hp StorageWorks

fabric OS version 3.0.x/4.0.x reference guide

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This reference guide provides a detailed description of the Fabric OS commands. Although this guide is primarily about V4.0.x, it also covers V3.0.x that runs on the StorageWorks SAN Switch 2/16, 2/16 EL, and 2/8 EL switches.

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About this Guide

This reference guide provides information to help you:

*   Understand and use Fabric OS commands

*   Manage a switch or fabric

*   Contact technical support for additional assistance

Intended Audience

This book is intended for use by administrators who are experienced with the following:

• StorageWorks Fibre Channel SAN switches

• Fabric Operating System V3.0.x or later

Related Documentation

For a list of related documents included with this product, see the Related Documents section of the Release Notes that came with your switch.

For the latest information, documentation, and firmware releases, please visit the following StorageWorks website:

http://www.compaq.com/storage/productindexdisk.html

For information about Fibre Channel standards, visit the Fibre Channel Association website, located at http://www.fibrechannel.com.

Document Conventions

The conventions included in Table 1 apply.

Table 1: Document Conventions

Element	Convention
Cross-reference links	Blue text: Figure 1
Key names, menu items, buttons, and dialog box titles	**Bold**
File names, application names, and text emphasis	*Italics*
User input, command names, system responses (output and messages)	`Monospace font` `COMMAND NAMES` are uppercase unless they are case sensitive
Variables	*`Monospace, italic font`*
Website addresses	Sans serif font (http://thenew.hp.com)

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.

⚠ **WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.**

△ **CAUTION:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or data.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Getting Help

If you still have a question after reading this guide, contact an HP authorized service provider or access our website: http://thenew.hp.com.

HP Technical Support

In North America, call HP technical support at 1-800-652-6672, available 24 hours a day, 7 days a week.

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

Outside North America, call HP technical support at the nearest location. Telephone numbers for worldwide technical support are listed on the HP website: http://thenew.hp.com/country/us/eng/contact_us.html.

Be sure to have the following information available 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

HP Storage Website

The HP storage website has the latest information on this product, as well as the latest drivers. Access the HP storage website at: http://thenew.hp.com/country/us/eng/prodserv/storage.html. From this website, select the appropriate product or solution.

HP Authorized Reseller

For the name of your nearest HP Authorized Reseller:

- In the United States, call 1-800-345-1518.

- In Canada, call 1-800-263-5868.

- Elsewhere, access the HP website at http://thenew.hp.com/country/us/eng/contact_us.html for locations and telephone numbers.

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Fabric OS Commands

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

agtcfgDefault

Reset the SNMP agent configuration to default values.

Synopsis

```
agtcfgDefault
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

NOTE: In the StorageWorks Core switch, there is one agent per logical switch. This command is specific to the logical switch you are logged into.

The following values are reset to default:

sysDescr	The system description. The default value is `Fibre Channel Switch`.
sysLocation	The location of the system. The default value is `End User Premise`.
sysContact	The contact information for the system. The default value is `Field Support`.

swEventTrapLevel	The event trap level in conjunction with the event's severity level. When an event occurs and if its severity level is at or below the set value, the SNMP trap, swEventTrap, is sent to configured trap recipients. By default, this value is set at 0, implying that no swEventTrap is sent. Possible values are:

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

authTraps	The default value is 0 (off). When enabled the authentication trap, authenticationFailure, is transmitted to a configured trap recipient in the event the agent received a protocol message that is not properly authenticated. In the context of SNMPv1 and SNMPv2c, this means that a request contains a community string that is not known to the agent. The default value for this parameter is 0 (disabled).

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

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

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

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

Operands

None.

Example

To set the SNMP agent configuration parameters to default values, and verify they were set:

```
sw5:admin> agtcfgDefault
*****
This command will reset the agent's configuration back to
factory default
*****
Current SNMP Agent Configuration
Customizable MIB-II system variables:
         sysDescr = Fibre Channel Switch.
       sysLocation = End User Premise
         sysContact = sweng
  sweventTrapLevel = 0
         authTraps = 0 (OFF)

SNMPv1 community and trap recipient configuration:
  Community 1: Secret C0de (rw)
    Trap recipient: 192.168.15.41
  Community 2: OrigEquipMfr (rw)
    No trap recipient configured yet
  Community 3: private (rw)
    No trap recipient configured yet
  Community 4: public (ro)
    No trap recipient configured yet
  Community 5: common (ro)
    No trap recipient configured yet
  Community 6: FibreChannel (ro)
    No trap recipient configured yet

SNMP access list configuration:
Entry 0:  Access host subnet area 192.168.64.x (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
<continued on next page>
```

```
*****
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.
  swEventTrapLevel = 0
          authTraps = 0 (OFF)

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
switch:admin>
```

See Also

agtcfgSet

agtcfgShow

agtcfgSet

Modify the SNMP agent configuration.

Synopsis

```
agtcfgSet
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

NOTE: In the StorageWorks Core switch, there is one agent per logical switch. This command is specific to the logical switch you are logged into.

Set the values for the following items:

sysDescr	The system description. The default value is `Fibre Channel Switch`.
sysLocation	The location of the system. The default value is `End User Premise`.
sysContact	The contact information for the system. The default value is `Field Support`.

swEventTrapLevel	The event trap level in conjunction with the event's severity level. When an event occurs and if its severity level is at or below the set value, the SNMP trap, swEventTrap, is sent to configured trap recipients. By default, this value is set at 0, implying that no swEventTrap is sent. Possible values are:

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

authTraps	The default value is 0 (off). When enabled the authentication trap, authenticationFailure, is transmitted to a configured trap recipient in the event the agent received a protocol message that is not properly authenticated. In the context of SNMPv1 and SNMPv2c, this means that a request contains a community string that is not known to the agent. The default value for this parameter is 0 (disabled).

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

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

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

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

Operands

None.

Example

To modify the SNMP configuration values:

```
switch:admin> agtcfgSet
Customizing MIB-II system variables ...
At each prompt, do one of the following:
  o <Return> to accept current value,
  o enter the appropriate new value,
  o <Control-D> to skip the rest of configuration, or
  o <Control-C> to cancel any change.
To correct any input mistake:
<Backspace> erases the previous character,
<Control-U> erases the whole line,
sysDescr: [FC Switch]
sysLocation: [End User Premise]
sysContact: [Field Support.]
swEventTrapLevel: (0..5) [3]
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]
Community (rw): [OrigEquipMfr]
Trap Recipient's IP address in dot notation: [192.168.1.26]
Community (rw): [private]
Trap Recipient's IP address in dot notation: [0.0.0.0] 192.168.64.88
Community (ro): [public]
Trap Recipient's IP address in dot notation: [0.0.0.0]
Community (ro): [common]
Trap Recipient's IP address in dot notation: [0.0.0.0]
Community (ro): [FibreChannel]
Trap Recipient's IP address in dot notation: [0.0.0.0]

SNMP access list configuration:
Access host subnet area in dot notation: [0.0.0.0] 192.168.64.x
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.
switch:admin>
```

See Also

agtcfgDefault

agtcfgShow

agtcfgShow

Display the SNMP agent configuration.

Synopsis

```
agtcfgShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

NOTE: In the StorageWorks Core switch, there is one agent per logical switch. This command is specific to the logical switch you are logged into.

The following information is displayed:

sysDescr	The system description. The default value is `Fibre Channel Switch`.
sysLocation	The location of the system. The default value is `End User Premise`.
sysContact	The contact information for the system. The default value is `Field Support`.

`swEventTrapLevel`	The event trap level in conjunction with the event's severity level. When an event occurs and if its severity level is at or below the set value, the SNMP trap, swEventTrap, is sent to configured trap recipients. By default, this value is set at 0, implying that no swEventTrap is sent. Possible values are:

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

`authTraps`	The default value is 0 (off). When enabled the authentication trap, authenticationFailure, is transmitted to a configured trap recipient in the event the agent received a protocol message that is not properly authenticated. In the context of SNMPv1 and SNMPv2c, this means that a request contains a community string that is not known to the agent. The default value for this parameter is 0 (disabled).

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

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

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

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

Operands

None.

Example

To display SNMP agent configuration information:

```
switch:admin> agtcfgShow
Current SNMP Agent Configuration
    Customizable MIB-II system variables:
            sysDescr = FC Switch
         sysLocation = End User Premise
          sysContact = Field Support.
    swEventTrapLevel = 3
           authTraps = 1 (ON)
SNMPv1 community and trap recipient configuration:
  Community 1: Secret C0de (rw)
    Trap recipient: 192.168.1.51
  Community 2: OrigEquipMfr (rw)
    Trap recipient: 192.168.1.26
  Community 3: private (rw)
    No trap recipient configured yet
  Community 4: public (ro)
    No trap recipient configured yet
  Community 5: common (ro)
    No trap recipient configured yet
  Community 6: FibreChannel (ro)
    No trap recipient configured yet

SNMP access list configuration:
Entry 0:  Access host subnet area 192.168.64.x (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

aliasDelete

Delete a port from all local groups.

Synopsis

```
aliasDelete portID
```

Availability

admin

Release

V3.0.x

Description

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

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

Operands

This command has the following operand:

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

Example

To delete a port from an existing group:

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

Exit Status

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

See Also

```
aliasJoin
aliasShow
fabricShow
switchShow
```

aliasJoin

Create or add a member to a group of N_Ports.

Synopsis

```
aliasJoin
```

Availability

admin

Release

V3.0.x

Description

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

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

Operands

None.

Example

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

```
sw5:admin> aliasJoin
aliasJoin: To add ports to an existing or new multicast group
Number of ports in the group: (1..64) [1]
To set an authorization password? (yes, y, no, n): [no]
no password
Setting the authorization control
Add control: 0 by any, 1 only itself, 2 by creator: (0..2) [0]
Del control: 0 by any, 1 only itself, 2 by creator: (0..2) [0]
Lsn control: 0 by any, 1 by none: (0..1) [1]
Add control 0, Del control 0 Lsn control 1
Setting the Routing Bit: (0x0..0xc) [0x0]
using FC-4 Device Data ...
Setting FC-4 Type: (0x0..0x5d) [0x5]
using 0x05 ...
To set the alias qualifier in WWN format?  (yes, y, no, n): [yes]
Qualifier (in hex): [10:00:00:60:69:80:02:28]
Port ID (in hex): (0x0..0xeffa00) [0] 0x19c00
npList[0] = 0x19c00
aliasJoin: Join request to Group Address 0xfffb00 succeeds
```

Exit Status

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

See Also

aliasShow

fabricShow

nsShow

nsAllShow

aliasDelete

aliasPurge

aliasPurge

Remove an alias group.

Synopsis

```
aliasPurge groupID
```

Availability

admin

Release

V3.0.x

Description

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

Operands

This command has the following operand:

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

Example

To remove an alias group:

```
sw5:admin> aliasPurge 0xfffb00
aliasPurge: succeeded
```

Exit Status

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

See Also

```
aliasJoin
aliasShow
fabricShow
switchShow
```

aliasShow

Display local alias server information.

Synopsis

```
aliasShow
```

Availability

All users.

Release

V3.0.x

Description

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

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

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

The following fields are displayed:

Alias ID		Multicast address presented in format FFFBxx, where xx is the name of the multicast group.
Creator		Fibre Channel address ID of Nx_Port that created alias group.
Creator token		Alias token provided to map to the alias group; it consists of the following entries:
	rb	Routing bits.
	type	Upper level application type.
	grptype	Alias group type; can only be 10 for multicast.
	qlfr	Alias qualifier of group.
Member list		A list of member address IDs.

Operands

None.

Example

The following example is for V3.0.x:

```
switch:admin> aliasShow
The Local Alias Server has 1 entry
Alias ID Creator Token [rb, type, grptype, qlfr] Member List
fffb01 fffffd [40, 05, 10, 60000010 12000069] {021200 020800}
```

The following example is for V4.0.x:

```
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
switch:admin>
```

Exit Status

0	Successful operation.
Non Zero	Indicates that the operation has failed.

See Also

fabricShow

switchShow

aliAdd

Add a member to a zone alias.

Synopsis

```
aliAdd "aliName", "member; member"
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

NOTE: This command requires an Advanced Zoning License.

Operands

This command has the following operands:

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

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

- For V3.0.x, a switch domain and physical port number pair.
- For V4.0.x, 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.

Example

To add members to the following aliases:

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

See Also

aliCreate

aliDelete

aliRemove

aliShow

aliCreate

Create a zone alias.

Synopsis

```
aliCreate "aliName", "member; member"
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to create a new zone alias.

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

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

NOTE: This command requires an Advanced Zoning License.

Operands

This command has the following operands:

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

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

- For V3.0.x, a switch domain and physical port
  number pair.
- For V4.0.x, 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.

Example

To create zone aliases in V3.0.x:

```
switch:admin> aliCreate "array1", "3,5; 3,8"
switch:admin> aliCreate "array2", "21:00:00:20:37:0c:66:23"
switch:admin> aliCreate "loop1", "0x02; 0xEF; 5,4"
```

The following example shows how to create zone aliases in V4.0.x. Notice that the
first example uses Area numbers.

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

See Also

aliAdd

aliDelete

aliRemove

aliShow

aliDelete

Delete a zone alias.

Synopsis

```
aliDelete "aliName"
```

Availability

admin

Release

V3.0.x and V4.0.x

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 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: This command requires an Advanced Zoning License.

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.

Example

To delete the zone alias array2:

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

See Also

```
aliAdd
aliCreate
aliRemove
aliShow
```

aliRemove

Remove a member from a zone alias.

Synopsis

```
aliRemove "aliName", "member; member"
```

Availability

admin

Release

V3.0.x and V4.0.x

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 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: This command requires an Advanced Zoning License.

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:

- For V3.0.x, a switch domain and physical port number pair.
- For V4.0.x, 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.

Example

To remove a worldwide 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

Display zone alias information.

Synopsis

```
aliShow "pattern"
```

Availability

All users.

Release

V3.0.x and V4.0.x

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.

Operands

This command has the following operand:

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

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

This operand is optional.

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

Example

To show all zone aliases beginning with "arr":

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

See Also

aliAdd

aliCreate

aliDelete

aliRemove

backplanetest

Backplane connection test for multiple blade configured system.

Synopsis

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

Availability

admin

Description

Use this command to verify the function of the backplane connection of the blades through the backend external ports. This command is for the StorageWorks Core switch only. This command is not part of blade diagnostics; it is used to verify backplane connection by using the blade's frame transmitter/receiver features.

Options

This command has the following operands:

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

`-pat patterntype`	Specify the test pattern type used in the test frame payload. The default test is 17(jCRPAT). The following test patterns can be specified:

- 1 byte fill
- 2 word fill
- 3 quad fill
- 4 byte not
- 5 word not
- 6 quad not
- 7 byte ramp
- 8 word ramp
- 9 quad ramp
- 10 byte lfsr
- 11 random
- 12 crpat
- 13 cspat
- 14 chalf sq
- 15 cqtr sq
- 16 rdram pat
- 17 jCRPAT (default)
- 18 jCJTPAT
- 19 jCSPAT

`-ports list`	Specify the blade port numbers, this command selects backend external ports only from the list to perform this test. All backend external ports are tested by default.
`-verbose boolean`	Specify this operand with a value of 1, and the command then displays more detailed information. The default value is 0. This operand is optional.

Examples

The following example shows how to use the **backplanetest** command:

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

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

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

Diagnostics

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

0x29 XMIT

0x39 TIMEOUT

0x3b DATA

See Also

backport

backPort

Test for back-end miniswitch to miniswitch links.

Synopsis

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

Availability

admin

Description

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

The following items are tested:

- Proper back-end port domain routing setup such that every user port has a valid path to every other user port. If a valid path does not exist between any two user ports then that path will fail to transmit the first frame between the two ports.

- Proper VC mapping such that an arbitrarily large number of frames may be transmitted without running out of credit. If the VC credit mapping is not correct then the test will fail after enough frames have been sent to exhaust the initial credit. VC mapping is not tested if the *extonly* operand is enabled.

- Proper Trunking of backend ports. The frames are sent in bursts. If the trunking is not set up properly the burst of frames will not arrive in-order. Note: Since the frames are received without "spinning" first, this test is not as exhaustive as **spinFab**.

- ASIC errors along each path. The test will check for CRC and ENC errors for each port used between the source and destination ports to help isolate failures. It will also check that each member of every trunk group along the path has sent or received at least one frame.

NOTE: Area routing between user ports is not tested.

Operands

This command has the following operands:

-nframes num	Specify the number of frame sequences to send. The default value is 100.
-ports list	Specify a list of user ports. The default value is all user ports.
-lb_mode mode	Specify the loopback mode for source and destination standard meanings. The default mode is 5. The valid modes are:

- 0   cable loopback
- 1   plug loopback
- 2   external loopback (SERDES)
- 5   internal loopback (ASIC)

-fr_type type	Specify the frame types to send. The default type is 1. The valid types are:

- 0   single frame
- 1   **spinFab** frames
- 2   **spinFab** 1K frames

`-extonly enable`	Specify 1 to enable external test only mode. The default value is 0. This command normally sends bursts of frames from each port under test to every other port in the list. In *extonly* mode, **backPort** will send only one burst of frames to each port from each miniswitch to miniswitch link. This tests all of the external connections with only (K*N) frames instead of the N^2 frames required in the all to all mode.
	This mode is intended to be used in ESS/burn-in testing to optimize test time. This command tests only the external connections between each miniswitch and txdpath is used to test the internal ASIC to ASIC paths. In this mode the test does NOT check all of the VC allocation so it should not be used for software regression test.
	Valid values are:

- 0   Send frames from all ports to all other ports.
- 1   Send only one burst of frames to each link.

Example

To test for back-end miniswitch to miniswitch links:

```
switch:admin> backport

Running Backport Test .....
switch:admin>
```

Diagnostics

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

```
0x3a INIT
0x28 ERR_STAT
0x29 XMIT
0x2c PORT_DIED
0x2e PORT_STOPPED
0x38 ERR_STATS
```

See Also

crossporttest

portloopbacktest

spinsilk

spinfab

backSpace

Set an alternate backspace character.

Synopsis

```
backSpace [mode]
```

Availability

All users. (display)

admin (modify)

Release

V3.0.x

Description

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

Operands

This command has the following operand:

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

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

Example

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

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

bcastShow

Display broadcast routing information.

Synopsis

```
bcastShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the broadcast routing information for all ports in the switch. The broadcast routing information indicates all ports that are members of the broadcast distribution tree, that is, ports that are able to send and receive broadcast frames.

Normally, all F_Ports and FL_Ports are members of the broadcast distribution tree. The broadcast path selection protocol selects the E_Ports that are part of the broadcast distribution tree. The E_Ports are chosen in such a way to prevent broadcast routing loops.

The following fields are displayed:

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

The broadcast routing information for the ports is displayed as a set of hexadecimal bit maps.

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

Operands

None.

Examples

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

```
switch:admin> bcastShow
Group   Member Ports    Member ISL Ports      Static ISL Ports

-----------------------------------------------------------------
 256    0x00012083      0x00002080            0x00000000
        0x00000000      0x00000000            0x00000000
        0x00000000      0x00000000            0x00000000
```

See Also

mcastShow

portRouteShow

bladeBeacon

Set blade beaconing mode on or off.

Synopsis

```
bladeBeacon [blade] mode
```

Availability

admin

Release

V4.0.x

Description

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

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

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

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

Operands

This command has the following operands:

blade   Specify the slot number of the blade whose beacon mode is to be modified. This operand is optional, if the default slot is set with the **setslot** command.

`mode`	Specify a value of 1 to set beaconing mode ON. Specify a value of 0 to set beaconing mode OFF. This operand is required.

Example

To turn the blade in slot 2 beaconing mode ON and then OFF:

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

See Also

`switchShow`

bladeDiag

Run diagnostics on a switch blade.

Synopsis

```
bladediag [[-slot] slot]
```

Availability

admin

Description

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

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

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

Options

This command has the following operand:

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

Example

To run a suite of diagnostics on blade 7:

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


PortRegTest

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


CentralMemoryTest

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

<output truncated>
```

See Also

portregtest

centralmemorytest

cmitest

camtest

filtertest

statstest

portloopbacktest

txdpath

crossporttest

spinsilk

backport

diagshow

bladediagshort

bladeDiagShort

Run diagnostics on a switch blade.

Synopsis

```
bladediagshort [[-slot] slot]
```

Availability

admin

Description

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

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

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

Options

This command has the following operand:

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

Example

To run a suite of diagnostics on blade 7:

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


PortRegTest

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


CentralMemoryTest

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

<output truncated>
```

See Also

portregtest

centralmemorytest

cmitest

camtest

filtertest

statstest

portloopbacktest

txdpath

crossporttest

spinsilk

backport

diagshow

bladediag

bladePropShow

Display blade property.

Synopsis

```
bladePropShow  [[-slot] slot]
```

Availability

All users

Release

V4.0.x

Description

Use this command to display the properties of a blade.

Operands

This command has the following operand:

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

Example

To display the blade properties for blade 7:

```
switch:admin> bladepropshow -slot 7

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

See Also

ptpropshow

minispropshow

chippropshow

bsn

Display the serial number.

Synopsis

    bsn

Availability

admin

Release

V3.0.x

Description

Use this command to display the serial number.

NOTE: To display the serial number for a component in V4.0.x, use the **chassisshow** command.

Operands

None.

Examples

To display the serial number:

```
switch:admin> bsn
FT00X800506
```

See Also

    ssn

camTest

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

Synopsis

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

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to verify that the Content Addressable Memory (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 4 kinds of data patterns:

1. a walking 1,

2. a walking 0,

3. a random pattern,

4. an inverted version of the random pattern above.

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

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

Operands

This command has the following operands:

`-passcnt count`	Specify the number of times to perform this test. The default value is 1.
`-txports list`	Specify the port numbers to transmit data. The default value is all ports are set.

Example

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

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

Errors

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

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

See Also

```
portregtest
centralmemorytest
cmitest
portloopbacktest
sramretentiontest
cmemretentiontest
crossporttest
spinsilk
```

centralMemoryTest

Test ASIC central memory operation.

Synopsis V3.0.x

```
centralMemoryTest [passcount, datatype, dataseed]
```

Synopsis V4.0.x

```
centralmemorytest [-passcnt passcount][-datatype datatype]
[-ports ports][-seed dataseed]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to execute an address and data bus verification of the ASIC
SRAMs which 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.

NOTE: Subtest 3 is not available on 2 Gbps-capable products.

The test consists of 6 subtests:

Subtest 1

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

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

Subtest 2

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

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

Subtest 3

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

NOTE: Subtest 3 is not available on 2G based switches.

The test method is as follows:

1. Fill the Central Memory of all ASICs with unique frames.

2. Set up the hardware such that each ASIC is read by all of the MAX number of ports in the switch. Data received is compared against the frame written into the ASIC.

    — Port 0 reads the Central Memory in ASIC 0

    — Port 1 reads the Central Memory in ASIC 0

    — Port 14 reads the Central Memory in ASIC 0

    — Port 15 reads the Central Memory in ASIC 0

    — Port 0 reads the Central Memory in ASIC 1

    — Port 1 reads the Central Memory in ASIC 1

    — Port 14 reads the Central Memory in ASIC 1

    — Port 15 reads the Central Memory in ASIC 1

    — Port 15 reads the Central Memory in ASIC 2

    — Port 15 reads the Central Memory in ASIC 3

3. Repeat the steps above for the complemented pattern.

4. Repeat for each mini-switch in the blade under test.

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

Subtest 4

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

The test method is as follows:

1. Clear the error and interrupt bits of all ASICs.

2. Write 64 bytes with bad parity to all ASICs at offset 0.

3. Read each of the ASICs at offset 0 and check that the error and interrupt bits are set.

4. Repeat the steps above for offset 1, 2, 3, ... 10.

Subtest 5

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

The test method is as follows:

1. Clear the error and interrupt bits of all ASICs.

2. Set up the hardware so that transmission of data includes a bad buffer number.

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

   a. Write a 64 byte pattern in the Central Memory.

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

   c. Check that X has its:

      • interrupt bits are set.
      • error type is buffer number error.
      • the port number in error is the receiver port (which is the base port of asic Y).

   d. Check that all other ASICs (~X) DO NOT get:

      • an interrupt, or
      • an error flagged.

e. Reading the error register clears the CMEM interrupt bit; ready for the next offset to test.

Subtest 6

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

The test method is as follows:

1. Clear the error and interrupt bits of all ASICs.

2. Set up the hardware so that transmission of data includes a bad buffer number.

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

   a. Write a 64 byte pattern in the Central Memory.

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

   c. Check that all ASIC Y has its:

      - interrupt bits are set.
      - error type is chip number error.
      - the port number in error is the receiver port (which is the base port of asic Y).

   d. Reading the error register clears the CMEM interrupt bit; ready for the next offset to test.

Operands

This command has the following operands:

passcount	Specify the number of test passes to run. By default the test will be run one time. The passes parameter may be used to run the specified number of passes.

`datatype`	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 data.

`-ports ports`	Specify a set of ports to test. The data patterns are written into the ports specified and verified by reading from the ports.
`dataseed`	Specify the data pattern seed to be used. The default seed value is 0.

Example

To test the ASIC central memory:

```
switch:admin> centralMemoryTest
Running Central Memory Test ... passed.
Test complete: "centralmemorytest" Pass 1 of 1.
Duration 0 hr, 0 min & 19 sec (0:0:19:500)
passed.
```

Diagnostics

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

```
Subtest 2
      0x20 LCMEM_ERR
      0x22 LCMRS_ERR
      0x23 LCMTO_ERR
Subtest 3
      0x2c CM_NO_BUF
      0x24 LCMTO_ERR
      0x22 LCMRS_ERR
      0x21 LCMEMTX_ERR
Subtest 4
      0x2e TIMEOUT
      0x26 BAD_INT
      0x28 CM_ERR_TYPE
      0x29 CM_ERR_PTN
```

```
Subtest 5
     0x2e TIMEOUT
     0x26 BAD_INT
     0x28 CM_ERR_TYPE
     0x29 CM_ERR_PTN
Subtest 6
     0x2e TIMEOUT
     0x26 BAD_INT
     0x28 CM_ERR_TYPE
     0x29 CM_ERR_PTN
```

See Also

```
portregtest
```

```
cmitest
```

```
camtest
```

```
portloopbacktest
```

```
sramretentiontest
```

```
cmemretentiontest
```

```
crossporttest
```

```
spinsilk
```

cfgAdd

Add a member to a zone configuration.

Synopsis

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

Availability

admin

Release

V3.0.x and V4.0.x

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 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: This command requires an Advanced Zoning license.

Operands

This command has the following operands:

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

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

This operand is required.

Example

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

cfgTransAbort

cfgClear

Clear all zone configurations.

Synopsis

```
cfgClear
```

Availability

admin

Release

V3.0.x and V4.0.x

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, a warning is displayed, 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 disable and clear the zone configuration in non-volatile memory for all the switches in the fabric.

NOTE: This command requires an Advanced Zoning license.

Operands

None.

Example

To clear all zones, and then clear non-volatile memory:

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

See Also

cfgAdd

cfgCreate

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgShow

cfgTransAbort

cfgCreate

Create a zone configuration.

Synopsis

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

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to create a new zone configuration.

A zone configuration name must begin with a letter and can be followed by any number of letters, numbers, and the underscore character. 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 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: This command requires an Advanced Zoning license.

Operands

This command has the following operands:

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

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

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

This operand is required.

Example

To create a configuration containing three zones:

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

See Also

cfgAdd

cfgClear

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgShow

cfgTransAbort

cfgDelete

Delete a zone configuration.

Synopsis

```
cfgDelete "cfgName"
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to delete a zone configuration.

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

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: This command requires an Advanced Zoning license.

Operands

This command has the following operand:

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

Example

To delete a zone configuration:

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

See Also

cfgAdd

cfgClear

cfgCreate

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgShow

cfgTransAbort

cfgDisable

Disable a zone configuration.

Synopsis

```
cfgDisable
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

NOTE: This command requires an Advanced Zoning license.

Operands

None.

Example

To disable the current zone configuration:

```
switch:admin> cfgDisable
```

See Also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgEnable

cfgRemove

cfgSave

cfgShow

cfgTransAbort

cfgEnable

Enable a zone configuration.

Synopsis

```
cfgEnable "cfgName"
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to commit any zone configuration in the transaction buffer to the volatile and non-volatile memory and enable the specified zone configuration. This command ends the current zoning transaction.

The specified zone configuration is built by checking for undefined zone names, zone alias names, or other inconsistencies by expanding zone aliases, removing duplicate entries, and then installing the effective configuration.

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

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

This command 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.

NOTE: This command requires an Advanced Zoning license.

Operands

This command has the following operand:

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

Example

To enable the zone configuration "Test_cfg":

```
switch:admin> cfgEnable "Test_cfg"
zone config "Test_cfg" is in effect
```

See Also

zonehelp

See Also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgDisable

cfgRemove

cfgSave

cfgShow

cfgTransAbort

cfgRemove

Remove a member from a zone configuration.

Synopsis

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

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

The member list is located by an exact string match, therefore, it is important to maintain the order when removing multiple members. For example, if a zone configuration contains "zone2; zone3; zone4" then removing "zone3; zone4" succeeds, but removing "zone4; zone3" fails.

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

NOTE: This command requires an Advanced Zoning license.

Operands

The following operands are required:

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

member   Specify one or more members to be deleted from
                                    the zone configuration, in quotation marks,
                                    separated by semicolons. Members can be
                                    specified in one or more of the following methods:

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

This operand is required.

Example

To remove a zone from a configuration:

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

See Also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgDisable

cfgEnable

cfgSave

cfgShow

cfgTransAbort

cfgSave

Save zone configuration to non-volatile memory.

