighbor switch is broken and new paths are computed to all possible destination switches in the fabric.
helloTo	Hello timeout value, in milliseconds. When this timeout expires, a Hello frame is sent to the neighbor switch through this port.
rXmitTo	Retransmission timeout value, in milliseconds. It is used to transmit topology information to the neighbor switch. If no acknowledgement is received within this value, the frame is retransmitted.
nCmdAcc	Total number of commands accepted from the neighbor switch. Number includes Hellos, Link State Updates (LSU), and LSAs.
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.
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   For bladed systems only, specify the slot number of the port to display, followed by a slash (/).

portnumber   Specify the port number to display, relative to its slot for bladed systems. Use `switchShow` to list valid ports. This operand is optional; if omitted, the interface information for all ports is displayed.

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).

Examples

To display FSPF interface information:

```
switch:user> interfaceshow 1/4


idbP            = 0x1008b3d0


Interface 4 data structure:


nghbP           = 0x1008c668
ifNo            = 4
masterPort      = 4 (self)
defaultCost     = 500
cost            = 500
delay           = 1
lastScn         = 16
lastScnTime     = Apr 02 20:01:44.458
upCount         = 2
lastUpTime      = Apr 02 20:01:44.458
downCount       = 1
lastDownTime    = Apr 02 20:01:09.050
downReason      = 2
iState          = UP


Neighbor 4 data structure:


(continued on next page)
```

```
state             = NB_ST_FULL
lastTransition    = Apr 02 20:01:44.512
nghbCap           = 0x0
nghbId            = 100
idbNo             = 4
remPort           = 52
nflags            = 0xf
initCount         = 1
lastInit          = Apr 02 20:01:44.460
firstHlo          = Apr 02 20:01:44.473
nbstFull          = Apr 02 20:01:44.512
delay             = 1
lastScn           = 16
&dbRetransList    = 0x1008c6a0
&lsrRetransList   = 0x1008c6c4
&lsrAckList       = 0x1008c6e8
inactTID          = 0x1008c768
helloTID          = 0x1008c7a0
dbRtxTID          = 0x1008c7d8
lsrRtxTID         = 0x1008c848
inactTo           = 80000
helloTo           = 20000
rXmitTo           = 5000
nCmdAcc           = 7
nInvCmd           = 0
nHloIn            = 2
nInvHlo           = 0
nLsuIn            = 2
nLsaIn            = 3
attHloOut         = 2
nHloOut           = 2
attLsuOut         = 3
nLsuOut           = 3
attLsaOut         = 2
nLsaOut           = 2
```

See also

nbrStateShow

portShow

switchShow

interopMode

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

Synopsis

```
interopmode [mode]
```

Availability

admin

Description

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

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

HP domain IDs must be between 97 and 127 for successful connection to other switches. The firmware automatically assigns a valid domain ID, if necessary, when interoperability mode is enabled.

Before enabling interoperability mode, inspect the individual switches and the zoning database for compatibility, disable any features not supported in interoperability mode, and disable the Platform Management functions using the `msPlMgmtDeactivate` command.

When the switch is running in interoperability mode, the following parameters cannot be changed using the `configure` command: Port number zoning, Node WWN zoning, QuickLoop zoning, virtual channel encoded address, and Secure Fabric OS.

When interoperability mode is disabled, configuration parameters are returned to their default states and can be changed using the `configure` command.

NOTE: When you are in interoperability mode, the only type of zoning supported is port WWN zoning.

When security is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following operand:

mode	Specify `1` to enable interoperability mode; specify `0` to disable interoperability mode. This operand is optional; if omitted, this command displays the current value.

Examples

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

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

Synopsis

```
iodreset
```

Availability

admin

Description

Use this command to turn off the IOD option. The IOD option is turned off by default; however, if the IOD option was turned on using `iodSet`, this command can be used to turn it off again. Disabling IOD allows fast re-routing after a fabric topology change.

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

Operands

Examples

To turn off the IOD option:

```
switch:admin> iodreset
switch:admin> iodshow


IOD is not set
```

See also

`iodSet`

`iodShow`

iodSet

Enables the in-order delivery (IOD) option.

Synopsis

```
iodset
```

Availability

admin

Description

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

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

The default behavior is for the IOD option to be off.

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

Operands

Examples

To turn on the IOD option:

```
switch:admin> iodset
switch:admin> iodshow


IOD is set
```

See also

iodReset

iodShow

iodShow

Displays the in-order delivery (IOD) option setting.

Synopsis

```
iodshow
```

Availability

all users

Description

Use this command to display whether the IOD option is enabled or disabled.

Operands

Examples

To display the current setting of the IOD option:

```
switch:admin> iodshow

IOD is not set
```

See also

iodReset

iodSet

ipAddrSet

Sets the IP address details for a switch or control processor (CP).

Synopsis

```
ipaddrset [-cp number] [-sw number]
```

Availability

admin

Description

Use this command to set the IP addresses on the switch or CP. If no option is provided on a chassis-based system, the command displays the usage. To set the CP IP address use -cp; to set the switch IP address use -sw. When setting the switch, the command prompts for the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask. When setting the CP, the command prompts for the Ethernet IP address, Ethernet subnetmask, host name, and gateway IP address.

Valid switch and CP values depend on the platform from which the command is being run. For a nonchassis-based switch, the command ignores all operands. The command prompts for the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, Fibre Channel subnetmask, and gateway IP address.

Operands

This command has the following operands on a chassis-based system:

-cp number	Valid options include:
	• 0 sets the Ethernet IP address, Ethernet subnetmask, gateway IP address, and host name of CP0.
	• 1 sets the Ethernet IP address, Ethernet subnetmask, gateway IP address, and host name of CP1.
-sw number	Valid options include:
	• 0 sets the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask of logical switch 0.
	• 1 sets the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel Subnetmask of logical switch 1.

If no option is specified the command displays the usage.

Examples

To set the IP address details for logical switch 1 on a chassis-based system:

```
switch:admin> ipaddrset -sw 1
Ethernet IP Address [192.168.166.148]:
Ethernet Subnetmask [255.255.255.0]:
Fibre Channel IP Address [none]:
Fibre Channel Subnetmask [none]:
Committing configuration...Done.
OK.
```

See also

ipAddrShow

ipAddrShow

Display the IP address information for a switch or control processor (CP).

Synopsis

ipaddrshow [-cp *cp_number*] | [-sw *sw_number*]

Availability

all users

Description

Use this command to display the IP addresses configured in the system.

The -cp option displays the CP IP address and the -sw option displays the switch IP addresses. For switches, the command displays the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask. For CPs, the command displays the Ethernet IP address, Ethernet subnetmask, host name, and gateway IP address.

Operands

This command has the following operands:

-cp *cp_number*	For dual-CP systems, specify CP card number to display (0 or 1).
-sw *sw_number*	For dual-domain systems, specify the switch number to display (0 or 1).

If no operands are specified, the command displays all the IP addresses configured in the system. For nonchassis-based switches, this command ignores all operands.

Examples

To display the IP address for logical switch 0:

```
switch:admin> ipaddrshow -sw 0
Ethernet IP Address: 192.168.166.147
Ethernet Subnetmask: 255.255.255.0
Fibre Channel IP Address: 0.0.0.0
Fibre Channel Subnetmask: 0.0.0.0
```

See also

ipAddrSet

islShow

Displays ISL information.

Synopsis

```
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 WWN to which the ISL is connected, the speed of the connection, and whether this ISL is trunked are displayed.

Operands

Examples

To display the ISL connections for the switch:

```
switch:admin> islshow
1: 33 -> 29    10:00:00:60:69:80:4f:84 switch sp: 2G  bw: 4G  TRUNK
2: 39 ->  7    10:00:00:60:69:80:4f:84 switch sp: 2G  bw: 8G  TRUNK
3: 41 ->  (incompatible)
4: 47 ->  (incompatible)
5: 57 -> 25    10:00:00:60:69:80:4f:84 switch sp: 2G  bw: 4G  TRUNK
6: 60 ->  2    10:00:00:60:69:80:4f:84 switch sp: 2G  bw: 4G  TRUNK
```

See also

switchShow

itemList

Lists parameter syntax information.

Synopsis

item_*list* = *element* | *element white item_list*

element = *item* | *item - item*

item = *num* | *slot* [*white*] / [*white*] *num*

slot = *num*

num = *hex* | *int*

int = *int digit* | *digit*

hex = *0x hex digit* | *hex hex digit*

digit = 0|1|2|3|4|5|6|7|8|9

hex digit = *digit* |A|B|C|D|E|F|a|b|c|d|e|f

white = *["\t\f\r ,"]

Description

All kernel diagnostics have at least one item list parameter to specify which ports to test. The normal default value for this parameter is to select everything.

📝 **NOTE:** This is not a command; rather, it is a common parameter to many commands.

If you want to restrict the items to be tested to a smaller set, the parameter value is an item list with the following characteristics:

- It is a comma-separated list of items.

- Each item in the list might be a single element or a range of elements indicated by a hyphen (-) and be mixed with individual values.

- Spaces and tab stops are skipped.

- Each item might be preceded by an optional slot number and foward slash (/).
  For example, `0,3,4-6,1`; `0,1,3,4,5,6`; and `0 3 4-6 1` each select items `0, 1, 3, 4, 5, 6`

Besides the syntax rules, there are also some grammatical restrictions on the slot numbers:

- Once specified, a slot selection applies to all items to the right of the slot selections until the next slot selection or the end of the item list. For example, `1/0 - 15` and `1/0 - 1/15` are equivalent.

- If no slot number is specified, user port lists are specified by area number. For instance, `0, 16, 32` and `1/0, 2/0, 3/0` specify the same ports on a 16-port/blade system. On that same system, `1/0, 16, 32` is not a valid list: even though it's syntax is legal, the ports do not exist.

- If no slot number is specified, all lists except user port lists will use the default slot `0`.

- No list type except for user port lists might specify multiple conflicting slot numbers. For instance, `1/0, 2/0, 3/0` is a valid user port list but is not valid for any other type of list.

- In the case of conflicting settings within a single item list, an error is generated, as described earlier. In the case of multiple item list parameters, the last one on the command line overrides previous settings.

The exact type of list varies, depending on the test and the parameter; however, the most common are blade ports and user ports. A list of blade ports is most commonly used by ASIC-level tests such as cmiTest or turboRamTest and represents which ports on the current blade (specified with --slot # parameter) are tested. A list of user ports is used by the higher-level tests, such as spinSilk or crossPortTest, to specify which user-accessible external ports within the current switch (selected during telnet login) are tested. When specified in an item list, user ports might be specified by either the area portion of the ports Fibre Channel address or with slot/port notation. For nonblade systems, the port number on the silkscreen is the area number, so the two notations are identical.

The exact type of list required for any input parameter might be determined with the diagCommandShow command. For item list parameters, the parameter type is PT_LIST and the list type is one of those shown in Table 15.

Table 15 Object descriptions

Type	Grouping	Description
BPORTS	Blade	Blade ports, internal and external ports
UPORTS	Switch	User ports, ports with external connections
QUADS	Blade	Quadrants, group of (normally four) ports
CHIPS	Blade	Chips, ASICs within a blade
MINIS	Blade	Mini-switches
SLOTS	Chassis	Slots
INDEX	n.a.	Anything

Operands

Examples

See also

backport

camTest

centralMemoryTest

cmemRetentionTest

cmiTest

crossPortTest

diagCommandShow

portLoopbackTest

portRegTest

killTelnet

Terminates an open telnet session.

Synopsis

```
killtelnet
```

Availability

admin

Description

Use this command to terminate an open telnet session. The `killTelnet` command is an interactive menu-driven command. Upon invocation, it lists all the current telnet and serial port login sessions. It lists information such as the session number, login name, idle time, IP address of the connection, and timestamp of when the login session was opened. A prompt is then displayed, at which point you can specify the session number of the connection you want to terminate.

NOTE: The list of open sessions displayed with `killTelnet` includes the user's current session. Make sure you do not kill your own telnet session.

Operands

Examples

To terminate an open telnet connection:

```
switch:admin> killtelnet
Collecting login information....Done
                List of telnet sessions (3 found)

_____

Session No    USER        TTY         IDLE        FROM            LOGIN@
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
    0         root0       ttyS0       1:17m       -               5:13pm
    1         admin0      pts/0       16.00s      192.168.130.29  6:29pm
    2         admin0      pts/1       3.00s       192.168.130.29  6:31pm
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Enter Session Number to terminate (q to quit) 1
Collecting process information... Done.
        You have opted to terminate the telnet session:-
                logged in as "admin0 ", from "192.168.130.29 "
                since " 6:29pm" and has been inactive for "16.00s ",
                the current command executed being: "-rbash ".
                The device entry is: "pts/0 ".
        This action will effectively kill these process(es):-
                    USER         PID ACCESS COMMAND
/dev/pts/0          root       12868 f....  login
                    root       12869 f....  login
                    root       12877 f....  rbash

(continued on next page)
```

```
Please Ensure (Y/[N]): y
killing session.... Done!
Collecting login information....Done


                List of telnet sessions (2 found)
_____

Session No    USER        TTY         IDLE        FROM            LOGIN@
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
    0         root0       ttyS0       1:17m       -               5:13pm
    1         admin0      pts/1       3.00s       192.168.130.29  6:31pm
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Enter Session Number to terminate (q to quit) q
```

See also

licenseAdd

Adds license keys to switch.

Synopsis

```
licenseadd "license"
```

Availability

admin

Description

Use this command to add license keys to the system.

Some features of the switch and the fabric to which it is connected are optional, licensed products. Without a license installed for such products, their services are not available.

After you enter a license, the licensed product is available immediately and the system does not need to be rebooted. An exception to this general handling is that the switch must be rebooted if a fabric license is added to a switch that lacks a fabric license. In this case, the switch must be rebooted to allow the software to recognize the license and initialize itself correctly.

Also, there is special handling required when a trunking license is added to the switch. For a trunking license to become effective, the trunk ports need to be refreshed using the commands portDisable and portEnable, or the switch must be refreshed using the commands switchDisable and switchEnable.

Operands

This command has the following operand:

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

Examples

To add a license key to the switch:

```
switch:admin> licenseadd "aBcDeFGh12345"
adding license key "aBcDeFGh12345"
```

See also

licenseRemove

licenseShow

licenseHelp

Displays commands used to administer license keys.

Synopsis

licensehelp

Availability

all users

Description

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

Operands

Examples

To display license commands:

```
switch:admin> licensehelp

licenseAdd              Add a license to this switch
licenseIdShow           Show system license ID
licenseRemove           Remove a license from this switch
licenseShow             Show current licenses
```

See also

licenseAdd

licenseIdShow

licenseRemove

licenseShow

licenseIdShow

Displays system license ID.

Synopsis

```
licenseidshow
```

Availability

all users

Description

Use this command to display the license ID of the system.

Some features of the switch and the fabric are optional, licensed products. Without a license installed for such products, the services provided by these features are not available.

For dual-domain systems, a single license enables both logical switches to use these products. 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 eight pairs of hexadecimal values, separated by colons. Each hexadecimal value is between 00 (0) and FF (255).

> **NOTE:** While the format of this identifier might be similar or even identical to other identifiers in the system, no inferences should be made about the relationships between them as they are subject to change independently of one another.

Operands

Examples

To display the license ID:

```
switch:admin> licenseidshow
a4:f8:69:33:22:00:ea:18
```

See also

licenseAdd

licenseHelp

licenseRemove

licenseShow

licenseRemove

Removes the license key from the system.

Synopsis

```
licenseremove "license"
```

Availability

admin

Description

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

When the key has been entered, use the licenseShow command to verify that the key has been removed and the licensed product uninstalled.

After removing a license key, the switch must be rebooted. With no license key, licenseShow displays No licenses.

Operands

The following operand is required:

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

Examples

To remove a license key from the switch:

```
switch:admin> licenseremove "bQebzbRdScRfc0iK"
removing license key "bQebzbRdScRfc0iK"
```

See also

licenseAdd

licenseHelp

licenseIdShow

licenseShow

licenseShow

Displays current license keys.

Synopsis

```
licenseshow
```

Availability

all users

Description

Use this command to display current license keys, along with a list of licensed products enabled by these keys. The message `No license installed on this switch is displayed` when no licenses are installed.

Operands

Examples

To display the installed license keys on a switch:

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

See also

licenseAdd

licenseHelp

licenseIdShow

licenseRemove

linkCost

Sets or displays the fabric shortest path first (FSPF) cost of a link.

Synopsis

```
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. The FSPF protocol compares the cost of various paths between a source switch and a destination switch by adding the costs of all the ISL's along each path. FSPF chooses the path with minimum cost. If multiple paths exist with the same minimum cost, FSPF employs load sharing over these paths.

Every ISL has a default cost that is inversely proportional to its bandwidth. For a 1-Gb/s ISL, the default cost is 1000. For a 2-Gb/s ISL, the default cost is 500.

This command can be used to set a non-default, *static* cost for any port.

When executed without arguments, this command displays the current cost of each port on the switch, even those are not ISL's. Active ISLs have an additional suffix of E_PORT attached to their interface number. If the port has a static cost assigned to it, then the suffix of STATIC is appended to the link cost. In this case, only the current link cost is displayed.

Use interfaceShow to display both the default and current link costs.

To remove a static cost from the database, execute this command with a *cost* of zero on the desired port. This port will then revert to its default link cost.

NOTE: Valid *cost* values are 0 to 32767. Assigning a value outside this range saves and displays an abnormal linkcost.

Operands

This command has the following optional operands:

slotnumber	For bladed systems only, specify the slot number of the port to display, followed by a slash (/).
portnumber	Specify the port number to display, relative to its slot for bladed systems. Use switchShow to list valid ports. This operand is optional; if omitted, the cost of all ports is displayed.
cost	Specify the new cost of the link connected to the specified port number.

If no operands are specified, the current values for all ports on the (logical) switch are displayed.

Examples

To display the cost of a link and set that 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

Logs in as a new user.

Synopsis

```
login
```

Availability

all users

Description

Use this command to log in to the switch with another user name and password, without first logging out from the original session. If the user was originally connected using a telnet 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

Examples

To log in as admin from the login user:

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

See also

logout

logout

Logs out from a telnet, rlogin, or serial port session.

Synopsis

```
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 and the serial port returns to the `login:` prompt.

The `exit` command is accepted as a synonym for `logout`, as is **Ctrl-D** at the beginning of a line.

___

NOTE: If you close a telnet or sectelnet session by clicking the "X" in the upper-right corner, the window closes but the session stays open until it times out. Trying to open another session before the timeout has completed causes an error message to display.

___

Operands

Examples

To log out from an rlogin session:

```
switch:admin> logout
Connection to host lost.
```

See also

login

loopPortTest

Functional test of L_Port M->M path on a loop.

Synopsis

```
loopporttest [-nframes count][-ports itemlist][-seed
payload_pattern][-width pattern_width]
```

Availability

admin

Description

Use this command to verify the operation of the switch by sending frames from port M's transmitter and looping the frames back through an external fiber cable, including all the devices on the loop, into port M's receiver. This exercises all the switch components, from the main board, to the SFP, to the fiber cable, to the SFPs (of the devices and the switch), and back to the main board.

The cables and SFPs connected should be of the same technology, meaning that a short wavelength SFPed (switch) port is connected to another short wavelength SFPed (device) port through a short wavelength cable; and a long wavelength port is connected to a long wavelength port; and a copper port is connected to a copper port.

Only one frame is transmitted and received at any one time. The port LEDs flicker green rapidly while the test is running.

The test method is as follows:

1. Determine which ports are L_Ports.

2. Enable ports for cabled loopback mode.

3. Create a frame F of data size (1024 bytes).

4. Transmit frame F through port M, with D_ID to the FL_Port (AL_PA = 0).

5. Pick up the frame from port M, the FL_Port.

6. Check if any of the eight statistic error counters are nonzero: 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 step 3 through step 8 for all ports present until either the number of frames requested is reached or all ports are marked bad.

You can specify a payload pattern to be used when executing this test. If the pattern is not specified, then at every 30 passes, a different data type is used to generate a new pattern to create the frame. The data pattern is generated based on each data type. Some data types might generate different data patterns on every pass. The data types are repeated every 210 pass.

Operands

This command has the following operands:

`-nframes count`	Specify the number of times (or number of frames per port) to execute this test. The default value is 10.
`-ports itemlist`	Specify a list of user ports to test. By default, all user ports in the current slot are tested. See `itemList` for more information on selecting ports.

-seed *payload_pattern*			Specify the seed pattern of the test packets. The 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, …

-width *pattern_width*   Specify the width of the test pattern. Valid values include:

1 for byte (default)

2 for word

3 for quad

This operand is optional.

Examples

To perform a loopback port test:

```
switch:admin> loopporttest -ports 1/0-1/15


    Running Loop Port Test .......
    Test Complete: "loopporttest" Pass 10 of 10
    Duration 0 hr, 0 min & 1 sec (0:0:0:127).
    passed.
```

See also

camTest

centralMemoryTest

cmemRetentionTest

cmiTest

crossPortTest

itemList

portLoopbackTest

portRegTest

spinSilk

sramRetentionTest

lSDbShow

Displays the Fabric Shortest Path First (FSPF) link state database.

Synopsis

```
lsdbshow [domain]
```

Availability

all users

Description

Use this command to display an FSPF link state database record for switches in the fabric, or one domain within it.

There are two types of database entries:

- The link state database entry, which is permanently allocated.

- The link state record (LSR), which is allocated when a switch is connected to the fabric.

The LSR describes the links between connected domains in a fabric. 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 types of database entries, if both are present.

The fields described in Table 16 appear.

Table 16 lsdbShow display fields

Field	Description
Domain	Domain number described by this LSR. A *(self)* keyword after the domain number indicates that LSR describes the local switch.
lsrP	Pointer to LSR.
earlyAccLSRs	Number of LSRs accepted, even though they were not sufficiently spaced apart.
ignoredLSRs	Number of LSRs not accepted because they were not sufficiently spaced apart.
lastIgnored	Last time an LSR was ignored.
installTime	Time this LSR was installed in the database, in seconds since boot.
lseFlags	Internal variable.
uOutIfs	Internal variable
uPathCost	Internal variable.
uOldHopCount	Internal variable.
uHopsFromRoot	Internal variable.
mOutIfs	Internal variable.

Table 16   lsdbShow display fields (continued)

Field	Description
parent	Internal variable.
mPathCost	Internal variable.
mHopsFromRoot	Internal variable.
lsAge	Age, in seconds, of this LSR. An LSR is removed from the database when its age exceeds 3,600 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.
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/sec link is 1000.
costCnt	Always 0.
type	Always 1.

Operands

This command has the following operand:

domain	Specify the domain number of the LSR to be displayed. This operand is optional; if omitted, the entire link state database is displayed.

Examples

To display the link state record for a switch:

```
switch:admin> lsdbshow 1


Domain = 1 (self), Link State Database Entry pointer = 0x1004d430
lsrP            = 0x10053d18
earlyAccLSRs    = 0
ignoredLSRs     = 0
lastIgnored     = Never
installTime     = Apr 02 22:25:30.159
lseFlags        = 0xa
uOutIfsP[0]     = 0x00000000
uOutIfsP[1]     = 0x00000000
uPathCost       = 0
uOldHopCount    = 0
uHopsFromRoot   = 0
mOutIfsP[0]     = 0x00010000
mOutIfsP[1]     = 0x00000000
parent          = 0xb5
mPathCost       = 0
mHopsFromRoot   = 0


Link State Record:
Link State Record pointer = 0x10053d18
lsAge           = 16
reserved        = 0
type            = 1
options         = 0x0
lsId            = 1
advertiser      = 1
incarn          = 0x80000014
length          = 284
chksum          = 0x8453
linkCnt = 16,   flags = 0x0
LinkId =   2, out port =  16, rem port =  48, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  17, rem port =  49, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  18, rem port =  50, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  19, rem port =  51, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  24, rem port =  56, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  25, rem port =  57, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  26, rem port =  58, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  27, rem port =  59, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  32, rem port =   0, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  33, rem port =   1, cost = 500, costCnt = 0, type = 1


(continued on next page)
```

```
LinkId =   2, out port =  34, rem port =   2, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  35, rem port =   3, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  44, rem port =  12, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  45, rem port =  13, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  46, rem port =  14, cost = 500, costCnt = 0, type = 1
LinkId =   2, out port =  47, rem port =  15, cost = 500, costCnt = 0, type = 1


The local switch has sixteen links in NB_ST_FULL state, all of them are
connected to switch 2.
```

See also

interfaceShow

nbrStateShow

memShow

Displays the amounts of free and used memory in a switch.

Synopsis

```
memshow [ -b | -k | -m ]
```

Availability

all users

Description

Use this command to display free and used memory in the switch, as well as the shared memory and buffers used by the kernel.

Operands

This command has the following operands:

-b	Specify to display memory usage in bytes.
-k	Specify to display memory usage in kilobytes.
-m	Specify to display memory usage in megabytes.

By default, memory usage is displayed in bytes.

Examples

To view the memory usage:

```
switch:admin> memshow
            total        used        free      shared     buffers      cached
Mem:     129740800   112562176    17178624           0      139264    30396416
Swap:            0           0           0
switch:admin> memshow -m
            total        used        free      shared     buffers      cached
Mem:           123         107          16           0           0          28
Swap:            0           0           0
```

See also

saveCore

miniCycle

Runs a functional test of internal and external transmit and receive paths at full speed.

Synopsis

    minicycle [--slot slotnumber][-nmegs count][-lb_mode mode][-spd_mode
    mode][-ports itemlist]

Availability

admin

Description

Use this command to verify the intended functional operation of an ASIC pair (miniswitch) at the maximum or selected speed by setting up the routing hardware so that frames received by port M are retransmitted by way of port N. Likewise, frames received by port N are retransmitted by way of port M. Each port M sends two frames to its partner, port N.

This test is run as a series of eight path tests. Each port on the ASIC pair is exchanging frames with one port on the adjacent ASIC in the same miniswitch. At the end of a path test, the frames are captured and the routing is changed so that each port exchanges frames with the next port on the adjacent ASIC of the same miniswitch.

Unlike implementation of the spinSilk command, a port is only exchanging frames with one other port at a time under the miniCycle command. Just like with spinSilk, all ports are active and exchanging frames simultaneously with miniCycle.

The path number being tested determines the partner port N for each port M (bold and italicized in the following example):

    path 0: *0-8*, 1-9, 2-10, 3-11, 4-12, 5-13, 6-14, 7-15
    path 1: 7-8, *0-9*, 1-10, 2-11, 3-12, 4-13, 5-14, 6-15
    path 2: 6-8, 7-9, *0-10*, 1-11, 2-12, 3-13, 4-14, 5-15
    path 3: 5-8, 6-9, 7-10, *0-11*, 1-12, 2-13, 3-14, 4-15
    path 4: 4-8, 5-9, 6-10, 7-11, *0-12*, 1-13, 2-14, 3-15
    path 5: 3-8, 4-9, 5-10, 6-11, 7-12, *0-13*, 1-14, 2-15
    path 6: 2-8, 3-9, 4-10, 5-11, 6-12, 7-13, *0-14*, 1-15
    path 7: 1-8, 2-9, 3-10, 4-11, 5-12, 6-13, 7-14, *0-15*

> **NOTE:** The port numbers are relative to the ASIC pair. This test does not route frames from one ASIC-pair to another.

Ports cabled to other ports fail if port loopback mode is selected, and the port must have media and loopback plugs installed. For best coverage, you should use self-loopback plugs and port loopback mode (-lb_mode 1), as each port's external connectivity will be tested.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test runs.

The path test method is as follows:

1. Clear port statistics and error counters.

2. Enable ports for specified self-loopback mode.

3. Configure up the routing table so that when port M receives frames, the frames are routed back to the partner port N and vice versa.

4. Transmit two frames by way of port M and two frames by way of port N. The following four patterns will be used for the four frames, one pattern each:

   - 1000 bytes of CSPAT

   - 480 bytes of RDRAM_PAT

   - 2112 bytes of BYTE_LFSR

   - 200 bytes of RANDOM

5. Periodically check status:

   a. Each port has not died.

   b. Each port's frames-transmitted counter is still incrementing.

   c. Each port's statistic error counters are nonzero:

   d. ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out, BadOrdSet, DiscC3

   e. Until one of the following is met:

      - The number of frames requested is met on all selected ports.

      - All ports are eventually marked bad.

      - The user aborts the procedure.

The path test is repeated for each path, unless it is aborted by a keyboard interrupt. The data is not read and checked as was done in portLoopbackTest and crossPortTest. There is no CPU intervention during a path test besides the periodic checks of the hardware counters. At the end of a path test, all statistics and routes are reset for the next path test.

An example of the data used is as follows:

```
CSPAT:        0x7e, 0x7e, 0x7e, 0x7e, ...
RDRAM_PAT:    0xff, 0x00, 0xff, 0x00, ...
BYTE_LFSR:    0x69, 0x01, 0x02, 0x05, ...
RANDOM:       0x25, 0x7f, 0x6e, 0x9a, ...
```

Because this test includes the media and the fiber cable loopback plug in its test path, its results combined with the results of portLoopbackTest and spinSilk can be used to determine which components of the switch are faulty.

Operands

The following operands are optional:

--slot *slotnumber*	Specifies the slot number on which the diagnostic operate. The ports specified are relative to this slot number. The default is set to 0 and designed to operate on fixed-port-count products.
-nmegs *count*	Specifies the number of million frames to send per path test. The path test will progress until the specified number of frames has been transmitted on each port. The default value for count is 1, so the total number of frames sent will be at least 8 million (1 million frames * 8 paths).
-lb_mode *mode*	Selects the loopback point for the test. By default, miniCycle uses external (SERDES) loopback.
	1 Port Loopback (loopback plugs)
	2 External (SERDES) loopback

5	Internal (parallel) loopback
7	Backend bypass and port loopback
8	Backend bypass and SERDES loopback
9	Backend bypass and internal loopback

-spd_mode *mode* Specifies the speed mode for the test. This parameter is only used for Bloom and Condor ASIC-based products, for which this parameter controls the speed at which each port operates. For 1G-only products, this parameter is ignored. The exact operation of modes 5 through 8 depends on the loopback mode selected. When speed modes 5 through 8 are used with cables, they must be connected EVEN->ODD or the test fails.

0	Run test at 1 Gb/s, 2 Gb/s, and 4 Gb/s (default).
1	Set all port speeds to lock at 1 Gb/s.
2	Set all port speeds to lock at 2 Gb/s.
4	Set all port speeds to lock at 4 Gb/s.

For -lb_mode set to 0 or 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 -lb_mode set to 2, 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.

-ports *itemlist* Specifies a list of blade ports to test. By default, all the blade ports in the specified slot (--slot) are used. See itemList for further details. If all ports in the ASIC pair are not specified, only paths between selected ports are tested.

```
ASIC-pair 0: -ports 0-15
ASIC-pair 1: -ports 16-31
ASIC-pair 2: -ports 32-47
ASIC-pair 3: -ports 48-63
```

Examples

To run a functional test on slot 1 using external (SERDES) loopback:

```
switch:admin> minicycle --slot 1 -lb_mode 2


Running minicycle ..............
One moment please ...
Path 0 ... Spinning ...
Path 1 ... Spinning ...
Path 2 ... Spinning ...
Path 3 ... Spinning ...
Path 4 ... Spinning ...
Path 5 ... Spinning ...
Path 6 ... Spinning ...
Path 7 ... Spinning ...
Test Complete: minicycle Pass 1 of 1
Duration 0 hr, 1 min & 4 sec (0:1:4:409).
 passed.
```

To run a functional test on ports 0, 1, 2, and 8 using port loopback:

```
switch:admin> minicycle -ports 0,1,2,8 -lb_mode 1
Back Plane Loop Back mode is ON.


Running mini Cycle ............
One moment please ...
Path 0 ... Spinning ...
Path 1 ... skipped.
Path 2 ... skipped.
Path 3 ... skipped.
Path 4 ... skipped.
Path 5 ... skipped.
Path 6 ... Spinning ...
Path 7 ... Spinning ...
Test Complete: "minicycle" Pass 1 of 1
Duration 0 hr, 0 min & 23 sec (0:0:23:100).
 passed.
```

Diagnostics

When it detects failures, the test reports one or more of the following error messages:

```
DATA
EPI1_STATUS_ERR
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
ERR_STAT_BADOS
ERR_STAT_C3DISC
ERR_STAT_CRC
ERR_STAT_ENCIN
ERR_STAT_ENCOUT
ERR_STAT_TRUNC
FDET_PERR
FINISH_MSG_ERR
FTPRT_STATUS_ERR
INIT
LESSN_STATUS_ERR
MBUF_STATE_ERR
MBUF_STATUS_ERR
NO_SEGMENT
PORT_ABSENT
PORT_DIED
PORT_ENABLE
PORT_M2M
PORT_STOPPED
PORT_WRONG
RXQ_FRAME_ERR
RXQ_RAM_PERR
STATS
STATS_C3FRX
STATS_FRX
STATS_FTX
TIMEOUT
XMIT
```

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

backport

camTest

centralMemoryTest

cmemRetentionTest

cmiTest

crossPortTest

itemList

portLoopbackTest

portRegTest

spinSilk

sramRetentionTest

minisPropShow

Displays ASIC pair properties.

Synopsis

```
minispropshow [slotnumber/]asicpair | [--slot slotnumber] -all
```

Availability

all users

Description

Use this command to display the ASIC pair properties.

> **NOTE:** This command is not intended for normal user operation and is available to provide supplemental information during system debug.

Operands

The operands are as follows:

slotnumber/asicpair	Specifies the index of the ASIC pair within the specified blade to be displayed. If *slotnumber* is not provided, the current slot is assumed.
--slot *slotnumber* -all	Specifies the slot on which to operate. The default is 0 and and designed to operate on fixed-port-count products.

Examples

To display all index 1 ASIC pair properties:

```
switch:user> minispropshow 1 -all


slot: 1, 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: 1, 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)


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```

```
slot: 1, 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: 1, 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

msCapabilityShow

Displays the Management Server (MS) capabilities.

Synopsis

```
mscapabilityshow
```

Availability

all users

Description

Use this command to display the supported capabilities of the Management Server for each switch in the fabric. An asterisk displays next to the name of the local switch.

> **NOTE:** Reliable commit service (RCS) is a fabric-wide capability and is supported only if all the switches in the fabric support RCS.

Operands

Examples

To display Management Server capability on a fabric:

```
switch1:user> mscapabilityshow
        Switch WWN           Capability  Name
========================   =========  =======
10:00:00:60:69:20:15:71    0x0000008f  "switch1"*
10:00:00:60:69:00:30:05    0x0000008f  "switch2"


        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: Fabric Zone Service Supported.
                Bit 5: Fabric Lock Service Supported.
                Bit 6: Time Service Supported.
                Bit 7: RSCN Small Payload Supported.
                Bit 8: Reliable Commit Service(RCS) Supported.
                Others: Reserved.

    Done.
```

See also

msConfigure

msPlMgmtActivate

msPlMgmtDeactivate

msTdDisable

msTdEnable

msTdReadConfig

msConfigure

Configures the Management Server (MS) access control list (ACL).

Synopsis

```
msconfigure
```

Availability

admin

Description

Use this command to configure the MS ACL. MS allows a SAN management application to retrieve and administer the fabric and interconnect elements, such as switches. This application is located at the Fibre Channel well-known address, 0xFFFFFA.

If the MS ACL is empty (default), MS is available to all systems connected to the fabric. By populating the MS ACL with one or more world wide names (WWNs), access to MS is restricted to those WWNs only.

This command is interactive and provides the user with the following menu of choices:

1. Done (with the administration)
2. Display the ACL
3. Add member based on its port/node WWN
4. Delete member based on its port/node WWN

If the MS ACL is changed by adding or deleting WWNs, an additional prompt is given asking if the MS ACL should be saved to nonvolatile storage. The saved MS ACL becomes effective upon reboot.

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

> **NOTE:** When security is enabled, the MS ACL is not used. In such a case, access to MS is controlled by security by way of the MS_POLICY configuration.

Operands

Examples

To display the MS ACL:

```
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] 1


(continued on next page)
```

```
    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 ...
```

See also

msCapabilityShow

msPlatShow

msPlClearDB

msPlMgmtActivate

msPlMgmtDeactivate

msTdDisable

msTdEnable

msTdReadConfig

secPolicyShow

msPlatShow

Displays the Management Server (MS) platform database.

Synopsis

```
msplatshow
```

Availability

all users

Description

Use this command to display information from the MS platform database. This command displays the
name of each platform object with the platform type (GATEWAY, HOST_BUS_ADAPTER, and so forth),
associated management addresses, and associated node names.

Operands

Examples

To display the MS 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

msCapabilityShow

msConfigure

msPlatShowDBCB

msPlClearDB

msPlMgmtActivate

msPlMgmtDeactivate

msPlatShowDBCB

Displays the Management Server (MS) platform service database control block.

Synopsis

    msplatshowdbcb

Availability

    all users

Description

    Use this command to display the control block fields associated with the platform database.

Operands

Examples

To display the MS platform service database control block:

```
switch:admin> msplatshowdbcb
Domain   Worldwide Name        Retry Count  Exchange Status
-----------------------------------------------------------
   3: 10:00:00:60:69:51:10:e6     0            0x2
-----------------------------------------------------------
msPlDBCB.peerWwn == 00:00:00:00:00:00:00:00.
msPlDBCB.psPeerWwn == 00:00:00:00:00:00:00:00.
msPlDBCB.replicate == 0.
msPlDBCB.fabMaySeg == 255.
msPlDBCB.enabled == 1.
```

See also

msCapabilityShow

msConfigure

msPlatShow

msPlClearDB

msPlMgmtActivate

msPlMgmtDeactivate

msPlClearDB

Clears the Management Server (MS) platform database on all switches in the fabric.

Synopsis

    msplcleardb

Availability

    admin

Description

Use this command to clear the MS platform database on all switches in the fabric. Because this operation is nonrecoverable, it should not be used unless it is intended to resolve a database conflict between two joining fabrics or to establish an entirely new fabric with an empty database.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

Examples

To clear the MS platform database:

```
switch:admin> msplcleardb

MS Platform Service is currently enabled.
This will erase MS Platform Service Database in the entire fabric.

Would you like to continue this operation? (yes, y, no, n): [no] y

Request to MS Platform DB Clear operation in progress.....

*Completed clearing MS Platform Service Database!!
```

See also

msCapabilityShow

msConfigure

msPlatShow

msPlatShowDBCB

msPlMgmtActivate

msPlMgmtDeactivate

msPlMgmtActivate

Activates the Management Server (MS) platform service.

Synopsis

```
msplmgmtactivate
```

Availability

admin

Description

Use this command to activate the MS platform service in the entire fabric. This command attempts to activate the MS platform service for each switch in the fabric. If successful, the change takes effect immediately and commits to the change to nonvolatile storage of each switch. After successful activation, all switches in the fabric boot with the MS platform service enabled.

By default, the MS platform service is disabled.

Before issuing, run the msCapabilityShow command to verify all switches in the fabric support MS platform service; otherwise, the command fails.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Operands

Examples

To activate the MS platform service:

```
switch:admin> msplmgmtactivate

Request to activate MS Platform Service in progress......

*Completed activating MS Platform Service in the fabric!
```

See also

msCapabilityShow

msPlatShow

msPlClearDB

msPlMgmtDeactivate

msPlMgmtDeactivate

Deactivates the Management Server (MS) platform service.

Synopsis

msplmgmtdeactivate

Availability

admin

Description

Use this command to deactivate the MS platform service in the entire fabric. This command deactivates the MS platform service for each switch in the fabric and commits the change to nonvolatile storage. After a successful deactivation, all switches in the fabric boot with the MS platform service disabled.

> NOTE: When security is enabled, this command can be issued only from the primary FCS switch.

Operands

Examples

To deactivate the MS platform service on all switches in the fabric:

```
switch:admin> msplmgmtdeactivate

MS Platform Service is currently enabled.

This will erase MS Platform Service configuration
information as well as database in the entire fabric.

Would you like to continue this operation? (yes, y, no, n): [no] y

Request to deactivate MS Platform Service in progress......

*Completed deactivating MS Platform Service in the fabric!
```

See also

msCapabilityShow

msConfigure

msPlatShow

msPlatShowDBCB

msPlClearDB

msPlMgmtActivate

msTdDisable

Disables the Management Server (MS) topology discovery service.

Synopsis

```
mstddisable ["ALL"]
```

Availability

admin

Description

Use this command to disable the management server topology discovery service of a local switch or an entire fabric. This change takes effect immediately and commits to the configuration database for all switches; therefore, persistent across power cycles and reboots.

If the "ALL" operand is used, this command attempts to disable the topology discovery service on all switches in the fabric.

> **NOTE:** When security is enabled, and using the "ALL" operand, this command can be issued only from the primary FCS switch.

Operands

This command has the following operand:

"ALL"   Disables the MS topology discovery service throughout the entire fabric. This operand is optional.

Examples

To disable the MS topology discovery service on the local switch only:

```
switch:admin> mstddisable
This may erase all NID entries.  Are you sure? (yes, y, no, n): [no] y

Request to disable MS Topology Discovery Service in progress....
done.
*MS Topology Discovery disabled locally.
```

To disable MS topology discovery on all the switches in the fabric:

```
switch:admin> mstddisable "ALL"
This may erase all NID entries.  Are you sure? (yes, y, no, n): [no] y

Request to disable MS Topology Discovery Service in progress....
done.
*MS Topology Discovery disabled locally.
*MS Topology Discovery Disable Operation Complete!!
```

See also

msTdEnable

msTdReadConfig

msTdEnable

Enables the Management Server (MS) topology discovery service.

Synopsis

```
mstdenable ["ALL"]
```

Availability

admin

Description

Use this command to enable the MS topology discovery service on a local switch or on the entire fabric. This change takes effect immediately and commits to the configuration database for all affected switches.

If the operand "ALL" is used, this command attempts to enable the MS topology discovery service on all switches in the fabric.

📝 **NOTE:** When security is enabled, and using the "ALL" operand, this command can be issued only from the primary FCS switch.

Operands

This command has the following operand:

"ALL"   Enables the MS topology discovery service throughout the entire fabric. This operand is optional..

Examples

To enable the MS topology discovery service on the local switch only:

```
switch:admin> mstdenable


Request to enable MS Topology Discovery Service in progress....
done.
*MS Topology Discovery enabled locally.
```

To enable MS topology discovery on all the switches in the fabric:

```
switch:admin> mstdenable "ALL"


Request to enable MS Topology Discovery Service in progress....
done.
*MS Topology Discovery enabled locally.
*MS Topology Discovery Enable Operation Complete!!
```

See also

msTdDisable

msTdReadConfig

msTdReadConfig

Displays the status of Management Server (MS) topology discovery service.

Synopsis

```
mstdreadconfig
```

Availability

all users

Description

Use this command to check whether or not the management server topology discovery service is enabled.

Operands

Examples

To display the status of the topology discovery service:

```
switch:admin> mstdreadconfig


*MS Topology Discovery is enabled.
```

See also

msCapabilityShow

msConfigure

msPlMgmtActivate

msPlMgmtDeactivate

msTdDisable

msTdEnable

myId

Displays the current login session details.

Synopsis

```
myid
```

Availability

admin

Description

Use this command to display the status of the system and the login session details.

The login session gives details of the following:

- CP/switch (or console/serial port) 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

Examples

To display current login information:

```
switch:admin> myid
        Current Switch: switch
        Session Detail: switch (123.123.123.123) Active  Redundant
```

See also

version

nbrStateShow

Displays FSPF neighbor's state.

Synopsis

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. FSPF defines a neighbor as a remote E_Port interface that is directly attached to the local switch. The following fields display:

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 optional operands:

slotnumber	For bladed systems only, specify the slot number of the port to display, followed by a slash (/).
portnumber	Specify the port number to display, relative to its slot for bladed systems. Use switchShow to list valid ports. If this operand is omitted, all neighbor states are displayed.

Examples

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

```
switch:user> nbrstateshow 2/0


Local Domain ID: 1


Local Port     Domain     Remote Port      State
-----------------------------------------------------
    16            2           48          NB_ST_FULL
```

See also

interfaceShow

nbrStatsClear

Resets FSPF interface counters.

Synopsis

nbrstatsclear [*slotnumber/*][*portnumber*]

Availability

admin

Description

Use this command to reset the counters of FSPF frames transmitted and received on each inter-switch link (ISL) or a specific ISL. These counters display using the using the `interfaceShow` command.

Use this command without operands to reset counters on all interfaces.

Operands

This command has the following operands:

slotnumber   For bladed systems only, specify the slot number of the port to display, followed by a slash (/).

portnumber   Specify the port number to display, relative to its slot for bladed systems. Use `switchShow` to list valid ports. This operand is optional; if omitted, FSPF statistics are reset.

When this command is specified with no operand, the statistics are cleared for all interfaces.

Examples

To reset the counters on a port:

```
switch:admin> interfaceshow 1/0


idbP            = 0x10050a38


Interface 0 data structure:


nghbP           = 0x1004ce68
ifNo            = 0
masterPort      = 0 (self)
defaultCost     = 500
cost            = 500
delay           = 1


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```

```
    (output truncated)

nCmdAcc           = 37
nInvCmd           = 0
nHloIn            = 10
nInvHlo           = 0
nLsuIn            = 17
nLsaIn            = 10
attHloOut         = 11
nHloOut           = 11
attLsuOut         = 12
nLsuOut           = 12
attLsaOut         = 17
nLsaOut           = 17


switch:admin> nbrstatsclear 1/0
switch:admin> interfaceshow 1/0


idbP              = 0x10050a38


Interface 0 data structure:


nghbP             = 0x1004ce68
ifNo              = 0
masterPort        = 0 (self)
defaultCost       = 500
cost              = 500


    (output truncated)

nCmdAcc           = 0
nInvCmd           = 0
nHloIn            = 0
nInvHlo           = 0
nLsuIn            = 0
nLsaIn            = 0
attHloOut         = 0
nHloOut           = 0
attLsuOut         = 0
nLsuOut           = 0
attLsaOut         = 0
nLsaOut           = 0
```

See also

interfaceShow

portShow

switchShow

nodeFind

Displays all the device Name Server (NS) entries matching a given WWN, device PID, or alias.

Synopsis

nodefind *WWN | PID | ALIAS*

Availability

all users

Description

Use this command to display the NS information for all the devices in the fabric that have either a port world wide name (WWN) or a node WWN matching with the given WWN; or have a device PID matching with the given PID; or have a defined configuration alias to which the device belongs matching with the given alias.

The message `No device is found` displays if there is no device matching the given WWN, PID, or alias.

Operands

This command has the following operand:

WWN | PID | ALIAS   Specify the WWN, device PID, or alias that can be used to match the real device's data. *WWN* must have eight colon-separated fields, each consisting of one or two hexadecimal digits between 0 and ff, with no spaces. *PID* must begin with 0x or 0X; otherwise, it interprets as an alias.

Examples

To display all the device information matching the given data:

```
switch:admin> nodefind a320
Local:
 Type Pid     COS      PortName                     NodeName                SCR
 NL   0314d9;      3;22:00:00:04:cf:5d:dc:2d;20:00:00:04:cf:5d:dc:2d; 0
    FC4s: FCP [SEAGATE ST318452FC      0001]
    Fabric Port Name: 20:14:00:60:69:80:04:79
    Permanent Port Name: 22:00:00:04:cf:5d:dc:2d
    Device type: Physical Target
    Aliases: a320
 NL   0314d6;      3;22:00:00:04:cf:9f:78:7b;20:00:00:04:cf:9f:78:7b; 0
    FC4s: FCP [SEAGATE ST336605FC      0003]
    Fabric Port Name: 20:14:00:60:69:80:04:79
    Permanent Port Name: 22:00:00:04:cf:9f:78:7b
    Device type: Physical Target
    Aliases: a320
 NL   0314d5;      3;22:00:00:04:cf:9f:7d:e0;20:00:00:04:cf:9f:7d:e0; 0
    FC4s: FCP [SEAGATE ST336605FC      0003]
    Fabric Port Name: 20:14:00:60:69:80:04:79
    Permanent Port Name: 22:00:00:04:cf:9f:7d:e0
    Device type: Physical Target
    Aliases: a320
 NL   0314d4;      3;22:00:00:04:cf:9f:26:7e;20:00:00:04:cf:9f:26:7e; 0
    FC4s: FCP [SEAGATE ST336605FC      0003]
    Fabric Port Name: 20:14:00:60:69:80:04:79
    Permanent Port Name: 22:00:00:04:cf:9f:26:7e
    Device type: Physical Target
    Aliases: a320
```

To display all the device information matching the given WWN:

```
switch:admin> nodefind 20:00:00:e0:8b:01:ce:d3
Remote:
    Type Pid     COS      PortName                  NodeName
    NL   020eef;      3;20:00:00:e0:8b:01:ce:d3;20:00:00:e0:8b:01:ce:d3;
        Fabric Port Name: 20:0e:00:60:69:51:0b:ba
        Permanent Port Name: 20:00:00:e0:8b:01:ce:d3
    Device type: Physical Target
    Aliases:
```

To display all the device information matching the given PID:

```
switch:admin> nodefind 0x020eef
Remote:
    Type Pid    COS     PortName                    NodeName
    NL   020eef;     3;20:00:00:e0:8b:01:ce:d3;20:00:00:e0:8b:01:ce:d3;
         Fabric Port Name: 20:0e:00:60:69:51:0b:ba
         Permanent Port Name: 20:00:00:e0:8b:01:ce:d3
    Device type: Physical Target
    Aliases:
```

To display all the device information matching the given no match:

```
switch:admin> nodefind abcd
No device found.
```

See also

aliShow

nsAllShow

nscamShow

nsShow

nsAliasShow

Displays local Name Server (NS) information, with aliases.

Synopsis

    nsaliasshow [-r -t]

Availability

all users

Description

Use this command to display local name server information with the added feature of displaying the defined configuration aliases to which the device belongs.

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

    There is no entry in the Local Name Server

The command nsAllShow displays information from all switches.

The display resulting from this command is identical to the command nsAllShow, with the exception of an additional line listing to which the aliases the device belongs. If there are no defined configuration aliases for that device, no alias is displayed.

Operands

This command has the following operands:

-r   Replaces the time-to-live (TTL) attribute output with state change registration (SCR) information in the display. This value indicates what type of registered state change notification (RSCN) a device registers to receive. Values include:

SCR=0	Reserved.
SCR=1	Fabric detected registration. Register to receive all RSCN requests issued by the fabric controller for events detected by the fabric.
SCR=2	Nx_Port detected registration. Register to receive all RSCN requests issued for events detected by the affected Nx_Port.
SCR=3	Register to receive all RSCN request issued. The RSCN request returns all affected N_Port_ID pages.

-t   Displays the device type. Of the two device type parts, the first part indicates the origination of the device. Currently, four originations are defined:

Physical	Device connected to the Nx_Port, using FLOGI to login to the switch
Virtual	Contrived device by the switch
NPV	Device connected to the Nx_Port, using FDISC to log in to the switc
iSCSI	Device connected to the iSCSI port

The second part indicates the role of the device. Currently, four roles are defined:

Unknown (initiator/target)	Device role is not detected

Initiator	A SCSI initiator
Target	A SCSI target
Initiator+Target	Both a SCSI initiator and a SCSI target

Examples

To display local NS information with aliases:

```
switch:admin> nsAliasShow
{
 Type Pid     COS      PortName                    NodeName              TTL(sec)
 N    021200;    2,3;10:00:00:60:69:00:03:19;30:00:00:60:69:00:03:19; na
      FC4s: FCIP
      Fabric Port Name: 20:02:00:60:69:01:44:22
      Permanent Port Name: 10:00:00:60:69:00:03:19
      Aliases:
 N    021300;     3;10:00:00:60:69:00:02:d6;20:00:00:60:69:00:02:d6; na
      Fabric Port Name: 20:03:00:60:69:01:44:22
      Permanent Port Name: 10:00:00:60:69:00:02:d6
      Aliases: DeviceAlias
 NL   0214e2;     3;21:00:00:fa:ce:00:21:1e;20:00:00:fa:ce:00:21:1e; na
      FC4s: FCP [STOREX   RS2999FCPH3     MT09]
      Fabric Port Name: 20:04:00:60:69:01:44:22
      Permanent Port Name: 21:00:00:fa:ce:00:21:1e
      Aliases:
 NL   0214e4;     3;21:00:00:fa:ce:00:21:e1;20:00:00:fa:ce:00:21:e1; na
      FC4s: FCP [STOREX   RS2999FCPH3     CD09]
      Fabric Port Name: 20:04:00:60:69:01:44:22
      Permanent Port Name: 21:00:00:fa:ce:00:21:e1
      Aliases: MyAlias1 MyAlias2
 NL   0214e8;     3;21:00:00:fa:ce:04:83:c9;20:00:00:fa:ce:04:83:c9; na
      FC4s: FCP [STOREX   RS2999FCPH3     NS09]
      Fabric Port Name: 20:04:00:60:69:01:44:22
      Permanent Port Name: 21:00:00:fa:ce:04:83:c9
      Aliases:
 NL   0214ef;     3;21:00:00:ad:bc:04:6f:70;20:00:00:ad:bc:04:6f:70; na
      FC4s: FCP [STOREX   RS2999FCPH3     JB09]
      Fabric Port Name: 20:04:00:60:69:01:44:22
      Permanent Port Name: 21:00:00:ad:bc:04:6f:70
      Aliases:
 The Local Name Server has 6 entries }
```

To display local NS information with aliases with `-r` option:

```
switch:admin> nsAliasShow -r
{
  Type Pid     COS      PortName                           NodeName              SCR
  N    021200;    2,3;10:00:00:60:69:00:03:19;30:00:00:60:69:00:03:19; 3
       FC4s: FCIP
       Fabric Port Name: 20:02:00:60:69:01:44:22
       Permanent Port Name: 10:00:00:60:69:00:03:19
       Aliases:
  N    021300;      3;10:00:00:60:69:00:02:d6;20:00:00:60:69:00:02:d6; 1
       Fabric Port Name: 20:03:00:60:69:01:44:22
       Permanent Port Name: 10:00:00:60:69:00:02:d6
       Aliases: DeviceAlias
  NL   0214e2;      3;21:00:00:fa:ce:00:21:1e;20:00:00:fa:ce:00:21:1e; 0
       FC4s: FCP [STOREX  RS2999FCPH3     MT09]
       Fabric Port Name: 20:04:00:60:69:01:44:22
       Permanent Port Name: 21:00:00:fa:ce:00:21:1e
       Aliases:
  NL   0214e4;      3;21:00:00:fa:ce:00:21:e1;20:00:00:fa:ce:00:21:e1; 0
       FC4s: FCP [STOREX  RS2999FCPH3     CD09]
       Fabric Port Name: 20:04:00:60:69:01:44:22
       Permanent Port Name: 21:00:00:fa:ce:00:21:e1
       Aliases: MyAlias1 MyAlias2
  NL   0214e8;      3;21:00:00:fa:ce:04:83:c9;20:00:00:fa:ce:04:83:c9; 0
       FC4s: FCP [STOREX  RS2999FCPH3     NS09]
       Fabric Port Name: 20:04:00:60:69:01:44:22
       Permanent Port Name: 21:00:00:fa:ce:04:83:c9
       Aliases:
  NL   0214ef;      3;21:00:00:ad:bc:04:6f:70;20:00:00:ad:bc:04:6f:70; 0
       FC4s: FCP [STOREX  RS2999FCPH3     JB09]
       Fabric Port Name: 20:04:00:60:69:01:44:22
       Permanent Port Name: 21:00:00:ad:bc:04:6f:70
       Aliases:
 The Local Name Server has 6 entries }
```

To display local NS information with aliases with *-r* and *-t* options:

```
switch:admin> nsAliasShow -r -t
{
 Type Pid    COS    PortName                    NodeName                SCR
 N    021200;   2,3;10:00:00:60:69:00:03:19;30:00:00:60:69:00:03:19; 3
     FC4s: FCIP
     Fabric Port Name: 20:02:00:60:69:01:44:22
     Permanent Port Name: 10:00:00:60:69:00:03:19
     Device type: Physical Unknown(initiator/target)
     Aliases:
 N    021300;     3;10:00:00:60:69:00:02:d6;20:00:00:60:69:00:02:d6; 1
     Fabric Port Name: 20:03:00:60:69:01:44:22
     Permanent Port Name: 10:00:00:60:69:00:02:d6
     Device type: NPV Initiator
     Aliases: DeviceAlias
 NL   0214e2;     3;21:00:00:fa:ce:00:21:1e;20:00:00:fa:ce:00:21:1e; 0
     FC4s: FCP [STOREX   RS2999FCPH3      MT09]
     Fabric Port Name: 20:04:00:60:69:01:44:22
     Permanent Port Name: 21:00:00:fa:ce:00:21:1e
     Device type: Physical Target
     Aliases:
 NL   0214e4;     3;21:00:00:fa:ce:00:21:e1;20:00:00:fa:ce:00:21:e1; 0
     FC4s: FCP [STOREX   RS2999FCPH3      CD09]
     Fabric Port Name: 20:04:00:60:69:01:44:22
     Permanent Port Name: 21:00:00:fa:ce:00:21:e1
     Device type: Physical Target
     Aliases: MyAlias1 MyAlias2
 NL   0214e8;     3;21:00:00:fa:ce:04:83:c9;20:00:00:fa:ce:04:83:c9; 0
     FC4s: FCP [STOREX   RS2999FCPH3      NS09]
     Fabric Port Name: 20:04:00:60:69:01:44:22
     Permanent Port Name: 21:00:00:fa:ce:04:83:c9
     Device type: Physical Target
     Aliases:
 NL   0214ef;     3;21:00:00:ad:bc:04:6f:70;20:00:00:ad:bc:04:6f:70; 0
     FC4s: FCP [STOREX   RS2999FCPH3      JB09]
     Fabric Port Name: 20:04:00:60:69:01:44:22
     Permanent Port Name: 21:00:00:ad:bc:04:6f:70
     Device type: Physical Target
     Aliases:
 The Local Name Server has 6 entries }
```

See also

nsAllShow

nsShow

switchShow

nsAllShow

Displays global name server information.

Synopsis

```
nsallshow [type]
```

Availability

all users

Description

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

> **NOTE:** Specifying the `type` operand causes the switch to send out a query to every switch in the fabric. On a large fabric you should *not* run a script that repeatedly issues the nsAllShow command with a `type` operand specified.

Operands

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. Following 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.

Examples

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

nscamShow

Displays information about remote devices in the Name Server (NS) cache.

Synopsis

```
nscamshow [-t]
```

Availability

all users

Description

Use this command to display the local NS cache information about the devices discovered in the fabric by the NS cache manager.

The message `No Entry found`! displays if the NS cache manager does not discover new switches or new devices in the fabric.

For each remote switch found, the output of this command displays the domain number, state, revision, owner, and a list of devices for that domain number. For each device found in the devices list, the following information is displayed:

Type	U for unknown, N for N_Port, NL for NL_Port
Pid	The 24-bit Fibre Channel address
COS	A list of classes of service supported by the device
PortName	The device's port world wide name (WWN)
NodeName	The device's node WWN
Permanent Port Name	Physical N_Port or NL_Port WWN

There might be additional lines if the device has registered FC4s supported and fabric port name.

Operands

The operand is as follows:

`-t`   Specify to display the device type. Of the two device type parts, the first part indicates the origination of the device. Currently, four originations are defined:

Physical	Device connected to the Nx_Port, using FLOGI to login to the switch
Virtual	Contrived device by the switch
NPV	Device connected to the Nx_Port, using FDISC to log in to the switch
iSCSI	Device connected to the iSCSI port

The second part indicates the role of the device. Currently, four roles are defined:

Unknown (initiator/target)	Device role is not detected
Initiator	A SCSI initiator
Target	A SCSI target
Initiator+Target	Both a SCSI initiator and a SCSI target

Examples

To display all switch and device entries discovered by the NS in the fabric:

```
switch:admin> nscamShow
   nscam show for remote switches:
   Switch entry for 2
     state    rev      owner
     known    v430    0xfffc01
     Device list: count 1
       Type Pid    COS      PortName                NodeName
       N    021200;
2,3;10:00:00:60:69:00:ab:ba;10:00:00:60:69:00:ab:ba;
           FC4s: FCIP
           PortSymb: [28] "SEAGATE ST318452FC      0001"
           Fabric Port Name: 20:02:00:60:69:00:68:19
           Permanent Port Name: 10:00:00:60:69:00:ab:ba


   Switch entry for 4
     state  rev      owner
     known   v320   0xfffc01
     Device list: count 0
       No entry is found!
```

To display the output with -t option:

```
switch:admin> nscamShow -t
   nscam show for remote switches:
   Switch entry for 2
     state    rev      owner
     known    v430    0xfffc01
     Device list: count 1
       Type Pid    COS      PortName                NodeName
       N    021200;
2,3;10:00:00:60:69:00:ab:ba;10:00:00:60:69:00:ab:ba;
           FC4s: FCIP
           PortSymb: [28] "SEAGATE ST318452FC      0001"
           Fabric Port Name: 20:02:00:60:69:00:68:19
           Permanent Port Name: 10:00:00:60:69:00:ab:ba
           Device type: Physical Initiator


   Switch entry for 4
     state  rev      owner
     known   v320   0xfffc01
     Device list: count 0
       No entry is found!
```

See also

nsAllShow

nsShow

switchShow

nsShow

Displays local Name Server (NS) information.

Synopsis

nsshow [-r -t]

Availability

all users

Description

Use this command to display local NS information about devices connected to this switch.

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

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

The nsAllShow command displays information from all switches.

Each line of output displays:

Type	U for unknown, N for N_Port, NL for NL_Port.
PID	24-bit Fibre Channel address.
COS	List of classes of service supported by device.
PortName	Device port world wide name (WWN).
NodeName	Device node WWN.
TTL	Time-to-live, in seconds, for cached entries or NA (not applicable) if the entry is local. This displays if the -r option is given.
SCR	State change registration of the device. This displays if the $-r$ option is given.
Device type	Device type if $-t$ is given.
Permanent Port Name	Physical N_Port or NL_Port WWN.

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

• FC4s supported

• IP address

• IPA

• Port and node symbolic names

• Fabric Port Name. This is the WWN of the port on the switch to which the device is physically connected.

• Hard address and/or port IP address

Operands

This command has the following operands:

`-r`   Replaces the TTL attribute output with SCR (state change registration) information in the display. This value indicates what type of RSCN a device registers to receive. Values include:

SCR=0	Reserved.
SCR=1	Fabric detected registration. Register to receive all RSCN requests issued by the fabric controller for events detected by the fabric.
SCR=2	Nx_Port detected registration. Register to receive all RSCN requests issued for events detected by the affected Nx_Port.
SCR=3	Register to receive all RSCN request issued. The RSCN request returns all effected N_Port_ID pages.