Synopsis

```
cfgSave
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

The saved configuration is automatically reloaded by the switch on power up 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 may fail if a configuration has been modified since the last **cfgEnable**.

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

NOTE: This command requires an Advanced Zoning license.

Operands

None.

Example

To enable a zone configuration, then save it:

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

See Also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgShow

cfgTransAbort

cfgShow

Display zone configuration information.

Synopsis

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

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display zone configuration information.

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

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

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

Operands

This command has the following operands:

pattern	Specify a string of characters enclosed in quotation marks used to match zone configuration names. This operand must be in quotation marks in V3.0.x. Patterns can contain:

- Question mark "?" that matches any single character
- Asterisk "*" that matches any string of characters
- Ranges which match any character within the range. For example, [0-9] or [a-f].

This operand is optional.

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

Example

To show all zone configuration information:

```
switch:admin> cfgShow "Test"
cfg:    Test1Blue_zone
cfg:    Test_cfgRed_zone; Blue_zone
```

To show all zone configuration information:

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

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

To show only configuration names:

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

See Also

cfgAdd

cfgClear

cfgCreate

cfgDelete

cfgDisable

cfgEnable

cfgRemove

cfgSave

cfgTransAbort

cfgTransAbort

Abort the current zoning transaction.

Synopsis

```
cfgTransAbort
```

Availability

admin

Release

V3.0.x and V4.0.x

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.

NOTE: This command requires an Advanced Zoning license.

Operands

None.

Example

To abort the current transaction:

```
switch:admin> cfgTransAbort
```

See Also

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

chassisName

Display or set the chassis name for a StorageWorks Core switch.

Synopsis

```
chassisName [name]
```

Availability

admin (set)

all users (display)

Release

V4.0.x

Description

Use this command to change the name associated with the chassis a StorageWorks Core switch. In the StorageWorks Core switch there are two logical switches associated with a single chassis.

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

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

Operands

This command has the following operand:

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

Example

The following command changes the chassis's name to "echo":

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

See Also

switchName

chassisShow

Display all Field Replaceable Units (FRU).

Synopsis

```
chassisShow
```

Availability

All users.

Release

V4.0.x

Description

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

The header data is formatted into a record consisting of (up to) 13 lines. The lines and their meaning are described below:

1. The first line of each record contains the object ID:

Object type:	CHASSIS, FAN, POWER SUPPLY, SW BLADE (switch), CP BLADE (control processor), WWN (world wide name), or UNKNOWN; and
Object number:	Slot <nn> (for blades), Unit <nn> (for everything else).

    If the FRU is part of an assembly, a brief description in parenthesis will be displayed.

2. This line displays the FRU header version number:

    ```
    Header Version:<x>
    ```

3. This line displays the value used to calculate the object's power consumption, positive for power supplies, negative for consumers:

    ```
    Power Consume Factor: <-xxx>
    ```

4. This line displays the part number (up to 14 characters):

   ```
   Part Num: <xx-yyyyyyy-zz>
   ```

5. This line displays the serial number (up to 12 characters):

   ```
   Serial Num:<xxxxxxxxxx>
   ```

6. This line displays the date the FRU was manufactured:

   ```
   Manufacture:Day: <dd> Month: <mm> Year: <yyyy>
   ```

7. This line displays the date the FRU header was last updated:

   ```
   Update:Day: <dd> Month: <mm> Year: <yyyy>
   ```

8. This line displays the cumulative time, in days, that the FRU has been powered on:

   ```
   Time Alive:<dddd> days
   ```

9. This line displays the current time, in days, since the FRU was last powered on:

   ```
   Time Awake:<ddd> days
   ```

10. This line displays the externally supplied ID (up to 10 characters):

    ```
    ID: <xxxxxxxxxx>
    ```

11. This line displays the externally supplied part number (up to 20 characters):

    ```
    Part Num: <xxxxxxxxxxxxxxxxxxxx>
    ```

12. This line displays the externally supplied serial number (up to 20 characters):

    ```
    Serial Num:<xxxxxxxxxxxxxxxxxxxx>
    ```

13. This line displays the externally supplied revision number (up to 4 characters):

    ```
    Revision Num: <xxxx>
    ```

Operands

None.

Example

To displays all Field Replaceable Units for a switch:

```
switch12k:admin> chassisShow
SW BLADE  Slot: 3
Header Version:        1
Power Consume Factor:  -180
HP Part Num:           60-0001532-03
HP 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
HP Part Num:           60-0001604-02
HP Serial Num:         FP00X600128
Manufacture:           Day: 12  Month:  6  Year: 2001
Update:                Day: 15  Month:  7  Year: 2001
Time Alive:            61 days
Time Awake:            16 days
ID:                    555-374757
Part Num:              236-296-12350
Serial Num:            2836542
Revision Num:          A.00

<output truncated>
```

See Also

```
slotShow
```

chippropshow

Display ASIC chip property contents.

Synopsis

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

Availability

All users.

Description

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

Operands

This command has the following operands:

slot	Specify the slot number for the blade you want to view the chip properties for. This operand is optional.
chip	Specify the index of the chip within the blade to be displayed. This operand is optional.
-all	Specify this operand to display the properties for all minis on the blade. This operand is optional.

Example

To view the chip properties on blade 7:

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

See Also

ptpropshow

minispropshow

chipregshow

Display port registers of a given chip number.

Synopsis

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

Availability

All users.

Description

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

Operands

This command has the following operands:

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

Example

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

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

Port Registers for slot: 9, port: 1

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

See Also

chippropshow

ptregshow

minisregshow

cmemRetentionTest

Test the data retention of the central memory SRAMs.

Synopsis V3.0.x

```
cmemRetentionTest [passcount]
```

Synopsis V4.0.x

```
cmemRetentionTest [-passcnt passcount]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

Operands

This command has the following operand:

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

Example

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

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

Errors

Listed below are possible error messages if failures are detected:

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

See Also

```
camTest

centralMemoryTest

cmiTest

crossPortTest

portLoopbackTest

ramTest

spinSilk

sramRetentionTest
```

cmiTest

Verify the Control Message Interface (CMI) bus between ASICs.

Synopsis V3.0.x

```
cmitest [passcnt]
```

Synopsis V4.0.x

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

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to verify that the multiplexed 4-bit CMI point-to-point connection between two ASICs is OK. It also verifies that a message sent with a bad checksum will set the error and interrupt bits of the destination ASIC and that a message with a good checksum will not set any error or interrupt bit in any ASIC.

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

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

Operands

This command has the following operands:

passcnt	Specify the number of times to perform this test. The default value is 1. This operand is optional.
-txports list	Specify the port numbers to transmit data. The default is all ports are set. This operand is optional.
-rxports list	Specify the port numbers to receive data. The default is all ports are set. This operand is optional.

`-skip mask`	Specify the particular test by using the following bit weight data:

- • 1 CMI data test(ignore checksum)
- • 2 CMI checksum test
- • 3 Enable all tests

This operand is optional.

Example

To run a CMI test between two ASICs:

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

Errors

When it detects failures, the subtest may report one or more of the following error messages:

DIAG-CMISA1

DIAG-CMINOCAP

DIAG-CMICKSUM

DIAG-CMIINVCAP

DIAG-CMIDATA

DIAG-INTNIL

DIAG-BADINT

See Also

portregtest

centralmemorytest

camtest

portloopbacktest

sramretentiontest

cmemretentiontest

crossporttest

spinsilk

configDefault

Reset a subset of configuration settings to the default values.

Synopsis

```
configDefault
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to reset certain configuration settings to the default values.

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

- Ethernet MAC address, IP address, and subnetmask
- IP gateway address
- License keys
- OEM customization
- SNMP configuration
- System name
- World Wide Name
- Advanced Zoning configuration

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

NOTE: This command may not 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 switch behavior, reboot the system after executing this command.

Operands

None.

Example

To restore the system configuration to default values:

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

See Also

agtcfgDefault

configure

switchDisable

switchEnable

configDownload

Load the switch configuration file from a host system.

Synopsis

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

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

NOTE: Fabric OS V3.0.x also supports the RSHD protocol for configuration downloads. RSHD does not require the *passwd* operand. FTP always requires the *passwd* operand.

NOTE: In Fabric OS V4.0.x no spaces are allowed between operands.

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

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

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

The download process is additive; that is, the lines read from the file are added to the current switch configuration. This enables you to change a single configuration variable by downloading a file with a single line. All other variables remain unchanged. This is particularly important when downloading a zoning configuration. Since the new zoning information is added to the current configuration, there may not be any conflicts. Typically this command is used to add a consistent change to the current zoning configuration, or to replace the current zoning configuration, in which case **cfgClear** must be invoked before **configDownload**.

Operands

This command has the following operands:

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

Example

To load a backup configuration file from a host system:

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

Errors

Listed below are possible reasons for a failure of this command:

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

- The file does not exist on the host
- The file is not a switch configuration file
- The FTP server is not running on the host
- The configuration data contains errors.

See Also

```
configDefault
configUpload
configShow
configure
```

configShow

Display system configuration settings.

Synopsis

```
configShow ["filter"]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

Operands

This command has the following 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. This operand is optional.

Example

To display system configuration settings:

```
switch:admin> configShow
diag.postDisable:        0
fabric.domain:  1
fabric.ops.BBCredit:     16
fabric.ops.E_D_TOV:      2000
fabric.ops.R_A_TOV:      10000
fabric.ops.dataFieldSize:       2112
fabric.ops.mode.fcpProbeDisable:        0
fabric.ops.mode.isolate:         0
fabric.ops.mode.tachyonCompat:  0
fabric.ops.mode.unicastOnly:    0
fabric.ops.mode.useCsCtl:       0
fabric.ops.mode.vcEncode:       0
fabric.ops.vc.class.2:  2
fabric.ops.vc.class.3:  3
fabric.ops.vc.config:   0xc0
fabric.ops.vc.linkCtrl: 0
fabric.ops.vc.multicast:        7
fc4.fcIp.address:       192.168.65.62
fc4.fcIp.mask:  255.255.255.0
fcAL.fanFrameDisable:   0
fcAL.useAltBBCredit:    0
lcdContrast:    128
licenseKey:     none
rpc.rstatd:     1
rpc.rusersd:    1
```

NOTE: Configuration parameters vary depending on system model and configuration.

See Also

```
agtcfgShow
configure
diagDisablePost
diagEnablePost
ipAddrShow
licenseShow
syslogdIpShow
```

configUpload

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

Synopsis

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

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

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

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

The third sections contains the zoning configuration parameters.

NOTE: Fabric OS V3.0.x also supports RSHD protocol for configuration uploads. RSHD does not require the *passwd* operand.

NOTE: In Fabric OS V4.0.x no spaces are allowed between operands.

Operands

This command has the following operands:

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

Example

To create a backup file of switch configuration information:

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

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

```
switch:admin> configUpload
Server Name or IP Address [tower]: 192.168.15.42
User Name [None]: user21
File Name [config.txt]: config-switch.txt
Password: xxxxxx
upload complete
switch:admin>
```

Errors

Listed below are possible reasons for a failure of this command:

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

See Also

```
configDefault
configDownload
configShow
configure
```

configure

Modify system configuration settings.

Synopsis

```
configure
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to change the following system configuration settings:

- Fabric parameters
- Virtual channel settings
- Zoning Operation parameters
- RSCN Transmission Mode
- NS Pre-zoning Mode
- Arbitrated Loop parameters
- System services
- Portlog events enable

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

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

Use the following options to control input:

Return	When entered at a prompt with no preceding input, accepts the default value (if applicable) and moves to the next prompt.
Interrupt (control-C)	Aborts the command immediately and ignores all changes made.This keystroke is common on many computers, but can be different on your system.
End-of-file (control-D)	When entered at a prompt with no preceding input, terminates the command and saves changes made.This keystroke is common on many computers, but may be different on your system.

Fabric Parameters

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

The Fabric parameters are as follows:

Table 1–1: Configure Command Fabric Parameters

Field	Default	Range
Domain	1	1..239
BB Credit	16	V3.0.x = 1 to 27 V4.0.x = 1 to 16
R_A_TOV	10000	4000..120000
E_D_TOV	2000	1000 to 5000
Ethernet Link Mode		auto, 10H, 100H, and 100F, where H=half duplex and F=full duplex
Data Field Size	2112	256 to 2112
Sequence Level Switching	0	0 or 1
Disable Device Probing	0	0 or 1
Disable RLS Probing	1	0 or 1
Suppress Class F Traffic	0	0 or 1

Table 1–1: Configure Command Fabric Parameters (Continued)

Field	Default	Range
Sync IO Mode (V3.0.x only)	0	0 or 1
VC Encoded Address Mode	0	0 or 1
Core Switch PID Format (V3.0.x only)	0	0 or 1
Per-frame Route Priority	0	0 or 1
Long Distance Fabric	0	0 or 1

Descriptions of the switch fabric setting fields are as follows:

Domain   The domain number uniquely identifies the switch in a Fabric. This value is automatically assigned by the Fabric. The range of valid values varies depending on the switch model and other system parameter settings (*see* VC Encoded Address Mode).

BB Credit   The buffer-to-buffer (BB) credit represents the number of buffers available to attached devices for frame receipt. The range of allowed values varies depending on other system settings.

R_A_TOV   The Resource Allocation Time Out Value (R_A_TOV) is displayed in milliseconds. This variable works with the variable E_D_TOV to determine switch actions when presented with an error condition.

        Allocated circuit resources with detected errors are not released until the time 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.

Ethernet Link Mode	This command sets the Ethernet speed and is similar to the Telnet command `ifmodeset`. The parameters are `auto`, `10H`, `100H`, and `100F` where H=half duplex and F=full duplex.
Data Field Size	The data field size specifies the largest possible value, in bytes, and advertises this value to other switches in the fabric during construction of the fabric as well as to other devices when they connect to the fabric. Setting this to a value smaller than 2112 may result in decreased performance.
Sequence Level Switching	When Sequence Level Switching is set to 1, frames of the same sequence from a particular source are transmitted together as a group. When this feature is set to 0, frames are transmitted interleaved among multiple sequences.
	Under normal conditions, Sequence Level Switching should be disabled for better performance. However, some host adapters have performance issues when receiving interleaved frames from multiple sequences. When there are such devices attached to the fabric, Sequence Level Switching should be enabled.
Disable Device Probing	When Disable Device Probing is set to 1, devices that do not register with the Name Server are not present in the Name Server data base. Set this mode only if the switch N_Port discovery process (PLOGI, PRLI, INQUIRY) causes an attached device to fail.
Disable RLS Probing	When RLS Probing is not selected (enabled or "0"), the switch port will issue RLS Extended Link Service to the attached devices every four seconds to collect link status data. Otherwise, RLS will not be sent to the devices. RLS Probing is selected by default (disabled or "1").
Suppress Class F Traffic	When this mode is set to 1, all class F interswitch frames are transmitted as class 2 frames. This is to support remote fabrics which involve ATM gateways which don't support class F traffic.

Sync IO Mode (V3.0.x only)	When Sync IO mode is set to 1, FSPF frames are sent in synchronous mode (expecting ACKs back from the other side for every frame) which helps in detecting the failures in the link between the ATM gateways in remote fabrics.
VC Encoded Address Mode	When VC Encoded Address Mode is set to 1, frame source and destination address utilize an address format compatible with StorageWorks SAN switches. Set this mode only if the fabric includes this type of switch.
Core Switch PID Format (V3.0.x only)	This is used to set the 256 port PID format that is used for core switches. This option enables single Domain port density higher than 16. VC Encoded Address Mode and Core Switch PID Format are mutually exclusive. They cannot both be enabled at the same time.
	This parameter needs to be disabled when a v2.6 switch is in the same fabric with a series 2000 switch running a Fabric OS release before v2.4.1F. Switches prior to v2.4.1F do not support "core switch PID format".
Per-frame Route Priority	In addition to the eight virtual channels used in frame routing priority, support is also available for per-frame based prioritization when this value is set. When Per-frame Route Priority is set to 1, the virtual channel ID is used in conjunction with a frame header to form the final virtual channel ID.
Long Distance Fabric	When this mode is set to 1, ISLs in a fabric can be up to 100Km long. The exact distance level is determined by the per-port configuration on the E_Ports of each ISL. Both E_Ports in an ISL must be configured to run the same long distance level, otherwise, the fabric will be segmented. The Extended Fabric License is required to set this mode.

Virtual Channel Settings

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

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

The Virtual Channel Setting fields are as follows:

Table 1–2: Configure Command Virtual Channel Settings

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

Descriptions of the Virtual Channel Setting fields are as follows:

`VC Priority`	Specifies the class of frame traffic given priority for a Virtual Channel.

Zoning Operation Parameters

The Zoning Operation Parameter fields are as follows:

`Standard Mode` (V4.0.x only)	Specify 1 to force the switch to issue interswitch traffic conforming to FCSW, or specify 0 to enable proprietary interswitch traffic. The default value is 0.
`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..

RSCN Transmission Mode

The RSCN Transmission Mode fields are as follows:

`End-device RSCN Transmission Mode`	Specify 0 for RSCN with single PID, 1 for RSCN with multiple PIDs, or 2 Fabric RSCN. The default value is 0.

NS Operation Parameters

The NS Pre-zoning Mode fields are as follows:

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

Arbitrated Loop Parameters

The Arbitrated Loop Setting fields are as follows:

Table 1–3: Configure Command Arbitrated Loop Settings

Field	Default	Range
Alternate BB Credit? (V4.0.x only)	0	0 or 1
Send FAN frames?	1	0 or 1
Enable CLOSE on OPEN received?	0	0 or 1
Always send RSCN?	1	0 or 1
Do Not Allow AL_PA 0x00?	0	0 or 1
Initialize All Looplets? (V3.0.x only)	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 pre-existing devices. When set, a RSCN is issued upon completion of loop initialization, regardless of the presence or absence of new or preexisting devices.

```
Do Not Allow AL_PA
0x00?
```
This option disallows AL_PA values from being 0.

```
Initialize All            When this is set, all looplets including the ones not
Looplets? (V3.0.x only)   in the same zone are always re-initialized. This is
                          required for certain RAID subsystems to work
                          properly during failover.
```

System Services

The System Services fields are as follows:

Table 1–4: Configure Command System Services Parameters

Field	Default	Range
rstatd	Off	On/Off
rusersd	Off	On/Off
rapid	On	On/Off
thad (V4.0.x only)	On	On/Off
Disable RLS probing	Off	On/Off

Descriptions of the system service setting fields are as follows:

rstatd
Dynamically enables or disables a server that returns information about system operation information through remote procedure calls (RPC). The protocol provides for a wide-range of system statistics.

The retrieval of this information is supported by a number of operating systems which support RPC. Most UNIX-based systems (HP-UX, Irix, Linux, Solaris, etc.) use the **rup** and **rsysinfo** commands to retrieve the information. See your local system documentation for the appropriate usage of 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, the system name, login protocol or type, login time, idle time, and remote login location (if applicable).

	The retrieval of this information is supported by a number of operating systems which support RPC. On most UNIX-based systems (HP-UX, Irix, Linux, Solaris, etc.) the command to retrieve the information is **rusers**. See your local system documentation for the appropriate usage of this or equivalent command.
rapid	Dynamically enables or disables a service that handles RPC requests for the API server.
thad (V4.0.x only)	Dynamically enables or disables the threshold monitor.
Disable RLS probing	This disables Read Link Error Status probing of the AL_PAs.

Portlog Events Enable

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

Table 1–5: Configure Command Portlog Events Parameters

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

Table 1–5: Configure Command Portlog Events Parameters (Continued)

Field	(Valid Values) Default Value
busy: a received frame is busied	(on, off): [on]
ctin: a CT based request is received	(on, off): [on]
ctout: a CT based response is transmitted	(on, off): [on]
errlog: a message is added to the error log	(on, off): [on]
loopscn: a loop state change notification	(on, off): [on]
create: a task is created	(on, off): [on]
debug: generic debug info	(on, off): [on]
nbrfsm: neighbor state transition	(on, off): [on]
timer: timer	(on, off): [on]
sn: speed negotiation state	(on, off): [on]
fcin: Fibre Channel input	(on, off): [on]
fcout: Fibre Channel ouput	(on, off): [on]
read: Fibre Channel read	(on, off): [on]
write: Fibre Channel write	(on, off): [on]
err: Fibre Channel error	(on, off): [on]
frame: Fibre Channel frame payload	(on, off): [on]
nsRemQ: inter-sw NS query	(on, off): [on]
nsRemR: inter-sw NS response	(on, off): [on]
rscn: RSCN	(on, off): [on]
state: Fibre Channel state	(on, off): [on]
xalloc: alloc an exchange	(on, off): [on]
xfree: free an exchange	(on, off): [on]
xerr: exchange error	(on, off): [on]
xstate: exchange state	(on, off): [on]
seq: sequence	(on, off): [on]
seqst: sequence state	(on, off): [on]
iu: iu	(on, off): [on]
payload: frame payload	(on, off): [on]

Operands

None.

Example

To set the configuration parameters for a switch:

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

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

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


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

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

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

See Also

    configDefault
    configShow
    ifShow
    ipAddrSet
    syslogdIp

crossPortTest

Functional test of port external transmit and receive path.

Synopsis V3.0.x

```
crossporttest [passnum, lbmode, spd]
```

Synopsis V4.0.x

```
crossporttest [-nframes passnum][-lb_mode lbmode][-spd_mode spd]
[-gbic_mode mode][-norestore val][-ports list]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

The cables can be connected to any port combination as long as the cables and SFPs connected are of the same technology. For example, a short wavelength SFP port is connected to another short wavelength SFP port using a short wavelength cable, or a long wavelength port is connected to another long wavelength port, and a copper port is connected to a copper port.

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

Only one frame is transmitted and received at a given 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 via port M.

5. Pick up the frame from its cross connected port N. Complain if port other than N actually received the frame.

6. Check if any of the 8 statistic error counters are non-zero: ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out, BadOrdSet, DiscC3.

7. Check if the transmit, receive or class 3 receiver counters are stuck at some value.

8. Check if the number of frames transmitted is not equal to the number of frames received.

9. Repeat steps 3 through 8 for all ports present until:

   a. the number of frames requested is reached,

   b. all ports are marked bad.

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

1. `CSPAT:`   `0x7e, 0x7e, 0x7e, 0x7e, ...`

2. `BYTE_LFSR:`   `0x69, 0x01, 0x02, 0x05, ...`

3. `CHALF_SQ:`   `0x4a, 0x4a, 0x4a, 0x4a, ...`

4. `QUAD_NOT:`   `0x00, 0xff, 0x00, 0xff, ...`

5. `CQTR_SQ:`   `0x78, 0x78, 0x78, 0x78, ...`

6. `CRPAT:`   `0xbc, 0xbc, 0x23, 0x47, ...`

7. `RANDOM:`   `0x25, 0x7f, 0x6e, 0x9a, ...`

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

NOTE: The **crossPortTest** command behaves differently according to the modes activated.

SwitchOnline and SwitchOffline Mode

The **crossPortTest** command can be executed when the switch is Online or offline.

In ONLINE mode (where the switch is enabled prior to executing the **crossPortTest** command) only ports which 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 one port(s) connected to run this test
Need at least two port(s) cross-connected to run this test
```

In OFFLINE mode (when the switch is disabled prior to executing the **crossPortTest** command) all ports are assumed to be cable loopbacked to different ports in the same switch. If one or more ports are not connected, the test aborts.

The test determines which port is connected to which port transmitting frames. If any ports are not properly connected (improperly seated SFPs or cables, bad SFPs or cables, or improper connection or improper connection of SWL to LWL), the following message is displayed:

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

SFP Mode

Use the **setSFPMode** command (**setGBICMode** in V3.0.x) to activate SFP mode by executing the following command prior to executing the **crossPortTest** command:

```
switch:admin> setSFPMode 1
```

When activated, only ports with SFPs present are tested by the **crossPortTest** command. For example, if only port 0 and port 3 contain SFPs and the SFP mode is activated, the **crossPortTest** command limits testing to port 0 and 3.

The state of SFP mode is saved in non-volatile memory and remains active after reboots or power cycles until it is disabled as follows:

```
switch:admin> setSFPMode 0
```

Operands

This command has the following operands:

passnum	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, so the number of frames sent will be at least 10.
lbmode	Select the loopback point for the test. By default, **crossporttest** uses cable loopback as described above. However for debug purposes you can select other loopback modes as follows:

- 0   Cable Loopback.
- 1   Port Loopback (loopback plugs).
- 2   External (series) loopback.
- 3   Silkscreen loopback.
- 4   Serial link wrapback.
- 5   Internal (parallel) loopback.

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

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

- 0 - set all ports' speed for auto-negotiate
- 1 - set all ports' speed to lock at 1 Gbps
- 2 - set all port's speed to lock at 2 Gbps

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

- 3 - set all even ports' speed for auto-negotiate, set all odd ports' speed for 1 Gbps.
- 4 - set all even ports' speed for auto-negotiate, set all odd ports' speed for 2 Gbps.
- 5 - set all odd ports' speed for auto-negotiate, set all even ports' speed for 1 Gbps.
- 6 - set all odd ports' speed for auto-negotiate, set all even ports' speed for 2 Gbps.

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

- 3,5 - set all even ports' speed for 2 Gbps, set all odd ports' speed for 1 Gbps.
- 4,6 - set all even ports' speed for 1 Gbps, set all odd ports' speed for 2 Gbps

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

Example

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

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

Diagnostics

Below are possible error messages if failures are detected:

```
0x20 ERR_STAT_ENCIN
0x21 ERR_STAT_CRC
0x22 ERR_STAT_TRUNC
0x23 ERR_STAT_2LONG
0x24 ERR_STAT_BADEOF
0x25 ERR_STAT_ENCOUT
0x26 ERR_STAT_BADOS
0x27 ERR_STAT_C3DISC
0x28 ERR_STAT
0x29 XMIT
0x2a PORT_M2M
0x2b PORT_ABSENT
0x2c PORT_DIED
0x2d PORT_ENABLE
0x2e PORT_STOPPED
0x2f PORT_WRONG
0x30 ERR_STATS_ENCIN
0x31 ERR_STATS_CRC
0x32 ERR_STATS_TRUNC
0x33 ERR_STATS_2LONG
0x34 ERR_STATS_BADEOF
0x35 ERR_STATS_ENCOUT
0x36 ERR_STATS_BADOS
0x37 ERR_STATS_C3DISC
0x38 ERR_STATS
0x3a INIT
0x3b DATA
0x3c NO_SEGMENT
0x39 TIMEOUT
0x3d STATS_FTX
0x3e STATS_FRX
```

```
0x3f STATS_C3FRX
0x40 STATS
0x41 MBUF_STATE_ERR
0x42 FINISH_MSG_ERR
0x43 RXQ_RAM_PERR
0x44 RXQ_FRAME_ERR
0x45 FDET_PERR
0x46 MBUF_STATUS_ERR
0x47 EPI1_STATUS_ERR
0x48 LESSN_STATUS_ERR
0x49 FTPRT_STATUS_ERR
```

See Also

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

dataTypeShow

Displays sample data stream types used in some diagnostic commands.

Synopsis

```
dataTypeShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

Example

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

```
switch:admin> datatypeshow

Pattern       type    example

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

See Also

centralMemoryTest

date

Display or set the switch date and time.

Synopsis

```
date ["newDate"]
```

Availability

All users. (display)
admin (set)

Release

V3.0.x and V4.0.x

Description

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

"*mmddhhmmyy*"

where:

mm is the month, valid values are 01-12
dd is the date, valid values are 01-31
hh is the hour, valid values are 00-23
mm is minutes, valid values are 00-59
yy is the year, valid values are 00-99

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

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

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

Operands

This command has the following operand:

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

Example

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

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

See Also

errLogShow

portLogShow

uptime

diagClearError

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

Synopsis V3.0.x

```
diagclearerror [port]
```

Synopsis V4.0.x

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

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

This command does not clear the error log entry. Instead, it generates the following `DIAG-CLEAR_ERR` message for each port software flag cleared. For example, the following message is for a diagnostic error cleared from port 3:

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

Operands

This command has the following operands:

`port`	Specify the port where you want to clear diagnostic error messages. This operand is for V3.0.x only. This operand is optional.
`-slot slot`	Specify the slot to clear the diagnostic failure status. This operand is for V4.0.x only. This operand is optional.
`-switch switch`	Specify the logical switch number to operate on. If omitted, then all blades will be cleared. This operand is for V4.0.x only. This operand is optional.
`-all`	If specified, all blades will be cleared. This operand is for V4.0.x only.

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

Example

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

diagShow

diagCommandShow

Displays a list of diagnostic commands.

Synopsis

```
diagCommandShow
```

Availability

admin

Release

V4.0.x

Description

Use this command to display a list of diagnostic commands for V4.0.x.

Operands

None.

Example

To display a list of V4.0.x diagnostic commands:

```
switch:admin> diagcommandshow
diagCommandShow - Display diagnostics command parameter and error info.
To show the parameters for a diagnostic test enter:
diagCommandShow -name <test_name>
LIST OF DIAGNOSTIC COMMANDS WITH DESCRIPTION:
diagmodeshow            Display diagnostic burnin controls
statsclear              Clear statistics counters
diagclearerror          Clear diagnostics errors
diagshow                Display diagnostics status of ports
diagcommandshow         Display diagnostics help info
diaghelp                Display diagnostics help info
diagstatus              Display info about running diagnostics
diagreset               Clear errors and reset blades
diagoktorun             Check to see if it is ok to run diagnostics
datatypeshow            Display available data patterns
portregtest             Port register diagnostic
mulregdump              Dump the contents of the general purpose registers
ramdump                 Dump the contents of specified RAM register or all
sramretentiontest       SRAM Data Retention diagnostic
spinsilk                Cross-connected line-speed exerciser
spinjitter              line-speed jitter measurement
crossporttest           Cross-connected port diagnostic
portloopbacktest        Port internal loopback diagnostic
txdpath                 Miniswitch TX data path diagnostic
spinfab                 circulates frames between live switches
backport                backplane routing and VC allocation test
centralmemorytest       Central memory diagnostic
cmemretentiontest       Central Mem Data Retention diagnostic
cmitest                 CMI bus connection diagnostic
camtest                 Quickloop CAM diagnostic
turboramtest            Turbo speed asic SRAM diagnostic
statstest               Statistics counter diagnostic
portledtest             User Ports LED exerciser
filtertest              Frame filter diagnostic
backplanetest           Backplane connection diagnostic
switch:admin>
```

diagDisablePost

Disable POST execution at reboot.

Synopsis

```
diagDisablePost
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

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

Operands

None.

Example

To disable the POST during future power ups:

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

See Also

diaghelp

diagEnablePost

diagEnablePost

Enable POST execution at next reboot.