`-t`   Displays the device type. Of the two device type parts, the first part indicates the origination of the device. Currently, four originations are defined:

Physical	Device connected to the Nx_Port, using FLOGI to login to the switch
Virtual	Contrived device by the switch
NPV	Device connected to the Nx_Port, using FDISC to log in to the switch
iSCSI	Device connected to the iSCSI port

The second part indicates the role of the device. Currently, four roles are defined:

Unknown (initiator/target)	Device role is not detected
Initiator	A SCSI initiator
Target	A SCSI target
Initiator+Target	Both a SCSI initiator and a SCSI target

NOTE: Fabric OS 4.x or earlier does not include device type information. After a nondisruptive upgrade from those Fabric OS versions, the device type appears as "`Physical Unknown(initiator/target)`".

Examples

To display local NS information:

```
switch:admin> nsShow
{
 Type Pid     COS     PortName                    NodeName                 TTL(sec)
  N   021200;    2,3;10:00:00:60:69:00:03:19;30:00:00:60:69:00:03:19; na
      FC4s: FCIP
      Fabric Port Name: 20:02:00:60:69:01:44:22
      Permanent Port Name: 10:00:00:60:69:00:03:19
  N   021300;      3;10:00:00:60:69:00:02:d6;20:00:00:60:69:00:02:d6; na
      Fabric Port Name: 20:03:00:60:69:01:44:22
      Permanent Port Name: 10:00:00:60:69:00:02:d6
  NL  0214e2;      3;21:00:00:fa:ce:00:21:1e;20:00:00:fa:ce:00:21:1e; na
      FC4s: FCP [STOREX  RS2999FCPH3     MT09]
      Fabric Port Name: 20:04:00:60:69:01:44:22
      Permanent Port Name: 21:00:00:fa:ce:00:21:1e
  NL  0214e4;      3;21:00:00:fa:ce:00:21:e1;20:00:00:fa:ce:00:21:e1; na
      FC4s: FCP [STOREX  RS2999FCPH3     CD09]
      Fabric Port Name: 20:04:00:60:69:01:44:22
      Permanent Port Name: 21:00:00:fa:ce:00:21:e1
  NL  0214e8;      3;21:00:00:fa:ce:04:83:c9;20:00:00:fa:ce:04:83:c9; na
      FC4s: FCP [STOREX  RS2999FCPH3     NS09]
      Fabric Port Name: 20:04:00:60:69:01:44:22
      Permanent Port Name: 21:00:00:fa:ce:04:83:c9
  NL  0214ef;      3;21:00:00:ad:bc:04:6f:70;20:00:00:ad:bc:04:6f:70; na
      FC4s: FCP [STOREX  RS2999FCPH3     JB09]
      Fabric Port Name: 20:04:00:60:69:01:44:22
      Permanent Port Name: 21:00:00:ad:bc:04:6f:70

The Local Name Server has 6 entries }
```

To display local NS information with -r:

```
switch:admin> nsShow -r
{
 Type Pid    COS     PortName                    NodeName                 SCR
  N    021200;   2,3;10:00:00:60:69:00:03:19;30:00:00:60:69:00:03:19; 3
       FC4s: FCIP
       Fabric Port Name: 20:02:00:60:69:01:44:22
       Permanent Port Name: 10:00:00:60:69:00:03:19
  N    021300;     3;10:00:00:60:69:00:02:d6;20:00:00:60:69:00:02:d6; 1
       Fabric Port Name: 20:03:00:60:69:01:44:22
       Permanent Port Name: 10:00:00:60:69:00:02:d6
  NL   0214e2;     3;21:00:00:fa:ce:00:21:1e;20:00:00:fa:ce:00:21:1e; 0
       FC4s: FCP [STOREX   RS2999FCPH3      MT09]
       Fabric Port Name: 20:04:00:60:69:01:44:22
       Permanent Port Name: 21:00:00:fa:ce:00:21:1e
  NL   0214e4;     3;21:00:00:fa:ce:00:21:e1;20:00:00:fa:ce:00:21:e1; 0
       FC4s: FCP [STOREX   RS2999FCPH3      CD09]
       Fabric Port Name: 20:04:00:60:69:01:44:22
       Permanent Port Name: 21:00:00:fa:ce:00:21:e1
  NL   0214e8;     3;21:00:00:fa:ce:04:83:c9;20:00:00:fa:ce:04:83:c9; 0
       FC4s: FCP [STOREX   RS2999FCPH3      NS09]
       Fabric Port Name: 20:04:00:60:69:01:44:22
       Permanent Port Name: 21:00:00:fa:ce:04:83:c9
  NL   0214ef;     3;21:00:00:ad:bc:04:6f:70;20:00:00:ad:bc:04:6f:70; 0
       FC4s: FCP [STOREX   RS2999FCPH3      JB09]
       Fabric Port Name: 20:04:00:60:69:01:44:22
       Permanent Port Name: 21:00:00:ad:bc:04:6f:70

The Local Name Server has 6 entries }
```

To display local NS information with -r and -t:

```
switch:admin> nsShow -r -t
{
 Type Pid     COS     PortName                    NodeName                SCR
  N   021200;    2,3;10:00:00:60:69:00:03:19;30:00:00:60:69:00:03:19; 3
     FC4s: FCIP
     Fabric Port Name: 20:02:00:60:69:01:44:22
     Permanent Port Name: 10:00:00:60:69:00:03:19
     Device type: Physical Unknown(initiator/target)
  N   021300;      3;10:00:00:60:69:00:02:d6;20:00:00:60:69:00:02:d6; 1
     Fabric Port Name: 20:03:00:60:69:01:44:22
     Permanent Port Name: 10:00:00:60:69:00:02:d6
     Device type: Physical Initiator
  N   021301;      3;10:00:00:60:69:00:02:d7;20:00:00:60:69:00:02:d7; 1
     Fabric Port Name: 20:03:00:60:69:01:44:22
     Permanent Port Name: 10:00:00:60:69:00:02:d6
     Device type: NPIV Initiator
  NL  0214e2;      3;21:00:00:fa:ce:00:21:1e;20:00:00:fa:ce:00:21:1e; 0
     FC4s: FCP [STOREX   RS2999FCPH3      MT09]
     Fabric Port Name: 20:04:00:60:69:01:44:22
     Permanent Port Name: 21:00:00:fa:ce:00:21:1e
     Device type: Physical Target
  NL  0214e4;      3;21:00:00:fa:ce:00:21:e1;20:00:00:fa:ce:00:21:e1; 0
     FC4s: FCP [STOREX   RS2999FCPH3      CD09]
     Fabric Port Name: 20:04:00:60:69:01:44:22
     Permanent Port Name: 21:00:00:fa:ce:00:21:e1
     Device type: Physical Target
  NL  0214e8;      3;21:00:00:fa:ce:04:83:c9;20:00:00:fa:ce:04:83:c9; 0
     FC4s: FCP [STOREX   RS2999FCPH3      NS09]
     Fabric Port Name: 20:04:00:60:69:01:44:22
     Permanent Port Name: 21:00:00:fa:ce:04:83:c9
     Device type: Physical Target
  NL  0214ef;      3;21:00:00:ad:bc:04:6f:70;20:00:00:ad:bc:04:6f:70; 0
     FC4s: FCP [STOREX   RS2999FCPH3      JB09]
     Fabric Port Name: 20:04:00:60:69:01:44:22
     Permanent Port Name: 21:00:00:ad:bc:04:6f:70
     Device type: Physical Target

The Local Name Server has 6 entries }
```

See also

nsAllShow

switchShow

nsZoneMember

Displays the information of all the online devices zoned with the given device.

Synopsis

```
nszonemember -a | -u | pid | wwn
```

Availability

all users

Description

Use this command to display information about all the online devices zoned with the given device. Issuing this command without operands displays all online devices zoned with the given device. Each line of output displays:

Type	U for unknown, N for N_Port, NL for NL_Port
Pid	The 24-bit Fibre Channel address
COS	A list of classes of service supported by the device
PortName	The device's port world wide name (WWN)
NodeName	The device's node WWN
Permanent Port Name	Physical N_Port or NL_Port WWN
DeviceType	The device's type

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

- FC4 supported

- IP address (node)

- IPA

- port and node symbolic name (local device only)

- fabric port name

- hard address and/or port IP address

Operands

This command has the following operands:

-a	Displays each local device's online zoned device data, including the PID and zone alias.
-u	Displays all the unzoned devices in the entire fabric. The device data displayed includes the device PID and zone alias.
pid | wwn	Specifies the port ID or WWN, respectively, whose zoned devices are to be viewed. This operand is required.

Examples

To display the information of all the online devices zoned with the given device:

```
switch:admin> nszonemember 0x0416e2

3 local zoned members:


     Type Pid    COS     PortName                  NodeName
SCR
     NL   041901;
2,3;10:00:00:00:c9:26:0e:ae;20:00:00:00:c9:26:0e:ae; 3
        Fabric Port Name: 20:09:00:60:69:50:06:78

        Permanent Port Name: 10:00:00:00:c9:26:0e:ae

        Device type: Physical Initiator
     NL   0416e2;
3;22:00:00:20:37:d9:6b:b3;20:00:00:20:37:d9:6b:b3; 0
        FC4s: FCP [SEAGATE ST318304FC       0005]

        Fabric Port Name: 20:06:00:60:69:50:06:78

        Permanent Port Name: 22:00:00:20:37:d9:6b:b3

        Device type: Physical Target
     NL   0416e4;
3;22:00:00:20:37:d9:61:ac;20:00:00:20:37:d9:61:ac; 0
        FC4s: FCP [SEAGATE ST318304FC       0005]

        Fabric Port Name: 20:06:00:60:69:50:06:78

        Permanent Port Name: 22:00:00:20:37:d9:61:ac

        Device type: Physical Target


     No remote zoned members
```

To display the information of all the online devices zoned with the given WWN:

```
switch:admin> nszonemember 10:00:00:00:c8:23:0b:ad
3 local zoned members:


    Type Pid    COS     PortName                    NodeName
SCR
    NL    041901;
2,3;10:00:00:00:c9:26:0e:ae;20:00:00:00:c9:26:0e:ae; 3
        Fabric Port Name: 20:09:00:60:69:50:06:78
        Permanent Port Name: 10:00:00:00:c9:26:0e:ae
        Device type: Physical Initiator
    NL    0416e2;
3;22:00:00:20:37:d9:6b:b3;20:00:00:20:37:d9:6b:b3; 0
        FC4s: FCP [SEAGATE ST318304FC       0005]
        Fabric Port Name: 20:06:00:60:69:50:06:78
        Permanent Port Name: 22:00:00:20:37:d9:6b:b3
        Device type: Physical Target
    NL    0416e4;
3;22:00:00:20:37:d9:61:ac;20:00:00:20:37:d9:61:ac; 0
        FC4s: FCP [SEAGATE ST318304FC       0005]
        Permanent Port Name: 22:00:00:20:37:d9:61:ac
        Device type: Physical Target


    No remote zoned members
```

To display each local device's online zoned device data:

```
switch:admin> nszonemember -a
 Port: 4 Pid: 0xb00400    Aliases: ix360_131_201_6a
      Zoned Members: 2 devices
            Pid: 0xb00400    Aliases: ix360_131_201_6a
            Pid: 0xba1ee8    Aliases: trimm101b_3

  Port: 12       Pid: 0xb00c01    Aliases: dl360_130159a
      Zoned Members: 2 devices
            Pid: 0xb00c01    Aliases: dl360_130159a
            Pid: 0xbd1bef    Aliases: nstor4b_8

  Port: 13       Pid: 0xb00d00    Aliases: ix360_131_196p5
      Zoned Members: 2 devices
            Pid: 0xb00d00    Aliases: ix360_131_196p5
            Pid: 0xe07d00    Aliases: hds9200_6p4 hds9200_6p4

  Port: 14       Pid: 0xb00e00    Aliases: dl360_130251a dl360_130251a
      Zoned Members: 2 devices
            Pid: 0xb00e00    Aliases: dl360_130251a dl360_130251a
            Pid: 0xba1ae4    Aliases: trimm100a_2
```

To display all the unzoned devices in the fabric:

```
switch:admin> nszonemember -u
 Pid: 0xb01ea9;    Aliases: trimm32b_1
 Pid: 0xb01eaa;    Aliases: trimm32b_2
 Pid: 0xb01eab;    Aliases: trimm32b_3
 Pid: 0xb01eac;    Aliases: trimm32b_4
 Pid: 0xb01fad;    Aliases: trimm32a_5
 Pid: 0xb01fae;    Aliases: trimm32a_6
 Pid: 0xb01fb1;    Aliases: trimm32a_7
 Pid: 0xb01fb2;    Aliases: trimm32a_8
 Pid: 0xdc2800;    Aliases:
 Totally 9 unzoned devices in the fabric.
```

See also

cfgShow

nscamShow

nsShow

passwd

Changes the password for a user level.

Synopsis

```
passwd ["user"]
```

Availability

all users

Description

Use this command to change the password for the user currently logged in or for another user. To change the password for a specific user, enter the command with the optional `user` operand.

Users logging in to the system by way of RADIUS are allowed to change the passwords of the roles they log in; for example, if a user's role in RADIUS is admin, and this command is executed, the system prompts for the old admin password. This command changes the passwords in the switch database only.

The hierarchy of user levels are (from greatest access to least) root, factory, admin, and user. Typically, all fabric management should be performed by admin.

When the root password is changed, all user levels currently logged in are terminated.

If the fabric is not in secure mode, the behavior of the command is as follows:

- If you are changing your own user-level password, you are prompted to enter the old password and, if your entry is valid, the new password.

- If a you are changing another user-level password, you are prompted to enter that user level's old password and, if your entry is valid, the new password.

- If you are logged in as the root user when changing another user-level password, you are not prompted to enter the old password.

- The command is disabled until you have changed all the login passwords from the manufacture default values.

If the fabric is in secure mode, the behavior of the command is as follows:

- The command can be run only on the primary FCS switch. The changed passwords will be distributed to all FCS switches. Non-FCS switches will be updated if the password of the user account is changed.

- Changing the password of any user level causes the login session of that account (if logged in) to be terminated.

> **NOTE:** If the Security option is enabled on the fabric, this command is disabled on all switches except the primary FCS. See the *HP StorageWorks Fabric OS 5.x administrator's guide* for more information.

A new password must follow these rules:

- Have 8 to 40 characters

- Be different from the previous password

Use the following keys 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.
Ctrl+D (end-of-file)	When entered at a prompt with no preceding input, terminates the command without changing the password. This is valid on most computers; however, your settings could be different.

Operands

This command has the following operand:

user	Specify the name of the user, in quotation marks, for which you want to modify the password. This operand is optional. Valid values are root, factory, admin, or user.
	You can only specify this operand when you are logged in as root, factory, or admin. If you try to change the password of a user level higher in the hierarchy (for example, you are admin and attempting to change the root password), you are prompted to enter the current password of that level. If you try to change the password of a user level lower in the hierarchy, you are not prompted to enter the current password.

Examples

To change the password for the admin user:

```
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.
```

Diagnostics

When failures are detected, the subtext might report one or more of the following error messages:

`"user" is not a valid user name.`	You have not specified a user name that is a valid, recognized user name on the system.
`Permission denied.`	You do not have permission to change the login name or password specified.
`Incorrect password.`	You have not entered the correct password when prompted for the old password.
`Password unchanged.`	You have entered the carriage return special input case, choosing not to change the password.
`Passwords do not match.`	You have not correctly verified the new password.

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

login

logout

pathInfo

Display routing and statistics information along a path, covering multiple switches.

Synopsis

    pathinfo [*domain*] [*src_portnumber*] [*dst_portnumber*] [-r]

Availability

admin

Description

Use this command to display detailed routing information from a source port or area on the local switch to a destination port or area on another switch. This routing information describes the exact path that a user data stream takes to go from the source port to the destination port, including all intermediate switches.

The command does not make any retry attempts if there is a timeout or failure. It might fail if a switch along the path is busy, for instance, if a switch is performing a warm recovery or if a switch along the path does not support this feature.

NOTE: If the advanced performance tuning (APT) policy in effect on the intermediate switches is not a port-based policy, subsequent data streams might not take the same path as displayed in the `pathInfo` output.
See `aptPolicy` for more information on advanced performance tuning policies.

If you specify an inactive port or a path through a switch that does not have active routing tables to the destination, this command displays the path that would be used if the ports were active. If you specify a destination port that is not active, this command uses the embedded port as the destination.

For bladed systems, the ingress and egress points are specified as area numbers. For nonbladed systems, ingress and egress points are specified as ports. This agrees with the representation displayed by the `switchShow` command.

In addition, `pathInfo` can provide, upon request, statistics on every traversed Inter-Switch Link (ISL) that is part of the path. This feature is available in interactive mode only.

The routing and statistics information are provided by every switch along the path, based on the current routing-tables information and statistics calculated continuously in real-time. Each switch represents one hop of the total path.

Other options allow the collection of information on the reverse path, or on a user selected path (source route).

For each hop, the routing information output includes the following:

Hop	The hop number. The local switch is hop 0.
In Port	The port or area from which the switch receives frames. For hop 0, this is *src_portnumber*. For bladed systems, this is specified as the area number; otherwise, it is the port number.
Domain ID	The domain ID of the switch.
Name	The name of the switch.
Out Port	The output port that the frames use to reach the next hop. For the last hop, this is *dst_portnumber*. For bladed systems, this is specified as the area number; otherwise, it is the port number.

BW	The bandwidth of the output ISL, in Gb/s. It does not apply to the embedded port.
Cost	The cost of the output link used by FSPF routing protocol. Only applicable if the output link is currently recognized by FSPF.

When requested, statistics are reported below the routing information for each hop. These statistics are presented for both the input and output ports, for both receive and transmit modes. These statistics are divided into *basic* and *extended* statistics, which can be individually requested in interactive mode. Statistics are not reported for the embedded port.

To collect these statistics, this command uses a special frame, the `pathInfo` frame, that is sent hop-by-hop from the source switch to the destination switch. In order to prevent such a frame to loop forever if an error occurs, a maximum number of hops for the frame to traverse is enforced. The hop count includes all hops in the direct path from source to destination, and also all the hops in the reverse path, if the tracing of the reverse path is requested. The default value for the maximum hop count is 25.

Basic statistics	Basic statistics report variables that give an indication of ISL congestion along the path. They include the following:	
	B/s	Bytes per second received or transmitted; reports for multiple time periods, displayed in parentheses.
	Txcrdz	The length of time in milliseconds that the port has been prevented from transmitting frames due to lack of buffer-to-buffer credit. It is an indication of downstream congestion. This value reports for multiple time periods, displayed in parentheses. Note that other commands, such as `portStatsShow`, might express this value in units other than milliseconds.
Extended statistics	Extended statistics report variables of general interest. They include the following:	
	F/s	Frames per second received or transmitted; reports for multiple time periods, displayed in parentheses.
	Words	Total number of 4-byte Fibre Channel words.
	Frames	Total number of frames.
	Errors	Total number of errors that might cause a frame not to be received correctly. This includes CRC errors, bad EOF errors, frame truncated errors, frame-too-short errors, and encoding errors inside a frame.
Reverse path	In general, the path from port A on switch X to port B on switch Y might be different from the path from port B to port A. The difference could be in the links traversed between the same sequence of switches, or the reverse path might even involve different switches. The `-r` option allows the user to determine both routing and statistics information for the reverse path, in addition to those for the direct path.	
Source route	The source route option allows the user to specify a sequence of switches, ports, or areas that the `pathInfo` frame has to traverse to reach the destination. Therefore, the path might be different from the one used by actual traffic.	
	The source route is expressed as a sequence of switches, a sequence of output ports or areas, or a combination thereof. The next hop in the source route is described by either the output port or area to be used to reach the next hop, or the domain ID of the next hop.	

The source route can specify a partial route from source to destination (in which case the remaining hops are chosen as the path from the input port or area on the first hop not listed in the source route to the destination), as a full route, or as an arbitrary route across the fabric. The maximum hop count is enforced.

If the source route does not specify all the switches along a section of the path, a further option allows to specify a strict versus a loose path. A strict source route requires that only the specified switches are reported in the path description. If two switches are specified back to back in the source route descriptor, but are not directly connected, the switches in between will be ignored. In case of a loose source route, the switches in between will be reported. The concepts of strict and loose route apply to the portions of the path described by domains, not to the part described by output ports or areas.

Operands

The following operands are optional:

domain	ID of the destination domain. If omitted, the command prompts for all operands, including whether basic and extended statistics should be included.
src_portnumber	Port or area whose path to the destination domain is sought. The default is embedded port (-1). For bladed systems, the destination is specified as the area; otherwise, it is the port. If the source port is -1 with no additional arguments, basic statistics display for the route.
dst_portnumber	Port or area on the destination switch for each path being traced. This command returns the state of this port or area. The default is embedded port (-1), or if a destination port is specified that is not active. For bladed systems, the destination is specified as the area; otherwise, it is the port.
"-r"	Display reverse path in addition to forward path.

Without operands, pathInfo prompts for the preceding operands. The value of *domain* is mandatory; the values for the source and destination ports can be -1, to indicate the embedded port. Reverse-path tracing remains optional. In addition, this command prompts for following parameters:

max hops	The maximum number of hops that the pathInfo frame is allowed to traverse; default is 25.
basic stats	Requests the reporting of basic statistics on every link; default is no.
extended stats	Requests the reporting of extended statistics on every link; default is no.
source route	Specifies a sequence of switches or ports that the pathInfo frame should traverse; default is no. Note that if an output port (or area) to the next hop is specified, the user is not prompted for the domain of the next switch, which is determined by the port (or area) specified.
strict source rte	Specifies that the source route must be followed strictly as indicated, skipping possible intermediate switches. When using this option, the source route hops must be specified using domain rather than output port.
Timeout	The maximum time allowed to wait for the response; default is 10 seconds.

Examples

To display basic path information to a specific domain, using the command line (noninteractive mode):

```
switch:admin> pathinfo 91
Target port is Embedded
Hop  In Port  Domain ID (Name)     Out Port   BW   Cost
-------------------------------------------------------------
0       E          9 (web226)          2      1G   1000
1       3         10 (web229)          8      1G   1000
2       8          8 (web228)          9      1G   1000
3       6         91 (web225)          E      -    -
```

To display basic and extended statistics using interactive mode:

```
switch:admin> pathinfo
Max hops: (1..127) [25]
Domain: (1..239) [-1] 8
Source port: (0..15) [-1]
Destination port: (0..255) [-1]
Basic stats (yes, y, no, n): [no] y
Extended stats (yes, y, no, n): [no] y
Trace reverse path (yes, y, no, n): [no]
Source route (yes, y, no, n): [no]
Timeout: (1..30) [5]
Target port is Embedded
Hop  In Port  Domain ID (Name)     Out Port   BW   Cost
-------------------------------------------------------------
0       E          9 (web226)          2      1G   1000


Port                           E                        2
                      Tx           Rx           Tx           Rx
                    ---------------------------------------------
     B/s (1s)        -            -            0            0
     B/s (64s)       -            -            1            1
     Txcrdz (1s)     -            -            0            -
     Txcrdz (64s)    -            -            0            -
     F/s (1s)        -            -            0            0
     F/s (64s)       -            -            2743         0
     Words           -            -            2752748      2822763
     Frames          -            -            219849       50881
     Errors          -            -            -            0


(continued on next page)
```

```
   Hop  In Port  Domain ID (Name)       Out Port    BW   Cost
   ------------------------------------------------------------
   1     3         10 (web229)            12      1G   1000

   Port                             3                        12
                               Tx             Rx          Tx            Rx
                          ------------------------------------------------
       B/s (1s)             36             76           0             0
       B/s (64s)             5              5           5             5
       Txcrdz (1s)           0              -           0             -
       Txcrdz (64s)          0              -           0             -
       F/s (1s)              1              1           0             0
       F/s (64s)             0              0           0             0
       Words          240434036        2294316     2119951       2121767
       Frames          20025929          54999      162338         56710
       Errors                 -              4           -             0
   Hop   In Port  Domain ID (Name)       Out Port    BW   Cost
   ------------------------------------------------------------
   2     14          8 (web228)            E       -     -
   (output truncated)
```

See also

portStatsShow

switchShow

pdShow

Displays data from a panic dump file.

Synopsis

pdshow [*panic-dump-file*]

Availability

admin

Description

Use this command to display data from a panic dump file. The panic dump file contains information that might be useful to determine the cause of the system panic.

When executed without any arguments, this command displays output from the latest panic dump file available on the switch.

If a panic dump file is specified as an argument, the contents of that specific file are displayed.

Operands

This command has the following operand:

panic-dump-file   Specify the full path name of a panic dump file. This operand is optional.

Examples

To examine a panic dump file by the name `panic_dump` located under the directory `/tmp`:

```
switch:admin> pdshow /tmp/panic_dump


            *** CAUTION ***
  *  Host  PLATFORM  (current) is: 'Unknown'
  *  PLATFORM got from pd file is: 'SW12000'
  *  Some results shown may be incorrect and/or missing
  *  It is best if this command is run on same PLATFORM as that of pdfile
            **************


_____********_____
*    File   :/core_files/panic/core.pd1038932352      *
*    SECTION:PD_MISC                                   *
----------------------********------------------------
WatchDogRegister=0x0
Section=Startup time: Tue Dec  3 16:06:11 UTC 2002
Kernel=     2.4.19
Fabric OS= v4.1.0_j_dist_1103
Made on=    Tue Dec 3 19:07:13 2002
Flash=      Tue Dec 3 13:19:06 2002
BootProm=   3.2.0
Section=HA show Output


(output truncated)
```

See also

portLogDump

saveCore

perfAddEEMonitor

Adds an end-to-end monitor to a port.

Synopsis

perfaddeemonitor [*slotnumber/*]*portnumber SourceID DestID*

Availability

admin

> 📝 **NOTE:** This command requires a Performance Monitor license

Description

Use this command to add an end-to-end performance monitor to a port. The performance monitor counts the number of words received, number of words transmitted, and number of CRC errors detected using either of the following two conditions:

- For frames received at the port, 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. Note that the CRC_COUNT counts the CRC errors detected with the frames received at or transmitted from the associated port.

- For frames transmitted from the port, the frame DID is the same as *SourceID* and frame SID is the same as *DestID*, both TX_COUNT and CRC_COUNT will be updated accordingly.

To monitor traffic from host A to device B, add a monitor on port 2, specifying 0x050200 as the SID and 0x010100 as the DID. The RX count equals the number of words from host A to device B, whereas the TX count equals the number of words from device B to host A. The CRC count equals the total number of CRC errors for both directions. Adding a monitor on port 1, specifying 0x010100 as SID and 0X050200 as the DID has a similar effect, except the RX and TX counts are interchanged.

If ISL monitoring is enabled, end-to-end monitors cannot be added to E_Ports. Existing end-to-end monitors on E_Ports are deleted.

Identical monitors cannot be added to the same port. Two monitors are considered identical if they have the same SID and DID values after applying the end-to-end mask.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for manipulation of these performance monitors.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
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 AL_PA ID. For example, 0x050200 has a domain ID of 5, an area ID of 2, and an AL_PA ID of 0. *SourceID* and *DestID* both cannot be 0x000000.

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 AL_PA ID. For example, 0x050200 has a domain ID of 5, an area ID of 2, and an AL_PA ID of 0. *SourceID* and *DestID* both cannot be 0x000000.

Optionally, a comma can separate the operands. *SourceID* and *DestID* also can be enclosed in quotation marks. A space is required to separate the operands even when using commas.

Examples

To add an end-to-end monitor to blade 1 port 2:

```
switch:admin> perfaddeemonitor 1/2 "0x050200" "0x1182ef"
End-to-End monitor number 0 added.
```

See also

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfClearEEMonitor

perfDelEEMonitor

perfShowEEMonitor

perfAddIPMonitor

Adds a filter-based performance monitor for IP frame count.

Synopsis

    perfaddipmonitor [slotnumber/]portnumber [alias]

Availability

admin

> **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to define filter-based monitors to count the number of IP traffic frames. Only frames transmitted are counted.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for manipulation of these filter-based performance monitors. The optional user-defined *alias* is also displayed, if one is specified. All valid monitor numbers and user-defined aliases can be displayed with the perfShowFilterMonitor command.

The maximum number of filters is eight per port, including user-defined filters, read filters, write filters, read/write filters, SCSI frame monitor, and IP frame monitor.

Operands

The operands are as follows:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
alias	Specify a name for this monitor. This string truncates to a maximum of 10 characters. It might be surrounded by quotation marks, in order to include spaces. This operand is optional. The default alias is IP Frame.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To add an IP monitor to a port:

    switch:admin> perfaddipmonitor 1/4 "IP_MONITOR"
    IP traffic frame monitor #0 added

See also

perfAddEEMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddReadMonitor

Adds a filter-based performance monitor for the SCSI Read command.

Synopsis

```
perfaddreadmonitor [slotnumber/]portnumber [alias]
```

Availability

admin

📝 **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to define filter-based monitors to count the number of SCSI FCP Read commands in Fibre Channel frames. Only frames transmitted are counted.

After successful execution of this command, a monitor number is displayed. The monitor number is provided for 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, read/write filters, SCSI frame monitor, and IP frame monitor.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
alias	Specify a name for this monitor. This string truncates to a maximum of 10 characters. It might be surrounded by quotation marks, in order to include spaces. This operand is optional. The default alias is SCSI Read.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To add a SCSI read monitor to a port:

```
switch:admin> perfaddreadmonitor 2/4 "SCSI_R"
SCSI Read filter monitor #2 added
```

See also

perfAddEEMonitor

perfAddIPMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddRWMonitor

Adds a filter-based performance monitor for the SCSI read and write commands.

Synopsis

```
perfaddrwmonitor [slotnumber/]portnumber [alias]
```

Availability

admin

📝 **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to define filter-based monitors to count the number of SCSI FCP Read and Write commands in Fibre Channel frames. Only frames transmitted are counted.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for 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, read/write filters, SCSI frame monitor, and IP frame monitor.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
alias	Specify a name for this monitor. This string truncates to a maximum of 10 characters. It might be surrounded by quotation marks, in order to include spaces. This operand is optional. The default alias is SCSI R/W.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To add a SCSI read and write monitor to a port:

```
switch:admin> perfaddrwmonitor 2/4 "SCSI_RW"
SCSI Read/Write monitor #1 is added
```

See also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddSCSIMonitor

Adds a filter-based performance monitor for SCSI frame count.

Synopsis

perfaddscsimonitor [*slotnumber/*]*portnumber* [*alias*]

Availability

admin

> **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to define filter-based monitors to count the number of SCSI traffic frames. Only frames transmitted are counted.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for 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, read/write filters, SCSI frame monitor, and IP frame monitor.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
alias	Specify a name for this monitor. This string truncates to a maximum of 10 characters. It might be surrounded by quotation marks, in order to include spaces. This operand is optional. The default alias is SCSI Frame.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To add a SCSI traffic frame monitor to a port:

```
switch:admin> perfaddscsimonitor 2/4 "SCSI_FR"
SCSI traffic frame monitor #0 added
```

See also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddUserMonitor

Adds a user-defined filter-based performance monitor.

Synopsis

perfaddusermonitor [*slotnumber/*]*portnumber* "*grouplist*" [*alias*]

Availability

admin

📝 **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to define a custom filter for frame offsets and values.

For every offset, each group of comparison values is OR-ed together to determine a match. If there are multiple offsets, each resulting OR function is AND-ed to determine if the entire statement is true, thus incrementing the counter.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for 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, read/write filters, SCSI frame monitor, and IP frame monitor. In addition, there should be no more than six different offsets for each filter and no more than four different values per offset defined by the user.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
"*grouplist*"	Specify up to six sets of offset, mask, and ValueList, separated by semicolons (;).

The entire grouplist operand must be enclosed in quotation marks. This operand is required.

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 that can be used to monitor the first four bytes SOFx frames. EOF cannot be monitored.

Mask	Specify the mask value to be applied (AND-ed) 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 values 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 string truncates to a maximum of 10 characters. It might be surrounded by quotation marks in order to include spaces. This operand is optional.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To add a filter-based monitor for all Extended Link Service requests (R_CTL=0x22 and TYPE=0x01) to a port:

```
switch:admin> perfaddusermonitor 1/4 "4, 0xff, 0x22; 12, 0xff, 0x01"
User monitor #0 added
```

As a special case, to add a filter-based monitor for SOFi3 to a port:

```
switch:admin> perfaddusermonitor 1/4 "0, 0xff, 6"
User monitor #1 added
```

See also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddWriteMonitor

perfAddWriteMonitor

Adds a filter-based performance monitor for the SCSI write command.

Synopsis

    perfaddwritemonitor [slotnumber/]portnumber [alias]

Availability

admin

> 📝 **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to define filter-based monitors to count the number of SCSI FCP write commands in Fibre Channel frames. Only frames transmitted are counted.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for manipulation of these filter-based performance monitors. The optional user-defined *alias* also is 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, read/write filters, SCSI frame monitor, and IP frame monitor.

Operands

This command has the following operands:

slotnumber   For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).

portnumber   Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.

alias   Specify a name for this monitor. This string truncates to a maximum of 10 characters. It might be surrounded by quotation marks, in order to include spaces. This operand is optional. The default alias is SCSI_Write.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To add a SCSI Write command monitor to a port:

```
switch:admin> perfaddwritemonitor 2/4 "SCSI_W"
SCSI Write filter monitor #0 added
```

See also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfCfgClear

Clears the previously saved performance monitoring configuration settings from nonvolatile memory.

Synopsis

```
perfcfgclear
```

Availability

admin

> **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to clear the previously saved end-to-end and filter configuration settings of performance monitoring from nonvolatile memory.

Operands

Examples

To clear the performance monitoring information from nonvolatile memory:

```
switch:admin> perfcfgclear
This will clear Performance Monitoring settings in FLASH.
The RAM settings won't change. Do you want to continue? (yes, y, no, n):
[no] y
Please wait ...
Performance Monitoring configuration cleared from FLASH.
```

See also

perfCfgRestore

perfCfgSave

perfCfgRestore

Restores performance monitoring configuration settings from nonvolatile memory.

Synopsis

```
perfcfgrestore
```

Availability

admin

> **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to restore the performance monitoring configuration information from nonvolatile memory. This does not restore the information cleared using the perfCfgClear command; rather, it restores the configuration on nonvolatile memory. Any configuration changes that were not saved are lost using the perfCfgRestore command.

Operands

Examples

To restore the performance monitoring configuration information from nonvolatile memory:

```
switch:admin> perfcfgrestore
This will overwrite current Performance Monitoring settings
in RAM. Do you want to continue? (yes, y, no, n): [no] y
Please wait ...
Performance monitoring configuration restored from FLASH.
```

See also

perfCfgClear

perfCfgSave

perfCfgSave

Saves performance monitoring configuration settings to nonvolatile memory.

Synopsis

```
perfcfgsave
```

Availability

admin

> 📝 **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to save the current end-to-end and filter configuration settings of performance monitoring into nonvolatile memory. This enables the performance monitoring configuration to be saved across power cycles.

Operands

Examples

To save the current performance monitoring configuration to firmware:

```
switch:admin> perfcfgsave
This will overwrite previously saved Performance Monitoring
settings in FLASH. Do you want to continue? (yes, y, no, n): [no] y
Please wait ...
Performance monitoring configuration saved in FLASH.
```

See also

perfCfgClear

perfCfgRestore

perfClearEEMonitor

Clears statistics counters of an end-to-end performance monitors.

Synopsis

```
perfcleareemonitor [slotnumber/]portnumber [monitorId]
```

Availability

admin

> **NOTE:** This command requires a Performance Monitor license.
>
> This command is deprecated; use perfMonitorClear instead.

Description

Use this command to clear statistics counters for all end-to-end performance monitors on a port, or an end-to-end monitor associated with a specific *monitorId*.

Issuing portStatsClear on a port also results in all end-to-end monitors clearing.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
monitorId	Specify the monitor number to clear. Monitor numbers are defined when created and can be displayed using perfShowEEMonitor. This operand is optional. If not specified, all monitor counters on the port are cleared.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To clear statistics counters for an end-to-end monitor:

```
switch:admin> perfcleareemonitor 1/2 5
End-to-End monitor number 5 counters are cleared


switch:admin> perfcleareemonitor 1/2
This will clear ALL EE monitors' counters on port 2, continue? (yes, y,
no, n):
[no] y
```

See also

perfAddEEMonitor

perfShowEEMonitor

perfMonitorClear

perfClearFilterMonitor

Clears statistics counters of a filter-based performance monitors.

Synopsis

    perfclearfiltermonitor [slotnumber/]portnumber [monitorId]

Availability

admin

> NOTE: This command requires a Performance Monitor license.
>
> This command is deprecated; use perfMonitorClear instead.

Description

Use this command to clear statistics counters for all filter-based performance monitors on a port, or a filter-based monitor associated with a specific monitorId.

Issuing portStatsClear on a port also results in all filter-based monitors clearing.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
monitorId	Specify the monitor number to clear. Monitor numbers are defined when created and can be displayed using perfShowEEMonitor. This operand is optional. If not specified, all monitor counters on the port are cleared.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To clear statistics counters for a filter-based monitor:

```
switch:admin> perfclearfiltermonitor 1/2 4
Filter-based monitor number 4 counters are cleared


switch:admin> perfclearfiltermonitor 1/2
This will clear ALL filter-based monitors' counters on port 2, continue?
(yes, y
, no, n): [no] y
```

See also

perfAddUserMonitor

perfShowFilterMonitor

perfMonitorClear

perfClrAlpaCrc

Clears the CRC error count associated with a port and arbitrated loop physical address (AL_PA).

Synopsis

```
perfclralpacrc [slotnumber/]portnumber [ALPA]
```

Availability

admin

> **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to clear a specific CRC error counter associated with a specific port and AL_PA, or all such counters on a port.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
ALPA	Specify the AL_PA address if you want to clear the CRC error counter for a particular device. This operand is optional; if omitted, this command clears the counters for all devices attached to the specified port.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To clear the CRC count on a particular AL_PA on a port and then clear the CRC count for all AL_PAs on a port:

```
switch:admin> perfclralpacrc 2/15 0x59
CRC error count at ALPA 0x59 on port 31 is cleared.


switch:admin> perfclralpacrc 2/15
This will clear all ALPA CRC Counts on port 31
Do you want to continue? (yes, y, no, n) y
Please wait ...
All alpa CRC counts are cleared on port 31.
```

See also

perfShowAlpaCrc

perfDelEEMonitor

Deletes one or all end-to-end performance monitors from a port.

Synopsis

perfdeleemonitor [*slotnumber/*]*portnumber* [*monitorId*]

Availability

admin

📝 **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to delete an end-to-end performance monitor from a port, or all such monitors associated with a port.

Operands

This command has the following operands:

slotnumber   For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).

portnumber   Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.

monitorId   Specify the monitor number to delete. Monitor numbers are defined when created and can be displayed using perfShowEEMonitor. This operand is optional. If not specified, all monitor counters on the port are deleted.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To delete an end-to-end monitor on a port, or all such monitors:

```
switch:admin> perfdeleemonitor 7/2 5
End-to-End monitor number 5 deleted


switch:admin> perfdeleemonitor 7/2
This will remove ALL EE monitors on port 2, continue? (yes, y, no, n):
[no] y
```

See also

perfAddEEMonitor

perfShowEEMonitor

perfDelFilterMonitor

Deletes one or all filter-based performance monitors from a port.

Synopsis

perfdelfiltermonitor [*slotnumber/*]*portnumber* [*monitorid*]

Availability

admin

> **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to delete a filter-based performance monitor from a port, or all such monitors associated with a port.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
monitorid	Specify the monitor number to delete. Monitor numbers are defined when created and can be displayed using perfShowEEMonitor. This operand is optional. If not specified, all monitor counters on the port are deleted.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To delete filter monitor 4 from a port, and then all filter monitors from the port:

```
switch:admin> perfdelfiltermonitor 2/3 4
The specified filter-based monitor is deleted.


switch:admin> perfdelfiltermonitor 2/3
This will remove ALL monitors on port 19, continue? (yes, y, no, n):
[no] y
```

See also

perfAddUserMonitor

perfShowFilterMonitor

perfHelp

Displays performance monitoring help information.

Synopsis

```
perfhelp
```

Availability

all users

> 📝 **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to display the available performance monitoring help commands.

Operands

Examples

To display commands related to performance monitoring:

```
switch:admin> perfhelp

perfCfgSave                  Save Performance configuration to FLASH
perfCfgRestore               Restore Performance configuration from
FLASH
perfCfgClear                 Clear Performance settings from FLASH
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
perfDelEEMonitor             Delete an end-to-end monitor on port
perfClearEEMonitor           Clear an end-to-end monitors' counters
on a 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         Delete filter-based monitor
perfClearFilterMonitor       Clear filter-based monitors' counters on
a port
perfShowFilterMonitor        Show filter-based monitors
perfMonitorClear        Clear end-to-end/filter-based/ISL monitors
perfMonitorShow         Show end-to-end/filter-based/ISL monitors
```

perfMonitorClear

Clears counters of end-to-end, filter-based, and ISL performance monitors on a port.

Synopsis

perfmonitorclear --class *monitor_class* [*slotnumber/*]*portnumber* [*monitorId*]

Availability

admin

Description

Use this command to clear counters for performance monitors on a port, specified by class. Monitor classes include end-to-end monitors (EE), filter-based monitors (FLT), and inter-switch link monitors (ISL).

Issuing the portStatsClear command on a port clears all end-to-end and filter-based monitors (but not ISL monitors) for all the ports in the same quad.

Operands

This operands are as follows:

--class *monitor_class*	The monitor class, which can be one of EE (end-to-end), FLT (filter-based), or ISL (inter-switch link). These values are case sensitive. This operand is required.
slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
monitorId	Specifies the monitor number to clear. Monitor numbers are defined are created, and can be displayed using perfMonitorShow. This operand is optional; if omitted, this command clears all monitor counters of the appropriate *monitor_class* on the port. This operand does not apply to ISL monitors.

Examples

To clear statistics counters for an end-to-end monitor:

```
switch:admin> perfMonitorClear --class EE 1/2 5
End-to-End monitor number 5 counters are cleared


switch:admin> perfMonitorClear --class EE 1/2
This will clear ALL EE monitors' counters on port 2, continue?
(yes, y, no, n): [no] y
```

To clear statistics counters for a filter-based monitor:

```
switch:admin> perfMonitorClear --class FLT 1/2 4
Filter-based monitor number 4 counters are cleared


switch:admin> perfMonitorClear --class FLT 1/2
This will clear ALL filter-based monitors' counters on port 2, continue?
(yes, y, no, y): [no] y
```

To clear statistics counters for an ISL monitor:

```
switch:admin> perfMonitorClear --class ISL 1
This will clear ISL monitor on port 1, continue? (yes, y, no, n): [no] y
```

See also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfMonitorShow

perfMonitorShow

Displays end-to-end, filter-based, and ISL monitors on a port.

Synopsis

perfmonitorshow --class *monitor_class* [*slotnumber/*]*portnumber* [*interval*]

Availability

all users

Description

Use this command to display previously created monitors on a port. Monitor classes include end-to-end monitors (EE), filter-based monitors (FLT), and ISL monitors (ISL).

ISL monitors are automatically activated on E_Ports (not including trunk slaves). End-to-end monitors are created using perfAddEEMonitor. Filter-based monitors are created using perfAddIPMonitor, perfAddReadMonitor, perfAddRWMonitor, perfAddSCSIMonitor, perfAddUserMonitor, or perfAddWriteMonitor.

For end-to-end monitors, this command displays (if no interval operand is specified):

Key	The monitor number
SID	Sending ID
DID	Destination ID
Owner_app	Telnet or Web Tools
Owner_ip_addr	The IP address of the originator that created the EE monitor
Tx_count	Number of FC words transmitted
Rx_count	Number of FC words received
Crc_count	Number of frames with CRC errors

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.

For filter-based monitors, this command can display (if no interval operand is specified) the following:

Key	The monitor number
Alias	The monitor alias name
Owner_app	Telnet or Web Tools
Owner_ip_addr	The IP address of the originator that created 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.

For ISL monitors, the command displays:

Tx_count	64-bit cumulative ISL transmit count for the whole ISL
Num_ports	Number of ports in this ISL
Num_domains	Total number of domains being monitored
Domain_count	64-bit cumulative transmit counter for each individual domain

Operands

The operands are as follows:

--class monitor_class
The monitor class, which can be one of EE (end-to-end), FLT (filter-based), or ISL (inter-switch link). This operand is required.

slotnumber
For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).

portnumber
Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.

interval
Specifies an interval in (5 or more) seconds. In the case of end-to-end monitor, the Tx and Rx counts are in the unit of byte when this operand is specified. This operand is optional.

Examples

To display end-to-end monitor on a port at an interval of every 6 seconds:

```
switch:admin> perfMonitorShow --class EE 4/5 6

perfmonitorshow 53, 6: 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    0
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    0
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    0
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    0
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    0
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    0
```

To display EE monitors on a port:

```
Switch:admin> perfMonitorShow --class EE 4/5

There are 7 end-to-end monitor(s) defined on port 53.
 KEY     SID     DID     OWNER_APP     OWNER_IP_ADDR     TX_COUNT          RX_COUNT          CRC_COUNT

-----------------------------------------------------------------------------------------------
----------
   0  0x58e0f  0x1182ef   TELNET          N/A        0x0000000000000000  0x0000000000000000
0x0000000000000000


   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
   5  0x11000  0x21fd6   WEB_TOOLS   192.168.169.40  0x00000004d0bade54  0x0000000067229e87
0x0000000000000000
   6  0x11000  0x21fe0   WEB_TOOLS   192.168.169.40  0x00000004d0baed41  0x0000000067229e98
0x0000000000000000
```

To display filter-based monitor on a port at an interval of every 6 seconds:

```
switch:admin> perfMonitorShow --class FLT 2/5 6
perfmonitorshow 21, 6
      0        1        2        3        4        5        6
   #Frames  #Frames  #Frames  #Frames  #Frames  #Frames  #Frames

   -----------------------------------------------------------
      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 a port:

```
switch:admin> perfMonitorShow --class FLT 2/5
There are 7 filter-based monitors defined on port 21.


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
```

To display ISL monitor information on a port:

```
switch:admin> perfMonitorShow --class ISL 1/1
Total transmit count for this ISL: 1462326
Number of destination domains monitored: 3
Number of ports in this ISL: 2
Domain  97:            110379         Domain 98:            13965
Domain  99:            1337982
```

See also

perfShowEEMonitor

perfShowFilterMonitor

perfSetPortEEMask

Sets overall mask for end-to-end (EE) performance monitors.

Synopsis

perfsetporteemask [*slotnumber/*]*portnumber TxSIDMsk TxDIDMsk RxSIDMsk RxDIDMsk*

Availability

admin

> **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to set the mask for the EE performance 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. On setting the EE mask on a port, all existing EE monitors on that port are deleted.

This command controls all three address fields (domain ID, area ID, and AL_PA ID) of both the source ID and destination ID, which can be used to trigger the monitor.

When a mask is set (0xff), the corresponding field will be used to trigger the monitor. If the mask is unset (0x00), the corresponding field will be ignored.

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 power-on is already set. When ISL monitoring is enabled, EE mask on E_Ports are controlled automatically and existing mask values for E_Ports are over-written.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
TxSIDMsk	Specify the source ID mask in *dd:aa:pp* format, with quotation marks, , where :

dd	Is the domain ID mask
aa	Is the area ID mask
pp	Is AL_PA ID mask

Specify the source ID mask in *dd:aa:pp* format, with quotation marks, , where :*dd* is the domain ID mask, *aa* is the area ID mask, and *pp* is AL_PA ID mask.

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 does triggers EE monitors.

TxDIDMsk	Specify the destination ID mask in *dd:aa:pp* format. Quotation marks are optional. TxDIDMsk represents transmitting destination ID mask. This operand is required.

RxSIDMsk	Specify the source ID mask in *dd:aa:pp* format. Quotation marks are optional. RxSIDMsk represents receiving source ID mask. This operand is required.
RxDIDMsk	Specify the destination ID mask in *dd:aa:pp* format. Quotation marks are optional. RxDIDMsk represents receiving destination ID mask. This operand is required.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To set the overall mask for end-to-end monitors on a port:

```
switch:admin> perfsetporteemask 1/6 "00:00:00" "ff:ff:ff" "00:00:ff"
"ff:00:00"
 Changing EE mask for this port will cause ALL EE monitors on this port
to be deleted.
 continue? (yes, y, no, n): [no] y
 The EE mask on port 6 is set and EE Monitors on this port are deleted
```

See also

perfAddEEMonitor

perfShowEEMonitor

perfShowAlpaCrc

Displays the CRC error count by port or by arbitrated loop physical address (AL_PA).

Synopsis

perfshowalpacrc [*slotnumber/*]*portnumber* [*ALPA*]

Availability

all users

📝 **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to display the CRC error count of one or all devices attached to a port. If the AL_PA operand is specified, only the CRC count for that AL_PA device is displayed. If the AL_PA operand is not specified, the CRC count for all the AL_PA 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.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
ALPA	Specify the AL_PA address if you want to get the CRC errors for a particular device. This operand is optional; if omitted, this command displays CRC error counts for all devices attached to the specified port.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To display the CRC error count for all AL_PA devices on a port:

```
switch:admin> perfshowalpacrc 2/4
ALPA                CRC_ERROR_COUNT
---------------------------------
0x01                0
```

See also

perfClrAlpaCrc

perfShowEEMonitor

Displays end-to-end performance monitor information on a port.

Synopsis

perfshoweemonitor [*slotnumber/*]*portnumber* [*interval*]

Availability

all users

> 📝 **NOTE:** This command requires a Performance Monitor license.
>
> This command is deprecated; use perfMonitorShow instead.

Description

Use this command to display end-to-end monitor information on a port.

See perfMonitorShow for details regarding this command's output.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.
interval	Specify an interval, in seconds (5 or more). Tx and Rx counts are in the unit of byte when this operand is specified. This operand is optional.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To display end-to-end monitor frame traffic on a port at an interval of every 6 seconds:

```
switch:admin> perfshoweemonitor 4/5 6

perfshoweemonitor 53, 6: 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  0
    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  0
    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  0
    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  0
    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  0
    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  0
```

To display EE monitors on a port:

```
switch:admin> perfshoweemonitor 4/5
 There are 7 end-to-end monitor(s) defined on port 53.
 KEY    SID     DID     OWNER_APP      OWNER_IP_ADDR    TX_COUNT           RX_COUNT
CRC_COUNT

--------------------------------------------------------------------------------------
----------------
 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
 5   0x11000  0x21fd6   WEB_TOOLS     192.168.169.40 0x00000004d0bade54  0x0000000067229e87
0x0000000000000000
 6   0x11000  0x21fe0   WEB_TOOLS     192.168.169.40 0x00000004d0baed41  0x0000000067229e98
0x0000000000000000
```

See also

perfAddEEMonitor

perfShowFilterMonitor

Displays filter-based performance monitor information for a port.

Synopsis

```
perfshowfiltermonitor [slotnumber/]portnumber [interval]
```

Availability

all users

📝 **NOTE:** This command requires a Performance Monitor license.

This command is deprecated; use `perfMonitorShow` instead.

Description

Use this command to display all the filter-based monitors defined on the specified port and the traffic count values.

See `perfMonitorShow` for details regarding this command's output.

Operands

This command has the following operands:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use `switchShow` for a list of valid ports.
interval	Specify an interval, in seconds (5 or more). This operand is optional.

Optionally, a comma can separate the operands. A space is required to separate the operands even when using commas.

Examples

To display filter monitor traffic on a port at an interval of every 6 seconds:

```
switch:admin> perfshowfiltermonitor 2/5 6

perfshowfiltermonitor 21, 6
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


(continued on next page)
```

```
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 a port:

```
switch:admin> perfshowfiltermonitor 2/5

There are 7 filter-based monitors defined on port 21.

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
```

> **NOTE:** If you do not specify an interval, the filter-based monitor frame count is displayed in 64-bit format and is cumulative.

See also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfShowPortEEMask

Displays the current address mask for end-to-end performance monitors on a port.

Synopsis

```
perfshowporteemask [slotnumber/]portnumber
```

Availability

all users

📝 **NOTE:** This command requires a Performance Monitor license.

Description

Use this command to display the current mask shared across all end-to-end (EE) performance monitors of a port. There are only two commands that can modify the value of the 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 to *on*.

Operands

This command has the following operand:

slotnumber	For bladed systems only, this operand specifies the slot number of the port on which the monitor is to be added, followed by a slash (/).
portnumber	Specifies the number of the port on which the monitor is to be added, relative to its slot for bladed systems. Use switchShow for a list of valid ports.

Examples

To display the end-to-end mask on a port:

```
switch:admin> perfshowporteemask 2/4
The EE mask onport 20 is set by application NONE


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
```

See also

perfAddEEMonitor

perfDelEEMonitor

perfSetPortEEMask

pkiCreate

Creates public key infrastructure (PKI) objects.

Synopsis

```
pkicreate
```

Availability

admin

Description

Use this command in nonsecure mode to create PKI objects:

- Switch private key and CSR

- Private key pass-phrase

- Install root certificate

This command does not create the switch certificate. The switch certificate should be obtained offline from Certificate Authority.

In secure mode, this command exits with a warning and does not create PKI objects.

Operands

Examples

To create PKI objects in nonsecure mode:

```
switch:admin> pkicreate
Installing Private Key and Csr...
Switch key pair and CSR generated...
Installing Root Certificate...
```

If run in secure mode, the following error message is displayed:

```
switch:admin> pkicreate

Warning !! Switch is in secure mode.
Cannot create new Pki Objects. Exiting...
```

See also

pkiRemove

pkiShow

pkiRemove

Remove existing public key infrastructure (PKI) objects.

Synopsis

```
pkiremove
```

Availability

admin

Description

Use this command to remove PKI objects in nonsecure mode. It removes switch private key, private key pass-phrase, CSR, root certificate, and switch certificate.

In secure mode, this command displays a message and does not remove PKI objects.

Operands

Examples

To remove PKI objects in nonsecure mode:

```
switch:admin> pkiremove


WARNING!!!


Removing Pki objects will impair the security functionality
of this fibre channel switch. If you want secure mode enabled,
you will need to get the switch certificate again.


About to remove Pki objects.
ARE YOU SURE (yes, y, no, n): [no] y
All PKI objects removed.
```

If run in secure mode, the following error message is displayed:

```
switch:admin> pkiremove


This Switch is in secure mode.
Removing Pki objects is not allowed. Exiting...
```

See also

pkiCreate

pkiShow

pkiShow

Displays existing public key infrastructure (PKI) objects.

Synopsis

```
pkishow
```

Availability

all users

Description

Use this command to display existence of PKI objects, such as switch private key, private key pass-phrase, CSR, root certificate, and switch certificate.

Operands

Examples

To view PKI objects:

```
switch:admin> pkishow
Passphrase      : Exist
Private Key     : Exist
CSR             : Exist
Certificate     : Empty
Root Certificate: Exist
```

See also

pkiCreate

pkiRemove

portAlpaShow

Displays the arbitrated loop physical addresses (AL_PAs) of devices attached to a port.

Synopsis

portalpashow [*slotnumber/*]*portnumber*

Availability

all users

Description

Use this command to display the device AL_PAs present in a port and whether these devices are public or private. If the port is not an active FL_Port or if it does not have any AL_PA, this command displays an error.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the port to display, followed by a slash (/).
portnumber	Specify the port number to display, relative to its slot for bladed systems. Use switchShow to list valid ports.

Examples

To display the AL_PAs of a port:

```
switch:user> portalpashow 4/14
AL_PA    type               AL_PA    type               AL_PA    type
0xe2     public             0xe4     public
```

See also

switchShow

portBufferShow

Displays the buffer usage information for a port group or for all port groups in the switch.

Synopsis

```
portbuffershow [slotnumber/][portnumber]
```

Availability

all users

Description

Use this command to display the current long-distance buffer information for the ports in a port group. The port group can be specified by giving any port number in that group. If no port is specified, then the long-distance buffer information for all of the port groups of the switch is displayed.

The following long-distance information is displayed:

User Port	Displays the area number of the port.
Port Type	Displays as E (E_Port), F (F_Port), G (G_Port), L (L_Port), or U (U_Port) depending on the port type.
Lx Mode	Displays as L0 when the link is not in long distance mode, LE when the link is up to 10 km, LM when the link is up to 25 Km, L1 when the link is up to 50 km, L2 when the link is up to 100 km or LD when the distance is to be determined dynamically.
Max/Resv Buffers	Displays the count of the maximum or reserved number of buffers that are allocated to the port based on the estimated distance (configured by the *desired_distance* operand of the portCfgLongDistance command). If the port is not configured in long distance mode, certain systems might reserve buffers for the port. This field then displays the number of buffers reserved for the port.
Buffer Usage	Displays the actual number of buffers allocate to the port. In LD mode, the number is determined by by the actual distance and the user-specified desired distance (configured by the *desired_distance* operand of the portCfgLongDistance command).
Needed Buffers	Displays the number of buffers that are needed to utilize the port at full bandwidth (depending on the port configuration). If the number of Buffer Usage is less than the number of Needed Buffers, the port is operating in the buffer limited mode.
Link Distance	For L0 (not in long distance mode), the fixed distance displays based on the port speed, for instance: 1G as 10 Km, 2G as 5 Km, and 4G as 2 Km. For the static long distance modes, the fixed distance displays; for instance, LE as 10 Km, LM as 25 Km, L1 as 50 Km, and L2 as 100 Km. For LD mode, the physical distance in kilometers displays as measured by timing the return trip of a MARK primitive that is sent and then echoed back to the switch. The supported distance measurement is up to 500 Km. Distance measurement on a link longer than 500 Km might not be accurate.
Remaining Buffers	Displays the remaining (unallocated and reserved) buffers in a port group.

When there is no connection to a port or the port is disabled, or the port is not an E_Port some of the information in this display is not relevant, such as long distance mode, needed buffers, and link distance. In this case, the irrelevant fields display as hyphens.

Operands

This command has the following operands:

slotnumber   For bladed systems only, specifies the slot number of the port group to display, followed by a slash (/).

portnumber   Specifies the number of a port associated with the port group to display, relative to its slot for bladed systems. Use switchShow for a list of valid ports. This operand is optional; if omitted, this command displays the long distance buffer information for all the port groups of the switch. In the case where this command displays information for all the port groups of the switch, a divider line displays between the ports of each port group to assist in readability.

Examples

To display the long distance information a port:

```
switch:user> portbuffershow 17
User  Port  Lx    Max/Resv Buffer Needed    Link     Remaining
Port  Type  Mode  Buffers  Usage  Buffers  Distance   Buffers
----  ----  ----  -------  ------ ------- ---------- ---------
 16          -       -       0       -        -
 17     E    L1      -       54      54      50km
 18          -       -       0       -        -
 19          -       -       0       -        -                54
```

See also

portCfgLongDistance

portCamShow

Displays port-based filter CAM utilization.

Synopsis

```
portcamshow [slotnumber/][portnumber]
```

Availability

all users

Description

Use this command to display the current filter CAM utilization of all ports or one port specified at input.

The following information is displayed:

SID used	Total number of CAM entries used by this port. Note that each CAM entry (either SID or DID CAM) can be shared among ports in the same quad.
DID used	Total number of CAM entries used by this port. Note that each CAM entry (either SID or DID CAM) can be shared among ports in the same quad.
SID entries	All existing source ID entries within the CAM per quad. Note that each CAM entry (either SID or DID CAM) can be shared among ports in the same quad.
DID entries	All existing destination ID entries within the CAM per quad. Note that each CAM entry (either SID or DID CAM) can be among ports in the same quad.
SID free	Total number of free SID CAM entries per quad.
DID free	Total number of free DID CAM entries per quad.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the port to display, followed by a slash (/).
portnumber	Specify the port number to display, relative to its slot for bladed systems. Use switchShow to list valid ports. This operand is optional; if omitted, information for all ports is displayed.

Examples

To display the filter CAM utilization for all ports on a switch:

```
switch:user> portcamshow


Ports of Slot 9
---------------------------------------------
Port  SID used  DID used  SID free  DID free
 0       0         0        64        512
 1       0         0        64        512
 2       0         0        64        512
 3       0         0        64        512
 4       0         0        64        512
 5       0         0        64        512
 6       0         0        64        512
 7       0         0        64        512
 8       0         0        63        511
 9       0         0        63        511
10       0         0        63        511
11       1         1        63        511
12       0         0        46        510
13       0         0        46        510
14       0         0        46        510
15      18         2        46        510

---------------------------------------------
(output truncated)
```

To display the filter CAM utilization for a single port on a switch:

```
switch:user> portcamshow 3/2


--------------------------------------------------
Area   SID used  DID used  SID entries  DID entries
 34       3         1        350400       2b2200
                             2b1200
                             220400
--------------------------------------------------
SID Free, DID Free: (61, 511)
```

See also

switchShow

portCfg

Sets a port's configuration to be disabled or enabled.

Synopsis

portCfg *action* [*slotnumber*/]*portnumber* [*range*] *mode*

Availability

admin

Description

Use this command to disable or enable configuration to a certain port or to a range of ports.

Operands

This command has the following operands:

action	Possible action includes `rscnsupr`. `rscnsupr` is for the local port's RSCN suppression. When RSCN suppression is enabled to a port, any device change on this port does not generate RSCN to any other end device. When RSCN suppression is disabled, device change on this port generates RSCN to another end device that is zoned with this one. By default, RSCN suppression is disabled to all the ports.
slotnumber	For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).
portnumber	Specify the number of the ports to be configured, relative to its slot for bladed systems. Use `switchShow` for a list of valid ports.
range	Specify a range of port in the same slot to apply the configuration. The range of ports has to be equal to or greater than the `portnumber`.
mode	Specify `--enable` to enable the configuration. Specify `--disable` to disable the configuration.

Examples

To configure a port as RSCN suppressed:

```
switch:admin> portcfg rscnsupr 2/4 --enable


switch:admin> portcfgshow


[output from other slots suppressed]


Ports of Slot 2    0  1  2  3    4  5  6  7    8  9 10 11   12 13 14 15
----------------+--+--+--+----+--+--+--+----+--+--+--+----+--+--+--
Speed              AN AN AN AN   AN AN AN AN   AN AN AN AN   AN AN AN AN
Trunk Port         ON ON ON ON   ON ON ON ON   ON ON ON ON   ON ON ON ON
Long Distance      .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
VC Link Init       .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Locked L_Port      .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Locked G_Port      .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Disabled E_Port    .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
CreditShare        .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
ISL R_RDY Mode     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
RSCN Suppressed    .. .. .. ..   ON .. .. ..   .. .. .. ..   .. .. .. ..
Persistent Disable.. .. .. ..    .. .. .. ..   .. .. .. ..   .. .. .. ..


            where AN:AutoNegotiate, ..:OFF, ??:INVALID.
                  LM:L0.5
```

To configure a port as not RSCN suppressed:

```
switch:admin> portcfg rscnsupr 2/4 --disable

switch:admin> portcfgshow

[output from other slots suppressed]

Ports of Slot 2    0  1  2  3    4  5  6  7    8  9 10 11   12 13 14 15
-----------------+--+--+--+--+----+--+--+--+----+--+--+--+----+--+--+--
Speed             AN AN AN AN   AN AN AN AN   AN AN AN AN   AN AN AN AN
Trunk Port        ON ON ON ON   ON ON ON ON   ON ON ON ON   ON ON ON ON
Long Distance     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
VC Link Init      .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Locked L_Port     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Locked G_Port     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Disabled E_Port   .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
CreditShare       .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
ISL R_RDY Mode    .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
RSCN Suppressed   .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Persistent Disable.. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..

              where AN:AutoNegotiate, ..:OFF, ??:INVALID.
                    LM:L0.5
```

To configure a range of ports as RSCN suppressed:

```
switch:admin> portcfg rscnsupr 2/4-7 --enable


switch:admin> portcfgshow


[output from other slots suppressed]


Ports of Slot 2    0  1  2  3    4  5  6  7    8  9 10 11   12 13 14 15
----------------+--+--+--+--+----+--+--+--+----+--+--+--+----+--+--+--+--
Speed             AN AN AN AN   AN AN AN AN   AN AN AN AN   AN AN AN AN
Trunk Port        ON ON ON ON   ON ON ON ON   ON ON ON ON   ON ON ON ON
Long Distance     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
VC Link Init      .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Locked L_Port     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Locked G_Port     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Disabled E_Port   .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
CreditShare       .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
ISL R_RDY Mode    .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
RSCN Suppressed   .. .. .. ..   ON ON ON ON   .. .. .. ..   .. .. .. ..
Persistent Disable.. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..


              where AN:AutoNegotiate, ..:OFF, ??:INVALID.
                    LM:L0.5
```

See also

configure

portShow

switchShow

portCfgDefault

Restores the port configuration to default values.

Synopsis

portcfgdefault [*slotnumber/*]*portnumber*

Availability

admin

Description

Use this command to reset any special configuration values on a port to their factory defaults. You can view the current port configuration using the portCfgShow command.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the port to display, followed by a slash (/).
portnumber	Specify the port number to display, relative to its slot for bladed systems. Use switchShow to list valid ports.

Examples

To reset a port to factory defaults:

```
switch:admin> portcfgdefault 1/3
```

See also

portCfgEPort

portCfgGPort

portCfgLongDistance

portCfgLPort

portCfgPersistentDisable

portCfgPersistentEnable

portCfgShow

portCfgSpeed

portCfgTrunkPort

portCfgEPort

Enables a port to become an E_Port or prevents a port from becoming an E_Port.

Synopsis

```
portcfgeport [slotnumber/]portnumber, mode
```

Availability

admin

Description

Use this command to enable a port to become an E_Port or to prevent 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 is segmented. No data traffic between two switches is routed through this port. Fabric management data, such as zoning information, are not exchanged through this port either.

Regardless of how many E_Ports are connected between two switches, the maximum routing paths are currently limited to 16 E_Ports.

Changes made by this command are persistent across switch reboots or power cycles.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specifies the slot number of the port to be configured, followed by a slash (/).
portnumber	Specifies the number of the port to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.
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.

Examples

To disable a port from becoming an E_Port:

```
switch:admin> portcfgeport 2/3, 0
```

To enable a port to become an E_Port:

```
switch:admin> portcfgeport 1/3, 1
```

See also

portShow

switchShow

portCfgGPort

Designates a port as a G_Port.

Synopsis

```
portcfggport [slotnumber/]portnumber, mode
```

Availability

admin

Description

Use this command to designate a port as a G_Port. After 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. A port designated as a G_Port can become an E_Port.

Changes made by this command are persistent across switch reboots or power cycles.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).
portnumber	Specify the number of the port to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.
mode	Specify a value of 1 to designate the port as a G_Port or specify a value of 0 to remove the G_Port designation from the port. A value of 0 is the default port state. This operand is required.

Examples

To configure a port as a locked G_Port:

```
switch:admin> portcfggport 1/3, 1
```

See also

configure

portCfgLPort

portShow

switchShow

portCfgISLMode

Enables or disables ISL R_RDY mode on a port.

Synopsis

portcfgislmode [*slotnumber/*]*portnumber,* [*mode*]

Availability

admin

Description

Use this command to enable or disable ISL R_RDY mode on a port. If enabling ISL R_RDY mode on a port, make sure the PID format is consistent across the entire fabric. See the configure command for more information on the core PID format.

ISL R_RDY mode sends ELP with Flow Control Mode 02 and enables connectivity with WAN gateway products. If a port is ISL R_RDY mode-enabled, it can only receive ELP with Flow Control Mode 02; ELP with Flow Control Mode 01 segments the fabric.

This mode cannot detect the PID format of connected ports. If the PID formats for two ISL R_RDY mode ports are not the same, zoning drops frames.

This feature is persistent across reboots and power cycles.

Use the portCfgShow command to view whether ISL R_RDY mode is enabled on a port.

> **NOTE:** The portCfgISLMode and portCfgLongDistance mode both cannot be enabled at the same time; otherwise, fabric segmentation occurs.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the port to display, followed by a slash (/).
portnumber	Specify the port number to display, relative to its slot for bladed systems. Use switchShow to list valid ports.
mode	Specify 1 to enable ISL R_RDY mode. Specify 0 to disable ISL R_RDY mode.

Examples

To enable ISL R_RDY mode on a port:

```
switch:admin> portcfgislmode 1/3, 1
ISL R_RDY Mode is enabled for port 3. Please make sure the PID
formats are consistent across the entire fabric.
```

To disable ISL R_RDY mode on a port:

```
switch:admin> portcfgislmode 1/3, 0
```

See also

portCfgShow

portCfgLongDistance

Configures a port to support long-distance links.

Synopsis

portcfglongdistance [*slotnumber/*]*portnumber* [*distance_level*]
[*vc_translation_link_init*] [*desired_distance*]

Availability

admin

> **NOTE:** This command requires an HP Extended Fabrics license.

Description

Use this command to allocate enough full-size frame buffers on a particular port to support a long-distance link up to 500 km. The port can only be used as an F/FL/E_Port. F/FL_Ports can be configured only for long distance using LE, L0.5, L1, or L2 modes. Changes made by this command are persistent across switch reboots or power cycles.

The value of *distance_level* can be one of the following (the numerical value representing each *distance_level* is shown in parentheses):

L0 (0)	Reconfigure the port to be a regular switch port. A total of 20 full-size frame buffers are reserved for data traffic, regardless of the port's operating speed.
L0.5	Level 0.5 (portCfgShow displays the two-letter code as LM) long distance, up to 25 km.
L1 (1)	Level 1 long distance, up to 50 km.
L2 (2)	Level 2 long distance, up to 100 km. For previously released switches (Bloom1-based), the number of frames buffers is limited to 63.
LE (3)	Level E mode is for E_Ports for distances beyond 5 km and up to 10 km. LE does not require an Extended Fabrics license.
LD	Automatic long-distance configuration. The buffer credits for the given E_Port are automatically configured, based on the actual link distance. Up to a total of 250 full-size frame buffers are reserved, depending upon the distance measured during E_Port initialization. If the desired distance is provided, it is used as the upper limit to the measured distance. For Bloom1-based systems, the number of frame buffers is limited to 63.

You can also configure a long-distance link as part of a trunk group (see portCfgTrunkPort). Two or more long-distance links in a port group forms a trunk group when they are configured for the same speed, the same distance level, and their link distances are nearly equal.

For details about buffer allocation at specific speeds and distances, see the *HP StorageWorks Fabric OS 5.x command reference guide*.

The *vc_translation_link_init* option is used to enable the long-distance link initialization sequence.

desired_distance is a required parameter to configure a port as an LD-mode link. The desired distance is used as the upper limit of the link distance to calculate buffer availability for other ports in the same port group. When the measured distance is more than *desired_distance*, the

desired_distance is used to allocate the buffers. In this case, the port operates in degraded mode instead being disabled due to insufficient buffers.

Pressing **Ctrl+D** cancels the configuration update.

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 follows:

- `L0` normal

- `LE` standard <= 10 km

- `LM` medium long <= 25 km

- `L1` long <= 50 km

- `L2` super long <= 100 km

- `LD` auto

In the `switchShow` output, the long distance mode appears as `Lx`, where `x` is the second letter in the two-letter distance-level code described earlier; however, L0.5 mode displays `LM`.

📝 **NOTE:** The `portCfgISLMode` and `portCfgLongDistance` mode cannot both be enabled at the same time; otherwise, fabric segmentation occurs.

If a port is configured as a long-distance port, the remaining ports of that port group could be disabled, fail to initialize, or move to "buffer limited" mode due to a lack of frame buffers. HP StorageWorks SAN Switch 2/8V, 2/16V, and 2/32 switches and HP StorageWorks Core Switch 2/64 and 2/128 directors do not support "buffer limited" mode and can have up to four ports per port group. The 4/8, 4/16, and 4/32 SAN switches and the 4 GB SAN Switch support "buffer limited" mode and can have up to eight ports per port group. On HP StorageWorks 4/256 SAN Director, the 4/16 and 4/32 SAN switch port blades support "buffer limited" mode and can have up to four ports per port group.

Operands

This command has the following operands:

slotnumber	Specifies the slot number, for bladed systems only. The slot number must be followed by a slash (/).
portnumber	Specifies a port number. Valid values for port number vary, depending on the switch type. This operand is required.
distance_level	See the *Description* section for information about the value.
vc_translation_link_init	Specifies the long-distance link-initialization sequence; 1 activates and 0 deactivates this mode. When the command is run without specifying a value, 1 is assigned automatically for the long distance link. This operand is optional.
desired_distance	See the *Description* section for information about the value.

Examples

To configure a port to support a 100 km link and be initialized using long-distance link initialization protocol:

```
switch:admin> portcfglongdistance 4/15 L2 1
switch:admin> portshow 4/15
portCFlags: 0x1
portFlags: 0x20001        PRESENT LED
portType:  1.1
portState: 2    Offline
portPhys:  4    No_Light
portScn:   0
portId:    013f00
portWwn:   20:3f:00:60:69:00:02:48
Distance:  super long <= 100km
portSpeed: 2Gbps

Interrupts:        9        Link_failure: 0        Frjt:        0
Unknown:           0        Loss_of_sync: 0        Fbsy:        0
Lli:               9        Loss_of_sig:  9
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
```

See also

configure

portCfgShow

portShow

switchShow

portCfgLPort

Locks a port as an L_Port.

Synopsis

    portcfglport [*slotnumber/*]*portnumber locked_mode* [*private_mode*]
    [*duplex_mode*]

Availability

admin

Description

Use this command to designate a port as an L_Port. The switch then only attempts to initialize that port as an FL_Port. By default, the L_Port is a public L_Port. It can be set to private L_Port and the FLOGI is rejected.

The switch never attempts point-to-point (F_Port) initialization on the port.

Operands

The operands are as follows:

slotnumber	For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).
portnumber	Specify a port number to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports. This operand is optional; if omitted, this command displays the L_Port conditions for all ports.
locked_mode	Specify 1 to configure the specified port as a locked L_Port. Specify 0 to deconfigure the specified port from its previous role as a locked L_Port. This operand is required if *portnumber* is specified.
private_mode	Specify 1 to configure the L_Port as a private L_Port. Specify 0 to configure the L_Port as a normal public L_Port. This operand is optional; if omitted; the default value of 0 is used. Private devices are supported only on HP StorageWorks SAN Switch 2/8V, 2/16V, 2/32 switches and HP StorageWorks Core Switch 2/64, and HP StorageWorks SAN Director 2/128 and 4/256 directors with SAN Switch 2/16 blades. For other switches and blade types, option 1 is blocked.
duplex_mode	Specify 2 to configure the specified port as a full-duplex L_Port with fairness. Specify 1 to configure the L_Port as a half-duplex L_Port with fairness. Specify 0 to configure the L_Port as a full-duplex L_Port. This operand is optional; if omitted, the default value of 0 is used.

If used without operands, this command reports the L_Port conditions for all ports present.

Examples

To configure a port as a locked L_Port:

```
switch:admin> portcfglport 4/15, 1
switch:admin> portcfgshow

[output from other slots suppressed]

Ports of Slot 4    0  1  2  3    4  5  6  7    8  9 10 11   12 13 14 15
----------------+--+--+--+----+--+--+--+----+--+--+--+----+--+--+--
Speed             AN AN AN AN   AN AN AN AN   AN AN AN AN   AN AN AN AN
Trunk Port        ON ON ON ON   ON ON ON ON   ON ON ON ON   ON ON ON ON
Long Distance     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
VC Link Init      .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Locked L_Port     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ON
Locked G_Port     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Disabled E_Port   .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
ISL R_RDY Mode    .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Persistent Disable.. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..


           where AN:AutoNegotiate, ..:OFF, ??:INVALID.
```

To display the L_Port conditions:

```
switch:admin> portcfglport

[output from other slots suppressed]

Ports of Slot 4    0  1  2  3    4  5  6  7    8  9 10 11   12 13 14 15
----------------+--+--+--+----+--+--+--+----+--+--+--+----+--+--+--
Locked L_Port     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ON
Private L_Port    .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Locked Loop HD    .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Loop Fairness     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
```

See also

configure

switchShow

portCfgPersistentDisable

Disables a port persistently.

Synopsis

```
portcfgpersistentdisable [slotnumber/]portnumber
```

Availability

admin

Description

Use this command to persistently disable a port. Persistently disabled ports remain disabled across power cycles, switch reboots, and switch enables. By default, a port is enabled persistently. The change in configuration is effective immediately.

The persistent disable configuration overrides all other port configurations but it does not change the configuration of any other port settings. Use the portCfgPersistentEnable command to enable a port persistently. A persistent-enabled port reenables all previously set port configurations of that port.

The switch still runs power-on diagnostics and initializes a persistently disabled port. The portEnable command fails when directed to a persistently disabled port. The switchEnable command does not enable the persistently disabled ports of that switch, and the bladeEnable command does not enable the persistently disabled ports of that blade..

The persistent switch disable or enable configuration does not alter the persistent disable or enable configurations of the ports within the switch.

Because the default state of the port is persistently enabled, the persistent disable state is cleared by the portCfgDefault command.

This command is not allowed if the switch is operating in the FICON Management Server mode (fmsmode); instead, use portDisable with Active=Saved mode enabled.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the port to configure, followed by a slash (/).
portnumber	Specify a port number to configure, relative to its slot for bladed systems. Use switchShow to display a list of valid ports. This operand is optional; if omitted, this command displays the persistently-disabled condition for all ports.

Examples

To configure a port as persistently disabled and then display all ports that are permanently disabled:

```
switch:admin> portcfgpersistentdisable 9/3
switch:admin> portcfgpersistentdisable
Slot 9      0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
---------+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---
Disabled   -   -   -  YES  -   -   -   -   -   -   -   -   -   -   -   -
(output truncated)
```

See also

ficoncupset

ficoncupshow

portCfgDefault

portDisable

portEnable

portCfgPersistentEnable

portShow

switchShow

portCfgPersistentEnable

Enables a port persistently.

Synopsis

portcfgpersistentenable [*slotnumber/*]*portnumber*

Availability

admin

Description

Use this command to persistently enable a port. Persistently enabled ports remain enabled across power cycles, switch reboots, and switch enables. By default, a port is enabled persistently. The change in configuration is effective immediately.

A persistent port enable reenables all previously set port configurations of that port. A persistently enabled port can temporarily be disabled by the portDisable or switchDisable command. The switchDisable command will also disable the persistently enabled ports of that switch.

The persistent switch disable or enable configuration does not alter the persistent disable or enable configurations of the ports within the switch.

The configuration commands configDefault and portCfgDefault do not modify the persistent enable attribute of a port.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the port to configure, followed by a slash (/).
portnumber	Specify a port number to configure, relative to its slot for bladed systems. Use switchShow to display a list of valid ports. This operand is optional; if omitted, this command displays the persistently enabled condition for all ports.

When no operand is specified, the command reports the current port persistently enabled status for all ports in the switch. The value of YES is displayed for ports that are persistently enabled.

Examples

To configure a port as persistently enabled and then display all ports that are persistently enabled:

```
switch:admin> portcfgpersistentenable 9/3
switch:admin> portcfgpersistentenable
Slot 9      0   1   2   3   4   5   6   7   8   9   10  11  12  13  14  15
--------+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---
Enabled   YES YES YES YES YES YES YES YES YES YES YES YES YES YES YES YES
(output truncated)
```

See also

ficoncupset

ficoncupshow

ficoncupset

ficoncupshow

portDisable

portDisable

portEnable

portCfgPersistentDisable

portCfgShow

portShow

switchShow

portCfgShow

Displays port configuration settings.

Synopsis

portcfgshow [*slotnumber/*][*portnumber*]

Availability

all users

Description

Use this command to display the current configuration of all ports. If no operand is specified, all the port configuration settings are displayed for that switch or for the Core Switch 2/64 logical switch.

The following configuration information appears:

Speed mode	Displays as 1G, 2G, or AN (when in auto speed negotiation mode). This value is set by the portCfgSpeed command.
Trunk Port mode	Displays 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.
Long Distance mode	Displays as blank (..) when the mode is off, L1 when the link is up to 50 km, or L2 when the link is up to 100 km, and also supports LE, L0.5, and LD modes. This value is set by the portCfgLongDistance command.
VC Link Init mode (virtual channel)	Displays as blank (..) when the long-distance link initialization option is turned off and (ON) when it is turned on for long distance mode. This value is set by the portCfgLongDistance command.
Locked L_Port mode	Displays 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 mode	Displays as ON when port is locked to G_Port only or blank (..) when G_Port lock mode is disabled (and it behaves as a U_Port). This value is set by the portCfgGPort command.
Disabled E_Port mode	Displays as ON when port is not allowed to be an E_Port or blank (..) when the port is allowed to function as an E_Port. This value is set by the portCfgEPort command.
Mcast LoopBack mode	Displays as blank (..) when mcast loopback mode is off, and (ON) when mcast loopback mode is enabled. This value is set by the portCfgMcastLoopback command.
ISL R_RDY Mode mode	Displays as ON when the port has been R_RDY-mode enabled or blank (..) when the port is allowed to function as an E_Port. This value is set by the portCfgISLMode command.
RSCN Suppression	Displays as ON when the port has RSCN suppression enabled or blank (..) when the port has RSCN suppression disabled. This value is set by the portCfg rscnsupr command.
Persistent Disable mode	Displays as ON when the port is disabled across reboots or power cycles or blank (..) when the port is allowed to function normally. This value is set by the portCfgPersistentDisable command.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specifies the slot number of the port to display, followed by a slash (/).
portnumber	Specifies the port number to display, relative to its slot for bladed systems. Use switchShow to display a list of valid ports. This operand is optional; if omitted, this command displays information for all ports.

Examples

To display the configuration settings of a switch:

```
switch:user> portcfgshow

Ports of Slot 1   0  1  2  3    4  5  6  7    8  9 10 11   12 13 14 15
----------------+--+--+--+--+----+--+--+--+----+--+--+--+----+--+--+--
Speed             AN AN AN AN   AN AN AN AN   AN AN AN AN   AN AN AN AN
Trunk Port        .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Long Distance     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
VC Link Init      .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Locked L_Port     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Locked G_Port     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Disabled E_Port   .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
ISL R_RDY Mode    .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
RSCN Suppressed   .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Persistent Disable.. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..


Ports of Slot 4   0  1  2  3    4  5  6  7    8  9 10 11   12 13 14 15
----------------+--+--+--+--+----+--+--+--+----+--+--+--+----+--+--+--
Speed             AN AN AN AN   AN AN AN AN   AN AN AN AN   AN AN AN AN
Trunk Port        .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Long Distance     .. .. .. ..   .. .. L2 ..   .. L1 L2 ..   .. .. .. L2
VC Link Init      .. .. .. ..   .. .. ON ..   .. ON ON ..   .. .. .. ON
Locked L_Port     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Locked G_Port     .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
Disabled E_Port   .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
ISL R_RDY Mode    .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..
RSCN Suppressed   .. .. .. ..   ON .. .. ..   .. .. .. ..   .. .. .. ..
Persistent Disable.. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. .. ..

        where AN:AutoNegotiate, ..:OFF, ??:INVALID.
```

To display the configuration settings of a port:

```
switch:user> portcfgshow 4/15
Area Number:              63
Speed Level:              AUTO
Trunk Port                OFF
Long Distance             OFF
VC Link Init              OFF
Locked L_Port             OFF
Locked G_Port             OFF
Disabled E_Port           OFF
ISL R_RDY Mode            OFF
RSCN Suppressed           OFF
Persistent Disable        OFF
```

See also

portCfg

portCfgEPort

portCfgGPort

portCfgLongDistance

portCfgLPort

portCfgSpeed

portCfgTrunkPort

portCfgSpeed

Configures the port speed level.

Synopsis

```
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 flash 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. Press **Ctrl+D** to cancel the configuration update.

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	For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).
portnumber	Specify a port number to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.
speed_level	Specify the speed of a port. This operand is required. Valid values are one of the following:

0	Autosensing mode. The port automatically configures for the highest speed.
1	1-Gb/s mode. The port is at fixed speed of 1 Gb/s.
2	2-Gb/s mode. The port is at fixed speed of 2 Gb/s.
4	4-Gb/s mode. The port is at fixed speed of 4 Gb/s.

Examples

To configure the speed of a port to 2 Gb/s:

```
switch:admin> portcfgspeed 2/3, 2
```

See also

portCfgShow

portShow

switchCfgSpeed

portCfgTrunkPort

Configures a port to be enabled or disabled for HP ISL Trunking license.

Synopsis

portcfgtrunkport [*slotnumber/*]*portnumber mode*

Availability

admin

NOTE: This command requires a ISL Trunking license.

Description

Use this command to enable or disable a port for trunking.

NOTE: You can disable or enable trunking using the portCfgTrunkPort or switchCfgTrunk commands. When the command is executed to update the trunking configuration, the ports for which the configuration applies are disabled and reenabled with the new trunk configuration. As a result, the traffic through these ports might be disrupted for a period of time.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).
portnumber	Specify a port number to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.
mode	Specify 1 to enable this port for trunking. Specify 0 to disable this port for trunking. This operand is required.

Examples

To enable a port for trunking:

```
switch:admin> portcfgtrunkport 1/3 0
```

See also

portCfgShow

portShow

switchCfgTrunk

switchShow

portDebug

Sets debug level and verbose level of port modules.

Synopsis

```
portdebug dbg_lvl, vbs_lvl
```

Availability

admin

Description

Use this command to set the debug level and verbose level of port modules.

Operands

This command has the following operands:

dbg_lvl   Specify the debug level to be set for port modules; valid values are 1 to 5.

vbs_lvl   Specify the verbose level to be set for port modules; valid values are 1 to 5.

Examples

To set debug level and verbose level of port modules:

```
switch:admin> portdebug 3 4
```

See also

dbgShow

portDisable

Disables a port.

Synopsis

portdisable [*slotnumber/*]*portnumber*

Availability

admin

Description

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

If the port was online before being disabled, a state transition will be indicated: RSCN, an SNMP trap, a 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	For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).
portnumber	Specify a port number to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.

Examples

To disable a port:

```
switch:admin> portdisable 2/4
```

See also

portCfgPersistentDisable

portCfgPersistentEnable

portEnable

portShow

switchShow

portEnable

Enables a port.

Synopsis

```
portenable [slotnumber/]portnumber
```

Availability

admin

Description

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

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

This command is rejected if the port's switch is disabled, the port's blade is not fully enabled (faulted, powered off, or disabled), or if the port itself is persistently disabled.

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

Operands

This command has the following operand:

slotnumber	For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).
portnumber	Specify a port number to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.

Examples

To enable a port:

```
switch:admin> portenable 2/4
```

See also

portCfgPersistentDisable

portCfgPersistentEnable

portDisable

portShow

switchShow

portErrShow

Displays port error summary.

Synopsis

```
porterrshow
```

Availability

all users

Description

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

The following fields are displayed:

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

Operands

Examples

To display error counters for ports on a switch:

```
switch:user> 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:  154  152    0    0    0    0    0 2.0m   0    1    2    0    0    0
    1:  154  152    0    0    0    0    0 1.9m   0    1    2    0    0    0

    (Continued on next page)
```

```
 2:   154   152     0     0     0     0     0   1.9m    0     1     2     0     0     0
 3:   154   153     0     0     0     0     0   1.9m    0     1     2     0     0     0
 4:     0     0     0     0     0     0     0    12     0     0     0     1     0     0
 5:     0     0     0     0     0     0     0    35     0     0     0     1     0     0
 6:     0     0     0     0     0     0     0     0     0     0     0     1     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:   154   153     0     0     0     0     0   2.0m    0     1     2     0     0     0
13:   153   151     0     0     0     0     0   1.9m    0     1     2     0     0     0
14:   153   152     0     0     0     0     0   1.8m    0     1     2     0     0     0
15:   155   154     0     0     0     0     0   1.7m    0     1     2     0     0     0
48:   142   141     0     0     0     0     0   1.8m    0     2    18     0     0     0
49:   142   141     0     0     0     0     0   1.8m    0     2     2     0     0     0
50:   142   141     0     0     0     0     0   2.1m    0     2     2     0     0     0
51:   146   145     0     0     0     0     0   2.0m    0     2     2     0     0     0
52:     0     0     0     0     0     0     0     0     0     0     0     1     0     0
53:     0     0     0     0     0     0     0     0     0     0     0     1     0     0
54:     0     0     0     0     0     0     0     0     0     0     0     1     0     0
55:     0     0     0     0     0     0     0     0     0     0     0     1     0     0
56:   142   141     0     0     0     0     0   2.1m    0     2     2     0     0     0
57:   142   141     0     0     0     0     0   2.1m    0     2     2     0     0     0
58:   142   141     0     0     0     0     0   2.0m    0     2     2     0     0     0
59:   142   141     0     0     0     0     0   2.0m    0     2     2     0     0     0
60:    29    32     0     0     0     0     0   9.0m    0     1    26     0     0     0
61:     0     0     0     0     0     0     0     0     0     0     0     0     0     0
62:     0     0     0     0     0     0     0     0     0     0     0     1     0     0
63:    28    32     0     0     0     0     0   8.6m    0     1    34     0     0     0
```

See also

portShow

portStatsShow

portFlagsShow

Displays the port status bitmaps for all ports in a switch.

Synopsis

```
portflagsshow
```

Availability

all users

Description

Use this command to display the following status for a port:

SNMP	Displays whether the port is online or offline.
Physical	Displays the port physical status. Valid values are In_Sync and No_Light.
Flags	Displays whether there is an SFP inserted in the port, whether the port is active, and the port type.

Operands

Examples

To display the port status for all ports in the switch.

```
switch:user> portflagsshow
 Slot    Port    SNMP            Physical        Flags
-----------------------------------------------------
   1       0    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   1       1    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   1       2    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   1       3    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   1       4    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   1       5    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   1       6    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   1       7    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   1       8    Offline         No_Light        PRESENT LED
   1       9    Offline         No_Light        PRESENT LED
   1      10    Offline         No_Light        PRESENT LED
   1      11    Offline         No_Light        PRESENT LED
   1      12    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   1      13    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   1      14    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   1      15    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   4       0    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
   4       1    Online          In_Sync         PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT


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```

```
4      2      Online     In_Sync     PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
4      3      Online     In_Sync     PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
4      4      Offline    No_Light    PRESENT LED
4      5      Offline    No_Light    PRESENT LED
4      6      Online     In_Sync     PRESENT ACTIVE F_PORT L_PORT LOGIN NOELP LED ACCEPT
4      7      Online     In_Sync     PRESENT ACTIVE F_PORT L_PORT LOGIN NOELP LED ACCEPT
4      8      Online     In_Sync     PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
4      9      Online     In_Sync     PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
4      10     Online     In_Sync     PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
4      11     Online     In_Sync     PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
4      12     Online     In_Sync     PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
4      13     Online     In_Sync     PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
4      14     Online     In_Sync     PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
4      15     Online     In_Sync     PRESENT ACTIVE E_PORT G_PORT LOGIN LED ACCEPT
```

See also

portShow

switchShow

portLedTest

Cycles user port LEDs.

Synopsis

```
portledtest [-npass count][-ports itemlist]
```

Availability

admin

Description

Use this command to exercise the user port LEDs in the current switch on and off by setting the ATTN LEDs to green for the ON condition and unlighted for the OFF condition. The SPEED LEDs are initially set to black before the command execution. The SPEED LEDs are set to green once the command is executing.

You must disable the current switch (using the switchDisable command) before running this command. After the command had completed, the ATTN LEDs flash amber, indicating that the command has finished and exited. You can enable the current switch (using the switchEnable command) to set the ATTN LEDs back to black.

Operands

This command has the following optional operands:

-npass *count*	Specify the number of times to perform this test. The default value is 10.
-ports *itemlist*	Specify a list of user ports to run the test. If omitted, all the active ports in the switch are assumed. For more information, see the itemList command.

Examples

To test port LEDs:

```
switch:admin> portledtest -ports 1/1-1/5
passed.
```

See also

itemList

switchDisable

switchEnable

portLogClear

Clears the port log.

Synopsis

```
portlogclear
```

Availability

admin

Description

Use this command to clear the port log. You might want to clear the port log before triggering an activity so that the log displays only the log events related to that activity.

If the port log is disabled, the following message appears as the first line.

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

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).

The following errors disable the port log:

```
FCPH, EXCHBAD
FCPH, EXCHFREE
NBFSM, DUPEPORTSCN
UCAST, RELICPDB
```

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

Operands

Examples

To clear the port log:

```
switch:admin> portlogclear
switch:admin> portlogshow
port log is empty
```

See also

portLogDump

portLogShow

portLogConfigShow

Displays the current port log configuration.

Synopsis

```
portlogconfigshow
```

Availability

admin

Description

Use this command to display the current port log configuration.

Operands

Examples

To display the current port log configuration:

```
switch:admin> portlogconfigshow
max portlog entries = 8192
```

See also

portLogResize

portLogDump

Displays the port log without page breaks.

Synopsis

```
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.

If the port log is disabled, the following message displays as the first line. See portLogClear command for more information.

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

For a full explanation of the information displayed by this command, see the *HP StorageWorks Fabric OS 5.x procedures user guide*.

Operands

This command has the following operands:

count	Specify the maximum number of lines to be displayed. Only the most recent count entries are displayed. This operand is optional.
saved	Specify a nonzero value to display the saved port log from the last switch fault. See upTime for conditions that cause a fault. The operand count is ignored when displaying the saved log. This operand is optional.
portid	Specify the port to display. All other ports will not be displayed. This operand is optional.

Examples

To display the port log for a port:

```
switch:user> portLogDump 20
time            task        event  port  cmd  args

------------------------------------------------------
08:35:27.899  tShell      pstate  14   OL1
08:35:27.899  tReceive    pstate  14   LR2
08:35:27.916  tReceive    pstate  14    AC
08:35:28.416  interrupt   scn     14     1
08:35:28.433  tFabric     ioctl   14    90  101d9910,0
08:35:28.433  tFabric     Tx      14   164  02ffffff d,00ffffff d,0005ffff,10000000
08:35:28.433  tReceive    Rx      14     0  c0ffffff d,00ffffff d,00050006
08:35:28.433  tReceive    Rx      14   164  03ffffff d,00ffffff d,00050006,02000000
08:35:28.433  tTransmit   Tx      14     0  c0ffffff d,00ffffff d,00050006
08:35:28.433  tFabric     ioctl   14    91  103646d8,0


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```

```
switch:user> portLogDump 20
time          task        event   port  cmd  args
-----------------------------------------------------
08:35:27.899  tShell      pstate  14    OL1
08:35:27.899  tReceive    pstate  14    LR2
08:35:27.916  tReceive    pstate  14    AC
08:35:28.416  interrupt   scn     14     1
08:35:28.433  tFabric     ioctl   14    90   101d9910,0
08:35:28.433  tFabric     Tx      14   164   02ffffffd,00ffffffd,0005ffff,10000000
08:35:28.433  tReceive    Rx      14     0   c0ffffffd,00ffffffd,00050006
08:35:28.433  tReceive    Rx      14   164   03ffffffd,00ffffffd,00050006,02000000
08:35:28.433  tTransmit   Tx      14     0   c0ffffffd,00ffffffd,00050006
```

See also

portLogClear

portLogShow

upTime

portLogDumpPort

Displays the port log of specified port, without page breaks.

Synopsis

```
portlogdumpport portid
```

Availability

all users

Description

Use this command to display the port log of specified port. The command displays all entries in the log without any page breaks. It is identical to portLogShowPort, except that portLogShowPort prompts the user to press Enter between each page.

Port logs are circular log files in the switch firmware, which can save up to 8,192 entries. See portLogConfigShow to display the current port log size. Once the log is full, the newest log entries delete the oldest log entries. Port logs capture switch-to-device, device-to-switch, switch-to-switch, some device-to-device1, and control information

If the port log is disabled, the following message displays as the first line. See portLogClear command for more information.

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

See the *HP StorageWorks Fabric OS 5.x procedures user guide* for more information.

Operands

This command has the following operand:

portid	Specify the area number of port to display. If a port area number is specified, all other ports on the switch are ignored. This operand is optional.

Examples

To display the port log dump for a port:

```
switch:user> portLogDumpPort 14
time            task           event port  cmd  args
-----------------------------------------------------
08:35:27.899  tShell        pstate  14  OL1
08:35:27.899  tReceive      pstate  14  LR2
08:35:27.916  tReceive      pstate  14   AC
08:35:28.416  interrupt     scn     14    1
08:35:28.433  tFabric       ioctl   14   90  101d9910,0
08:35:28.433  tFabric       Tx      14  164  02fffffd,00fffffd,0005ffff,10000000
08:35:28.433  tReceive      Rx      14    0  c0fffffd,00fffffd,00050006
08:35:28.433  tReceive      Rx      14  164  03fffffd,00fffffd,00050006,02000000
08:35:28.433  tTransmit     Tx      14    0  c0fffffd,00fffffd,00050006


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```

```
08:35:28.433  tFabric    ioctl   14   91  103646d8,0
08:35:28.466  tFabric    ioctl   14   a7  3c,1
08:35:28.466  tFabric    pstate  14  LR1
08:35:28.466  tReceive   pstate  14  LR3
08:35:28.466  tReceive   pstate  14  AC
08:35:28.483  tFabric    Tx      14   96  02fffffd,00fffffd,0006ffff,11100060
08:35:28.483  tReceive   Rx      14    0  c0fffffd,00fffffd,00060007
08:35:28.483  tReceive   Rx      14   96  03fffffd,00fffffd,00060007,02100060
08:35:28.483  tTransmit  Tx      14    0  c0fffffd,00fffffd,00060007
08:35:28.483  tFabric    ioctl   14   a1  0,0
08:35:28.483  tFabric    scn     14    5
```

See also

portLogClear

portLogShow

upTime

portLogEventShow

Displays information about port log events.

Synopsis

```
portlogeventshow
```

Availability

admin

Description

Use this command to display information about the ID associated with the various port log events. The `Disabled` field indicates if the port log for that event ID is disabled (1) or enabled (0).

Operands

Examples

Display information about port log events:

```
switch:admin> portlogeventshow
ID      Event-Name      Disabled
-------------------------------
1       start           0
2       disable         0
3       enable          0
4       ioctl           0
5       Tx              0
6       Tx1             0
7       Tx2             0
8       Tx3             0
9       Rx              0
10      Rx1             0
11      Rx2             0
12      Rx3             0
13      stats           0
14      scn             0
15      pstate          0
16      reject          0
17      busy            0
18      ctin            0
19      ctout           0
20      errlog          0
21      loopscn         0
(continued on next page)
```

```
22      create          0
23      debug           1
24      nbrfsm          0
25      timer           0
26      sn              0
27      fcin            0
28      fcout           0
29      read            0
30      write           0
31      err             0
32      frame           0
33      msRemQ          0
34      msRemR          0
35      nsRemQ          0
36      nsRemR          0
37      rscn            0
38      state           0
39      xalloc          0
40      xfree           0
41      xerr            0
42      xstate          0
43      seq             0
44      seqst           0
45      iu              0
46      payload         0
47      zone            0
48      cmd             0
49      event           0
50      msg             0
51      switch          0
52      ficonq          0
53     routing        0
```

See also

portLogTypeDisable

portLogTypeEnable

portLoginShow

Displays port login status.

Synopsis

```
portloginshow [slotnumber/]portnumber
```

Availability

all users

Description

Use this command to display port login received from devices attached to the specified port. Some information varies with the switch model and port type. The following lines appear:

Type   Type of login:

               fe   FLOGI, fabric login to fabric F_Port.

               ff   PLOGI, process login to specific N_Ports or well-known address, such as name server.

               fd   FDISC, virtual N_Port login.

PID   The port's 24-bit D_ID.

WWN   The port's world wide name.

credit   The credit for this login as appropriate. This is BB (buffer-to-buffer) credit for FLOGIs and EE (end-to-end) credit for PLOGIs.

df_sz   The default frame size for this login.

cos   Class of services supported. This can be a combination of the following bits:

               4   Class of service includes class 2.

               8   Class of service includes class 3.

There is further information about the login after the above columns. This can include the DID (destination identifier) that the port is logged on to.

Operands

This command has the following operands:

slotnumber   For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).

portnumber   Specify a port number to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.

Examples

To display login information for port 23:

```
switch:admin> portloginshow 23
Type  PID      world wide name         credit df_sz cos

=================================================

fe  201700  21:00:00:e0:8b:05:a3:c9    3  2048   8   scr=1

ff  201700  21:00:00:e0:8b:05:a3:c9    0    0    8   d_id=FFFC20

ff  201700  21:00:00:e0:8b:05:a3:c9    0    0    8   d_id=FFFFFC
```

See also

fcpProbeShow

portShow

portLogPdisc

Sets or clears the debug_pdisc_flag.

Synopsis

    portlogpdisc lvl

Availability

admin

Description

Use this command to set or clear the debug_pdisc_flag.

Operands

This command has the following operand:

   lvl   Specify either 0 to clear the flag or 1 to set the debug_pdisc_flag.

Examples

To set the debug_pdisc_flag:

```
switch:admin> portlogpdisc 1
PDISC log setting = 1
```

See also

portLogPortShow

Displays information about port log port settings.

Synopsis

```
portLogPortShow
```

Availability

admin

Description

Use this command to display information about whether the port log for various ports is enabled or disabled. 1 in the right column indicates port log for that port is disabled, and 0 indicates port log for that port is enabled.

Operands

Examples

To disable the information about the port log settings:

```
switch:admin> portLogPortShow
Port    Disabled
-----------------------
0       1
1       0
2       0
3       0
4       0
5       0
6       0
7       0
8       0
9       0
10      0
11      0
12      0
13      0
14      0
15      0


(continued on next page)
```

```
16       0
17       0
18       1
19       0
20       0
21       0
22       0
23       0
24       0
25       0
26       0
27       0
28       0
29       0
30       0
31       0
```

See also

portLogEventShow

portLogReset

portLogTypeDisable

portLogTypeEnable

portLogReset

Enables the port log facility.

Synopsis

```
portlogreset
```

Availability

admin

Description

Use this command to enable the port log facility.

See portLogClear for events that might disable the port log facility.

Operands

Examples

To enable the port log:

```
switch:admin> portlogreset
```

See also

portLogPortShow

portLogResize

Resizes the port log to the specified number of entries.

Synopsis

portlogresize *num_entries*

Availability

admin

Description

Use this command to resize the port log to specified number of entries. If *num_entries* is less than the already configured port log size, no change is effected.

Operands

This command has the following operand:

num_entries   Specifies the number of entries to which portlog needs to be resized. The valid range of values is 8,192 to 16,384.

Examples

To resize the port log:

```
switch:admin> portlogresize 12288
```

See also

portLogConfigShow

portLogShow

Displays the port log.

Synopsis

```
portlogshow [count, saved, portid]
```

Availability

all users

Description

Use this command to display the port log, page by page.

The `portLogShow` command displays the same information as `portLogDump`, but it enables you to press Enter after each page of output.

Port logs are circular log files in the switch firmware, which can save up to 8,192 entries. See `portLogConfigShow` to display the current port log size. Once the log is full, the newest log entries delete the oldest log entries. Port logs capture switch-to-device, device-to-switch, switch-to-switch, some device-to-device, and control information.

If the port log is disabled, the following message displays as the first line. See `portLogClear` command for more information.

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

The following information displays for each log entry:

Time	Displays the event date and time in milliseconds. The clock resolution is 16 milliseconds.
Task	Displays the name of the internal switch procedure that logged the event, interrupt if the event was logged in interrupt context, or unknown if the task no longer exists.
Event	Displays the task event that generated log entry. Possible events include:

start	A switch start or re-start event
disable	A port is disabled
enable	A port is enabled
ioctl	A port I/O control is executed
Tx	A frame is transmitted (class is indicated)
Rx	A frame is received (class is indicated)
scn	A state change notification is posted
pstate	A port changes physical state
reject	A received frame is rejected
busy	A received frame is busied
ctin	A CT based request is received
ctout	A CT based response is transmitted
errlog	A message is added to the error log
loopscn	A loop state change notification is posted
create	A task is created
debug	A debug message
nbrfsm	Neighbor state transition

sn	Speed negotiation states	
fcin	Incoming fibre channel information unit	
fcout	Outgoing fibre channel information unit	
read	Information unit header log from read operation	
write	Information unit header log from write operation	
err	Information unit header log of an fc error frame	
frame	fc frame payload	
nsRemQ	Inter-switch name server query	
rscn	RSCN	
xalloc	Allocate an exchange	
xfree	Free an exchange	
xerr	Exchange error	
xstate	Exchange state	
payload	Frame payload	

Port   Displays the port number that logged the event.

Cmd   Defined by the event. Displays a value defined by the event as follows:

ioctl	I/O control command code
Tx & Rx	Frame payload size
scn	New state (see state codes below)
pstate	New physical state (see pstate codes below)
ctin	The CT-subtype:

            fc   Simple Name Server

            f8   Alias Server

ctout	Same as ctin above.
errlog	Error level (see errModuleShow)
loopscn	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 init completed, FL_Port in MONITORING state

            OLD Port transited to the OLD_PORT state

            TMO Loop init times out

Args   Displays additional information about the event as follows:

start	Start type: 0 = enable ports, 100 = disable ports
disable	State (see state codes next)
enable	Mode: 0 = normal
	nonzero = loopback
Tx & Rx	Header words 0,1,4 (R_CTL,D_ID,S_ID,OX_ID,RX_ID) and the first payload word
reject	FC-PH reject reason
busy	FC-PH busy reason

ctin	Argument 0 is divided into two 16-bit fields:		
	[A]	A bit map indicating whether subsequent args are valid (0001 means argument 1 is valid, 0003 means arguments 1 and 2 are valid)	
		Argument 1 is the first word of the CT payload, if applicable (as specified in [A])	
		Argument 2 is the second word of the CT payload, if applicable (as specified in [A]).	
	[B]	The CT-based service command code	
ctout	Argument 0 is also divided into two 16-bit fields:		
	[A]	A bit map indicating whether subsequent args are valid (0001 means argument 1 is valid, 0003 means arguments 1 and 2 are valid).	
	[B]	The CT command code indicating whether 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 errModuleShow)		
loopscn	The meaning further depends on each loop state:		
	OLP	Offline reason code, usually zero	
	LIP	Reason code for LIPs initiated by FL_Port, if the code value is 800x (x = [1,0xc], see below), or the lower two bytes of the LIP received, if the code value is other than 800x	
	LIM	Usually zero	
	BMP	Memory address for the loop bitmap	
	OLD	Usually zero	
	TMO	Encoded value of the state when loop init timed out This value is usually equal to the first word of a loop init frame payload. Other possible values include:	
		2	LIP (req. INITIALIZING) timeout
		94F0F0	ARB(F0) timeout
		40	CLS timeout

Codes used in various fields are as follows:

state	1	Online
	2	Offline
	3	Testing
	4	Faulty
	5	E_Port
	6	F_Port
	7	Segmented
pstate	AC	Active State
	LR1	Link Reset: LR Transmit State
	LR2	Link Reset: LR Receive State
	LR3	Link Reset: LRR Receive State

	LF1	Link Failure: NOS Transmit State
	LF2	Link Failure: NOS Receive State
	OL1	Offline: OLS Transmit State
	OL2	Offline: OLS Receive State
	OL3	Offline: Wait for OLS State
LIP reason	8001	Retry loop init
	8002	Start loop after gaining sync
	8003	Restart loop after port reset
	8004	LIP when a loop hangs
	8005	Restart loop if LIP received when sending out ARB(F0)
	8006	LIP when an OPN returns
	8007	Restart loop when LIPs received in OLD_PORT AC state
	8008	Restart loop if loop not empty but E_Port loopback
	8009	LIP as requested by the LINIT ELS received
	800a	LIP as requested by the LPC ELS received
	800b	Restart loop for QuickLoop looplet setup
	800c	Restart loop for QuickLoop looplet re-initialization

Speed Negotiation States

INIT	Start negotiation
NM	Negotiate master
WS	Wait for signal
NF	Negotiation follow
NC	Negotiation complete

For a full explanation of the information displayed by this command, see the *HP StorageWorks Fabric OS 5.x procedures user guide*.

Operands

This command has the followingoptional Soperands:

count	Specify the maximum number of lines to display. Only the most recent count entries are displayed.
saved	Specify a nonzero value to display the saved port log from the last switch fault. See upTime for a list of conditions that cause a fault. The *count* is ignored when displaying the saved log.
portid	Specify the area number of port to be displayed. If a port area number is specified, all other ports on the switch are ignored.

Examples

To view the port log for a port:

```
switch:user> portLogShow 24
time            task        event  port  cmd  args
------------------------------------------------
17:05:30.384    PORT        Rx        0   40   02ffffff d,00ffffff d,08fbffff,14000000
17:05:30.384    PORT        Tx        0    0   c0ffffff d,00ffffff d,08fb0e02
17:05:30.384    PORT        debug     0        00c0ffee,00fd0118,00000000,00000001
17:05:30.389    PORT        Rx        1   40   02ffffff d,00ffffff d,08fdffff,14000000
17:05:30.389    PORT        Tx        1    0   c0ffffff d,00ffffff d,08fd0e03
17:05:30.389    PORT        debug     1        00c0ffee,00fd013c,00000000,00000001
17:05:30.504    PORT        Rx        2   40   02ffffff d,00ffffff d,08feffff,14000000
17:05:30.504    PORT        Tx        2    0   c0ffffff d,00ffffff d,08fe0e04
17:05:30.504    PORT        debug     2        00c0ffee,00fd0182,00000000,00000001
17:05:30.507    PORT        Rx        3   40   02ffffff d,00ffffff d,08ffffff,14000000
17:05:30.507    PORT        Tx        3    0   c0ffffff d,00ffffff d,08ff0e05
17:05:30.508    PORT        debug     3        00c0ffee,00fd0148,00000000,00000001
17:05:31.081    PORT        Tx        0   40   02ffffff d,00ffffff d,0e06ffff,14000000
17:05:31.082    PORT        debug     0        00c0ffee,00fd0188,14000000,00000001
17:05:31.084    PORT        Rx        0    0   c0ffffff d,00ffffff d,0e060902
17:05:31.772    PORT        Tx        1   40   02ffffff d,00ffffff d,0e07ffff,14000000
17:05:31.772    PORT        debug     1        00c0ffee,00fd014a,14000000,00000001
17:05:31.774    PORT        Rx        1    0   c0ffffff d,00ffffff d,0e070906
17:05:31.775    PORT        Tx        2   40   02ffffff d,00ffffff d,0e08ffff,14000000
17:05:31.775    PORT        debug     2        00c0ffee,00fd015c,14000000,00000001
17:05:31.777    PORT        Rx        2    0   c0ffffff d,00ffffff d,0e080907
17:05:31.778    PORT        Tx        3   40   02ffffff d,00ffffff d,0e09ffff,14000000
17:05:31.779    PORT        debug     3        00c0ffee,00fd015e,14000000,00000001
17:05:31.782    PORT        Rx        3    0   c0ffffff d,00ffffff d,0e090908
```

See also

portLogClear

portLogDump

upTime

portLogShowPort

Displays the port log of specified port, with page breaks.

Synopsis

```
portlogshowport [portid]
```

Availability

all users

Description

Use this command to display the port log, showing 22 entries at a time. It is identical to portLogDumpPort, except that portLogDumpPort does not prompt the user to press Enter between each page of output.

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

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

See the portLogDump command for more information on the data returned by this command.

Operands

This command has the following operand:

portid   Specify a nonzero value that specifies which port appears.

Examples

To display a port log for port 14:

```
switch:user> portLogShowPort 14
time            task          event port  cmd  args
----------------------------------------------------
08:35:28.483  tFabric       scn      14     0
08:35:27.899  tShell        pstate   14   OL1
08:35:27.899  tReceive      pstate   14   LR2
08:35:27.916  tReceive      pstate   14    AC
08:35:28.416  interrupt     scn      14     1
08:35:28.433  tFabric       ioctl    14    90   101d9910,0
08:35:28.433  tFabric       Tx       14   164   02fffffd,00fffffd,0005ffff,10000000
08:35:28.433  tReceive      Rx       14     0   c0fffffd,00fffffd,00050006
08:35:28.433  tReceive      Rx       14   164   03fffffd,00fffffd,00050006,02000000
08:35:28.433  tTransmit     Tx       14     0   c0fffffd,00fffffd,00050006
08:35:28.433  tFabric       ioctl    14    91   103646d8,0
08:35:28.433  tFabric       ioctl    14    92   103646d8,0
08:35:28.466  tFabric       ioctl    14    a7   3c,1
08:35:28.466  tFabric       pstate   14   LR1
08:35:28.466  tReceive      pstate   14   LR3
08:35:28.466  tReceive      pstate   14    AC


(continued on next page)
```

```
08:35:28.483   tFabric     Tx      14   96   02fffffd,00fffffd,0006ffff,11100060
08:35:28.483   tReceive    Rx      14    0   c0fffffd,00fffffd,00060007
08:35:28.483   tReceive    Rx      14   96   03fffffd,00fffffd,00060007,02100060
08:35:28.483   tTransmit   Tx      14    0   c0fffffd,00fffffd,00060007
08:35:28.483   tFabric     ioctl   14   a1   0,0
08:35:28.483   tFabric     scn     14    5
(output truncated)
```

See also

portLogClear

portLogShow

upTime

portLogTypeDisable

Disables the port log of a specified type.

Synopsis

portlogtypedisable *id*

Availability

admin

Description

Use this command to disable the port log for a specified port log type.

Operands

This command has the following operand:

id   Specify a nonzero value that corresponds to the port log type to be disabled. The values corresponding to different log types can be obtained by running portLogEventShow.

Examples

To disable event 2 from reporting to the port log:

```
switch:admin> portlogtypedisable 2
```

See also

portLogEventShow

portLogTypeEnable

portLogTypeEnable

Enables the port log of a specified type.

Synopsis

portlogtypeenable *id*

Availability

admin

Description

Use this command to enable the port log for a specified port log type.

Operands

This command has the following operand:

id   Specify a nonzero value that corresponds to the port log type to be
enabled. The values corresponding to different log types can be
obtained by running portLogEventShow.

Examples

To enable event 2 to report to the port log:

```
switch:admin> portlogtypeenable 2
```

See also

portLogEventShow

portLogTypeDisable

portLoopbackTest

Functional test of port N->N path.

Synopsis

```
portloopbacktest [--slot number][-nframes count][-lb_mode mode]
[-spd_mode mode][-ports itemlist]
```

Availability

admin

Description

Use this command to verify the functional operation of the switch by sending frames from the port N transmitter and looping them 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 media or the fiber cable.

Only one frame is transmitted and received at a time. No external cable is required to run this test. The port LEDs flicker green rapidly while the test is running.

Following is the test method:

1. Set all ports for parallel loopback.
2. Create a frame F of maximum data size (2,112 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 step 2 through step 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 media or the fiber cable in its test path, its results combined with the results of crossPortTest and spinSilk (both of which loop frames using an external loopback cable) can be used to determine which components of the switch are faulty.

Operands

This command has the following operands:

`--slot number`	Specify the slot number on which the diagnostic will operate. The ports specified will be relative to this slot number. The default is set to 0 and designed to operate on fixed-port-count products.
`-nframes count`	Specify the number of frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value is 10.
`-lb_mode mode`	Specify the loopback mode for the test. By default, this test uses internal loopback. Valid values are as follows:

1	Port Loopback (loopback plugs)
2	External (SERDES) loopback
5	Internal (parallel) loopback

`-spd_mode mode`	Specify the speed mode for the test. This parameter is used only with Bloom and Condor ASIC-based 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 speed modes 5 through 8 depends upon the loopback mode selected. When speed modes 5 through 8 are used with cables, they must be connected even to odd or the test will fail.

0	Runs test at 1 Gb/s, 2 Gb/s, and 4 Gb/s.
1	Runs test at 1 Gb/s.
2	Runs test at 2 Gb/s (Bloom default).
4	Runs test at 4 Gb/s (Condor default).

For `-lb_mode` set to 0 or 1, the following speed modes are available to test the speed negotiation:

3	Set all even ports' speed for autonegotiate; set all odd ports' speed for 1 Gb/s.
4	Set all even ports' speed for autonegotiate; set all odd ports' speed for 2 Gb/s.
5	Set all odd ports' speed for autonegotiate; set all even ports' speed for 1 Gb/s.
6	Set all odd ports' speed for autonegotiate; 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.

`-ports itemlist`	Specify a list of user ports to test. By default, all of the user ports in the current switch are tested. This option can be used to restrict testing to the specified ports.

Examples

To run a functional test of a connection:

```
switch:admin> portloopbacktest -ports 1/38-1/45 -nframes 1 -lb_mode 1
Running Port Loopback Test ....
passed.
```

Diagnostics

Following are possible error messages if failures are detected:

```
DATA
ERRSTAT
INIT
PORTDIED
STATS
TIMEOUT
XMIT
```

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

camTest

centralMemoryTest

cmemRetentionTest

cmiTest

crossPortTest

itemList

portRegTest

spinSilk

sramRetentionTest

portName

Assigns or displays a port name.

Synopsis

```
portname [slotnumber/]portnumber, name
```

Availability

admin

Description

Use this command to assign or display a port name. Both *port_number* and *name* operands are optional for this command.

With both the operands present, the port name string will be assigned to the port. With only the port name operand, the previously assigned port name will be displayed. With no operands, the port names of all the ports present will be displayed.

The port name is a string of 32 characters or fewer. It can consist of white spaces or printable characters, excluding the characters comma (,) and semicolon (;). By default, a port has no name until it is explicitly assigned by the user.

A null string (that is, no *name* specified) is used as the default port name when a port has no user-assigned name. A port name can be reset to the default value by executing the portName command with the second operand a null string.

Like all other configurable port attributes, port name persists across reboots and power cycles. It will not be affected by configDefault command, but it will be cleared by portCfgDefault.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).
portnumber	Specify a port number to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.
name	Specify a port name. The port name is a character string from 1 to 32 characters, including spaces and characters excluding commas, semicolons, and asterisks. To erase a port name, specify this operand as an empty string. Quotation marks are optional. This operand is optional; if omitted, it displays the current port name.

Without operands, the port names of all ports present are displayed.

Examples

To name to a port:

```
switch:admin> portname 1/3, "Tape drive 8"
switch:admin> portname 1/3
Tape drive 8
```

See also

configDefault

portCfgDefault

portShow

portPerfShow

Displays port throughput performance in bytes, kilobytes, or megabytes.

Synopsis

```
portperfshow [interval]
```

Availability

all users

Description

Use this command to display throughput information for all ports on the switch. Data appears in 8 or 16 columns, one column per port plus one column that displays the total for these ports. Results appear every second or over the specified interval, until **Enter**, **Ctrl-c**, or **Ctrl-d** is pressed.

This command displays the number of bytes received plus the number of bytes transmitted per interval. Throughput values are displayed as either bytes, kilobytes (k), megabytes (m), or gigabytes (g). Values are always rounded down.

Operands

This command has the following operand:

interval   Specify the interval, in seconds, between each sample. The default is
                  one second. This operand is optional.

Examples

To display port throughput for a switch:

```
switch:user> portperfshow 20
         0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15 Total
=============================================================================
slot 1:  0   0  23k  0   0 134k  0  12m  0 7.3m  0 312m  0 1.1g  0   0 1.4g


slot 2:  0 212m  0   0 784k  0   0   0  43m  0  85m  0 275k  0 498   0 341m


         0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15 Total
=============================================================================
slot 1:  0   0  26k  0   0 160k  0  13m  0 7.5m  0 310m  0 1.2g  0   0 1.3g


slot 2:  0 178m  0   0 812k  0   0   0  43m  0  87m  0 272k  0 330   0 310m
```

See also

portStatsShow

portRegTest

Reads and writes test of the ASIC SRAMs and registers.

Synopsis

    portregtest [--slot slotnumber][-ports itemlist][-skiptests mask][-verbose
    mode]

Availability

admin

Description

Use this command to verify that SRAM and register data bits in each ASIC can be independently written and read.

The test method used is to write a walking 1 pattern to each bit location. This is done by writing a pattern of 0x00000001 to register N. Read and ensure that the same pattern previously written is read back. Shift the pattern to the left by 1 bit (to 0x00000002)and, 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, a 6-bit register is effectively tested with the following patterns:

0x0001	0x0002	0x0004	0x0008
0x0010	0x0020	0x0040	0x0080
0x0100	0x0200	0x0400	0x0800
0x1000	0x2000	0x4000	0x8000

Repeat these steps until all ASIC SRAMs and registers are tested.

Operands

This command has the following operands:

--slot slotnumber	Specify the slot number on which the diagnostic operates. The ports specified will be relative to this slot number. The default is 0.
-ports itemlist	Specify a list of blade ports to test. By default, all the blade ports in the specified slot are used. See itemList for further details.
-skiptests mask	A bit mask that defines which of the register test subtests to skip. By default, all subtests are performed. Valid mask values include one or more of the following:

0x2	Skip retry register test.
0x4	Skip statistics register test.
0x8	Skip walk-1 test.
0x10	Skip credit counter test.

-verbose mode	Specify a nonzero value to enable verbose mode. The default value is to disable this mode.

Examples

To run a bit write/read test of the ASIC SRAMs and registers:

```
switch:admin> portregtest -ports 1/0-1/15
Running Port Register Test ....
Test Complete: "portregtest" Pass 1 of 1
Duration 0 hr, 0 min & 33 sec (0:0:33:447).
passed.
```

Diagnostics

When this command detects failures, the test might report one or more of the following error messages:

BUS_TIMEOUT

REGERR

REGERR_UNRST

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

camTest

centralMemoryTest

cmemRetentionTest

cmiTest

crossPortTest

itemList

portLoopbackTest

spinSilk

sramRetentionTest

portRouteShow

Displays routing tables for the specified port.

Synopsis

```
portrouteshow [slotnumber/]portnumber
```

Availability

all users

Description

Use this command to display the port address ID and the contents of the following port routing tables:

External unicast routing table	Displays how the specified port forwards unicast frames to remote domains in the following format:

```
domain_number: ports_bitmap
```
- `domain_number` is the remote domain ID to which frames are ultimately routed
- `ports_bitmap` contains the port number on the ASIC pair to which frames for the domain ID forward in bitmap hex format; for example, 0x0100 indicates port 8 on the ASIC pair

The arrangements of ports on an ASIC pair is specific to the system type. For any active port, this table contains at least one entry, which routes unicast frames destined to the embedded port (value 0x10000) of the local domain.

Internal unicast routing table	Displays how the specified port forward unicast frames to locally attache Nx_Ports in the following format:

```
area_number: ports_bitmap
```
- `area_number` represents the area number of a device (or set of looped devices) attached to the local switch
- The format of `ports_bitmap` is the same as the external unicast routing table.

Broadcast routing table	Displays how the specified port forwards broadcast frames. There is one bit map entry in this table, similar to the bit maps in the other tables; however, this table typically has only Bit 16 set (value 0x10000), indicating this port always routes broadcast frames to the embedded port, for handling by the firmware.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specifies the slot number of the port to display, followed by a slash (/).
portnumber	Specifies the number of the port to display, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.

Examples

To display the routing tables for a port:

```
switch:user> 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)
broadcast routing table:
  0x10000
```

See also

bcastShow

fabricShow

switchShow

topologyShow

uRouteShow

portShow

Displays port status.

Synopsis