Synopsis

```
diagEnablePost
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to enable POST execution at the next switch reboot. This mode is saved in non-volatile memory and POST remains enabled until it is disabled using the **diagDisablePost** command.

Operands

None.

Example

To enable the POST during future power ups:

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

See Also

```
diaghelp
```
```
diagDisablePost
```

diagesdports

Set ESD skip ports list.

Synopsis

```
diagesdports [list | -show]
```

Availability

admin

Release

V4.0.x

Description

Use this command to set the ESD IDLE PORTS list. The list is saved in non-volatile memory and stays in that mode until the next execution of **diagesdports**.

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

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

Operands

This command has the following operands:

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

Example

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

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

See Also

diaghelp

diagfaillimit

Set diagnostics fail limit.

Synopsis

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

Availability

admin

Release

V4.0.x

Description

Use this command to set the diagnostics fail limit to a specified value. The fail limit is saved in non-volatile memory and stays set until the next execution of **diagfaillimit**.

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

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

Operands

This command has the following operands:

limit	Specify the number of failures before diagnostics test methods abort. The limit value must be greater than 1. This operand is optional.
-show	Specify this operand to display the current fail limit setting. This operand is optional.

If no operand is specified the current value is displayed.

Example

To change the fail limit from 1 to 5:

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

See Also

diaghelp

diagHelp

Display diagnostic command information.

Synopsis

```
diagHelp
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display diagnostic command information.

Operands

None.

Example

To display information about diagnostic commands:

```
switch:admin> diagHelp
diagCommandShow - Display diagnostics command parameter and error info.
To show the parameters for a diagnostic test enter:
%exec_diag diagCommandShow -name <test_name>
LIST OF DIAGNOSTIC COMMANDS WITH DESCRIPTION:
diagmodeshow          Display diagnostic burnin controls
statsclear            Clear statistics counters
diagclearerror        Clear diagnostics errors
diagshow              Display diagnostics status of ports
diagcommandshow       Display diagnostics help info
diaghelp              Display diagnostics help info
diagstatus            Display info about running diagnostics
diagreset             Clear errors and reset blades
diagoktorun           Check to see if it is ok to run diagnostics
portregtest           Port register diagnostic
mulregdump            Dump the contents of the general purpose registers
sramretentiontest     SRAM Data Retention diagnostic
spinsilk              Cross-connected line-speed exerciser
spinjitter            line-speed jitter measurement
crossporttest         Cross-connected port diagnostic
portloopbacktest      Port internal loopback diagnostic
txdpath               Miniswitch TX data path diagnostic
spinfab               circulates frames between live switches
backport              backplane routing and VC allocation test
centralmemorytest     Central memory diagnostic
cmemretentiontest     Central Mem Data Retention diagnostic
cmitest               CMI bus connection diagnostic
camtest               Quickloop CAM diagnostic
turboramtest          Turbo speed asic SRAM diagnostic
statstest             Statistics counter diagnostic
portledtest           User Ports LED exerciser
filtertest            Frame filter diagnostic
backplanetest         Backplane connection diagnostic
```

See Also

diagcommandshow

diagloopid

Set the diagnostics loop ID.

Synopsis

```
diagloopid [id | -show]
```

Availability

admin

Release

V4.0.x

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.

Operands

This command has the following operands:

id	Specify the loop Id for FL mode diagnostics. This operand is optional.
-show	Specify this operand to display the current loop ID. This operand is optional.

If no operand is specified the current value is displayed.

Example

To change the loop id from 125 to 120:

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

See Also

diaghelp

diagmodepr

Enable or disable mode messages.

Synopsis

```
diagmodepr [mode | -show]
```

Availability

admin

Release

V4.0.x

Description

Use this command to enable print mode. The mode is saved in non-volatile memory and stays in that mode until the next execution of **diagmodepr**.

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

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

Operands

This command has the following operands:

mode	Specify 1 to enable print mode, specify 0 to disable print mode. This operand is optional.
-show	Specify this operand to display the current mode. This operand is optional.

If no operand is specified the current value is displayed.

Example

To enable print mode messages:

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

See Also

diaghelp

diagpost

Enable or disable POST testing.

Synopsis

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

Availability

admin

Release

V4.0.x

Description

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

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

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

Operands

This command has the following operands:

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

If no operand is specified the current value is displayed.

Example

To enable and then disable the POST test:

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

See Also

diagdisablepost

diagenablepost

diagretry

Enable or disable retry mode.

Synopsis

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

Availability

admin

Release

V4.0.x

Description

Use this command to enable or disable retry mode. The mode is saved in non-volatile 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 when enabled modifies the behavior of the diagnostic test methods, POST, and burn-in scripts. The exact behavior depends on the tests and scripts that are run, but the most common result is that **spinsilk** tests are skipped when retry mode is enabled.

Operands

This command has the following operands:

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

If no operand is specified the current value is displayed.

Example

To view the current retry mode value:

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

See Also

diaghelp

diagsetburnin

Initializes the blade for a burn-in run.

Synopsis

```
diagsetburnin [-slot [slot]] scriptname
```

Availability

admin

Release

V4.0.x

Description

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

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

This command does not require a reboot to take effect.

Operands

This command has the following operands:

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

Example

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

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

See Also

diaghelp

diagsetcycle

Set diagnostic script parameters.

Synopsis

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

Availability

admin

Release

V4.0.x

Description

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

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

Operands

This command has the following operands:

script_name	Specify the script where you want to modify the parameters. If no filename is specified, then this command lists all scripts containing the keyword DIAGSETCYCLE_CAPABLE. This operand is optional.
-show	Specify this operand to display the parameters for a selected script file. This operand is optional.
-default	Specify this operand to set the values to the default.

-keyword   Specify this option to set the value of a specific keyword (for example, -number_of_runs 3). This operand is optional.

Example

To view the parameters for a script:

```
switch:admin> diagsetcycle -show
Syntax: diagSetCycle <script_name> [ -show | -default | <-keyword value>.. ]
  -show            Outputs the values of the variables (No editing)
  -default         Sets the values to the default value
  -keyword value   Sets the value of a specific keyword (-number_of_runs 3)
Please specify what diag cycles to set.
Choices are:
 0) EXIT
 1) switchburnin.sh
Make selection (0-1)
1
script selection: switchburnin.sh

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

See Also

diaghelp

diagshow

Display diagnostics status.

Synopsis V3.0.x

```
diagshow [nSeconds]
```

Synopsis V4.0.x

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

Availability

All users.

Release

V4.0.x

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:

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

Example

This example is for V4.0.x. To display diagnostic status on switch blade 7:

```
switch:admin> diagshow -slot 7
Diagnostics Status:  Wed Feb 13 16:12:27 2002

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

See Also

diaghelp

diagshowtime

Enable or disable elapsed time messages.

Synopsis

```
diagshowtime [mode | -show]
```

Availability

admin

Release

V4.0.x

Description

Use this command to enable or disable show time mode. The mode is saved in non-volatile memory and stays in that mode until the next execution of **diagshowtime**.

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

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

Operands

This command has the following operands:

mode	Specify 1 to enable show time mode, specify 0 to disable show time mode. This operand is optional.
-show	Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example

To enable show time mode:

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

See Also

diaghelp

diagsilkworm

Enable or disable silkworm mode.

Synopsis

```
diagsilkworm [mode | -show]
```

Availability

admin

Release

V4.0.x

Description

Use this command to enable or disable silkworm mode. The mode is saved in non-volatile memory and stays in that mode until the next execution of **diagsilkworm**.

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

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

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

Operands

This command has the following operands:

mode	Specify 1 to enable silkworm mode, specify 0 to disable silkworm mode. This operand is optional.
-show	Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example

To enable silkworm mode:

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

See Also

diaghelp

diagskiptests

Enable or disable diagnostics skip test flags.

Synopsis

```
diagskiptests [limit | -show]
```

Availability

admin

Release

V4.0.x

Description

Use this command to enable or disable the diagnostics skip test flags. The skip test flags are saved in non-volatile memory and stay set until the next execution of **diagskiptests**.

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

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

Operands

This command has the following operands:

limit	Specify 1 to enable skip tests mode, specify 0 to disable print mode. This operand is optional.
-show	Specify this operand to display the current mode. This operand is optional.

If no operand is specified the current value is displayed.

Example

The following is an example of the **diagskiptests** command:

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

See Also

diaghelp

diagstopburnin

Terminate a blade burn-in run.

Synopsis

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

Availability

admin

Release

V4.0.x

Description

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

This command does not require a reboot to take effect.

Operands

This command has the following operand:

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

Example

To stop burn-in mode on a switch:

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

See Also

diaghelp

dlsReset

Disable Dynamic Load Sharing (DLS) option.

Synopsis

```
dlsReset
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

Routing is generally based on the incoming port and the destination domain. This means that all the traffic coming in from a port (either E_Port or Fx_Port) directed to the same remote domain is routed through the same output E_Port.

To optimize fabric routing, when there are multiple equivalent paths to a remote switch, traffic is shared among all the paths. Load sharing is recomputed when a switch is booted up or every time a change in the fabric occurs. A change in the fabric is defined as an E_Port going up or down, or an Fx_Port going up or down.

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

If DLS is turned on (using **dlsSet**), routing changes can affect working ports. For example, if an Fx_Port goes down, another Fx_Port may be rerouted from one E_Port to a different E_Port. The switch minimizes the number of routing changes, but some are necessary in order to achieve optimal load sharing.

These changes can further affect the performance of the fabric if the in-order delivery (IOD) option is on. With the IOD option (see the **iodSet** command), routes are not available for a few seconds after a fabric change. The time needed to reset the fabric routing varies based on the size of the fabric. Some frame loss may occur because as the fabric is recalculating routes, frames are dropped to avoid being delivered out of

order. No frame loss occurs if IOD is off, but there is still a short period of time when traffic is not forwarded. This period of time is significantly shorter than when IOD is on, and is usually less than 1 second.

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

Operands

None.

Examples

To disable the dynamic load sharing option:

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

See Also

dlsSet

dlsShow

dlsSet

Enable Dynamic Load Sharing (DLS) option.

Synopsis

```
dlsSet
```

Availability

admin

Release

V3.0.x and V4.0.x

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 E_Port or Fx_Port) directed to the same remote domain is routed through the same output E_Port.

To optimize fabric routing, when there are multiple equivalent paths to a remote switch, traffic is shared among all the paths. Load sharing is recomputed when a switch is booted up or every time a change in the fabric occurs. A change in the fabric is defined as an E_Port going up or down, or an Fx_Port going up or down.

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

If DLS is turned on (using **dlsSet**), routing changes can affect working ports. For example, if an Fx_Port goes down, another Fx_Port may be rerouted from one E_Port to a different E_Port. The switch minimizes the number of routing changes, but some are necessary in order to achieve optimal load sharing.

These changes can further affect the performance of the fabric if the in-order delivery (IOD) option is on. With the IOD option (see the **iodSet** command), routes are not available for a few seconds after a fabric change. The time needed to reset the fabric routing varies based on the size of the fabric. Some frame loss may occur because as the fabric is recalculating routes, frames are dropped to avoid being delivered out of

order. No frame loss occurs if IOD is off, but there is still a short period of time when traffic is not forwarded. This period of time is significantly shorter than when IOD is on, and is usually less than 1 second.

Operands

None.

Examples

To enable the dynamic load sharing option:.

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

See Also

dlsReset

dlsShow

dlsShow

Display the setting of the Dynamic Load Sharing (DLS) option.

Synopsis

```
dlsShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

DLS is set	The DLS option is turned on. Load sharing is reconfigured with every change in the fabric.
DLS is not set	The DLS option is turned off. Load sharing is only reconfigured when the switch is rebooted or an Fx_Port comes up.

Operands

None.

Example

To display the current DLS option setting:

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

See Also

dlsSet

dlsReset

errDump

Display the error log without page breaks.

Synopsis V3.0.x

```
errDump
```

Synopsis V4.0.x

```
errDump [saved]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the error log without page breaks. This command displays the same information as **errShow**, but **errShow** prompts you to type return between each log entry.

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

Operands

This command has the following operand:

saved   Specify a non-zero value to display the saved error log
                               from the previous switch system reboot. This operand
                               is optional. This operand is only available in V4.0.x.

Example

To display the error log without page breaks:

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

See Also

errShow

uptime

errShow

Scroll through the error log.

Synopsis

```
errShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

Each entry in the log follows the format below:

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

where:

Error Number	Each error in the log is assigned a number beginning with one. If the number of errors exceeds the size of the log, the most recent errors are shown.
Task ID (Task Name)	The ID and name of the task recording the error.
Time Stamp	The date and time of the first occurrence of the error.
Error Count	For errors that occur multiple times, the repeat count is shown in parentheses. The maximum count is 999.

Error Type	An upper case string showing the firmware module and error type. The switch manual contains a detailed explanation of error types.
Error Level	0 = panic (the switch reboots)
	1 = critical
	2 = error
	3 = warning
	4 = information
	5 = debug
Error Message	Additional information about the error.
Diag Err#	The error code number. This is a hexadecimal 4-digit code representing the error type.

Diagnostic Error Codes V3.0.x

The following table lists the error code numbers for V3.0.x, the POST test that generates this error number, and the type of error.

Table 1–6: Diagnostic Error Codes V3.0.x

Error Number	Test	Error Type
0001	n/a	DIAG-CLEAR_ERR
0002	n/a	DIAG-BURNIN_START
0003	n/a	DIAG-BURNIN_STOP
0004	n/a	DIAG-POST_SKIPPED
0110	ramTest	DIAG-MEMORY
0111	ramTest	DIAG-MEMSZ
0112	ramTest	DIAG-MEMNULL
040F	portRegTest	DIAG-BUS_TIMEOUT
0415	portRegTest	DIAG-REGERR
0416	portRegTest	DIAG-REGERR_UNRST
0B0F	sramRetentionTest	DIAG-BUS_TIMEOUT
0B15	sramRetentionTest	DIAG-REGERR
0B16	sramRetentionTest	DIAG-REGERR_UNRST
0FA0	turboRamTest	DIAG-TBRAM_WTEST

Table 1–6: Diagnostic Error Codes V3.0.x (Continued)

Error Number	Test	Error Type
0FA1	turboRamTest	DIAG-TBRAM_INC_WRTEST
0FA2	turboRamTest	DIAG-TBRAM_DEC_WRTEST
1020	centralMemoryTest	DIAG-CMBISRTO
1021	centralMemoryTest	DIAG-CMBISRF
1025	centralMemoryTest	DIAG-LCMRS
1026	centralMemoryTest	DIAG-LCMTO
1027	centralMemoryTest	DIAG-LCMEM
1028	centralMemoryTest	DIAG-LCMEMT
1029	centralMemoryTest	DIAG-CMNOBUF
102A	centralMemoryTest	DIAG-CMERRTYPE
102B	centralMemoryTest	DIAG-CMERRPTN
102C	centralMemoryTest	DIAG-INTNOTCLR
1030	centralMemoryTest	DIAG-BADINT
106F	centralMemoryTest	DIAG-TIMEOUT
1F25	cmemRetentionTest	DIAG-LCMRS
1F26	cmemRetentionTest	DIAG-LCMTO
1F27	cmemRetentionTest	DIAG-LCMEM
2030	cmiTest	DIAG-BADINT
2031	cmiTest	DIAG-INTNIL
2032	cmiTest	DIAG-CMISA1
2033	cmiTest	DIAG-CMINOCAP
2034	cmiTest	DIAG-CMIINVCAP
2035	cmiTest	DIAG-CMIDATA
2036	cmiTest	DIAG-CMICKSUM
223B	camTest	DIAG-CAMINIT
223C	camTest	DIAG-CAMSID
2271	camTest	DIAG-XMIT
2640	portLoopbackTest	DIAG-ERRSTAT (ENCIN)
2641	portLoopbackTest	DIAG-ERRSTAT (CRC)

Table 1–6: Diagnostic Error Codes V3.0.x (Continued)

Error Number	Test	Error Type
2642	portLoopbackTest	DIAG-ERRSTAT (TRUNC)
2643	portLoopbackTest	DIAG-ERRSTAT (2LONG)
2644	portLoopbackTest	DIAG-ERRSTAT (BADEOF)
2645	portLoopbackTest	DIAG-ERRSTAT (ENCOUT)
2646	portLoopbackTest	DIAG-ERRSTAT (BADORD)
2647	portLoopbackTest	DIAG-ERRSTAT (DISCC3)
264F	portLoopbackTest	DIAG-INIT
265F	portLoopbackTest	DIAG-PORTDIED
2660	portLoopbackTest	DIAG-STATS (FTX)
2661	portLoopbackTest	DIAG-STATS (FRX)
2662	portLoopbackTest	DIAG-STATS (C3FRX)
266E	portLoopbackTest	DIAG-DATA
266F	portLoopbackTest	DIAG-TIMEOUT
2670	portLoopbackTest	DIAG-PORTABSENT
2671	portLoopbackTest	DIAG-XMIT
3040	crossPortTest	DIAG-ERRSTAT (ENCIN)
3041	crossPortTest	DIAG-ERRSTAT (CRC)
3042	crossPortTest	DIAG-ERRSTAT (TRUNC)
3043	crossPortTest	DIAG-ERRSTAT (2LONG)
3044	crossPortTest	DIAG-ERRSTAT (BADEOF)
3045	crossPortTest	DIAG-ERRSTAT (ENCOUT)
3046	crossPortTest	DIAG-ERRSTAT (BADORD)
3047	crossPortTest	DIAG-ERRSTAT (DISCC3
304F	crossPortTest	DIAG-INIT
305F	crossPortTest	DIAG-PORTDIED
3060	crossPortTest	DIAG-STATS (FTX)
3061	crossPortTest	DIAG-STATS (FRX)
3062	crossPortTest	DIAG-STATS (C3FRX)
306E	crossPortTest	DIAG-DATA

Table 1–6: Diagnostic Error Codes V3.0.x (Continued)

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

Diagnostic Error Codes V4.0.x

The following table lists the error code numbers for V4.0.x, the POST test that generates this error number, and the type of error.

Table 1–7: Diagnostic Error Codes V4.0.x

Error Number	Test	Error Type
0001	n/a	DIAG-CLEAR_ERR
0002	n/a	DIAG-BURNIN_START
0003	n/a	DIAG-BURNIN_STOP
0004	n/a	DIAG-POST_SKIPPED
0110	ramTest	DIAG-MEMORY
0111	ramTest	DIAG-MEMSZ

Table 1–7: Diagnostic Error Codes V4.0.x (Continued)

Error Number	Test	Error Type
0112	ramTest	DIAG-MEMNULL
040F	portRegTest	DIAG-BUS_TIMEOUT
0415	portRegTest	DIAG-REGERR
0416	portRegTest	DIAG-REGERR_UNRST
0B0F	sramRetentionTest	DIAG-BUS_TIMEOUT
0B15	sramRetentionTest	DIAG-REGERR
0B16	sramRetentionTest	DIAG-REGERR_UNRST
1020	centralMemoryTest	DIAG-CMBISRTO
1021	centralMemoryTest	DIAG-CMBISRF
1025	centralMemoryTest	DIAG-LCMRS
1026	centralMemoryTest	DIAG-LCMTO
1027	centralMemoryTest	DIAG-LCMEM
1028	centralMemoryTest	DIAG-LCMEMTX
1029	centralMemoryTest	DIAG-CMNOBUF
102A	centralMemoryTest	DIAG-CMERRTYPE
102B	centralMemoryTest	DIAG-CMERRPTN
102C	centralMemoryTest	DIAG-INTNOTCLR
1030	centralMemoryTest	DIAG-BADINT
106F	centralMemoryTest	DIAG-TIMEOUT
1F25	cmemRetentionTest	DIAG-LCMRS
1F26	cmemRetentionTest	DIAG-LCMTO
1F27	cmemRetentionTest	DIAG-LCMEM
2030	cmiTest	DIAG-BADINT
2031	cmiTest	DIAG-INTNIL
2032	cmiTest	DIAG-CMISA1
2033	cmiTest	DIAG-CMINOCAP
2034	cmiTest	DIAG-CMIINVCAP
2035	cmiTest	DIAG-CMIDATA
2036	cmiTest	DIAG-CMICKSUM

Table 1–7: Diagnostic Error Codes V4.0.x (Continued)

Error Number	Test	Error Type
223B	camTest	DIAG-CAMINIT
223C	camTest	DIAG-CAMSID
2271	camTest	DIAG-XMIT
2640	portLoopbackTest	DIAG-ERRSTAT (ENCIN)
2641	portLoopbackTest	DIAG-ERRSTAT (CRC)
2642	portLoopbackTest	DIAG-ERRSTAT (TRUNC)
2643	portLoopbackTest	DIAG-ERRSTAT (2LONG)
2644	portLoopbackTest	DIAG-ERRSTAT (BADEOF)
2645	portLoopbackTest	DIAG-ERRSTAT (ENCOUT)
2646	portLoopbackTest	DIAG-ERRSTAT (BADORD)
2647	portLoopbackTest	DIAG-ERRSTAT (DISCC3)
264F	portLoopbackTest	DIAG-INIT
265F	portLoopbackTest	DIAG-PORTDIED
2660	portLoopbackTest	DIAG-STATS (FTX)
2661	portLoopbackTest	DIAG-STATS (FRX)
2662	portLoopbackTest	DIAG-STATS (C3FRX)
266E	portLoopbackTest	DIAG-DATA
266F	portLoopbackTest	DIAG-TIMEOUT
2670	portLoopbackTest	DIAG-PORTABSENT
2671	portLoopbackTest	DIAG-XMIT
3040	crossPortTest	DIAG-ERRSTAT (ENCIN)
3041	crossPortTest	DIAG-ERRSTAT (CRC)
3042	crossPortTest	DIAG-ERRSTAT (TRUNC)
3043	crossPortTest	DIAG-ERRSTAT (2LONG)
3044	crossPortTest	DIAG-ERRSTAT (BADEOF)
3045	crossPortTest	DIAG-ERRSTAT (ENCOUT)
3046	crossPortTest	DIAG-ERRSTAT (BADORD)
3047	crossPortTest	DIAG-ERRSTAT (DISCC3)
304F	crossPortTest	DIAG-INIT

Table 1–7: Diagnostic Error Codes V4.0.x (Continued)

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

Operands

None.

Example

The following illustrates two entries in the error log:

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

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

See Also

errDump

firmwareDownload

reboot

uptime

fabricShow

Display fabric membership information.

Synopsis

```
fabricShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

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

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

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

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

Operands

None.

Example

The following example shows a fabric of four switches. "sw180" is the principal switch. Three of the switches are configured to run IP over Fibre Channel. There is one multicast alias group.

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

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

See Also

switchShow

fabStatsShow

Display the fabric statistics information.

Synopsis

```
fabStatsShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the statistics information of fabric. The information displayed is 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
  Routing
  Licensing
  Disabling E_Port

Operands

None.

Example

To display the fabric statistics information:

```
switch:admin> fabstatsshow
Description                     Count
---------------------------------------
Domain ID forcibly changed:        0
E_Port offline transitions:        0
Reconfigurations:                  1
Segmentations due to:
                Loopback:          6 <
         Incompatibility:          0
                 Overlap:          0
                  Zoning:          0
                 Routing:          0
               Licensing:          0
       Disabling E_Port:           0
switch:admin>
```

See Also

psShow

tempShow

fanDisable

Disable a fan unit.

Synopsis

```
fanDisable unit
```

Availability

admin

Release

V4.0.x

Description

Use this command to disable a non-faulty fan unit by setting the RPM speed to 0.

Operand

This command has the following operand:

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

Example

To disable a fan unit:

```
san95:admin> fandisable 1

Fan unit 1 has been disabled
switch:admin>
```

See Also

```
fanShow
```
```
fanEnable
```

fanEnable

Enable a fan unit.

Synopsis

```
fanEnable unit
```

Availability

admin

Release

V4.0.x

Description

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

Operand

This command has the following operand:

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

Example

To enable a fan that has been disabled:

```
switch:admin> fanenable 1

Fan unit 1 has been enabled
switch:admin> fanshow

Fan #1 is OK, speed is 2237 RPM
Fan #2 is OK, speed is 2500 RPM
Fan #3 is OK, speed is 2445 RPM
```

See Also

```
fanShow
fanDisable
```

fanShow

Display fan status.

Synopsis

```
fanShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the current status of the switch fans.The format of the display varies according to the switch model and number of fans. Some switch models show fan speed measured in RPM (revolutions per minute).

Fan status is shown as:

OK	Fan is functioning correctly.
absent	Fan is not present.
below minimum	Fan is present but rotating too slowly or stopped.
unknown	Unknown fan unit installed.
faulty	Fan has exceeded hardware tolerance.

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

Operands

None.

Example

To display the status and RPMs for the fans:

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

See Also

fanDisable

fanEnable

psShow

tempShow

chassisshow

faStatsShow

Display statistics about Fabric Assist.

Synopsis

```
faStatsShow
```

Availability

All users.

Release

V3.0.x

Description

Use this command to display statistical information about Fabric Assist host ports. This command displays the port number for each Fabric Assist host port located on the switch. It also displays the total number LIPs performed by the port since activation of Fabric Assist zoning.

This command also display the total number of LIPs that were initiated by Fabric Assist, and which Fabric Assist PID caused the LIP to be sent.

The message "No Fabric Assist Host Ports on this Switch" is displayed if Fabric Assist is disabled, or if there are no Fabric Assist host ports on the switch.

Each line of output shows:

port	The port number of the Fabric Assist host.
Total LIPs	The total number of LIPs detected on the port since Fabric Assist was enabled.
Fabric Assist LIPs	Total number of LIPs initiated by Fabric Assist.
Last Caused by	The PID of the port that caused the last Fabric Assist initiated LIP.

Operands

None.

Example

This example shows three Fabric Assist host ports on the switch.

```
sw1:admin> faStatsShow
Port   Total LIPs   Fabric Assist LIPs   Last Caused by
--------------------------------------------------------
00     3            1                    0x011001
01     1            1                    0x0511ef
03     1            1                    0x0511ef
```

See Also

fazoneCreate

faShow

fastboot

Reboot the switch, bypassing POST.

Synopsis

```
fastboot
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

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

NOTE: For the StorageWorks Core switch, the fastboot command will reboot both logical switches and both CPs.

Operands

None.

Example

This example is for the StorageWorks Core switch:

```
switch:admin>fastboot

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

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

See Also

diagDisablePost

diagEnablePost

switchreboot

reboot

fazoneAdd

Add a member to a Fabric Assist zone.

Synopsis

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

Availability

admin

Release

V3.0.x and V4.0.x

Description

This command adds one or more members to an existing Fabric Assist zone.

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

Operands

This command has the following operands:

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

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

- For V3.0.x, enter a fabric domain and physical port number pair.
- For V4.0.x, enter a fabric domain and area number pair. View the area numbers for ports using the **switchShow** command.
- WWNs;
- Fabric Assist zone alias names;
- Exactly one Fabric Assist host member.

This operand is required.

Example

To add aliases for some disk arrays to "Blue_fazone":

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

To add a Fabric Assist host member to "Blue_fazone":

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

See Also

> fazoneCreate
>
> fazoneDelete
>
> fazoneRemove
>
> fazoneShow

fazoneCreate

Create a Fabric Assist zone.

Synopsis

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

Availability

admin

Release

V3.0.x and V4.0.x

Description

This command creates a new Fabric Assist zone (fazone). You must specify a name and member list for a Fabric Assist zone. The FA zone name must be unique from any previously used Fabric Assist zone object. The member list must be enclosed in quotation marks and each member must be separated by a semicolon.

A Fabric Assist zone name is a C language-style name. It must begin with a letter and be followed by any number of letters, digits, and underscore characters. Names are case sensitive, for example "Zone_1" and "zone_1" are different Fabric Assist zones. White space is ignored.

Physical Fabric port numbers are specified as a pair of decimal numbers "s,p" where "s" is the switch number (domain ID) and "p" is the port number on that switch. For example, "2, 12" specifies port 12 on switch number 2. When a fazone member is specified by physical Fabric port number, then all devices connected to that port are in the fazone. If this port is an arbitrated loop, then all devices on the loop are in the fazone.

The operand member is a list of one or more physical Fabric port numbers, WWNs, fazone alias names, or exactly one FA host member. The Fabric Assist zone member list must have at least one member. Empty lists are not allowed.

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

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

When a Fabric Assist zone member is specified by Node Name, then all ports on that device are in the Fabric Assist zone. When a Fabric Assist zone member is specified by Port Name, only that single device port is in the Fabric Assist zone.

Zone alias names have the same format as Fabric Assist zone names and are created with the **aliCreate** command. The alias must resolve to a list of one or more physical fabric port numbers, WWNs, QuickLoop AL_PAs, or an Initiator member.

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

Each target listed within the fazone definition shall be assigned an ALPA when the private host performs loop initialization. When the private host communicates with this assigned ALPA the private loop frame shall be translated into a public format and then delivered to the target's location within the fabric.

Loop devices that are zoned with the private host shall be assigned the same ALPA that they claimed during their own loop initialization, provided that it is still available on the private host's loop. Other public devices zoned with the private host shall be assigned the lowest available ALPA during the private host's loop initialization.

If however, the ALPA by which the fazoned target must be identified by does not conform to the default ALPA assignment process, then a preferred ALPA may be assigned to each target within the fazone definition. The identified preferred ALPA shall be the ALPA value that is assigned to the target during the private host's loop initialization, provided that it is not claimed by the private host or another preferred ALPA assignment.

To assign a preferred ALPA add to the definition of the target (Domain, Port, or WWN) the preferred ALPA within square brackets [ ]. For example, a fazone defined as:

```
"H{1,1}; 2,12[0xe2]; 2,14[0xe8]; 10:00:00:60:69:00:00:8a[0xef]"
```

would contain all 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. The target connected to switch 2, port 12 would be assigned an ALPA value of 0xE2, and the target connected to port switch 2, port 14 would be assigned an ALPA value of 0xE8. Finally, the ALPA assigned to the target identified by the WWN would be assigned a value of 0xEF.

Preferred ALPA assignments given to a Domain Port that is not a public N_Port device are ignored, and the fazone is created without error.

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

Operands

The following operands are required:

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

- For V3.0.x, enter a fabric domain and physical port number pair.
- For V4.0.x, enter a fabric domain and area number pair. View the area numbers for ports using the **switchShow** command.
- WWNs;
- Fabric Assist zone alias names;
- Exactly one Fabric Assist host member.

This operand is required.

Example

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

```
switch:admin> fazoneCreate "fazone1", "H{1,0}; loop1"
switch:admin> fazoneCreate "fazone2", "H{1,1}; array1; 1,2; array2"
switch:admin> fazoneCreate "fazone3", "1,0; loop1; H{1,2}; array2"
```

See Also

fazoneAdd

fazoneDelete

fazoneRemove

fazoneShow

fazoneDelete

Delete a Fabric Assist mode zone.

Synopsis

```
fazoneDelete "fazoneName"
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

Operands

The following operand is required:

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

Example

To delete a Fabric Assist zone:

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

See Also

```
fazoneCreate
faShow
faStatsShow
```

fazoneRemove

Remove members from a Fabric Assist mode zone.