```
portshow [slotnumber/]portnumber
```

Availability

all users

Description

Use this command to display status information for the specified port, as shown in Table 17. Information varies with the switch model and port type.

Table 17 `portShow` display fields

Field	Description	
portName	Name assigned to the port by the command of the same name.	
portHealth	Current health of the port (Fabric Watch license required).	
Authentication	Authentication type and associated parameters, if applicable, used on the port at port online or when enabling security, whichever occurs last. States include:	
	None	No authentication was done.
	FCAP	FCAP authentication was done.
	DHCHP	DH-CHAP authentication was done. It also displays the DH group and hash used for authentication.
portDisableReason	The reason that a port has been disabled, if it has not been disabled by `portDisable` or `portCfgPersistentDisable`.	
portCFlags	Port control flags.	
portFlags	Bit map of port status flags, including information on the type of port, whether it is fully online, and whether logins have been accepted on it.	
portType	Port type and revision numbers.	
portState	Port SNMP state:	
	Online	Upand running
	Offline	Not online; portPhys gives details
	Testing	Running diagnostics
	Faulty	Failed diagnostics
	Persistently Disabled	Persistently disabled
portPhys	Port physical state:	

Table 17 `portShow` display fields (continued)

Field	Description	
	No_Card	No interface card present
	No_Module	No module (SFP or other) present
	No_Light	Module not receiving light
	No_Sync	Receiving light but out of sync
	In_Sync	Receiving light and in sync
	Laser_Flt	Module is signaling a laser fault
	Port_Flt	Port marked faulty
	Diag_Flt	Port failed diagnostics
	Lock_Ref	Locking to the reference signal
portScn	Last state change notification for port.	
port generation number	Port generation number for the last offline state change.	
portId	24-bit port ID.	
portIfId	User port's interface ID.	
portWwn	Port WWN.	
portWwn of devices connected	Port WWNs of connected devices.	
Distance	The port's long-distance level. In case of LD mode, the user configured limit and actual distances also are displayed. See `portCfgLongDistance`.	
portSpeed	The port's fixed speed (1, 2, or 4 Gb/s) or negotiated speed (N1, N2, or N4 Gb/s).	
Interrupts	Total number of interrupts.	
Unknown	Interrupts that are not counted elsewhere.	
Lli	Low-level interface (physical state, primitive sequences).	
Proc_rqrd	Frames delivered for embedded N_Port processing.	
Timed_out	Frames that have timed out.	
Rx_flushed	Frames requiring translation.	
Tx_unavail	Frames returned from an unavailable transmitter.	
Free_buffer	Free buffer available interrupts.	
Overrun	Buffer overrun interrupts.	

Table 17 `portShow` display fields (continued)

Field	Description
Suspended	Transmission suspended interrupts.
Parity_err	Central memory parity errors.
2_parity_err	Secondary Tx parity errors.
CMI_bus_err	Control message interface errors.

The second column displays link error status block counters.

The third column displays the number of F_RJTs and F_BSYs generated. For L_Ports, the third column also displays the number of loop initialization protocols (LIPs) received, number of LIPs transmitted, and the last LIP received.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).
portnumber	Specify a port number to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.

Examples

To display the state of a port:

```
switch:user> portshow 2/15
portName: Tape drive 8
portHealth: HEALTHY


Authentication: None
portDisableReason: None
portCFlags: 0x1
portFlags: 0x903       PRESENT ACTIVE E_PORT G_PORT U_PORT
LOGICAL_ONLINE LOGIN
portType:  10.0
portState: 1    Online
portPhys:  6    In_Sync
portScn:   16   E_Port    Trunk port
port generation number:    0
portId:    012f00
portIfId:    43320010
portWwn:   20:2f:00:60:69:e4:20:42
portWwn of device(s) connected:
         None
Distance:  normal
portSpeed: N4Gbps


Interrupts:        0        Link_failure: 0        Frjt:          0
Unknown:           0        Loss_of_sync: 3        Fbsy:          0
Lli:               15       Loss_of_sig:  2
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:        3
Suspended:         0        Lr_out:       1
Parity_err:        0        Ols_in:       0
2_parity_err:      0        Ols_out:      3
CMI_bus_err:       0
```

See also

[authUtil](#)

[portCfgLongDistance](#)

[portLoginShow](#)

[portName](#)

[switchShow](#)

portStats64Show

Displays the 64-bit hardware statistics for a port.

Synopsis

        portstats64show [*slotnumber/*]*portnumber*

Availability

        all users

Description

Use this command to display the following hardware statistics for a port. Two integers are reported for most values. In such cases, the top word is the most significant.

stat64_wtx	Number of 4-byte words transmitted.
stat64_wrx	Number of 4-byte words received.
stat64_ftx	Frames transmitted.
stat64_frx	Frames received.
stat64_c2_frx	Class 2 frames received.
stat64_c3_frx	Class 3 frames received.
stat64_lc_rx	Link control frames received.
stat64_mc_rx	Multicast frames received.
stat64_mc_to	Multicast timeouts.
stat64_mc_tx	Multicast frames transmitted.
tim64_rdy_pri	Time R_RDY high priority.
tim64_txcrd_z	Time BB_credit zero.
er64_enc_in	Encoding errors inside of frames.
er64_crc	Frames with CRC errors.
er64_trunc	Frames shorter than minimum.
er64_toolong	Frames longer than maximum.
er_bad_eof	Frames with bad end-of-frame.
er64_enc_out	Encoding error outside of frames.
er64_disc_c3	Class 3 frames discarded.
stat64_rateTxFrame	Tx frame rate (fr/sec).
stat64_rateRxFrame	Rx frame rate (fr/sec).
stat64_rateTxPeakFrame	Tx peak frame rate (fr/sec).
stat64_rateRxPeakFrame	Rx peak frame rate (fr/sec).
stat64_rateTxByte	Tx Byte rate (bytes/sec).
stat64_rateRxByte	Rx Byte rate (Bytes/sec).
stat64_rateTxPeakByte	Tx peak Byte rate (Bytes/sec).
stat64_rateRxPeakByte	Rx peak Byte rate (Bytes/sec).
stat64_PRJTFrames	Number of P_RJT frames transmitted.
stat64_PBSYFrames	Number of P_BSY transmitted.
stat64_inputBuffersFull	Occasions on which input buffers are full.
stat64_rxClass1Frames	Class 1 frames received.

Operands

This command has the following operands:

slotnumber   For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).

portnumber   Specify a port number to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.

Examples

To display the 64-bit hardware statistics for a port:

```
switch:user> portstats64show 4/15
stat64_wtx      0               top_int : 4-byte words transmitted
                316             bottom_int : 4-byte words transmitted
stat64_wrx      0               top_int : 4-byte words received
                1486            bottom_int : 4-byte words receive
stat64_ftx      0               top_int : Frames transmitted
                69              bottom_int : Frames transmitted
stat64_frx      0               top_int : Frames received
                73              bottom_int : Frames received
stat64_c2_frx   0               top_int : Class 2 frames received
                0               bottom_int : Class 2 frames received
stat64_c3_frx   0               top_int : Class 3 frames received
                37              bottom_int : Class 3 frames received
stat64_lc_rx    0               top_int : Link control frames received
                8               bottom_int : Link control frames received
stat64_mc_rx    0               top_int : Multicast frames received
                0               bottom_int : Multicast frames received
stat64_mc_to    0               top_int : Multicast timeouts
                0               bottom_int : Multicast timeouts
stat64_mc_tx    0               top_int : Multicast frames transmitted
                0               bottom_int : Multicast frames transmitted
tim64_rdy_pri   0               top_int : Time R_RDY high priority
                60438254        bottom_int : Time R_RDY high priority
tim64_txcrd_z   0               top_int : Time BB_credit zero
                2               bottom_int : Time BB_credit zero
er64_enc_in     0               top_int : Encoding errors inside of frames
                0               bottom_int : Encoding errors inside of frames


(continued on next page)
```

```
er64_crc            0                  top_int : Frames with CRC errors
                    0                  bottom_int : Frames with CRC errors
er64_trunc          0                  top_int : Frames shorter than minimum
                    0                  bottom_int : Frames shorter than minimum
er64_toolong        0                  top_int : Frames longer than maximum
                    0                  bottom_int : Frames longer than maximum
er_bad_eof          0                  top_int : Frames with bad end-of-frame
                    0                  bottom_int : Frames with bad end-of-frame
er64_enc_out        0                  top_int : Encoding error outside of frames
                    9131157          bottom_int : Encoding error outside of frames
er64_disc_c3        0                  top_int : Class 3 frames discarded
                    0                  bottom_int : Class 3 frames discarded
stat64_rateTxFrame      17                 Tx frame rate (fr/sec)
stat64_rateRxFrame      17                 Rx frame rate (fr/sec)
stat64_rateTxPeakFrame  17                 Tx peak frame rate (fr/sec)
stat64_rateRxPeakFrame  17                 Rx peak frame rate (fr/sec)
stat64_rateTxByte       79                 Tx Byte rate (bytes/sec)
stat64_rateRxByte       371                Rx Byte rate (Bytes/sec)
stat64_rateTxPeakByte   79                 Tx peak Byte rate (Bytes/sec)
stat64_rateRxPeakByte   371                Rx peak Byte rate (Bytes/sec)
stat64_PRJTFrames       0                  top_int : 4-byte words transmitted
                        0                  bottom_int : 4-byte words transmitted
stat64_PBSYFrames       0                  top_int : 4-byte words transmitted
                        0                  bottom_int : 4-byte words transmitted
stat64_inputBuffersFull 0                  top_int : 4-byte words transmitted
                        0                  bottom_int : 4-byte words transmitted
stat64_rxClass1Frames   0                  top_int : 4-byte words transmitted
                        0                  bottom_int : 4-byte words transmitted
```

See also

portStatsClear

portStatsShow

portStatsClear

Clears the hardware statistics of a specified switch port.

Synopsis

portstatsclear [*slotnumber*/]*portnumber*

Availability

admin

Description

Use this command to clear the hardware statistics, including the AL_PA-based CRC monitor, end-to-end monitor, and filter-based monitor statistics, for a specified switch port. For platforms with a Bloom-based ASIC, the command also clears the hardware statistics for associated ports in the target port quad. For platforms with a Condor-based ASIC, the command clears the hardware statistics only on the port designated.

Operands

This command has the following operands:

slotnumber   For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).

portnumber   Specify a port number to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.

Examples

To clear the statistics for a port:

```
switch:admin> portstatsclear 4/15
```

See also

portStats64Show

portStatsShow

Displays port hardware statistics.

Synopsis

    portstatsshow [slotnumber/]portnumber

Availability

all users

Description

Use this command to display port hardware statistics counters. Some counters are platform- and port-specific and appear only with those platforms and ports. All statistics have a maximum 32-bit value of 4,294,967,295.

stat_wtx	4-byte words transmitted.
stat_wrx	4-byte words received.
stat_ftx	Frames transmitted.
stat_frx	Frames received.
stat_c2_frx	Class 2 frames received.
stat_c3_frx	Class 3 frames received.
stat_lc_rx	Link control frames received.
stat_mc_rx	Multicast frames received.
stat_mc_to	Multicast timeouts.
stat_mc_tx	Multicast frames transmitted.
tim_rdy_pri	Time R_RDY high priority.
tim_txcrd_z	Time BB_credit zero.
er_enc_in	Encoding errors inside frames.
er_crc	Frames with CRC errors.
er_trunc	Frames shorter than minimum.
er_toolong	Frames longer than maximum.
er_bad_eof	Frames with bad end-of-frame.
er_enc_out	Encoding error outside frames.
er_bad_os	Invalid ordered set (platform- and port-specific).
er_c3_timeout	Class 3 frames discarded due to timeout (platform- and port-specific).
er_c3_dest_unreach	Class 3 frames discarded due to destination unreachable (platform- and port-specific).
er_other_discard	Other discards (platform- and port-specific).
er_disc_c3	Class 3 frames discarded.
er_crc_good_eof	CRC error with good EOF (platform- and port-specific).
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 operands:

slotnumber	For bladed systems only, specify the slot number of the port to be configured, followed by a slash (/).
portnumber	Specify a port number to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.

Examples

To display the basic set of statistics for a port:

```
switch:user> portstatsshow 4/15
stat_wtx        494         4-byte words transmitted
stat_wrx        760         4-byte words received
stat_ftx        28          Frames transmitted
stat_frx        32          Frames received
stat_c2_frx     0           Class 2 frames received
stat_c3_frx     32          Class 3 frames received
stat_lc_rx      0           Link control frames received
stat_mc_rx      0           Multicast frames received
stat_mc_to      0           Multicast timeouts
stat_mc_tx      0           Multicast frames transmitted


(continued on next page)
```

```
tim_rdy_pri     1279213528  Time R_RDY high priority
tim_txcrd_z     4           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      8600353     Encoding error outside of frames
er_disc_c3      0           Class 3 frames discarded
open            16          loop_open
transfer        16          loop_transfer
opened          16          FL_Port opened
starve_stop     0           tenancies stopped due to starvation
fl_tenancy      3277        number of times FL has the tenancy
nl_tenancy      11          number of times NL has the tenancy
```

See also

portErrShow

portShow

portSwap

Swaps area numbers of two ports.

Synopsis

```
portswap [slotnumber1/]portnumber1 [slotnumber2/]portnumber2
```

Availability

admin

Description

Use this command to swap area numbers for a pair of ports. Both ports must be disabled prior to executing this command and the port-swapping feature must be enabled using portSwapEnable.

> **NOTE:** To undo a previous port swap, execute portSwap again on the same two ports.
>
> portSwap information is kept in its own database; it cannot be manipulated by editing the configuration database displayed by configShow and configUpload.

Operands

This command has the following operands:

slotnumber1	For bladed systems only, specify the slot number of the first port whose area number is to be swapped, followed by a slash (/).
portnumber1	Specify a port number to be configured, relative to its slot for bladed systems. Use switchShow to display a list of valid ports.
slotnumber2	For bladed systems only, specify the slot number of the second port whose area number is to be swapped, followed by a slash (/).
portnumber2	Specify a port number to be configured, relative to its slot for bladed systems.

Examples

To swaps area numbers between a pair of ports:

```
switch:admin> portswap 1/e 2/5
portswap done
```

See also

portDisable

portEnable

portShow

portSwapDisable

portSwapEnable

portSwapShow

switchShow

portSwapDisable

Disables the portswap feature.

Synopsis

```
portswapdisable
```

Availability

admin

Description

Use this command to disable the portswap feature. The portSwap command cannot be used after this feature is disabled.

The enabled state of the portswap feature is persistent across reboots and power cycles.

> **NOTE:** Enabling or disabling the portswap feature does not effect previously performed portswap operations.

Operands

Examples

To disable the portswap feature:

```
switch:admin> portswapdisable
```

See also

portDisable

portEnable

portShow

portSwapEnable

portSwapShow

switchShow

portSwapEnable

Enables the portswap feature.

Synopsis

```
portswapenable
```

Availability

admin

Description

Use this command to enable the portswap feature. The `portSwap` command cannot be used unless the feature is first enabled with this command.

The enabled state of the portswap feature is persistent across reboots and power cycles.

📝 **NOTE:** Enabling or disabling the portswap feature does not effect previously performed portswap operations.

Operands

Examples

To enable the portswap feature:

```
switch:admin> portswapenable
```

See also

portDisable

portEnable

portShow

portSwapDisable

portSwapShow

switchShow

portSwapShow

Displays the state of the portswap feature.

Synopsis

```
portswapshow
```

Availability

all users

Description

Use this command to display the state of the portswap feature, as well as port and area information for those ports whose area number ID different from the default area number. The default area number of a port is the same as its switch port number.

Operands

Examples

To display the state of the portswap feature and information for ports whose area numbers have been swapped:

```
switch:admin> portswapshow
PortSwap is enabled
Slot      Slotport        Swport        Area
========================================
2         2               18            19
2         3               19            18
```

See also

portDisable

portEnable

portShow

portSwap

portSwapDisable

portSwapEnable

switchShow

portTest

Performs a functional test of a switch in a live fabric.

Synopsis

```
porttest [-ports itemlist][-iteration count][-userdelay time][-timeout
time][-pattern pattern][-patsize size][-seed seed][-listtype porttype]
```

Availability

admin

Description

Use this command to isolate problems to a single replaceable element and isolate problems to near-end terminal equipment, far-end terminal equipment, or the transmission line. Diagnostics can be executed every day or on demand.

This command verifies the intended functional operation of the switch by sending frames from port M's transmitter, and looping the frames back through an external fiber cable into port M's receiver, thus exercising all the switch components from the main board, to the fiber cable, to the media (of the devices and the switch), and back to the main board.

The cables and media connected should be of the same technology: a short-wavelength media (switch) port is connected to another short-wavelength media (device) port using a short-wavelength cable; a long-wavelength port is connected to a long-wavelength port, and a copper port is connected to a copper port.

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

The following port types are supported:

- E_Ports

- F_Ports (must support ELS ECHO)

- L_Ports

- N->N loopback ports

This command will not run on any other port type.

The command performs the following actions:

1. Initiate tests on certain ports (portTest command).

2. Stop active tests on certain ports (stopPortTest command).

3. Get the snapshot of the test result (portTestShow command).

Once portTest is triggered, you can use stopPortTest to stop the test. See the stopPortTest command for more information.

View the current progress of portTest by running portTestShow. See the portTestShow command for more information.

If there is a port type change during portTest execution, the test will continue on a given port as long as it can be supported and it is asked to do so. If a request was made to test all possible ports on a given switch, portTest will start a new test using the new port type to start a appropriate test.

Operands

This command has the following operands:

-ports *itemlist*	Specify a list of user ports to test. By default, all the user ports in the switch are tested. See the itemList help pages for further details.
-iteration *count*	Specify the number of times (or number of frames per port) to execute this test. The default value is 20. Valid values include:

0   Run the test on timeout mode.

-1   Run indefinitely.

-userdelay *time*	Specify the delay between frames sent by portTest, in milliseconds. The default value is 10 milliseconds.
-timeout *time*	Specify the number of seconds to run the test. Setting the iteration to 0 will set the portTest into timeout mode. The default value is 0.
-pattern	Specify the pattern of the test packets payload. Twenty types of predefined patterns are provided with the test. Use the dataTypeShow command to view the types of patterns that are supported with portTest. dataTypeShow displays the pattern names, the number to use to specify for each pattern type, and an example of each pattern. The default pattern type, if no pattern number is specified, is RANDOM (type=11).
-patsize *size*	Specify the size of the pattern. The default size of the pattern is 1024 bytes. Valid range of values are 4 bytes through 2112 bytes.
-seed *seed*	Specify the seed pattern to be used with pattern. The default seed value is 0xaa.
-listtype *porttype*	Specify the type of ports to run portTest. The default following values are predefined for *porttype*:

-1   All ports

-2   All L_Ports

-3   All F_Ports

-4   All E_Ports

-5   All N->N loopback ports

The default value is -1.

Examples

To run a functional test on an active switch:

```
switch:admin> porttest -ports 1/1-1/3
```

See also

crossPortTest

fportTest

loopPortTest

portLoopbackTest

portTestShow

spinFab

stopPortTest

portTestShow

Displays information from portTest.

Synopsis

porttestshow [-ports *itemlist*]

Availability

admin

Description

Use this command to display a snapshot of information from portTest. The following information appears:

- Pass or fail information on a given port
- Port type tested
- Current state of portTest (NO TEST, TESTING, or TEST DONE)
- Type of ports asked to test (ALL_PORTS, ALL_E_PORTS, ALL_L_PORTS, ALL_F_PORTS, ALL_LB_PORTS, or SINGLE_PORT)
- Pattern used in testing
- Seed used in testing
- User delay value
- Total iteration asked to test
- Current test iteration
- Total fails on this test
- Consecutive fails on this test
- portTest start time
- portTest stop time
- Timeout value
- Error code if any

Operands

The following operands are required:

-ports *itemlist*   Specify a list of user ports to test. By default, all the user ports in the current slot will be assumed. See itemList help pages for further details.

Examples

To display information from portTest:

```
switch:admin> porttestshow 1
    Port 1 : PASS
    PortType: OTHER                      PortState: NO TEST
    PortInternalState: INIT                  PortTypeToTest: NO_TEST
    Pattern: 0x0           Seed: 0x0              UserDelay: 0
    TotalIteration: 0               CurrentIteration: 0
    TotalFail: 0                    ConsecutiveFail: 0
    StartTime: NONE
    StopTime:  NONE
    Timeout: 0                      ErrorCode: 0
```

See also

crossPortTest

fportTest

itemList

loopPortTest

portLoopbackTest

portTest

spinFab

stopPortTest

powerOffListSet

Sets slot power-off list order.

Synopsis

```
powerofflistset
```

Availability

admin

Description

Use this command to change the order in which slots are powered off. This command displays the current order and then prompts you to indicate the new order.

Whenever a power supply goes out of service or a field-replaceable unit (FRU) is inserted, the system available power is compared to the system required power to determine if there is enough power to operate. If there is less power available than the demand, the power-off list is processed until there is enough power for the system to operate.

If the system abruptly goes from a state in which there is enough power to run all inserted and powered on FRUs to a state in which there is not enough power to run everything (for instance, when suddenly only one power supply is available to power a fully loaded system), no processing of the power-off list can be done. This is because the lack of power causes the CP boards' processors to cease execution of the firmware. In this situation, all operation of the system terminates immediately. However, if the system is running on two power supplies (this is not recommended) and one goes into a predicted fail state (in which the power supply is still supplying power), the power-off list is processed as described.

The power-off list affects only the order in which slots are powered off. On power up or when an additional power supply is added, slots are processed to verify that they can be powered up. This processing always starts at slot 1 and proceeds to the last slot in the chassis. Also, other FRUs in the chassis might use significant power, yet they cannot be powered off by software. For example, a missing blower FRU might change the power computation enough to affect how many slot blades can be powered up.

The format of the display varies, depending on the switch model and the number of slots present.

Operands

Examples

To modify the power-off list order:

```
switch: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


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```

```
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

chassisShow

powerOffListShow

psShow

slotPowerOff

slotPowerOn

slotShow

powerOffListShow

Displays slot power-off list order.

Synopsis

```
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.

If the system abruptly goes from a state in which there is enough power to run all inserted and powered on FRUs to a state in which there is not enough power to run everything (for instance, when a third power supply is removed from the chassis so there is suddenly only one power supply is available to power a fully loaded system), no processing of the power-off list can be done. This is because the lack of power causes the CP boards' processors to cease execution of the firmware. In this situation, all operation of the system terminates immediately. However, if the system is running on two power supplies (this is not recommended) and one goes into a predicted fail state (in which the power supply is still supplying power), the power-off list is processed as described.

The format of the display varies, depending on the switch model and the number of slots present.

Operands

Examples

To display the slot power-off list order:

```
switch: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

chassisShow

powerOffListShow

psShow

slotPowerOff

slotPowerOn

slotShow

psShow

Displays power supply status.

Synopsis

```
psshow
```

Availability

all users

Description

Use this command to display the current status of the switch power supplies.

The status of each supply is displayed as:

OK	Power supply 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)

For certain switch models, the OEM serial ID data appears after each power supply status line.

Operands

Examples

To view the status of the power supply for an HP StorageWorks Core Switch 2/64:

```
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
```

To view the status of the power supply for an HP StorageWorks SAN Switch 2/32 switch:

```
switch:admin> psShow


Power Supply #1 is faulty
0135,FF000000088,60-0000739-01, A,00001,SP467,1A,FF000000088
Power Supply #2 is OK
0135,FF000000089,60-0000739-01, A,00001,SP467,1A,FF000000089
```

See also

chassisShow

fanShow

qloopAdd

Adds a member to a QuickLoop.

Synopsis

qloopadd "*qloopname*", "*member*;*member*"

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

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.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Use this command only with Fabric OS 3.x systems in the fabric; QuickLoop is not supported in Fabric OS 5.x.

Operands

The following operands are required:

qloopname	Specify the name of the QuickLoop, in quotation marks.
member	Specify a list of QuickLoop members, in quotation marks, separated by semicolons. Include one or more of the following:

- world wide names
- Zone alias names

Examples

To add an alias for a second WWN to "qlp1":

```
switch:admin> qloopAdd "qlp1", "wwn2"
```

See also

qloopCreate

qloopDelete

qloopRemove

qloopShow

qloopCreate

Creates a QuickLoop.

Synopsis

qloopcreate "qloopname", "member;member"

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

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. 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.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Use this command only with Fabric OS 3.x systems in the fabric; QuickLoop is not supported in Fabric OS 5.x.

Operands

The following operands are required:

qloopname	Specify the name of the QuickLoop to be created, in quotation marks. *qloopname* cannot be used for another zone object.
member	Specify a list of members to be added to the QuickLoop, in quotation marks, separated by semicolons. Include one or more of the following: • world wide names • Zone alias names

Examples

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", "wwn2; wwn3"
```

See also

qloopAdd

qloopDelete

qloopRemove

qloopShow

qloopDelete

Deletes a QuickLoop.

Synopsis

```
qloopdelete "name"
```

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to delete a QuickLoop.

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.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Use this command only with Fabric OS 3.x systems in the fabric; QuickLoop is not supported in Fabric OS 5.x.

Operands

The following operand is required:

name	Specify the name of the QuickLoop, in quotation marks. This operand is required.

Examples

To delete QuickLoop "qloop2":

```
switch:admin> qloopDelete "qloop2"
```

See also

qloopAdd

qloopCreate

qloopRemove

qloopShow

qloopRemove

Removes a member from a QuickLoop.

Synopsis

```
qloopremove "qloopName", "member;member"
```

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

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 worldwide names.

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.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Use this command only with Fabric OS 3.x systems in the fabric; QuickLoop is not supported in Fabric OS 5.x.

Operands

The following operands are required:

qloopName	Specify the name of the QuickLoop, in quotation marks.
member	Specify the list of the QuickLoop members to be removed, in quotation marks, separated by semicolons. Include one or more of the following:
	• world wide names
	• Zone alias names

Examples

To remove member "wwn2" from "qlp1":

```
switch:admin> qloopRemove "qlp1", "wwn2"
```

See also

    qloopAdd

    qloopCreate

    qloopDelete

    qloopShow

qloopShow

Displays QuickLoop information.

Synopsis

```
qloopshow [pattern][, mode]
```

Availability

all users

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

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 flash memory using the cfgSave command. For the change to become effective, an appropriate zone configuration must be enabled using the cfgEnable command.

> **NOTE:** When security is enabled, this command can be issued only from the primary FCS switch.

Use this command only with Fabric OS 3.x systems in the fabric; QuickLoop is not supported in Fabric OS 5.x.

Operands

The following operands re optional:

pattern
Specify a POSIX-style expression used to match QuickLoop names. Patterns can contain the following special characters:

- Question mark "?", which matches any single character
- Asterisk "*", which matches any string of characters
- Ranges "[0-9a-f]", which match any character within the range

mode
Specify 1 to display the contents of RAM; specify 0 to display the contents of the transaction buffer. The default value is 0.

Examples

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

quietMode

Sets or clears the telnet session quiet mode, or displays the current mode.

Synopsis

```
quietmode [mode]
```

Availability

admin

Description

This command affects the output displayed on the switch console (telnet session *only*).

By default, quiet mode is off and all switch tasks can send output to the console. Some output is caused by asynchronous events, such as the fabric reconfiguring or devices logging in.

When quiet mode is on, only output produced by shell commands displays; all asynchronous output produced by other tasks suppresses. This is useful when driving a telnet session through a script that might not expect any asynchronous output.

Operands

The following operand is optional:

mode   0 clears quiet mode and all tasks appear to the console; 1 sets quiet mode and only shell commands appear.

The current value appears if no operand is specified.

Examples

To display the current mode and then set it to off:

```
switch:admin> quietMode
quietMode: On

Usage: quietMode 0|1
0: to turn it off
1: to turn it on

switch:admin> quietMode 0
Committing configuration...done
Quiet Mode is now OFF
```

See also

rcsDisabled

Displays whether Reliable Commit Service (RCS) is enabled.

Synopsis

        rcsdisabled

Availability

        all users

Description

Use this command to display whether RCS is enabled.

If `rcsDisabled = 0` appears, RCS is enabled; `rcsDisabled = 1` appears if RCS is disabled.

> **NOTE:** This command can be issued on Fabric OS v4.1.x, and above, and v5.x FCS switch in the fabric.

Operands

Examples

To display the RCS status:

```
switch:admin> rcsDisabled
      rcsDisabled = 0
```

See also

reboot

Reboots either one control processor (CP) or the entire system.

Synopsis

```
reboot
```

Availability

admin

Description

Use this command to immediately reboot a CP in a director or an entire switch. The command line session is closed.

When this command is issued on a single-CP system, all switches in the system are entirely shut down and all Fibre Channel ports become inactive until the system restarts. When this command is issued on the active CP of a dual-CP system, the active CP reboots, the standby CP takes over as the active CP, and all Fibre Channel ports become inactive until the new active CP reinitializes these ports.

If this switch is part of a fabric, reboot the switch so that the remaining switchesare reconfigured.

Operands

Examples

To reboot the CP:

```
switch:admin> reboot
Rebooting...
```

See also

fastBoot

switchReboot

routeHelp

Displays a list of FSPF-related commands.

Synopsis

    routehelp

Availability

all users

Description

Use this command to display a list of FSPF-related commands.

Operands

Examples

To display a list of FSPF-related commands:

```
switch:admin> routehelp

aptPolicy              Get or set Advanced Performance Tuning policy
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
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

Saves or removes core files created by daemons.

Synopsis

To FTP core files:

```
savecore [[-f core-file-list]... | ] [-h ip-address] [-u user_name | -a] [-p
password][-d remote_directory]
```

To remove core files:

```
savecore [[-r core-files-directory-list]... | ]
```

To list core files:

```
savecore -l
```

Availability

admin

Description

Use this command to FTP core files, to remove core files, or to list core files. With no arguments,
saveCore enters interactive mode.

Options

This command has the following options:

-h *ip-address*	Specify a host name if FTP requires it.
-u *user_name*	Specify a user name for the host name; default is anonymous.
-p *password*	Specify a password for the user name.
-a	Specify to use anonymous FTP to download the core files. This option cannot be used with the -u option.
-d *remote_directory*	Specify the name of the remote directory into which the core files are copied. The directory will be created if it does not already exist. It is assumed that the user has sufficient privilege to create files at this location.
-f *core-file-directory-list*	Specify a list of the core file directories to transfer to a remote site. This list can be comma-separated directory list or just a single directory name. Only the standard core files directories can be specified (/core_files and /mnt/core_files); all other files or directories are ignored.
-R	Specify this option to remove all core files.
-r *core-files-directory-list*	Specify this option to remove core files under the directory list given. Removes all the core files under the listed directories. The directory list is a comma-separated list of core files directory and other files, if any, will be ignored. No confirmation will be made before removal.
-l	Specify this option to list all core files.

Examples

To list all core files in a CP:

```
switch:admin> savecore -l
/core_files/panic/core.873
/core_files/zoned/core.1234
/core_files/zoned/core.5678
/mnt/core_files/nsd/core.873
/mnt/core_files/panic/core.873
```

To remove selected core files from a CP:

```
switch:admin> savecore -r
/core_files/panic/,/core_files/zoned/,/mnt/core_files/nsd/
Removing: /core_files/panic/
Removing: /core_files/zoned/
Removing: /mnt/core_files/nsd/
```

To remove selected core files from the CP (using multiple `-r` operands):

```
switch:admin> savecore -r /core_files/panic/ -r
/core_files/zoned/,/mnt/core_files
/nsd/
Removing: /core_files/panic/
Removing: /core_files/zoned/
Removing: /mnt/core_files/nsd/
```

To remove all core files:

```
switch:admin> savecore -R
removing core files under: /core_files/panic
removing core files under: /core_files/zoned
removing core files under: /mnt/core_files/nsd
removing core files under: /mnt/core_files/panic
```

To FTP all core files:

```
switch:admin>  savecore -h 192.168.204.188 -u jsmith -d core_files_here
-p fexosophy  -F
/core_files/panic/core.873:                    1.12 kB  381.87 B/s
/core_files/zoned/core.1234:                   1.12 kB  382.14 B/s
/core_files/zoned/core.5678:                   1.12 kB  382.50 B/s
/mnt/core_files/nsd/core.873:                  1.12 kB  381.93 B/s
/mnt/core_files/panic/core.873:                1.12 kB  381.90 B/s
Files transferred successfully!
```

To FTP selected core file directories:

```
switch:admin> savecore -h 192.168.204.188 -u jsmith -d core_files_here
-p password
-f /core_files/zoned/,/mnt/core_files/nsd/
/core_files/zoned//core.1234:                    1.12 kB   382.60 B/s
/core_files/zoned//core.5678:                    1.12 kB   381.95 B/s
/mnt/core_files/nsd//core.873:                   1.12 kB   382.53 B/s
Files transferred successfully!
```

To remove all core files using the `savecore` management utility:

```
switch:admin> savecore
following 1 directories contains core files:
        [ ]0: /mnt/core_files/panic


        Welcome to core files management utility.


        Menu
        1(or R): Remove all core files
        2(or F): FTP all core files
        3(or r): Remove marked files
        4(or f): FTP marked files
        5(or m): Mark Files for action
        6(or u): Un Mark Files for action
        9(or e): Exit


Your choice: 1
        /mnt/core_files/panic


        You have opted to remove ALL core files:-
Please confirm (Y/[N]): y
Removing files....
 removing core files under: /mnt/core_files/panic
Done!
switch:admin>
switch:admin> savecore
No core files found!
```

To FTP core files using the `savecore` management utility:

```
switch:admin> savecore
following 1 directories contains core files:
        [ ]0: /core_files/zoned


        Welcome to core files management utility.


        Menu
        1(or R): Remove all core files
        2(or F): FTP all core files
        3(or r): Remove marked files
        4(or f): FTP marked files
        5(or m): Mark Files for action
        6(or u): Un Mark Files for action
        9(or e): Exit


Your choice: F
/core_files/zoned
You have opted to FTP these core files:-
Please confirm (Y/[N]): y
Destination IP Address? 192.168.10.10
User Name [anonymous]? jsmith
Remote Directory [.]? brcd
Password: **********
/core_files/zoned/core.8323:                    1.12 kB  382.40 B/s
Files transferred successfully!
```

To remove core files from a selected directory:

```
switch:admin> savecore
following 2 directories contains core files:
        [ ]0: /core_files/nsd
        [ ]1: /core_files/zoned


Welcome to core files management utility.


        Menu
        1(or R): Remove all core files
        2(or F): FTP all core files
        3(or r): Remove marked files
        4(or f): FTP marked files
        5(or m): Mark Files for action
        6(or u): Un Mark Files for action
        9(or e): Exit


Your choice: m
Enter File Number to mark: 1
Enter CR To Continue....


following 2 directories contains core files:
        [ ]0: /core_files/nsd
        [*]1: /core_files/zoned


Welcome to core files management utility.



        Menu
        1(or R): Remove all core files
        2(or F): FTP all core files
        3(or r): Remove marked files
        4(or f): FTP marked files
        5(or m): Mark Files for action
        6(or u): Un Mark Files for action
        9(or e): Exit


Your choice: r
        /core_files/zoned


              You have opted to remove core files under these
directories:-
Please confirm (Y/[N]): y
Removing files....
removing core files under: /core_files/zoned
Done!
```

See also

secActiveSize

Displays the size of the active security database.

Synopsis

secactivesize

Availability

admin

Description

Use this command to display the size of the active security database.

The maximum is 256 KB.

This command is intended strictly for debugging purposes by technical support staff. The information displayed might not be supported between releases and is subject to change arbitrarily.

> **NOTE:** This command must be issued in secure mode.

Operands

Examples

To display the size of the active security database:

```
switch:admin> secactivesize
    Size of security active data: 35 bytes (Max 262144 bytes)
```

See also

secDefineSize

secGlobalShow

secAuthSecret

Manages the DH-CHAP shared secret key information.

Synopsis

        secauthsecret [--show][--set][--remove value | --all]

Availability

admin

Description

Use this command to manage the DH-CHAP shared secret key database used for the authentication. This command displays, sets, and removes shared secret key information from the database or deletes the entire database. If you are performing set or remove operations, when the command is completed new data is saved persistently. New data is effective with the next authentication request. The configuration applies to a switch instance only.

NOTE: A security license is required to run this command in nonsecure as well as secure mode.

Operands

The operands are as follows:

--show	Lists the WWNs to which shared secret is configured.
--set	Sets shared secrets with a WWN.
--remove [wwn | domain | sw name]	Removes the specified WWN entry from the database. If a domain name is specified, it is converted to WWN and then the entry is removed. If no option is specified, command is interactive.
--remove --all	Deletes the entire secret key database.
	Without any specified operands, the command displays the usage.

Examples

To list the shared secret WWN:

```
switch:admin> secauthsecret --show

WWN                      DId    Name
--------------------------------------------
10:00:00:60:69:80:5b:e8   1    switch
```

To set the shared secret:

```
switch:admin> secAuthSecret --set

This command sets up secret keys for the DH-CHAP
authentication. The minimum length of a secret key is 8
characters and maximum 40 characters. Setting up secret keys
does not initiate DH-CHAP authentication. If switch is
configured to do DH-CHAP, it is performed whenever a port or
a switch is enabled.

Warning: Please use a secure channel for setting secrets. Using
an insecure channel is not safe and can compromise secrets.

Following inputs should be specified for each entry.

1. WWN for which secret is being set up.
2. Peer secret: The secret of the peer that authenticates to peer.
3. Local secret: The local secret that authenticates peer.

Press Enter to start setting up shared secrets >

Enter WWN, Domain, or switch name (Leave blank when done):
10:00:00:60:69:80
:05:14
Enter peer secret:
Re-enter peer secret:
Enter local secret:
Re-enter local secret:

Enter WWN, Domain, or switch name (Leave blank when done):
Are you done? (yes, y, no, n): [no] y
Saving data to key store... Done.
```

To remove a shared secret WWN:

```
switch:admin> secAuthSecret --remove

This command deletes database of DH-CHAP secret keys. If a fabric
requires authentication, deleting this database may cause switch
to segment from the fabric.

Re-enter peer secret:
Enter local secret:
Re-enter local secret:

Enter WWN, Domain, or switch name (Leave blank when done):
Are you done? (yes, y, no, n): [no] y
Saving data to key store... Done.
```

To delete the entire secret key database:

```
switch:admin> secAuthSecret --remove --all

This command deletes database of DH-CHAP secret keys. If a fabric
requires authentication, deleting this database may cause switch
to segment from the fabric.

Do want to remove secret key database? (yes, y, no, n): [no] y
Deleting secret key database... Done.
```

See also

secCertUtil

A utility that manages third-party PKI-based certificates in the switch.

Synopsis

```
seccertutil
```

Availability

admin

Description

Use this command to manage third-party certificates in the switch, as follows:

- Generate a public/private key pair.

- Generate a certificate signing request (CSR).

- Delete a CSR.

- List the certificates present in the switch.

- Display the contents of a certificate/CSR.

- Delete a specific certificate.

- Configure a SSL certificate file name.

- Enable secure protocols.

The following is the usage statement for the utility:

```
seccertutil delcsr            Delete CSR
seccertutil delete file name  Delete certificate
seccertutil export            Export CSR
seccertutil genkey            Generate a new public/private key pair
seccertutil gencsr            Generate a new CSR
seccertutil import [-config cacert] | [-config swcert [-enable https]]
                              import
                    -config swcert   Configure SSL certificate filename (optional)
                    -config cacert   Configure CA certificate filename (optional)
                    -enable https    Enable secure https (optional)
seccertutil showcsr           Display CSR contents
seccertutil show              List certificate
seccertutil show filename     Display certificate content
```

Operands

The operands are as follows:

genkey	Generates a public/private key pair.This is the first step for setting up third-party certificates. The key length can be either 1,024 or 2,048 bits long. The greater the length of the key, the more secure is the connection; however, the performance goes down. The keys are generated only after deleting existing CSR and all other certificates.
gencsr	Generates a new CSR for the switch. This is second step for setting up third-party certificates in the switch. To generate a CSR, the admin must answer a series of questions prompted by this option. Once all questions are answered, a CSR is generated and placed in a file named *ip_address.csr*. The *ip_address* is the IP address of the switch.
delcsr	Deletes the CSR in the switch.
showcsr	Displays the contents of the CSR in the switch.
show	Displays a list of all certificates in the switch.
show *certificate_name*	Displays the contents of the specified certificate.
delete *certificate_name*	Deletes the specified certificate.
export	Exports a CSR to a host. This is typically used to submit the CSR to a CA who in turn issues a certificate.

```
import  [-config cacert] | [-config swcert [-enable https]]
```

Import a certificate on to the switch. Use this for the following:

- Download a certificate issued by a CA after sending the CSR to the CA.

- Download an Issuing CA certificate.

- Set imported certificate with -config option. Specifying cacert sets the CA certificate file name in configuration and specifying swcert sets switch certificate file name in configuration.

- Enable secure protocols with -enable option. This option can be used only with -config swcert.

Examples

To generate a public/private key pair:

```
switch:admin> seccertutil genkey


Generating a new key pair will automatically do the following:
1. Delete all existing CSRs.
2. Delete all existing certificates.
3. Reset the certificate filename to none.
4. Disable secure protocols.


Continue (yes, y, no, n): [no]  y
Select key size [1024 or 2048]:
Generating new rsa public/private key pair
Done.
```

To generate a CSR:

```
switch:admin> seccertutil gencsr
 Country Name (2 letter code, eg, US):
 State or Province Name (full name, eg, California):
 Locality Name (eg, city name):
 Organization Name (eg, company name):
 Organizational Unit Name (eg, department or section name):
 Common Name (Fully qualified Domain Name, or IP address):
 generating CSR, file name is: <ip_address>.csr
 Done
```

To delete the CSR:

```
switch:admin> seccertutil delcsr
 WARNING!!!

 About to delete the switch CSR.
 ARE YOU SURE (yes, y, no, n): [no] y
```

To import a certificate:

```
switch:admin> seccertutil import
 Select protocol [ftp or scp]: ftp
 Enter IP address: ip address
 Enter remote directory: dir name where certificate is stored
 Enter certificate name (must have ".crt" or ".pem" suffix): filename
 Enter Login Name: login
 Enter Password: password
 Success: imported certificate [certificate file name].
```

To import a certificate with configure and enable option:

```
switch:admin> seccertutil import -config swcert -enable https
 Select protocol [ftp or scp]: ftp
 Enter IP address: ip address
 Enter remote directory: dir name where certificate is stored
 Enter certificate name (must have ".crt" or ".pem" suffix): filename
 Enter Login Name: login
 Enter Password: password
 Success: imported certificate [certificate file name].
 Certificate file in configuration has been updated.
 Secure http has been enabled.
```

To display contents of a CSR:

```
switch:admin> seccertutil showcsr
```

To display contents of a certificate:

```
switch:admin> seccertutil show certificate file name
```

See also

secDefineSize

Displays the size of the defined security database.

Synopsis

secdefinesize

Availability

admin

Description

Use this command to display the size of the defined security database.

The maximum size is 256 KB.

This command is intended strictly for debugging purposes by technical support staff. The information displayed might not be supported between releases and is subject to change arbitrarily.

> **NOTE:** This command must be issued in secure mode.

Operands

Examples

To display the size of the defined security database:

```
switch:admin> secdefinesize
    Size of security defined data: 35 bytes (Max 262144 bytes)
```

See also

secActiveSize

secGlobalShow

secFabricShow

Displays security-related fabric information.

Synopsis

```
secfabricshow
```

Availability

all users

Description

This command displays the security-related information about the fabric.

The information displayed is as follows:

Role	Displays whether the switch is the primary FCS, backup FCS, or not FCS.
WWN	Displays the world wide name of the switch.
DId	Displays the domain of the switch.
Status	Displays the security state of the switch:
	Ready – This switch is in a stable state. Busy – This switch is updating its security database. Error – This switch's security database is inconsistent with the primary FCS.
Enet IP Addr	Displays the Ethernet IP address.
Name	Displays the switch name.
NoResp	Displays if the switch did not respond to the status query.
Unknown	Displays if the switch is in an unknown state.

> **NOTE:** This command must be issued from a `sectelnet` or SSH session.
> When this command is issued on multiple switches in the fabric, one or more of these switches can display a status of busy.

Operands

Examples

To display security-related fabric information on the primary FCS switch:

```
switch:admin> secfabricshow

Role     WWN                      DId Status  Enet IP Addr     Name
===============================================================
non-FCS 10:00:00:60:69:10:03:23   1 Ready   192.168.100.148 "nonfcs"
Backup  10:00:00:60:69:00:12:53   2 Ready   192.168.100.147 "backup"
Primary 10:00:00:60:69:22:32:83   3 Ready   192.168.100.135 "switch"
_____


Secured switches in the fabric: 3
```

See also

secPolicyDump

secPolicyShow

secFCSFailover

Enables a backup FCS switch to take over as primary FCS switch.

Synopsis

```
secfcsfailover
```

Availability

admin

Description

Use this command to enable a backup FCS switch to take over as the primary FCS switch.

This command can be issued only on a backup FCS switch. After this command is issued, the primary FCS switch aborts its current transaction and moves the backup FCS switch to the top of the FCS list. The former primary FCS switch then activates the new policy set and the former backup FCS switch becomes the new primary FCS switch in the fabric.

The purpose of this command is to recover from a scenario in which all available access to the primary FCS switch is lost, such as the Ethernet and serial connections.

Operands

Examples

To enable a backup FCS switch to take over as the primary FCS switch:

```
switch:admin> secfcsfailover

This switch is about to become the Primary FCS switch.
All transactions of the current Primary FCS switch will be aborted.
ARE YOU SURE  (yes, y, no, n): [no] y

WARNING!!!
The FCS policy of Active and Defined Policy sets have been changed.
Review them before you issue secPolicyActivate again.
```

See also

secFabricShow

secModeDisable

secModeShow

secGlobalShow

Displays the current internal security state information.

Synopsis

secglobalshow

Availability

admin

Description

Use this command to display security server (secd) specific information as a snapshot of its current state. The information can include some of the following:

- The version and general information

- The current status of the RCS transaction

- The active and defined sizes of the security database

This command is intended strictly for debugging purposes by technical support staff only. The information displayed might not be supported between releases and is subject to change arbitrarily.

📝 **NOTE:** This command must be issued when secure mode is enabled.

Operands

Examples

To view the current security state:

```
switch:admin> secglobalshow
```

See also

secActiveSize

secDefineSize

secHelp

Displays information about security commands.

Synopsis

```
sechelp
```

Availability

all users

Description

Use this command to display a list of security commands.

Operands

Examples

To display a list of security telnet commands:

```
switch:admin> sechelp

 pkiCreate               Creates new pki objects
 pkiRemove               Removes pki objects
 pkiShow                 Displays existence of pki objects
 secActiveSize           Displays size of the active (security) database
 secAuthSecret           Creates/Manages/Displays DHCHAP secret key details
 secCertUtil             Creates/Manages/Displays third party PKI
certificates
 secDefineSize           Displays size of the defined (security) database
 secFabricShow           Displays security related fabric information
 secFCSFailover          Forces primary role to this FCS switch
 secGlobalShow          Displays current internal security state information
 secModeEnable           Enables secure mode
 secModeDisable          Disables secure mode
 secModeShow            Displays whether secure mode is enabled or disabled
 secNonFCSPasswd         Sets the admin passwd for non-FCS switches
 secPolicyAbort          Aborts changes to defined policy
 secPolicyActivate       Activates all policy sets
 secPolicyAdd            Adds members to an existing policy
 secPolicyCreate         Creates a new policy
 secPolicyDelete         Deletes an existing policy
 secPolicyFCSMove        Moves a member in the FCS policy
 secPolicyRemove         Removes members from an existing policy
 secPolicySave           Saves defined policy set and sends to all switches
 secPolicyShow           Shows members of one or more policies
 secPolicyDump           Displays all members of existing policies
 secStatsReset           Resets security statistics
 secStatsShow            Displays security statistics
 secTempPasswdSet        Sets temporary password
 secTempPasswdReset      Resets temporary password
 secTransAbort           Aborts current transaction
 secVersionReset         Resets version stamp
```

See also

secModeDisable

Disables secure mode.

Synopsis

secmodedisable

Availability

admin

Description

Use this command to disable secure mode on all switches in the fabric. This command deletes both the defined and active security database.

This command can be issued only in secure mode and only from the primary FCS switch.

Operands

Examples

To disable security mode:

```
primaryfcs:admin> secmodedisable
Please enter current admin account password:

Warning!!!
About to disable security.
ARE YOU SURE (yes, y, no, n): [no] y
```

See also

secFabricShow

secModeShow

secModeEnable

Enables secure mode.

Synopsis

```
secmodeenable [--quickmode] | [[--currentpwd] [--lockdown[=scc |=dcc]]
[--fcs list_of_switches | list_of_switches]]
```

Availability

admin

Description

Use this command to enable secure mode on all switches in the fabric. This command fails if any switch in the fabric is not capable of enforcing the security policies defined in the security database. If no operand is specified, the command becomes interactive.

NOTE: This command must be issued from a sectelnet or SSH session.

This command sets up security in the fabric by:

- Activating security mode on all switches in the fabric.
- Creating the security database, populated with a list of FCS switches in the FCS_POLICY.
- Distributing the security database to all switches in the fabric.
- Resetting the root, factory, admin, and user account passwords on all FCS switches.
- Resetting the admin and user account passwords on all non-FCS switches.
- Disabling the root and factory accounts on all non-FCS switches in the fabric.

The administrator is prompted to enter new passwords for the following accounts:

- factory
- root
- admin
- user
- non-FCS admin

The prompts do not appear if the administrator chooses to use the passwords on the primary FCS with the `--currentpwd` option. With this option, the admin password is used for non-FCS admin as well.

If the fabric is not in secure mode and one or more specified FCS switches is present in the fabric, the command must be issued on the first active FCS in the list.

If the fabric is not in secure mode and no specified FCS switches are present in the fabric, the command can be issued on any switch. Only the `--fcs` option can be used in this case.

If the fabric is not in secure mode and this command is issued, the switches in the fabric with Fabric OS versions previous to v4.4.0 or v3.2.0 reboots automatically.

If the fabric is in secure mode and no FCS switches are present in the fabric, the command can be issued on any switch. This is used to recover a secure fabric that has no FCS switch. Only the `--fcs` option can be used in this case.

NOTE: Using Fabric OS CLI or Web Tools, ensure that all users are logged off the fabric before enabling secure mode; otherwise, users on non-FCS switches lose their telnet sessions.
HP recommends that a maximum of 80 WWNs be specified in the FCS policy using the command. To add more WWNs use the `secPolicyAdd` command.

Operands

This command has the following operands:

`list_of_switches`	Specify a list of switches for the FCS policy. The list of switches must be enclosed in quotation marks, and each member switch must be separated from the others by semicolons. The members can be specified using domain, WWN, or switch name format, as follows: "5; 10:00:00:60:69:00:00:20; star1" If a member is specified by domain or switch name, the switch must be in the fabric or the command fails. This operand is optional. If no operand is specified, the session becomes interactive and you are prompted to enter FCS member values.
`-fcs` `list_of_switches`	Specify a list of switches for the FCS policy. Specifying "*" defaults this to all the switches currently present in the fabric. If a member is specified by domain or switch name, the switch must be in the fabric or the command fails. If the list of FCS switches is not specified, the session becomes interactive and the user is prompted to enter FCS members.
`--currentpwd`	Use the current passwords of the switch the command is run on (the primary FCS switch) for root, factory, admin and user accounts. Non-FCS admin account password is set the same as FCS admin account password. The command does not prompt for new passwords. Only sessions whose account password has changed are logged out. This option can be used only on a fabric with secure mode disabled and only when the command is run on the switch specified as the primary FCS switch.
`--lockdown[=scc` `|=dcc]`	Create SCC and DCC policies to lockdown the fabric. SCC policy is populated with all the switches present in the fabric when the command is executed. DCC policies are populated with the devices present in the fabric when the command is executed, locking down devices on a per port basis. Ports with no devices attached to them also are locked down with an empty DCC policy so no device can be connected to them, preserving the fabric as is. The lockdown operand creates both SCC and DCC policies. With the optional argument of `--lockdown=scc` or `--lockdown=dcc`, only the specified policy is created. This operand can be used only on a fabric with secure mode disabled and only when the command is run on the switch specified as the primary FCS switch.

`--quickmode`	This option is a shorthand notation for a combination of the `--currentpwd`, `--lockdown`, and `--fcs "*"` options. On successful execution of the command, security is enabled in the fabric with all switches being FCS, all switches having passwords identical to that of the primary FCS and SCC, and DCC policies capturing and maintaining the current configuration of the fabric. This option can be used only on a fabric with secure mode disabled and only when the command is run on the switch specified as the primary FCS switch.

If no operand is specified, the session becomes interactive and the user is prompted to enter FCS switch members and passwords.

If the `-currentpwd` option is not used, the session becomes interactive and the user is prompted to enter new passwords for root, factory, admin, user, and non-FCS admin accounts.

Examples

To enable secure mode using `--quickmode`:

```
fcsprimary:admin> secModeEnable --quickmode


Your  use of  the certificate-based  security features  of the  software

installed on this equipment is subject to the End User License Agreement

provided  with the equipment and the Certification  Practices Statement,

which you may review at http://www.switchkeyactivation.com/cps. By using

these security features, you are consenting to be bound by the  terms of

these  documents.  If you  do not agree to the terms of these documents,

promptly contact the entity from which you obtained this software and do

not use these security features.


Do you agree to these terms?  (yes, y, no, n): [no] y


This command requires Switch Certificate,  Security license and Zoning

license to be installed on  every switch in the fabric.


PLEASE NOTE: On successful completion of this command, login sessions

may be closed and some switches may go through a reboot to form a secure

fabric.


Non-FCS admin password will be set the same as FCS admin password.


ARE YOU SURE  (yes, y, no, n): [no] y


Please enter current admin account password:


Secure mode is enabled.
```

To enable a security policy that includes three FCS switches specified by domain, WWN address, and switch name:

```
fcsprimary:admin> secmodeenable


Your  use of  the certificate-based  security features  of the  software
installed on this equipment is subject to the End User License Agreement
provided  with the equipment and the Certification  Practices Statement,
which you may review at http://www.switchkeyactivation.com/cps. By using
these security features, you are consenting to be bound by the  terms of
these  documents.  If you  do not agree to the terms of these documents,
promptly contact the entity from which you obtained this software and do
not use these security features.
Do you agree to these terms?  (yes, y, no, n): [no] y


This command requires Switch Certificate,  Security license and Zoning
license to be installed on  every switch in the fabric.


PLEASE NOTE: On successful completion of this command, login sessions
may be closed and some switches may go through a reboot to form a secure
fabric.


This is an interactive session to create a FCS list.


The new FCS list is empty.


Enter WWN, Domain, or switch name(Leave blank when done): 102
Switch WWN is 10:00:00:60:69:80:04:0f.


The new FCS list:
10:00:00:60:69:80:04:0f


Enter WWN, Domain, or switch name(Leave blank when done):
10:00:00:60:69:80:04:0e
Switch WWN is 10:00:00:60:69:80:04:0e.


The new FCS list:
10:00:00:60:69:80:04:0f
10:00:00:60:69:80:04:0e


(continued on next page)
```

```
        Enter WWN, Domain, or switch name(Leave blank when done): sw1
        Switch WWN is 10:00:00:60:69:80:04:0a.


        The new FCS list:
        10:00:00:60:69:80:04:0f
        10:00:00:60:69:80:04:0e
        10:00:00:60:69:80:04:0a


        Enter WWN, Domain, or switch name(Leave blank when done):
        Are you done?  (yes, y, no, n): [no] y
        Is the new FCS list correct?  (yes, y, no, n): [no] y
        Please enter current admin account password:


        Warning:  Access to  the Root  and Factory accounts may be required  for
        proper  support  of  the switch.  Please  ensure  the Root  and  Factory
        passwords are  documented in a secure location.  Recovery of a lost Root
        or Factory password will result in fabric downtime.


        Changing password for root
        New FCS switch root password:
        Re-type new password:
(output truncated)
```

To enable secure mode using `--currentpwd --fcs "*"`:

```
fcsprimary:admin> secModeEnable --currentpwd --fcs "*"
Your  use of  the certificate-based  security features  of the  software

installed on this equipment is subject to the End User License Agreement
provided  with the equipment and the Certification  Practices Statement,
which you may review at http://www.switchkeyactivation.com/cps. By
using

these security features, you are consenting to be bound by the  terms of
these  documents.  If you  do not agree to the terms of these documents,

promptly contact the entity from which you obtained this software and do

not use these security features.

Do you agree to these terms?  (yes, y, no, n): [no] y


This command requires Switch Certificate,  Security license and Zoning

license to be installed on  every switch in the fabric.


PLEASE NOTE: On successful completion of this command, login sessions

may be closed and some switches may go through a reboot to form a secure

fabric.


Non-FCS admin password will be set the same as FCS admin password.
ARE YOU SURE  (yes, y, no, n): [no] y


Please enter current admin account password:


Secure mode is enabled.
```

See also

secFabricShow

secModeDisable

secModeShow

secPolicyShow

secModeShow

Displays whether security mode is enabled or disabled.

Synopsis

```
secmodeshow
```

Availability

all users

Description

Use this command to display the current security mode of the fabric. The fabric can be in secure mode or nonsecure mode.

The command displays secure mode as ENABLED or DISABLED. If the fabric is in secure mode, the following information appears:

Version stamp	Displays the current version and build date and time of the security database.
FCS switches	Displays a list of FCS switches.
Primary	Displays whether the switch is a primary FCS or backup FCS.
WWN	Displays the WWN of the FCS switch.
DID	Displays the domain of the FCS switch.
swName	Displays the alias name of the FCS switch.

This command can be issued on any switch in a fabric.

Operands

Examples

To display the current security mode of a fabric:

```
switch:admin> secmodeshow


  Secure Mode: ENABLED.
  Version Stamp: 9182, Wed Mar 17 16:37:01 2004.
  POS Primary WWN                  DId swName.
  =========================================
  1   Yes     10:00:00:60:69:00:00:5a 21 switch47.
  2   No      12:00:00:60:60:03:23:5b 5  switch12.
```

See also

secFabricShow

secModeDisable

secNonFcsPasswd

Sets the admin password for non-FCS switches.

Synopsis

```
secnonfcspasswd
```

Availability

admin

Description

Use this command to change the admin password on all non-FCS switches in the fabric. This command can be issued only from the primary FCS switch in secure mode. The changed passwords are persistent across reboots. All non-FCS switches that join the fabric in the future inherit this new password.

The password must be between 8 and 40 characters long and can consist of any combination of alphanumeric characters.

This command can be issued only in secure mode and only from the primary FCS switch.

NOTE: Ensure no non-FCS admin users are logged in when this command is executed; otherwise, users on non-FCS-switch sessions terminate.

Operands

Examples

To set the admin password for all non-FCS switches in the fabric:

```
switch:admin> secnonfcspasswd
Changing password for admin
Non FCS switch admin password:
Re-type new password:

Login sessions with password changed will be terminated.
Password for non-FCS admin account has been changed successfully.
```

See also

passwd

secModeDisable

secModeShow

secTempPasswdSet

secPolicyAbort

Aborts all changes to the defined database that have not been saved.

Synopsis

secpolicyabort

Availability

admin

Description

Use this command to abort all changes to the defined security database that have not been saved to flash memory.

> NOTE: This command can be issued only in secure mode and only from the primary FCS switch.

Operands

Examples

To abort all changes that have not been saved to flash memory:

```
primaryfcs:admin> secpolicyabort
Unsaved data has been aborted.
primaryfcs:admin> secpolicyabort
No new data to abort.
```

See also

secPolicyActivate

secPolicyAdd

secPolicyCreate

secPolicyDelete

secPolicyDump

secPolicyRemove

secPolicySave

secStatsShow

secPolicyActivate

Applies defined policy set to all switches in the fabric.

Synopsis

```
secpolicyactivate
```

Availability

admin

Description

Use this command to activate the current defined security policy to all switches in the fabric. After activation, the defined policy set becomes the active policy set.

📝 **NOTE:** This command can be issued only in secure mode and only from the primary FCS switch.

Operands

Examples

To activate the defined security policy set to all switches in the fabric:

```
primaryfcs:admin> secpolicyactivate
About to overwrite the current Active data.
ARE YOU SURE (yes, y, no, n): [no] y
secpolicyactivate command was completed successfully.
```

See also

secPolicyAbort

secPolicyAdd

secPolicyCreate

secPolicyDelete

secPolicyDump

secPolicyRemove

secPolicySave

secStatsShow

secPolicyAdd

Adds members to an existing security policy.

Synopsis

```
secpolicyadd name, "member [; member...]"
```

Availability

admin

Description

Use this command to add members to an existing access policy. The new members must not already be members within the policy or the command fails.

Each policy corresponds to a management method. The list of members of a policy acts as an access control list for that management method. When security is first enabled using the command, only the FCS_POLICY exists. Before a policy is created, there is no enforcement for that management method; all access is granted. After a policy has been created and a member has been added to the policy, that policy becomes closed to all access except from included members. If all members are then deleted from the policy, all access is denied for that management access method (the DCC_POLICY is an exception).

NOTE: This command can be issued only in secure mode and only from the primary FCS switch.

Operands

This command has the following operands:

name   Specify the name of an existing policy to which you want to add members. Valid values for this operand are:

DCC_POLICY_*nnn*

FCS_POLICY

TELNET_POLICY

HTTP_POLICY

API_POLICY

RSNMP_POLICY

WSNMP_POLICY

SES_POLICY (HP does not support SES_POLICY)

MS_POLICY

SERIAL_POLICY

FRONTPANEL_POLICY

SCC_POLICY

OPTIONS_POLICY

The specified policy name must be capitalized.

The DCC_POLICY_*nnn* name has the common prefix DCC_POLICY_ followed by a string of user-defined characters. These characters do not have to be capitalized like regular policy names, but they are case sensitive.

member   Specify a list of member switches for the security policy. The members must be enclosed in quotation marks and separated by semicolons. Depending on the policy type, members can be specified using IP address, WWN, domain, switch name, or other.

IP Address Member Policy Types

The following policy types require members be specified by IP address:

- TELNET_POLICY

- HTTP_POLICY

- API_POLICY

- RSNMP_POLICY

- WSNMP_POLICY

These policy types require member IPs to be specified in dot notation (for example, 124.23.56.122). If 0 is specified in one of the octets, any number can be matched.

WWN Member Policy Types

The following policy types require members be specified by WWN address:

- FCS_POLICY

- SES_POLICY (HP does not support SES_POLICY)

- MS_POLICY

- SERIAL_POLICY

- FRONTPANEL_POLICY

- SCC_POLICY

These policy types require members be specified as WWN strings, domain IDs, or switch names. If domain ID, or switch names are used, the switches associated must be present in the fabric or the command fails.

DCC_POLICY Members

The DCC_POLICY_*nnn* is a list of devices associated with a specific switch and port combination. An empty DCC_POLICY does not stop access to the switch. The device is specified with a WWN string. The switch and port combination must be in the following format:

switch port

switch can be specified using WWN, domain, or switch name.

port can be specified by port numbers separated by commas and enclosed in either brackets or parenthesis: for example, (2, 4, 6). Ports enclosed in brackets will include the devices currently attached to those ports.

The following examples illustrate several ways to specify the port values:

(1-6)   Selects ports 1 through 6.

(*)   Selects all ports on the switch.

[3, 9]   Selects ports 3 and 9 and all devices attached to those ports.

[1-3, 5]   Selects ports 1 through 3 and 5 and all devices attached to those ports.

[*]   Selects all ports on the switch and devices currently attached to those ports.

OPTIONS_POLICY members

NoNodeWWNZoning is the only option.

Examples

To add a member to the MS_POLICY using the device WWN:

```
switch:admin> secpolicyadd "MS_POLICY", "12:24:45:10:0a:67:00:40"
Member(s) have been added to MS_POLICY.
```

To add an SNMP manager to WSNMP_POLICY:

```
switch:admin> secpolicyadd "WSNMP_POLICY", "192.168.5.21"
Member(s) have been added to WSNMP_POLICY.
```

To add two devices to attach to domain 3, ports 1 and 3, in an existing empty DCC policy; port WWN of the first device is 11:22:33:44:55:66:77:aa and port WWN of the second device is 11:22:33:44:55:66:77:bb:

```
switch:admin> secpolicyadd "DCC_POLICY_abc",
"11:22:33:44:55:66:77:aa;11:22:33:44:55:66:77:bb;3(1,3)"

   Member(s) have been added to DCC_POLICY_abc.
```

See also

secPolicyAbort

secPolicyActivate

secPolicyCreate

secPolicyDelete

secPolicyDump

secPolicyRemove

secPolicySave

secStatsShow

secPolicyCreate

Creates a new security policy.

Synopsis

secpolicycreate "*name*" [, "*member* [;*member*...]"

Availability

admin

Description

Use this command to create a new security policy. All policies can be created only once, except for the DCC_POLICY_*nnn*. Each DCC_POLICY_*nnn* must have a unique *name*.

Adding members while creating a policy is optional. You can add members to a policy later, using the secPolicyAdd command.

Each policy corresponds to a management method. The list of members of a policy acts as an access control list for that management method. When security mode is first enabled using the command, only the FCS_POLICY exists. Before a policy is created, there is no enforcement for that management method; all access is granted. After a policy has been created and a member has been added to the policy, that policy becomes closed to all access except from included members. If all members are then deleted from the policy, all access is denied for that management access method.

NOTE: The FCS_POLICY can only be created when enabling security mode using the command.
If a TELNET_POLICY or SERIAL_POLICY is created, that ends the current sectelnet or serial session and a warning is issued.
This command can be issued only in secure mode and only from the primary FCS switch.

Operands

This command has the following operands:

name   Specify the name of a policy you want to create. Valid values for this operand are:

- DCC_POLICY_*nnn*

- TELNET_POLICY

- HTTP_POLICY

- API_POLICY

- RSNMP_POLICY

- WSNMP_POLICY

- SES_POLICY (HP does not support SES_POLICY)

- MS_POLICY

- SERIAL_POLICY

- FRONTPANEL_POLICY

- SCC_POLICY

- OPTIONS_POLICY

The specified policy name must be capitalized.

The DCC_POLICY_*nnn* name has the common prefix DCC_POLICY_ followed by a string of user-defined characters. These characters do not have to be capitalized like regular policy names. Valid values for DCC_POLICY_*nnn* are user defined alphanumeric or underscore characters. The maximum length is 30 characters, including the prefix DCC_POLICY_.

member   Specify a list of members for the security policy. The members must be enclosed in quotation marks and separated by semicolons. Depending on the policy type, members can be specified using IP address, WWN, domain, or switch name.

IP Address Member Policy Types

The following policy types require members be specified by IP address:

- TELNET_POLICY

- HTTP_POLICY

- API_POLICY

- RSNMP_POLICY

- WSNMP_POLICY

These policy types require member IDs in dot notation (for example, 124.23.56.122). If 0 is specified in one of the octets, any number can be matched.

WWN Member Policy Types

The following policy types require members be specified by WWN address:

SES_POLICY (HP does not support SES_POLICY)

MS_POLICY

SERIAL_POLICY

FRONTPANEL_POLICY

These policy types require member IDs be specified as WWN strings, domains, or switch names. If domain, or switch names are used, the switches associated must be present in the fabric or the command fails.

DCC_POLICY Members

The DCC_Policy_*nnn* is a list of devices associated with a specific switch and port combination. The device is specified with a WWN string. The switch and port combination must be in the following format:

switch port

switch can be specified using WWN, domain, or switch name.

port can be specified by port numbers separated by commas and enclosed in either brackets or parenthesis: for example, (2, 4, 6). Ports enclosed in brackets will include the devices currently attached to those ports.

The following examples illustrate several ways to specify the port values:

(1-6)   Selects ports 1 through 6.

(*)   Selects all ports on the switch.

[3, 9]   Selects ports 3 and 9 and all devices attached to those ports.

[1-3, 5]   Selects ports 1 through 3 and 5 and all devices attached to those ports.

[*]   Selects all ports on the switch and devices currently attached to those ports.

OPTIONS_POLICY members

NoNodeWWNZoning is the only option.

SCC_POLICY Members

This policy type requires member IDs to be specified as WWN strings, domains, or switch names. If domain or switch names are used, the switches associated must be present in the fabric or the command fails.

To add all switches in the current fabric as members of the SCC_POLICY, enter an asterisk (*) as the member value. This feature cannot be used by the other security telnet commands.

Examples

To create a new, single MS_POLICY that enables access through a device that has WWN of 12:24:45:10:0a:67:00:40:

```
switch:admin> secpolicycreate "MS_POLICY", "12:24:45:10:0a:67:00:40"
MS_POLICY has been created.
```

To create a new front panel policy that only enables domains 3 and 4 to use the front panel:

```
switch:admin> secpolicycreate "FRONTPANEL_POLICY", "3; 4"
FRONTPANEL_POLICY has been created.
```

To create a device policy to allow two devices to attach to domain 3 ports 1 and 3 (the WWN of first device is 11:22:33:44:55:66:77:aa and the WWN of second device is 11:22:33:44:55:66:77:bb):

```
switch:admin> secpolicycreate "DCC_POLICY_aB_7",
"11:22:33:44:55:66:77:aa;11:22:33:44:55:66:77:bb;3[1,3]"
DCC_POLICY_abc has been created.
```

To create a telnet policy to allow anyone on the 192.168.5.0/24 network to access the fabric through sectelnet:

```
switch:admin> secpolicycreate "TELNET_POLICY", "192.168.5.0"
TELNET_POLICY has been created.
```

See also

secPolicyAbort

secPolicyActivate

secPolicyAdd

secPolicyDelete

secPolicyDump

secPolicyRemove

secPolicySave

secStatsShow

secPolicyDelete

Deletes an existing security policy.

Synopsis

secpolicydelete "*name*"

Availability

admin

Description

Use this command to delete an existing defined policy. The FCS_POLICY cannot be deleted through this command, since this policy must exist to maintain security mode.

Each policy corresponds to a management method. The list of members of a policy acts as an access control list for that management method. When security mode is first enabled using the command, only the FCS_POLICY exists. Before a policy is created, there is no enforcement for that management method; all access is granted. After a policy has been created and a member has been added to the policy, that policy becomes closed to all access except from included members. If the policy is deleted all access is granted.

> **NOTE:** This command can be issued only in secure mode and only from the primary FCS switch.

Operands

This command has the following operand:

name
: Specify the name of a security policy to delete. The policy name must be enclosed in quotation marks. Valid security policy names are:

  DCC_POLICY_nnn

  TELNET_POLICY

  HTTP_POLICY

  API_POLICY

  RSNMP_POLICY

  WSNMP_POLICY

  SES_POLICY (HP does not support SES_POLICY)

  MS_POLICY

  SERIAL_POLICY

  FRONTPANEL_POLICY

  SCC_POLICY

  OPTIONS_POLICY

  The specified policy name must be capitalized.

  The DCC_POLICY_nnn name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names.

  This operand is required.

NOTE: After security policy is deleted, fabric-wide switch access through that method is unrestricted.

Examples

To delete an existing security policy:

```
switch:admin> secpolicydelete "MS_POLICY"
About to delete policy MS_POLICY.
Are you sure (yes, y, no, n):[no] y
MS_POLICY has been deleted.
```

See also

secPolicyAbort

secPolicyActivate

secPolicyAdd

secPolicyCreate

secPolicyDump

secPolicyRemove

secPolicySave

secStatsShow

secPolicyDump

Displays all members of existing security policies.

Synopsis

```
secpolicydump ["listtype"[, "name"]]
```

Availability

all users

Description

Use this command to display, without page breaks, the members of an existing policy in the active and defined (saved) databases.

> 📝 **NOTE:** This command can be issued only in secure mode but from any primary FCS switch.

Operands

This command has the following operands:

listtype	Specify which database to display. The name for active database is *Active*; the name for saved, defined database is *Defined*. If not specified, all databases are displayed.
name	Specify the name of a security policy you would like to display. Valid values for this operand are:

- DCC_POLICY_*nnn*

- FCS_POLICY

- TELNET_POLICY

- HTTP_POLICY

- API_POLICY

- RSNMP_POLICY

- WSNMP_POLICY

- SES_POLICY (HP does not support SES_POLICY)

- MS_POLICY

- SERIAL_POLICY

- FRONTPANEL_POLICY

- SCC_POLICY

- OPTIONS_POLICY

The specified policy name must be capitalized.

The DCC_POLICY_*nnn* name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names. This operand is optional.

Examples

To display all security policy information from all databases (active, updating, and defined), without page breaks:

```
primaryfcs:admin> secpolicydump
_____
                 DEFINED POLICY SET

FCS_POLICY
    Pos    Primary WWN                    DId swName
    _____
     1     Yes      10:00:00:60:69:30:15:5c   1 primaryfcs

HTTP_POLICY
    IpAddr
    _____
    192.155.52.0
_____


_____
                 ACTIVE POLICY SET

FCS_POLICY
    Pos    Primary WWN                    DId swName
    _____
     1     Yes      10:00:00:60:69:30:15:5c   1 primaryfcs

HTTP_POLICY
    IpAddr
    _____
    192.155.52.0
    192.155.53.1
    192.155.54.2
    192.155.55.3

_____
```

To display all security policy information for the TELNET_POLICY, without page breaks:

```
primaryfcs:admin> secpolicydump "*", "TELNET_POLICY"
_____
                 DEFINED POLICY SET

TELNET_POLICY
    IpAddr
    _____
    192.155.52.13
    192.155.52.11
_____


_____
                 ACTIVE POLICY SET

TELNET_POLICY
    IpAddr
    _____
    192.155.52.0


_____
```

See also

secPolicyAbort

secPolicyActivate

secPolicyAdd

secPolicyCreate

secPolicyDelete

secPolicyRemove

secPolicySave

secStatsShow

secPolicyFCSMove

Moves a member in the FCS policy.

Synopsis

secpolicyfcsmove [*from, to*]

Availability

admin

Description

Use this command to move an FCS member from one position to another in the FCS list. Only one FCS can be moved at a time. The first FCS switch in the list that is also present in the fabric is the primary FCS.

If no parameters are specified, the command becomes interactive, prompting you to supply valid values for the operands.

NOTE: This command can be issued only from secure mode and only from the primary FCS switch. If a backup FCS is moved to the first position, it becomes the primary FCS after activation.

Operands

This command has the following operands:

from   Specify the position of the FCS switch you want to move.
to   Specify the position to which you want to move the FCS switch.

If no operand is specified, the command becomes interactive and you are prompted for values.

Examples

To move the backup FCS switch at position 2 to position 3 in the FCS list:

```
switch:admin> secpolicyfcsmove
Pos    Primary WWN                      DId swName.
================================================
  1    Yes     10:00:00:60:69:10:02:18   1 switch5.
  2    No      10:00:00:60:69:00:00:5a   2 switch60.
  3    No      10:00:00:60:69:00:00:13   3 switch73.


Please enter position you'd like to move from  : (1..3) [1] 2


Please enter position you'd like to move to  : (1..3) [1] 3


_____
                 DEFINED POLICY SET


FCS_POLICY
 Pos    Primary WWN                      DId swName
 _____
  1    Yes     10:00:00:60:69:10:02:18   1 switch5.
  2    No      10:00:00:60:69:00:00:13   3 switch73.
  3    No      10:00:00:60:69:00:00:5a   2 switch60.


_____
```

See also

secFabricShow

secPolicyAbort

secPolicyActivate

secPolicyAdd

secPolicyCreate

secPolicyDelete

secPolicyDump

secPolicyRemove

secPolicySave

secStatsShow

secPolicyRemove

Removes members from an existing policy.

Synopsis

```
secpolicyremove "name" [, "member [;member]"]
```

Availability

admin

Description

Use this command to remove members from an existing security policy. If a policy is empty after removing all members, all accesses to the policy are disallowed (the DCC_POLICY and OPTIONS_POLICY are exceptions). You cannot remove all members from FCS_POLICY, and you cannot remove the FCS members from SCC_POLICY.

> **NOTE:** This command can be issued only from secure mode and only from the primary FCS switch..

Operands

This command has the following operands:

name	Specify the name of an existing policy you want to remove members from. Valid values for this operand are: DCC_POLICY_*nnn*

FCS_POLICY

TELNET_POLICY

HTTP_POLICY

API_POLICY

RSNMP_POLICY

WSNMP_POLICY

SES_POLICY (HP does not support SES_POLICY)

MS_POLICY

SERIAL_POLICY

FRONTPANEL_POLICY

SCC_POLICY

OPTIONS_POLICY

The specified policy name must be capitalized.

The DCC_POLICY policy name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names, but are case sensitive. This operand is required.

member	Specify a member or list of members to delete from the policy. The members must be enclosed in quotation marks and separated by semicolons. This operand is required. Depending on the policy type, members can be specified using IP address, WWN, domain, or switch name.

IP address member policy types

The following policy types require members be specified by IP address:

- TELNET_POLICY

- HTTP_POLICY

- API_POLICY

- RSNMP_POLICY

- WSNMP_POLICY

These policy types require member IDs in dot notation (for example, 124.23.56.122). If 0 is specified in one of the octets, it means any number can be matched.

WWN member policy types

The following policy types require members be specified by WWN address:

- FCS_POLICY

- SES_POLICY (HP does not support SES_POLICY)

- MS_POLICY

- SERIAL_POLICY

- FRONTPANEL_POLICY

- SCC_POLICY

These policy types require member IDs be specified as WWN strings, domains, or switch names. If domain or switch names are used, the switches associated must be present in the fabric or the command fails.

DCC_POLICY members

The DCC_Policy_*nnn* is a list of devices associated with a specific switch and port combination. The device is specified with a WWN string. The switch and port combination must be specified in the following format:

switch port

switch can be specified using WWN, domain, or switch name.

port can be specified by port number separated by commas, and enclosed in either brackets or parentheses: for example, (2, 4, 6). Ports enclosed in brackets will include the devices currently attached to those ports. The following examples illustrate several ways to specify the port values:

The following examples illustrate several ways to specify the port values:

(1-6)	Selects ports 1 through 6.
(*)	Selects all ports on the switch.
[3, 9]	Selects ports 3 and 9 and all devices attached to those ports.
[1-3, 5]	Selects ports 1 through 3 and 5 and all devices attached to those ports.
[*]	Selects all ports on the switch and devices currently attached to those ports.

OPTIONS_POLICY members

NoNodeWWNZoning is the only option.

Examples

To remove a member that has a WWN of 12:24:45:10:0a:67:00:40 from MS policy:

```
switch:admin> secpolicyremove "MS_POLICY", "12:24:45:10:0a:67:00:40"
Member(s) have been removed from MS_POLICY.
```

See also

secPolicyAbort

secPolicyActivate

secPolicyAdd

secPolicyCreate

secPolicyDelete

secPolicyDump

secPolicySave

secStatsShow

secPolicySave

Saves a defined security policy to flash memory on all switches in the fabric.

Synopsis

```
secpolicysave
```

Availability

admin

Description

Use this command to save a defined security policy to flash memory of all switches in the fabric.

> **NOTE:** This command can be issued only from secure mode and only from the primary FCS switch.

Operands

Examples

To save new policy set in all switches in the fabric:

```
switch:admin> secpolicysave
secpolicysave command was completed successfully.
```

See also

secPolicyAbort

secPolicyActivate

secPolicyAdd

secPolicyCreate

secPolicyDelete

secPolicyDump

secPolicyRemove

secStatsShow

secPolicyShow

Displays an existing security policy.

Synopsis

secpolicyshow ["*listtype*"[, "*name*"]]

Availability

all users

Description

Use this command to display the members of an existing policy in the active or defined security policy database. You can specify which database to display. If a database is not specified, all databases are displayed.

You can specify to display a security policy by name. If no name is specified, all policies are displayed.

This command displays the policy database one page at a time. Use secPolicyDump to display the policy database without page breaks.

📝 **NOTE:** This command can be executed on any FCS switch in fabric.

Operands

This command has the following operands:

listtype   Specify which database to display. The name for active database is Active; the name for saved, defined database is Defined. This operand must be enclosed in quotation marks. If not specified, all databases are displayed. This operand is optional. Use an asterisk (*) to specify both active and defined.

name   Specify the name of an existing policy you want to remove members from. Valid values for this operand are: DCC_POLICY_*nnn*

- FCS_POLICY
- TELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY
- SES_POLICY (HP does not support SES_POLICY)
- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY
- SCC_POLICY
- OPTIONS_POLICY

The specified policy name must be capitalized.

The DCC_POLICY_*nnn* name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names, but is case sensitive. This operand is optional.

Examples

To display all security policies from active databases:

```
switch:admin> secpolicyshow "active"
_____
                   ACTIVE POLICY SET

FCS_POLICY
    Pos     Primary WWN                       DId swName
_____
     1    Yes      10:00:00:60:69:30:15:5c    1 primaryfcs

HTTP_POLICY
    IpAddr
_____
    192.155.52.0

_____
```

To display all security policies from defined databases:

```
switch:admin> secpolicyshow "defined"
_____
                   DEFINED POLICY SET

FCS_POLICY
    Pos     Primary WWN                       DId swName
_____
     1    Yes      10:00:00:60:69:30:15:5c    1 primaryfcs

HTTP_POLICY
    IpAddr
_____
    192.155.52.0
    192.155.53.1
    192.155.54.2
    192.155.55.3
    192.155.56.4

_____
```

See also

secPolicyAbort

secPolicyActivate

secPolicyAdd

secPolicyCreate

secPolicyDelete

secPolicyDump

secPolicyRemove

secPolicySave

secStatsReset

Resets one or all security statistics to 0.

Synopsis

```
secstatsreset ["name"][,"list"]
```

Availability

admin

Description

Use this command to reset one or all security statistics to 0. This command can be issued to any switch. If issued on the primary FCS switch, this command can reset security statistics for any or all switches in the fabric.

Operands

This command has the following operands:

name   Specify the name of a security statistic you would like to reset. If executed on the primary FCS, specify an asterisk (*) to represent all security policies. Valid values for this operand are:

- TELNET_POLICY

- HTTP_POLICY

- API_POLICY

- RSNMP_POLICY

- WSNMP_POLICY

- SES_POLICY (HP does not support SES_POLICY)

- MS_POLICY

- SERIAL_POLICY

- FRONTPANEL_POLICY

- SCC_POLICY
- DCC_POLICY

- LOGIN

- INVALID_TS

- INVALID_SIGN

- INVALID_CERT

- SLAP FAIL

- SLAP_BAD_PKT

- TS_OUT_SYNC

- NO_FCS

- INCOMP_DB

- ILLEGAL_CMD

The specified policy name must be all capitalized.

To access DCC policies, enter DCC_POLICY. Violations are not tracked for individual DCC policies. The statistics for all DCC_POLICY violations are grouped together.

This operand is optional and the default is all statistics. If the `list` operand is specified, this operand is required.

list   Specify a list of domain IDs on which to reset the security statistics. Specify an asterisk (*) to represent all switches in the fabric or specify a list of domains, separated by semicolons. This operand is optional and the default value is the local switch.

Examples

To reset all statistics on the local switch:

```
switch:admin> secstatsreset
About to reset all security counters.
Are you sure (yes, y, no, n):[no] y
Security statistics reset to zero.
```

To reset DCC_POLICY statistics on domains 1 and 69:

```
switch:admin> secstatsreset "DCC_POLICY", "1;69"
Reset DCC_POLICY statistic.
```

See also

secFabricShow

secStatsShow

secStatsShow

Displays one or all security statistics.

Synopsis

secstatsshow ["*name*"][, "*list*"]

Availability

all users

Description

Use this command to display one or all security statistics. This command can be issued to any switch. If issued on the primary FCS switch, this command can retrieve and display the security statistics for any or all switches in the fabric.

NOTE: This command displays security policy statistics in secure mode. In nonsecure mode, it only reports login statistics.

Operands

This command has the following operands:

name
Specify the name of a security statistic you would like to view. If executed on the primary FCS, specify an asterisk (*) to represent all security policies. Valid values for this operand are:

- ELNET_POLICY
- HTTP_POLICY
- API_POLICY
- RSNMP_POLICY
- WSNMP_POLICY
- SES_POLICY (HP does not support SES_POLICY)
- MS_POLICY
- SERIAL_POLICY
- FRONTPANEL_POLICY
- SCC_POLICY
- DCC_POLICY
- LOGIN
- INVALID_TS
- INVALID_SIGN
- INVALID_CERT
- SLAP FAIL
- SLAP_BAD_PKT
- TS_OUT_SYNC
- NO_FCS
- INCOMP_DB
- ILLEGAL_CMD

The specified policy name must be all capitalized.

To access DCC policies, enter DCC_POLICY. Violations are not tracked for individual DCC policies. The statistics for all DCC_POLICY violations are grouped together.

This operand is optional and the default is all statistics. If the *list* operand is specified, then this operand is required.

list
Specify a list of domains to display the security statistics on. Specify an asterisk (*) to represent all switches in the fabric or specify a list of domains separated by semicolons. This operand is optional and the default value is the local switch.

Examples

To display the MS_POLICY statistics on the local switch:

```
switch:admin> secstatsshow "MS_POLICY"
Name      Value
====================
MS        20
```

To display statistic information for TELNET_POLICY for all switches in the fabric (example from a nonsecure switch):

```
switch:admin> secstatsshow "TELNET_POLICY", "*"

Fabric Statistics:

Domain 1:
Name                Value
=========================================

TELNET_POLICY       0

Domain 69:
Name                Value
=========================================

TELNET_POLICY       0

Domain 70:
Name                Value
=========================================

TELNET_POLICY       0
```

See also

secFabricShow

secStatsReset

secTempPasswdReset

Resets a temporary password on a remote switch.

Synopsis

sectemppasswdreset [*domain*[, "*login_name*"]]

Availability

admin

Description

Use this command to remove temporary passwords that were set up using secTempPasswdSet command.

If a login name is not supplied, all passwords on the switch identified by the specified domain are refreshed. If the domain is also not supplied, all temporary passwords for all login levels are removed from every switch in the fabric.

Each switch has four accounts: root, factory, admin, and user. Root and factory accounts are disabled for non-FCS switches. If they are temporarily activated by secTempPasswdSet, those accounts are disabled by secTempPasswdReset or rebooting the switch.

> **NOTE:** This command can be issued only from secure mode and only from the primary FCS switch.

Operands

This command has the following operands:

domain   Specify the domain of the switch from which the temporary passwords are to be removed. This operand is optional.

login_name   Specify the name of the login account from which the temporary password are removed. This operand is optional.

Examples

To remove temporary passwords:

```
switch:admin> sectemppasswdreset 2, "root"

Account root has been successfully disabled on domain 2


switch:admin> sectemppasswdreset 2

Restoring password of every account on domain 2

Temporary password of each account on domain 2 has been successfully
reset (if switch is non fcs switch it will further display).

Root and factory accounts on domain 2 have been disabled.


switch:admin> sectemppasswdreset

All temporary passwords or account settings have been restored to

fabric-wide secure settings.

Passwords of permanent accounts have been reset to fabric-wide

values. Root and factory accounts on each Non FCS switch have

been disabled.
```

See also

secModeDisable

secModeShow

secNonFcsPasswd

secTempPasswdSet

secTempPasswdSet

Sets a temporary password on a remote switch.

Synopsis

sectemppasswdset *domain*, "*login_name*"

Availability

admin

Description

Use this command to set a unique temporary password for a given account on a specific switch in the fabric. Use the secTempPasswdReset command to remove the temporary password or reboot the switch.

You can change any password on any switch. To change the password of an account that has higher level than that of the current user logged in to the primary FCS switch, you must enter the password of the same level account on the primary FCS switch.

The password setup on the target is not persistent and will be reset to the secure fabric-wide setting when this target switch is rebooted or when secTempPasswdReset is run on primary FCS switch.

Each switch has four accounts: root, factory, admin, and user. Root and factory accounts are disabled for non-FCS switches. This command can enable the root or factory account on a non-FCS switch when you specify a password for those accounts.

The password should between 8 and 40 characters.

> **NOTE:** This command can be issued only from secure mode and only from the primary FCS switch.

Operands

This command has the following operands:

domain   Specify the domain of the switch from which the temporary passwords are to be removed. This operand is optional.

login_name   Specify the name of the login account from which the temporary password are removed. This operand is optional.

Example

To set the password on a remote switch with a Domain of 2:

```
switch:admin> sectemppasswdset 2, "root"
Please provide password of root on primary FCS switch
in order to change this password: ********
Set remote switch root password: ********
Re-enter new password: ********
Account root has been successfully enabled on domain 2
```

See also

passwd

secModeDisable

secModeShow

secNonFcsPasswd

secTempPasswdReset

secTransAbort

Aborts current security transaction.

Synopsis

sectransabort

Availability

admin

Description

Use this command to abort the current transaction. This command is used to recover from management application problems. This command aborts all current changes that have not been committed or activated.

> 📝 **NOTE:**   This command can be issued from any switch in secure mode.

Operands

Examples

To abort the current security transaction:

```
switch:admin> sectransabort
Transaction has been aborted.
```

See also

secPolicyAbort

secPolicyActivate

secPolicyAdd

secPolicyCreate

secPolicyDelete

secPolicyDump

secPolicyRemove

secPolicySave

secStatsShow

secVersionReset

Resets the security version stamp to 0.

Synopsis

```
secversionreset
```

Availability

admin

Description

Use this command to reset the security version stamp of all switches in a fabric to 0, so that it can be joined to another secure fabric.

When merging two or more secure fabrics:

1. Determine which secure fabric will become the FCS_POLICY controller fabric: the dominant fabric to which all other secure fabrics will be merged.

2. Use the `secPolicyAdd`, `secPolicyRemove`, and `secPolicyActivate` commands to modify the FCS_POLICY of the merging fabrics to match the FCS_POLICY of the controller fabric. All secure fabrics to be merged must have identical FCS_POLICY lists. The FCS policies of merged fabrics must match exactly; they must contain the same FCS members and in the same order, or the merge will fail.

3. Reset the version stamp using the `secVersionReset` command on each secure fabric to be merged into the controller fabric. The controller fabric does not require a version reset.

4. Cascade the fabrics together. When the secure fabrics merge, the primary FCS switch in the controller fabric propagates its security policies across the newly formed fabric.

NOTE: This command must be issued from a sectelnet or SSH session and can be issued only from the primary FCS switch, a non-FCS when there is no FCS switch in the fabric, or from a disabled switch.

Operands

Example

To reset the version stamp to 0:

```
switch:admin> secversionreset
About to reset version stamp to 0.
Are you sure (yes, y, no, n):[no] y
done.
Security Policy Version Stamp has been set to 0.
```

See also

secFabricShow

secModeDisable

secModeShow

secTransAbort

sensorShow

Displays sensor readings.

Synopsis

```
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.

Operands

Examples

To view the sensor values:

```
switch:admin> sensorshow
sensor  1: (Temperature) is Ok, value is 39 C
sensor  2: (Temperature) is Absent
sensor  3: (Temperature) is Absent
sensor  4: (Temperature) is Absent
sensor  5: (Temperature) is Ok, value is 26 C
sensor  6: (Temperature) is Ok, value is 27 C
sensor  7: (Fan        ) is Ok, speed is 2537 RPM
sensor  8: (Fan        ) is Ok, speed is 2537 RPM
sensor  9: (Fan        ) is Ok, speed is 2556 RPM
sensor 10: (Power Supply ) is Ok
sensor 11: (Power Supply ) is Absent
sensor 12: (Power Supply ) is Ok
sensor 13: (Power Supply ) is Absent
```

See also

fanShow

tempShow

setDbg

Sets debug level of the specified module.

Synopsis

```
setdbg [module_name] [level]
```

Availability

admin

Description

Use this command to set the debug level of a specified module.

📝 **NOTE:** High debug level values can generate a large volume of messages, degrading the system response time.

Operands

This command has the following operands:

module_name	Specify the name of the module for which you want to view the debug and verbosity levels. Module names are case sensitive. This operand is optional; if omitted, this command displays the debug and verbose level for all modules.
level	Specify the debug level for the specified module (0 to 9). A 0 value (default) specifies that no messages are to display. Higher values cause more messages from that module to display. This operand is optional, if omitted, this command displays the current debug and verbose level of the specified module.

Examples

To set debug level of module named NS to value 3:

```
switch:admin> setdbg NS 3
switch:admin> dbgshow NS
Module NS,      debug level = 3, verbose level = 0
```

See also

dbgShow

setEsdMode

Enables or disables ESD mode.

Synopsis

```
setesdmode [mode | -show]
```

Availability

admin

Description

Use this command to enable or disable ESD mode. The mode is saved in flash 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.

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 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, 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 displays.

Examples

To display the ESD mode:

```
switch:admin> setesdmode -show
Esd Mode is 0 (Disabled).
```

See also

spinSilk

setGbicMode

Enables or disables media mode.

Synopsis

```
setmediamode [mode | -show]

setgbicmode [mode | -show]

setsfpmode [mode | -show]
```

Availability

admin

Description

Use these commands to enable media mode (GBIC or SFP) if the mode value is nonzero and disable the media mode if the mode value is 0. The mode is saved in flash memory and stays in that mode until the next execution of setMediaMode, setSfpMode, or setGbicMode. The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Media mode modifies the behavior of the diagnostic test methods so that ports without media installed are not tested. Normally, tests such as crossPortTest or spinSilk fail if any port is not operating properly, but with media mode enabled, the functional tests are skipped on ports that do not contain media.

Operands

This command has the following operands:

mode	Specify 1 to enable ESD mode, 0 to disable ESD mode. This operand is optional.
-show	Specify this operand to display the current mode setting. This operand is optional.

Examples

To enable, disable, and then display the media mode:

```
switch:admin> setgbicmode 1
GBIC mode is now 1 (Enabled).
switch:admin> setsfpmode 0
SFP mode is now 0 (disabled).
switch:admin> setmediamode -show
Media mode is now 0 (disabled).
```

See also

crossPortTest

itemList

miniCycle

spinJitter

spinSilk

setMediaMode

Enables or disables media mode.

Synopsis

```
setmediamode [mode | -show]

setgbicmode [mode |  -show]

setsfpmode [mode |  -show]
```

Availability

admin

Description

Use these commands to enable media mode (GBIC or SFP) if the mode value is nonzero and disable the media mode if the mode value is 0. The mode is saved in flash memory and stays in that mode until the next execution of setMediaMode, setSfpMode, or setGbicMode. The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Media mode modifies the behavior of the diagnostic test methods so that ports without media installed are not tested. Normally, tests such as crossPortTest or spinSilk fail if any port is not operating properly, but with media mode enabled, the functional tests are skipped on ports that do not contain media.

Operands

This command has the following operands:

mode	Specify 1 to enable ESD mode, 0 to disable ESD mode. This operand is optional.
-show	Specify this operand to display the current mode setting. This operand is optional.

Examples

To enable, disable, and then display the media mode:

```
switch:admin> setgbicmode 1
GBIC mode is now 1 (Enabled).
switch:admin> setsfpmode 0
SFP mode is now 0 (disabled).
switch:admin> setmediamode -show
Media mode is now 0 (disabled).
```

See also

crossPortTest

itemList

miniCycle

spinJitter

spinSilk

setModem

Enables or disables modem dial-in to a control processor (CP).

Synopsis

```
setmodem [-e] | [-d]
```

Availability

admin

Description

Use this command to enable or disable modem dial-in to a CP on those systems that support modem dial-in. When modem dial-in is enabled, you can log in to a CP through a modem, and a modem attached to the CP accepts the call. When modem dial-in is disabled, the modem attached to the CP does not accept the calls. When entered with no operands, the command displays the currently state of modem dial-in.

Modem dial-in must be through a Hayes-compatible modem attached to a CP modem serial port. If the CP is active, the modem is configured to answer an incoming call on the first ring, unless modem dial-in has been disabled with this command. If the CP is standby, the modem is configured to answer an incoming call on the seventh ring, unless modem dial-in has been disabled.

In the recommended configuration, a separate modem is connected to each modem port of CP0 and CP1. These modems connect to the telephone outlet through a RJ-11 Y-adapter and standard telephone wire (see Figure 1).

During an incoming call, both modems ring and the one connected to the active CP answers the call first. If for any reason the active modem fails to answer, the caller is logged in to the standby CP.

When both CP cards are connected to a shared telephone line, callers are automatically dialed in to the active CP card, which answers on the first ring unless modem dial-in has been disabled. If the active CP card cannot answer for any reason, the standby CP card answers on the seventh ring and allows the login to proceed, unless modem dial-in has been disabled.

See the hardware reference manual for your platform for complete modem installation instructions.
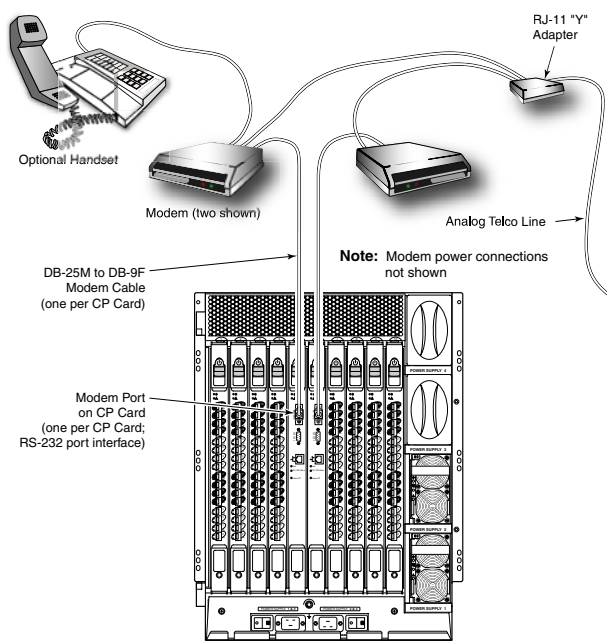
Figure 1 Two modems attached for high availability

Operands

The optional operands are as follows:

-e   Specifies that modem dial-in be enabled.
-d   Specifies that modem dial-in be disabled.

Examples

To disable modem dial-in to a CP:

```
switch:admin> setmodem -d
disabling modem, please wait, this can take a couple of minutes...
modem disabled
```

See also

setSfpMode

Enables or disables media mode.

Synopsis

```
setmediamode [mode | -show]

setgbicmode [mode | -show]

setsfpmode [mode | -show]
```

Availability

admin

Description

Use these commands to enable media mode (GBIC or SFP) if the mode value is nonzero and disable the media mode if the mode value is 0. The mode is saved in flash memory and stays in that mode until the next execution of setMediaMode, setSfpMode, or setGbicMode. The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Media mode modifies the behavior of the diagnostic test methods so that ports without media installed are not tested. Normally, tests such as crossPortTest or spinSilk fail if any port is not operating properly, but with media mode enabled, the functional tests are skipped on ports that do not contain media.

Operands

This command has the following operands:

mode	Specify 1 to enable media mode or 0 to disable media mode. If no mode is specified, the current value is displayed. Any other value will enable media mode.
-show	Specify the -show operand to display the current setting. This operand is optional.

Examples

To enable, disable, and then display the media mode:

```
switch:admin> setgbicmode 1
GBIC mode is now 1 (Enabled).
switch:admin> setsfpmode 0
SFP mode is now 0 (disabled).
switch:admin> setmediamode -show
Media mode is now 0 (disabled).
```

See also

crossPortTest

itemList

miniCycle

spinJitter

spinSilk

setSplbMode

Sets or displays single port loopback (SPLB) mode.

Synopsis

setsplbmode [*mode* | -show]

Availability

admin

Description

Use this command to enable MFG mode if *mode* is a nonzero, and disable SPLB mode if *mode* is 0. The mode is saved in flash memory and stays in that mode until the next execution of setSplbMode. The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

The SPLB mode, when enabled, forces the spinSilk command to disable two-port loopback for M->M connected ports. This might be useful to isolate internal switch problems from SFP problems since the internal paths are used much less with SPLB mode enabled.

Disabling SPLB mode, forces the spinSilk command to circulate frames between pairs of M->M connected ports as follows:

```
P1 TX >>> P1 RX -> P2 TX >>> P2 RX -> P1 TX
```

>>> is a cable or internal loopback.

-> is a routing table entry.

The connections between pairs of M->M ports are chosen to exercise the connections between as many chips (or bloom quadrants) as possible, subject to the setting of allow_intra_chip and the availability of pairs of M->M ports.

Any ports that are cross-cabled are routed to each other in the normal manner, regardless of the setting of SPLB mode:

```
P1 TX >>> P2 RX -> P1 TX
P2 TX >>> P1 RX -> P2 TX
```

Operands

This command has the following operands: :

mode   Specify 1 to enable SPLB mode or 0 to disable SPLB mode. If no mode is specified, the current value is displayed. This operand is optional; if omitted, the command displays the current setting.

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

Examples

To enable or disable a two-port loopback:

```
switch:admin> setsplbmode -show
Splb Mode is 0 (Disabled)
```

See also

spinSilk

setVerbose

Specifies module verbose level.

Synopsis

```
setverbose [module_name] [level]
```

Availability

admin

Description

Use this command to set the verbose level of the specified module. These levels filter the display of the debug messages to the serial console. By default, no debug messages are displayed.

Operands

This command has the following operands:

module_name	Specify the name of the module for which verbose level is to be set; module names are case sensitive.
-level	Specify the verbose level (0 to 9).

Examples

To set the verbose level of a module named NS to value 3:

```
switch:admin> setverbose NS 3
switch:admin> dbgshow NS
Module NS, debug level = 0, verbose level = 3
```

See also

dbgShow

sfpShow

Displays serial ID SFP information.

Synopsis

```
sfpshow [slotnumber/][portnumber] | [-all]
```

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.

NOTE: SFPs are polled by a background process. The sfpShow command retrieves the latest information from cache. The cache values for each SFP are updated when the SFP is hot plugged, when it is removed, or when the Fabric OS polls the SFPs. In the HP StorageWorks Core Switch 2/64, and the SAN Director 2/128 and 4/256, if there is a lot of activity on the switch, poll updates might take several minutes.

Use this command with no operand to display a summary of all SFPs in the switch. The summary displays the SFP type (see switchShow for an explanation of the two-letter codes) and, for serial ID SFPs, 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. Use the -all operand to display detailed information for all available SFPs.

For Finisar smart SFPs, five additional fields appear: module temperature, voltage, received optical power, transmitted optical power (longwave only), and laser diode drive current.

Operands

This command has the following operands:

slotnumber   For bladed systems only, specify the slot number of the port to display, followed by a slash (/).

portnumber   Specify the port number to display, relative to its slot for bladed systems. Use switchShow to list valid ports. This operand is optional; if omitted, this command displays a summary of all SFPs in the switch.

-all   Displays detailed data for all available SFPs on the switch. This operand is not compatible with *slotnumber/portnumber*.

Examples

To display SFP summary information:

```
switch:user> 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: H11QET9
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
(output truncated)
```

To display detailed SFP information for a Finisar smart SFP:

```
switch:user> 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 62.5u: 15    (units 10 meters)
Length Cu:    0     (units 1 meter)
Vendor Name: FINISAR CORP.
Vendor OUI:   00:90:65
Vendor PN:    FTRJ-8519-7D-2.5
Vendor Rev:
Options:      0012 Loss_of_Sig,Tx_Disable
BR Max:       0
BR Min:       0
Serial No:    H11QET9
Date Code:    020429
Temperature: 50 Centigrade
Current:      10634 mAmps
Voltage:      3164.8 mVolts
RX Power:     199.6 uWatts
TX Power:     235.2 uWatts
```

To display all SPF information:

```
switch:user> sfpshow -all
=============
Port  0:
=============
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 km)
Length 9u:   0    (units 100 meters)
Length 50u:  30   (units 10 meters)
Length 62.5u:15   (units 10 meters)
Length Cu:   0    (units 1 meter)
Vendor Name: IBM
Vendor OUI:  08:00:5a
Vendor PN:   IBM42P21SNY
Vendor Rev:  AA10
Wavelength:  0    (units nm)
Options:     001a Loss_of_Sig,Tx_Fault,Tx_Disable
BR Max:      5
BR Min:      5
Serial No:   21P7053164529
Date Code:   01060501
(output truncated)
```

See also

switchShow

shellFlowControlDisable

Disables XON/XOFF flow control on the console serial ports.

Synopsis

```
shellflowcontroldisable
```

Availability

admin

Description

Use this command to disable XON/XOFF flow control on the console serial ports. Flow control is disabled by default.

Because this command changes the flow control on the console serial port, it must be executed from a session that is logged in from the console serial port. This command cannot run from a telnet session.

This setting saves in the configuration database; therefore, persistent across reboots and power cycles.

On dual control processor (CP) systems, a reboot on the standby CP is required for this command to take effect. No action is required on the active CP.

Operands

Examples

To disable flow control:

```
switch:admin> shellflowcontroldisable
Disabling flowcontrol
flow control is now disabled
```

See also

shellFlowControlEnable

shellFlowControlEnable

Enables XON/XOFF flow control to the shell task.

Synopsis

```
shellflowcontrolenable
```

Availability

admin

Description

Use this command to enable XON/XOFF flow control to the shell task. Flow control is disabled by default.

Because this command changes the flow control on the console serial port, it must be executed from a session that is logged in from the console serial port. This command cannot run from a telnet session.

This setting saves in the configuration database; therefore, persistent across reboots and power cycles.

On dual control processor (CP) systems, a reboot on the standby CP is required for this command to take effect. No action is required on the active CP.

⚠ **CAUTION:** If flow control is enabled and if the console output is suspended for an extended period of time, the switch might reboot. HP recommends disabling the flow control, using shellFlowControlDisable.

Operands

Examples

To enable flow control:

```
switch:admin> shellflowcontrolenable
Enabling flowcontrol
flow control is now enabled
```

See also

shellFlowControlDisable

slotOff

Disables a blade slot.

Synopsis

slotoff *slotnumber*

Availability

admin

Description

Use this command to disable a nonfaulty blade unit while leaving the blade unit powered on.

This command disables both the external and internal ports on the blade, in contrast to the bladeDisable command, which only disables external ports. Unlike ports affected by bladeDisable, ports on a slot disabled by this command are not re-enabled after switchEnable, switchStart, or switchReboot.

Operands

This command has the following operand:

slotnumber   Specify the slot number of the blade to disable. This operand is required.

Examples

To power off blade unit 3:

```
switch:admin> slotoff 3
Slot 3 is being disabled.
```

See also

bladeDisable

slotOn

slotShow

slotOn

Enables a blade slot.

Synopsis

```
sloton slotnumber
```

Availability

admin

Description

Use this command to reenable a blade unit that was previously disabled.

Operands

This command has the following operand:

slotnumber   Specify the slot number of the blade to enable. This operand is required.

Examples

To power on blade unit 3:

```
switch:admin> sloton 3
Slot 3 is being enabled.
```

See also

slotOff

slotShow

slotPowerOff

Removes power from a slot.

Synopsis

```
slotpoweroff slotnumber
```

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.

Operands

This command has the following operand:

slotnumber   Specify the slot number of the blade to disable. This operand is required.

Examples

To power off blade unit 3:

```
switch:admin> slotpoweroff 3
Slot 3 is being powered off
```

See also

powerOffListSet

powerOffListShow

slotPowerOn

slotShow

slotPowerOn

Restores power to a slot.

Synopsis

```
slotpoweron slotnumber
```

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. The slotShow command reports such slots as being in the state of INSERTED, NOT POWERED ON.

Operands

This command has the following operand:

slotnumber   Specify the slot number of the blade to enable. This operand is required.

Examples

To power on blade unit 3:

```
switch:admin> slotpoweron 3
Powering on slot 3.
```

See also

slotOn

slotPowerOff

slotShow

slotShow

Displays the status of all slots in the system.

Synopsis

```
slotshow
```

Availability

all users

Description

Use this command to inventory and display the current status of each slot in the system. The fields and their possible values are as follows:

Slot	Displays the physical slot number.
Blade Type	Displays the blade type:

- 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

ID	Displays the hardware ID of the blade type.
Status	Displays the status of the blade:

- 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 (power-on self-test).

- DIAG RUNNING POST2—The blade is present, powered on, and running the POST (power-on self-test).

- ENABLED—The blade is on but the external ports are disabled using bladeDisable.

- 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

Examples

To display a blade inventory and status:

```
switch:admin> slotshow
Slot    Blade Type   ID    Status

--------------------------------
1       SW BLADE     2     FAULTY
2       SW BLADE     2     DISABLED
3       SW BLADE     2     ENABLED
4       SW BLADE     2     DIAG RUNNING POST2
5       CP BLADE     1     ENABLED (User Ports Disabled)
6       CP BLADE     1     ENABLED
7       UNKNOWN            VACANT
8       SW BLADE     2     DIAG RUNNING POST1
9       SW BLADE     2     INSERTED, NOT POWERED ON
10      UNKNOWN            VACANT
```

See also

bladeDisable

bladeEnable

chassisShow

slotOff

slotOn

slotPowerOff

slotPowerOn

slTest

Tests the serial link of port N->N path.

Synopsis

```
sltest [ -ports itemlist ][ -lb_mode mode ][ -speed mode ]
[ -passcnt count ][ -duration count ]
```

Availability

admin

Description

Use this command to verify the intended functional operation of the switch by sending SERDES BIST patterns from port N's transmitter, and looping the patterns back into the same port N's receiver. The loopback is done at the parallel and serial loopback paths. The path exercised in this test can include the media or the fiber cable.

The test patterns are transmitted and received continuously during the test duration. An external cable is optional to run this test.

The test method is as follows:

1. Set all ports present for one of the following modes: parallel, SERDES pads, or external cable loopback.
2. Program the port to repeatedly send predefined LPE.
3. Verify the primitive is received at the same port.
4. Check the receive port for possible code violation on nonframe data or BadOrdSet.
5. Repeat step 2 through step 4 for all ports present until:
   a. The number of -passcnt *count* requested is reached.
   b. All ports are marked bad.

Operands

The optional operands are as follows:

-lb_mode *mode*	Sets the loopback point for the test. By default, slTest uses internal loopback. Available modes are as follows:

1	Port loopback (loopback plugs)
2	External (SERDES) loopback
5	Internal (parallel) loopback
7	Backend bypass and port loopback
8	Backend bypass and SERDES loopback
9	Backend bypass and internal loopback

-speed *mode*	Specifies the speed mode for the test. Available modes are as follows:

1	Runs the test at both 1 Gb/s
2	Sets and locks all port speeds to 2 Gb/s
3	Sets and locks all port speeds to 3 Gb/s
4	Sets and locks all port speeds to 4 Gb/s (default)

-passcnt *count*	Specifies the number of times to perform this test. The default value is 1.

`-duration` *`count`*	Specifies the duration, in milliseconds, to perform this test on the primitive. The default value is 100.
`--ports` *`itemlist`*	Specifies a list of blade ports to test. By default all the blade ports in the specified slot (--slot) is used. See `itemList` for further details.

Examples

To test the serial link of the following port path:

```
switch:admin> sltest -ports 0/5-0/31 -speed 4 -lb_mode 1 passcnt 1
Running Port sltest ....
passed.
```

Diagnostic

When it detects failures, the test might report one or more of the following error messages:

DATA

ERRSTAT

INIT

STATS

TIMEOUT

See also

cmemRetentionTest

crossPortTest

itemList

portRegTest

spinSilk

snmpConfig

Manages the SNMP agent configuration.

Synopsis

```
snmpConfig --show | --set | --default [snmpv1 | snmpv3 | accessControl |
mibCapability | systemGroup]
```

Availability

admin (set, default)

all users (display)

Description

Use this command to manage the configuration of the SNMP agent in the switch. The configuration includes SNMPv1 and SNMPv3 configuration, access control list (ACL) configuration, MIB capability configuration, and system group configuration. It supports set, reset to default, and display operations.

If you issue this command with incomplete parameters, it displays the command usage.

All values successfully changed by this command take effect immediately and are persistent across power cycles and reboots. For dual-domain systems, this command is specific to the SNMP agent associated with the current switch.

SNMPv1 configuration parameters

There are six communities, respective trap recipients, and trap recipient severity levels supported by the agent. The first three communities are for read-write (rw) access and the last three are for read-only (ro) access. The default value for the trap recipient of each community is 0.0.0.0. The length of community string should be in range of 2 to 16 characters. The default values for the community strings are:

Community 1: Secret C0de

Community 2: OrigEquipMfr

Community 3: private

Community 4: public

Community 5: common

Community 6: FibreChannel

> **NOTE:**   When secure mode is enabled, community strings can be changed on the primary FCS switch only and propagate changes across the fabric.

For an SNMP management station to receive a trap generated by the agent, the administrator must configure a trap recipient to correspond to the IP address of the management station. In addition, the trap recipient must be able to pass the ACL check, as described in "accessControl configuration parameters" on page 641.

Trap recipient severity level

The event trap level works in conjunction with an event's severity level. When an event occurs, if its severity level is at or below the set value, the SNMP traps, and event traps (swEventTrap,

connUnitEventTrap, and swFabricWatchTrap), are sent to configured trap recipients. By default, this value is set at 0, implying that no Event Trap is sent. Possible values are:

0	None
1	Critical
2	Error
3	Warning
4	Informational
5	Debug

SNMPv3 configuration parameters

Two user roles, snmpadmin and snmpuser, are supported. snmpadmin provides read-write access and snmpuser provides read-only access. Entries are added to USM table corresponding to each role. A total of three entries of role snmpadmin and three entries of role snmpuser are supported. Separate default passwords are provided for creation of authKey and privKey for each entry. A default set of passwords is published and a default algorithm (MD5/SHA) is used to create initial set of auth keys. You can change these passwords using this option. You have the option to select authentication protocol MD5/SHA or no authentication for each entry.

Select the following combination of protocols:

NoAuth/NoPriv

Auth/NoPriv

Auth/Priv

The length of the user name string should be in range of 2 to 32 characters. Note that the default user names are defined with the noAuth and noPriv protocol. The factory default SNMPv3 user names are:

User 1: snmpadmin1

User 2: snmpadmin2

User 3: snmpadmin3

User 4: snmpuser1

User 5: snmpuser2

User 6: snmpuser3

The user configuration is available in both the secure and nonsecure mode. When the user selects the --default option, the user name and passwords are set to default.

In secure mode, the above configuration has to be updated by the user on both primary and nonprimary switches individually. Unlike community strings, the user name and passwords are not distributed for other switches in the fabric.

When new passwords are entered for any user entry, new authKey and privKey are generated. The administrator must update the new passwords on the client (such as a MIB browser) also. AuthKey and privKey can also be updated using delta key mechanism provided by SNMPv3 protocol.

You are prompted for the password and for re-confirmation of the password, if any protocol is selected other than NoAuth/NoPriv. The length of protocol passwords should be in range of 1 to 20 characters.

Note that in order for an SNMP management station to receive SNMPv3 traps generated by the agent, the administrator must configure a trap recipient value to correspond to the IP address of the management station. Also, the trap recipient should be able to pass the ACL check, as described in "accessControl configuration parameters" on page 641. The trap recipient value should be associated with one of the

six users of SNMPv3 and trap severity level. Note that the factory default value for the SNMPv3 trap recipient of each user is 0.0.0.0.

accessControl configuration parameters

The ACL check is as follows: there are six ACLs to restrict SNMP get/set/trap operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing nonzero IP octets. For example, an ACL of 192.168.64.0 enables access by any host that starts with the specified octets. The connecting host is enabled to set each host-subnet-area to be read-write or read-only. The highest privilege matched out of six entries is given access. The ACL check is turned off when all six entries contain 0.0.0.0. The default values of all six entries are 0.0.0.0.

> **NOTE:** When secure mode is enabled, the Access Control List feature is incorporated into the WSNMP and RSNMP security policies.

mibCapability configuration parameters

This mibCapability option turns on or off certain MIBs and traps.

> **NOTE:** The `agtCfgDefault` command also resets the SNMP MIB and trap capability to default with other SNMP agent configuration.
> If SNMP MIB is disabled, then corresponding traps also are disabled. If any trap group is disabled, then corresponding individual traps also are disabled.
> The FE and SW MIBs are always accessible. `snmpMibCapSet` does not prompt you to turn these MIBs on or off.

mibCapability configuration parameters include the following:

FA-MIB	Specifying `yes` means the user can access FA-MIB variables with an SNMP manager. The default value is `yes`.
FICON-MIB	Specifying `yes` means the user can access FICON-MIB variables with an SNMP manager. The default value is `yes`.
HA-MIB	Specifying `yes` means the user can access Entity-MIB and HA-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`. Users can also turn on or off individual SW traps. The individual SW traps are swFCPortScn, swEventTrap, swFabricWatchTrap, and swTrackChangesTrap.
FA-TRAP	Specifying `yes` means the SNMP management application can receive FA-TRAPS from the switch. The default value is `yes`. Users can also turn on or off individual FA Traps. The individual FA Traps are connUnitStatusChange, connUnitEventTrap, connUnitSensorStatusChange, and connUnitPortStatusChange.
SW-EXTTRAP	Specifying `yes` means the user can receive an SSN in the SW traps. The default value is `no`.
FICON-TRAP	Specifying `yes` means the SNMP management application can receive FICON traps from the switch. The default value is `yes`. Users can also turn on or off individual FICON Traps. The individual FICON Traps are linkRNIDDeviceRegistration, linkRNIDDeviceDeRegistration, linkLIRRListenerAdded, linkLIRRListenerRemoved and linkRLIRFailureIncident.
HA-TRAP	Specifying `yes` means the SNMP management application can receive HA traps from the switch. The default value is `yes`. Users can also turn on or off individual HA Traps. The individual HA Traps are fruStatusChanged, cpStatusChanged, and fruHistoryTrap.

systemGroup configuration parameters

`sysDescr`	System description. The default value is `Fibre Channel Switch`.
`sysLocation`	Location of the system (switch). The default value is `End User Premise`.
`sysContact`	Contact information for this system (switch). The default value is set as `Field Support`. See the definition of sysDescr, sysLocation, and sysContact in system group of MIB-II.
`authTraps`	When enabled, the authentication trap (authenticationFailure) is transmitted to a configured trap recipient in the event that 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).

Operands

This command supports the following operands:

`--show`	Displays the SNMP agent configuration data of the specified category.
`--set`	Sets the SNMP agent configuration data of the specified category. This operand displays the current settings, and then prompts you to change the values for each parameter.
`--default`	Sets the SNMP agent configuration data for a specified item to the default values. Generally, these default values might be available in the configuration database. Factory default settings are set if the SNMP agent configuration parameters are not available in the configuration database.

`--show`, `--set`, and `--default` support the following:

`snmpv1`	Selects SNMPv1-related configuration parameters. SNMPv1 parameters include the community string, trap recipient IP address, and trap severity level associated with each trap recipient IP address.
`snmpv3`	Selects SNMPv3-related configuration parameters. SNMPv3 parameters include user name, authentication protocol and password, SNMPv3 trap recipients IP address, associated user index, and trap severity level.
`accessControl`	Selects access-control-related parameters. accessControl parameters include access host subnet area and access permission (read-write).
`mibCapability`	Selects configuration parameters related to the SNMP agent's MIBs and trap capability parameters. mibCapability parameters include MIBs and traps supported by the SNMP agent.
`systemGroup`	Selects configuration parameters related to the system group. systemGroup parameters include sysDescr, sysLocation, sysContact, and authentication failure trap.

Examples

To change the SNMPv1 configuration:

```
switch:admin> snmpconfig --set snmpv1


SNMP community and trap recipient configuration:
Community (rw): [Secret C0de] admin
Trap Recipient's IP address in dot notation: [0.0.0.0] 10.32.225.1
Trap recipient Severity level : (0..5) [0] 1
Community (rw): [OrigEquipMfr]
Trap Recipient's IP address in dot notation: [10.32.225.2]
Trap recipient Severity level : (0..5) [1]
Community (rw): [private]
Trap Recipient's IP address in dot notation: [10.32.225.3]
Trap recipient Severity level : (0..5) [2]
Community (ro): [public]
Trap Recipient's IP address in dot notation: [10.32.225.4]
Trap recipient Severity level : (0..5) [3]
Community (ro): [common]
Trap Recipient's IP address in dot notation: [10.32.225.5]
Trap recipient Severity level : (0..5) [4]
Community (ro): [FibreChannel]
Trap Recipient's IP address in dot notation: [10.32.225.6]
Trap recipient Severity level : (0..5) [5]
Committing configuration...done.
```

To change the SNMPv3 configuration:

```
switch:admin> snmpconfig --set snmpv3

        SNMPv3 user configuration:
        User (rw): [snmpadmin1] adminuser
        Auth Protocol [MD5(1)/SHA(2)/noAuth(3)]: (1..3) [3] 1
        New Auth Passwd:
        Verify Auth Passwd:
        Priv Protocol [DES(1)/noPriv[2]): (1..2) [2] 1
        New Priv Passwd:
        Verify Priv Passwd:
        User (rw): [snmpadmin2] shauser
        Auth Protocol [MD5(1)/SHA(2)/noAuth(3)]: (1..3) [3] 2
        New Auth Passwd:
        Verify Auth Passwd:
        Priv Protocol [DES(1)/noPriv[2]): (1..2) [2] 1
        New Priv Passwd:
        Verify Priv Passwd:
        User (rw): [snmpadmin3] nosec
        Auth Protocol [MD5(1)/SHA(2)/noAuth(3)]: (1..3) [3]
        Priv Protocol [DES(1)/noPriv[2]): (2..2) [2]
        User (ro): [snmpuser1]
        Auth Protocol [MD5(1)/SHA(2)/noAuth(3)]: (3..3) [3]
        Priv Protocol [DES(1)/noPriv[2]): (2..2) [2]
        User (ro): [snmpuser2]
        Auth Protocol [MD5(1)/SHA(2)/noAuth(3)]: (3..3) [3]
        Priv Protocol [DES(1)/noPriv[2]): (2..2) [2]
        User (ro): [snmpuser3]
        Auth Protocol [MD5(1)/SHA(2)/noAuth(3)]: (3..3) [3]
        Priv Protocol [DES(1)/noPriv[2]): (2..2) [2]


        SNMPv3 trap recipient configuration:
        Trap Recipient's IP address in dot notation: [0.0.0.0]
192.168.45.90
        UserIndex: (1..6) [1]
        Trap recipient Severity level : (0..5) [0] 4
        Trap Recipient's IP address in dot notation: [0.0.0.0]
192.168.45.92
        UserIndex: (1..6) [2]
        Trap recipient Severity level : (0..5) [0] 2
        Trap Recipient's IP address in dot notation: [0.0.0.0]
        Trap Recipient's IP address in dot notation: [0.0.0.0]
        Trap Recipient's IP address in dot notation: [0.0.0.0]
        Trap Recipient's IP address in dot notation: [0.0.0.0]
        Committing configuration...done.
```

To change the accessControl configuration:

```
switch:admin> snmpconfig --set accessControl


    SNMP access list configuration:
    Access host subnet area in dot notation: [0.0.0.0] 192.168.0.0
    Read/Write? (true, t, false, f): [true]
    Access host subnet area in dot notation: [0.0.0.0] 10.32.148.0
    Read/Write? (true, t, false, f): [true] f
    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] 10.33.0.0
    Read/Write? (true, t, false, f): [true] f
    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]
    Committing configuration...done.
```

To display the mibCapability configuration:

```
switch:admin> snmpconfig --show mibCapability
    FE-MIB: YES
    SW-MIB: YES
    FA-MIB: YES
    FICON-MIB: YES
    HA-MIB: YES
    SW-TRAP: YES
        swFCPortScn: YES
        swEventTrap: YES
        swFabricWatchTrap: YES
        swTrackChangesTrap: NO
    FA-TRAP: YES
        connUnitStatusChange: YES
        connUnitEventTrap: NO
        connUnitSensorStatusChange: YES
        connUnitPortStatusChange: YES
    SW-EXTTRAP: NO
    FICON-TRAP: NO
    HA-TRAP: YES
        fruStatusChanged: YES
        cpStatusChanged: YES
        fruHistoryTrap: NO
```

To change the systemGroup configuration to the default:

```
switch:admin> snmpconfig --default systemGroup
    *****

     This command will reset the agent's system group configuration back
to factory default
    *****

                sysDescr = Fibre Channel Switch
            sysLocation = End User Premise
             sysContact = Field Support
               authTraps = 0 (OFF)


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

See also

agtCfgDefault

agtCfgSet

agtCfgShow

snmpMibCapSet

snmpMibCapShow

SW_v5_x.mib, Switch Management Information & Switch Enterprise Specific Trap

RFC1157, A Simple Network Management Protocol (SNMPv1)

RFC1213, Management information Base for Network Management of TCP/IP-based internets: MIB-II

RFC2574, User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)

snmpMibCapSet

Modifies options for configuring SNMP MIB trap capability.

Synopsis

snmpmibcapset

Availability

admin

Description

This command enables a user to turn on or off certain MIBs and traps. This command also enables a user to turn on or off group information and SSN in SW trap messages. It first displays current settings and then prompts the user to change the values for each parameter.

FA-MIB	Specifying yes means the user can access FA-MIB variables with an SNMP manager. The default value is yes.
HA-MIB	Specifying yes means the user can access Entity-MIB and HA-MIB variables with an SNMP manager. The default value is yes.
SW-TRAP	Specifying yes means the SNMP management application can receive SW-TRAPS from the switch. The default value is yes.
FA-TRAP	Specifying yes means the SNMP management application can receive FA-TRAPS from the switch. The default value is yes.
SW-EXTTRAP	Specifying yes means the SNMP management application can receive SW-EXTTRAPS from the switch. The default value is yes.
HA-TRAP	Specifying yes means the SNMP management application can receive HA-TRAPS from the switch. The default value is yes.

Operands

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
  FICON-MIB
  HA-MIB
  SW-TRAP
     swFCPortScn
     swFabricWatchTrap
  FA-TRAP
     connUnitStatusChange
     connUnitSensorStatusChange
  HA-TRAP
     fruStatusChanged
     cpStatusChanged
  FA-MIB (yes, y, no, n): [yes]
  FICON-MIB (yes, y, no, n): [yes] n
  HA-MIB (yes, y, no, n): [yes]
  SW-TRAP (yes, y, no, n): [yes]
     swFCPortScn (yes, y, no, n): [yes]
     swEventTrap (yes, y, no, n): [no]
     swFabricWatchTrap (yes, y, no, n): [yes]
     swTrackChangesTrap (yes, y, no, n): [no] y
  FA-TRAP (yes, y, no, n): [yes] n
  SW-EXTTRAP (yes, y, no, n): [no]
  HA-TRAP (yes, y, no, n): [yes]
     fruStatusChanged (yes, y, no, n): [yes]
     cpStatusChanged (yes, y, no, n): [yes]
     fruHistoryTrap (yes, y, no, n): [no]
```

See also

agtCfgDefault

agtCfgSet

agtCfgShow

snmpMibCapShow

Displays options for configuring SNMP MIB trap capability.