Synopsis

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

Availability

admin

Release

V3.0.x and V4.0.x

Description

This command removes one or more members from an existing Fabric Assist zone.

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

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

Operands

The following operands are required:

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

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

- For V3.0.x, enter a fabric domain and physical port number pair.
- For V4.0.x, enter a fabric domain and area number pair. View the area numbers for ports using the **switchShow** command.
- WWNs;
- Fabric Assist zone alias names;
- Exactly one Fabric Assist host member.

This operand is required.

Example

To remove "array2" from "Blue_fazone":

```
switch:admin> fazoneRemove "Blue_fazone", "array2"
```

See Also

fazoneAdd

fazoneCreate

fazoneDelete

fazoneShow

fazoneShow

Display fazone information.

Synopsis

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

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

NOTE: The pattern operand must be in quotation marks for V3.0.x. Quotation marks are not required for V4.0.x.

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

Operands

This command has the following operands:

<table>
<tr><td>pattern</td><td>Specify a value to search for the name of an fazone. This can be any POSIX style expression. This operand must be in quotation marks in V3.0.x. Patterns can contain:</td></tr>
</table>

- Question mark "?" that matches any single character
- Asterisk "*" that matches any string of characters
- Ranges which match any character within the range. For example, [0-9] or [a-f].

This operand is optional.

<table>
<tr><td>transflag</td><td>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.</td></tr>
</table>

Example

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

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

See Also

fazoneAdd

fazoneCreate

fazoneDelete

fazoneRemove

filterTest

Frame Filter test.

Synopsis V3.0.x

```
filterTest [passcnt]
```

Synopsis V4.0.x

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

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to verify that 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 loop back mode. The filter test requires two different ports in same quadrant due to the fact that the filter logic sits in transmitter port can not work if frame is sent directly from the embedded port.

In this test, the filter definition covers the following different filtering conditions:

Table 1–8: 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:

passcnt	Specify the number of times to perform this test. The default value is 1.
-txports list	Specify the user port numbers to perform this test. All user ports are set in default.
-scamoff offset	Specify the program location to write SCAM test data in SCAM memory. The default value is 0. The maximum offset number is set if the specified number is larger than limit.
-dcamoff offset	Specify the program location to write DCAM test data in DCAM memory. The default value is 0. The maximum offset number is set if the specified number is larger than limit.

`-fdefoff offset`	Specify the program location to write filter test definition data in filter definition memory. The default value is 0. The maximum offset number is set if the specified number is larger than limit.

Diagnostics

When it detects failures, the subtest may report one or more of the following error messages:

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

Example

To run the filterTest:

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

See Also

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

firmwareCommit

Commit switch firmware update.

Synopsis

```
firmwareCommit
```

Availability

admin

Release

V4.0.x

Description

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

For the StorageWorks Core switch, each CP has two partitions. The **firmwaredownload** command will always load the image into the secondary partition of a CP and then will swap the secondary to be the new primary. After the system successfully boots up from this partition, a user should run **firmwarecommit** to replicate the downloaded image in the primary partition to the secondary partition.

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

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

Operands

None.

Example

To commit a firmware file:

```
switch:admin> firmwarecommit
writing flash 0 ..................
writing flash 1 ..................
commit complete
```

See Also

firmwareDownload

firmwareDownload

Download switch firmware from a remote host or from a local directory.

Synopsis V3.0.x

```
firmwareDownload [host, user, file [,passwd]]
```

Synopsis V4.0.x

```
firmwareDownload [[-bni] host,user,pfile [,passwd]]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

NOTE: Fabric OS V3.0.x supports RSHD and FTP protocol for firmware downloads. Fabric OS V4.0.x supports only FTP protocol for firmware downloads.

The V3.0.x firmware is in the form of a single binary file. The V4.0.x firmware is in the form of RPM packages with names defined in pfile. These packages are made available periodically to add features or to remedy defects. Contact customer support to obtain information about available firmware versions.

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

The package list file (that is, plist file) is a binary file which contains specific firmware information such as the release version, time stamp, and platform code, and the names of packages to be downloaded.

For the StorageWorks Core switch, each CP has two partitions of non-volatile storage. The **firmwaredownload** command will always load the image into the secondary partition and then will swap the secondary to be the new primary. After the system successfully boots up from this partition, run **firmwarecommit** to replicate the downloaded image in the primary partition to the secondary partition.

NOTE: The default action in V4.0.x is a full install instead of an incremental install.

If the previous firmware version is preferred after **firmwareDownload** and **reboot**, but before **firmwareCommit**, then run **firmwareRestore** to restore the old firmware image now saved in the secondary partition.

Operands

This command has the following operands:

-b	Specify this operand to activate auto-reboot mode. This operand is only available in V4.0.x. After downloading firmware the system must be rebooted. If this operand is not specified, the user must issue the **reboot** command manually in order to activate the downloaded image. If Auto-reboot mode is enabled, the switch reboots automatically after the **firmwareDownload** command has been run.
-n	Specify this operand to de-activate auto-commit mode. This operand is only available in V4.0.x. By default, after running this command and after **reboot**, the switch will perform a **firmwareCommit** command automatically. When this mode is disabled, the user needs to issue the **firmwareCommit** command manually to replicate the downloaded image from the primary partition to the secondary partition of a CP.
-i	Specify this operand to enable Incremental Install Mode. By default, **firmwareDownload** will do a full install of the whole firmware regardless of what the original firmware version was on the system. In Incremental Install Upgrade Mode the names of packages in pfile are compared to what already installed on the switch and only the packages which are different from those already stored or not on the switch yet are installed.
host	Specify a host server name or IP address; for example, "tower" or "192.168.1.48". The configuration file or pfile is downloaded from this host system. If this operand is not used, the pfile is considered to be accessible through a local directory. This operand is required.

user	Specify a user name for FTP or RSHD server access; for example, "`jdoe`". This user name is used to gain access to the host. This operand is required.
file	Specify a path and file name; for example, "/pub/dist/v2.6.0." Absolute path names may be specified using forward slash (`/`). Relative path names create the file in the user's home directory on UNIX hosts, and in the directory where the FTP server is running on Windows hosts. This operand is required. This operand is specific to V3.0.x.
pfile	Specify a fully qualified path and file name; for example, "/pub/dist/system.plist". Absolute path names may be specified using forward slash (`/`). Relative path names create the file in the user's home directory on UNIX hosts, and in the directory where the FTP server is running on Windows hosts. This operand is required. This operand is specific to V4.0.x.
passwd	Specify a password. This operand is required, but may be NULL.

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

Example

To download the firmware to a V3.0.x switch:

```
Switch:admin> firmwaredownload
Server Name or IP Address [jsmith-sun]: fjones-sun
User Name [jsmith]: fjones
File Name [~jsmith/V3.0.x.1]: ~fjones/V3.0.x.2
Protocol (RSHD or FTP) [rshd]:
3869708+301460+1119124, csum 6edc
..............................
..............................
writing flash 0 ...............................
writing flash 1 ...............................
download complete
Switch:admin>
```

To download the firmware to a V4.0.x switch:

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

Errors

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 or binary file does not exist on host

- The pfile or binary file is not in the right format

- Package specified in the pfile or binary file doesn't exist

- The RSHD (V3.0.x) or FTP (V3.0.x and V4.0.x) server is not running on host

See Also

```
switchReboot
reboot
version
```

firmwarerestore

Restore old active firmware image.

Synopsis

```
firmwarerestore
```

Availability

admin

Release

V4.0.x

Description

Use this command to restore the old active firmware image.

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

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

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

Operands

None.

Example

To restore old active firmware image:

```
switch:admin> firmwarerestore
Restore Kernel Image...
.............................
No firmware undo is needed
switch:admin>
```

See Also

firmwareDownload

firmwareCommit

fspfShow

Display FSPF protocol information.

Synopsis

```
fspfShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

The display shows the following fields:

Table 1–9: fspfShow Display Fields

Field	Description
version	Version of FSPF protocol.
domainID	Domain number of local switch.
switchOnline	State of the local switch. V4.0.x only.
domainConfirmed	Domain of the local switch is currently confirmed.V4.0.x only.
isl_ports	Bit map of all E_Ports.
trunk_ports	Bit map of all the trunk ports. V4.0.x only.
f_ports	Bit map of all the Fx_Ports. V4.0.x only.
seg_ports	Bit map of all the segmented ports. V4.0.x only.
active_ports	Bit map of all the ONLINE ports. V4.0.x only.
minLSArrival	FSPF constant.
minLSInterval	FSPF constant.

Table 1–9: fspfShow Display Fields (Continued)

Field	Description
LSoriginCount	Internal variable.
startTime	Start time of tFspf task (milliseconds from boot).
fspfQ	FSPF input message queue.
fabP	Pointer to fabric data structure.
agingTID	Ager timer ID.
agingTo	Ager time out value, in milliseconds.
lsrDlyTID	Link State Record delay timer ID.
lsrDelayTo	Link State Record delay time out value, in milliseconds.
lsrDelayCount	Counter of delayed Link State Records.
ddb_sem	FSPF semaphore ID.
event_sch	FSPF scheduled events bit map.
lsrRefreshCnt	Internal variable.

Operands

None.

Examples

To display FSPF protocol information:

```
switch:admin> fspfshow

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

See Also

bcastShow

mcastShow

topologyShow

uRouteShow

fwAlarmsFilterSet

Enable or disable alarms for Fabric Watch.

Synopsis

```
fwAlarmsFilterSet [mode]
```

Availability

admin

Release

V3.0.x and V4.0.x

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.

NOTE: This command requires a Fabric Watch License.

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 are deactivated). This operand is optional.

Example

To enable alarms in Fabric Watch:

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

See Also

fwAlarmsFilterShow

fwAlarmsFilterShow

Display alarm filtering for Fabric Watch.

Synopsis

```
fwAlarmsFilterShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display whether alarm filtering is enabled or disabled.

NOTE: This command requires a Fabric Watch License.

Operands

None.

Example

To display the status of alarm filtering in Fabric Watch:

```
switch:admin> fwAlarmsFilterShow
FW: Alarms are enabled
switch:admin> fwAlarmsFilterShow
FW: Alarms are disabled
```

See Also

```
fwAlarmsFilterSet
```

fwClassInit

Initialize all classes under Fabric Watch.

Synopsis

```
fwClassInit
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to initialize all classes under Fabric Watch.

NOTE: This command requires a Fabric Watch License.

Operands

None.

Example

To initialize all classes under Fabric Watch:

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

See Also

```
fwConfigReload
fwConfigure
fwShow
```

fwConfigReload

Reload the Fabric Watch configuration.

Synopsis

```
fwConfigReload
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

NOTE: This command requires a Fabric Watch License.

Operands

None.

Example

To reload the saved Fabric Watch configuration:

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

See Also

        configUpload

        configDownload

        fwClassInit

        fwConfigure

        fwShow

fwConfigure

Display and modify the Fabric Watch configuration and status.

Synopsis

```
fwConfigure
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

NOTE: This command requires a Fabric Watch License.

The Fabric Watch classes and areas are provided in the following list.

Table 1–10: fwConfigure Fabric Watch Classes and Areas

Class	Area
Environmental class	Temperature Fan Power supply
SFP class	Temperature Received power Transmitted power Current

Table 1–10: fwConfigure Fabric Watch Classes and Areas (Continued)

Class	Area
Port class	Link failure count Loss of synchronization count Loss of signal count Primitive sequence protocol error Invalid transmission word Invalid CRC count Receive performance Transmit performance State changes
Fabric class	Loss of E_Port Fabric reconfigure Segmentation changes Domain ID changes Zoning changes Fabric to QuickLoop changes. V3.x only. Fabric logins SFP state change
E_Port class	Link failure count Loss of synchronization count Loss of signal count Primitive sequence protocol error Invalid transmission word Invalid CRC count Receive performance Transmit performance State changes
F/FL_Port (optical) class	Link failure count Loss of synchronization count Loss of signal count Primitive sequence protocol error Invalid transmission word Invalid CRC count Receive performance Transmit performance State changes

Table 1–10: fwConfigure Fabric Watch Classes and Areas (Continued)

Class	Area
F/FL_Port (copper) class This class is available in V3.x only.	Link failure count Loss of synchronization count Loss of signal count Primitive sequence protocol error Invalid transmission word Invalid CRC count Receive performance Transmit performance State changes
AL_PA Performance Monitor class This class is available in V4.x only.	Invalid CRCS
EE Performance Monitor class This class is available in V4.x only.	Invalid CRCS RXPerformance TXPerformance
Filter Performance Monitor class This class is available in V4.x only.	Customer Define

Operands

None.

Example

To display the Fabric Watch configuration and status:

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

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

See Also

fwClassInit

fwConfigReload

fwShow

fwFruCfg

Display or modify FRU state alert configuration.

Synopsis

```
fwFruCfg
```

Availability

admin

Release

V4.0.x

Description

Use this command to configure FRU states and actions. Based on these configuration settings Fabric Watch generates action when FRU state changes. To configure e-mail alerts use **fwMailCfg**.

NOTE: This command requires a Fabric Watch License.

Operands

None.

Example

To change FRU state alert configuration:

```
switch:admin> fwFruCfg
  1  : Slot
  2  : Power Supply
  3  : Fan
  4  : WWN
  5  : Configure All
  6  : Quit
  Select an item  => : (1..6) [6] 1
                                     Alarm
Id   Label              Status    State    Action    Freq   TimeBase
=======================================================================
1     Slot #1            enable     48       17        5    Minute
2     Slot #2            enable      8       16        1    Minute
3     Slot #3            enable     16       16        1    Minute
4     Slot #4            enable     48       17        5    Minute

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

Select Id => : (1..8) [8] 1
Enter Slot Number : (1..4) [4] 1
Absent-1, Inserted-2, Ready-4
Up-8, On-16, Off-32, Faulty-64
Enter fru alarm state  => : (1..127) [48] 32
                                     Alarm
Id   Label              Status    State    Action    Freq   TimeBase
=======================================================================
1     Slot #1            enable     32       17        5    Minute
2     Slot #2            enable      8       16        1    Minute
3     Slot #3            enable     16       16        1    Minute
4     Slot #4            enable     48       17        5    Minute

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

See Also

    fwMailCfg

    fwConfigure

fwHelp

Display Fabric Watch command information.

Synopsis

```
fwHelp
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

Operands

None.

Example

To display a summary of Fabric Watch telnet commands:

```
switch:admin> fwHelp

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

switch:admin>
```

NOTE: The above example includes commands which are only available in V4.0.x.

See Also

```
diagHelp
```

fwMailCfg

Configure e-mail alerts in Fabric Watch.

Synopsis

```
fwMailCfg
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to configure e-mail alerts in Fabric Watch.

NOTE: This command requires a Fabric Watch License.

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

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

These are the classes that you can set e-mail alerts for:

0 : Environment class

1 : SFP class

2 : Port class

3 : Fabric class

4 : E-Port class

5 : F/FL Port (Optical) class

6 : AL_PA Performance Monitor class

7 : End-to-End Performance Monitor class

8 : Filter Performance Monitor class

9 : FRU class

10 : Quit

When configuring an e-mail alert for a specific class you must specify the following information:

`Mail Server`	Specify the IP address of the mail server.
`Domain Name`	Specify the domain name of the mail server. For example, `hp.com`.
`Mail Recipients`	Specify the name of the users who will be notified. The format should be user@domain.com. For example, `johndoe@hp.com`.

NOTE: You must choose option 3 to enable e-mail alert. Email alert is not activated automatically after an mail address is configured.

NOTE: If the switch is rebooted using **switchboot**, **reboot**, or **fastboot**, the email alert is set to disabled and must be re-enabled again.

Operands

None.

Example

To configure an email address recipient in Fabric Watch:

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

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

See Also

```
fwhelp
```

fwSetToCustom

Set boundary and alarm levels to custom values.

Synopsis

```
fwSetToCustom
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

NOTE: This command requires a Fabric Watch License.

Operands

None.

Example

To set alarm levels to custom values:

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

See Also

```
fwSetToDefault
```

fwSetToDefault

Set boundary and alarm levels to the default values.

Synopsis

```
fwSetToDefault
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

NOTE: This command requires a Fabric Watch License.

Operands

None.

Example

To set alarm levels to default values:

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

See Also

```
fwSetToCustom
```

fwShow

Display the thresholds monitored by Fabric Watch.

Synopsis

```
fwShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the thresholds monitored by Fabric Watch.

In V3.x, this command displays the name, label, and last value for each Fabric Watch area.

In V4.x, this command can display a synopsis of thresholds for a particular class or more detailed information for an individual threshold.

NOTE: This command requires a Fabric Watch License.

Operands

None.

Example

The following example is for V4.x:

```
switch:admin> fwShow

1  : Show class thresholds
2  : Detail threshold information
3  : Quit
Select an item  => : (1..3) [3] 2
Enter Threshold Name : [envFan001] envFan002

========================================================================
Name                 Label                              Last value
-------------------- ------------------------------     -----------------
   Monitored for:       2369 (39 mins)
   Last checked:   19:48:00 on 12/03/1999
    Lower bound:       2000 RPM
    Upper bound:       3400 RPM
    Buffer Size:          3
 Value history:       3013 RPM
   Raw history:       3013 RPM
                      3013 RPM
                      3013 RPM
                      3013 RPM
                      3013 RPM
         Flags: 0x      40 TRIGGERED
   Counter:
     Access via: Function call
        Address: 0x100187dc
       Argument: 0x00000002

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

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

      Callbacks:
        No callbacks are registered.

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

The following example is for V3.x:

```
Switch:admin> fwshow
========================================================================
Name               Label                    Last value
----------------   ----------------------   -----------------------------
envFan001          Env Fan 1                    5880 RPM
envFan002          Env Fan 2                    5910 RPM
envFan003          Env Fan 3                    5880 RPM
envFan004          Env Fan 4                    5970 RPM
envFan005          Env Fan 5                    6060 RPM
envTemp001         Env Temperature 1              33 C
envTemp002         Env Temperature 2              32 C
fabricDI000        Fabric Domain ID                0 DID Change(s)
fabricED000        Fabric E-port down              0 Down(s)
fabricFL000        Fabric Fabric login             0 Login(s)
fabricFQ000        Fabric Fabric<->QL              0 Change(s)
fabricFR000        Fabric Reconfigure              0 Reconfig(s)
<output truncated>
```

See Also

fwClassInit

fwConfigReload

fwConfigure

gbicShow

Display serial ID GBIC information.

Synopsis

```
gbicShow [slotnumber/][portnumber]
```

Availability

All users.

Release

V3.0 and V4.0

Description

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

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

Use this command with the slot and portnumber operand to display detailed information about the Serial ID GBIC in that port.

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

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

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

Example

The following example shows first GBIC summary information and then detailed information for a single GBIC:

```
switch12k:admin> gbicshow
Area  0: id (id) Vendor:  Serial No:
Area  1: id (sw) Vendor: FINISAR CORP.    Serial No: H1149T2
Area  2: id (sw) Vendor: FINISAR CORP.    Serial No: H112TUD
Area  3: id (sw) Vendor: FINISAR CORP.    Serial No: H112YFR
Area  4: id (sw) Vendor: IBM              Serial No: 21P53380BR0BE
Area  5: id (sw) Vendor: IBM              Serial No: 21P53380BS18A
Area  6: id (sw) Vendor: IBM              Serial No: 21P53380BS170
Area  7: id (sw) Vendor: IBM              Serial No: 21P53380BS26B
Area  8: --
Area  9: --
Area 10: --
Area 11: --
Area 12: --
Area 13: --
Area 14: --
Area 15: --
Area 16: id (sw) Vendor: AGILENT          Serial No: 0105091301045274
Area 17: id (sw) Vendor: AGILENT          Serial No: 0105091258486386
Area 18: id (sw) Vendor: FINISAR CORP.    Serial No: H114KY0
Area 19: id (sw) Vendor: FINISAR CORP.    Serial No: H114LNP
Area 20: id (sw) Vendor: FINISAR CORP.    Serial No: H112VPM
Area 21: id (sw) Vendor: FINISAR CORP.    Serial No: H112VMZ
Area 22: id (sw) Vendor: FINISAR CORP.    Serial No: H112U0L
Area 23: id (sw) Vendor: FINISAR CORP.    Serial No: H112VL5
Area 24: --
Area 25: --
Area 27: --
Area 28: --
Area 29: --
Area 30: --
```

```
Area 31: --
switch12k:admin> gbicshow 1/3
Identifier: 3    GBIC
Connector:  7    LC
Transceiver: 050c402000000000 100,200_MB/s M5,M6 sw Inter_dist
Encoding:   1    8B10B
Baud Rate:  21   (units 100 megabaud)
Length 9u:  0    (units 100 meters)
Length 50u: 30   (units 10 meters)
Length 625u: 13  (units 10 meters)
Length Cu:  0    (units 1 meter)
Vendor Name: FINISAR CORP.
Vendor OUI:  00:90:65
Vendor PN:   FTRJ-8519-3-2.5
Vendor Rev:  X1
Options:     0012 Loss_of_Sig,Tx_Disable
BR Max:      0
BR Min:      0
Serial No:   H112YFR
Date Code:   010418
switch12k:admin>
```

See Also

switchShow

h

Display shell history.

Synopsis

```
h
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

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

Basic vi commands:

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

Operands

None.

Example

To display previous shell commands:

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

haDisable

Disable the High Availability feature in the switch.

Synopsis

```
haDisable
```

Availability

admin

Release

V4.0.x

Description

Use this command to disable the High Availability (HA) feature in the switch. If the HA feature is already disabled, this command is ignored.

The High Availability feature makes use of dual-redundant control processors. If the Active CP fails the Standby CP will take over and run the switches.

If you perform the haDisable command, the High Availability feature is disabled and if the Active CP fails the Standby CP will not take over. The switches may or may not continue to run depending on the CP failure.

The haDisable command is useful when:

- There's a problem with the Standby CP and it keeps taking over when it shouldn't.

- You are debugging on the Active CP and you are using breakpoints that when encountered would cause the Standby CP to take over if the High Availability feature were enabled.

NOTE: If you perform an haFailover command, it forces the Standby CP to take over just like it would if the Active CP failed and the High Availability Feature was Enabled.

Operands

None.

Example

To disable the High Availability feature:

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

See Also

haEnable

haFailover

haShow

haEnable

Enable the High Availability feature in the switch.

Synopsis

```
haEnable
```

Availability

admin

Release

V4.0.x

Description

Use this command to enable the High Availability (HA) feature in the switch. If the HA feature is already enabled, this command is ignored.

Operands

None.

Example

To enable the High Availability feature in the switch:

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

See Also

```
haDisable
haFailover
haShow
```

haFailover

Forces the failover mechanism so that the Standby CP becomes the Active CP.

Synopsis

```
haFailover
```

Availability

admin

Release

V4.0.x

Description

Use this command to force the failover mechanism to occur so that the Standby CP becomes the Active CP. Because **hafailover** results in CP reboot, a warning message and a confirmation is displayed. If the user answers positively, then the failover takes place.

Operands

None.

Example

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

```
switch:admin> hafailover

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

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

See Also

haDisable

haEnable

haShow

haShow

Display control processor (CP) status.

Synopsis

```
haShow
```

Availability

admin

Release

V4.0.x

Description

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

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

Operands

None.

Example

To display control processor (CP) status:

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

See Also

```
haDisable
haEnable
haFailover
haShow
```

help

Display help information for commands.

Synopsis

```
help [command]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

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

- Login user level
- License key
- Switch model

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

Operands

This command has the following operand:

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

Example

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

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

See Also

diagHelp

licenseHelp

routeHelp

historyLastShow

Display last history record.

Synopsis

```
historyLastShow
```

Availability

All users.

Release

V4.0.x

Description

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

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

- object type: CHASSIS, FAN, POWER SUPPLY, SW BLADE (switch), CP BLADE (control processor), WWN (world wide name), or UNKNOWN.

- object number: Slot <nn> (for blades), Unit <nn> (for everything else).

- event: Inserted, Removed, or Invalid.

- time of the event: at <Dow> <Mon> <dd> <hh:mm:ss> <yyyy>

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

HP Part Number: <xx-yyyyy-zz> or Unknown

HP Serial Number: <xxxxxxxxxxxx> or Unknown

Operands

None.

Example

To display the last history record:

```
switch12K:admin> historyLastShow

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

Records:  11
```

See Also

historyShow

historyShow

Display the history log.

Synopsis

```
historyShow
```

Availability

All users.

Release

V4.0.x

Description

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

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

   — object type: CHASSIS, FAN, POWER SUPPLY, SW BLADE (switch), CP BLADE (control processor), WWN (world wide name), or UNKNOWN.

   — object number: Slot <nn> (for blades), Unit <nn> (for everything else).

   — event: Inserted, Removed, or Invalid.

   — time of the event: at <Dow> <Mon> <dd> <hh:mm:ss> <yyyy>

2. The second contains one data set, HP Part Number:

   — HP Part Number: <xx-yyyyy-zz> or Unknown

3. The third line contains one data set, HP Serial Number:

   — HP Serial Number: <xxxxxxxxxxxx> or Unknown

Operands

None.

Example

To display the entire contents of the history file:

```
switch:admin> historyShow

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

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

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

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

 . . .

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

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

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

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

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

Records:  11
```

See Also

```
historyLastShow
```

i

Display task summary.

Synopsis

```
i [Process ID]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

This command displays information of all of the processes or of a specific process if a process ID is supplied. One line is displayed per process. The following table explains the fields displayed with this commands.

Table 1–11: i Command Field Description

Field	Description		
F	Process Flags:		
	ALIGNWARN	001	print alignment warning msgs
	STARTING	002	being created
	EXITING	004	getting shut down
	PTRACED	010	set if ptrace (0) has been called
	TRACESYS	020	tracing system calls
	FORKNOEXEC	040	forked but didn't exec
	SUPERPRIV	100	used super-user privileges
	DUMPCORE	200	dumped core
	SIGNALED	400	killed by a signal

Table 1–11: i Command Field Description (Continued)

Field	Description
S	Process state codes: D uninterruptable 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.
ADDR	Memory address of the process.
SZ	The total size of the process in virtual memory in pages.
WCHAN	The address of an event for which process is sleeping (if blank, the process is running.).
TTY	The controlling terminal of the process (? is printed for no controlling terminal).
TIME	The cumulative execution time for the process.
CMD	The command name of the process.

Operands

This command has the following operand:

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

Example

To display information about process ID 433:

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

See Also

 diagHelp

 routeHelp

ifModeSet

Set the link operating mode for a network interface.

Synopsis

```
ifModeSet ["interface"]
```

Availability

admin

Release

V3.0.x

Description

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

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

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

The system must be rebooted for changes to take effect.

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

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

Operands

This command has the following operand:

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

Example

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

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

See Also

ifModeShow

ifShow

ifModeShow

Display the link operating mode for a network interface.

Synopsis

```
ifModeShow ["interface"]
```

Availability

All users.

Release

V3.0.x

Description

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

Operands

This command has the following operand:

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

Example

To display the link operating mode for the "fei0" Ethernet interface:

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

See Also

```
ifModeSet
ifShow
```

ifShow

Display network interface information.

Synopsis

```
ifShow ["ifName"]
```

Availability

All users.

Release

V3.0.x

Description

Use this command to display network interface status. If the operand `ifName` is provided, only the that interface is displayed. If `ifName` is omitted, all interfaces are displayed. Each switch has three interfaces:

"ei" or "fei" is the 10BaseT or 100BaseT Ethernet interface
"lo" is the loopback interface
"fc" is the Fibre Channel interface

The "fc" interface is displayed for switches running IP over Fibre Channel that have been assigned an FC-IP address. For each interface selected, the following information is displayed:

- Flags (for example, loopback, broadcast, arp, running, debug)

- Internet address

- Broadcast address

- Netmask and subnetmask

- Ethernet address

- Route metric

- Maximum transfer unit

- Number of packets received and sent

- Number of input errors, output errors, and collisions

Operands

This command has the following operand:

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

Example

To display Ethernet interface information for a switch with a 10BaseT connection:

```
switch:admin> ifShow "ei"
ei (unit number 0):
     Flags: (0x63) UP BROADCAST ARP RUNNING
     Internet address: 192.168.1.65
     Broadcast address: 192.168.1.255
     Netmask 0xffffff00 Subnetmask 0xffffff00
     Ethernet address is 00:60:69:00:00:8a
     Metric is 0
     Maximum Transfer Unit size is 1500
     42962 packets received; 127 packets sent
     0 input errors; 0 output errors
     7 collisions
```

See Also

ipAddrSet

ipAddrShow

interfaceShow

Display FSPF interface information.

Synopsis

```
interfaceShow [slotnumber/][portnumber]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display data structures associated with FSPF interfaces (E_Ports) on the switch.

There are two data structures that save data associated with FSPF interfaces:

• 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.

Use this command without specifying a port number to display the interface information for all ports on the switch (including non E_Ports).

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 this port is a part of.

`defaultCost`	The 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/s link. A value of 500 indicates a 2 Gb/s 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 `portnumber`
`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.
`&dbRetransList`	Pointer to the database retransmission list.
`&lsrRetransList`	Pointer to the Link State Records (LSR) retransmission list.

&lsrAckList	Pointer to the Link State Acknowledgements (LSA) retransmission list.
inactTID	Inactivity timer ID.
helloTID	Hello timer ID.
dbRtxTID	Database retransmission timer ID.
lsrRtxTID	LSR retransmission timer ID.
inactTo	Inactivity time out value, in milliseconds. When this time out expires, the adjacency with the neighbor switch is broken and new paths are computed to all possible destination switches in the fabric.
helloTo	Hello time out value, in milliseconds. When this time out expires, a Hello frame is sent to the neighbor switch through this port.
rXmitTo	Retransmission time out value, in milliseconds. It is used to transmit topology information to the neighbor switch. If no acknowledgement is received within rXmitTo, frame is retransmitted.
nCmdAcc	Total number of commands accepted from the neighbor switch. Number includes Hellos, Link State Updates (LSU) and Link State Acknowledgements.
nInvCmd	Number of invalid commands received from the neighbor switch. Usually commands with an FSPF version number higher than the one running on the local switch.
nHloIn	Number of Hello frames received from the neighbor switch.
nInvHlo	Number of invalid Hello frames (Hello frames with invalid parameters) received from the neighbor switch.
nLsuIn	Number of LSUs received from the neighbor switch.
nLsaIn	Number of LSAs received from the neighbor switch.
attHloOut	Number of attempted transmissions of Hello frames to the neighbor switch.
nHloOut	Number of Hello frames transmitted to the neighbor switch.
attLsuOut	Number of attempted transmissions of LSUs to the neighbor switch.
nLsuOut	Number of LSUs transmitted to the neighbor switch.

attLsaOut	Number of attempted transmissions of LSAs to the neighbor switch.
nLsaOut	Number of LSAs transmitted to the neighbor switch.

Operands

This command has the following operands:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

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

Examples

To display FSPF interface information:

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

< sample output truncated >
```

See Also

portShow

switchShow

iodReset

Turn off the In-order Delivery (IOD) option.

Synopsis

```
iodReset
```

Availability

admin

Release

V3.0 and V4.0

Description

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

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

NOTE: This command should not be used in HP configurations.

Operands

None.

Examples

To turn off the IOD option:

```
switch:admin> iodshow

IOD is set

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

IOD is not set

switch:admin>
```

See Also

iodSet

iodShow

iodSet

Enable the In Order Delivery (IOD) option.

Synopsis

    iodSet

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

The default behavior is for the IOD option to be on. HP configurations require that IOD be set to a 1 to ensure in order delivery of frames.

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

Operands

None.

Examples

To turn on the IOD option:

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

See Also

iodReset

iodShow

iodShow

Display the In Order Delivery (IOD) option setting.

Synopsis

```
iodShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display whether the IOD option is enabled or disabled.

Operands

None.

Example

To display the current setting of the IOD option:

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

See Also

```
iodSet
iodReset
```

ipAddrSet

Set the IP Address details for a switch or Control Processor.

Synopsis V3.0.x

```
ipAddrSet
```

Synopsis V4.0.x

```
ipAddrSet [option]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to set the Ethernet and Fibre Channel IP addresses on the switch.

V4.0.x Parameters

For V4.0.x you must set values for both logical switches and both CP cards in the StorageWorks Core switch chassis. The option operand is available in V4.0.x. If the option operand is not specified, the command becomes interactive.

In V4.0.x, you are prompted to set the following values:

Ethernet IP Address	Set the Ethernet IP Address for both logical switches and both CP blades.
Ethernet Subnetmask	Set the Ethernet Subnetmask address for both logical switches and both CP blades.
Fibre Channel IP Address	Set the Fibre Channel IP Address for both logical switches.
Fibre Channel Subnetmask	Set the Fibre Channel Subnetmask for both logical switches.
Hostname of CP	Set the Hostname for both CP blades.

Gateway IP Address   Set the Gateway IP Address for both CP blades.

The default values for hostname, ipaddress, subnet address (for CP only), mask (for switch only), and gateway address (for CPs only) are:

- sw0 = hostname SW12000_1, ip 10.77.77.77, mask 255.0.0.0

- sw1 = hostname SW12000_2, ip 10.77.77.76, mask 255.0.0.0

- cp0 = hostname cp0, ip 10.77.77.75, subnet 255.0.0.0, gateway 0.0.0.0

- cp1 = hostname cp1, ip 10.77.77.74, subnet 255.0.0.0, gateway 0.0.0.0

V3.0.x Parameters

For V3.0.x, use this command to set the Ethernet and Fibre Channel IP and Subnetmask addresses. You are also prompted to set the Gateway IP Address. The option operand is not available in V3.0.x.

In V3.0.x, you are prompted to set the following values:

Ethernet IP Address	Set the Ethernet IP Address of the switch.
Ethernet Subnetmask	Set the Ethernet Subnetmask IP of the switch.
Fibre Channel IP Address	Set the Fibre Channel IP Address of the switch.
Fibre Channel Subnetmask	Set the Fibre Channel Subnetmask IP of the switch.
Gateway Address	Set the Gateway IP Address for the switch.

Entering Values and Saving Changes

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

- Press `return` to retain the current value

- Enter an IP address in conventional dot notation

- Enter `none`

- Press `control-C` to cancel changes

- Press `control-D` to accept changes and end input

The final prompt allows you to set the new IP addresses immediately. Enter Y to set new addresses immediately; enter N to delay the changes until the next switch reboot. Entering Y closes the telnet session.

A change to these values issues a domain address format RSCN, see FC-FLA for a description of RSCNs.

Operands

This command has the following operand:

option   Specify which option you would like to configure. This operand is only available in V4.0.x. Valid options are as follows:

- Option 0 sets the Ethernet IP Address, Ethernet Subnetmask, Fibre Channel IP address and Fibre Channel Subnetmask of logical switch 0.
- Option 1 sets the Ethernet IP Address, Ethernet Subnetmask, Fibre Channel IP address and Fibre Channel Subnetmask of logical switch 1.
- Option 2 sets the Ethernet IP Address, Ethernet Subnetmask, gateway IP address and Hostname of CP0.
- Option 3 sets the Ethernet IP Address, Ethernet Subnetmask, gateway IP address and Hostname of CP1.

If no operand is specified the command becomes interactive.

Example

The following is a V4.0.x example. To set the IP address details for logical switch number 1:

```
switch:admin> ipAddrSet 1
Ethernet IP Address [0.0.0.0]: 192.168.166.148
Ethernet Subnetmask [0.0.0.0]: 255.255.255.0
Fibre Channel IP Address [0.0.0.0]: 192.168.58.135
Fibre Channel Subnetmask [0.0.0.0]: 192.168.166.134
Committing configuration...Done...
switch:admin>
```

The following is a V3.0.x example. To set the IP address details for a switch:

```
switch:admin> ipAddrSet
Ethernet IP Address [0.0.0.0]: 192.168.166.148
Ethernet Subnetmask [0.0.0.0]: 255.255.255.0
Fibre Channel IP Address [0.0.0.0]: 192.168.58.135
Fibre Channel Subnetmask [0.0.0.0]: 192.168.166.134
Gateway IP Address [0.0.0.0]: 192.168.166.135
Committing configuration...Done...
switch:admin>
```

See Also

ipAddrShow

ipAddrShow

Display the IP address for a switch or Control Processor.

Synopsis V3.0.x

```
ipAddrShow
```

Synopsis V4.0.x

```
ipAddrShow [option]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the IP addresses configured in the system.

V4.0.x Information

In a StorageWorks Core switch, this command shows the Ethernet IP Address, Ethernet Subnetmask, Fibre Channel IP Address and Fibre Channel Subnetmask for logical switches. It shows the Ethernet IP Address, Ethernet Subnetmask, Hostname and Gateway IP address for the CPs.

In the StorageWorks Core switch the CPs communicate to each other through an Ethernet in the backplane. When the option operand is specified to be '4', the fixed Backplane IP addresses for CP0 and CP1 are also shown.

Use the option operand to specify the logical switch or CP you want to view. If the option operand is not specified, then the command becomes interactive.

The default values for hostname, ipaddress, subnet address (for CP only), mask (for switch only), and gateway address (for CPs only) are:

- sw0 = hostname SW12000_1, ip 10.77.77.77, mask 255.0.0.0
- sw1 = hostname SW12000_2, ip 10.77.77.76, mask 255.0.0.0

- cp0 = hostname cp0, ip 10.77.77.75, subnet 255.0.0.0, gateway 0.0.0.0

- cp1 = hostname cp1, ip 10.77.77.74, subnet 255.0.0.0, gateway 0.0.0.0

V3.0.x Information

In the StorageWorks 2 Gb SAN switch, this command shows the Ethernet IP Address, Ethernet Subnetmask, Fibre Channel IP Address, Fibre Channel Subnetmask, and Gateway IP address for the switch. The option operand is not available for these switches.

Operands

This command has the following operand:

option
Specify the option you would like to view. The option operand is not available in V3.0.x. Valid option values for V4.0.x are:

- option 0 means display information for switch0.
- option 1 means display information for switch1.
- option 2 means display information for cp0.
- option 3 means display information for cp1.
- option 4 means display information all IP addresses in the system.

Example

The following is a V4.0.x example. To display the IP address for logical switch number 0:

```
switch12000:admin> ipAddrShow 0
Ethernet IP Address: 192.168.166.147
Ethernet Subnetmask: 255.255.255.0
Fibre Channel IP Address: none
Fibre Channel Subnetmask: none
switch12000:admin>
```

The following is a V3.0.x example. To display the IP configuration details for the switch:

```
switch3800:admin> ipAddrShow
Ethernet IP Address: 192.168.166.147
Ethernet Subnetmask: 255.255.255.0
Fibre Channel IP Address: none
Fibre Channel Subnetmask: none
Gateway Address: 192.168.166.1
switch3800:admin>
```

See Also

ipAddrSet

licenseAdd

Add license key to switch.

Synopsis

```
licenseAdd "license"
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to add license keys to the system.

Some features of the switch and of the fabric to which it is connected are optional licensed products. Without a license installed for such products, the services are not available.

A license key is a string of approximately 16 upper and lower case letters and numbers. Case is significant.

The license must be entered into the system exactly as issued. If mistyped, the license may be accepted, but licensed products will not function. After entering the license, use the **licenseShow** command to check for correct function. If no licensed products are shown, then the license is invalid.

After entering a license, the licensed product is available immediately and the system does not need to be rebooted. The exception is a QuickLoop only system; these must be rebooted after adding a fabric license to allow fabric logins.

Operands

This command has the following operand:

license   Specify a license key in quotation marks. This operand is
                 required.

Example

To add a license key to the switch:

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

See Also

licenseHelp

licenseIdShow

licenseRemove

licenseShow

lutil

licenseHelp

Commands used to administer license keys.

Synopsis

```
licenseHelp
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

Operands

None.

Example

To display license commands:

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

NOTE: The **licenseIdShow** command is available in V4.0.x only.

See Also

licenseAdd

licenseIdShow

licenseRemove

licenseShow

lutil

licenseIdShow

Display system license ID.

Synopsis

```
licenseIdShow
```

Availability

All users.

Release

V4.0.x

Description

Some features of the StorageWorks Core switch and the fabric are optional, licensed products. Without a license installed for such products, the services provided by these features are not available. Other switch products require the WWN to generate a license. A single license allows both logical switches in a StorageWorks Core switch chassis to use these products. That is, the chassis is assigned a license ID from which a license is generated.

Such licenses are locked and are only functional on the specific system for which they were issued.

This command displays to standard output the system license ID used for both generating and validating licenses on the system. The license ID format is 8 pairs of hexadecimal values separated by colons. Each hexadecimal value is between 00 (0) and FF (255).

NOTE: While the format of this identifier may be similar or identical to other identifiers in the system, no inferences should be made about the relationships between them as they are subject to change independent of one another.

Operands

None.

Example

To display the license ID:

```
switch:admin> licenseIdShow
a4:f8:69:33:22:00:ea:18
```

See Also

licenseAdd

licenseHelp

licenseRemove

licenseShow

lutil

licenseRemove

Remove the license key from a switch.

Synopsis

```
licenseRemove "license"
```

Availability

admin

Release

V3.0.x and V4.0.x

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.

Operands

The following operand is required:

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

Example

To remove a license key from the switch:

```
switch:admin> licenseRemove "bAaAabRdScRfc0iK"
removing license key "bAaAabRdScRfc0iK"
```

See Also

licenseAdd

licenseHelp

licenseIdShow

licenseShow

lutil

licenseShow

Display current license keys.

Synopsis

```
licenseShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

Operands

None.

Example

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

```
switch:admin> licenseShow
cQebzbRdScRfc0iK:
    Web license
    Zoning license
AybbzQQ9edTzcc0X:
    Fabric license
```

See Also

licenseAdd

licenseHelp

licenseIdShow

licenseRemove

lutil

linkCost

Set or print the FSPF cost of a link.

Synopsis

```
linkCost [slotnumber/][portnumber][, cost]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

Every ISL has a default cost that is inversely proportional to the bandwidth of the ISL. For a 1Gb per second ISL, the default cost is 1000. For a 2Gb per second ISL, the default cost is 500.

All currently active ISLs have an additional suffix of E_PORT attached to their interface numbers. If the link has a static cost assigned to it, then the link cost for that link has a suffix of STATIC attached to its link cost.

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

If no operands are specified, the command displays the actual cost of all the ISLs in the (logical) switch. Specify the [slot/]port operand to view the cost of that specific port. Specify [slot/]port and cost operand to set the cost of a specific ISL.

Setting the cost to zero removes a static cost from the database and reverts the cost of the link to its default value.

Operands

This command has the following operands:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number. This operand is optional.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.
portnumber	Specify the port to display or set the FSPF cost of a link. Valid values for port number vary depending on the switch type. This operand is optional.
cost	Specify the new cost of the link connected to the specified port number. This operand is optional.

If no operands are specified, the current values for all ports on the (logical) switch are displayed.

Examples

To display the cost of a link, and reset the cost:

```
switch:admin> linkCost
Slot    Interface     Cost
-----------------------------------
  2        0              500 (STATIC)
  2        1             1000
  2        2              500 (STATIC)
  2        3              200 (STATIC)
  2        4             1000
  2        5             1000
  2        6             1000
  2        7             1000
  2        8             1000
  2        9             1000
  2       10             1000
  2       11 (E_PORT)    2000 (STATIC)
  2       12             1000
  2       13             1000
  2       14             1000
  2       15             1000
switch:admin> linkCost 2/4 500
switch:admin> linkcost 2/4
Slot   2         Interface   4           Cost   500 (STATIC)
switch:admin> linkcost 2/4 0
Slot   2         Interface   4           Cost  1000
```

See Also

interfaceShow

LSDbShow

topologyShow

uRouteShow

login

Login as a new user.

Synopsis

```
login
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

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

Operands

None.

Example

To login:

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

See Also

```
logout
```

logout

Logout from a shell session.

Synopsis

```
logout
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to logout from a shell session. Remote login connections are closed, local serial connections return to the login prompt.

The command **exit** is accepted as synonym for **logout**, as is a Control-D typed at the beginning of a line.

Operands

None.

Example

To log out from a rlogin session:

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

See Also

```
login
```

loopdiagClear

Clear information from management layers.

Synopsis

```
loopdiagClear port
```

Availability

admin

Release

V3.0.x

Description

This command will clean up any information from a previous failed session in management layer. It releases all the resources created for the port specified.

Operands

This command has the following operand:

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

Example

To clear the loopdiag application information at port 5:

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

See Also

```
loopdiagStart
loopdiagStop
```

loopdiagDone

Completes loopdiag application.

Synopsis

```
loopdiagDone port
```

Availability

admin

Release

V3.0.x

Description

This command completes loopdiag application at the port specified. It releases all the resources created for loopdiag and sets the port ONLINE before resetting the loop.

Operands

The following operand is required:

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

Example

To complete the loopdiag application at port 5:

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

See Also

```
loopdiagStart
loopdiagStop
```

loopdiagRestore

Restore the original loop configuration.

Synopsis

```
loopdiagRestore port
```

Availability

admin

Release

V3.0.x

Description

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

Operands

The following operand is required:

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

Example

To restore the loopdiag configuration at port 5:

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

See Also

       loopdiagClear

       loopdiagDone

       loopdiagStart

       loopdiagStop

loopdiagStart

Start loopdiag application.

Synopsis

```
loopdiagStart port
```

Availability

admin

Release

V3.0.x

Description

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

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

Operands

The following operands are required:

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

Example

To start the loopdiag application at port 5:

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

See Also

       `loopdiagClear`

       `loopdiagDone`

       `loopdiagStop`

loopdiagStop

Stops the loopdiag application.

Synopsis

```
loopdiagStop port
```

Availability

admin

Release

V3.0.x

Description

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

Operands

The following operand is required:

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

Example

To stop the loopdiag application at port 5:

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

See Also

```
loopdiagClear
loopdiagDone
loopdiagStart
```

loopPortTest

Tests the L-port path on a loop.

Synopsis:

```
loopPortTest [ passCount, port ]
```

Availability:

admin

Description:

Tests the L_port path on a loop. This command verifies the functional operation of the switch by sending frames from one port transmitter, and looping the frames back through an external fiber cable, including all the devices on the loop, into a second ports receiver. This exercises all the switch components from the main board, to the SFF transceiver, to the fiber cable, to the transceivers (of the devices and the switch) and back to the main board.

The cables and SFFs connected should use the same technology. For example, a short wavelength SFF switch port is connected to another short wavelength SFF device port; or a long wavelength port is connected to a long wavelength port.

Only one frame is transmitted and received at any time. When the test is running, the port LEDs flicker green rapidly. When this command detects a failure, one or more of the following error messages are displayed:

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

Operands

This command has the following operands:

passcount   The number of times (or number of frames per port) execute this test. If omitted, the default value used is 0xfffffffe. This operand is optional.

port   The number of the port to be tested. If omitted, the test will be executed on all online L_ports. This operand is optional.

Example

To run this command 100 times on port 8:

```
switch:admin> loopPortTest 100, 8
Configuring L-port 7 to CableLoopback Port........done.
Running Loop Port Test ........ passed.
Configuring Loopback L-port(s) back to normal L-port(s)........done.
value = 0
```

LSDbShow

Display the FSPF Link State Database.

Synopsis

```
LSDbShow [domain]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

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

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

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

The display shows the following fields:

Table 1–12: LSDbShow Display Fields

Field	Description
Domain	Domain number described by this LSR. A (self) keyword after the domain number indicates LSR describes the local switch.
lsrP	Pointer to LSR.
earlyAccLSRs	Number of LSRs accepted even though they were not sufficiently spaced apart.
ignoredLSRs	Number of LSRs not accepted because they were not sufficiently spaced apart.

Table 1–12: LSDbShow Display Fields (Continued)

Field	Description
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.
parent	Internal variable.
mPathCos	Internal variable.
mHopsFromRoot	Internal variable.
lsAge	Age, in seconds, of this LSR. An LSR is removed from the database when its age exceeds 3600 seconds.
reserved	Reserved for future use.
type	Type of the LSR. Always 1.
options	Always 0.
lsId	ID of this LSR. It is identical to the domain number.
advertiser	ID (domain number) of the switch that originated this LSR.
incarn	Incarnation number of this LSR.
length	Total length (in bytes) of this LSR. Includes header and link state information for all links.
chksum	Checksum of total LSR, with exception of lsAge field.
linkCnt	Number of links in this LSR. Each link represents a neighbor in NB_ST_FULL state.
flags	Always 0.
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.

Table 1–12: LSDbShow Display Fields (Continued)

Field	Description
cost	Cost of this link. The default cost for a 1 Gb/s link is 1000.
costCnt	Always 0.
type	Always 1.

Operands

This command has the following operand:

domain   Specify the domain number of the LSR to be displayed. This operand is optional.

Examples

To display the link state record for the local switch:

```
switch:admin> lsdbshow

Domain = 7 (self), Link State Database Entry pointer = 0x103946a0
lsrP= 0x1035bb30
earlyAccLSRs= 1
ignoredLSRs= 0
lastIgnored= Never
installTime= 0x4f20a (324106)
lseFlags= 0xa
uOutIfs= 0x0
uPathCost= 0
uOldHopCount  = -1161889074
uHopsFromRoot= 0
mOutIfs= 0x20
parent= 0x4
mPathCost= 2000
mHopsFromRoot= 2

Link State Record:
Link State Record pointer = 0x1035bb30
lsAge= 138
reserved= 0
type= 1
options= 0x0
lsId= 7
advertiser= 7
incarn= 0x80000217
length= 92
chksum= 0x2fdd
linkCnt = 4,flags = 0x0
LinkId = 4, out port = 3, rem port = 2, cost = 1000, costCnt = 0, type = 1
LinkId = 5, out port = 5, rem port = 5, cost = 1000, costCnt = 0, type = 1
LinkId = 5, out port = 6, rem port = 3, cost = 1000, costCnt = 0, type = 1
LinkId = 5, out port = 7, rem port = 4, cost = 1000, costCnt = 0, type = 1
```

See Also

interfaceShow

nbrStateShow

lutil

License administration utility.

Synopsis

```
lutil [-hv][[-i]|[[-a|-r]key ... ]]
```

Availability

admin

Release

V4.0.x

Description

Use this command to add, display, and remove license keys.

Some features of the switch and of the fabric to which it is connected are optional, licensed products. Without a license installed for such products, the services provided by them will not function.

Operands

This command has the following operands:

-h	Display the command syntax help. This operand is optional.
-v	Specify verbose output. This operand is optional.
-i	Display the WWN of this switch. This operand is optional.
-a key	Add a license key. This operand is optional.
-r key	Remove a license key. This operand is optional.

Example

The following command adds a license to the system:

```
switch:admin> lutil -a bQebzbRdScRfc0iK
adding license key "bQebzbRdScRfc0iK"
```

The following command removes a license from the system:

```
switch:admin> lutil -r cQzQQ9ecRQdR0dSG
removing license key "cQzQQ9ecRQdR0dSG"
```

The following command displays the system license ID:

```
switch:admin> lutil -i
a4:f8:69:33:22:00:ea:18
```

See Also

> licenseAdd
>
> licenseHelp
>
> licenseIdShow
>
> licenseRemove
>
> licenseShow

mcastShow

Display multicast routing information.

Synopsis

```
mcastShow [group_ID]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

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

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

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

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

The following fields are displayed:

Group	**Multicast group ID.**
Member Ports	Bit map of all ports in the multicast tree for that multicast group.

`Member ISL Ports`	Bit map of all E_Ports in the multicast tree for that multicast group.
`Static ISL Ports`	Reserved. It should be all zeroes.

Operands

This command has the following operand:

`group_ID`	Specify the multicast group to be displayed. This operand is optional.

Examples

To display multicast routing information:

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

See Also

bcastShow

portRouteShow

memshow

Display the amount of free and used memory in switch.

Synopsis

```
memshow [ -b | -k | -m ]
```

Availability

All Users.

Release

V4.0.x

Description

Use this command to display free and used memory on the system as well as the shared memory and buffers used by the kernel.

Operands

This command has the following operands:

-b   Specify this operand to display memory usage in bytes.

-k   Specify this operand to display memory usage in kilobytes.

-m   Specify this operand to display memory usage in megabytes.

By default the memory usage is displayed in bytes.

Example

To view the memory usage in a StorageWorks Core switch:

```
switch:admin> memshow
      total        used         free         shared     buffers    cached
Mem: 128720896    87588864     41132032     87621632   6295552    38514688
Swap:0            0            0
```

See Also

savecore

minispropshow

Display the properties of the mini-switches.

Synopsis

```
minispropshow [slot/]minis | [slot] -all
```

Availability

All users.

Release

V4.0.x

Description

Use this command to display the ASIC miniswitch properties for the specified minis
on the specified blade slot.

Operands

This command has the following operands:

[slot/]minis	Specify the slot and the index of the mini within the blade to be displayed. This operand is optional.
[slot] -all	Specify this operand to display the ASIC minis property contents for the entire chipset in the slot specified. This operand is optional.

Example

To view the miniswitch properties on blade 8:

```
switch12k:admin> minispropshow 8 -all
Looking for miniS 0 in path: /proc/fabos/blade/8

slot: 8, miniS: 0
[2/16]
<0,1657/0001 1,1657/0001>
(be,5) (be,4) (be,3) (be,2) (be,1) (be,0) (bi,55) (bi,54)
(bi,25) (bi,24) (bi,41) (bi,40) (fe,3) (fe,2) (fe,1) (fe,0)

slot: 8, miniS: 1
[2/16]
<2,1657/0001 3,1657/0001>
(be,11) (be,10) (be,9) (be,8) (be,7) (be,6) (bi,39) (bi,38)
(bi,9) (bi,8) (bi,57) (bi,56) (fe,7) (fe,6) (fe,5) (fe,4)

slot: 8, miniS: 2
[2/16]
<4,1657/0001 5,1657/0001>
(be,17) (be,16) (be,15) (be,14) (be,13) (be,12) (bi,23) (bi,22)
(bi,11) (bi,10) (bi,59) (bi,58) (fe,11) (fe,10) (fe,9) (fe,8)

slot: 8, miniS: 3
[2/16]
<6,1657/0001 7,1657/0001>
(be,23) (be,22) (be,21) (be,20) (be,19) (be,18) (bi,7) (bi,6)
(bi,27) (bi,26) (bi,43) (bi,42) (fe,15) (fe,14) (fe,13) (fe,12)
```

See Also

```
minisregshow
```

minisregshow

Display port registers for a specified mini-switch.

Synopsis

```
minisregshow [slot/]mini_switch [filter]
```

Availability

All users.

Release

V4.x

Description

Use this command to display the ASIC register contents for the specified mini-switch on the specified blade slot.

Operands

This command has the following operands:

slot	Specify the slot of the blade you want to view the port registers for. This operand is optional.
mini_switch	Specify the index of the mini within the blade to be displayed. This operand is required.
filter	Specify filter criteria for the port registers to be displayed. This operand is optional.

Example

To view the port registers for blade 8:

```
switch12k:admin> minisregshow 8/1
Looking for port 29 in path: /proc/fabos/blade/8
Found file: /proc/fabos/blade/8/1/1/5/asic29/reg

Port Registers for slot: 8, port: 29

0xca83b000: chip_id        0104         0xca83b002: port_config    0a38
0xca83b004: did_vc_map     0800         0xca83b008: int_mask       264f
0xca83b00a: int_status     1020         0xca83b00c: err_status     0002
<output truncated>

0xca83b00e: vc_config      00c0         0xca7fb010: buf_error
00000000
```

See Also

minispropshow

msCapabilityShow

Display the Management Server Capability.

Synopsis

```
msCapabilityShow
```

Availability

All users.

Release

V4.0.x

Description

Use this command to query a fabric for the Management Server capability. Based on the result of this command, you can then decide whether to activate the Platform service on all switches in the fabric.

When this command is issued, information is gathered from every switch of the fabric and each switch's ability to handle the Platform service is displayed.

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

Operands

None.

Example

To display Management Server capability on a fabric:

```
switch:admin> msCapabilityShow
      Switch WWN             Capability  Switch Name
======================     ==========  ===========
10:00:00:60:69:80:02:22     0x0000008f  "swd83"*

        Capability Bit Definitions:
                Bit 0: Basic Config Service Supported.
                Bit 1: Platform Management Service Supported.
                Bit 2: Topology Discovery Service Supported.
                Bit 3: Unzoned Name Service Supported.
                Bit 4: M.S. Fabric Zone Service Supported.
                Bit 5: Fabric Lock Service Supported.
                Bit 6: Timer Service Supported.
                Bit 7: RSCN Small Payload Supported.
                Others: Reserved.

Done.

switch:admin>
```

See Also

```
msPlMgmtActivate

msPlMgmtDeactivate

msPlatShow

msPlClearDB

msTdEnable

msTdDisable

msTdReadConfig
```

msConfigure

Configure the Management Server.

Synopsis

```
msConfigure
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

If the Access Control List (ACL) is empty (this is the default value), the Management
Server is accessible to all systems connected in-band to the fabric. To restrict access,
specify the World Wide Name (WWN) for one or more management applications;
access is then restricted to those WWNs. Up to 16 maximum WWNs are supported in
ACL.

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

This command is interactive and provides the following choices:

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

If a change is made, you are prompted to save the changed ACL to non-volatile
memory. The saved ACL is restored on future reboot.

Operands

None.

Example

To display the Management Server access control list.

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

}
0   Done
1   Display the access list
2   Add member based on its Port/Node WWN
3   Delete member based on its Port/Node WWN

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

See Also

msCapabilityShow

msPlMgmtActivate

msPlMgmtDeactivate

msPlatShow

msPlClearDB

msTdDisable

msTdEnable

msTdReadConfig

msPlatShow

Display the Management Server Platform database.

Synopsis

```
msPlatShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the Management Server Platform database. The display shows the Platform name and associated attributes of each Platform object in the database.

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

Operands

None.

Example

To display the Management Server Platform database for a fabric:

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

See Also

msCapabilityShow

msPlMgmtActivate

msPlMgmtDeactivate

msPlClearDB

msPlCapabilityShow

Display the Platform Database Management Capability.

Synopsis

```
msPlCapabilityShow
```

Availability

All users.

Release

V3.0.x

Description

Use this command to query a fabric for the Management Server capability. Based on the result of this command, you can then decide whether to activate the Platform service on all switches in the fabric.

When this command is issued, information is gathered from every switch of the fabric and each switch's ability to handle the Platform service is displayed.

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

Operands

None.

Example

To display Management Server capability on a fabric:

```
switch:admin> msPlCapabilityShow
                            Platform
Switch WWN                 Service Capable   Capability  Name
========================   ===============   =========   =======
10:00:00:60:69:c0:06:71          Yes        0x0000008f  "Switch"

        Capability Bit Definitions:
                Bit 0: Basic Config Service Supported.
                Bit 1: Platform Management Service Supported.
                Bit 2: Topology Discovery Service Supported.
                Bit 3: Unzoned Name Service Supported.
                Bit 4: M.S. Fabric Zone Service Supported.
                Bit 5: Fabric Lock Service Supported.
                Bit 6: Timer Service Supported.
                Bit 7: RSCN Small Payload Supported.
                Others: Reserved.

Done.

switch:admin>
```

See Also

msPlMgmtActivate

msPlMgmtDeactivate

msPlatShow

msPlClearDB

msTdEnable

msTdDisable

msTdReadConfig

msPlClearDB

Clear the Management Server Platform database on all switches in the fabric.

Synopsis

    msPlClearDB

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

Operands

None.

Example

To clear the Management Server Platform database on all switches in the fabric:

```
switch:admin> msplcleardb
MS Platform Management Service is currently enabled.
This will erase Platform databases in the entire fabric.
Would you like to continue this operation? (yes, y, no, n): [no] y
Fabric-wide Platform DB Clear operation in progress.....
```

See Also

```
msPlMgmtDeactivate
msPlatShow
msCapabilityShow
msPlMgmtActivate
```

msPlMgmtActivate

Activate the Management Server Platform service on all switches in the fabric.

Synopsis

```
msPlMgmtActivate
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

This command enables an admin user to activate the Management Server Platform service on all switches in the fabric. It is recommended that you run the **msCapabilityShow** (V4.0.x) or **msPlCapabilityShow** (V3.0.x) command before issuing this command. If any switch within the fabric is not capable of handling the Platform service, the **msplmgmtactivate** command is rejected. When this command is issued, all the switches in the fabric will have the Platform service ENABLED.

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

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

Operands

None.

Example

To activate Platform service on all switches in the fabric:

```
switch:admin> msPlMgmtActivate
Activating Platform Management Service in the fabric
is in progress...
* Completed activating Platform Management Service in fabric!
switch:admin>
```

See Also

msPlMgmtDeactivate

msPlatShow

msCapabilityShow

msPlClearDB

msPlMgmtDeactivate

Deactivate the Management Server Platform service on all switches in the fabric.