Synopsis

snmpMibCapShow

Availability

all users

Description

Use this command to display the SNMP MIBs and traps capability of the SNMP agent in the switch.

FA-MIB	Specifying `yes` means the user can access FA-MIB variables with an SNMP manager. The default value is `yes`.
FICON-MIB	Specifying `yes` means the user can access FICON-MIB variables with an SNMP manager. The default value is `yes`.
HA-MIB	Specifying yes means the user can access Entity-MIB and HA-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. Users can also turn on or off individual SW Traps. The individual SW traps are swFCPortScn, swEventTrap, swFabricWatchTrap and swTrackChangesTrap.
FA-TRAP	Specifying yes means the SNMP management application can receive FA-TRAPS from the switch. The default value is yes. Users can also turn on or off individual FA Traps. The individual FA Traps are connUnitStatusChange, connUnitEventTrap, connUnitSensorStatusChange and connUnitPortStatusChange.
SW-EXTTRAP	Specifying yes means user can receive SSN in the SW traps. The default value is `no`.
FICON-TRAP	Specifying yes means the SNMP management application can receive FICON traps from the switch. The default value is `yes`. Users can also turn on or off individual FICON Traps. The individual FICON Traps are linkRNIDDeviceRegistration, linkRNIDDeviceDeRegistration, linkLIRRListenerAdded, linkLIRRListenerRemoved and linkRLIRFailureIncident.
HA-TRAP	Specifying yes means the SNMP management application can receive HA traps from the switch. The default value is `yes`. Users can also turn on or off individual HA Traps. The individual HA Traps are fruStatusChanged, cpStatusChanged, and fruHistoryTrap.

> **NOTE:** `agtCfgDefault` also resets the SNMP MIB and trap capability to default along with other SNMP agent configuration.
> The values can be changed, if user download the configuration data through `configDownload` command.
> All the new values successfully configured by `snmpMibCapSet` command takes effect immediately.
> If SNMP MIB is disabled, then the corresponding traps are disabled. If any trap group is disabled then the corresponding individual traps also are disabled.
> The FE and SW MIBs always are accessible. `snmpMibCapSet` does not prompt the user to turn on or off these MIBs.

Operands

Examples

To display the options for configuring SNMP MIB trap capability:

```
switch:admin> snmpmibcapshow
  FE-MIB: YES
  SW-MIB: YES
  FA-MIB: YES
  FICON-MIB: NO
  HA-MIB: YES
  SW-TRAP: YES
      swFCPortScn: YES
      swEventTrap: NO
      swFabricWatchTrap: YES
      swTrackChangesTrap: YES
  FA-TRAP: NO
  SW-EXTTRAP: NO
  HA-TRAP: YES
      fruStatusChanged: YES
      cpStatusChanged: YES
      fruHistoryTrap: NO
```

See also

agtCfgDefault

agtCfgSet

agtCfgShow

snmpConfig

spinFab

Runs functional test of switch-to-switch ISL cabling and trunk group operation.

Synopsis

spinfab [-nmegs *count*][-ports *itemlist*][-setfail *mode*][-domain *value*]

Availability

admin

Description

Use this command to verify the intended functional operation of the ISL links between switches. At the maximum speed of 4 Gb/s, it sets the routing hardware such that test frames received by each E_Port are retransmitted on the same E_Port. Next, it sends several frames to the neighbor port attached to each active E_Port specified. The default action for such frames is to route them back to the sender, which never occurs for normal traffic. The frames 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 are monitored and errors will be generated if a port stops or a low-level error occurs. Every one million frames, the circulating frames are 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 might be verified, as can be the proper in-order delivery operation of any trunk groups present.

The switch remains in normal operation while this test is running; however, some performance degradation occurs due to the ISL links being saturated with test frames. Because of this, you should use caution when running this test on live fabrics. Consider only testing one trunk group or ISL link 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 link-failure isolation. If this test fails, replace the cable with a loop-back plug and run crossPortTest to verify the local switch and media. If these pass, the fault lies in the cable or remote switch and media.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running.

NOTE: When trunk groups are present, the entire trunk group must be included in the range of ports to test or false failures can occur. If multiple ISL links are present between two switches that support trunking, then it is likely that trunk groups are present and all ports between the two switches should be tested at the same time.

Operands

This command has the following operands:

-nmegs *count*	Specify in millions the number of frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value is 10 million frames.
	This command only approximately counts the frames and the actual number of frames sent will be slightly larger, particularly at 2 Gb/s link speeds.
-ports *itemlist*	Specify a list of user ports to test. By default, all of the ISL ports in the current switch will be tested. See itemList help pages for further details.
-setfail *mode*	Instruct spinFab how to mark failed ports. If set to 1, it will mark failing ports as FAILED. If set to 0, it will not mark failed ports as FAILED. It is 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 FAILED in the same manner as other diagnostics. In test or qualification environments without live traffic, this might be useful with large values of -nmegs count. This mode is disabled by default.
-domain *value*	Specify a remote domain to which the switch is connected. The default is to automatically determine the remote domain number. This might not work properly in certain conditions.

Examples

To test cascading ISL links:

```
switch:admin> spinfab -ports 1/0 - 1/2
spinfab running...
spinfab: Completed 11 megs, status:  passed.
        port 0 test status: 0x00000000 --  passed.
        port 1 test status: 0x00000000 --  passed.
        port 2 test status: 0x00000000 --  passed.
Test Complete: "spinfab" Pass 10 of 10
Duration 0 hr, 0 min & 41 sec (0:0:41:877).
passed.
```

Diagnostics

When it detects failures, the test might report one or more of the following error messages:

```
DATA
ERR_STAT
ERR_STATS
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
```

ERR_STAT_2LONG

ERR_STAT_BADEOF

ERR_STAT_BADOS

ERR_STAT_C3DISC

ERR_STAT_CRC

ERR_STAT_ENCIN

ERR_STAT_ENCOUT

ERR_STAT_TRUNC

FINISH_MSG_ERR

INIT

MBUF_STATE_ERR

NO_SEGMENT

PORT_ABSENT

PORT_DIED

PORT_ENABLE

PORT_M2M

PORT_STOPPED

PORT_WRONG

RXQ_RAM_PERR

STATS

STATS_C3FRX

STATS_FRX

STATS_FTX

TIMEOUT

XMIT

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

camTest

centralMemoryTest

cmemRetentionTest

cmiTest

crossPortTest

itemList

portLoopbackTest

spinSilk

sramRetentionTest

spinJitter

Measures line-speed jitter.

Synopsis

    spinjitter [--slot number] [-nmegs count] [-lb_mode mode] [-spd_mode mode]
    [-ports itemlist]

Availability

admin

Description

This test uses the same procedures as spinSilk but with a special pattern for line-speed jitter measurement. The test uses the following pattern:

    jCRPAT   be d7 23 47 6b 8f b3 14 5e fb 35 59 be d7 23 47

For details about the procedures used in this test, see spinSilk.

Options

The following are optional:-

-slot number	Specifies the slot number on which the diagnostic operates. The ports specified are relative to this slot number. The default is set to 0 and designed to operate on fixed-port-count products.
-nmegs count	Specifies the number of frames to send in millions. The test progresses until the specified number of frames transmits on each port. The default value is 10, which represents 10 million frames.
-lb_mode mode	Select the loopback point for the test. By default, spinJitter uses port loopback.

0	Cable loopback
1	Port loopback (loopback plugs)
2	External (SERDES) loopback
3	Silkscreen loopback
5	Internal (parallel) loopback

-spd_mode mode	Specifies the speed mode for the test. This parameter is used for Bloom and Condor ASIC-based products only, for which it controls the speed at which each port operates. For 1G-only products, this parameter is ignored. The exact operation of modes 5 through 8 depends on the loopback mode selected. When speed modes 5 through 8 are used with cables, they must be connected EVEN->ODD or the test fails.

0	Run test at 1 Gb/s, 2 Gb/s, and 4 Gb/s.
1	Run test at 1 Gb/s.
2	Run test at 2 Gb/s. (Bloom default)
4	Run test at 4 Gb/s. (Condor default)

For `-lb_mode` set to `0,1`, the following speed modes are available to test the speed negotiation.

3	Set all even ports' speed for autonegotiate. Set all odd ports' speed for 1 Gb/s.
4	Set all even ports' speed for autonegotiate. Set all odd ports' speed for 2Gb/s.
5	Set all odd ports' speed for autonegotiate. Set all even ports' speed for 1 Gb/s.
6	Set all odd ports' speed for autonegotiate. Set all even ports' speed for 2 Gb/s.

For `-lb_mode` set to `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.

-ports *itemlist*	Specifies a list of user ports to test. By default, all the user ports in the specified slot (--slot) will be used. See itemList for further details.

Examples

To measure line-speed jitter:

```
switch:admin> spinjitter -ports 1/0 - 1/2
Running SpinJitter ............
One moment please ...Ports Segmented (0)
switchName:     SW12000A
switchType:     10.1
switchState:    Offline
switchRole:     Disabled
switchDomain:   1 (unconfirmed)
switchId:       fffc01
switchWwn:      10:00:00:60:69:80:03:0c
switchBeacon:   OFF
blade1: Beacon: OFF
blade2: Beacon: OFF
blade3: Beacon: OFF
blade4: Beacon: OFF


Area Slot Port Gbic Speed State
=================================
  0    1    0   id   2G   Online    Testing  ......
  1    1    1   id   2G   Online    Testing  ......
  2    1    2   id   2G   Online    Testing  ......
(output truncated)
```

Diagnostics

When it detects failures, the test might report one or more of the following error messages:

```
DATA
EPI1_STATUS_ERR
ERR_STAT
ERR_STATS
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
ERR_STAT_BADOS
ERR_STAT_C3DISC
ERR_STAT_CRC
ERR_STAT_ENCIN
ERR_STAT_ENCOUT
ERR_STAT_TRUNC
FDET_PERR
FINISH_MSG_ERR
FTPRT_STATUS_ERR
INIT
LESSN_STATUS_ERR
MBUF_STATE_ERR
MBUF_STATUS_ERR
NO_SEGMENT
PORT_ABSENT
PORT_DIED
PORT_ENABLE
PORT_M2M
PORT_STOPPED
PORT_WRONG
RXQ_FRAME_ERR
RXQ_RAM_PERR
STATS
STATS_C3FRX
STATS_FRX
STATS_FTX
TIMEOUT
XMIT
```

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

backport

camTest

centralMemoryTest

cmemRetentionTest

cmiTest

crossPortTest

itemList

portLoopbackTest

portRegTest

spinSilk

sramRetentionTest

spinSilk

Performs a functional test of internal and external transmit and receive paths.

Synopsis

spinsilk [-nmegs *count*][-lb_mode *mode*][-spd_mode *mode*][-verbose *mode*][-ports *itemlist*]

Availability

admin

Description

Use this command to verify the intended functional operation of the switch, at the selected speed, by configuring the routing hardware so that frames received by port M are retransmitted by way of port N. Likewise, frames received by port N are retransmitted by way of port M. Each port M sends one frame to its partner port N.

The partner port N for each port M is determined by the external Fibre Channel cable connections, if present. If self-loopback plugs are used, the system assigns a set of partner ports to optimize test coverage. In this case, it is possible for each port to have up to 10 partner ports rather than a single partner selected by the cables.

The cables can connect to any port combination with the condition that the cables and media connected are of the same technology; for instance, a short-wavelength media port connects to another short-wavelength media port by way of a short-wavelength cable, a long-wavelength port connects to a long-wavelength port, and a copper port connects to a copper port.

For the best coverage, use self-loopback plugs, as each port exchanges frames with up to 10 other predetermined ports. Frames are exchanged with a selected port from the ASIC (0-0, 0-1, 0-2, 0-3, and so forth), mirrored on the port on the next ASIC (0-4, 0-8, and so forth), and mirrored on the port on the next blade, where applicable (0-16, 0-32, and so forth). An error is reported if there are missing plugs.

If you want to use cables instead, the ports connected should be from different ASICs. Ports 0 through 3 belong to ASIC 0, ports 4 through 7 belong to ASIC 1, and so forth. A connection from port 0 to port 15 exercises the transmit path between ASICs. A connection from port 0 to port 3 tests only the internal transmit path in ASIC 0.

📝 **NOTE:** If loopback modes 0 (cable) or 1 (loopback plug, default) are selected, you must have the appropriate termination on all tested ports. If not, the ports without the correct termination do not achieve synchronization, and the test fails.

The frames are transmitted and received continuously in all ports in parallel. The port LEDs flicker green rapidly 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 or self-loopback mode.

3. Configure the routing table such that when port M receives frames, they are routed back to the partner port N, and vice versa.

4. Transmit one frame through port M. The frame used is one of the following:
   - 2112 bytes of BYTE_LFSR
   - 1000 bytes of CSPAT

- 128 bytes of RANDOM
- 512 bytes of RDRAM_PAT

The partner port N eventually sends four similar frames, as follows:

- 2112 bytes of BYTE_LFSR
- 928 bytes of CSPAT
- 200 bytes of RANDOM
- 480 bytes of RDRAM_PAT

5. Periodically check the following:

    a. No port has died.

    b. Each port's frames-transmitted counter is still incrementing.

    c. Each port's statistic error counters is nonzero—ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out, BadOrdSet, DiscC3—until one of the following is met:

    - The number of million frames requested per port is met.

    - All ports are eventually marked bad.

    - You send a keyboard (or button) interrupt to abort.

The data is not read and checked, as with the portLoopbackTest and crossPortTest commands. There is no CPU intervention besides the periodic checks of the hardware counters.

An example of the data used is as follows:

```
CSPAT:       0x7e, 0x7e, 0x7e, 0x7e, ...
BYTE_LFSR:   0x69, 0x01, 0x02, 0x05, ...
RANDOM:      0x25, 0x7f, 0x6e, 0x9a, ...
RDRAM_PAT:   0xff, 0x00, 0xff, 0x00, ...
```

Because this test includes the media and the fiber cable in its test path, its results, combined with the results of portLoopbackTest, can be used to determine which components of the switch are faulty.

Operands

This command has the following operands:-

-nmegs *count*	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 test result might display that more, but not less, frames have been transmitted on some ports. The default value is 10, so the number of frames sent will be at least 10 million.
-lb_mode *mode*	Specify the loopback point for the test. By default, spinSilk uses loopback plugs as described earlier; however, for debugging 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	Internal (parallel) loopback

-spd_mode *mode*	Specify the speed mode for the test. This parameter is used only for Bloom and Condor ASIC-based 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 5 through 8 depends upon the loopback mode selected. When speed modes 5 through 8 are used with cables, they must be connected EVEN to ODD or the test will fail.

0	Run test at 1 Gb/sec, 2 Gb/sec, and 4 Gb/sec.
1	Run test at 1 Gb/sec.
2	Run test at 2 Gb/sec (Bloom default).
4	Run test at 4 Gb/sec (Condor default).

For -lb_mode set to 0 or 1, the following speed modes are available to test the speed negotiation:

3	Set all even ports' speed to auto-negotiate; set all odd ports' speed to 1 Gb/sec.
4	Set all even ports' speed to auto-negotiate; set all odd ports' speed to 2 Gb/sec.
5	Set all odd ports' speed to auto-negotiate; set all even ports' speed to 1 Gb/sec.
6	Set all odd ports' speed to auto-negotiate; set all even ports' speed to 2 Gb/sec.

For -lb_mode set to 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 to 1 Gb/s.
4,6	Set all even ports' speed for 1 Gb/s. Set all odd ports' speed to 2 Gb/s.

--verbose *mode*	Specify a nonzero value to display more detailed information during the test. This mode should be used for debugging purposes.
-ports *itemlist*	Specify a list of user ports to test. By default, all of the user ports in the current switch are tested. This option might be used to restrict testing to the specified ports.

Examples

To perform a functional test on selected ports:

```
switch:admin> spinsilk -ports 1/0 - 1/2
Running Spin Silk .............
One moment please ...Ports Segmented (0)
switchName:     switch
switchType:     10.1
switchState:    Offline
switchRole:     Disabled
switchDomain:   1 (unconfirmed)
switchId:       fffc01
switchWwn:      10:00:00:60:69:80:03:0c
switchBeacon:   OFF
blade1: Beacon: OFF
blade2: Beacon: OFF
blade3: Beacon: OFF
blade4: Beacon: OFF


Area Slot Port Gbic Speed State
===================================
  0    1    0   id   2G   Online    Testing  ......
  1    1    1   id   2G   Online    Testing  ......
  2    1    2   id   2G   Online    Testing  ......
(output truncated)
```

Diagnostics

Following are the possible error messages if failures are detected:

```
DATA
EPI1_STATUS_ERR
ERR_STAT
ERR_STATS
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
ERR_STAT_BADOS
ERR_STAT_C3DISC
ERR_STAT_CRC
ERR_STAT_ENCIN
ERR_STAT_ENCOUT
```

```
ERR_STAT_TRUNC

FDET_PERR

FINISH_MSG_ERR

FTPRT_STATUS_ERR

INIT

LESSN_STATUS_ERR

MBUF_STATE_ERR

MBUF_STATUS_ERRBAR>

NO_SEGMENT

PORT_ABSENT

PORT_DIED

PORT_ENABLE

PORT_M2M

PORT_STOPPED

PORT_WRONG

RXQ_FRAME_ERR

RXQ_RAM_PERR

STATS

STATS_C3FRX

STATS_FRX

STATS_FTX

TIMEOUT

XMIT
```

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

backport

camTest

centralMemoryTest

cmemRetentionTest

cmiTest

crossPortTest

itemList

portLoopbackTest

portRegTest

spinJitter

sramRetentionTest

sramRetentionTest

Performs a data retention test of the miscellaneous SRAMs in ASIC.

Synopsis

sramretentiontest [--slot *slotnumber*][-passcnt *count*][-ports
itemlist][-skip *bitmask*][-delay *value*]

Availability

admin

Description

Use this command to verify that data written into the miscellaneous SRAMs in the ASIC are retained after
a 10-second wait. The method used is to write a fill pattern to all SRAMs, wait 10 seconds, and then read
all SRAMs, checking that the data read matches the data previously written. The test is repeated using the
inverted version of the pattern. The test will use four QUAD_FILL patterns and one QUAD_RAMP pattern
with random seed. The first four QUAD_FILL patterns are:

    0xffffffff
    0x55555555
    0x33333333
    0x0f0f0f0f

For details about the patterns used in diagnostic tests, see the dataTypeShow command.

> **NOTE:** The sramRetentionTest command cannot be executed on an operational switch. You must
> first disable the switch using the switchDisable command.

Operands

This command has the following operands:

--slot *slotnumber*	Specify the number of the slot on which the diagnostic operates. The ports specified are relative to this slot number. The default is set to 0 and designed to operate on fixed-port-count products.
-passcnt *count*	Specify the number of times to execute this test. The default value is 1.
-ports *itemlist*	Specify a list of blade ports to test. By default, all the blade ports in the specified slot are used. See itemList for more details.
-skip *bitmask*	Specify patterns to omit in the test. This command uses the data patterns described in the section above by default. Using this option, you can intentionally omit one or more patterns, if needed.
-delay *value*	Specify the delay between the read and write, in seconds. The default value is 10 seconds.

Examples

To run a data retention test:

```
switch:admin> sramretentiontest 2
Running SRAM Retention Test ... passed.
```

Diagnostics

Following are the possible error messages if failures are detected:

    BUS_TIMEOUT

    REGERR

    REGERR_UNRST

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

camTest

centralMemoryTest

cmiTest

crossPortTest

dataTypeShow

itemList

portLoopbackTest

spinSilk

statsClear

Clears port and diagnostic statistics.

Synopsis

```
statsclear [--slot slotnumber][-uports itemlist][-bports itemlist]
[-use_bports value]
```

Availability

admin

Description

Use this command to clear the port and diagnostics statistics for the specified list of blade or user ports.

Options

The following are optional:

--slot *slotnumber*	Specifies the slot on which to operate. If this option is not specified, the default slot is assumed. The default slot is 0 and designed to operate on fixed-port-count products, if -use_bports is set to a nonzero value.
-uports *itemlist*	Specifies the list of user ports to clear.
-bports *itemlist*	Specifies the list of blade ports to clear.
-use_bports *value*	If value is nonzero, the diagnostics statistics for the blade ports specified in use-bports are cleared; otherwise, the user ports specified in -uports clears. The default value is 0.

Examples

To clear port and diagnostic statistics:

```
switch:admin> statsclear -bports 1/10-1/62 -use_bports 1
```

See also

itemList

statsTest

Runs a statistics counter diagnostic test.

Synopsis

```
statstest [-passcnt count][-ports itemlist]
```

Availability

admin

Description

Use this command to verify the ASIC statistics counter logic. It can run on every base port of the quadrant, and send the frame through internal loopback with no CRC data to induce the CRC error. This command is also run from `camTest`.

This test covers the following statistics counter functionality:

- The number of received frames with CRC errors that matched the SID-DID pair specified in the LINK table. There are 16 of these statistics counters (0-15).

- The number of received words in frames that matched the SID-DID pair specified in the LINK table. There are 16 of these statistics counters (0-15).

- The number of transmitted words in frames that matched the SID-DID pair specified in the LINK table. There are 16 of these statistics counters (0-15).

- The number of frames with CRC error that matched the corresponding ALI (0-127), respectively.

This command cannot be executed on an operational switch. You must first disable the switch using the `switchDisable` command.

📝 **NOTE:** There is a *link* table that stores 16 pairs of SID-DID address. Each of the SID-DID pairs is named a *link*. This table is used for gathering statistics that match the *link*.
This command is not supported on HP StorageWorks 4/8, 4/16, or 4/32 SAN switches and 4/256 SAN Director; use miniCycle or portLoopbackTest instead.

Operands

This command has the following optional operands:

`-passcnt count`	Specify the number of times to perform this test. The default value is 1.
`-ports itemlist`	Specify a list of user ports to run the test. If omitted, all the user ports in the switch are assumed. See `itemList` for more information about selecting ports.

Examples

To run a statistics counter test on a switch:

```
switch:admin> statstest -passcnt 1 -ports 1/0-15
Running Statistics Counter Test ....... passed.
```

Diagnostics

When it detects failures, the subtest reports one or more of the following error messages:

```
DIAG-STSINIT
DIAG-STSNULL
DIAG-STSSID
DIAG-STSXMIT
DIAG-STSRCV
DIAG-STSFRMCNT
DIAG-STSWRDCNT
DIAG-STSALPACNT
```

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

camTest

itemList

stopPortTest

Terminates the running portTest.

Synopsis

```
stopporttest [-ports itemlist]
```

Availability

admin

Description

Use this command to stop the currently running portTest. See the portTest command for more information.

If portTest is running in nonsingle mode, use stopporttest to stop the test.

Operands

The command has the following operands:

-ports *itemlist*   Specify a list of user ports to test. By default, all the user ports in the switch are tested. See itemList help pages for further details.

Examples

To stop the portTest command:

```
switch:admin> stopporttest
```

See also

crossPortTest

fportTest

loopPortTest

portLoopbackTest

portTest

portTestShow

spinFab

supportFtp

Sets, clears, or displays support FTP parameters, or a time interval to check the FTP server.

Synopsis

```
supportftp [-S]

supportftp -s [-h hostip] [-u username] [-p password] [-d remotedirectory]

supportftp -t hours

supportftp -R
```

Availability

admin

Description

Use this command to set, clear, or display support FTP parameters or a time interval to check the FTP server.

> **NOTE:** If there is no parameter specified, this command defaults to supportFtp -S.

Operands

This command has the following mutually exclusive operands:

--S		Displays FTP parameters.
--s	Sets the FTP parameters. -s has the following optional operands:	
	h hostip	Specifies the FTP host IP address. It must be an IP address. hostip should be less than 48 characters.
	-u username	Specifies the FTP user name. username should be less than 48 characters.
	-p password	Specifies the FTP user password. If the user name is anonymous, the password is not needed. password should be less than 48 characters.
	-d remotedirectory	Specifies the remote directory in which to store trace dump files. supportFtp cannot take a slash (/) as a directory name. remotedirectory should be less than 48 characters.
--t	Sets the time interval at which to check the FTP server. -t has the following required operands:	
	hours	Checks the connectivity of the FTP server at the indicated time interval (in hours).
-R	Clears FTP parameters.	

Examples

To set the FTP parameters:

```
switch:admin> supportftp -s -h 192.168.67.126 -u anonymous -d tracedump
supportftp: ftp parameters changed.
```

To display a time interval at which to check the FTP server:

```
switch:admin> supportftp -t 24
supportftp: ftp check period changed.
```

See also

supportSave

supportShow

traceDump

traceFtp

traceTrig

supportSave

Saves support information for RASLOG, TRACE, and supportShow.

Synopsis

```
supportsave [-n] [-c] [-u user_name -p password] -h host_ip -d remote_dir
```

Availability

admin

Description

Use this command to save RASLOG, TRACE, and supportShow information and other support information to a remote FTP location. On a dual-CP system, only the local CP information is saved and supportShow information is not available on the active CP. If no operands are specified, this command enters interactive mode. The following output files are generated:

RASLOG	*chassisname-slot-YYYYMMDDHHMM*-errDumpAll.ss
TRACE	*chassisname-slot-YYYYMMDDHHMM*-tracedump.dmp
supportShow	*chassisname-slot-YYYYMMDDHHMM*-supportShow
Zone log	*chassisname-slot-YYYYMMDDHHMM*-zone.ss
RCS command log	*chassisname-slot-YYYYMMDDHHMM*-rcscmd.ss
NS event log	*chassisname-slot-YYYYMMDDHHMM*-ns.ss

Logs are saved in the specified remote directory.

Also, this command reminds you whether or not a new trace dump needs to be generated manually before you run supportSave.

Operands

The operands are as follows:

-n   Does not prompt you for confirmation. This operand is optional; if omitted, you are prompted for confirmation.

-c   Uses the FTP parameters saved by the command supportFtp. This operand is optional; if omitted, specify the FTP parameters through command line options or interactively. To display the current FTP parameters, run supportFtp (on a dual-CP system, run supportFtp on the active CP).

> **NOTE:** The -c operand is mutually exclusive with -u, -p, -h, and -d.

-u *user_name*   Specifies the user name for the FTP server. This operand is optional; if omitted, anonymous FTP is used.

-p *password*   Specifies the password for the FTP server. This operand is optional; if omitted, anonymous FTP is used.

-h *host_ip*   Specifies the IP address for the FTP server.

-d *remote_dir* Specifies the remote directory for the FTP server.

Examples

To save RASLOG, TRACE, and supportShow information to an FTP server in non-interactive mode:

```
switch:admin> supportsave -n -u admin -p pass -h 192.168.1.1 -d tmp

Saving support information for module RASLOG...

...ortSave_files/switch-S5-200405200010-errDumpAll.ss:     1.66 kB
566.47 B/s

Saving support information for module TRACE...

...ortSave_files/switch-S5-200405200010-tracedump.dmp:   10.00 MB
848.00 kB/s

Saving support information for module SUPPORTSHOW...

...rtSave_files/switch-S5-200405200014-supportShow.ss:     1.11 MB
346.39 kB/s
```

To save RASLOG, TRACE, and supportShow information to an FTP server in interactive mode on a dual-CP system:

```
switch:admin> supportsave


This command will collect RASLOG, TRACE, supportShow and other support
information and then transfer them to a FTP server. Only the local CP's
information will be saved

and supportShow information is only available on the Active CP. This
operation

can take several minutes. OK to proceed? (yes, y, no, n): [no] y


Host IP: 192.168.1.1


User Name: admin


Password:


Remote Directory: tmp


Saving support information for module RASLOG...


...ortSave_files/switch-S5-200405200010-errDumpAll.ss:     1.66 kB
566.47 B/s


Saving support information for module TRACE...


...ortSave_files/switch-S5-200405200010-tracedump.dmp:   10.00 MB
848.00 kB/s


Saving support information for module SUPPORTSHOW...


...pportSave_files/switch-S5-200405200014-supportShow:     1.11 MB
346.39 kB/s
```

See also

supportFtp

supportShow

traceDump

traceFtp

traceTrig

supportShow

Prints switch information for debugging purposes.

Synopsis

```
supportshow [[slotnumber/]portnumber1-portnumber2] [lines]
```

Availability

all users

Description

Use this command to display support information from groups of preselected Fabric OS and Linux commands. You can specify the range of ports for which this information displays. These commands are organized by groups, but note that the order of the groups listed next is not the same as executed by the command.

See , for more information.

The commands can be arranged in groups, as follows:

- OS (ENABLED by default; Linux® commands are not documented in this manual)

  - mii-tool
  - du
  - ps
  - rpm
  - dmesg
  - fstab
  - mtab
  - various proc entries
  - find core files
- exception (ENABLED by default)

  - errDump
  - pdShow
- port (ENABLED by default)

  - diagShow (per-slot)
  - portShow (per-slot)
  - portLoginShow (per-slot)
  - portRegTest (per-slot)
  - portRouteShow (per-slot)
- fabric (ENABLED by default)

  - fabricShow
  - islShow
  - trunkShow
  - topologyShow
  - lSDbShow
  - ess show
  - fabStateResize
  - fabSwitchShow

- fabPortShow
- fspfShow
- fcpLogShow
- zone stateshow
- portZoneShow
- portCamShow
- cfgShow
- cfgSize
- rcssmshow
- rcsregistryshow
- zone mergeshow

- services (ENABLED by default)

  - fdmiCacheShow
  - fdmiShow
  - nsShow
  - nsAllShow
  - nscamShow

- security (ENABLED by default)

  - authUtil
  - secFabricShow
  - secGlobalShow
  - secModeShow
  - secStatsShow

- network (ENABLED by default)

  - bootenv
  - df
  - ifconfig
  - route
  - hostname

- portlog (ENABLED by default)

  - portLogDump

- system (ENABLED by default)

  - myId
  - version
  - firmwareShow
  - upTime
  - switchStatusShow
  - switchShow
  - haDump (includes haShow and ipAddrShow)
  - tempShow
  - sensorShow
  - psShow
  - licenseShow
  - portFlagsShow
  - portCfgShow

- portErrShow
- fwSamShow
- agtCfgShow
- slotShow (product-dependent)
- emtraceshow
- emtraceshow2
- emhsmtraceshow
- systraceshow -d
- fwAlarmsFilterShow
- chassisShow
- timeout
- historyShow
- portSwapShow
- configShow
- extend (DISABLED by default)

  - buffers (per-port)
  - credits (per-port)
  - data (per-port)
  - phantom (per-port)
  - properties (per-port)
  - statistics (per-port)
- filter (DISABLED by default; this group has lengthy output)

  - filterportshow (per-port)
- perfmon (DISABLED by default)

  - ps_dump (per-port; this group has lengthy output)
- ficon (DISABLED by default; this group has lengthy output)

  - ficoncupshow fmsmode
  - ficoncupshow modereg
  - ficonDbg dump rnid
  - ficonDbg log
  - ficonShow ilir
  - ficonShow lirr
  - ficonShow rlir
  - ficonShow rnid
  - ficonShow switchrnid
  - ficucmd dump -A

Operands

This command has the following operands:

slotnumber/portnumber1 -portnumber2	Specify the range of ports to display. If the *slotnumber/portnumber* parameter is omitted, all ports in the switch display in the per-port outputs. The *slotnumber* must be provided when specifying a range of ports on multi-bladed products.

| *lines* | Specifies the number of lines of portLogDump output to display. If this parameter used, the *slotnumber/portnumber* parameter is required. |

Example

To display switch information for debugging:

```
switch:admin> supportshow 1/1-3
supportshow groups enabled: system
version:
Kernel:     2.4.19
Fabric OS:  v4.1.0
Made on:    Fri Jan 10 01:06:10 2003
Flash:      Thu Jan 17 00:06:52 2003
BootProm:   3.2.1

uptime:
 10:49am  up  3:25,  1 user,  load average: 1.55, 1.20, 1.11

switchshow:
switchName:     Ulysses2
switchType:     10.1
switchState:    Online
switchMode:     Native
switchRole:     Principal
switchDomain:   1
switchId:       fffc01
switchWwn:      10:00:00:60:69:80:03:0c
zoning:         OFF
switchBeacon:   OFF
blade1 Beacon:  OFF
blade2 Beacon:  OFF
blade4 Beacon:  OFF

Area Slot Port Media Speed State
===================================
  0    1    0   id    N2   Online    Loopback->Slot  1 Port  0
  1    1    1   id    N2   Online    Loopback->Slot  1 Port  1
  2    1    2   id    N2   Online    Loopback->Slot  1 Port  2
  3    1    3   id    N2   Online    Loopback->Slot  1 Port  3
  4    1    4   id    N2   Online    Loopback->Slot  1 Port  4
  5    1    5   id    N2   Online    Loopback->Slot  1 Port  5
  6    1    6   id    N2   Online    Loopback->Slot  1 Port  6

(output truncated)
```

See also

supportFtp

supportSave

supportShowCfgDisable

supportShowCfgEnable

supportShowCfgShow

traceDump

traceFtp

traceTrig

supportShowCfgDisable

Disables a group of commands under the supportShow command.

Synopsis

supportshowcfgdisable [os | exception | port | fabric | services | security
| network | portlog | system | extend | filter | perfmon | ficon]

Availability

admin

Description

Use this command to disable a group of commands under the supportShow command. Use the
supportShowCfgEnable command to enable groups of commands. See "supportShow reference" on
page 789, for more information.

Operands

This command has the following operands:

os	Disables the OS group commands
exception	Disables the exception group commands
port	Disables the port group commands
fabric	Disables the fabric group commands
services	Disables the service group commands
security	Disables the security group commands
network	Disables the network group commands
portlog	Disables the portlog group commands
system	Disables the system group commands
extend	Disables the extend group commands
filter	Disables the filter group commands
perfmon	Disables the Performance Monitor group commands
ficon	Disables the FICON group commands

Examples

To disable the OS group of commands under the supportShow command:

```
switch:admin> supportshowcfgdisable os
Config update Succeeded
```

See also

supportShow

supportShowCfgEnable

supportShowCfgShow

supportShowCfgEnable

Enables a group of commands under the supportShow command.

Synopsis

```
supportshowcfgenable [os | exception | port | fabric | services | security |
network | portlog | system | extend | filter | perfmon | ficon]
```

Availability

admin

Description

Use this command to enable a group of commands under the supportShow command. Use the supportShowCfgDisable command to disable groups of commands.

See "supportShow reference" on page 789, for more information.

Operands

This command has the following operands:

os	Enables the OS group commands
exception	Enables the exception group commands
port	Enables the port group commands
fabric	Enables the fabric group commands
services	Enables the service group commands
security	Enables the security group commands
network	Enables the network group commands
portlog	Enables the portlog group commands
system	Enables the system group commands
extend	Enables the extend group commands
filter	Enables the filter group commands
perfmon	Enables the Performance Monitor group commands
ficon	Enables the FICON group commands

Examples

To enable a group of commands under the supportShow command:

```
switch:admin> supportshowcfgenable os
Config update Succeeded
```

See also

supportShow

supportShowCfgDisable

supportShowCfgShow

supportShowCfgShow

Displays the groups of commands enabled for display by the supportShow command.

Synopsis

    supportshowcfgshow

Availability

all users

Description

Use this command to display the groups of commands enabled for display by the supportShow command. Use the supportShowCfgEnable and the supportShowCfgDisable commands to modify which groups are displayed.

See "supportShow reference" on page 789, for more information.

Operands

Examples

To display which groups of commands are enabled in the supportShow command:

```
switch:admin> supportshowcfgshow
 os          enabled
 exception   enabled
 port        enabled
 fabric      enabled
 services    enabled
 security    enabled
 network     enabled
 portlog     enabled
 system      enabled
 extend      disabled
 filter      disabled
 perfmon     disabled
 ficon    disabled
```

See also

supportShow

supportShowCfgDisable

supportShowCfgEnable

switchBeacon

Sets switch beaconing mode on or off.

Synopsis

```
switchbeacon [mode]
```

Availability

admin

Description

Use this command to enable or disable switch beaconing mode.

When beaconing mode is turned on, the port LEDs flash amber, left to right and right to left, which continues until turned off by the user. The pattern continues until the user turns it off. This can be used to beckon the user to a failing unit, for example.

Beaconing mode affects only the port LEDs. Other commands are still executable and functional. The normal flashing LED pattern (associated with an active, faulty, or disabled port) is suppressed and the beaconing pattern is shown. However, if diagnostic frame-based tests (portLoopbackTest, crossPortTest, and spinSilk) are executed, two patterns are interleaved. The diagnostic test flickers the LEDs green and simultaneously the beaconing mode runs the LEDs amber.

Use the switchShow command to display the status of beaconing.

Operands

This command has the following operand:

mode	Specify 1 to enable beacon mode or 0 to disable beacon mode. This operand is optional. If no operand is specified, the current value is displayed.

Examples

To turn beaconing mode on:

```
switch:admin> switchbeacon 1
```

To turn beaconing mode off:

```
switch:admin> switchbeacon 0
```

See also

switchShow

switchCfgPersistentDisable

Disables a switch persistently.

Synopsis

```
switchcfgpersistentdisable
```

Availability

admin

Description

Use this command to persistently disable the switch. All Fibre Channel ports are taken offline. If the switch was part of a fabric, the remaining switches reconfigure. The switch remains disabled even after a reboot.

The disable process can be observed and verified by watching the front panel LEDs change to slow flashing yellow as each port is disabled.

A persistently disabled switch can be temporarily enabled using the switchEnable command. A temporarily enabled switch remains disabled after a reboot.

> **NOTE:** Performance Monitoring cannot be added to any port on a persistently disabled switch.

Operands

Examples

To disable a switch persistently:

```
switch:admin> switchcfgpersistentdisable
```

See also

switchDisable

switchEnable

switchCfgPersistentEnable

switchShow

switchCfgPersistentEnable

Enables a switch persistently.

Synopsis

```
switchcfgpersistentenable
```

Availability

admin

Description

Use this command to persistently enable the switch. All Fibre Channel ports which did not fail power-on self-test (POST) are enabled, and can come online if connected to a device, or remain offline if disconnected. The switch might 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. After 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.

The enable process can be observed and verified by watching the front panel LEDs change from slow flashing yellow as each port is enabled. The LEDs change to green for online ports, or can remain black for disconnected ports, or yellow for ports that do not initialize.

Operands

Examples

To configure the switch as persistently enabled:

```
switch:admin> switchCfgPersistentEnable
 10  9  8  7  6  5  4  3  2  1
 fabric: Principal switch
 fabric: Domain 1
```

See also

switchDisable

switchEnable

switchCfgPersistentDisable

switchShow

switchCfgSpeed

Configures all ports of a switch to a particular speed.

Synopsis

```
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 flash memory and persists across switch reboots or power cycles. If any port on the switch is not capable of the specified speed setting, an error message appears for that port.

The output of portShow displays the achieved speed level and portCfgShow displays the user's desired speed setting.

Operands

This command has the following required operand:

speed_level   Specify the speed of a port. 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 is fixed at 1 Gb/s.

2   2-Gb/s mode. The port is fixed at 2 Gb/s.

4   4-Gb/s mode. The port is fixed at 4 Gb/s.

Examples

To set the speed level for all ports on a switch:

```
switch:admin> switchcfgspeed 0
Committing configuration...done.
```

See also

portCfgSpeed

portShow

switchCfgTrunk

Enables or disables trunking on all the ports of a switch.

Synopsis

```
switchcfgtrunk mode
```

Availability

admin

> **NOTE:** This command requires an HP ISL Trunking license.

Description

Use this command to enable or disable trunking on all the ports of a switch.

> **NOTE:** You can disable or enable trunking using the portCfgTrunkPort or switchCfgTrunk commands. When the command is executed to update the trunking configuration, the ports for which the configuration applies are disabled and reenabled with the new trunk configuration. As a result, the traffic through these ports might be disrupted for a short period of time.

Operands

This command has the following operand:

mode
: 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.

Examples

To disable trunking on a switch:

```
switch:admin> switchcfgtrunk 0
Committing configuration...done.
```

See also

portCfgShow

portCfgTrunkPort

portShow

switchShow

switchDisable

Disables the switch.

Synopsis

```
switchdisable
```

Availability

admin

Description

Use this command to disable the switch. All Fibre Channel ports are taken offline; if the switch was part of a fabric, the remaining switches reconfigure.

The switch must be disabled before making configuration changes (using configure or configDefault) or before running many of the diagnostic tests. All commands that require the switch to be disabled send an error if invoked while the switch is enabled.

The switch does not need to be disabled before rebooting or powering off.

As each port is disabled, the front panel LED changes to a slow flashing yellow.

Operands

Examples

To disable the switch:

```
switch:admin> switchdisable
```

See also

switchCfgPersistentDisable

switchCfgPersistentEnable

switchEnable

switchShow

switchEnable

Enables the switch.

Synopsis

```
switchenable
```

Availability

admin

Description

Use this command to enable the switch. All Fibre Channel ports that passed POST are enabled. They can come online if connected to a device, or will remain offline if disconnected. Use switchEnable if you disable the switch 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 countdown is displayed. If this switch remains the principal switch at the end of the countdown, 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 uninitialized ports.

Operands

Examples

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

switchCfgPersistentDisable

switchCfgPersistentEnable

switchDisable

switchShow

switchName

Displays or sets the switch name.

Synopsis

```
switchname [name]
```

Availability

all users (display)

admin (set)

Description

Use this command to display or set the switch name. All switches have a symbolic name that is primarily used for switch management. This name is also shown in the Fabric OS CLI prompt, under each switch icon on the Fabric Web page, and in the output of various Fabric OS commands, such as fabricShow.

Use this command with the *name* operand to assign a new switch name. Enter this command with no operand to display the current switch name.

Changing the switch name causes a domain address format RSCN to be issued (see FC-FLA for a description of RSCNs).

The switch name also can be changed using HP Advanced Web Tools.

Operands

This command has the following optional operand:

name   Specify a new name for the switch. The operand *name*:

- Can include up to 15 characters

- Must begin with a letter

- Must consist of letters, digits, and underscore characters, and no spaces.

If this operand is omitted, this command displays the current switch name.

Examples

To change a switch name to antina (note the change in the prompt text):

```
switch:admin> switchname antina
antina:admin> switchname
antina
```

See also

chassisShow

switchShow

switchReboot

Halts and reboots the operational switch.

Synopsis

```
switchreboot
```

Availability

admin

Description

This command reboots the operational switch without disrupting the other switch in a dual-switch chassis.

This command is equal to running switchShutdown and switchStart.

> 📝 **NOTE:** This command is not supported on single-domain systems.

Operands

Examples

To reboot an operational switch:

```
switch:admin> switchreboot
Stopping all switch daemons...Done.
Powering off slot 1...Done.
Powering off slot 4...Done.
Checking all slots are powered off...Done.
Cleaning up kernel modules...Done.
Initializing kernel modules...Done.
Starting all switch daemons...Done.
Powering on slot 1...Done.
Powering on slot 4...Done.
Checking diagnostics...Done.
setup FCIP IP: ifconfig fc0 ip=0.0.0.0, netmask=255.255.255.0
```

See also

switchShutdown

switchStart

switchShow

Displays switch and port status.

Synopsis

```
switchshow [-portcount]
```

Availability

all users

Description

Use this command to display switch and port status information. Information might vary by switch model.

Switch summary information; it is followed by a section covering summary information by port:

switchName	Displays the switch symbolic name.
switchType	Displays the switch model number.
switchState	Displays the switch state: online, offline, testing, or faulty.
switchMode	Displays the switch mode: native or interop.
switchRole	Displays the switch role: principal, subordinate, or disabled.
switchDomain	Displays the switch domain ID: 0 to 31 or 1 to 239.
switchId	Displays the switch embedded port D_ID.
switchWwn	Displays the switch world wide name (WWN).
switchBeacon	Displays the switch beaconing state (on or off).
bladeBeacon	Displays the blade beaconing state (on or off).

The switch summary is followed by one line per port:

Area	Part of the 24-bit port ID, which consists of domain, area number, and optional AL_PA.
Slot	Slot number; slots numbered from 1 to 4 and 7 to 10.
Port	Port number; ports are numbered from 0 to 15 or 0 to 31.
Media Type	Media type:

	dash (--)	no module present
	sw	shortwave laser
	lw	longwave laser
	cu	copper
	id	serial I

Speed	Speed of the port:

	1/8G	25 Mbit/sec
	1/4G	250 Mbit/sec
	1/2G	500 Mbit/sec
	1G	1Gb/s fixed transfer speed
	2G	2 Gb/s fixed transfer speed
	N1	1 Gb/s negotiated transfer speed
	N2	2 Gb/s negotiated transfer speed
	4G	4 Gb/s negotiated transfer speed
	AN	Auto negotiating
	UN	Unknown

Port State	Port state information	
	No_Card	No interface card present.
	No_Module	No module (SFP or other) present.
	Mod_Val	Module validation in process.Mod_Inv – nvalid module.
	No_Light	Module not receiving light.
	No_Sync	Module receiving light but out of sync.
	In_Sync	Module receiving light and in sync.
	Laser_Flt	Module signaling a laser fault.
	Port_Flt	Port marked faulty.
	Diag_Flt	Port failed diagnostics.
	Lock_Ref	Locking to the reference signal.
	Testing	Running diagnostics.
	Online	Port is up and running.
comment	The comment field is blank, or displays:	
	Disabled	Port is disabled.
	Bypassed	Port is bypassed (loop only).
	Loopback	Port is in loopback mode.
	E_Port	Fabric port; displays WWN and name of attached switch.
	F_Port	Point-to-point port; displays WWN of attached N_Port.
	G_Port	Point-to-point but not yet E_Port or F_Port.
	L_Port	Loop port; displays number of NL_Ports.
	(Trunk master)	Port is the master port in a group of trunking ports. (Trunk port, master is port #x) – Port is configured as a trunking port; the master port is port number x.
	(upstream)	E_Port is an upstream path towards the principal switch of the fabric.
	(downstream)	E_Port is a downstream path away from the principal switch of the fabric.

Persistently Disabled

This port has been disabled using `portCfgPersistentDisable`.

FICON – Persistent DID

This port has been disabled since the switch could not obtain its configuration domain ID during the fabric reconfiguration when FICON mode was enabled. See `ficonShow` for more information.

If a port is configured as a long distance port, the long distance level is displayed in the format of *Lx*, which represents the long distance level number. See `portCfgLongDistance` for more information

Operand

The operand is as follows:

-portcount   Displays the number of ports on the switch.

Example

To display the port count:

```
switch:admin> switchShow -portcount
ports= 64
```

To display the port status for an E_Port:

```
switch:user> switchshow
      switchName:      san116
      switchType:      10.1
      switchState:     Online
      switchMode:      Native
      switchRole:    Subordinate
      switchDomain:    2
      switchId:        fffc02
      switchWwn:       10:00:00:60:69:00:02:48
      switchBeacon:    OFF
      blade1: Beacon: OFF
      blade4: Beacon: OFF


      Area     Slot     Port     Media  Speed    State
      -------------------------------------------------
        0        1        0       id     N2      Online       E-Port
    10:00:00:60:69:00:02:1c"san130"
        1        1        1       id     N2      Online       E-Port
    10:00:00:60:69:00:02:1c"san130"
        2        1        2       id     N2      Online       E-Port
    10:00:00:60:69:00:02:1c"san130"
        3        1        3       id     N2      Online       E-Port
    10:00:00:60:69:00:02:1c"san130"
        4        1        4       id     N2      Online       E-Port
    10:00:00:60:69:00:02:1c"san130"
        5        1        5       id     N2      Online       E-Port
    10:00:00:60:69:00:02:1c"san130"
        6        1        6       id     N2      Online       E-Port
    10:00:00:60:69:00:02:1c"san130"
        7        1        7       id     N2      Online       E-Port
    10:00:00:60:69:00:02:1c"san130"
    (output truncated)
```

See also

ficonShow
portCfgLongDistance
switchDisable
switchEnable
switchName

switchShutdown

Halts the operational switch.

Synopsis

```
switchshutdown
```

Availability

admin

Description

Use this command to halt switch operation on one switch without disrupting the other. This command disables a logical switch in a dual-switch chassis.

This command has to be used in combination with switchStart.

This command halts 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.

📝 **NOTE:** This command is not supported on single-domain systems.

Operands

Examples

To halt the operational switch:

```
switch:admin> switchshutdown
Stopping all switch daemons...Done.
Powering off slot 1...Done.
Powering off slot 4...Done.
Checking all slots are powered off...Done.
Cleaning up kernel modules...Done.
```

See also

switchReboot

switchStart

switchStart

Initializes a previously shut down switch.

Synopsis

```
switchstart
```

Availability

admin

Description

Use this command to initialize one switch without disrupting the other switch in the dual-switch chassis.

This command has to 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 and blades associated with the switch.

> 📝 **NOTE:** This command is not supported on single-domain systems.

Operands

Examples

To initialize the current switch:

```
switch:admin> switchstart
Initializing kernel modules...Done.
Starting all switch daemons...Done.
Powering on slot 1...Done.
Powering on slot 4...Done.
Checking diagnostics...Done.
setup FCIP IP: ifconfig fc0 ip=0.0.0.0, netmask=255.255.255.0
```

See also

switchReboot

switchShutdown

switchStatusPolicySet

Sets the policy parameters that determine overall switch status.

Synopsis

```
switchstatuspolicyset
```

Availability

admin

Description

Use this command to set 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 status of the switch can be found by issuing the switchStatusShow command. The existence of policies, such as Fans, PowerSupplies, WWN, CP, and Blade, might differ from platform to platform.

The command displays the current parameters in a three-column table format, shown in Table 18. The command then prompts the user to change the values for each policy parameter. The default values for the policy parameters are in shown Table 18.

Table 18   Default contributor, values, and status

Contributor	DOWN default	MARGINAL default
PowerSupplies	2	1
Temperatures	2	1
Fans	2	1
WWN	0	1
CP	0	1
Blade	0	1
Flash	0	1
MarginalPorts	2	1
FaultyPorts	2	1
MissingSFPs	0	0

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 MARGINAL. If two ports were faulty, then this contributor would set the overall switch status to DOWN.

Operands

Examples

To change the switch policies:

```
switch:admin> switchstatuspolicyset
To change the overall switch status policy parameters
The current overall switch status policy parameters:
                       Down    Marginal
        -------------------------------
        PowerSupplies  2          1
        Temperatures   2          1
                Fans   2          1
                 WWN   0          1
                  CP   0          1
               Blade   0          1
               Flash   0          1
       MarginalPorts   2          1
         FaultyPorts   2          1
         MissingSFPs   0          0


  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.
Out of range Flash contributing to
                          MARGINAL status: (0..1) [1]
  MarginalPorts contributing to
                          DOWN status: (0..64) [2]
  MarginalPorts contributing to
                          MARGINAL status: (0..64) [1]
(output truncated)
```

See also

switchStatusPolicyShow

switchStatusShow

switchStatusPolicyShow

Displays the policy parameters that determine overall switch status.

Synopsis

```
switchstatuspolicyshow
```

Availability

all users

Description

Use this command to view the current policy parameters set for the switch. These policy parameters determine the number of failed or nonoperational units allowed for each contributor before triggering a status change in the switch.

The command displays the current parameters in a three-column format, shown in Table 19. The first column indicates the contributor, the second column indicates the minimum number that contributes to the DOWN status, and the third column indicates the minimum number that contributes to the MARGINAL status. The parameters can be set by the switchStatusPolicySet command. The existence of policies, such as Fans, PowerSupplies, CP, WWN, and Blade, might differ from platform to platform. For example, if the FaultyPorts DOWN parameter is set to 3, and three ports fail in the switch, then the status of the switch changes to DOWN.

Table 19   Default contributor, values, and status

Contributor	DOWN default	MARGINAL default
PowerSupplies	2	1
Temperatures	2	1
Fans	2	1
WWN	0	1
CP	0	1
Blade	0	1
Flash	0	1
MarginalPorts	2	1
FaultyPorts	2	1
MissingSFPs	0	0

Operands

Examples

To display the switch policies:

```
switch:admin> switchstatuspolicyshow
  The current overall switch status policy parameters:
                     Down     Marginal
         --------------------------------
         PowerSupplies  2          1
         Temperatures   2          1
                 Fans   2          1
                  WWN   0          1
                   CP   0          1
                Blade   0          1
                Flash   0          1
        MarginalPorts   2          1
          FaultyPorts   2          1
           MissingSFPs  0          0
```

See also

switchStatusPolicySet

switchStatusShow

switchStatusShow

Displays overall switch status.

Synopsis

```
switchstatusshow
```

Availability

all users

Description

Use this command to display the overall status of the switch. In addition, users with a Fabric Watch license are able to view the list of unhealthy ports.

This command displays the overall switch status, along with the status of each of the following contributors:

- Power supplies
- Temperatures
- Fans
- WWN servers (dual-CP systems only)
- Standby CP (dual-CP systems only with HA enabled)
- Blades (bladed systems only)
- Flash
- Marginal ports
- Faulty ports
- Missing SFPs

Status values are HEALTHY, MARGINAL, or DOWN, depending on whether thresholds established by switchStatusPolicySet have been exceeded. The overall status is based on the most severe status of all contributors.

See switchStatusPolicyShow for details on the calculation of contributors and overall switch status.

Operands

Examples

To display a switch health report:

```
switch:user> switchstatusshow
  Switch Health Report                    Report time: 06/19/2003
10:48:31 AM
  Switch Name:    switch
  IP address:     10.10.255.255
  SwitchState:    MARGINAL
  Duration:       00:06


  Power supplies monitor   HEALTHY
  Temperatures monitor     HEALTHY
  Fans monitor             MARGINAL
  WWN servers monitor      HEALTHY
  Standby CP monitor       HEALTHY
  Blades monitor           HEALTHY
  Flash monitor            HEALTHY
  Marginal ports monitor   HEALTHY
  Faulty ports monitor     HEALTHY
  Missing SFPs monitor     HEALTHY



  All ports are healthy
```

See also

switchStatusPolicySet

switchStatusPolicyShow

switchUptime

Displays the amount of time the switch has been operating.

Synopsis

```
switchuptime
```

Availability

all users

Description

Use this command to display the current time and the amount of time that the switch has been operational.

Operands

Examples

To view the uptime for the switch:

```
switch:user> switchuptime
9:50pm   up for 20 mins
```

See also

switchReboot

switchShutdown

switchStart

syslogdFacility

Changes the syslog facility.

Synopsis

```
syslogdFacility [-l level]
```

Availability

admin

Description

Use this command to change the syslog facility to LOG_LOCAL0, LOG_LOCAL1, LOG_LOCAL2, LOG_LOCAL3, LOG_LOCAL4, LOG_LOCAL5, LOG_LOCAL6, or LOG_LOCAL7.

The syslog daemon (syslogd) is a process available on most UNIX systems that reads and forwards system messages to the appropriate log files or users, depending on the system configuration.

The specified facility is used when forwarding messages to the servers added through the command `syslogdIpAdd`. The default facility is LOG_LOCAL7.

Operands

This command has following operand:

-l *level*   Specifies the syslog facility. The range is from 0 through 7. This operand is optional; if omitted, the current facility is displayed.

Examples

To set the syslog facility to LOG_LOCAL1:

```
switch:admin> syslogdFacility -l 1
Syslog facility changed to LOG_LOCAL1
```

See also

syslogdIpAdd

syslogdIpRemove

syslogdIpShow

syslogdIpAdd

Adds the IP address of a syslog daemon.

Synopsis

```
syslogdipadd ip_address
```

Availability

admin

Description

Use this command to add the IP address of the server that is running the syslogd process. The syslog daemon (syslogd) is a process available on most UNIX systems that reads and forwards system messages to the appropriate log files 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 servers. Up to six servers are supported.

Operands

This command has the following required operand:

ip_address   Specify the IP address of the server running syslogd.

Examples

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

errModuleShow

syslogdIpRemove

syslogdIpShow

syslogdIpRemove

Removes the IP address of a syslog daemon.

Synopsis

syslogdipremove *ip_address*

Availability

admin

Description

Use this command to remove the IP address of the server that is running the syslogd process.

Operands

This command has the following operand:

ip_address   Specify the IP address of the server running syslogd. This operand is required.

Examples

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

errModuleShow

syslogdIpAdd

syslogdIpShow

syslogdIpShow

Displays all syslog daemon IP addresses.

Synopsis

```
syslogdipshow
```

Availability

all users

Description

Use this command to display all syslog daemon IP addresses in the configuration database.

Operands

Examples

To display all syslog daemon IP addresses:

```
switch:admin> syslogdipshow
syslog.IP.address.1:    192.168.1.60
syslog.IP.address.2:    192.168.1.88
syslog.IP.address.3:    192.168.2.77
```

See also

errModuleShow

syslogdIpAdd

systemVerification

Runs a suite of diagnostic tests on all switches in a fabric.

Synopsis

systemverification [-parameters | -short] [[-fru *type*] -unit *id*]

Availability

admin

Description

Use this command to run a comprehensive, system-wide test of all switches in a system. The command initiates a burn-in run on all switches within the current system. The optional -fru and -unit parameters allow you to focus the testing to a single blade in a multiblade system.

The run can be terminated by issuing a Ctrl-C from the initiating terminal. All of the burn-in features are operational during the systemVerification command. The burninErrShow displays the stored burn-in errlogs; the logs by blade are saved in /var/log/verify.slot files. On fixed-port-count products, the slot defaults to 0.

The command monitors the testing and terminates the burn-in activity if all the elements fail. Each failing slot only outputs the first observed failure. Because this monitoring is a polling activity, the command number output might not be the exact command number that failed.

After the testing terminates, the burninStatus command output displays, and the burninErrShow messages for the failing slots displays. If all slots pass, then only the burninStatus command output displays.

The burn-in tests are designed to operate with switches connected to a fabric and restrict the frame loopback to inside the unit. If loopback plugs are installed in all ports, the burn-in parameter min_lb_mode can be changed to 1 to test the Fibre Channel through the loopback plug.

Operands

This command has the following operands:

-parameters
Invokes the diagSetCycle command before starting the burn-in run. This allows users to modify the burn-in parameters prior to the run. These diagSetCycle parameters are copied to all switches in the system and override the original settings in the database. If the diagSetCycle parameters are not specified, the run uses the previously stored values. This option does not perform a burninErrClear operation prior to starting the testing operation.

-short
Sets the burn-in parameters that control the number of frames to 1. The primary use for this command is software regression testing, or quick validation that all hardware is operational. The shorter test cycle does not have enough test time to detect intermittent errors. This option performs a burninErrClear operation prior to starting the testing operation.

-fru *type*
Use to focus testing on a single FRU in the system. The valid options for *type* are BLADE, PS, FAN, and WWN; however, only BLADE is supported at this time. Since only one FRU type is supported, this parameter is optional, but -unit is required for single FRU testing.

-unit *id*	Use to focus testing on a single FRU in the system. The *id* for a FRU type of BLADE correlates to the slot number of the FRU to be tested.

Diagnostics

Each diagnostic test in this suit might report its own set of error messages when it detects failures. See the "Diagnostics" section of individual diagnostic test help pages. These messages are available only in the log file.

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

Examples

To initiate a system verification test on all switches in the fabric:

```
switch:admin> systemverification -short
    systemverification: Setting parameters for short run.
    systemverification: burnin parameters.
    CURRENT - KEYWORD        : DEFAULT
    1        - number_of_runs        : 1
      2        - vib   : 2
      10       - thermal       : 10
    SYSTEMVERIFICATION        - label : BURNIN
      2        - min_lb_mode   : 2
      1        - tbr_passes    : 1
      1        - prt_on        : 1
      1        - cntmem_on     : 1
      1        - cmi_on        : 1
      1        - retention_on  : 1
      1        - cam_on        : 1
      1        - flt_passes    : 50
      1        - sta_passes    : 25
      1        - plb_nframes   : 100
      1        - txd_nframes   : 50
      1        - xpt_nframes   : 200
      1        - bpt_nframes   : 20
      1        - slk_nmegs     : 50
      1        - bpt_all_nframes        : 30
      1        - slk_all_nmegs : 50
    systemverification: Arming the burnin run on switch 0.
    systemverification: Starting burnin on Switch 0
    systemverification: Monitoring progress of the burnin activity.
    systemverification: Outputting Status
    State            Status  Run     Cmd     TotCmds Script
    COMPLETED        PASS    1       22      22      switchburnin.sh
```

See also

burninErrClear

burninStatus

diagSetBurnin

diagSetCycle

tempShow

Displays temperature readings.

Synopsis

```
tempshow
```

Availability

all users

Description

Use this command to display the current temperature readings of all temperature sensors in a switch. For each sensor, this command displays the slot number (if applicable), the sensor state, and the temperature. The temperature readings are given in both Centigrade and Fahrenheit.

See the hardware reference manual for your switch to determine the normal temperature range.

Operands

Examples

To display temperature and status sensors:

```
switch:user> tempshow

  Index    Slot    State    Centigrade      Fahrenheit

  ====================================================
    1        1      Ok          41             105
    2        2      Ok          39             102
    3        3      Absent
    4        4      Absent
    5        5      Ok          26              78
    6        6      Ok          27              80
```

See also

fanShow

psShow

sensorShow

slotShow

timeout

Sets or displays the idle timeout value for a login session.

Synopsis

```
timeout [timeval]
```

Availability

admin (set and display)

all users (display only)

Description

Use this command without an operand to display, in minutes, the current timeout value after which idle logins are automatically terminated.

Use this command with the `timeval` operand to set the login timeout value to the specified interval. A value of 0 disables timeout functionality of login sessions.

Operands

This command has the following operand:

`timeval`   Specify the number of minutes for the Telnet timeout value. Valid values are 1 to 99,999, or 0 to disable login timeouts. This operand is optional; if omitted, the command displays the current timeout value.

Examples

To set the idle timeout 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

topologyShow

Displays the unicast fabric topology.

Synopsis

    topologyshow [domain]

Availability

all users

Description

Use this command to display the fabric topology, as it appears to the local switch, including:

- 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 and a summary of all ports are routed through that path.

The display contains the following fields:

Local Domain ID	Domain number of local switch.
Domain	Domain number of destination switch.
Metric	Cost of reaching destination domain.
Name	The name of the destination switch.
Path Count	The number of currently active paths to the destination domain.
Hops	The maximum number of hops to reach destination domain.
Out Port	Port to which incoming frame are forwarded to reach the destination domain.
In Ports	Input ports that use the corresponding out port to reach the destination domain. This is the same information provided by portRouteShow and uRouteShow.
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.

Operands

This command has the following operand:

domain	Specify the destination domain for which topology information is to be displayed. This operand is optional; if omitted, 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:           switch
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

traceDump

Displays, initiates, or removes a trace dump.

Synopsis

```
tracedump [-S] [-s slot]

tracedump -n [-s slot]

tracedump -r [-s slot]
```

Availability

admin

Description

Use this command to initiate a background trace dump, to remove the content of a trace dump, or to display the dump status on the switch.

> **NOTE:** If there is no parameter specified, this command defaults to `traceDump -S`.
> The default remote file name format is *chassisname*-S#-*YYYYMMDDHHMMSS.dmp*, in which # is the slot number (0 on nonbladed systems), and *YYYYMMDDHHMMSS* (year-month-day-hour-minute-second) is the trace dump time.

Operands

This command has the following mutually exclusive operands:

`-S`	Displays dump status.
`-n`	Initiates a background trace dump.
`-r`	Removes the content of a trace dump.

This command has the following optional operand:

`--s slot`	Specifies the slot number from which a trace dump is generated. If this is not supplied, the trace dump is generated from the local slot.

Examples

To initiate a background trace dump from slot 5:

```
switch:admin> tracedump -n -s 5
```

To remove a trace dump:

```
switch:admin> tracedump -r
trace dump removed
```

See also

supportFtp

supportSave

supportShow

traceFtp

traceTrig

traceFtp

Displays, enables, or disables the trace auto-FTP, or retrieves the trace dump file.

Synopsis

```
traceftp [-S]

traceftp -e

traceftp -d

traceftp -n [-s slot] [-h hostip] [-u username] [-p password]
[-d remotedirectory] [-f remotefile]
```

Availability

admin

Description

Use this command to display, enable, or disable trace auto-FTP or to retrieve a trace dump file from the switch to the FTP site immediately.

> **NOTE:** If there is no parameter specified, this command defaults to `traceFtp -S`. Default remote file name format for `traceFtp -n` is *switchname-S#-YYYYMMDDHHMMSS*.`dmp`, where # is the slot number (0 if it is on nonbladed system), and *YYYYMMDDHHMMSS* is trace dump time (year-month-day-hour-minute-second).

Operands

This command has the following mutually exclusive operands:

-S	Displays the trace auto-FTP feature.
-e	Enables the trace auto-FTP feature.
-d	Disables the trace auto-FTP feature.
-n	Retrieves a trace dump file from the switch immediately. The -n option has the following optional operands:

-s *slot*	Specifies the slot number from which a trace dump is generated. If this is not supplied, the trace dump is generated from the local slot.
-h *hostip*	Specifies the FTP host IP address. It must be an IP address. *hostip* should be less than 48 characters.
-u *username*	Specifies the FTP user name. *username* should be less than 48 characters.
-p *password*	Specifies the FTP user password. If the user name is anonymous, the password is not needed. *password* should be less than 48 characters.
-d *remotedirectory*	Specifies the remote directory in which to store a trace dump file. traceFtp cannot take a slash (/) as a directory name. *remotedirectory* should be less than 48 characters.
-f *remotefile*	Specifies the remote file in which to store a trace dump file. *remotefile* should be less than 48 characters.

Examples

To retrieve a trace dump file:

```
switch:admin> traceftp -n -h 192.168.67.126 -u anonymous -d tracedump -f
dumpfile
ftp trace dump file in progress...
ftp trace dump file succeeded
```

To enable the auto-FTP feature:

```
switch:admin> traceftp -e
trace auto-FTP enabled
```

To disable the auto-FTP feature:

```
switch:admin> traceftp -d
trace auto-FTP disabled
```

See also

supportFtp

supportSave

supportShow

traceDump

traceTrig

traceTrig

Sets, removes, or displays trace triggers.

Synopsis

```
tracetrig [-S] [-s slot]

tracetrig -a [-s slot] msgid

tracetrig -r [-s slot] msgid

tracetrig -R [-s slot]
```

Availability

admin

Description

Use this command to set, remove, or display trace triggers for the specified slot on the switch.

📝 **NOTE:** If there is no parameter specified, this command defaults to `tracetrig -S`.

Operands

This command has the following mutually exclusive operands:

-S	Displays trace triggers for the specified slot.
-a	Sets a trace trigger for the specified slot.
-r	Removes a trace trigger from the specified slot.
-R	Removes all trace triggers from the specified slot.

-This command has the following optional operand:

-s slot	Specifies the slot number from which a trace dump is generated. If this is not supplied, the trace dump is generated from the local slot.

The -a and -r options also have the following required operand:

msgid	Specifies the trigger number, using the RASLog message ID. This operand is required.

Examples

To set a trace trigger:

```
switch:admin> tracetrig -a NS-1001
trace trigger[NS-1001] is added
```

To remove a trace trigger:

```
switch:admin> tracetrig -r NS-1001
trace trigger[NS-1001] is removed
```

To remove all trace triggers:

```
switch:admin> tracetrig -R
all trace triggers are removed
```

See also

supportFtp

supportSave

supportShow

traceFtp

traceFtp

trackChangesHelp

Displays information on track-changes feature commands.

Synopsis

    trackchangeshelp

Availability

all users

Description

Use this command to display information about the track-changes commands.

Examples

To display information on the track-changes feature commands:

    switch:admin> trackchangeshelp
    trackChangesSet   Configure alert for login/logout/config update
    trackChangesShow   Displays status of track changes

See also

trackChangesSet

trackChangesShow

trackChangesSet

Enables or disables configuring of track-changes feature.

Synopsis

    trackchangesset [mode][, snmptrapmode]

Availability

admin

Description

This command enables or disables the track-changes feature. An SNMP-TRAP mode can also be enabled. Trackable changes are:

- Successful login

- Unsuccessful login

- Logout

- Config file change from task

- Track changes on

- Track changes off

The output from the track-changes feature is dumped to the error log for the switch. Use the errDump command or the errModuleShow command to view the error log.

Operands

This command has the following operands:

mode	Specify 1 to enable the track-changes feature or specify 0 to disable the feature. The default (if no operand is specified) is to disable the track-changes feature. This operand is optional.
snmptrapmode	Specify 1 to enable errors to be sent to the SNMP-TRAP in addition to the errlog or specify 0 to disable the SNMP-TRAP messages. The default (if no operand is specified) is to disable SNMP-TRAP messages. This operand is optional.

Examples

To enable the track-changes feature:

```
switch:admin> trackchangesset 1, 1
Committing configuration...done.
switch:admin> trackchangesshow
Track changes status: ON
Track changes generate SNMP-TRAP: YES
```

See also

agtCfgSet

agtCfgShow

trackChangesHelp

trackChangesShow

trackChangesShow

Displays status of track-changes feature.

Synopsis

```
trackchangesshow
```

Availability

all users

Description

Use this command to display status of the track-changes feature. It displays if the feature is turned on or off and if SNMP traps are generated.

The output from the track-changes feature is dumped to the error log for the switch. Use the errDump command or the errModuleShow command to view the error log.

Operands

Examples

To display the status of the track-changes feature:

```
switch:admin> trackchangesshow
Track changes status: ON
Track changes generate SNMP-TRAP: YES
```

See also

trackChangesHelp

trackChangesSet

trunkDebug

Debugs a trunk link failure.

Synopsis

```
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`
- `Trunking not supported in switch interop mode`
- `port port_id is not E_Port`
- `port port_id trunking disabled`
- `port port_id speed is not 2G or 4G`
- `port port_id and port port_id are not on same port group`
- `port port_id and port port_id connect to different switches`
- `port port_id is not a trunking port due to: E_Port being disabled, or trunking might be disabled at remote port`
- `port port_id and port port_id cannot trunk, please check link length to make sure difference is less than 400m`

Operands

This command has the following operands:

port1	Specify the area number of port 1. Use the switchShow command to view the area numbers for a port. This operand is required.
port2	Specify the area number of port 2. Use the switchShow command to view the area numbers for a port. This operand is required.