Synopsis

```
msPlMgmtDeactivate
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to deactivate the Platform service. This command deactivates the Platform service of each switch in the fabric and commits the changes to the non-volatile storage of each switch.

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

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

Operands

None.

Example

To deactivate the Platform service on all switches in the fabric:

```
switch:admin> msPlMgmtDeactivate
MS Platform Management Service is currently enabled. This
will erase Platform Configuration information as well as
Platform databases in the entire fabric.
Would you like to continue disabling? (yes, y, no, n): [no]
switch:admin>
```

See Also

        `msPlatShow`

        `msCapabilityShow`

        `msPlMgmtActivate`

        `msPlClearDB`

msTdDisable

Disable the Management Server Topology Discovery service.

Synopsis

```
msTdDisable ["ALL"]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to disable the Management Server Topology Discovery service locally or fabric-wide. This command will disable the topology service of the local switch and commit the changes to non-volatile memory of the local switch. If the optional parameter "ALL" is given, then the command is executed on the entire fabric.

Once disabled, even in the event of a power boundary, the switch will be boot up with the Topology Discovery service DISABLED.

NOTE: Topology Discovery service requires the attached devices which include attached switches to support the RNID ELS command.

Operands

This command has the following operand:

ALL   Specify **ALL** to disable the Topology Discovery service on all switches in the fabric. The operand **ALL** must be enclosed in quotation marks and must be in capital letters. This operand is optional.

Example

To disable the Management Server Topology Discovery service locally or fabric-wide:

```
switch:admin> msTdDisable
This will erase all NID entries. Are you sure?  (yes, y, no, n): [no] y
Committing configuration...done.
switch:admin> msTdDisable "ALL"
This will erase all NID entries. Are you sure?  (yes, y, no, n): [no] y
Committing configuration...done.
```

See Also

msTdEnable

msTdReadConfig

msTdEnable

Enable the Management Server Topology Discovery service.

Synopsis

```
msTdEnable ["ALL"]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to enable the Management Server Topology Discovery service locally or fabric-wide. This command enables the Topology Discovery service on the local switch and commits the change to the non-volatile memory of the local switch. If the optional operand "**ALL**" is given, then the command is executed on the entire fabric.

Once enabled, even in the event of a reboot, the switch will be boot up with the Management Server Topology Discovery service enabled.

Topology Discovery service requires the attached devices which include attached switches to support the RNID ELS command.

Operands

This command has the following operand:

ALL   Specify **ALL** to enable the topology discovery service on all switches in
           the fabric. The operand **ALL** must be enclosed in quotation marks and
           must be in capital letters. This operand is optional.

Example

To enable the Management Server Topology Discovery service locally or fabric-wide:

```
switch:admin> msTdEnable
Committing configuration...done.
switch:admin> msTdEnable "ALL"
Committing configuration...done.
```

See Also

msTdDisable

msTdReadConfig

msTDReadConfig

Display the status of Management Server Topology Discovery service.

Synopsis

```
msTdReadConfig
```

Availability

All users.

Release

V4.0.x

Description

Use this command to check whether or not the Management Server Topology Discovery service is enabled.

Operands

None.

Example

To display the status of the Topology Discovery service:

```
switch:admin> msTdReadConfig
*MS Topology Discovery is Enabled.
switch:admin>
```

See Also

msTdEnable

msTdDisable

myid

Display the current login session details.

Synopsis

```
myid
```

Availability

admin

Release

V4.0.x

Description

Use this command to display the status of the system and the login session details. The Status displays if the system is Redundant or Non-Redundant or Unknown.

The login session gives details of the following:

- Which CP/Switch (or console/serial port) was used to login
- 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 or Standby or Unknown)
- The Current System Status (Redundant or Non-Redundant or Unknown).

Operands

None.

Example

To display current login information:

```
switch:admin> myid
Current Switch: switch0
Session Detail: Console Port (/dev/ttyS0) Active  Redundant
```

See Also

version

nbrStatsClear

Reset FSPF interface counters.

Synopsis

```
nbrStatsClear [slotnumber/][portnumber]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to reset the counters of FSPF frames transmitted and received on an interface.

Use this command with no operand to reset counters on all interfaces.

Operands

This command has the following operand:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

When this command is specified with no operand, the statistics are cleared for all interfaces.

Examples

To display how to reset the counters on slot 1 port 4:

```
switch:admin> nbrstatsclear 1/4
```

See Also

interfaceShow

portShow

switchShow

nbrStateShow

Display FSPF neighbor's state.

Synopsis

```
nbrStateShow [slotnumber/][portnumber]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display information about neighbors to the local switch, or information about a specific neighbor if a port number is supplied. A neighbor is a switch that is directly attached to the local switch. The display shows the following fields:

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

Operands

This command has the following operands:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

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

Examples

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

```
switch:admin> nbrStateShow 2/0
Local Domain ID: 15
Local Port      Domain      Remote Port    State
-------------------------------------------------------
2                   13          13          NB_ST_FULL
6                   13           9          NB_ST_FULL
7                   13           8          NB_ST_FULL
13                   3           7          NB_ST_FULL
```

See Also

interfaceShow

nsAllShow

Display global Name Server information.

Synopsis

```
nsAllShow [type]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

NOTE: Specifying the type operand causes the switch to send out a query to every switch in the fabric. On a large fabric it is recommended NOT to run a script that repeatedly issues the **nsAllShow** command with a type operand specified.

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. Below are two specific FC-PH device type codes:
8 = FCP type device
4 , 5 = FC-IP type device

Other FC-PH types are displayed in the format "*x* ports supporting FC4 *code*" where *x* is the number of ports of a type, and *code* is the FC-PH type code.

Example

To display all devices in the Fabric, followed by all type 8 (SCSI-FCP) devices and all type 5 (SCSI-FCIP) devices:

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

See Also

```
nsShow
```
```
switchShow
```

nsShow

Display local Name Server information.

Synopsis

```
nsShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

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

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

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

Each line of output shows:

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

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

- FC4s supported

- IP address

- IPA

- Port and node symbolic names

- Fabric Port Name - This is the WWN of the port on the switch that the device is physically connected to.

- Hard address and port IP address

Operands

None.

Example

To display local name server information:

```
san95:admin> nsshow
The Local Name Server has 1 entry {
 Type Pid    COS     PortName                   NodeName                  TTL(sec)
 N    060300;    2,3;10:00:00:00:c9:24:0d:b3;20:00:00:00:c9:24:0d:b3; na
    FC4s: FCP
    Fabric Port Name: 20:03:00:60:69:00:54:e9
```

See Also

nsAllShow

switchShow

parityCheck

Enable or disable DRAM parity checking.

Synopsis

```
parityCheck [mode]
```

Availability

admin

Release

V3.0.x

Description

Use this command to enable DRAM parity checking. The mode is saved in non-volatile memory and stays in that mode until the next execution of **parityCheck**.

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

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

Operands

This command has the following operand:

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

Example

To enable and disable DRAM parity checking:

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

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

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

See Also

ramTest

passwd

Change system login name and password.

Synopsis

```
passwd [-o] ["user"]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

In V3.0.x, use this command to change the system login name and passwords. The login name can be changed without changing the associated password.

In V4.0.x, use this command to change the system passwords. The login names cannot be modified in V4.0.x.

To change the password for a specific user, enter the command with the optional "user" operand.

The password must have 6 to 8 characters. If more than 8 characters are entered, only the first 8 characters are used for password validation at user login.

The new password must fulfill these rules:

- must not be the same as the previous password;
- must not match either the username or any word of the realname, either in normal or in reverse order, or at the beginning or at the end.
- must contain characters out of at least two of the following classes: upper and lower case letters, digits, or non-alphanumeric characters.

The currently logged in user can change the passwords for their own security level, and any security level below. The hierarchy of user login levels is as follows:

1. root
2. factory

3. admin

4. user

Input Control

Use the following 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.
Control-D (end of file)	When entered at a prompt with no preceding input, it terminates the command without changing password. This is valid on most computers, however, your settings could be different.

Operands

This command has the following operands:

-o	Specify this operand to turn off simplicity checks on the new password. This is intended to allow simple initial passwords given by the system. This option is only available to the root or admin user.
user	Specify the name of the user, in quotation marks, where you want to modify the password. In V3.0.x you can also modify the name of the user login ID. This operand is optional.

Example

To change the password for the admin user in V4.0.x:

```
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.
```

To change the admin user name and password in V3.0.x:

```
switch:admin> passwd "admin"
New username [admin]: maint
Old password: ********
New password: ********
Re-enter new password: ********
Password changed.
Saving password to stable storage.
Password saved to stable storage successfully.
```

Errors

When failures are detected, the subtest may 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.
`That user name is already being used.`	You cannot change the user name to that of a previously existing user.
`Incorrect password.`	You have not entered the correct password when prompted for the old password.
`Password unchanged.`	You have entered the carriage return special input case, choosing not to change the password.
`Passwords do not match.`	You have not correctly verified the new password.

See Also

```
login
```
```
logout
```

perfAddEEMonitor

Add end-to-end monitor to a port.

Synopsis

```
perfAddEEMonitor [slotnumber/]portnumber, "SourceID", "DestID"
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to add an End-to-End monitor to a port. The monitor counts the number of words received, number of words transmitted and number of CRC errors detected with frames qualified using either of following two conditions:

- for frames received at the port (with End-to-End monitor installed) the frame SID is the same as "SourceID" and frame DID is the same as "DestID." Both RX_COUNT and CRC_COUNT will be updated accordingly.

- for frames transmitted from the port (with End-to-End monitor installed) the frame DID is the same as "SourceID" and frame SID is the same as "DestID", TX_COUNT will be updated accordingly.

Depending on the application, any port along the routing path can be selected for such monitoring.

For example, to monitor traffic flowing from point A, receiving at port C and transmitting at port D to reach point B, and the traffic flowing back from B to A. You can install a monitor on port C, specify point A as "SourceID" and point B as "DestID." Then RX_COUNT counts the traffic flow from A to B, CRC_COUNT counts the frames with CRC error from A to B. TX_COUNT counts the traffic from B to A.

Similarly, you can install a monitor on port D, specify point B as "SourceID" and point A as "DestID." Then RX_COUNT counts the traffic from B to A, CRC_COUNT counts the frames with CRC errors from B to A and TX_COUNT counts the traffic from A to B.

End-to-End monitors traffic on receiving port, respective to "SourceID", only, which implies in the above example, install a monitor on port D with point A as "SourceID" and point B as "DestID" will not generate any counts.

Both RX_COUNT and CRC_COUNT are associated with frames received at port. TX_COUNT is associated with frames transmitted from port.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these performance monitors.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
SourceID	Specify the 3-byte SID (Source ID) of the originator device. It should be in "0xDDAAPP" format, where DD is Domain ID, AA is Area ID and PP is AL_PA ID. For example, 0x058e0f, has a Domain ID of "5", an Area ID of "8e" and an AL_PA ID of "f".
DestID	Specify the 3-byte DID (Destination ID) of the destination device. It should be in "0xDDAAPP" format, where DD is Domain ID, AA is Area ID and PP is AL_PA ID. For example, 0x058e0f, has a Domain ID of "5", an Area ID of "8e" and an AL_PA ID of "f".

Example

To add an end-to-end monitor to blade 7 port 2:

```
switch:admin> perfAddEEMonitor 7/2, "0x058e0f", "0x1182ef"
End-to-End monitor number 0 added.
switch:admin>
```

See Also

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddIPMonitor

Add a filter-based monitor for IP frame count.

Synopsis

        perfAddIPMonitor [slotnumber/]portnumber[, "alias"]

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to define filter-based monitors to count the number of IP traffic frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be displayed with the **perfShowFilterMonitor** command.

There is no need to define multiple IP frame monitors on a port.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

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

alias — Specify a name for this monitor. This character string can be a maximum of 10 characters long and must be enclosed in quotation marks. This operand is optional. The default alias is IP FRAME.

Example

To add an IP monitor to blade 2 port 4:

```
switch:admin> perfAddIPMonitor 2/4, 2
IP traffic frame monitor #0 added
switch:admin>
```

See Also

perfAddEEMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddReadMonitor

Add a filter-based monitor for the SCSI Read command.

Synopsis

```
perfAddReadMonitor [slotnumber/]portnumber[, "alias"]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to define filter-based monitors to count the number of SCSI FCP Read commands in Fibre Channel frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the **perfShowFilterMonitor** command.

The maximum number of filters is 8 per port including user-defined filters, read filters, write filters, and read/write filters.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

<table>
<tr><td></td><td>The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).</td></tr>
<tr><td></td><td>This operand is not required for switches that do not have blades.</td></tr>
<tr><td>portnumber</td><td>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</td></tr>
<tr><td>alias</td><td>Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI READ.</td></tr>
</table>

Example

To add a SCSI Read monitor to blade 2 port 4:

```
switch:admin> perfAddReadMonitor 2/4, 2
SCSI Read filter monitor #2 added
switch:admin>
```

See Also

perfAddEEMonitor

perfAddIPMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddRWMonitor

Add a monitor for the SCSI Read and Write commands.

Synopsis

```
perfAddRWMonitor [slotnumber/]portnumber[, "alias"]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to define filter-based monitors to count the number of SCSI FCP Read and Write commands in Fibre Channel frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the **perfShowFilterMonitor** command.

The maximum number of filters is 8 per port including user-defined filters, read filters, write filters, and read/write filters.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI R/W.

Example

To add a SCSI Read and Write monitor to blade 2 port 4:

```
switch:admin> perfAddRWMonitor 2/4
SCSI Read/Write monitor #1 is added
switch:admin>
```

See Also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddSCSIMonitor

Add a monitor for SCSI frame count.

Synopsis

```
perfAddSCSIMonitor [slotnumber/]portnumber[, "alias"]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to define filter-based monitors to count the number of SCSI traffic frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the **perfShowFilterMonitor** command.

There is no need to define multiple SCSI frame counters on a port.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI FRAME.

Example

To add a SCSI traffic frame monitor to blade 2 port 4:

```
switch:admin> perfAddSCSIMonitor 2/4
SCSI traffic frame monitor #0 added
switch:admin>
```

See Also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddUserMonitor

perfAddWriteMonitor

perfAddUserMonitor

Add a user-defined filter-based monitor.

Synopsis

```
perfAddUserMonitor [slotnumber/]portnumber, "grouplist"[,"alias"]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to define a special mechanism to qualify frames for statistics gathering to fit your own special need.

Each group of elements with same offset will have their comparison result (OR-ed) together before the combined result of each group get (AND-ed) together for final comparison result. If the final result is logic 1, then the monitor counter will be increased by one.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user-defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the **perfShowFilterMonitor** command.

The maximum number of filters is 8 per port including user defined filters, read filters, write filters, and read/write filters. In addition there should be no more than 6 different Offsets for each filter and no more than 4 different values per Offset defined by user.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
grouplist	Specify up to 6 sets of Offset, Mask, and ValueList separated by a semicolon (;). The entire grouplist operand must be enclosed in quotation marks. This operand is required.
	The grouplist operand must be specified in the following format:
	"offset, Mask, ValueList; offset, Mask, ValueList"
	For example:
	"4, 0xff, 0x22; 12, 0xff, 0x01"
	The grouplist component values are as follows:
	Offset - Specify the offset within the frame. Offset **0** is the first byte of the SOF, and offset **4** is the first byte of the frame header. The Offset must be in decimal format. Valid values for Offset are **0**, [**4-63**]. Offset **0** is a special case which can be used to monitor the first 4 bytes SOFx frames. EOF can not be monitored.
	Mask - Specify the mask value to be applied (ANDed) to frame contents.

ValueList - Specify up to four values that need to be captured from frame contents. The `ValueList` can be either hexadecimal or decimal format.

SOFx frames are considered a special case. The Offset is specified as 0x0, `valueList` are specified with:

> **0** - SOFf
>
> **1** - SOFc1
>
> **2** - SOFi1
>
> **3** - SOFn1
>
> **4** - SOFi2
>
> **5** - SOFn2
>
> **6** - SOFi3
>
> **7** - SOFn3

alias   Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional.

Example

To add a filter based monitor for all Extended Link Service request (R_CTL=0x22 and TYPE=0x01) to blade 2 port 4:

```
switch:admin> perfAddUserMonitor 2/4, "4, 0xff, 0x22; 12, 0xff, 0x01"
User monitor #0 added
switch:admin>
```

As a special case, to add a filter based monitor for SOFi3 on blade 2 port 4:

```
switch:admin> perfAddUserMonitor 2/4, "0, 0xff, 6"
User monitor #1 added
switch:admin>
```

See Also

```
perfAddEEMonitor
perfAddIPMonitor
perfAddReadMonitor
perfAddRWMonitor
perfAddSCSIMonitor
perfAddWriteMonitor
```

perfAddWriteMonitor

Add a filter-based monitor for the SCSI Write command.

Synopsis

```
perfAddWriteMonitor [slotnumber/]portnumber[, "alias"]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to define filter-based monitors to count the number of SCSI FCP Write commands in Fibre Channel frames.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user- defined alias is also displayed if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the **perfShowFilterMonitor** command.

The maximum number of filters is 8 per port including user-defined filters, read filters, write filters and read/write filters.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI_Write.

Example

To add a SCSI Write command monitor to blade 2 port 4:

```
switch:admin> perfAddWriteMonitor 2/4
SCSI Write filter monitor #0 added
switch:admin>
```

See Also

perfAddEEMonitor

perfAddIPMonitor

perfAddReadMonitor

perfAddRWMonitor

perfAddSCSIMonitor

perfAddUserMonitor

perfCfgClear

Clear the previously saved performance monitoring configuration settings from non-volatile memory.

Synopsis

```
perfCfgClear
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to clear the previously saved end-to-end and filter configuration settings of performance monitoring from non-volatile memory.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

None.

Example

To clear the performance monitoring information from non-volatile memory:

```
switch:admin> perfcfgClear
This will clear Performance Monitoring settings in FLASH ROM.
The RAM settings won't change. Do you want to continue? [y|n]y
Please wait ...
done.
Performance Monitoring configuration cleared from FLASH.
switch:admin>
```

See Also

perfCfgRestore

perfCfgSave

perfCfgRestore

Restore performance monitoring configuration settings from non-volatile memory.

Synopsis

```
perfCfgRestore
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to restore the performance monitoring configuration information from non-volatile memory.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

None.

Example

To restore the performance monitoring configuration information from non-volatile memory:

```
switch:admin> perfCfgRestore
This will overwrite current Performance Monitoring
settings in RAM. Do you want to continue? [y|n]y
Please wait ...
Performance monitoring configuration restored from FLASH ROM.
switch:admin>
```

See Also

perfCfgClear

perfCfgSave

perfCfgSave

Save performance monitoring configuration settings to non-volatile memory.

Synopsis

```
perfCfgSave
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to save the current end-to-end and filter configuration settings of performance monitoring into non-volatile memory. This enables the performance monitoring configuration to be saved over power off cycles.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

None.

Example

To save the current performance monitoring configuration to firmware:

```
switch:admin> perfCfgSave
This will overwrite previously saved Performance Monitoring
settings in FLASH ROM. Do you want to continue? [y|n]y
Please wait ...
Committing configuration...done.
Performance monitoring configuration saved in FLASH ROM.
switch:admin>
```

See Also

perfCfgClear

perfCfgRestore

perfClrAlpaCrc

Clear an AL_PA device's CRC count by the port and AL_PA.

Synopsis

```
perfClrAlpaCrc [slotnumber/]portnumber[, AL_PA]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to clear a specific AL_PA device's CRC error counter. If the AL_PA is provided as an operand only the counters for that device are reset; if no AL_PA is specified this command clears the CRC counters for all AL_PA devices on the specified port.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
AL_PA	Specify the AL_PA address if you want to clear the CRC error counter for a particular device. This operand is optional.

Example

To clear CRC count on a particular AL_PA on blade 2 port 15, and then clear CRC count for all AL_PAs on blade 2 port 15:

```
switch:admin> perfClrAlpaCrc 2/15, 0x59
CRC error count at ALPA 0x59 on port 15 is cleared.
switch:admin>
switch:admin> perfClrAlpaCrc 2/15
This will clear all ALPA CRC Counts on port 15
Do you want to continue? [y|n]y
Please wait ...
All alpa CRC counts are cleared on port 15.
switch:admin>
```

See Also

perfShowAlpaCrc

perfDelEEMonitor

Delete an end-to-end monitor on port.

Synopsis

        perfDelEEMonitor [slotnumber/]portnumber[, monitorId]

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to delete an end-to-end monitor on a port.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
monitorId	Specify the monitor number you want to delete. Monitor numbers are defined when you create the monitor on a port. This operand is optional. When not specified, all monitors on the port are deleted.

Example

To delete an end-to-end monitor on blade 7 port 2:

```
switch:admin> perfDelEEMonitor 7/2, 5
End-to-End monitor number 5 deleted
switch:admin>
```

See Also

> perfShowEEMonitor
>
> perfAddEEMonitor

perfDelFilterMonitor

Delete a filter-based monitor.

Synopsis

perfDelFilterMonitor [slotnumber/]portnumber[, monitorId]

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to delete a filter-based monitor.

After a successful execution of this command, the telnet shell confirms that this monitor has successfully been deleted. Prior to issuing this command, verify all the valid monitor numbers and user-defined aliases on a specific port using the **perfShowFilterMonitor** command to make sure that the right monitor will be deleted.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
monitorId	Specify the monitor number you want to delete. Monitor numbers are defined when you create the monitor on a port. This operand is optional. If no operand is specified, all monitors on the port are deleted.

Example

To delete filter monitor 4 on blade 2 port 3:

```
switch:admin> perfDelFilterMonitor 2/3, 4
The specified filter-based monitor is deleted.
switch:admin>
```

See Also

perfShowFilterMonitor

perfAddUserMonitor

perfHelp

Display performance monitoring help information.

Synopsis

```
perfHelp
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the available performance monitoring help commands.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

None.

Example

To display commands related to performance monitoring:

```
switch:admin> perfHelp

perfCfgSave            Save Performance configuration
perfCfgRestore         Restore Performance configuration
perfCfgClear           Clear Performance settings from RAM
perfClrAlpaCrc         Clear ALPA device's CRC count
perfShowAlpaCrc        Get ALPA CRC count by port and ALPA
perfAddEEMonitor       Add end-to-end monitor to a port
perfDelEEMonitor       Delete an end-to-end monitor on port
perfShowEEMonitor      Show user-defined end-to-end monitors
perfSetPortEEMask      Set overall mask for E-to-E monitors
perfShowPortEEMask     Show the current end-to-end mask
perfAddUserMonitor     Add filter-based monitor
perfAddReadMonitor     Add filter-based monitor - SCSI Read
perfAddWriteMonitor    Add filter-based monitor - SCSI Write
perfAddRWMonitor       Add monitor - SCSI Read and Write
perfAddSCSIMonitor     Add monitor for SCSI frame count
perfAddIPMonitor       Add monitor for IP traffic frame count
perfDelFilterMonitor   Remove filter-based monitor
perfShowFilterMonitor  Show filter-based monitors

switch:admin>
```

perfSetPortEEMask

Set overall mask for end-to-end (EE) monitors.

Synopsis

```
perfSetPortEEMask [slotnumber/]portnumber,
"TxSIDMsk","TxDIDMsk","RxSIDMsk","RxDIDMsk"
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to set the mask for the EE monitors of a port. This command enables a user to selectively choose the kind of Fibre Channel frames in which the number of words are to be counted.

EE monitors are defined by the **perfAddEEMonitor** command using SID and DID pairs. This command can be used to match the entire SID or DID to trigger the monitor to count Fibre Channel words. It can also be used to match one or two of the three fields (Domain ID, Area ID and AL_PA ID) in SID and DID pair to trigger the monitor.

The EE mask is used to setup a flag on each field to control whether the field is used to trigger the monitor.

When a flag bit is set (ff), the corresponding field will be used to qualify the triggering of the monitor. If a flag is reset (00), then that field is ignored and its value will not be used to qualify monitor-triggering.

There is only one EE mask per port. The mask is applied to all eight EE monitors available on a port. The default EE mask value upon power-on is all eight EE monitors set. When you reset mask, the counters are also reset to 0.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
TxSIDMsk	Specify the source ID mask in "dd:aa:pp" format, where "dd" is Domain ID mask, "aa" is Area ID mask and "pp" is AL_PA ID mask. For example, "00:ff:00" uses TxSID Area ID to trigger EE monitor comparison.
	Specify the following values to turn on or off a specific field:
	00 - Specifies that the field does not trigger EE monitors.
	ff - This specifies that the field triggers EE monitors.
	This operand must be enclosed in quotation marks. This operand is required.
TxDIDMsk	Specify the destination ID mask in "dd:aa:pp" format. This operand must be enclosed in quotation marks. This operand is required.
RxSIDMsk	Specify the source ID mask in "dd:aa:pp" format. This operand must be enclosed in quotation marks. This operand is required.
RxDIDMsk	Specify the destination ID mask in "dd:aa:pp" format. This operand must be enclosed in quotation marks. This operand is required.

Example

To set the overall mask for end-to-end monitors on blade 2 port 4:

```
switch:admin> perfSetPortEEMask 2/4, "00:00:00", "ff:ff:ff", "00:00:ff",
                                                                    "ff:00:00"
```
The EE mask on port 6 is set and EE counters are reset.
switch:admin>

See Also

```
perfAddEEMonitor
```

perfShowAlpaCrc

Display the AL_PA CRC count by port or by AL_PA.

Synopsis

    perfShowAlpaCrc [slotnumber/]portnumber[, AL_PA]

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display a specific AL_PA device CRC error count by the port or AL_PA. 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-bits counter. When the count is over 32 bits, the CRC count value is displayed in hexadecimal. Otherwise, CRC count is displayed in decimal format.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

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

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

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

AL_PA   Specify the AL_PA address if you want to get the CRC errors for a particular device. This operand is optional.

Example

To display the CRC error count for all AL_PA devices on blade 2 port 4:

```
switch:admin> perfShowAlpaCrc 2/4
AL_PA   CRC count
------------------
0x01    0
switch:admin>
```

See Also

perfClrAlpaCrc

perfShowEEMonitor

Display end-to-end monitor information and frame traffic on a port.

Synopsis

```
perfShowEEMonitor [slotnumber/]portnumber[, interval]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display end-to-end monitor information and frame traffic on a port. This command can display (if no interval operand is specified):

- Key - the monitor number
- SID - Sending ID
- DID - Destination ID
- Owner_app - TELNET or WEB_TOOLS
- Owner_ip_addr - the IP address of the owner of the filter 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.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

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

interval   Specify an interval in seconds. This operand is optional.

Example

To display end-to-end monitor frame traffic on blade 4 port 5 at an interval of every 6 seconds:

```
switch:admin> perfShowEEMonitor 4/5, 6
perfShowEEMonitor 4 1: Tx/Rx are # of bytes and crc is # of crc errors
         0               1               2               3               4
   -------------   -------------   -------------   -------------   -------------
   crc   Tx   Rx   crc   Tx   Rx   crc   Tx   Rx   crc   Tx   Rx   crc   Tx   Rx
   =============   =============   =============   =============   =============
   0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
   0   53m 4.9m   0   53m 4.9m   0   53m 4.9m   0   53m 4.9m   0   53m   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 blade 4 port 5:

```
switch:admin> perfShowEEMonitor 4/5
There are 7 end-to-end monitor(s) defined on port 5.
KEY    SID      DID      OWNER_APP   OWNER_IP_ADDR      TX_COUNT            RX_COUNT
         CRC...
..------------------------------------------------------------------------------------
  0   0x21300  0x21dda   TELNET        N/A      0x00000004d0ba9915  0x0000000067229e65  0x00...
  1   0x21300  0x21ddc   TELNET        N/A      0x00000004d0baa754  0x0000000067229e65  0x00...
  2   0x21300  0x21de0   TELNET        N/A      0x00000004d0bab3a5  0x0000000067229e87  0x00 ...
  3   0x21300  0x21de1   TELNET        N/A      0x00000004d0bac1e4  0x0000000067229e87  0x00...
  4   0x21300  0x21de2   TELNET        N/A      0x00000004d0bad086  0x0000000067229e87  0x00...
```

NOTE: If you do not specify an interval, the EE based monitor traffic count is displayed in 64 bit format and is cumulative.

See Also

perfAddEEMonitor

perfShowFilterMonitor

Display filter-based monitor information and frame traffic for a port.

Synopsis

```
perfShowFilterMonitor [slotnumber/]portnumber[, interval]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display all the filter-based monitors defined on the specified port and the traffic count values. This command can display (if no interval operand is specified):

- Key - the monitor number
- Alias - the monitor alias name
- Owner_app - Telnet or Web_Tools
- Owner_ip_addr - the IP address of the owner of the filter monitor
- Frame_count - cumulative 64 bit frame count

If you do not specify a value for the interval operand, this command displays a cumulative count of the traffic detected by the monitor. If you specify a value for the interval operand, this command displays a snapshot of the traffic at the specified interval.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operand:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
interval	Specify an interval in seconds. This operand is optional.

Example

To display filter monitor traffic on blade 2 port 5 at an interval of every 6 seconds:

```
switch:admin> perfshowfiltermonitor 2/5, 6
perfShowFilterMonitor 2/5, 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
    26k       164       752       752       752       588       164
    26k       190       700       700       700       510       190
    26k       181       701       701       701       520       181
    26k       200       750       750       751       550       201
    26k       180       692       692       691       512       179
    26k       179       696       696       696       517       179
    26k       187       720       720       720       533       187
    26k       200       722       722       722       522       200
    26k       204       717       717       717       513       204
```

To display filter monitor information on blade 2 port 5:

```
switch:admin> perfshowfiltermonitor 2/5
There are 7 filter-based monitors defined on port 5.

KEY    ALIAS     OWNER_APP      OWNER_IP_ADDR    FRAME_COUNT
------------------------------------------------------------------
 0  SCSI_Frame TELNET                    N/A    0x00000000002c2229
 1  SCSI_WR    TELNET                    N/A    0x000000000000464a
 2  SCSI_RW    TELNET                    N/A    0x000000000000fd8c
 3  SCSI_RW    WEB_TOOLS        192.168.169.40  0x0000000000007ba3
 4  SCSI_RW    WEB_TOOLS        192.168.169.190 0x0000000000004f0e
 5  SCSI_RD    WEB_TOOLS        192.168.169.40  0x0000000000002208
 6  SCSI_WR    WEB_TOOLS        192.168.169.40  0x000000000000033a
switch:admin>
```

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

perfAddUserMonitor

---

perfShowFilterMonitor

Display filter-based monitor information and frame traffic for a port.

Synopsis

        perfShowFilterMonitor [slotnumber/]portnumber[, interval]

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display all the filter-based monitors defined on the specified port and the traffic count values. This command can display (if no interval operand is specified):

- Key - the monitor number

- Alias - the monitor alias name

- Owner_app - Telnet or Web_Tools

- Owner_ip_addr - the IP address of the owner of the filter monitor

- Frame_count - cumulative 64 bit frame count

If you do not specify a value for the interval operand, this command displays a cumulative count of the traffic detected by the monitor. If you specify a value for the interval operand, this command displays a snapshot of the traffic at the specified interval.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operand:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
interval	Specify an interval in seconds. This operand is optional.

Example

To display filter monitor traffic on blade 2 port 5 at an interval of every 6 seconds:

```
switch:admin> perfshowfiltermonitor 2/5, 6
perfShowFilterMonitor 2/5, 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
    26k      164      752      752      752      588      164
    26k      190      700      700      700      510      190
    26k      181      701      701      701      520      181
    26k      200      750      750      751      550      201
    26k      180      692      692      691      512      179
    26k      179      696      696      696      517      179
    26k      187      720      720      720      533      187
    26k      200      722      722      722      522      200
    26k      204      717      717      717      513      204
```

To display filter monitor information on blade 2 port 5:

```
switch:admin> perfshowfiltermonitor 2/5
There are 7 filter-based monitors defined on port 5.

KEY    ALIAS     OWNER_APP      OWNER_IP_ADDR     FRAME_COUNT
-----------------------------------------------------------------
 0   SCSI_Frame  TELNET                 N/A     0x00000000002c2229
 1   SCSI_WR     TELNET                 N/A     0x000000000000464a
 2   SCSI_RW     TELNET                 N/A     0x000000000000fd8c
 3   SCSI_RW     WEB_TOOLS       192.168.169.40  0x0000000000007ba3
 4   SCSI_RW     WEB_TOOLS       192.168.169.190 0x0000000000004f0e
 5   SCSI_RD     WEB_TOOLS       192.168.169.40  0x0000000000002208
 6   SCSI_WR     WEB_TOOLS       192.168.169.40  0x000000000000033a
switch:admin>
```

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

perfAddUserMonitor

perfShowPortEEMask

Display the current end-to-end mask of a port.

Synopsis

```
perfShowPortEEMask [slotnumber/]portnumber
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the current end-to-end mask of a port. There are only two commands that can modify the value of 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 on.

NOTE: This command requires an Advanced Performance Monitoring license.

Operands

This command has the following operand:

slotnumber   Specify the slot number in a StorageWorks Core
                        switch. The slot number must be followed by a slash
                        (/) and the port number.

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

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

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

Example

To display the port end-to-end mask on blade 2 port 4:

```
switch:admin> perfShowPortEEMask 2/4
TxSID Domain:   on
TxSID Area:     on
TxSID ALPA:     off
TxDID Domain:   on
TxDID Area:     on
TxDID ALPA:     off
RxSID Domain:   on
RxSID Area:     on
RxSID ALPA:     off
RxDID Domain:   on
RxDID Area:     on
RxDID ALPA:     off
switch:admin>
```

See Also

```
perfAddEEMonitor
perfDelEEMonitor
perfShowEEMonitor
perfSetPortEEMask
perfShowPortEEMask
```

portCfgEport

Enable or disable a port from becoming an E_Port.

Synopsis

```
portCfgEport [slotnumber/]portnumber, mode
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

This command allows a user to enable or disable a port from becoming an E_Port. The E_Port capability is enabled by default unless this command is used to disable it.

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

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

Operands

This command has the following operands:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
mode	Specify 1 to enable the port to become an E_Port. This is the default port state. Specify 0 to disable the port from becoming an E_Port. When the port_number operand is present, this operand must also be present. This operand is required.

When no operands are specified, the command reports a list of ports that are disabled from becoming E_Ports.

Example

To disable blade 2 port 3 from becoming an E_Port:

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

See Also

portShow

switchShow

portCfgGport

Designate a port as a locked G_Port.

Synopsis

```
portCfgGport [slotnumber/]portnumber, mode
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

This command enables a user to designate a port as a locked G_Port. Once this is done, the switch attempts to initialize that port as an F_Port only, and does not attempt loop initialization (FL_Port) on the port. However, if the device attached to the port initiates loop communication, then the switch responds accordingly and the port can then become an FL_Port. Similarly, a port designated as a G_Port can become an E_Port.

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

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

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core
                    switch. The slot number must be followed by a slash
                    (/) and the port number.

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

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

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

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.

Example

The following example configures blade 2 port 3 as a locked G_Port:

```
switch:admin> portCfgGport 2/3, 1
done.
```

See Also

portShow

switchShow

configure

portCfgShow

portCfgLongDistance

Configure a port to support long distance links.

Synopsis V3.0.x

```
portCfgLongDistance portnumber[, "distance"]
```

Synopsis V4.0.x

```
portCfgLongDistance [slotnumber/]portnumber[, distance]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

- L0: Deconfigure the port to be a regular switch port. This option supports up to 10-km links for 1 Gbps, or 5-km links for 2 Gbps.

- LE: Level E mode is for E_Ports for distances beyond 5 km and up to 10 km especially for 2 Gbps link speeds. LE does not require extended fabric license.

- L1: Level one long distance, up to 50 km.

- L2: Level two long distance, up to 100 km.

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

NOTE: The Extended Fabrics license key is required to use the full functionality of this command. Refer to the *StorageWorks by Compaq Extended Fabric for V4.x User Guide* for more information.

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

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

distance   This operand indicates the distance to the connected port. This operand is required. The valid values for this operand are:

- **L0**: Deconfigure the port to be a regular switch port. This option supports up to 10-km links for 1 Gbps, or 5-km links for 2 Gbps.
- **LE**: Level E mode is for E_Ports for distances beyond 5 km and up to 10 km especially for 2 Gbps link speeds. LE does not require extended fabric license.
- **L1**: Level one long distance, up to 50 km.
- **L2**: Level two long distance, up to 100 km.

Limitations

Since the total number of frame buffers is limited in quad, when one of the ports in the quad is configured as a long distance port, all remaining ports must be level zero ports only (i.e., none of the remaining ports in the quad can be a long distance port). Further more, if one port is configured as a level 2 long distance port, none of the remaining ports in the quad can be used as an E_Port.

A quad is defined as a group of four adjacent ports that share a common pool of frame buffers. Port 0-3 belong to a quad, so do port 4-7, etc.

Refer to the *HP StorageWorks Extended Fabric Version 3.0.x/4.0.x User Guide* for more information on limitations in port configurations.

Example

The following example is for a 50km link on a port in a V3.0.x switch:

```
switch:admin> portCfgLongDistance 3, "L1"
done.
```

The following example is for a 100km link on a port in a V4.0.x switch:

```
switch:admin> portCfgLongDistance 2/3, L2
done.
```

See Also

```
configure
portShow
switchShow
```

portCfgLport

Lock a port as an L_PORT.

Synopsis

        portCfgLport [slotnumber/]portnumber, lockmode[, privatemode]

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to designate a port as an L_PORT. The switch will then only attempt to initialize that port as an FL_PORT. By default the L_port will be a public L_port. If the port is designated private, then the FLOGI is rejected.

The switch never attempts point-to-point (F_PORT) initialization on the port. However, if the device attached to the port initiates point-to-point communication, then the switch will respond accordingly, and the port may then become an F_PORT.

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

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
lockmode	Specify 1 to configure the specified port as a locked L_PORT. Specify 0 to de-configure the specified port from its previous role as a locked L_PORT. This operand is required.
privatemode	Specify 1 to configure the L_PORT as a private L_PORT (then FLOGI will be rejected). Specify 0 to configure the L_PORT as a normal public L_PORT. The default value is 0. This operand is optional.

Example

To configure switch blade 2 port 3 as a locked L_PORT:

```
switch:admin> portCfgLport 2/3, 1
done.
```

See Also

portShow

switchShow

configure

portCfgMcastLoopback

Configure a port to receive multicast frames.

Synopsis

```
portCfgMcastLoopback portnumber, mode
```

Availability

admin

Release

V3.0.x

Description

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

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

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

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

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

The user will be prompted if:

- The selected port is already in use as an E_Port, or Fx_Port,
- The switch is a branch (middle) switch.

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

When a port is configured as multicast loopback port:

- Its port LED will blink a slow green indicating a loopback state. Its laser, if optical SFP, will be disabled. It will not respond to any attempt to connect it to any device.

- The comment field of **switchShow** will show that it is looped back to itself like so:

```
"port  3: sw  No_Light   Loopback->3"
```

- The portFlags line of **portShow** will display the "F_PORT" and "INT_LB" flags like so:

```
"portFlags: 0x20249      PRESENT F_PORT U_PORT INT_LB LED"
```

- **mcastShow** will show the port as a member in its "Member Ports" column.

Operands

This command has the following operands:

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
mode	Specify the value 1 and the "portnumber" is dedicated as a multicast loopback port. Specify the value 0 and "portnumber" is de-configured from its previous role as a multicast loopback port. This operand is required.

Example

To configure port 3 as a multicast loopback port:

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

See Also

portShow

switchShow

mcastShow

configure

portCfgShow

Display port configuration settings.

Synopsis

```
portCfgShow [slotnumber/][portnumber]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the current configuration of all ports.

The following configuration information is displayed:

- Port Speed is displayed as 1G, 2G, or AN (when in Auto speed Negotiation mode). This value is set by the **portCfgSpeed** command.

- Trunk Port is displayed as ON when port is set for trunking or blank (--) when trunking is disabled on the port. This value is set by the **portCfgTrunkport** command.

- The Long Distance setting of the port is shown as blank (--) when long distance mode is off, L1 when the link is up to 50Km, or L2 when the link is up to 100Km. This value is set by the **portCfgLongDistance** command.

- Locked L_Port is displayed as ON when port is locked to L_Port only or blank (--) when L_Port lock mode is disabled (and it behaves as a U_Port). This value is set by the **portCfgLport** command.

- Locked G_Port is displayed as ON when port is locked to G_Port only or blank (--) when G_Port lock mode is disabled (and it behaves as a U_Port). This command is set by the **portCfgGport** command.

- Disabled E_Port is displayed as ON when port is not allowed to be an E_Port or blank (--) when the port is allowed to function as an E_Port. This command is set by the **portCfgEport** command.

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

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

Example

To display the configuration settings of ports on a switch in V3.0.x:

```
switch:admin> portcfgshow
Ports              0  1  2  3    4  5  6  7    8  9 10 11   12 13 14 15
-----------------+--+--+--+--+----+--+--+--+----+--+--+--+----+--+--+--
Speed             2G 2G AN AN   AN AN 2G 2G   AN AN AN AN   1G AN 1G AN
Trunk Port        ON ON ON ON   ON ON ON ON   ON ON ON ON   ON ON ON ON
Long Distance     L1 L1 .. ..   L2 .. .. ..   .. .. .. ..   .. .. .. ..
Locked L_Port     .. .. .. ..   .. .. .. ..   .. .. .. ..   ON .. .. ..
Locked G_Port     .. .. .. ..   .. ON .. ..   .. .. .. ..   .. ON .. ..
Disabled E_Port   .. .. .. ..   .. .. .. ..   .. .. .. ..   .. .. ON ..
                  where AN:AutoNegotiate, ..:OFF, ??:INVALID.
switch:admin>
```

To display the configuration settings of port 5 on blade 7 on a V4.0.x switch:

```
switch12k:admin> portcfgshow 7/5
Area | Speed | Trunk | Long      | Locked | Locked |Disabled| MCAST  |
No.  | Level | port  | Distance  | L-PORT | G-PORT | E-PORT | LPBACK |
-----+-------+-------+-----------+--------+--------+--------+-------+
5    | AUTO  | ON    | OFF       | OFF    | OFF    | OFF    | OFF    |
switch12k:admin>
```

See Also

portCfgEport

portCfgGport

portCfgLport

portCfgLongDistance

portCfgTrunkport

portCfgSpeed

portCfgSpeed

Configure the port speed level.

Synopsis

portCfgSpeed [slotnumber/]portnumber, speed_level

Availability

admin

Release

V3.0.x and V4.0.x

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 non-volatile memory and is persistent across switch reboots or power cycles.

If the command is specified without an operand, you are prompted to enter the speed value.

The output of the **portShow** command displays the current achieved speed of a port and the **portCfgShow** command displays the user desired speed setting for a port.

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core
                           switch. The slot number must be followed by a slash
                           (/) and the port number.

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

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

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

speed_level   Specify the speed of a port. This operand is required. Valid values are one of the following:

    0   Auto-sensing mode.
        The port automatically configures for the highest speed.

    1   1Gbps mode.
        The port will be at fixed speed of 1 Gbps.

    2   2Gbps mode.
        The port will be at fixed speed of 2 Gbps.

Example

To configure the speed of blade 2 port 5 to 2 Gbps:

```
switch:admin> portCfgSpeed 2/5, 2
done.
```

See Also

switchCfgSpeed

portShow

portCfgTrunkport

Configure a port to be enabled or disabled for trunking.

Synopsis

portCfgTrunkport [slotnumber/]portnumber, mode

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to configure a port for trunking.

NOTE: This command requires a Trunking license.

Operands

This command has the following operand:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

mode   Specify 1 to enable this port for trunking. Specify 0 to
                            disable this port for trunking. This operand is required.

Example

To enable switch blade 2 port 5 for trunking:

```
switch:admin> portCfgTrunkport 2/5, 1
done.
```

See Also

switchCfgTrunk

portShow

portCfgShow

switchShow

portDisable

Disable a switch port.

Synopsis

```
portDisable [slotnumber/]portnumber
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

If the port was online before being disabled, a state transition will be indicated in the following ways: RSCN, SNMP trap, Web pop-up window.

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

Operands

This command has the following operand:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

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

Example

To disable blade 2 port 4:

```
switch:admin> portDisable 2/4
```

See Also

portEnable

portShow

switchShow

portEnable

Enable a switch port.

Synopsis

        portEnable [slotnumber/]portnumber

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

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

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

Operands

This command has the following operand:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

	This operand is not required for switches that do not have blades.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

Example

To enable blade 2 port 4:

```
switch:admin> portEnable 2/4
```

See Also

portDisable

portShow

switchShow

portErrShow

Display port error summary.

Synopsis

```
portErrShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

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

None.

Example

Notice in the example below that port 6 has a high number of errors and should be examined:

```
switch:admin> portErrShow
 frames  enc crc too  too  bad enc disc link loss loss frjt fbsy
 tx   rx  in err shrt long eof out  c3   fail sync  sig
--------------------------------------------------------------
 0:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
 1:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
 2:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
 3:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
 4:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
 5:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
 6:  61k   48   2  15    0    0   0  3k    0    0    2    0    0    0
 7:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
 8:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
 9:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
10:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
11:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
12:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
13:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
14:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
15:    0    0   0   0    0    0   0   0    0    0    0    1    0    0
```

See Also

portShow

portStatsShow

portLEDTest

Exercise the user port LEDs.

Synopsis

```
portLEDTest [-npass count | -port portlist]
```

Availability

admin

Description

Use this command to exercise the LEDs on a switch blade. This command flashes the switch User Ports LEDs on and off by setting the ATTN LEDs to green for on condition and black for off condition. The SPEED LEDs are initially set to black before the command is executed. The SPEED LEDs are set to green once the command is executed.

Disable the switch using **switchDisable** before using this command. After the command has finished, the ATTN LEDs flash amber indicating the command has finished. Enable the switch using **switchEnable** to set the ATTN LEDs back to black.

Options

This command has the following operands:

`-npass count`	Specify the number of times to perform this test. The default value is 1. This operand is optional.
`-ports portlist`	Specify user port number to exercise the LEDs. The default value is to exercise LEDs all active user ports. This operand is optional.

Example

To flash the user port LEDs for a blade:

```
switch:admin> portledtest
```

See Also

switchdisable

switchenable

portLogClear

Clear the port log.

Synopsis

```
portLogClear
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to clear the port log.

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

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

Operands

None.

Example

To clear the port log:

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

Errors

The following errors disable the port log:

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

See Also

```
portLogDump
portLogShow
```

portLogDump

Display the port log without page breaks.

Synopsis

```
portLogDump [count[, saved[, portid]]]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

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

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

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

Operands

This command has the following operands:

count	Specify the maximum number of lines to be displayed. Only the most recent count entries are displayed. This operand is optional.
saved	Specify a nonzero value to display the saved port log from the last switch fault. See uptime for conditions that cause a fault. count is ignored when displaying the saved log. This operand is optional.
portid	Specify the port to be displayed. All other ports will not be displayed. This operand is optional.

Example

To display the port log:

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

See Also

portLogClear

portLogShow

uptime

portLogDumpPort

Display the port log of specified port, without page breaks.

Synopsis

```
portLogDumpPort port
```

Availability

All users.

Release

V3.0.x and V4.0.x

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 **portLogShow** prompts the user to type return between each page of output.

If the port log is disabled, the following message is printed as the first line. See the **portLogClear** command for more information.

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

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

Operands

This command has the following operand:

port   Specify the port you want to display the port log for. Valid input varies depending on switch type. For StorageWorks 2 Gb SAN switch, enter the port number. For the StorageWorks Core switch, enter the port area number. View the area number of ports on a StorageWorks Core switch using the **switchShow** command. This operand is required.

Example

To display the port log dump for a port with area number of 16:

```
switch:admin> portlogdumpport 16
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
<output truncated>
```

See Also

portLogClear

portLogShow

uptime

portLogShow

Display the port log.

Synopsis

```
portLogShow [count, saved, portid]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the port log. This command displays 22 entries at a time.

The **portLogShow** command displays the same information as **portLogDump**, but it allows you to enter a "return" after each page of output.

If the port log is disabled, the following message appears as the first line. See **portLogClear** command for more information.

WARNING: port log is disabled

The following fields are shown:

time   Date and time of event. Clock resolution is 16 milliseconds.

task   Name of task that logged the event, or "interrupt" if the event was logged in interrupt context, or "unknown" if the task no longer exists.

event   Possible events are:

        start   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   Port number of the affected port.

cmd   A command value. The meaning of this field depends on the event type:

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 means the Simple Name Server,
		f8 means the Alias Server.
	ctout	same as ctin above.
	errlog	error level (see errShow)
	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 initialized, FL_Port in MONITORING state
		OLD - port transited to the OLD_PORT state
		TMO - loop initialization times out
args	The command arguments description depends on event type:	
	start	start type: 0 = enable ports, 100 = disable ports
		disable - state (see state codes below)
		enable - mode: 0 = normal, non-zero = loopback
	ioctl	I/O control arguments. V3.0.x Only.
	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
		[B] the ct-based service command code.
		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]).
	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 errShow)

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) timeou
    94F0F0:   ARB(F0) timeout
    40: CLS timeout

Codes Used in PortLogShow Fields

The following tables explain the codes used in information returned by this command. Note that the code values are different between V3.0.x and V4.0.x.

These are the state codes and their meaning. These codes are only used in V4.0.x.

Table 1–13: State Codes V4.0.x Only

State Code	Description
1	Online
2	Offline
3	Testing
4	Faulty
5	E_Port
6	F_Port
7	Segmented

These are the pstate codes and their meanings. These codes are used in V3.0.x and V4.0.x:

Table 1–14: pState Codes V3.0.x and V4.0.x

State Code	Description
LR1	Link Reset: LR Transmit State
LR2	Link Reset: LR Receive State
LR3	Link Reset: LRR Receive State
LF1	Link Failure: NOS Transmit State
LF2	Link Failure: NOS Receive State
OL1	Offline: OLS Transmit State
OL2	Offline: OLS Receive State
OL3	Offline: Wait for OLS State

These are the ioctl codes and their meanings. These codes are only used in V3.0.x:

Table 1–15: ioctl Codes V3.0.x Only

ioctl Code	Description
90	get virtual channel credits
91	Set virtual channel credits
a1	Port is an E_Port

Table 1–15: ioctl Codes V3.0.x Only (Continued)

a2	Port is an F_Port
a3	Port is segmented
a4	Domain name is known
a5	Port enable
a6	Port disable
a7	Link reset
a8	Add unicast route
a9	Delete unicast route
aa	Add multicast route
ab	Delete multicast route
ac	Unicast path selection done
ad	Multicast path selection done

These are the LIP codes and their meanings. These codes are used in both V43.x and V4.0.x.

Table 1–16: LIP Reason Codes

LIP Code	Description
8001	Retry loop init
8002	Start loop after gaining sync
8003	Restart loop after port reset
8004	LIP when a loop hangs
8005	Restart loop if LIP received when sending out ARB(F0)
8006	LIP when an OPN returns
8007	Restart loop when LIPs received in OLD_PORT AC state
8008	Restart loop if loop not empty but E_Port loopback
8009	LIP as requested by the LINIT ELS received
800a	LIP as requested by the LPC ELS received
800b	Restart loop for QuickLoop looplet setup

Table 1–16: LIP Reason Codes (Continued)

800c	Restart loop for QuickLoop looplet re-initialization

These are TMO codes and their meanings. These codes are only used in V3.0.x.

Table 1–17: TMO Codes V3.0.x Only

TMO Code	Description
2	LPSM_INITIALIZING
10	LPSM_OPEN_INIT_MASTER
BC94F0F0	ARBF0
11010000	LISM
11020000	LIFA
11030000	LIPA
11040000	LIHA
11050100	LISA
11050000	OLD_LISA
11060000	LIRP
11070000	LILP
40	LPSM_MONITORING

These are the Speed Negotiation states. These states are only used in V4.0.x.

Table 1–18: Speed Negotiation States V4.0.x Only

Speed Negotiation State	Description
INIT	start negotiation
NM	negotiate master
WS	wait for signal
NF	negotiation follow
NC	negotiation complete

Operands

This command has the following operands:

`count`	Specify the maximum number of lines to display. Only the most recent `count` entries are displayed. This operand is optional.
`saved`	Specify a non-zero value to display the saved port log from the last switch fault. See `uptime` for a list of conditions that cause a fault. `count` is ignored when displaying the saved log. This operand is optional.
`portid`	Specify the area number of port to be displayed. This operand is only valid for V4.0.x. If a port area number is specified, all other ports on the switch are ignored. This operand is optional.

Example

The following example shows a section of the port log with an E_Port coming online. The ELP and EFP exchanges are shown; a name service request was processed.

```
switch:admin> portLogShow 24
time            task        event   port cmd  args
------------------------------------------------
17:05:30.384    PORT        Rx         0   40  02ffffffd,00ffffffd,08fbffff,1400000(
17:05:30.384    PORT        Tx         0    0  c0ffffffd,00ffffffd,08fb0e02
17:05:30.384    PORT        debug      0        00c0ffee,00fd0118,00000000,0000000:
17:05:30.389    PORT        Rx         1   40  02ffffffd,00ffffffd,08fdffff,1400000(
17:05:30.389    PORT        Tx         1    0  c0ffffffd,00ffffffd,08fd0e03
17:05:30.389    PORT        debug      1        00c0ffee,00fd013c,00000000,0000000:
17:05:30.504    PORT        Rx         2   40  02ffffffd,00ffffffd,08feffff,1400000(
17:05:30.504    PORT        Tx         2    0  c0ffffffd,00ffffffd,08fe0e04
17:05:30.504    PORT        debug      2        00c0ffee,00fd0182,00000000,0000000:
17:05:30.507    PORT        Rx         3   40  02ffffffd,00ffffffd,08ffffff,1400000(
17:05:30.507    PORT        Tx         3    0  c0ffffffd,00ffffffd,08ff0e05
17:05:30.508    PORT        debug      3        00c0ffee,00fd0148,00000000,0000000:
17:05:31.081    PORT        Tx         0   40  02ffffffd,00ffffffd,0e06ffff,1400000(
17:05:31.082    PORT        debug      0        00c0ffee,00fd0188,14000000,0000000:
17:05:31.084    PORT        Rx         0    0  c0ffffffd,00ffffffd,0e060902
17:05:31.772    PORT        Tx         1   40  02ffffffd,00ffffffd,0e07ffff,1400000(
17:05:31.772    PORT        debug      1        00c0ffee,00fd014a,14000000,0000000:
17:05:31.774    PORT        Rx         1    0  c0ffffffd,00ffffffd,0e070906
17:05:31.775    PORT        Tx         2   40  02ffffffd,00ffffffd,0e08ffff,1400000(
17:05:31.775    PORT        debug      2        00c0ffee,00fd015c,14000000,0000000:
17:05:31.777    PORT        Rx         2    0  c0ffffffd,00ffffffd,0e080907
17:05:31.778    PORT        Tx         3   40  02ffffffd,00ffffffd,0e09ffff,1400000(
17:05:31.779    PORT        debug      3        00c0ffee,00fd015e,14000000,0000000:
17:05:31.782    PORT        Rx         3    0  c0ffffffd,00ffffffd,0e090908
```

See Also

portLogClear

portLogDump

uptime

portLoopbackTest

Functional test of port N->N path.

Synopsis

```
portLoopbackTest [passCount]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to verify the functional operation of the switch by sending frames from the port N transmitter, and looping the frames back into the same port N receiver. The loopback is done at the parallel loopback path. The path exercised in this test does not include the SFP nor the fiber cable.

Only one frame is transmitted and received at any one time. No external cable is required to run this test. The port LEDs flicker green rapidly while the test is running.

Below is the test method:

1. Set all ports for parallel loopback.

2. Create a frame F of maximum data size (2112 bytes).

3. Transmit frame F through port N.

4. Pick up the frame from the same port N.

5. Check the 8 statistic error counters for nonzero values:

   ```
   ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out, BadOrdSet,
   DiscC3
   ```

6. Check if the transmit, receive or class 3 receiver counters are stuck at some value.

7. Check if the number of frames transmitted is not equal to the number of frames received.

8. Repeat steps 2 through 7 for all ports present until:

— The number of frames (or `passCount`) requested is reached.

— All ports are marked bad.

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

1. CSPAT: `0x7e, 0x7e, 0x7e, 0x7e, ...`

2. BYTE_LFSR: `0x69, 0x01, 0x02, 0x05, ...`

3. CHALF_SQ: `0x4a, 0x4a, 0x4a, 0x4a, ...`

4. QUAD_NOT: `0x00, 0xff, 0x00, 0xff, ...`

5. CQTR_SQ: `0x78, 0x78, 0x78, 0x78, ...`

6. CRPAT: `0xbc, 0xbc, 0x23, 0x47, ...`

7. RANDOM: `0x25, 0x7f, 0x6e, 0x9a, ...`

Because this test does not include the SFP and the fiber cable in its test path, use the results from this test in conjunction with the results from **crossPortTest** and **spinSilk** test to determine those switch components that are not functioning properly.

Operands

This command has the following operand:

passCount   Specify the number of times (or number of frames per port) to execute this test. The default value is `0xfffffffe`. This operand is optional.

Example

To run the portLoopbackTest 100 times:

```
switch:admin> portLoopbackTest 100
Running Port Loopback Test .... passed.
```

Errors

Below are possible error messages if failures are detected:

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

See Also

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

portPerfShow

Display port throughput performance in bytes, kilobytes, or megabytes.

Synopsis

```
portPerfShow [interval]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display throughput information for all ports on the switch (8 or 16 columns depending on the switch model). One output line is displayed per interval (or second if no interval is specified) until `return`, `control-C`, or `control-D` is entered.

Shown are the number of bytes received plus the number of bytes transmitted per interval. Throughput numbers are shown as either bytes, kilobytes (k), or megabytes (m).

Operands

This command has the following operand:

interval   Specify the interval, in seconds, between each sample. This
                    operand is optional.

Example

To display port throughput for an 16 port switch:

```
switch:admin> portPerfShow
0    1    2    3    4    5    6    7    8    9    10   11   12   13   14
-------------------------------------------------------------------------------
0    0    0    0    0    0    0    76m  0    0    0    0    0    0    0    76
96   0    96   0    0    96   0    76m  0    0    0    0    0    0    0    76
0    0    0    0    0    0    0    76m  0    0    0    0    0    0    0    76
```

To display port throughput for a StorageWorks Core switch:

```
switch:admin> portPerfShow
            0    1    2    3    4    5    6    7    8    9    10
============================================================
slot 1:  0    0    0    0    0    0    0    0    0    0    0
slot 2:  0    0    0    0    0    0    0    0    0    0    0
```

See Also

portStatsShow

portRegTest

Bit write/read test of the ASIC SRAMs and registers.

Synopsis

```
portRegTest [-ports list][-skiptests mask]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to verify that SRAM and register data bits in each ASIC can be independently written and read.

To verify the data bits, write a walking 1 pattern to each location - write a pattern of `0x00000001` to register N, read, and compare to be sure that the pattern is the same. Shift the pattern one bit to the left (to `0x00000002`), repeat the write, read, and compare cycle. Shift again and repeat until the last writable bit in register N is reached (`0x80000000` for a 32-bit register).

For example, use the following pattern to test a 6-bit register:

1. `0x0001`
2. `0x0002`
3. `0x0004`
4. `0x0008`
5. `0x0010`
6. `0x0020`
7. `0x0040`
8. `0x0080`
9. `0x0100`

10. `0x0200`

11. `0x0400`

12. `0x0800`

13. `0x1000`

14. `0x2000`

15. `0x4000`

16. `0x8000`

Repeat the above steps until all ASIC SRAMs and registers have been tested.

Operands

This command has the following operands:

`-ports list`	Specify a list of ports to test. By default all of the ports on the current blade will be tested. This option may be used to restrict the testing to specific ports.
`-skiptests mask`	Specify a bit mask that defines which of the register test subtests to skip. By default all subtests will be performed. Valid mask values include one or more of the following:

        0x2) Skip retry register test.

        0x4) Skip statistics register test.

        0x8) Skip walk-1 test.

        0x10) Skip credit counter test.

Example

To run bit write/read test of the ASIC SRAMs and registers:

```
switch:admin> portRegTest
Running Port Register Test .... passed.
```

Errors

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

```
0x20 BUS_TIMEOUT
```

```
0x21 REGERR
```

```
0x22 REGERR_UNRST
```

See Also

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

portRouteShow

Display routing tables for a port.