Examples

To debug a trunk connection:

```
switch:admin> trunkdebug 43 44
Switch does not support trunking


switch:admin> trunkdebug 62 63
port 62 and 63 are trunked together
```

See also

portCfgTrunkPort

switchCfgTrunk

trunkShow

trunkShow

Displays trunking information.

Synopsis

```
trunkshow
```

Availability

all users

Description

Use this command to display trunking information. The following fields appear:

Trunking Group Number	Displays each trunking group on a switch. All the ports that are part of this trunking group are displayed.
Port to port connections	Displays the port-to-port trunking connections.
WWN	Displays the WWN of the connected port.
deskew	The time difference for traffic to travel over each ISL compared to the time to the shortest ISL in the group. The number corresponds to nanoseconds divided by 10. The firmware automatically sets the minimum deskew value of the shortest ISL to 15.
Master	Displays whether this trunking port connection is the master port connection for the trunking group.

Operands

Examples

To display trunking information for a switch:

```
switch:admin> trunkshow
 1: 6 ->  4   10:00:00:60:69:51:43:04   deskew 15    MASTER


 2:15 -> 13   10:00:00:60:69:51:43:04   deskew 16    MASTER
   12 -> 12   10:00:00:60:69:51:43:04   deskew 15
   14 -> 14   10:00:00:60:69:51:43:04   deskew 17
   13 -> 15   10:00:00:60:69:51:43:04   deskew 16


 3:24 -> 14   10:00:00:60:69:51:42:dd   deskew 15    MASTER
```

See also

portCfgTrunkPort

switchCfgTrunk

tsClockServer

Displays or sets the NTP server address.

Synopsis

```
tsclockserver [ipaddr]
```

Availability

all users (display)

admin (set)

Description

Use this command to synchronize the local time of the principal or primary FCS switch to an external NTP server.

The time server daemon synchronizes fabric time by sending updates of the principal or primary FCS local switch time periodically to every switch in the fabric. The time server daemon runs on all switches in the fabric, but only the principal switch (when the security feature is not enabled) or the primary FCS switch (when the security feature is enabled) connect to the NTP server and broadcast time service updates.

All switches in the fabric maintain the current clock server IP address in flash memory. By default, this value is LOCL. Changes to the clock server IP address on the principal or primary FCS switch are propagated to all switches in the fabric.

Use this command with no parameters to display the current clock server IP address being used. Specify the *ipaddr* operand to set the clock server IP address and enable fabric-wide clock synchronization with the specified clock server.

The NTP server used *must* support a full NTP client. Fabric OS 3.1.0 and 2.6.1 have an SNTP client and hence will accept an SNTP or NTP server, but v4.1.0 has an NTP client, so for the proper functioning of a mixed fabric with external time synchronization it is necessary that an NTP server that supports a full NTP client be used.

The *ipaddr* specified should be the IP address of an NTP server and should be accessible from the switch. When a clock server IP address other than LOCL is specified but is not used by the fabric, a warning is displayed and logged. When a clock server IP address other than LOCL is specified, the date command is restricted to display only. See the date command for more details.

> 📝 **NOTE:** When secure mode is enabled, this command can be run on all switches to view the NTP server IP address. You can only modify the NTP server IP address on the primary FCS switch.

Operands

This command has the following operand:

ipaddr   Specify the IP address of the NTP server. This operand is optional. By default, this value is LOCL.

If no operand is specified, the current value appears.

Examples

To display the current clock server value (LOCL), set the value to an NTP server at the specified IP address and then verify that the new IP address was saved:

```
switch:admin> tsclockserver
LOCL
switch:admin> tsclockserver "123.123.123.123"
Updating Clock Server configuration...done.
switch:admin> tsclockserver
123.123.123.123
```

See also

date

tsTimeZone

Displays or sets the system time zone.

Synopsis

```
tstimezone [houroffset [, minuteoffset]]
```

Availability

all users (display)

admin (set)

Description

Use this command to display or set the system time zone.

All switches maintain the current time zone setup in flash memory. Changing the time zone on a switch updates the local time zone setup and is reflected in local time calculations.

All switches are by default in the 0,0 time zone: that is, GMT. If all switches in a fabric are in one time zone, it is possible to leave the time zone setup at the default.

Time zone is used only in computing local time, which is used for error reporting and logging. An incorrect time zone setup do not affect the switch operation in any way.

System services started during the switch bootup reflect a time-zone change only at the next reboot.

Enter this command with no parameters to display the time zone setup. With the valid parameters, it sets the time zone for an individual switch.

Negative $houroffset$ values mean the local time is behind GMT; for example: -8,0 is GMT-08:00

Positive $houroffset$ values mean the local time is ahead of GMT; for example: 3, 0 is GMT+03:00

NOTE: In systems with multiple switches in a single chassis, the time zone of switch 0 is the system time zone.

Operands

This command has the following operands:

$houroffset$	Specify the number of hours relative to GMT. This operand must be specified as an integer. Valid values are -12 through 12. This operand is optional.
$minuteoffset$	Specify the number of minutes relative to $houroffset$. This operand must be specified as an integer. Valid values are -30, 0, or 30. This operand is optional.

Example

To display the current time zone setup and then change it to GMT-3:30:

```
switch:admin> tsTimeZone
Time Zone Hour Offset: 0
Time Zone Minute Offset: 0

switch:admin> tsTimeZone -3, -30
Updating Time Zone configuration...done.
System Time Zone change will take effect at next reboot.

switch:admin> tsTimeZone
Time Zone Hour Offset: -3
Time Zone Minute Offset: -30
```

See also

date

turboRamTest

Performs a turbo SRAM logic test for 2 Gb/s ASICs.

Synopsis

```
turboramtest [--slot slotnumber][-passcnt count][-ports itemlist]
```

Availability

admin

Description

This command verifies the on chip SRAM located in the 2 Gb/s ASIC using the turbo-RAM BIST circuitry. These same 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:

--slot slotnumber	Specifies the slot number on which the diagnostic operates. The ports specified are relative to this slot number. The default is 0 and designated to operate on fixed-port-count products.
-passcnt count	Specify the number of times to perform this test. The default value is 1. This operand is optional.
-ports itemlist	Specify a list of blade ports to test. By default, all the blade ports in the specified slot are tested. See the itemList command help page for more information. This operand is optional.

Examples

To execute this test:

```
switch:admin> turboramtest -passcnt 2 -ports 2/0-2/63
Running Turbo RAM Test ........ passed.
```

Diagnostics

When it detects failures, the subtest might report one or more of the following error messages:

```
DIAG-WTEST
DIAG-INC_RWTEST
DIAG-DEC_RWTEST
DIAG-RAMINIT_TO
```

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

centralMemoryTest

cmemRetentionTest

cmiTest

portRegTest

sramRetentionTest

txdPath

Performs a functional test of ASIC pair TXA,TXD connections.

Synopsis

```
txdpath [--slot slotnumber][-nframes count][-lb_mode mode][-spd_mode
mode][-nonstop mode][-ports itemlist]
```

Availability

admin

Description

Use this command to verify the TXA, TXD, and CMI data paths between the chips within a mini-switch. This is done by configuring all of the ports on the mini-switch in internal loopback and sending a frame from each quadrant to each other port on the same mini-switch. The frame starts from the CPU and is transmitted by the first port which also receives the frame and deposits it in central memory. The second port then reads the frame from central memory using its own TXA,TXD path. The frame is then looped back one more time and is sent back to the CPU, where it is compared with the transmitted data.

Only one frame is transmitted and received at any one time. External cable is not required to run this test. The port LEDs flicker green rapidly while the test is running. The test method is as follows:

1. Set all ports present for parallel loopback. Then, for each pair of source quadrants and destination ports:

2. Set up a source port to route frames to a destination port and a destination port to route frames to the CPU.

3. Transmit frame F through the source port.

4. Pick up the frame from the destination port.

5. Check if any of the eight statistic error counters are not 0:

   ```
   ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out, BadOrdSet, DiscC3
   ```

6. Repeat steps 2 through 5 for all ports present until either the number of frames (or -nmegs count) requested is reached, or, all ports are marked bad.

At each pass, a different data type is used to create the frame from a palette of seven; meaning if a pass of seven is requested, seven different frames are used in the test. If eight passes, the first seven frames are unique, and the eighth is the same as the first. The data palette of seven 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, ...

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 type.

Operands

This command has the following operands:-

--slot *slotnumber*
Specifies the slot number that the diagnostic will operate on. The ports specified will be relative to this slot number. The default is set to 0 and designed to operate on fixed-port-count products.

-nmegs *count*
Specifies the number of frames to send in millions. The test progresses until the specified number of frames transmits on each port. The default value is 10, which represents 10 million frames.

-lb_mode *mode*
Select the loopback point for the test. By default, spinJitter uses port loopback.

0	Cable loopback
1	Port loopback (loopback plugs)
2	External (SERDES) loopback
3	Silkscreen loopback
5	Internal (parallel) loopback

-spd_mode *mode*
Specifies the speed mode for the test. This parameter is used for Bloom and Condor ASIC-based products only, for which it controls the speed at which each port operates. For 1G-only products, this parameter is ignored. The exact operation of modes 5 through 8 depends on the loopback mode selected. When speed modes 5 through 8 are used with cables, they must be connected EVEN->ODD or the test fails.

0	Run test at 1 Gb/s, 2 Gb/s, and 4 Gb/s.
1	Run test at 1 Gb/s.
2	Run test at 2 Gb/s (Bloom default).
3	Set all even ports' speed for autonegotiate. Set all odd ports' speed for 1 Gb/s.
4	In test at 4 Gb/s (Condor default). For -lb_mode set to 0,1, the following speed modes are available to test the speed negotiation.

For -lb_mode set to 0 or 1, the following speed modes are available to test the speed negotiation:

3	Set all even ports' speed for autonegotiate. Set all odd ports' speed for 1 Gb/s.
4	Set all even ports' speed for autonegotiate. Set all odd ports' speed for 2 Gb/s.
5	Set all odd ports' speed for autonegotiate. Set all even ports' speed for 1 Gb/s.
6	Set all odd ports' speed for autonegotiate. Set all even ports' speed for 2 Gb/s.

For -lb_mode set to 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.

--nonstop *mode*	Specify nonstop mode. If set to a nonzero value, the test does not stop on the first error. The default value is 0.
-ports *itemlist*	Specify a list of user ports to test. By default, all of the user ports in the current switch are tested. This option might be used to restrict testing to the specified ports.

Examples

To run the txdPath test:

```
switch:admin> txdpath
Running TX Data Path Test ....
Test Complete: "txdpath" Pass 10 of 10
Duration 0 hr, 0 min & 47 sec (0:0:47:645).
```

Diagnostics

When it detects failures, the test can report one or more of the following error messages:

DATA

ERRSTAT

INIT

PORTDIED

STATS

TIMEOUT

XMIT

See the *HP StorageWorks Fabric OS 5.x diagnostics and system error messages reference guide* for more information.

See also

backport

camTest

centralMemoryTest

cmemRetentionTest

cmiTest

crossPortTest

itemList

portLoopbackTest

portRegTest

spinSilk

sramRetentionTest

upTime

Displays length of time the system has been operational.

Synopsis

uptime

Availability

all users

Description

upTime provides a one line display of the following information. The current time, how long the system has been running, how many users are currently logged on, and the system load averages for the past 1, 5, and 15 minutes.

For up and powered-on times less than 60 seconds, the time is displayed in seconds. For times greater than or equal to 60 seconds, the time is displayed in minutes. The output format adjusts accordingly.

Operands

Examples

To display the length of time the system has been operational:

```
switch:admin> uptime
12:03am  up  4:56,  3 users,  load average: 1.17, 1.08, 1.08
```

See also

date

fastBoot

reboot

uRouteConfig

Configures a static route.

Synopsis

```
urouteconfig in_area domain out_area
```

Availability

admin

Description

Use this command to configure static routes. A static route is a route that is assigned to a specific path (defined by port number *out_area*), and does not change when a topology change occurs unless the path used by the route becomes unavailable.

After this command is issued, if *out_area* is associated with a valid minimum-cost path, all frames coming in from *in_area* port addressed to *domain* are forwarded through *out_area* port.

If port number *out_area* is not associated with such a path, the routing assignment is not immediately affected by this command. However, the static route is remembered so that it can be enforced if this port becomes the port of a valid path in the future.

If a static route requires some hardware resources that are already used, a platform conflict warning message is displayed and the configuration does not take effect.

The *in_area* port can be either an F_Port or an E_Port.

NOTE: When using static routes, load sharing might be affected. The switch attempts to achieve optimum load sharing, but if too many routes are statically configured to use the same `out_area` port, a fair load sharing might not be achievable.
To prevent routing loops, static route requests involving non-minimum-cost paths are not enforced.

Operands

This command has the following operands:

in_area	Specify the port to be statically routed.
domain	Specify the destination domain.
out_area	Specify the output port to which traffic is forwarded.

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> urouteshow 1/1 2
Local Domain ID: 1

In Port    Domain    Out Port    Metric    Hops    Flags    Next (Dom,
Port)
-----------------------------------------------------------------------
-----
   1          2          5          500       1       S         2,5
```

See also

configShow

interfaceShow

uRouteRemove

uRouteShow

uRouteRemove

Removes a static route.

Synopsis

```
urouteremove in_area domain
```

Availability

admin

Description

Use this command to remove a previously configured static route.

After this command is issued, the route to *domain* for *in_area* might change to use a different output port, if dynamic load sharing (DLS) is set. If DLS is not set, the route remains as is, with its route attribute changed from static to dynamic.

Operands

This command has the following operands:

in_area	Specify the F_Port or E_Port input port of the static route to remove.
domain	Specify the destination domain of the static route to remove.

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

dlsShow

configShow

uRouteConfig

uRouteShow

uRouteShow

Displays unicast routing information.

Synopsis

```
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.

The following information appears:

Local Domain ID	Domain number of local switch.
In Port	Port from which a frame is received. Except for the cases in which you perform a port swap or enable extended-edge PID (PID Format 2) on a switch, the value is equal to the Area field displayed by the switchShow command. See *HP StorageWorks Fabric OS 5.x Fabric Watch administrator's guide* for more information regarding the extended-edge PID format.
Domain	Destination domain of incoming frame.
Out Port	Port to which the incoming frame is to be forwarded. Except for the cases in which you perform a port swap or enable extended-edge PID (PID Format 2) on a switch, the value is equal to the Area field displayed by the switchShow command. For port swap operations, the value is equal to the Swport field displayed by the portSwapShow command. See *HP StorageWorks Fabric OS 5.x Fabric Watch administrator's guide* for more information regarding the extended-edge PID format.
Metric	Cost of reaching the destination domain.
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 uRouteConfig.
Next (Dom, Port)	Domain and port number of the next hop. These are the domain number and the port number of the switch to which Out Port is connected.

The information provided by this command should match what is provided by portRouteShow and topologyShow.

Operands

This command has the following operands:

slotnumber	For bladed systems only, specify the slot number of the input port whose routes are displayed, followed by a slash (/).

portnumber	Specify a port number. Valid values for port number vary, depending on the switch type. Use switchShow to display a list of valid ports. This operand is optional; if omitted, the command displays routing information for all input ports in the switch.
domainnumber	Displays routing information for the specified domain. This operand is optional; if omitted, the routing information for all domains in the fabric is displayed.

Examples

To display the routing information of all the active ports:

```
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
```

To display the routing information of port 11 on slot 1:

```
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
```

To display the routing information of port 11 to domain 4 only:

```
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

uRouteRemove

userConfig

Manages user accounts.

Synopsis

```
userconfig [actions][arguments]
```

Availability

all users

Description

Use this command to display, add, delete, change, or recover switch accounts. You can create new login accounts to manage a switch. These accounts take on the permission or role of the default admin or user account. When the command completes, account name and other attributes are saved persistently. In a platform supporting multiple domains, the affected accounts apply only to the switch domain that the command was executed.

In secure mode, the actions associated with this command to add, delete, change or recover accounts are allowed only on the primary FCS switch. The primary FCS switch distributes the update to the entire fabric. As a result, all switches supporting customer-defined accounts will have the same account database. All accounts that not consistent with the primary FCS switch will be deleted and saved in the backup database. Administrators can use the `--recover` action to restore the accounts.

Operands

Without any specified action, the command prints out the usage. The operands are as follows:

`--show options`	Displays current or backup account information.
`--add username [options]`	Add a new account username to switch.
`--delete username`	Delete an account username from the switch.
`--change username [options]`	Change attributes for an account username.
`--recover`	Recover one or more accounts from backup created by Secure Fabric OS operations.

> **NOTE:** The `--show` action is the only one available to accounts with user permission. All other actions require the admin permission.

The following sections describe of each action type.

`--show` *username* | [-a | -b]

> Displays information about the current login account, account named *username* or all accounts either in active or backup account database.
>
> If running from an account with user permission, the command can only display information about that account. The following table lists the result of different combination of options.

username	-a	-b	Accounts displayed
No	No	No	Current login
Yes	No	No	username
No	Yes	No	All accounts
Yes	Yes	No	Not valid
No	No	Yes	All backup accounts
Yes	Yes	Yes	Not valid

`--add` *username* `-r` *rolename* `-d` *description*

> Add a new account named *username* to the switch, with the given authorization of *rolename*. The `-d` option gives a text description for the new account. This command also prompts for an initial password.
>
> The following rules apply to add a new account:
>
> 1. *username* must be unique and is case sensitive.
> 2. *username* must begin with a letter and contain only letters, numbers and underscore.
> 3. The maximum length of *username* is 40 characters.
> 4. *description* is optional. The maximum length is 40 printable ASCII characters.
> 5. *rolename* must be either `user` or `admin` in nonsecure mode; it must be `user`, `admin`, or `nonfcsadmin` in secure mode.
> 6. There can be maximum 15 customer created accounts for a switch.

`-delete` *username*

> Delete an existing account named *username* from the switch. This action does not take any options. It prompts for confirmation before proceeding. After an account is deleted, the CLI sessions associated with the account are terminated. The following rules apply to delete an account:
>
> 1. You cannot delete any default accounts.
> 2. An account cannot delete itself.

```
--change username [-r rolename] [-d description] [-e yes | no]
```
Change attributes for an existing account, named *username*, in the switch. The `-r` option specifies change to authorization *rolename*. The `-d` option specifies change to description. The `-e` option expects either `yes` or `no` to enable or disable an account. Once an account is disabled, the CLI sessions associated with the account are terminated. The following rules apply to change an account:

1. You cannot change the *rolename* or *description* of any default accounts.

2. You cannot change the *rolename* or *description* for accounts at the same or higher authorization level.

3. An account cannot change the *rolename* of itself.

4. Except for the default *root* account, no account can disable itself.

`-recover`   Recover all accounts from backup database. The backup database is created in Secure Fabric OS, when certain operations cause a switch to delete some of its customer created accounts. For details, read the secure mode description. Once accounts have been recovered, the accounts in the backup database are still present.

Examples

To add a new account:

```
switch:admin> userconfig --add joan -r admin -d "joan hoy"

Setting initial password for joan
Enter new password:
Re-type new password:
Account joan has been successfully added.
```

To display current account information:

```
switch:admin> userconfig --show joan

Account name: joan
Role: admin
Description: Joan Hoy
Enabled: Yes
```

To change account attributes:

```
switch:admin> userrename USERID admin
```

See also

userRename

Renames the user login name.

Synopsis

```
userrename old_username new_username
```

Availability

admin

> **NOTE:** This command is not supported on all platforms.

Description

Use this command to change an existing account login name to a new login name. The following rules apply:

- *new_username* must begin with a letter and contain only alphanumeric characters or underscores.

- *new_username* must be between 1 and 40 characters long.

- *new_username* must be different from any existing account login name.

- If *old_username* is a default login name, *new_username* cannot be another default login name.

- If *new_username* is a default login name, it must indicate the same role as *old_username*.

When using HP Secure Fabric OS, rename the admin-level login name to the HP-specific default of admin and the user-level login name to the HP-specific default of user before enabling security; otherwise, the switch is not allowed in the secure fabric.

Operands

old_username	The current user login name
new_username	The new user login name

> **NOTE:** These operands are case sensitive.

Examples

To rename the admin-level login name from "USERID" to "admin":

```
switch:admin> userrename USERID admin
```

See also

secModeEnable

version

Displays firmware version information.

Synopsis

```
version
```

Availability

all users

Description

Use this command to display firmware version information and build dates.

The following information appears:

Kernel	Displays the version of switch kernel operating system
Fabric OS	Displays the version of switch Fabric OS
Made on	Displays the build date of firmware running in switch
Flash	Displays the build date of firmware stored in flash proms
BootProm	Displays the version of the firmware stored in the boot PROM

Usually the Made on and Flash dates are the same, because 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

Examples

To display the firmware version information in a switch:

```
switch:admin> version
Kernel:     2.4.19
Fabric OS:  v4.4.0
Made on:    Mon Oct 4 09:27:16 2004
Flash:      Tue Oct 5 12:13:47 2004
BootProm:   3.1.18
```

See also

`firmwareDownload`

`reboot`

voltShow

Displays the current level of the voltage sensors on a system.

Synopsis

```
voltshow
```

Availability

admin

Description

Use this command to display information about a switch's voltage levels. The format of the display varies according to the switch model, the number of voltages on the device, and the number of voltage sensors present.

This command displays the following fields:

FRU Type	One of the following values: CHASSIS, FAN, I2C, Control, CFlash, SW BLADE (switch), CP BLADE (control processor), or UNKNOWN.
Number	Slot or unit number, if applicable.
Voltage levels	The measured voltage for these designated voltage levels: 1.2 or 1.8 volts (depending on the ASIC type), 2.5 volts, 3.3 volts, 5 volts, 12 volts, 48 volts, and 53 volts.
	If a voltage level is above its programmed maximum, it has a "+" appended; if it is below its programmed minimum, a "-" is appended. Nonapplicable voltage levels are displayed as "-."

Operands

Examples

To display the voltage levels on a system:

```
switch:admin> voltshow


FRU TYPE - Number 1.8/1.2V 2.5V  3.3V  5V    12V    48V    53V

-----------------------------------------------------------------

SW BLADE Slot: 2      1.82  2.51  3.30   --   11.94   --     --
SW BLADE Slot: 3      0.00  0.00  0.09   --   12.31   --     --
CP BLADE Slot: 5        --  2.48  3.29  5.17  12.50   --     --
CP BLADE Slot: 6        --  2.50  3.29  5.17  12.50   --     --
SW BLADE Slot: 8      1.80  2.52  3.30   --   12.00   --     --
SW BLADE Slot: 9      1.80  2.51  3.97+  --   11.94   --     --
SW BLADE Slot: 10     1.82  2.52  3.29   --   11.94   --     --
FAN Unit: 1             --    --    --    --    --   47.49  52.50
FAN Unit: 2             --    --    --    --    --   47.49  52.23
FAN Unit: 3             --    --    --    --    --   45.50- 52.23


Sensor Status: + = above max, - = below min.
```

See also

sensorShow

wwn

Displays a switch world wide name (WWN).

Synopsis

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 appears in the output of the switchShow command.

> **NOTE:** When security mode is enabled, this command can be issued only from the primary FCS switch.

Operands

Examples

To display the switch WWN:

```
switch:admin> wwn
10:00:00:60:69:00:54:e9
```

See also

switchShow

zoneAdd

Adds a member to the zone.

Synopsis

zoneadd "*zoneName*", "*member;member*"

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

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

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

> **NOTE:** When security mode is enabled, this command can be issued only from the primary FCS switch.

Operands

The following operands are required:

zoneName   Specify the name of an existing zone, in quotation marks. This operand is required.

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.

Examples

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

Creates a zone.

Synopsis

```
zonecreate "zonename", "member;member"
```

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to create a new zone.

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`. Spaces are ignored. Zone names are limited to 64 characters.

The zone member list must have at least one member. The members are described by a list of member definitions, separated by semicolons.

Specify ports by domain and port area number. The values are entered as a pair of numbers `s,p`. The `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, all devices connected to that port are in the zone. If this port is an arbitrated loop, 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 compares the WWN 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 name, 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. A zone alias is created with the `aliCreate` command. The alias must resolve to a list of one or more of the following:

- 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 can be mixed. For example, a zone defined with the 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.

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

📝 **NOTE:** 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.
When security mode is enabled, this command can be issued only from the primary FCS switch.

Operands

The following operands are required:

zonename	Specify the name of an existing zone, in quotation marks. This operand is required.
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.

Examples

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

Deletes a zone.

Synopsis

zonedelete "*zonename*"

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to delete a zone.

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

> **NOTE:** When security mode is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following operand:

zonename   Name of the zone to be deleted, in quotation marks. This operand is required.

Examples

To delete the zone Blue_zone:

```
switch:admin> zonedelete "Blue_zone"
```

See also

zoneAdd

zoneCreate

zoneRemove

zoneShow

zoneHelp

Displays help information for zone commands.

Synopsis

```
zonehelp
```

Availability

all users

Description

Use this command to display help information for zone commands.

Operands

Examples

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


fazoneAdd             Add a member to a fabric assist zone
fazoneCreate          Create a fabric assist zone
fazoneDelete          Delete 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
cfgSize               Print size details of zone database
cfgTransAbort         Abort zone configuration transaction
```

See also

aliAdd

aliCreate

aliasDelete

aliRemove

aliShow

cfgClear

cfgDisable

cfgEnable

cfgSize

cfgTransAbort

faZoneAdd

faZoneCreate

faZoneDelete

faZoneShow

zoneObjectCopy

Copies a zone object.

Synopsis

zoneObjectCopy "*objectName*", "*newName*"

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to copy a zone object to a new zone object. The resulting object has the same type as the original object. You can use this command for all zone object types, including cfg, zone, and alias.

A zone configuration name must begin with a letter that can be followed by any number of letters, numbers, and underscores. Names are case sensitive; for example, Cfg_1 and cfg_1 are different zone configurations. Spaces are ignored.

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

See the zoneCreate command for more information on name and member specifications.

> **NOTE:** When security mode is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following operands:

objectName	The name of the object that you want to copy. This operand is required.
newName	The name of the object that you want created. This operand is required.

Examples

To create a configuration containing three zones:

```
switch:admin> cfgShow "*"
    cfg:   USA_cfg    Red_zone; White_zone; Blue_zone
switch:admin> zoneObjectCopy "USA_cfg", "UK_cfg"
switch:admin> cfgShow "*"
    cfg:   UK_cfg     Red_zone; White_zone; Blue_zone
    cfg:   USA_cfg    Red_zone; White_zone; Blue_zone
```

See also

cfgAdd

cfgClear

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgShow

zoneObjectRename

zoneObjectExpunge

Expunges a zone object.

Synopsis

zoneObjectExpunge "*objectName*"

Availability

admin

NOTE: This command requires HP Advanced Zoning license, which is included within the Base
Configuration Services and bundled with each B-series switch.

Description

Use this command to expunge a zone object. In addition, to performing a simple delete, this command
also removes the object from the member lists of all other objects. Afterwards, this object is completely
removed from the database. You can use this command for all zone object types, including cfg, zone,
and alias.

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

NOTE: When security mode is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following operand:

objectName   The name of the object that you want to expunge. This operand is required.

Examples

To create a configuration containing three zones:

```
switch:admin> cfgShow
    Defined configuration:
     cfg:   USA_cfg    Red_zone; White_zone; Blue_zone
     zone:  Blue_zone
            1,1; array1; 1,2; array2
     zone:  Red_zone
            1,0; loop1
     zone:  White_zone
            1,3; 1,4
     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
switch:admin> zoneObjectExpunge "White_zone"
switch:admin> cfgShow
    Defined configuration:
     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
```

See also

cfgAdd

cfgClear

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgShow

zoneObjectCopy

zoneObjectRename

zoneObjectRename

Renames a zone object.

Synopsis

zoneObjectRename "*objectName*", "*newName*"

Availability

admin

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

Use this command to rename a zone object. You can use this command for all zone object types, including cfg, zone, and alias.

A zone configuration name must begin with a letter that can be followed by any number of letters, numbers, and underscores. Names are case sensitive; for example, Cfg_1 and cfg_1 are different zone configurations. Spaces are ignored.

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

See the zoneCreate command for more information on name and member specifications.

> **NOTE:** When security mode is enabled, this command can be issued only from the primary FCS switch.

Operands

This command has the following operands:

objectName	The name of the object that you want to rename. This operand is required.
newName	The new name of the object. This operand is required.

Examples

To create a configuration containing three zones:

```
switch:admin> cfgShow "*"
    cfg:   USA_cfg    Red_zone; White_zone; Blue_zone
switch:admin> zoneObjectRename "USA_cfg", "UK_cfg"
switch:admin> cfgShow "*"
    cfg:   UK_cfg     Red_zone; White_zone; Blue_zone
```

See also

cfgAdd

cfgClear

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgShow

zoneObjectCopy

zoneRemove

Removes a member from a zone.

Synopsis

```
zoneremove "zonename", "member;member"
```

Availability

admin

📝 **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

Description

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

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 contains `array2; array3; array4`, removing `array3; array4` succeeds but removing `array4; array3` fails.

If all members are removed, the zone is deleted.

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

📝 **NOTE:** When security mode is enabled, this command can be issued only from the primary FCS switch.

Operands

The following operands are required:

zoneName	Specify the name of an existing zone, in quotation marks. This operand is required.
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.

Examples

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

Displays zone information.

Synopsis

```
zoneshow ["pattern"][, mode]
```

Availability

all users

> **NOTE:** This command requires HP Advanced Zoning license, which is included within the Base Configuration Services and bundled with each B-series switch.

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.

> **NOTE:** When security mode is enabled, this command can be issued only from the primary FCS switch.

Operands

The following operand is optional:

pattern   A POSIX-style regular expression used to match zone configuration names. The pattern must be enclosed in quotation marks. Patterns can contain:

A question mark (?), which matches any single character.

An asterisk (*), which matches any string of characters.

Ranges, which match any character within the range: for example, [0-9] or [a-f].

mode   Specify 0 to display the contents of the transaction buffer (the contents of the current transaction), or specify 1 to display the contents of the flash memory. The default value is 0. This operand is optional.

Examples

To display 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

3 Licensed product commands

This chapter summarizes the commands that are available only with a license key.

- Advanced zoning commands, page 767
- QuickLoop Fabric Assist mode commands, page 768
- Extended Fabrics command, page 769
- Fabric Watch commands, page 769
- ISL Trunking commands, page 769
- Advanced Performance Monitoring commands, page 770
- Secure Fabric OS commands, page 771

> **NOTE:** For more information about Advanced Zoning, QuickLoop, Extended Fabrics, Fabric Watch, Trunking, or Performance Monitoring, see the *HP StorageWorks Fabric OS 5.x features overview*.

Advanced zoning commands

The commands listed in Table 20 are available with the purchase of an HP Advanced Zoning license key.

Table 20   Zoning commands

Command	Description
Zone Alias	
aliAdd	Adds a member to a zone alias.
aliCreate	Creates a zone alias.
aliDelete	Deletes a zone alias.
aliRemove	Removes a member from a zone alias.
Zoning	
zoneAdd	Adds a member to a zone.
zoneCreate	Creates a zone.
zoneDelete	Deletes a zone.
zoneRemove	Removes a member from a zone.
Zone Configuration	
cfgAdd	Adds a zone to a zone configuration.

Table 20 Zoning commands (continued)

Command	Description
cfgCreate	Creates a zone configuration.
cfgDelete	Deletes a zone configuration.
cfgRemove	Removes a zone from a zone configuration.
Zone Management	
cfgClear	Clears all zone configurations.
cfgDisable	Disables a zone configuration.
cfgEnable	Enables a zone configuration.
cfgSave	Saves zone configurations in flash memory.
cfgTransAbort	Aborts the current zoning transaction.
zoneObjectCopy	Copies a zone object.
zoneObjectExpunge	Expunges a zone object.
zoneObjectRename	Renames a zone object.

QuickLoop Fabric Assist mode commands

The commands listed in Table 21 are for QuickLoop Fabric Assist mode.

Table 21 QuickLoop fabric assist mode commands

Command	Description
faZoneAdd	Adds members to an existing QuickLoop Fabric Assist zone.
faZoneCreate	Creates a QuickLoop Fabric Assist zone.
faZoneDelete	Deletes an existing QuickLoop Fabric Assist zone.
faZoneRemove	Removes members from an existing QuickLoop Fabric Assist zone.
qloopAdd	Adds a member to a QuickLoop.
qloopCreate	Creates a QuickLoop.
qloopDelete	Deletes a QuickLoop.
qloopRemove	Removes a member from a QuickLoop.
qloopShow	Displays QuickLoop information.

NOTE: The QuickLoop Fabric Assist mode is not available on Fabric OS 5.x.

Extended Fabrics command

The command described in Table 22, is available with the purchase of an HP Extended Fabrics license key.

Table 22   Extended fabrics commands

Command	Description
portCfgLongDistance	Configure a port to support long-distance links.

Fabric Watch commands

The commands listed in Table 23 are available with the purchase of an HP Fabric Watch license key.

Table 23   Fabric watch commands

Command	Description
fwClassInit	Initialize all classes under Fabric Watch.
fwConfigReload	Reload the Fabric Watch configuration.
fwConfigure	Display and enable modification of the Fabric Watch configuration and status.
fwShow	Display the thresholds monitored by Fabric Watch.
fwAlarmsFilterSet	Enable or disable alarms for Fabric Watch.
fwAlarmsFilterShow	Display alarm filtering for Fabric Watch.
fwFruCfg	Display and changes FRU state alert configuration.
fwMailCfg	Configure e-mail alerts in Fabric Watch.
fwSetToDefault	Set boundary and alarm levels to the default values.
fwSetToCustom	Set boundary and alarm levels to custom values.

ISL Trunking commands

The commands listed in Table 24 are available with the purchase of an HP Trunking license key. For more detailed information about trunking, see the *HP StorageWorks Fabric OS 5.x procedures user guide.*

Table 24   HP trunking commands

Command	Description
portCfgTrunkPort	Configure a port for trunking.
switchCfgTrunk	Configure a switch for trunking.
trunkDebug	Debug a trunk link failure.

Advanced Performance Monitoring commands

The commands listed in Table 25 are available with the purchase of an HP Advanced Performance Monitoring license key.

Table 25 Performance monitoring commands

Command	Description
perfAddEEMonitor	Add an end-to-end monitor to a port.
perfAddIPMonitor	Add an IP monitor to a port.
perfAddReadMonitor	Add a SCSI Read monitor to a port.
perfAddRWMonitor	Add a SCSI Read and Write monitor to a port.
perfAddSCSIMonitor	Add a SCSI traffic frame monitor to a port.
perfAddUserMonitor	Add a user-defined monitor to a port.
perfAddWriteMonitor	Add a SCSI Write monitor to a port.
perfCfgClear	Clear the performance monitoring settings from flash memory.
perfCfgRestore	Restore performance monitoring settings from flash memory.
perfCfgSave	Save the current performance monitoring settings to flash memory.
perfClearEEMonitor	Clear statistics counters of an end-to-end (EE) monitor on a port.
perfClearFilterMonitor	Clear statistics counters of a filter-based monitor.
perfClrAlpaCrc	Clear an AL_PA device CRC count by the port and AL_PA.
perfDelEEMonitor	Delete an end-to-end monitor on port.
perfDelFilterMonitor	Delete a filter-based monitor.
perfSetPortEEMask	Set overall mask for end-to-end (EE) monitors.
perfShowAlpaCrc	Display the AL_PA CRC count by port or by AL_PA.
perfShowEEMonitor	Display user-defined end-to-end monitors on a port.
perfShowFilterMonitor	Display filter-based monitors for a port.
perfShowPortEEMask	Display the current end-to-end mask of a port.

Secure Fabric OS commands

The commands listed in Table 26 are available with the purchase of an HP Security license key. For more detailed information about security, see the *HP StorageWorks Secure Fabric OS user guide*.)

Table 26 HP secure fabric OS commands

Command	Description
secFabricShow	Displays security related fabric information.
secFCSFailover	Enables a backup FCS switch to take over as primary FCS switch.
secHelp	Display information about security telnet commands.
	Enable security mode.
secModeDisable	Disable security mode.
secModeShow	Display if security mode is enabled or disabled.
secNonFcsPasswd	Set the admin password for non-FCS switches.
secPolicyAbort	Aborts all changes to the defined database that have not been saved.
secPolicyActivate	Apply defined policy set to all switches in the fabric.
secPolicyAdd	Add members to an existing policy.
secPolicyCreate	Create a new policy.
secPolicyDelete	Delete an existing policy.
secPolicyDump	Display all members of existing policies.
secPolicyFCSMove	Move a member in the FCS policy.
secPolicyRemove	Remove members from an existing policy.
secPolicySave	Save a defined security policy to flash memory on all switches in the fabric.
secPolicyShow	Display an existing security policy.
secStatsReset	Reset security statistic for a policy or all policies to 0.
secStatsShow	Display security statistic for a policy or for all policies.
secTempPasswdReset	Reset a password on a remote switch.
secTempPasswdSet	Set a temporary password on a remote switch.
secTransAbort	Abort current security transaction.
secVersionReset	Reset the version stamp to 0.

4 Exclusive primary FCS commands

This chapter summarizes the commands that are available on the primary FCS only when the security feature is installed and enabled.

Commands exclusive to the primary FCS

The following commands are available on the primary FCS only when security is installed and enabled.

Table 27 Commands exclusive to the primary FCS

Command	Notes
agtCfgSet	Can be run on all switches, but it needs to be run on the primary FCS to modify community strings
agtCfgDefault	Must be run from the primary FCS switch.
aliAdd	Must be run from the primary FCS switch.
aliCreate	Must be run from the primary FCS switch.
aliDelete	Must be run from the primary FCS switch.
aliRemove	Must be run from the primary FCS switch.
aliShow	Must be run from the primary FCS switch.
cfgAdd	Must be run from the primary FCS switch.
cfgClear	Must be run from the primary FCS switch.
cfgCreate	Must be run from the primary FCS switch.
cfgDelete	Must be run from the primary FCS switch.
cfgDisable	Must be run from the primary FCS switch.
cfgEnable	Must be run from the primary FCS switch.
cfgRemove	Must be run from the primary FCS switch.
cfgSave	Must be run from the primary FCS switch.
cfgShow	Can be run on all FCS switches.
cfgTransAbort	Must be run from the primary FCS switch.
cfgTransShow	Must be run from the primary FCS switch.
date	This command can be run on all switches to view the current date. You can only modify the date from the primary FCS switch.

Table 27 Commands exclusive to the primary FCS (continued)

Command	Notes
faZoneAdd	Must be run from the primary FCS switch.
faZoneCreate	Must be run from the primary FCS switch.
faZoneDelete	Must be run from the primary FCS switch.
faZoneRemove	Must be run from the primary FCS switch.
faZoneShow	Must be run from the primary FCS switch.
msConfigure	Can be run on all switches, but it does not display ACL in secure mode.
msPlMgmtDeactivate	Must be run from the primary FCS switch.
msPlMgmtActivate	Must be run from the primary FCS switch.
msPlClearDB	Must be run from the primary FCS switch.
msTdDisable	mstddisable "ALL" must be run from the primary FCS switch.
msTdEnable	mstdenable "ALL" must be run from the primary FCS switch.
passwd	Must be run from the primary FCS switch.
secFabricShow	Must be run from the primary FCS switch.
secModeDisable	Must be run from the primary FCS switch.
secNonFcsPasswd	Must be run from the primary FCS switch.
secPolicyAbort	Must be run from the primary FCS switch.
secPolicyActivate	Must be run from the primary FCS switch.
secPolicyAdd	Must be run from the primary FCS switch.
secPolicyCreate	Must be run from the primary FCS switch.
secPolicyDelete	Must be run from the primary FCS switch.
secPolicyDump	Can be run on all FCS switches.
secPolicyFCSMove	Must be run from the primary FCS switch.
secPolicyRemove	Must be run from the primary FCS switch.
secPolicySave	Must be run from the primary FCS switch.
secPolicyShow	Can be run on all FCS switches.
secTempPasswdSet	Must be run from the primary FCS switch.
secTempPasswdReset	Must be run from the primary FCS switch.

Table 27 Commands exclusive to the primary FCS (continued)

Command	Notes
secVersionReset	Must be run from the primary FCS switch. Can also be run on a single non-FCS switch which is segmented from a fabric.
tsClockServer	Can be run on all switches to view the NTP server's IP address. You can only modify the NTP server's IP address on the primary FCS switch.
wwn	This command can be run on all switches to view the WWN. With security enabled the WWN of a switch cannot be modified.
zoneAdd	Must be run from the primary FCS switch.
zoneCreate	Must be run from the primary FCS switch.
zoneDelete	Must be run from the primary FCS switch.
zoneRemove	Must be run from the primary FCS switch.
zoneShow	Must be run from the primary FCS switch.

5 MUA-based roles

This chapter summarizes the commands that are applicable to the multiple user account (MUA) roles. The MUA feature distinguishes between a user account and the role assigned to the account. This chapter includes information for the switchAdmin role.

switchAdmin Role Permissions

The switchAdmin role offers most of the permissions of the existing admin role, except the ability to configure zones, perform security-related functions, and perform user management. Table 28 lists commands available to the switchAdmin role.

Table 28   switchAdmin commands

Command	Description
agtCfgDefault	Resets the SNMP agent configuration to default values.
agtCfgSet	Modifies the SNMP agent configuration.
agtCfgShow	Displays the SNMP agent configuration.
aliasDelete	Deletes a port from all local groups.
aliasJoin	Creates a multicast alias group of N_Ports. If the group already exists, the N_Ports are added to the existing group.
aliasPurge	Removes an alias group.
aliasShow	Displays local alias server information.
aptPolicy	Changes or displays the Advanced Performance Tuning (APT) policy.
authUtil	Displays and sets the authentication configuration.
bannerSet	Sets the banner on the local switch.
bannerShow	Displays the banner text.
bcastShow	Displays broadcast routing information.
burninErrClear	Clears errors stored in the nonvolatile storage on the slot during burn-in.
burninErrShow	Displays errors stored in the nonvolatile storage on the slot during burn-in.
burninLevel	Sets the diagnostics burn-in level.
burninStatus	Displays the diagnostics burn-in level.
chassisConfig	Displays or sets the configuration of the chassis.
chassisName	Displays or sets the chassis name for a switch.

Table 28 switchAdmin commands (continued)

Command	Description
chassisShow	Displays all field replaceable units (FRUs).
chipRegShow	Displays the port registers for a given chip number.
cmemRetentionTest	Tests the data retention of the central memory SRAMs.
cmiTest	Verifies the control message interface (CMI) bus between ASICs.
configShow	Displays system configuration settings.
configDownload	Downloads a switch configuration file from a host file, omitting zoning and security configurations.
configUpload	Uploads the switch configuration file to a host file.
configure	Modifies system configuration parameters.
dataTypeShow	Displays sample data stream types used in some diagnostic commands.
date	Displays or sets the switch date and time.
dbgShow	Displays current values of debug and verbosity levels of the specified module.
diagHelp	Displays diagnostic command information.
dlsReset	Disables the dynamic load sharing (DLS) option.
dlsSet	Enables the dynamic load sharing (DLS) option.
dlsShow	Display the setting of the dynamic load sharing (DLS) option.
dnsConfig	Sets or displays domain name service (DNS) parameters.
enclosureShow	Displays attributes of the switch enclosure.
errClear	Clears all error log messages for all switch instances on this control processor (CP).
errDelimiterSet	Sets the error log start and end delimiter for messages sent to the console and syslog.
errDump	Displays the error log, without pagination.
errModuleShow	Displays all the defined error log modules.
errShow	Displays the error log messages, with pagination.
exit	Logs out from a shell session.
fabPortShow	Displays fabric port information.
fabRetryShow	Displays the retry count of the fabric commands.
fabricLog	Displays or manipulates the fabric log.

Table 28 switchAdmin commands (continued)

Command	Description
fabricPrincipal	Sets principal switch selection mode.
fabricShow	Displays fabric membership information.
fabStateClear	Clears the fabric state information.
fabStateResize	Changes the number of state entries.
fabStateShow	Displays the fabric state information.
fabStatsShow	Displays the fabric statistics.
fabSwitchShow	Displays the fabric switch state structure information.
fanShow	Displays fan status and speed.
fastBoot	Reboots the control processor (CP), bypassing power-on self-test (POST).
fcPing	Sends a Fibre Channel Extended Link Service (ELS) ECHO request to a pair of ports.
fcpLogClear	Clears the FCPD debug information log (debug command).
fcpLogDisable	Disables the FCPD debug information log (debug command).
fcpLogEnable	Enables the FCPD debug information log (debug command).
fcpLogShow	Displays the FCPD debug information log (debug command).
fcpProbeShow	Displays the Fibre Channel Protocol (FCP) probe information.
fcpRlsShow	Display the Fibre Channel Protocol (FCP) Read Link Status (RLS) information.
fdmiCacheShow	Displays abbreviated remote FDMI device information, according to remote domain ID.
fdmiShow	Displays detailed FDMI device information.
ficonClear	Clears the records from the specified FICON database.
ficoncupset	Sets FICON-CUP parameters for a switch.
ficoncupshow	Displays FICON-CUP parameters for a switch.
ficonShow	Displays the contents of the specified FICON database.
firmwareCommit	Commits switch firmware.
firmwareDownload	Downloads switch firmware from a remote host or local directory.
firmwareDownloadStatus	Displays the status of a firmware download.
firmwareRestore	Restores the former active firmware image.

Table 28 switchAdmin commands (continued)

Command	Description
firmwareShow	Displays the Fabric OS versions on both partitions of the local and remote CPs.
fportTest	Functional test of F->N, N->F point-to-point path.
fruReplace	Interactive interface to replace a field replaceable unit (FRU).
fspfShow	Displays Fabric Shortest Path First (FSPF) protocol information.
fwHelp	Displays Fabric Watch command information.
h	Displays shell history.
help	Displays help information for commands.
historyLastShow	Displays the late entry in the field replaceable unit (FRU) history log.
historyMode	Displays the mode of the history log.
historyShow	Displays the entire field replaceable unit (FRU) history log.
httpCfgShow	Displays the Java plug-in version.
i	Displays a task summary.
ifModeSet	Sets the link operating mode for a network interface.
ifModeShow	Displays the link operating mode for a network interface.
interfaceShow	Displays FSPF interface information.
interopMode	Enables or disables HP switch interoperability with switches from other manufacturers.
iodReset	Turns off the in-order delivery (IOD) option.
iodSet	Enables the in-order delivery (IOD) option.
iodShow	Displays the in-order delivery (IOD) option setting.
ipAddrSet	Sets the IP address details for a switch or control processor (CP).
ipAddrShow	Display the IP address information for a switch or control processor (CP).
islShow	Displays ISL information.
killTelnet	Terminates an open telnet session.
licenseAdd	Adds license keys to switch.
licenseHelp	Displays commands used to administer license keys.
licenseIdShow	Displays system license ID.
licenseRemove	Removes the license key from the system.

Table 28 switchAdmin commands (continued)

Command	Description
licenseShow	Displays current license keys.
linkCost	Sets or displays the fabric shortest path first (FSPF) cost of a link.
login	Logs in as new user.
logout	Logs out from a telnet, rlogin, or serial port session.
lSDbShow	Displays the Fabric Shortest Path First (FSPF) link state database.
memShow	Displays the amounts of free and used memory in a switch.
minisPropShow	Displays ASIC pair properties.
msCapabilityShow	Displays the Management Server (MS) capabilities.
msConfigure	Configures the Management Server (MS) access control list (ACL).
msPlatShow	Displays the Management Server (MS) platform database.
msPlatShowDBCB	Displays the Management Server (MS) platform service database control block.
msPlClearDB	Clears the Management Server (MS) platform database on all switches in the fabric.
msPlMgmtActivate	Activates the Management Server (MS) platform service.
msPlMgmtDeactivate	Deactivates the Management Server (MS) platform service.
msTdDisable	Disables the Management Server (MS) topology discovery service.
msTdEnable	Enables the Management Server (MS) topology discovery service.
msTdReadConfig	Displays the status of Management Server (MS) topology discovery service.
myId	Displays the current login session details.
nbrStateShow	Displays FSPF neighbor's state.
nbrStatsClear	Resets FSPF interface counters.
nodeFind	Displays all the device Name Server (NS) entries matching a given WWN, device PID, or alias.
nsAliasShow	Displays local Name Server (NS) information, with aliases.
nsAllShow	Displays global name server information.
nscamShow	Displays information about remote devices in the Name Server (NS) cache.
nsShow	Displays local Name Server (NS) information.

Table 28 switchAdmin commands (continued)

Command	Description
nsZoneMember	Displays the information of all the online devices zoned with the given device.
passwd	Changes the password for a user level.
pathInfo	Display routing and statistics information along a path, covering multiple switches.
pdShow	Displays data from a panic dump file.
perfHelp	Displays performance monitoring help information.
pkiCreate	Creates public key infrastructure (PKI) objects.
pkiRemove	Remove existing public key infrastructure (PKI) objects.
pkiShow	Displays existing public key infrastructure (PKI) objects.
portAlpaShow	Displays the arbitrated loop physical addresses (AL_PAs) of devices attached to a port.
portBufferShow	Displays the buffer usage information for a port group or for all port groups in the switch.
portCamShow	Displays port-based filter CAM utilization.
portCfg	Sets a port's configuration to be disabled or enabled.
portCfgDefault	Restores the port configuration to default values.
portCfgEPort	Enables or disables a port from becoming an E_Port.
portCfgGPort	Designates a port as a G_Port.
portCfgISLMode	Enables or disables ISL R_RDY mode on a port.
portCfgLongDistance	Configures a port to support long-distance links.
portCfgLPort	Locks a port as an L_Port.
portCfgPersistentDisable	Disables a port persistently.
portCfgPersistentEnable	Enables a port persistently.
portCfgShow	Displays port configuration settings.
portCfgSpeed	Configures the port speed level.
portCfgTrunkPort	Configures a port to be enabled or disabled for HP ISL Trunking license.
portDebug	Sets debug level and verbose level of port modules.
portDisable	Disables a port.
portEnable	Enables a port.

Table 28 switchAdmin commands (continued)

Command	Description
portErrShow	Displays port error summary.
portFlagsShow	Displays the port status bitmaps for all ports in a switch.
portLogClear	Clears the port log.
portLogConfigShow	Displays the current port log configuration.
portLogDump	Displays the port log without page breaks.
portLogDumpPort	Displays the port log of specified port, without page breaks.
portLogEventShow	Displays information about port log events.
portLoginShow	Displays port login status.
portLogPdisc	Sets or clears the debug_pdisc_flag.
portLogReset	Enables the port log facility.
portLogResize	Resizes the port log to the specified number of entries.
portLogShow	Displays the port log.
portLogShowPort	Displays the port log of specified port, with page breaks.
portLogTypeDisable	Disables the port log of a specified type.
portLogTypeEnable	Enables the port log of a specified type.
portName	Assigns or displays a port name.
portPerfShow	Displays port throughput performance in bytes, kilobytes, or megabytes.
portRouteShow	Displays routing tables for the specified port.
portShow	Displays port status.
portStats64Show	Displays the 64-bit hardware statistics for a port.
portStatsClear	Clears the hardware statistics of a specified switch port.
portStatsShow	Displays port hardware statistics.
portRouteShow	Swaps area numbers of two ports.
portSwapDisable	Disables the portswap feature.
portSwapEnable	Enables the portswap feature.
portSwapShow	Displays the state of the portswap feature.
psShow	Displays power supply status.

Table 28 switchAdmin commands (continued)

Command	Description
qloopAdd	Adds a member to a QuickLoop.
qloopCreate	Creates a QuickLoop.
qloopDelete	Deletes a QuickLoop.
qloopRemove	Removes a member from a QuickLoop.
qloopShow	Displays QuickLoop information.
quietMode	Sets or clears the telnet session quiet mode, or displays the current mode.
reboot	Reboots either one control processor (CP) or the entire system.
routeHelp	Displays a list of FSPF-related commands.
saveCore	Saves or removes core files created by daemons.
secHelp	Displays information about security commands.
sensorShow	Displays sensor readings.
setDbg	Sets debug level of the specified module.
setEsdMode	Enables or disables ESD mode.
setGbicMode	Enables or disables media mode.
setMediaMode	Enables or disables media mode.
setModem	Enables or disables modem dial-in to a control processor (CP).
setSfpMode	Enables or disables media mode.
setVerbose	Specifies module verbose level.
sfpShow	Displays serial ID SFP information.
shellFlowControlDisable	Disables XON/XOFF flow control on the console serial ports.
shellFlowControlEnable	Enables XON/XOFF flow control on the console serial ports.
slotOn	Enables a blade slot.
slotPowerOff	Removes power from a slot.
slotPowerOn	Restores power to a slot.
slotShow	Displays the status of all slots in the system.
snmpConfig	Manages the SNMP agent configuration.
snmpMibCapSet	Modifies options for configuring SNMP MIB trap capability.

Table 28 switchAdmin commands (continued)

Command	Description
snmpMibCapShow	Displays options for configuring SNMP MIB trap capability.
supportShow	Displays switch information for debugging purposes.
supportShowCfgDisable	Disables a group of commands under the supportShow command.
supportShowCfgEnable	Enables a group of commands under the supportShow command.
supportShowCfgShow	Displays the groups of commands enabled for display by the supportShow command.
switchBeacon	Sets switch beaconing mode on or off.
switchCfgPersistentDisable	Disables a switch persistently.
switchCfgPersistentEnable	Enables a switch persistently.
switchCfgSpeed	Configures all ports of a switch to a particular speed.
switchCfgTrunk	Enables or disables trunking on all the ports of a switch.
switchDisable	Disables the switch.
switchEnable	Enables the switch.
switchName	Displays or sets the switch name.
switchShow	Displays switch and port status.
switchStatusPolicySet	Sets the policy parameters that determine overall switch status.
switchStatusShow	Displays the policy parameters that determine overall switch status.
switchStatusShow	Displays overall switch status.
switchUptime	Displays the amount of time the switch has been operating.
syslogdIpAdd	Adds the IP address of a syslog daemon.
syslogdIpRemove	Removes the IP address of a syslog daemon.
syslogdIpShow	Displays all syslog daemon IP addresses.
systemVerification	Runs a suite of diagnostic tests on all switches in a fabric.
tempShow	Displays temperature readings.
timeout	Sets or displays the idle timeout value for a login session.
topologyShow	Displays the unicast fabric topology.
traceDump	Displays, initiates, or removes a trace dump.
traceFtp	Displays, enables, or disables the trace auto-FTP or FTPsa trace dump file to the customer FTP server.

Table 28 switchAdmin commands (continued)

Command	Description
traceTrig	Sets, removes, or displays trace triggers.
trackChangesHelp	Displays information on track-changes feature commands.
trunkDebug	Debugs a trunk link failure.
trunkShow	Displays trunking information.
tsClockServer	Displays or sets the NTP Server address.
tsTimeZone	Displays or sets the system time zone.
upTime	Displays how long the switch has been up.
uRouteConfig	Configures a static route.
uRouteRemove	Removes a static route.
uRouteShow	Displays unicast routing information.
userConfig	Manages user accounts.
version	Displays firmware version information.
voltShow	Displays current level of the voltage sensors on a system.
wwn	Displays a switch world wide name (WWN).
zoneHelp	Displays help information for zone commands.

6 Control processor commands

This chapter lists the commands available when logged in to the active CP and standby CP in an HP StorageWorks Core Switch 2/64, HP StorageWorks SAN Director 2/128, or HP StorageWorks 4/256 SAN Director.

Commands supported on the active CP

When logged in to the active CP on a Core Switch 2/64, you must specify the logical switch number to which you are connecting. This guarantees that any commands you execute are run on the desired logical switch. Once you have selected a logical switch, the full set of commands for your user level are available.

Commands supported on the standby CP

The following commands are supported when logged into the standby CP.

Table 29 Commands supported on the standby CP

Command	Description
date	Print/set the system date and time.
errClear	Clear error log.
errDump	Print error log (no page breaks).
fastBoot	Reboot this switch, bypassing POST.
firmwareCommit	Commit firmware to stable storage.
firmwareDownload	Download firmware into switch.
firmwareDownloadStatus	Display the progress and status of firmwaredownload.
firmwareRestore	Restore the old firmware in the switch.
firmwareShow	Display firmware versions in the switch.
h	Print shell history.
haDump	Dump HA debug data.
haShow	Print High Availability status.
help	Print this list.
ifModeSet	Set the link operating mode for a network interface.
ifModeShow	Display the link operating mode for a network interface.

Table 29 Commands supported on the standby CP (continued)

Command	Description
itemList	Lists parameter syntax information.
killTelnet	Terminate telnet/serial login sessions interactively.
memShow	Display memory usage in the system.
myId	Display the current login session details.
pdShow	Display information from panic dump file.
reboot	Reboot the standby CP.
saveCore	FTP or remove core files generated by daemons.
switchName	Print this switch's name.
tsTimeZone	Display time zone.
upTime	Print how long switch has been up.
version	Print firmware version.

7 supportShow reference

This chapter explains the information displayed by the `supportShow` command. This chapter has the following sections:

- supportShow control commands, page 789
- supportShow command groups, page 789
- Proc entry information displayed, page 792

supportShow control commands

The `supportShow` command is used to display support information by executing groups of preselected Fabric OS and Linux commands. The information displayed by the `supportShow` command can be controlled by a set of control commands:

`supportShowCfgShow`	Display which groups of commands are enabled to display under `supportShow`.
`supportShowCfgEnable`	Enable a group of commands to display under `supportShow`.
`supportShowCfgDisable`	Disable a group of commands from displaying under `supportShow`.

supportShow command groups

Table 30 displays the command groups under supportshow, and which Fabric OS or Linux commands are executed by that group.

> **NOTE:** Many of the commands executed by `supportShow` are intended for support use only. These commands are not intended for end users.

Table 30 `supportShow` command groups

Command group	Fabric OS 3.2.0	Fabric OS 4.4.0
os	mqshow i memShow mallocshow fastcheckheap	mii-tool -vv /usr/bin/du -xh / | /bin/sort: /bin/ps -elfh /bin/echo /bin/rpm -qa /bin/cat /var/log/dmesg /bin/cat /etc/fstab /bin/cat /etc/mtab printing proc entries.
exception	faultshow traceshow errDump	errdump -a/-p

Table 30 supportShow command groups (continued)

Command group	Fabric OS 3.2.0	Fabric OS 4.4.0
port	portShow portregshow portstructshow bloomdatashow portRouteShow portsemshow bloomsemshow semashow 1	diagShow portShow portloginshow portregshow portRouteShow
fabric	fabricShow islShow trunkShow topologyShow fashow qlshow cfgShow fabStatsShow fablogdump	fabricShow islShow trunkShow topologyShow fabStateResize fabSwitchShow fabStatsShow fabPortShow fspfShow fcplogshow zone-stateshow portzoneshow portCamShow cfgSize cfgShow rcssmshow rcsinfoshow rcsregistryshow
services	nsShow nsAllShow nscamShow	fdmiCacheShow ficonDbg dump rnid ficonDbg log ficonShow ilir ficonShow lirr ficonShow rlir ficonShow rnid fdmiShow nsShow nsAllShow nscamShow
security	secModeShow secPolicyDump secStatsShow secFabricShow	secModeShow secPolicyDump secStatsShow secFabricShow
network	ipAddrShow ifshow ipstatshow udpstatshow tcpstatshow inetstatshow mbufshow arpshow routeshow routestatshow hostshow feidumpprint i557dump feiiteraterfdrings	/sbin/bootenv /sbin/sin /bin/df /sbin/ifconfig /sbin/route /bin/hostname
portlog	portLogDump (no parameters) portLogDump 0, 1	portLogDump

Table 30 `supportShow` command groups (continued)

Command group	Fabric OS 3.2.0	Fabric OS 4.4.0
system	version upTime switchShow tempShow psShow licenseShow diagShow portFlagsShow portErrShow portCfgShow configShow	myId version firmwareShow upTime switchStatusShow switchShow haDump tempShow sensorShow psShow fanShow licenseShow portFlagsShow portCfgShow sfpShow portErrShow fwSamShow agtCfgShow slotShow chassisShow switchStatusPolicyShow fwAlarmsFilterShow timeout historyShow configShow
extend	bloomlistdisplay bloomfdetshow bloomramdump	ptbufshow ptcreditshow ptDataShow ptPhantomShow ptPropShow ptStatsShow
filter	filtershow	filterportshow
perfmon	ps_dump	ps_dump -a -n port#

Proc entry information displayed

The `os` command group prints a number of proc entries. Table 31 displays example proc entry information.

Table 31 proc entry information displayed

Proc display command	Proc example display
/proc/cmdline	`/proc/cmdline` `quiet`

/proc/cpuinfo	`/proc/cpuinfo`
	`cpu : 405GP`
	`clock : 200MHz`
	`revision : 1.69 (pvr 4011 0145)`
	`bogomips : 199.47`
	`machine : Brocade Silkworm`
	`plb bus clock : 100MHz`
	`pci bus clock : 33MHz`

/proc/devices	`/proc/devices`
	`Character devices:`
	`1 mem`
	`2 pty`
	`3 ttyp`
	`4 ttyS`
	`5 cua`
	`7 vcs`
	`10 misc`
	`89 i2c`
	`90 mtd`
	`128 ptm`
	`136 pts`
	`162 raw`
	`245 swd`
	`246 ham`
	`247 fc`
	`248 fc-switch`
	`249 fabsys`
	`250 fss_kt`
	`251 fss_data`
	`252 fss_mgmt`
	`253 portlog`
	`254 platform`
	
	`Block devices:`
	`1 ramdisk`
	`3 ide0`
	`7 loop`

/proc/filesystems	`/proc/filesystems`
	`nodev rootfs`
	`nodev bdev`
	`nodev proc`
	`nodev sockfs`
	`nodev tmpfs`
	`nodev shm`
	`nodev pipefs`
	`ext2`
	`nodev ramfs`
	`nodev nfs`
	`nodev devpts`
	`xfs`
	`nodev dfs`

Table 31 proc entry information displayed (continued)

Proc display command	Proc example display
/proc/interrupts	/proc/interrupts CPU0 0: 0 IBM UIC Level serial 1: 591 IBM UIC Level serial 2: 2696197 IBM UIC Level IBM OCP IIC 10: 0 IBM UIC Level OCP EMAC MAL SERR 11: 1512 IBM UIC Level OCP EMAC TX EOB 12: 343895 IBM UIC Level OCP EMAC RX EOB 13: 0 IBM UIC Level OCP EMAC TX DE 14: 0 IBM UIC Level OCP EMAC RX DE 26: 52017 IBM UIC Level bloom 30: 1060300 IBM UIC Level ide0 FIT: 0 PIT: 15879069 BAD: 0
/proc/meminfo	/proc/meminfo total: used: free: shared: buffers: cached: Mem: 129740800 97079296 32661504 0 118784 45764608 Swap: 0 0 0 MemTotal: 126700 kB MemFree: 31896 kB MemShared: 0 kB Buffers: 116 kB Cached: 44692 kB SwapCached: 0 kB Active: 23464 kB Inactive: 49472 kB HighTotal: 0 kB HighFree: 0 kB LowTotal: 126700 kB LowFree: 31896 kB SwapTotal: 0 kB SwapFree: 0 kB
/proc/modules	/proc/modules dubby-module 582614 2 chubby-module 3128618 126 [dubby-module] dfs 5458 1 [dubby-module] consolelog-module 8539 0 (unused) panicdump-module 15279 0 [chubby-module consolelog-module] xfsnotificationhandler 4858 0 (unused)
/proc/mounts	/proc/mounts rootfs / rootfs rw 0 0 dev/hda1 / xfs rw,noatime 0 0 /proc /proc proc rw 0 0 none /dev/pts devpts rw 0 0 none /tmp ramfs rw 0 0 /dev/hda2 /mnt xfs rw,noatime 0 0 /diag /diag dfs rw 0 0
/proc/mtd	/proc/mtd dev: size erasesize name mtd0: 00010000 00010000 "boot environment" mtd1: 00070000 00010000 "boot prom" mtd2: 01000000 00040000 "Entire user flash" mtd3: 00400000 00040000 "kernel and initrd (1)" mtd4: 00400000 00040000 "kernel and initrd (2)" mtd5: 00400000 00040000 "log data (1)" mtd6: 00400000 00040000 "log data (2)"
/proc/partitions	/proc/partitions major minor #blocks name 3 0 250880 hda 3 1 124912 hda1 3 2 124928 hda2

Table 31 proc entry information displayed (continued)

Proc display command	Proc example display
/proc/pci	/proc/pci PCI devices found: Bus 0, device 0, function 0: Host bridge: IBM 405GP PLB to PCI Bridge (rev 1). Master Capable. Latency=7. Prefetchable 32 bit memory at 0x0 [0x7fffffff]. Bus 0, device 4, function 0: IDE interface: CMD Technology Inc PCI0649 (rev 2). IRQ 30. Master Capable. Latency=64. Min Gnt=2.Max Lat=4. I/O at 0x1008 [0x100f]. I/O at 0x1000 [0x1003]. I/O at 0x2000 [0x2007]. I/O at 0x3000 [0x3003]. I/O at 0x4000 [0x400f]. Bus 0, device 6, function 0: Non-VGA unclassified device: Brocade Communications Systems, Inc. Bloom switch (rev 0). IRQ 26. --<output truncated>--
/proc/slabinfo	/proc/slabinfo slabinfo - version: 1.1 kmem_cache 74 102 112 3 3 1 ip_mrt_cache 0 0 96 0 0 1 tcp_tw_bucket 2 40 96 1 1 1 tcp_bind_bucket 5 113 32 1 1 1 tcp_open_request 0 59 64 0 1 1 inet_peer_cache 1 59 64 1 1 1 ip_fib_hash 11 113 32 1 1 1 ip_dst_cache 65 168 160 7 7 1 arp_cache 2 30 128 1 1 1 blkdev_requests 128 160 96 4 4 1 xfs_chashlist 193 404 16 2 2 1 xfs_ili 2004 5668 152 135 218 1 xfs_ifork 0 0 56 0 0 1 xfs_efi_item 0 12 328 0 1 1 xfs_efd_item 0 12 328 0 1 1 --<output truncated>--
/proc/stat	/proc/stat cpu 184683 47107 88647 15558673 cpu0 184683 47107 88647 15558673 page 54635 71305 swap 0 0 intr 4154525 0 591 2696197 0 0 0 0 0 0 0 1520 343900 0 0 0 0 0 0 0 0 0 0 0 0 0 52017 0 0 0 1060300 0 disk_io: (3,0):(61121,5352,115463,55769,944835) ctxt 44089966 btime 1048729603 processes 17684
/proc/tty/drivers	/proc/tty/drivers serial /dev/cua 5 64-65 serial:callout serial /dev/ttyS 4 64-65 serial pty_slave /dev/pts 136 0-255 pty:slave pty_master /dev/ptm 128 0-255 pty:master pty_slave /dev/ttyp 3 0-255 pty:slave pty_master /dev/pty 2 0-255 pty:master /dev/vc/0 /dev/vc/0 4 0 system:vtmaster /dev/ptmx /dev/ptmx 5 2 system /dev/console /dev/console 5 1 system:console /dev/tty /dev/tty 5 0 system:/dev/tty

Table 31 proc entry information displayed (continued)

Proc display command	Proc example display
/proc/uptime	/proc/uptime 158791.21 155710.77
/proc/version	/proc/version Linux version 2.4.19 (swrel@sierra) (gcc version 2.95.3 20010112 (prerelease)) #1 Wed Mar 26 00:04:35 PST 2003

Glossary

8b/10b encoding An encoding scheme that converts each 8-bit byte into 10 bits. Used to balance 1s and 0s in high-speed transports.

address identifier A 24-bit or 8-bit value used to identify the source or destination of a frame. *See also* S_ID *and* D_ID.

AL_PA Arbitrated-loop physical address. A unique 8-bit value assigned during loop initialization to a port in an arbitrated loop.

AL_TIME Arbitrated-loop timeout value. Twice the amount of time it would take for a transmission word to propagate around a worst-case loop. The default value is 15 milliseconds (ms).

alias A logical grouping of elements in a fabric. An alias is a collection of port numbers and connected devices, 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 can be shared by multiple ports. *See also* alias.

alias AL_PA An AL_PA value recognized by an L_Port in addition to the AL_PA assigned to the port. *See also* AL_PA.

alias server A fabric software facility that supports multicast group management.

ANSI American National Standards Institute.

arbitrated loop A shared 100-Mb/sec Fibre Channel transport structured as a loop. Can support up to 126 devices and one fabric attachment. *See also* topology.

arbitration A method of gaining orderly access to a shared-loop topology.

area number In HP Fabric OS v4.0 and above, ports on a switch are assigned a logical area number. Port area numbers can be viewed by entering the `switchShow` command. They are used to define the operative port for many Fabric OS commands: for example, area numbers can be used to define the ports within an alias or zone.

ARP Address Resolution Protocol. A TCP/IP function for associating an IP address with a link-level address.

ARR Asynchronous response router. Refers to Management Server GS_Subtype Code E4, which appears in `portLogDump` command output.

ASD Alias server daemon. Used for managing multicast groups by supporting the create, add, remove, and destroy functions.

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.

authentication The process of verifying that an entity in a fabric (such as a switch) is what it claims to be. *See also* digital certificate, switch-to-switch authentication.

autocommit	A feature of the `firmwareDownload` command. Enabled by default, autocommit commits new firmware to both partitions of a control processor.
autoreboot	Refers to the `-b` option of the `firmwareDownload` command. Enabled by default.
AW_TOV	Arbitration wait timeout value. The minimum time an arbitrating L_Port waits for a response before beginning loop initialization.
backbone fabric	An optional capability that enables scalable meta-SANs by allowing the networking of multiple FC routers, which connect to the backbone fabric via EB_Port interfaces.
backup FCS switch	Relates to the HP Secure Fabric OS feature. The backup fabric configuration server serves as a backup in case the primary FCS switch fails. *See also* FCS switch, primary FCS switch.
BB fabric	A backbone fabric that connects FC Routers. The FC Routers communicate over the backbone fabric using FCRP (Fibre Channel Router Protocol).
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* buffer-to-buffer flow control, EE_Credit.
beacon	A tool in which all of 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 a CLI command or through HP Advanced 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* disparity.
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* error.
BISR	Built-in self-repair.
BIST	Built-in self-test.
bit synchroniza-tion	The condition in which a receiver is delivering retimed serial data at the required bit error rate.
Bloom	The code name given to the third-generation HP Fabric ASIC. This ASIC is used in StorageWorks 2 GB switches and beyond.
boot code	Software that initialized the system environment during the early phase of the boot-up process. For example, boot code might determine the amount of available memory and how to access it.
boot flash	Flash (temporary) memory that stores the boot code and boot.
broadcast	The transmission of data from a single source to all devices in the fabric, regardless of zoning. *See also* multicast, unicast.
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.
bypass circuitry	Circuits that automatically remove a device from the data path when valid signals are dropped.
CA	Certificate authority. A trusted organization that issues digital certificates. *See also* digital certificate.
CAM	Content-addressable memory.

cascade	Two or more interconnected Fibre Channel switches. HP StorageWorks 1 GB/s switches and later switches can be cascaded up to 239 switches, with a recommended maximum of seven interswitch links (no path longer than eight switches). *See also* fabric, ISL.
CDR	Clock and data recovery circuitry.
CE	Conformité Européenne.
CFG	Configuration.
CFN	Change fabric name. Refers to an ELS field that appears in `portLogDump` command output.
chassis	The metal frame in which the switch and switch components are mounted.
CIM	Common Information Model. A management structure enabling disparate resources to be managed by a common application.
Class 1 service	The class of frame-switching service for a dedicated connection between two communicating ports (also called *connection-oriented service*). Includes acknowledgement of frame delivery or nondelivery.
Class 2 service	A connectionless class of frame-switching service that includes acknowledgement of frame delivery or nondelivery.
Class 3 service	A connectionless class of frame-switching service that does not include acknowledgement of frame delivery or nondelivery. Can be used to provide a multicast connection between the frame originator and recipients, with acknowledgement of frame delivery or nondelivery.
Class 4 service	A connection-oriented service that allows fractional parts of the bandwidth to be used in a virtual circuit.
Class 6 service	A connection-oriented multicast service geared toward video broadcasts between a central server and clients.
Class F service	The class of frame-switching service for a direct connection between two switches, allowing communication of control traffic between the E_Ports. Includes acknowledgement of data delivery or nondelivery.
class of service	A specified set of delivery characteristics and attributes for frame delivery.
CLS	Close primitive signal. Used only in an arbitrated loop. Sent by an L_Port that is currently communicating in the loop, to close communication with another L_Port.
CM	Central memory.
CMA	Central memory architecture. An architecture centralizing memory usage in switches.
CMBISR	Central memory built-in self-repair.
CMT	Central memory test.
comma	A unique pattern (either 1100000 or 0011111) used in 8b/10b encoding to specify character alignment within a data stream.
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* SNMP.
compact flash	Flash (temporary) memory that is used in a manner similar to hard disk storage. It is connected to a bridging component that connects to the PCI bus of the processor. Not visible within the processor's memory space.

configuration	(1) A set of parameters that can be modified to fine-tune the operation of a switch. Use the `configShow` command to view the current configuration of your switch.
	2) In HP Zoning, a zoning element that contains a set of zones. The Configuration is the highest-level zoning element and is used to enable or disable a set of zones on the fabric. See also zone configuration.
congestion	The realization of the potential of oversubscription. A congested link is one on which multiple devices are contending for bandwidth.
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.
controller	A computer module that interprets signals between a host and a peripheral device. The controller typically is part of the peripheral device.
COS	Class of service.
CP	Control processor.
CRC	Cyclic redundancy check. A transmission error check that is included in every data frame.
credit	As it applies to Fibre Channel technology, the number of receive buffers available to transmit frames between ports. *See also* BB_Credit, EE_Credit.
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* route.
D_ID	Destination identifier. A 3-byte field in the frame header, used to indicate the address identifier of the N_Port to which the frame is headed.
DAS	Direct attached storage.
data word	A type of transmission word that occurs within frames. The frame header, data field, and CRC all consist of data words. *See also* frame, ordered set, transmission word.
DCC	Direct cable connection. DCC does not require network interface cards (NICs), making it relatively inexpensive and simple; however, it provides a limited connection between two PCs, and the data transfer rate is slower than with a true LAN.
dedicated simplex	A connection method that permits a single N_Port to simultaneously initiate a session with one N_Port as an initiator and have a separate Class 1 connection to another N_Port as a recipient.
defined zone configuration	The set of all zone objects defined in the fabric. Can include multiple zone configurations. *See also* enabled zone configuration, zone configuration.
deskew	Related to the HP Trunking feature. The time difference between traffic traveling over each ISL other than the shortest ISL in the group and traffic traveling over that shortest ISL. The deskew number corresponds to nanoseconds divided by 10. The firmware automatically sets the minimum deskew value of the shortest ISL to 15.
DHCP	Dynamic Host Configuration Protocol.
DHCPD	Dynamic Host Configuration Protocol daemon.

digital certificate	An electronic document issued by a CA (certificate authority) to an entity, containing the public key and identity of the entity. Entities in a secure fabric are authenticated based on these certificates. *See also* authentication, CA, public key.
disparity	The proportion of 1s and 0s in an encoded character. *Neutral disparity* means an equal number of each, *positive disparity* means a majority of 1s, and *negative disparity* means a majority of 0s.
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.
DMTF	Distributed Management Task Force.
domain controller	A domain controller or embedded port communicates with and gets updates from other switches' embedded ports. The well-known address is *fffcdd*, where *dd* = domain number).
domain ID	A unique identifier for all switches in a fabric, used in routing frames. Usually automatically assigned by the principal switch but can be assigned manually. The domain ID for an HP StorageWorks switch can be any integer between 1 and 239.
DTE	Data terminal equipment. Usually refers to a terminal.
DWDM	Dense wave division multiplexing. Allows more wavelengths to use the same fiber. *See* WDM.
E_D_TOV	Error-detect timeout 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 is declared. *See also* R_A_TOV, RR_TOV.
E_Port	Expansion port. A standard Fibre Channel mechanism that enables switches to network with each other, creating an ISL. *See also* ISL.
ECCN	Export classification control number. A government classification of encryption. For example, SSH is in the high-encryption category (number 5x02) and therefore has certain restrictions regarding its transfer.
edge fabric	A Fibre Channel fabric connected to an FC router via an EX_Port (where hosts and storage are attached in a meta-SAN).
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 frame exchange across the fabric, between source and destination. *See also* BB_Credit, end-to-end flow control.
EIA rack	A storage rack that meets the standards set by the Electronics Industry Association (EIA).
ELP	Exchange link parameters.
ELS	Extended link service. ELSs are sent to the destination N_Port to perform the requested function or service. ELS is a Fibre Channel standard that is sometimes referred to as "Fibre Channel Physical (FC_PH) ELS."
EM	Environmental monitor. Monitors FRUs and reports failures.
embedded port	An embedded port (or domain controller) communicates and get updates from other switches' embedded ports. The well-known address is *fffcdd*, where *dd* = domain number.
EMI	Electromagnetic interference.
emulex	A brand of host bus adapter.
enabled zone configuration	The currently enabled configuration of zones. Only one configuration can be enabled at a time. *See also* defined zone configuration, zone configuration.

end-to-end flow control	Governs flow of Class 1 and 2 frames between N_Ports. *See also* EE_Credit.
entry fabric	The basic HP software license that allows one E_Port per switch.
EOF	End of frame. A group of ordered sets used to mark the end of a frame.
error	As it applies to the Fibre Channel industry, a missing or corrupted frame, timeout, loss of synchronization, or loss of signal (link errors). *See also* loop failure.
EVMd	Event management database. Delivers FDMI-related events.
EX_Port	A type of E_Port that connects an FC router to an edge fabric. EX_Ports limit the scope of fabric services scope but provide device connectivity using FC-NAT.
exchange	The highest-level Fibre Channel mechanism used for communication between N_Ports. Composed of one or more related sequences, it can work in either one or both directions.
exported device	A device that has been mapped between fabrics (a host or storage port in one edge fabric can be exported to any other fabric by using LSAN zoning).
F_BSY	Fabric port busy frame. A frame issued by the fabric to indicate that a frame cannot be delivered because the fabric or destination N_Port is busy.
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* FL_Port, Fx_Port.
F_RJT	Fabric port reject frame. A frame issued by the fabric to indicate that delivery of a frame is being denied, perhaps because a class is not supported, there is an invalid header, or no N_Port is available.
fabric	A collection of Fibre Channel switches and devices, such as hosts and storage. Also referred to as a *switched fabric*. *See also* cascade, SAN, topology.
fabric application platform	A device that enables fabric-based storage applications such as mirroring, data migration, snapshots, and virtual tape. The HP StorageWorks Fabric Application Platform can run in a central location, process data at wire-speed, and reside in existing data paths.
Fabric Manager	An optionally licensed HP software. Fabric Manager is a GUI that allows for fabric-wide administration and management. Switches can be treated as groups, and actions such as firmware downloads can be performed simultaneously.
Fabric Mode	One of two possible modes for an L_Port, in which the L_Port is connected to another port that is not loop capable, using fabric protocol.
fabric name	The unique identifier assigned to a fabric and communicated during login and port discovery.
fabric port count	The number of ports available for connection by nodes in a fabric.
fabric services	Codes that describe the communication to and from any well-known address.
fabric topology	The arrangement of switches that form a fabric.
Fabric Watch	An optionally licensed HP software. Fabric Watch can be accessed through either the command line or Advanced Web Tools, and it provides the ability to set thresholds for monitoring fabric conditions.
failover	Describes the Core Switch 2/64 process of one CP passing active status to another CP. A failover is nondisruptive.

FAN	Fabric address notification. Retains the AL_PA and fabric address when a loop reinitializes, if the switch supports FAN.
fan-in	The ratio of hosts to storage devices; the view of the SAN from the storage port's perspective.
fan-out	The ratio of storage devices to hosts; the view of the SAN from the host port's perspective.
FC-0	Lowest layer of Fibre Channel transport. Represents physical media.
FC-1	Layer of Fibre Channel transport that contains the 8b/10b encoding scheme.
FC-2	Layer of Fibre Channel transport that handles framing and protocol, frame format, sequence/exchange management, and ordered set usage.
FC-3	Layer of Fibre Channel transport that contains common services used by multiple N_Ports in a node.
FC-4	Layer of Fibre Channel transport that handles standards and profiles for mapping upper-level protocols such as SCSI and IP onto the Fibre Channel Protocol.
FC-AL-3	The Fibre Channel arbitrated-loop standard defined by ANSI. Defined on top of the FC-PH standards.
FC-AV	Fibre Channel audio visual.
FC-CT	Fibre Channel common transport.
FC-FG	Fibre Channel generic requirements.
FC-FLA	The Fibre Channel fabric loop-attach standard defined by ANSI.
FC-FS	Fibre Channel framing and signaling.
FC-GS	Fibre Channel generic services.
FC-GS-2	Fibre Channel generic services, second generation.
FC-GS-3	Fibre Channel Generic Services, third generation.
FCIP	Fibre Channel over IP.
FC-NAT	Fibre Channel network address translation.
FC-PH	The Fibre Channel physical and signaling standard for FC-0, FC-1, and FC-2 layers of the Fibre Channel Protocol. Indicates signaling used for cable plants, media types, and transmission speeds.
FC-PH-2	Fibre Channel Physical Interface, second generation.
FC-PH-3	Fibre Channel Physical Interface, third generation.
FC-PI	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.
FC_SB	Fibre Channel single bytes.
FC_VI	Fibre Channel virtual interface.
FCA	Flow-control acknowledgement (DLSW).

FCIA	Fibre Channel Industry Association. An international organization of Fibre Channel industry professionals. Provides oversight of ANSI and industry-developed standards, among other tasks.
FCIP Tunneling Service	The HP Multiprotocol SAN Routing Service that enables SANs to span longer distances than could be supported with native Fibre Channel links. FCIP is a TCP/IP-based tunneling protocol that allows the transparent interconnection of geographically distributed SAN islands through an IP-based network.
FCLC	Fibre Channel Loop Community.
FCP	Fibre Channel Protocol. Mapping of protocols onto the Fibre Channel standard protocols. For example, SCSI FCP maps SCSI-3 onto Fibre Channel.
FCRP	Fibre Channel Router Protocol. A protocol that enables LSAN switches to perform routing between different edge fabrics, optionally across a backbone fabric.
FCRS	Fibre Channel Routing Service. The HP Multiprotocol SAN Routing Service that extends hierarchical networking capabilities to Fibre Channel fabrics. Sometimes called "FC-to-FC routing," FCRS enables devices located on separate fabrics to communicate without merging the fabrics. It also enables the creation of LSANs.
FCS	Fibre Channel switch.
FCS switch	Relates to the HP Secure Fabric OS feature. One or more designated switches that store and manage security parameters and configuration data for all switches in the fabric. They also act as a set of backup switches to the primary FCS switch. *See also* backbone fabric, primary FCS switch.
FC-SW-2	The second-generation Fibre Channel Switch Fabric standard defined by ANSI. Specifies tools and algorithms for the interconnection and initialization of Fibre Channel switches to create a multiswitch Fibre Channel fabric.
FDDI	Fibre Distributed Data Interface. An ANSI architecture for a metropolitan area network (MAN); a network based on the use of fiber-optic cable to transmit data at 100 Mb/sec.
FDMI	Fabric-Device Management Interface. FDMI is a database service provided by the fabric for Nx_Ports. The primary use is by HBA devices that register information about themselves and their ports.
FFFFF5	Well-known Fibre Channel address for a Class 6 multicast server.
FFFFF6	Well-known Fibre Channel address for a clock synchronization server.
FFFFF7	Well-known Fibre Channel address for a security key distribution server.
FFFFF8	Well-known Fibre Channel address for an alias server.
FFFFF9	Well-known Fibre Channel address for a QoS facilitator.
FFFFFA	Well-known Fibre Channel address for a management server.
FFFFFB	Well-known Fibre Channel address for a time server.
FFFFFC	Well-known Fibre Channel address for a directory server.
FFFFFD	Well-known Fibre Channel address for a fabric controller.
FFFFFE	Well-known Fibre Channel address for a fabric F_Port.
FFFFFF	Well-known Fibre Channel address for a broadcast alias ID.

Fibre Channel	The primary protocol used for building SANs to transmit data between servers, switches, and storage devices. Unlike IP and Ethernet, Fibre Channel was designed to support the needs of storage devices of all types. It is a high-speed, serial, bidirectional, topology-independent, multiprotocol, and highly scalable interconnection between computers, peripherals, and networks.
Fibre Channel transport	A protocol service that supports communication between Fibre Channel service providers. *See also* FSP.
FICON	A protocol used on IBM mainframes. HP StorageWorks switch FICON support enables an HP StorageWorks fabric to transmit FICON format data between FICON-capable servers and storage.
FID	Fabric ID. Unique identifier of a fabric in a meta-SAN.
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 watermarking	An HP StorageWorks switch feature that prevents an incompatible version of the HP Fabric OS to be downloaded to the HP StorageWorks 2 GB series switches.
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, Fx_Port.
flash	Programmable nonvolatile RAM (NVRAM) memory that maintains its contents without power.
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.
FOTP	Fiber Optic Test Procedure. Standards developed and published by the Electronic Industries Association (EIA) under the EIA-RS-455 series of standards.
FPD	Field-programmable device. Interchangeable with "PLD".
FPGA	Field-programmable gate array. An FPD that allows high logic capacity.
fractional bandwidth	The partial use of a link to send data back and forth, with a maximum of 254 Class 4 connections per N_Port.
frame	The Fibre Channel structure used to transmit data between ports. Consists of a start-of-frame delimiter, header, optional headers, data payload, cyclic redundancy check (CRC), and end-of-frame delimiter. There are two types of frames: link control frames (transmission acknowledgements and so forth) and data frames.
frame relay	A protocol that uses logical channels, as used in X.25. Provides very little error-checking ability. Discards frames that arrive with errors. Allows a certain level of bandwidth between two locations (known as a *committed information rate*: CIR) to be guaranteed by service provider. If CIR is exceeded for short periods (known as *bursts*), the network accommodates the extra data, if spare capacity is available. Frame relay is therefore known as *bandwidth on demand*.
FRU	Field-replaceable unit. A component that can be replaced onsite.
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. The HP routing protocol for Fibre Channel switches.
FSS	Fabric OS state synchronization. The FSS service is related to high availability (HA). The primary function of FSS is to deliver state update messages from active components to their peer standby components. FSS determines if fabric elements are synchronized (and thus FSS compliant).
FTP	File Transfer Protocol.
FTS	Fiber Transport Services.
full fabric	The HP software license that allows multiple E_Ports on a switch, making it possible to create multiple ISL links.
full fabric citizenship	A loop device that has an entry in the Simple Name Server.
full duplex	A mode of communication that allows the same port to simultaneously transmit and receive frames. *See also* half duplex.
Fx_Port	A fabric port that can operate as either an F_Port or FL_Port. *See also* F_Port, FL_Port.
G_Port	Generic port. A port that can operate as either an E_Port or an 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.
Gb/s	Gigabits per second (1,062,500,000 bits/second).
GB/sec	Gigabytes per second (1,062,500,000 bytes/second).
GLM	Gigabit Link Module. A semitransparent transceiver that incorporates serializing/deserializing functions.
GMT	Greenwich Mean Time. An international time zone. Also known as UTC.
GUI	A graphic user interface, such as HP Advanced Web Tools arbitrated-loop topology and HP Fabric Manager.
HA	High availability. A set of features in HP StorageWorks switches that is designed to provide maximum reliability and nondisruptive replacement of key hardware and software modules.
half duplex	A mode of communication that allows a port to either transmit or receive frames at any time except simultaneously (with the exception of link control frames, which can be transmitted at any time). *See also* full duplex.
hard address	The AL_PA that an NL_Port attempts to acquire during loop initialization.
Hardware Translative Mode	A method for achieving address translation. There are two hardware translative modes available to a QuickLoop enabled switch: Standard Translative Mode and QuickLoop Mode.
HBA	Host bus adapter. The interface card between a server or workstation bus and the Fibre Channel network.
HCPLD	High-capacity PLD. Refers to both CPLDs and FPGAs.

header	A Fibre Channel frame has a header and a payload. The header contains control and addressing information associated with the frame.
hop count	The number of ISLs a frame must traverse to get from its source to its destination.
host	A computer system that provides end users with services like computation and storage access.
hot swappable	A hot swappable component can be replaced under power.
HTTP	Hypertext Transfer Protocol. The standard TCP/IP transfer protocol used on the World Wide Web.
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.
hunt group	A number of N_Ports registered as a single Alias_ID so that the fabric can route a word to a port that is not busy.
HW	Hardware.
ID_ID	Insistent domain ID. A parameter of the configure command in the HP Fabric OS.
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.
iFCP	Internet Fibre Channel Protocol. Supports Fibre Channel Layer 4 FCP-Over-TCP/IP. It is a gateway-to-gateway protocol in which TCP/IP switching and routing components enhance/replace Fibre Channel fabric.
IFL	Interfabric link. A connection between a router and an edge fabric. Architecturally, these can be of type EX_Port-to-E_Port or EX_Port-to-EX_Port.
in-band	Transmission of management protocol over the Fibre Channel.
initiator	A server or workstation on a Fibre Channel network that initiates communications with storage devices. *See also* target.
Insistent Domain ID Mode	Sets the domain ID of a switch as insistent, so that it remains the same over reboots, power cycles, failovers, and fabric reconfigurations. This mode is required to support FICON® traffic.
integrated fabric	The fabric created by an HP StorageWorks SAN Switch Integrated/64, consisting of six HP StorageWorks 1 GB switches cabled together and configured to handle traffic seamlessly as a group.
intercabinet	A specification for copper cabling that allows up to 33-meter distances between cabinets.
intermix	Allows any unused bandwidth in a Class 1 connection.
interswitch link	*See* ISL.
IOD	In-order delivery. A parameter that, when set, guarantees that frames are either delivered in order or dropped.
IP	Internet Protocol. The addressing part of TCP.
IPI	Intelligent Peripheral Interface.
IQN	iSCSI qualified name.
ISC	Internet Software Consortium.

iSCSI	Internet Small Computer Systems Interface. A protocol that defines the processes for transferring block storage applications over TCP/IP networks by encapsulating SCSI commands into TCP and transporting them over the network via IP.
iSCSI Gateway Service	The HP multiprotocol SAN routing service that maps the FCP protocol to the IP transport. This service projects iSCSI hosts onto the backbone fabric of a gateway switch.
ISL	Interswitch link. A Fibre Channel link from the E_Port of one switch to the E_Port of another. *See also* cascade, E_Port.
ISL oversub-scription ratio	The ratio of the number of free ports (non-ISL) to the number of ISLs on a switch.
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.
ISP	Internet service provider.
IU	Information unit. A set of information as defined by either an upper-level process protocol definition or upper-level protocol mapping.
JBOD	(*Just a bunch of disks*) Indicates a number of disks connected in a single chassis to one or more controllers. *See also* RAID.
jitter	A deviation in timing for a bit stream as it flows through a physical medium.
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.
key	A string of data (usually a numeric value) shared between two entities and used to control a cryptographic algorithm. Usually selected from a large pool of possible keys to make unauthorized identification of the key difficult. *See also* key pair.
key pair	In public key cryptography, a pair of keys consisting of an entity's public and private key. The public key can be publicized, but the private key must be kept secret. *See also* public key cryptography.
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 either Fabric Mode or Loop Mode.
LAN	Local area network. A network in which transmissions typically take place over fewer than 5 kilometers (3.4 miles).
latency	The time required to transmit a frame. Together, latency and bandwidth define the speed and capacity of a link or system.
LED	Light-emitting diode. Used to indicate the status of elements on a switch.
LIFA	Loop-initialization fabric-assigned frame. Contains a bitmap of all fabric-assigned AL_PAs and is the first frame transmitted in the loop initialization process after a temporary loop master has been selected.
LIHA	Loop-initialization hard-assigned frame. A hard-assigned AL_PA that is indicated by a bit set and is the third frame transmitted in the loop initialization process after a temporary loop master has been selected.
LILP	Loop-initialization loop-position frame. The final frame transmitted in a loop initialization process. A returned LIRP contains an accumulation of all of the AL_PA position maps. This allows loop members to determine their relative loop position. This is an optional frame and is not transmitted unless the LIRP is also transmitted.

Link Services	A protocol for link-related actions.
LIP	Loop initialization primitive. The signal used to begin initialization in a loop. Indicates either loop failure or node resetting.
LIPA	Loop-initialization previously assigned. The device marks a bit in the bitmap if it did not log in with the fabric in a previous loop initialization.
LIRP	Loop-initialization report position frame. The first frame transmitted in the loop initialization process after all L_Ports have selected an AL_PA. The LIRP gets transmitted around the loop so all L_Ports can report their relative physical position. This is an optional frame.
LISA	Loop-initialization soft-assigned frame. The fourth frame transmitted in the loop initialization process after a temporary loop master has been selected. L_Ports that have not selected an AL_PA in a LIFA, LIPA, or LIHA frame select their AL_PA here.
LISM	Loop-initialization select master frame. The first frame transmitted in the initialization process when L_Ports select an AL_PA. LISM is used to select a temporary loop master or the L_Port that will subsequently start transmission of the LIFA, LIPA, LIHA, LISA, LIRP, or LILP frames.
LM_TOV	Loop master timeout value. The minimum time that the loop master waits for a loop initialization sequence to return.
login server	The unit that responds to login requests.
Loom	The code name given to the second-generation HP Fabric ASIC. This is the ASIC used in the StorageWorks 1 GB switches.
loop circuit	A temporary bidirectional communication path established between L_Ports.
loop failure	Loss of signal within a loop for any period of time, or loss of synchronization for longer than the timeout value.
Loop_ID	A hexadecimal value representing one of the 127 possible AL_PA values in an arbitrated loop.
loop initialization	The logical procedure used by an L_Port to discover its environment. Can be used to assign AL_PA addresses, detect loop failure, or reset a node.
Loop Mode	One of two possible modes for an L_Port, in which the L_Port is in an arbitrated loop, using loop protocol. An L_Port in Loop Mode can also be in Participating Mode or Nonparticipating Mode.
looplet	A set of devices connected in a loop to a port that is a member of another loop.
LPB	Loop port bypass. A primitive sequence transmitted by an L_Port to bypass one or all L_Ports to which it is directed. It is used only in arbitrated loops.
LPE	Loop port enable. A primitive sequence transmitted by an L_Port to enable one or all L_Ports that have been bypassed with the LPB. It is used only in arbitrated loops.
LPSM	Loop Port State Machine. Logic that monitors and performs the tasks required for initialization and access to the loop. It is maintained by an L_Port to track behavior through different phases of loop operations. Alternatively, the logical entity that performs arbitrated-loop protocols and defines the behavior of L_Ports when they require access to an arbitrated loop.
LR	Link reset. A primitive sequence used during link initialization between two N_Ports in point-to-point topology or an N_Port and an F_Port in fabric topology. The expected response is an LRR.

LRR	Link reset response. A primitive sequence during link initialization between two N_Ports in point-to-point topology or an N_Port and an F_Port in fabric topology. It is sent in response to an LR and expects a response of Idle.
LSAN	Logical storage area network. An LSAN enables device and storage connectivity that spans two or more fabrics. The path between devices in an LSAN can be local to a fabric or cross one or more FC routers and one or more backbone fabrics.
LSAN zone	The mechanism by which LSANs are administered. An FC router attached to two fabrics will "listen" for the creation of matching LSAN zones on both fabrics. If this occurs, it will create phantom domains and FC-NAT entries as appropriate, and insert entries for them into the name servers on the fabrics. LSAN zones are compatible with all standard zoning mechanisms.
LWL	Long wavelength. A type of fiber optic cabling that is based on 1300-mm lasers and supports link speeds of 1.0625 Gb/sec. Can also see the type of GBIC or SFP. *See also* SWL.
MALLOC	Memory allocation. Usually relates to buffer credits.
MAN	Metropolitan area network.
MB/s	Megabytes per second.
Mb/s	Megabits per second.
meta-SAN	The collection of all devices, switches, edge and backbone fabrics, LSANs, and FC routers that make up a physically connected but logically partitioned storage network. LSANs span between edge fabrics using FC routers. In a data network, this would simply be called *the network*. However, an additional term is required to specify the difference between a single-fabric network (*SAN*), a multifabric network without cross-fabric connectivity (*dual-redundant fabric SAN*), and a multifabric network with connectivity (*meta-SAN*).
metric	A relative value assigned to a route to aid in calculating the shortest path (1000 @ 1 Gb/s, 500 @ 2 Gb/s).
MIA	Media interface adapter. A device that converts optical connections to copper ones, and vice-versa.
MIB	Management Information Base. An SNMP structure to help with device management, providing configuration and device information.
MMF	Multimode fiber. *See* SWL.
MOF	Managed Object Format file.
MP router	A platform running the HP Fibre Channel Routing Service or FC-to-FC routing (for instance, the StorageWorks MP Router) that enables two or more fabrics to share resources (such hosts or storage devices) without merging those fabrics. The platform could simultaneously be used as an MP router and as an FCIP tunnel or iSCSI gateway.
MRK	Mark primitive signal. Used only in arbitrated loop, MRK is transmitted by an L_Port for synchronization and is vendor specific.
MS	Management Server. The Management Server allows a storage area network (SAN) management application to retrieve information and administer the fabric and interconnected elements, such as switches, servers, and storage devices. The MS is located at the Fibre Channel well-known address FFFFFAh.
MSD	Management Server daemon. Monitors the MS. Includes the Fabric Configuration Service and the Unzoned Name Server.

MSRS	Multiprotocol SAN Routing Services. An optionally licensed software bundle available on certain HP platforms, such as the HP StorageWorks MP Router, that includes the Fibre Channel Routing Service, the iSCSI Gateway Service, and the FCIP Tunneling Service.
MTBF	Mean time between failures. An expression of time, indicating the longevity of a device.
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, unicast.
multimode	A fiber optic cabling specification that allows up to 500 meters between devices.
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, Nx_Port.
Name Server	Simple Name Server (SNS). 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. Also referred to as *directory service*.
NAS	Network-attached storage. A disk array connected to a controller that gives access via a LAN.
NDMP	Network Data Management Protocol. Used for tape backup without using server resources.
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, Nx_Port.
node	A Fibre Channel device that contains an N_Port or NL_Port.
node count	The number of nodes attached to a fabric.
node name	The unique identifier for a node, communicated during login and port discovery.
Nonparticipating Mode	A mode in which an L_Port in a loop is inactive and cannot arbitrate or send frames but can retransmit 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, Participating Mode.
NOS	Not operational. The NOS primitive sequence is transmitted to indicate that the FC_Port transmitting the NOS has detected a link failure or is offline, waiting for the offline sequence (OLS) to be received.
NR_Port	A normal E_Port used to connect an FC router to a backbone fabric.
NS	Name Server. The service provided by a fabric switch that stores names, addresses, and attributes related to Fibre Channel objects. Can cache information for up to 15 minutes. Also known as *Simple Name Server* or as a *directory service*. *See also* Simple Name Server (SNS).
NSCAM	Name Server Cache Manager. Updates the Name Server (NS) databases across switches as a background task.
Nx_Port	A node port that can operate as either an N_Port or NL_Port.
OFC	Open fiber control. A method used to enable and disable laser signaling for higher-intensity laser transceivers.
OLS	Primitive sequence offline.
ON	Offline notification. Refers to an ELS field that appears in `portLogDump` command output.
OPN	Open primitive signal. Applies only to arbitrated loop; sent by an L_Port that has won the arbitration process to open communication with one or more ports on the loop.

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 frame transport.
originator	The Nx_Port that originated an exchange.
out-of-band	Transmission of management protocol outside of the Fibre Channel network, usually over Ethernet.
oversub-scription	A situation in which more nodes could potentially contend for a resource than the resource could simultaneously support (typically an ISL). Oversubscription could be a desirable attribute in fabric topology, as long as it does not produce unacceptable levels of congestion.
OX_ID	Originator ID or exchange ID. Refers to the exchange ID assigned by the originator port.
PAL	Programmable Array Logic. A relatively small FPD.
parallel	The simultaneous transmission of data bits over multiple lines.
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* L_Port, Nonparticipating Mode.
passive copper	A low-cost copper Fibre Channel connection, allowing distances up to 13 meters between devices.
path selection	The selection of a transmission path through the fabric. HP switches use the FSPF protocol. *See also* FSPF.
payload	A Fibre Channel frame has a header and a payload. The payload contains the information being transported by the frame; it is determined by the higher-level service or FC_4 upper-level protocol. There are many different payload formats, based on protocol.
PBC	Port bypass circuit. A circuit in hubs or a disk enclosure to open or close a loop to add or remove nodes.
PCM	Pulse-code modulation. A standard method of encoding analog audio signals in digital form.
Performance Monitoring	An HP StorageWorks switch feature that monitors port traffic and includes frame counters, SCSI read monitors, SCSI write monitors, and other types of monitors.
persistent error log	Error messages of a high enough level (by default, Panic or Critical) are saved to flash memory on the switch instead of to RAM. These messages are saved over reboots and power cycles, constituting the persistent error log. Note that each CP on a StorageWorks 2/64 has its own unique persistent error log.
phantom address	An AL_PA value that is assigned to a device that is not physically in the loop. Also known as phantom AL_PA.
phantom device	A device that is not physically in an arbitrated-loop but is logically included through the use of a phantom address.
phantom domain	*See* xlate domain.
PID	Port identifier.

PKI	Public key infrastructure. An infrastructure that is based on public key cryptography and CA (certificate authority) and that uses digital certificates. *See also* CA, digital certificate, public key cryptography.
PKI certification utility	Public key infrastructure certification utility. A utility that makes it possible to collect certificate requests from switches and to load certificates to switches. *See also* digital certificate, PKI.
PLDA	Private loop direct-attached. A technical report specifying a logical loop.
PLOGI	Port login. The port-to-port login process by which initiators establish sessions with targets. *See also* FLOGI.
point-to-point	A Fibre Channel topology that employs direct links between each pair of communicating entities. *See also* topology.
port	In an HP StorageWorks switch environment, an SFP or GBIC receptacle on a switch to which an optic cable for another device is attached.
port address	In Fibre Channel technology, the port address is defined in hexadecimal. In the HP Fabric OS, a port address can be defined by a domain and port number combination or by area number. In an ESCON Director, an address used to specify port connectivity parameters and to assign link addresses for attached channels and control units.
port card	A hardware component that provides a platform for field-replaceable, hot swappable ports.
port log	A record of all activity on a switch, kept in volatile memory.
port log dump	A view of what happens on a switch, from the switch's point of view. The `portLogDump` command is used to read the port log.
port name	A user-defined alphanumeric name for a port.
port swapping	Port swapping is the ability to redirect a failed port to another port. This feature is available in Fabric OS v4.1.0 and higher.
port_name	The unique identifier assigned to a Fibre Channel port. Communicated during login and port discovery.
POST	Power-on self-test. A series of tests run by a switch after it is turned on.
PPP	Point-to-Point Protocol.
primary FCS switch	Relates to the HP Secure Fabric OS feature. The primary fabric configuration server switch actively manages security and configurations for all switches in the fabric. *See also* backbone fabric, FCS switch.
primitive sequence	An ordered set that is transmitted repeatedly and continuously. Primitive sequences are transmitted to indicate specific conditions within or conditions encountered by the receiver logic of an FC_Port. *See* OLS *and* NOS.
primitive signals	An ordered set that indicates actions or events and requires just one occurrence to trigger a response. IDLE and R_RDY are used in all three topologies: ARB, OPN, and CLS. MRK is used in arbitrated loop.
principal switch	The first switch to boot up in a fabric. Ensures unique domain IDs among roles.
private device	A device that supports arbitrated-loop protocol and can interpret 8-bit addresses but cannot log in to the fabric.
private key	The secret half of a key pair. *See also* key, key pair.

private loop	An arbitrated loop that does not include a participating FL_Port.
private loop device	A device that supports a loop and can understand 8-bit addresses but does not log in to the fabric.
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 set of standards for communication. Determines the type of error-checking, the data-compression method, how sending devices indicate an end of message, and how receiving devices indicate receipt of a message.
pstate	Port State Machine.
PSU	Power supply unit.
public device	A device that supports arbitrated-loop protocol, can interpret 8-bit addresses, and can log in to the fabric.
public key	The public half of a key pair. *See also* key, key pair.
public key cryptography	A type of cryptography that uses a key pair, with the two keys in the pair called at different points in the algorithm. The sender uses the recipient's public key to encrypt the message, and the recipient uses the recipient's private key to decrypt it. *See also* key pair, "PKI".
public loop	An arbitrated loop that includes a participating FL_Port and can contain both public and private NL_Ports.
public NL_Port	An NL_Port that logs in to the fabric, can function within either a public or a private loop, and can communicate with either private or public NL_Ports.
QLA	A type of Fibre Channel controller.
QLFA	QuickLoop Fabric Assist. Arbitrated-loop technology.
QoS	Quality of service.
quad	A group of four adjacent ports that share a common pool of frame buffers.
queue	A mechanism for each AL_PA address that allows for collecting frames prior to sending them to the loop.
QuickLoop	An HP software product that allows multiple ports on a switch to create a logical loop. Devices connected via QuickLoop appear to each other as if they are on the same arbitrated loop.
QuickLoop Mode	Allows initiator devices to communicate with private or public devices that are not in the same loop.
R_A_TOV	Resource allocation timeout value. The maximum time a frame can be delayed in the fabric and still be delivered. *See also* E_D_TOV, RR_TOV.
R_CTL	Route control. The first 8 bits of the header, which defines the type of frame and its contents.
R_RDY	Receiver ready. A primitive signal indicating that the port is ready to receive a frame.
R_T_TOV	Receiver transmitter timeout value, used by receiver logic to detect loss of synchronization between transmitters and receivers.
radius	The greatest distance between any edge switch and the center of a fabric. A low-radius network is better than a high-radius network.

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* JBOD.
RAIT	Redundant array of independent tapes.
RCS	Reliable Commit Service. Refers to HP-specific ILS command code.
RCS_SFC	RCS Stage Fabric Config. Refers to HP-specific ILS command code.
receiver	A device that performs detection and signal processing.
redundancy	Having multiple occurrences of a component to maintain high availability (HA).
remote switch	An optional product for long-distance fabrics, requiring a Fibre Channel-to-ATM or SONET gateway.
repeater	A circuit that uses a recovered clock to regenerate and transmit an outbound signal.
request rate	The rate at which requests arrive at a servicing entity.
resilience	A fabric's ability to adapt to or tolerate a failure of a component within the fabric.
resilient core/edge topology	Two or more switches acting as a core to interconnect multiple edge switches. Nodes attach to the edge switches.
responder	The N_Port with which an exchange originator attempts to communicate.
retimer	A circuit that uses an independent clock to generate outbound signals.
return loss	The ratio (expressed in dB) of incident power to reflected power, when a component or assembly is introduced into a link or system. Can see optical power or to electrical power in a specified frequency range.
RLS	Read Link Status.
route	As it applies to a fabric, the communication path between two switches. Might also apply to the specific path taken by an individual frame, from source to destination. *See also* FSPF.
routing	The assignment of frames to specific switch ports, according to frame destination.
RR_TOV	Resource recovery timeout value. The minimum time a target device in a loop waits after an LIP before logging out an SCSI initiator. *See also* E_D_TOV, R_A_TOV.
RSCN	Registered state change notification. A switch function that allows notification of fabric changes to be sent from the switch to specified nodes. The fabric controller issues RSCN requests to N_Ports and NL_Ports, but only if they have registered to be notified of state changes in other N_Ports and NL_Ports. This registration is performed via the State Change Registration (SCR) Extended Link Service. An N_Port or NL_Port can issue an RSCN to the fabric controller without having completed SCR with the fabric controller.
RTWR	Reliable transport with response. Might appear as a task in `portLogDump` command output.
running disparity	A binary parameter indicating the cumulative disparity (positive or negative) of all previously issued transmission characters.
RW	Read/write. Refers to access rights.
RX	Receiving frames.
RX_ID	Responder exchange identifier. A 2-byte field in the frame header that can be used by the responder of the exchange to identify frames as being part of a particular exchange.

S_ID	Source ID. Refers to the native port address (24 bit address).
SAN	Storage area network. A network of systems and storage devices that communicate using Fibre Channel protocols. *See also* fabric.
SAN architecture	The overall design of a storage network solution, which includes one or more related fabrics, each of which has a topology.
SAN port count	The number of ports available for connection by nodes in the entire SAN.
scalability	One of the properties of a SAN: the size to which a SAN topology can grow port and switch counts with ease.
SCC	SC connector. An SC connector is a fiber-optic cable connector that uses a push-pull latching mechanism similar to common audio and video cables. For bidirectional transmissions, two fiber cables and two SC connectors (dual SC) are generally used. SC is specified by the TIA as FOCIS-3.
SCN	State change notification. Used for internal state change notifications, not external changes. This is the switch logging that the port is online or is an Fx_Port, not what is sent from the switch to the Nx_Ports.
SCSI	Small Computer Systems Interface. A parallel bus architecture and a protocol for transmitting large data blocks to a distance of 15 to 25 meters.
SCSI-2	An updated version of the SCSI bus architecture.
SCSI-3	An SCSI standard that defines transmission of SCSI protocol data over different kinds of links.
SDRAM	The main memory for a switch.
sectelnet	A protocol similar to telnet but with encrypted passwords for increased security.
Secure Fabric OS	An optionally licensed HP feature that provides advanced, centralized security for a fabric.
security policy	Rules that determine how security is implemented in a fabric. Security policies can be customized through HP Secure Fabric OS or HP Fabric Manager.
SEQ_ID	Sequence identifier. A 1-byte field in the frame header change to identify the frames as being part of a particular exchange sequence between a pair of ports.
sequence	A group of related frames transmitted in the same direction between two N_Ports.
sequence initiator	The N_Port that begins a new sequence and transmits frames to another N_Port.
sequence recipient	Serializing/deserializing circuitry. A circuit that converts a serial bit stream into parallel characters, and vice-versa.
serial	The transmission of data bits in sequential order over a single line.
server	A computer that processes end-user applications or requests.
service rate	The rate at which an entity can service requests. *See also* request rate.
SES	SCSI Enclosure Services. A subset of the SCSI protocol used to monitor temperature, power, and fan status for enclosed devices.
SFF	Small-form-factor. An industry term for a smaller transceiver. *See* SFP.
SFP	Small-form-factor pluggable. A transceiver used on 2 GB/sec switches that replaces the GBIC.
SFP cable	A cable specifically designed for use with an SFP. Not compatible with GBICs.

SI	Sequence initiative.
Simple Name Server (SNS)	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. Also referred to as *directory service* or *name server*.
Single CP Mode	The `-s` option of the `firmwareDownload` command. Using `firmwareDownload -s` enables Single CP Mode. In the StorageWorks 2/64, Single CP Mode enables a user to upgrade a single CP and to select full install, autoreboot, and autocommit.
Single Mode	The fiber-optic cabling standard for devices up to 10 km apart.
S-Link Service	Facilities used between an N_Port and the fabric, or between two N_Ports, for login, sequence/exchange management, and maintaining connections.
SLP	Service Location Protocol.
SMDS	Switched Multimegabit Data Service. A good protocol for interconnecting LANs; however, SMDS has less error-checking capability than Frame Relay.
SMF	Single-mode fiber. *See* LWL.
SMI	Storage Management Initiative. A broad-based initiative sponsored by the Storage Networking Industry Association (SNIA) to standardize all aspects of storage management for multivendor storage networking products.
SMI	Structure of management information. A notation for setting or retrieving SNMP management variables.
SMI-S	Storage Management Initiative Specification. Defines the interface that allows storage management systems to manage and monitor storage area network (SAN) resources.
SNA/SDLC	Systems Network Architecture/Synchronous Data Link Control. A structure for transferring data among a variety of computing platforms.
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* community (SNMP).
SNS	Simple Name Server.
SOF	Start of frame. A group of ordered sets that marks the beginning of a frame and indicates the class of service the frame will use.
soft zone	A zone consisting of zone members that are made visible to each other through client service requests. Typically, soft zones contain zone members that are visible to devices using Name Server exposure of zone members. The fabric does not enforce a soft zone. Note that well-known addresses are implicitly included in every zone.
SoIP	SCSI-over-IP.
SONET	Synchronous optical network. A standard for optical networks that provides building blocks and flexible payload mappings.
special character	A 10-bit character that does not have a corresponding 8-bit value but is still considered valid. The special character is used to indicate that a particular transmission word is an ordered set. This is the only type of character to have five 1s or 0s in a row.
SPLD	Simple PLD. Usually, either a PLA or PAL.

SPOF	Single point of failure. Any component in a SAN whose malfunction could bring down the entire SAN.
SSH	Secure shell. Used starting in HP Fabric OS v4.1 to support encrypted telnet sessions to the switch. SSH encrypts all messages, including the client sending the password at login.
Standard Translative Mode	Allows public devices to communicate with private devices that are directly connected to the fabric.
stealth mode	A method used in some switches to simulate HP switches using QuickLoop.
striping	A RAID technique for writing a file to multiple disks on a block-by-block basis, with or without parity.
switch	A fabric device providing bandwidth and high-speed routing of data via link-level addressing.
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.
switch-to-switch authentication	The process of authenticating both switches in a switch-to-switch connection using digital certificates. *See also* authentication, digital certificate.
SWL	Short wavelength. A type of fiber optic cabling that is based on 850 mm lasers and supports 1.0625 GB/sec. link speeds. Can also see the type of GBIC or SFP. *See also* LWL.
syslog	Syslog daemon. Used to forward error messages.
T10	A standards committee chartered with creating standards for SCSI.
T11	A standards committee chartered with creating standards for Fibre Channel.
tachyon	A chip that supports FC-0 through FC-2 on a single chip.
target	A storage device on a Fibre Channel network. *See also* initiator.
TC	Track changes.
TCP/IP	Transmission Control Protocol Internet Protocol.
telnet	A virtual terminal emulation used with TCP/IP. "Telnet" is sometimes used as a synonym for the HP Fabric OS CLI.
tenancy	The time from when a port wins arbitration in a loop until the same port returns to the monitoring state. Also referred to as "loop tenancy."
throughput	The rate of data flow achieved within a cable, link, or system. Usually measured in bps (bits per second or b/sec). *See also* BB fabric.
tiering	The process of grouping particular SAN devices by function and then attaching these devices to particular switches or groups of switches based on that function.
Time Server	A Fibre Channel service that allows for the management of all timers.
topology	As it applies to Fibre Channel technology, the configuration of the Fibre Channel network and the resulting communication paths allowed. There are three possible topologies: • 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.

TPC	Third-party copy. A protocol for performing tape backups without using server resources.
track changes	An HP Fabric OS feature that can be enabled to report specific activities (for example, logins, logouts, and configuration task changes). The output from the track-changes feature is dumped to the error log for the switch.
transceiver	A device that converts one form of signaling to another for transmission and reception; in fiber optics, optical to electrical.
translate domain	*See* xlate domain.
Translative Mode	A mode in which private devices can communicate with public devices across the fabric.
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* SNMP.
trunking	In Fibre Channel technology, a feature that enables distribution of traffic over the combined bandwidth of up to four ISLs between adjacent switches, while preserving in-order delivery.
trunking group	A set of up to four trunked ISLs.
trunking ports	The ports in a set of trunked ISLs.
TS	Time Server.
TTL	Time-to-live. The number of seconds an entry exists in cache before it expires.
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.
TX	Transmit.
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 timeout value. The minimum time that an 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* broadcast, multicast.
UTC	Universal Time Conversion. Also known as *Coordinated Universal Time,* which is an international standard of time. UTC is 8 hours behind Pacific Standard Time and 5 hours behind Eastern Standard Time. See also GMT.
WAN	Wide area network.
WAN_TOV	Wide area network timeout value.
watchdog	A software daemon that monitors Fabric OS modules on the kernel.

WBEM   [need definition; BOFMS]

WDM   Wavelength division multiplexer. Allows multiple wavelengths to be combined or filtered on a single cable.

well-known address As it pertains to Fibre Channel technology, a logical address defined by Fibre Channel standards as assigned to a specific function and stored on the switch.

workstation   A computer used to access and manage the fabric. Also referred to as a "management station" or "host."

WTV   Write timeout value. Refers to an ELS field that appears in `portLogDump` command output.

WWN   world wide name. An identifier that is unique worldwide. Each entity in a fabric has a separate WWN.

X.25   A protocol that uses logical channels. X.25 allows high-quality communications between computers and can accommodate *noisy* data communications through error-detection and -correction (retransmission) algorithms.

xlate domain   Translate domain. A router virtual domain that represents an entire fabric. Device connectivity can be achieved from one fabric to another, over the router and through this virtual domain, without merging the two fabrics. Also known as *phantom domains*.

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 to others in the zone but are not visible to any outside the zone.

zone configuration A specified set of zones. Enabling a configuration enables all zones in that configuration. *See also* defined zone configuration, enabled zone configuration.

zoning   A feature in fabric switches or hubs that allows segmentation of a node by physical port, name, or address.

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