Synopsis

```
portRouteShow [slotnumber/]portnumber
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the port address ID and the contents of the following port routing tables:

External unicast routing table	Shows unicast frame routing to another switch element in the fabric. Output format is `domain_number: ports_bitmap` where: `domain_number` is the switch element number that a unicast frame can reach from the `portnumber` port. `ports_bitmap` contains all output ports, in bitmap hex format, that can forward unicast frames from port number to domain number. This table contains at least one entry for each active port: local_switch_domain_number: 0x10000 This is for routing unicast frames designated to the embedded port of the local switch element.

Internal unicast routing table	Lists all ports in the local switch that a unicast frame can reach from portnumber. Format is

destination_port: output_ports_bitmap

Because the destination_port is in the local switch, output_ports_bitmap usually contains one bit with a bit position number representing the destination_port number.

Multicast routing table	Shows multicast frame routing to the destination multicast group. Output format is:

mcast_group_number: (mcast_group_id) ports_bitmap

where

mcast_group_number is the multicast group number

mcast_group_id is the multicast frame destination ID

ports_bitmap is a hex bitmap of all output port numbers that can forward a multicast frame from the portnumber to mcast_group_id

Broadcast routing table	A bitmap, containing all ports reachable by a received broadcast frame. Bit 16 of the bitmap is always set to allow the switch element to receive broadcast frames.

Operands

This command has the following operand:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

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

Example

To display the port routing tables for blade 4 port 15:

```
switch:admin> portRouteShow 4/15
port address ID: 0x02bf00
external unicast routing table:
1: 0x4 (vc=3)
2: 0x10000 (vc=0)
internal unicast routing table:
60: 0x8000 (vc=2)
63: 0x1000 (vc=5)
multicast routing table:
0-255: (all mcast aliases) 0x40
broadcast routing table:
0x19040
san116:user>
```

See Also

bcastShow

fabricShow

mcastShow

switchShow

topologyShow

uRouteShow

portShow

Display port status.

Synopsis

```
portShow [slotnumber/]portnumber
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display status information for a port. Information varies with the switch model and port type. The display shows:

Table 1–19: PortShow Display Fields

Field	Description
portCFlags	Port control flags.
portFlags	Bit map of port status flags.
portType	Port type and revision numbers.
portState	Port SNMP state: Online up and running Offline not online, `portPhys` gives details Testing running diagnostics Faulty failed diagnostics

Table 1–19: PortShow Display Fields (Continued)

Field	Description
portPhys	Port physical state: 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.
portId	24-bit D_ID for port.
portWwn	Port WWNs of devices connected.
Distance	The port's long distance level.
Speed	The port's fixed speed level or negotiated speed level: 1 Gbps - fixed speed of 1 Gb per second. N1 Gbps - negotiated speed of 1 Gb per second. 2 Gbps - fixed speed of 2 Gb per second. N2 Gbps - negotiated speed of 2 Gb per second. Negotiating - the speed of the port is being determined.
Interrupts	Total number of interrupts.
Unknown	Interrupts that are not counted elsewhere.
Lli	Low-level interface (physical state, primitive seqs).
Proc_rqrd	Frames delivered for embedded N_Port processing.
Timed_out	Frames that have timed out.
Rx_flushed	Frames requiring translation.
Tx_unavail	Frames returned from an unavailable transmitter.
Free_buffer	Free buffer available interrupts.
Overrun	Buffer overrun interrupts.
Suspended	Transmission suspended interrupts.

Table 1–19: PortShow Display Fields (Continued)

Field	Description
Parity_err	Real Tx data parity error.
2ndary_parity_err	Secondary Tx data parity error. These are not real Tx data parity errors but rather forced by the ASIC due to certain central memory errors so that the transmitter will abort the frame. This field will only be displayed when there are errors.
CMI_bus_err	Control message interface errors.

The second column shows Link Error Status Block counters.

The third column shows the number of F_RJTs and F_BSYs generated. For L_Ports, the third column also shows the number of LIPs received, number of LIPs transmitted, and the last LIP received.

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

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

Example

To display the status for a specified E_Port:

```
switch:admin> portShow 2/15
    portCFlags: 0x0
      portFlags: 0x20001    PRESENT DISABLED LED
      portType:  1.1
      portState: 2    Offline
      portPhys:  2    No_Module
      portScn:   0
      portId:    815f00
      portWwn:   20:1f:00:60:69:80:04:30
      Distance:  normal
      portSpeed: 2Gbps

      Interrupts:        0        Link_failure: 0        Frjt:  0
      Unknown:           0        Loss_of_sync: 0        Fbsy:  0
      Lli:               0        Loss_of_sig:  0
      Proc_rqrd:         0        Protocol_err: 0
      Timed_out:         0        Invalid_word: 0
      Rx_flushed:        0        Invalid_crc:  0
      Tx_unavail:        0        Delim_err:    0
      Free_buffer:       0        Address_err:  0
      Overrun:           0        Lr_in:        0
      Suspended:         0        Lr_out:       0
      Parity_err:        0        Ols_in:       0
      2_parity_err:      0        Ols_out:      0
      CMI_bus_err:       0
switch:admin>
```

See Also

switchShow

portStatsShow

Display port hardware statistics.

Synopsis

```
portStatsShow [slotnumber/]portnumber
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display port hardware statistics counters.

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_disc_c3`	Class 3 frames discarded.
`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   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

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

Example

To display the basic set of statistics for blade 2 port 3:

```
switch:admin> portStatsShow 2/3
stat_wtx      1181994   4-byte words transmitted
stat_wrx      1188458   4-byte words received
stat_ftx      95830     Frames transmitted
stat_frx      15564     Frames received
stat_c2_frx   0         Class 2 frames received
stat_c3_frx   93        Class 3 frames received
stat_lc_rx    7735      Link control frames received
stat_mc_rx    0         Multicast frames received
stat_mc_to    0         Multicast timeouts
stat_mc_tx    0         Multicast frames transmitted
tim_rdy_pri   477       Time R_RDY high priority
tim_txcrd_z   0         Time BB_credit zero
er_enc_in     0         Encoding errors inside of frames
er_crc        0         Frames with CRC errors
er_trunc      0         Frames shorter than minimum
er_toolong    0         Frames longer than maximum
er_bad_eof    0         Frames with bad end-of-frame
er_enc_out    3         Encoding error outside of frames
er_disc_c3    0         Class 3 frames discarded
```

See Also

portErrShow

portShow

powerOffListSet

Sets slot power off list order.

Synopsis

```
powerOffListSet
```

Availability

admin

Release

V4.0.x

Description

Use this command to set the physical power off slot order. The system available power is compared to the system demand power to determine if there is enough power to operate. If there is less power available than the demand, then the power off list is processed until there is enough power for the system to operate. The format of the display varies depending on the switch model and the number of slots present.

When this command is executed, the first item displayed is the current power off list order. Then you are prompted to make any changes, and finally the new power off list order is displayed. The command then prompts to verify and commit the changes.

Operands

None.

Example

To modify the power off list order:

```
switch12k:admin> powerOffListSet

Slot      Current POL
-------------------
 10         1st
  9         2nd
  8         3rd
  7         4th
  4         5th
  3         6th
  2         7th
  1         8th

1st slot to be powered off: (1..10) [10] 1
2nd slot to be powered off: (2..10) [9] 2
3rd slot to be powered off: (3..10) [8] 3
4th slot to be powered off: (4..10) [7] 4
5th slot to be powered off: (7..10) [7] 10
6th slot to be powered off: (7..9) [8] 9
7th slot to be powered off: (7..8) [8] 8
8th slot to be powered off: (7..7) [7] 7

Old POL     New POL      Power Off Order
------------------------------------
  10           1              1st
   9           2              2nd
   8           3              3rd
   7           4              4th
   4          10              5th
   3           9              6th
   2           8              7th
   1           7              8th

Proceed to change the POL order? (yes, y, no, n): [no] y
```

See Also

    powerOffListShow

    chassisShow

    psShow

    slotShow

    slotPowerOn

    slotPowerOff

powerOffListShow

Displays slot power off list order.

Synopsis

```
powerOffListShow
```

Availability

All users.

Release

V4.0.x

Description

Use this command to displays the order in which the physical slots will be powered off. The system available power is compared to the system demand power to determine if there is enough power to operate. If there is less power available than the demand, then the power off list is processed until there is enough power for the system to operate. The format of the display varies depending on the switch model and the number of slots present.

Operands

None.

Example

To display the slot power off list order:

```
switch12k:admin> powerofflistshow

Slot 10 will be powered off 1st
Slot  9 will be powered off 2nd
Slot  8 will be powered off 3rd
Slot  7 will be powered off 4th
Slot  6 will be powered off 5th
Slot  5 will be powered off 6th
Slot  4 will be powered off 7th
Slot  3 will be powered off 8th
Slot  2 will be powered off 9th
Slot  1 will be powered off 10th
```

See Also

powerOffListSet

slotPowerOn

slotPowerOff

slotShow

chassisShow

psShow

psShow

Display power supply status.

Synopsis

```
psShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the current status of the switch power supplies.

The format of the display varies according to the switch model and number of power supplies present. Optionally, depending upon switch model, the OEM Serial ID Data is displayed after each power supply status line.

The status of each supply is shown as:

OK	Power supply 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).

Operands

None.

Example

To view the status of the power supply for the current switch:

```
switch:admin> psShow
Power Supply #1 is OK
 DELTA DPS-1001AB-1E 23000000601 S1   IXD0111000088
Power Supply #2 is faulty
 DELTA DPS-1001AB-1E 23000000601 S1   IXD0111000162
Power Supply #3 is OK
 DELTA DPS-1001AB-1E 23000000601 S1   IXD0111000120
Power Supply #4 is absent
```

See Also

fanShow

tempShow

ptdatashow

Display port data structure.

Synopsis

```
ptdatashow [slot]/port
```

Availability

All users.

Release

V4.0.x

Description

Use this command to display the ASIC data structure contents for the specified port. If the slot is not specified, then slot specified with **setslot** is used.

Operands

This command has the following operands:

slot	Specify the slot number of the blade where you want to view the port data structure. This operand is optional.
port	Specify the port within the blade to be displayed. Valid values for port number vary depending on switch type. This operand is required.

Example

To display the port data structure for slot 8 port 1 in a V4.x switch:

```
switch:admin> ptdatashow 8/1
Looking for port 1 in path: /proc/fabos/blade/8
Found file: /proc/fabos/blade/8/0/0/1/asic1/cebs

Port Data Structure for slot: 8, port: 1

Bloom Data Pointers: bloomp = 0xc52f4200 (fbloomp = 0x00000000)
-------------------
blm_regs          0xca637000    blm_proc_dir      0xc50ff0a0
fab_ptr           0xc65c8000    fab_Iop           0xc65c8050
qdblm             0xc52f6400    chblm             0xc53fc5c0
pt                0xc52fcbc0    blm_miniS_handle  0xc52fc740
<output truncated>
```

See Also

ptphantomshow

ptpropshow

ptregshow

ptrouteshow

ptstatsshow

ptphantomshow

Display port routing tables.

Synopsis

```
ptphantomshow [slot/]port
```

Availability

All Users.

Release

V4.0.x

Description

Use this command to display the ASIC routing table contents for the specified port. If the slot is not specified, then the slot specified with **setslot** is used.

Operands

This command has the following operands:

slot	Specify the slot number of the blade where you want to view the port routing tables. This operand is optional.
port	Specify the port within the blade to be displayed. Valid values for port number vary depending on switch type. This operand is required.

Example

To display the port routing tables for slot 8 port 1:

```
switch:admin> ptphantomshow 8/1
Looking for port 1 in path: /proc/fabos/blade/8
Found file: /proc/fabos/blade/8/0/0/1/asic1/phantom

Port Routing table for slot: 8, port: 1

The following alpas are private on some switch ports:(alpa, UI port
bitmap on the blade)

plt_cam table and plt_alpa table:
index     sid             plt_alpas(UI port 15 - 0 w 1 byte/port)

plt_did table for this port:
ali  alpa  sid         ali  alpa  sid         ali  alpa   sid

my_alpa:
switch:admin>
```

See Also

ptdatashow

ptpropshow

ptregshow

ptrouteshow

ptstatsshow

ptpropshow

Display port properties.

Synopsis

```
ptpropshow [slot/]port | [slot] -all
```

Availability

All Users.

Release

V4.0.x

Description

Use this command to display the ASIC port properties for the specified port. If the slot is not specified, then the slot specified with **setslot** is used.

Operands

This command has the following operands:

`[slot/]port`	Specify the slot number and port area number where you want to view the port properties. This operand is optional.
`[slot] -all`	Specify this operand to display the ASIC port property contents for the entire chips in the slot.

Example

To display the port properties for slot 8 port 1:

```
switch:admin> ptpropshow 8/1
Port Property for slot: 8, port: 1

Looking for port 1 in path: /proc/fabos/blade/8
P1: [be,4,0],SP,CAP:[1,1,1,(1,1,0)],WWN: 00:00:00:00:00:00:00:00
switch:admin>
```

See Also

      `ptdatashow`

      `ptphantomshow`

      `ptregshow`

      `ptrouteshow`

      `ptstatsshow`

ptregshow

Display ASIC port registers.

Synopsis

```
ptpropshow [slot]/port
```

Availability

All Users.

Release

V4.0.x

Description

Use this command to display the ASIC register contents for the specified port. If the slot is not specified, then the slot specified with **setslot** is used.

Operands

This command has the following operands:

slot	Specify the slot number of the blade where you want to view the ASIC register contents. This operand is optional.
port	Specify the port within the blade to be displayed. Valid values for port number vary depending on switch type. This operand is required.

Example

To display the ASIC port registers for slot 8 port 1:

```
switch:admin> ptregshow 8/1
Looking for port 1 in path: /proc/fabos/blade/8
Found file: /proc/fabos/blade/8/0/0/1/asic1/reg

Port Registers for slot: 8, port: 1

0xca637000: chip_id       0104        0xca637002: port_config  0001
0xca637004: did_vc_map    0000        0xca637008: int_mask     0000
0xca63700a: int_status    1020        0xca63700c: err_status   0003
0xca63700e: vc_config     00c0        0xca637010: buf_error    00000000
<output truncated>
```

See Also

ptdatashow

ptphantomshow

ptpropshow

ptrouteshow

ptstatsshow

ptrouteshow

Display port routing properties.

Synopsis

```
ptrouteshow [slot]/port
```

Availability

All Users.

Release

V4.0.x

Description

Use this command to display the ASIC port routing properties for the specified port. If the slot is not specified, then the slot specified with **setslot** is used.

Operands

This command has the following operands:

slot	Specify the slot number of the blade where you want to view the port routing properties. This operand is optional.
port	Specify the port within the blade to be displayed. Valid values for port number vary depending on switch type. This operand is required.

Example

To display the port routing properties for slot 8 port 1:

```
switch:admin> ptrouteshow 8/1
Looking for port 1 in path: /proc/fabos/blade/8
Found file: /proc/fabos/blade/8/0/0/1/asic1/route

Port Routing table for slot: 8, port: 1

port address ID: 0x000000
external unicast routing table:
internal unicast routing table:
multicast routing table:
broadcast routing table:
    0x0
switch:admin>
```

See Also

ptdatashow

ptphantomshow

ptpropshow

ptregshow

ptstatsshow

ptstatsshow

Display port statistics properties.

Synopsis

```
ptstatsshow [slot]/port
```

Availability

All Users.

Release

V4.0.x

Description

Use this command to display the ASIC port statistic properties for the specified port. If the slot is not specified, then slot specified with **setslot** is used.

Operands

This command has the following operands:

slot	Specify the slot number of the blade where you want to view the port statistics properties.
port	Specify the port within the blade to be displayed. Valid values for port number vary depending on switch type. This operand is required.

Example

To view port statistics properties on port 1 on slot 8:

```
switch:admin> portstatsshow 8/1
stat_wtx        8657       4-byte words transmitted
stat_wrx        10118      4-byte words received
stat_ftx        557        Frames transmitted
stat_frx        566        Frames received
stat_c2_frx     0          Class 2 frames received
stat_c3_frx     2          Class 3 frames received
stat_lc_rx      284        Link control frames received
stat_mc_rx      1          Multicast frames received
stat_mc_to      0          Multicast timeouts
stat_mc_tx      0          Multicast frames transmitted
tim_rdy_pri     0          Time R_RDY high priority
tim_txcrd_z     1          Time BB_credit zero
er_enc_in       0          Encoding errors inside of frames
er_crc          0          Frames with CRC errors
er_trunc        0          Frames shorter than minimum
er_toolong      0          Frames longer than maximum
er_bad_eof      0          Frames with bad end-of-frame
er_enc_out      10         Encoding error outside of frames
er_disc_c3      0          Class 3 frames discarded
open            0          loop_open
transfer        0          loop_transfer
opened          0          FL_Port opened
starve_stop     0          tenancies stopped due to starvation
fl_tenancy      0          number of times FL has the tenancy
nl_tenancy      0          number of times NL has the tenancy
switch:admin>
```

See Also

ptdatashow

ptphantomshow

ptpropshow

ptregshow

ptrouteshow

qlDisable

Disable QuickLoop mode.

Synopsis

```
qlDisable
```

Availability

admin

Release

V3.0.x

Description

Use this command to disable QuickLoop mode on a switch. All QuickLoop ports are re-initialized to fabric mode, allowing public devices to perform fabric login.

If QuickLoop is being run on dual switches, this command disables the local switch and causes the partner switch to re-initialize to a single-switch QuickLoop, containing only the devices connected to the partner switch.

NOTE: If Advanced Zoning is in use the **qlDisable**, **qlEnable**, and **qlPartner** commands are not in effect. In this case, the **qlPortDisable** command can be used to disable individual ports.

NOTE: This command requires an Advanced Zoning license.

Operands

None.

Example

The following entry disables QuickLoop mode:

```
switch:admin> qlDisable
```

See Also

```
qlEnable
qlPortDisable
qlShow
```

qlEnable

Enable QuickLoop mode.

Synopsis

```
qlEnable
```

Availability

admin

Release

V3.0.x

Description

Use this command to enable QuickLoop mode on a switch. All devices connected to QuickLoop ports are re-initialized to form a single loop.

If a partner switch is configured, **qlEnable** causes re-initialization of the partner if it is in QuickLoop mode. The devices on the two switches are then combined to form a single loop (using a single AL_PA space).

QuickLoop combines arbitrated loop and fabric topologies. It consists of multiple private arbitrated loops (looplets) interconnected by a fabric, with the existence of the fabric and the physical locations of the devices transparent. All NL_Ports share a single AL_PA space, and operate in accordance with FC-AL.

QuickLoop initialization includes the following two steps:

1. Pass 1: Sequential looplet initialization. Allows each device in a looplet to obtain a unique AL_PA.

2. Pass 2: Full QuickLoop initialization. Brings the QuickLoop up to operation.

NOTE: If the **qlPortDisable** command has been entered for a specific port, the **qlEnable** command cannot re-enable that port, because it has been removed from QuickLoop management. The port must be specifically re-enabled using the **qlPortEnable** command.

If Advanced Zoning is in use the **qlDisable**, **qlEnable**, and **qlPartner** commands are not in effect. In this case, the **qlPortEnable** command can be used to enable individual ports.

NOTE: This command requires an Advanced Zoning license.

Operands

None.

Example

The following entry enables QuickLoop mode:

```
switch:admin> qlEnable
```

See Also

qlDisable

qlPortEnable

qlShow

qloopAdd

Add a member to a QuickLoop.

Synopsis

```
qloopAdd "qloopname", "member;member"
```

Availability

admin

Release

V3.0.x and V4.0.x

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: This command requires an Advanced Zoning license.

Operands

The following operands are required:

qloopname	Specify the name of QuickLoop, in quotation marks.
member	Specify a list of QuickLoop members, in quotation marks, separated by semicolons. Include one or more of the following:
	• Worldwide names
	• Zone alias names

Example

To add an alias for a second worldwide name to "qlp1":

```
switch:admin> qloopAdd "qlp1", "wwn2"
```

See Also

qloopCreate

qloopDelete

qloopRemove

qloopShow

qloopCreate

Create a QuickLoop.

Synopsis

```
qloopCreate "qloopname", "member;member"
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to create a QuickLoop.

A QuickLoop name must begin with a letter and be followed by any number of letters, digits, and underscore characters. Names are case sensitive, for example "Qloop_1" indicates a different QuickLoop than "qloop_1". Blank spaces are ignored.

The QuickLoop member list must have one or two members; an empty list is not allowed.

When a configuration is enabled, all QuickLoops defined in the configuration must resolve to a maximum of two switch worldwide names.

Zone alias names entered as members of this QuickLoop must be defined with WWNs. Zone alias names that are defined by domain and port number, or AL_PA are not accepted as members of the QuickLoop.

NOTE: This command requires an Advanced Zoning license.

Operands

The following operands are required:

`qloopname`	Specify the name of QuickLoop to be created, in quotation marks. The qloopname cannot be used for another zone object.

member	Specify a list of members to be added to QuickLoop, in quotation marks, separated by semicolons. Include one or more of the following:

- Worldwide names
- Zone alias names

Example

To create two QuickLoops, a single switch and one dual switch:

```
switch:admin> qloopCreate "qlp1", "10:00:00:60:69:00:60:11"
switch:admin> qloopCreate "qlp2", "wwn2; wwn3"
```

See Also

qloopAdd

qloopDelete

qloopRemove

qloopShow

qloopDelete

Delete a QuickLoop.

Synopsis

```
qloopDelete "qloopName"
```

Availability

admin

Release

V3.0.x and V4.0.x

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: This command requires an Advanced Zoning license.

Operands

The following operand is required:

qloopName	Specify the name of QuickLoop, in quotation marks. This operand is required.

Example

To delete QuickLoop "qloop2":

```
switch:admin> qloopDelete "qloop2"
```

See Also

qloopAdd

qloopCreate

qloopRemove

qloopShow

qloopRemove

Remove a member from a QuickLoop.

Synopsis

```
qloopRemove "qloopName", "member;member"
```

Availability

admin

Release

V3.0.x and V4.0.x

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: This command requires an Advanced Zoning license.

Operands

The following operands are required:

qloopName   Specify the name of QuickLoop, in quotation marks.

`member`	Specify the list of QuickLoop members to be removed, in quotation marks, separated by semicolons. Include one or more of the following: • Worldwide Names • Zone alias names

Example

To remove member "wwn2" from "qlp1":

```
switch:admin> qloopRemove "qlp1", "wwn2"
```

See Also

>   qloopAdd
>
>   qloopCreate
>
>   qloopDelete
>
>   qloopShow

qloopShow

Display QuickLoop information.

Synopsis

```
qloopShow [pattern][, mode]
```

Availability

All users.

Release

V3.0.x and V4.0.x

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 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: This command requires an Advanced Zoning license.

Operands

The following operand is optional:

pattern   Specify a POSIX style expression used to match QuickLoop names. Patterns may contain the following special characters:

- Question mark "?" that matches any single character
- Asterisk "*" that matches any string of characters
- Ranges "[0-9a-f]" that match any character within the range

mode   Specify 1 to display the contents of RAM, specify 0 to display the contents of the transaction buffer. The default value is 0. This operand is optional.

Example

To display all QuickLoops beginning with the letter "q":

```
switch:admin> qloopShow "q*"
 qloop: qlp1                 10:00:00:60:69:00:60:11
                             10:00:00:60:69:00:30:02
 qloop: qlp2                 10:00:00:60:69:00:60:13
```

See Also

qloopAdd

qloopCreate

qloopDelete

qloopRemove

qlPartner

Set a QuickLoop partner or display information about a partner.

Synopsis

```
qlpartner [0|wwn]
```

Availability

admin

Release

V3.0.x

Description

Use this command to set the QuickLoop to single/dual switch mode or to display the QuickLoop scope setting.

If no argument is specified, this command displays the current QuickLoop mode, which can be single or dual switch. If in dual switch mode, the partner's WWN also displays.

If 0 is used as argument, this command sets the QuickLoop to run in single switch mode, and restarts the switch if this causes a change in mode.

If a non-zero and valid WWN (a WWN that is part of the fabric) for a switch is specified, that switch becomes the QuickLoop partner. The switch is then restarted to run in dual switch mode.

The partner setting is updated in non-volatile memory.

NOTE: If Advanced Zoning is in use the **qlDisable**, **qlEnable**, and **qlPartner** commands are not in effect. In this case, dual switch QuickLoops can be managed using the telnet commands available through Advanced Zoning.

NOTE: This command requires an Advanced Zoning license.

Operands

This command has the following operand:

0 | wwn   Specify 0 to set the QuickLoop to run on a single switch. Specify a WWN to set the QuickLoop to run on dual switches. This operand is optional.

                             If no operand is specified the current value is displayed.

Example

To set another switch as a QuickLoop partner switch:

```
switch:admin> qlPartner "10:00:00:60:69:10:10:ec"
```

See Also

configShow

qlShow

qlPortDisable

Disable a QuickLoop port.

Synopsis

        qlPortDisable port

Availability

admin

Release

V3.0.x

Description

Use this command to change the specified port from QuickLoop mode to fabric mode. This excludes any devices connected to the port from the QuickLoop, and causes the switch to re-initialize the QuickLoop. If the switch that the port belongs to has a partner that is running in QuickLoop mode, both switches re-initialize the QuickLoop to form a loop that excludes any devices connected to the specified port.

If the **qlPortDisable** command is entered for a port, the **qlEnable** command has no effect on that port, because it has been removed from QuickLoop management. The port must be re-enabled using the **qlPortEnable** command.

The specified port must be in QuickLoop mode for this command to have effect.

NOTE: This command requires an Advanced Zoning license.

Operands

This command has the following operand:

port   Specify the port number to be modified from
                            QuickLoop mode to fabric mode. Valid values for port
                            number vary depending on the switch type. This
                            operand is required.

Example

To change port 4 from QuickLoop mode to fabric mode:

```
switch:admin> qlPortDisable 4
```

See Also

qlDisable

qlPortEnable

qlShow

qlPortEnable

Enable a QuickLoop port.

Synopsis

```
qlPortEnable port
```

Availability

admin

Release

V3.0.x

Description

Use this command to change the specified port from fabric mode to QuickLoop mode. This includes any devices connected to this port in the QuickLoop, and causes the switch to re-initialize the QuickLoop.

If the switch that the port belongs to has a partner, and the partner is running in QuickLoop mode, both switches re-initialize their QuickLoops to form a new loop that includes the devices connected to this port.

The specified port must be in fabric mode for this command to have effect.

NOTE: This command requires an Advanced Zoning license.

Operands

This command has the following operand:

port   Specify the port number to be modified from fabric
                              mode to QuickLoop mode. Valid values for port
                              number vary depending on the switch type. This
                              operand is required.

Example

To change port 4 from fabric mode to QuickLoop mode:

```
switch:admin> qlPortEnable 4
```

See Also

qlE ow

qlPortShowAll

Display QuickLoop port information.

Synopsis

```
qlPortShowAll
```

Availability

All users

Release

V3.0.x

Description

Use this command to display the QuickLoop port information. The following information is displayed:

QuickLoop Mode:

Enabled	QuickLoop mode enabled
Disabled	QuickLoop mode disabled

Looplet state:

Online	Completed loop initialization
Lipped	NL_Port lipped
Lipping	FL_Port lipped
Initializing	Loop initialization in progress
Bypassed	Looplet being bypassed
Error	Error found in this looplet
Offline	Looplet offline
Fabric	OLD_PORT state

Not in QuickLoop Mode:

Port is not in QuickLoop mode

NOTE: This command requires an Advanced Zoning license.

Operands

None.

Example

The following entry displays QuickLoop port information:

```
switch:admin> qlPortShowAll
PortNum QuickLoop Mode  Port State
 0      Disabled       ----
 1      Disabled       ----            E PORT
 2      Disabled       ----            E PORT
 3      Disabled       ----
 4      Disabled       ----
 5      Disabled       ----
 6      Disabled       ----
 7      Disabled       ----
switch:admin>
```

See Also

portStatShow

qlShow

qlShow

Display QuickLoop information.

Synopsis

```
qlShow
```

Availability

All users

Release

V3.0.x

Description

Use this command to display the following QuickLoop information:

Self:	Worldwide name and domain ID of this switch.
Peer:	Worldwide name and domain ID of partner switch. Peer is displayed only if the switch has a partner configured.
State:	The state of the QuickLoop:
	• Master - Master switch in dual switch QuickLoop
	• Non-master - Non-master in dual switch QuickLoop
	• Local Lip - Looplet on local switch lipped
	• Remote Lip - Looplet on partner switch lipped
	• Online - Switch is online
	• Offline - Switch is offline
Scope:	Dual or single (indicating dual or single switch QuickLoop)
AL_PA bitmap:	The AL_PA bitmaps of devices on the QuickLoop.
Remote AL_PAs	AL_PAs of devices on partner switch. AL_PAs are listed per port base.
Local AL_PAs	AL_PAs of devices connected to this switch. AL_PAs are listed per port base.
Local looplet state	Indicates state of local looplet.

Member:	Current QuickLoop member ports.
Online:	Current online ports in the QuickLoop.
Looplet:	The state of each looplet. The possible states are:

- Online: Loop initialization completed
- Lipped: NL_Port initiated LIPs
- Lipping: FL_Port initiated LIPs
- Initializing: Looplet initialization in progress
- Bypassed: Looplet being bypassed
- Error: Error found in this looplet
- Offline: Looplet offline

NOTE: This command requires an Advanced Zoning license.

Operands

None.

Example

The following entry displays QuickLoop information:

```
switch:admin> qlShow
Self:   10:00:00:60:69:20:26:2a domain 1
State:  Online
Scope:  single
AL_PA bitmap:    00000000 00000000 00000000 00000000
Local AL_PAs
                (not available)

Local looplet states
    Member:     0 1 2 3 4 5 6 7
    Online:     - - - - - - - -

    Looplet 0:  offline
    Looplet 1:  offline
    Looplet 2:  offline
    Looplet 3:  offline
    Looplet 4:  offline
    Looplet 5:  offline
    Looplet 6:  offline
    Looplet 7:  offline
switch:admin>
```

See Also

qlStatsShow

---

qlStatsShow

Display QuickLoop statistics.

Synopsis

```
qlStatsShow
```

Availability

All users

Release

V3.0.x

Description

Use this command to display the following QuickLoop switch statistics:

Last QL init time:	Time of last QuickLoop initialization
QL init attempted:	Number of QuickLoop initialization attempts
QL init succeeded:	Number of times QuickLoop is initialized
Single switch QL:	Number of times as single switch QuickLoop. These numbers are only valid when two switches are configured to run as peers in QuickLoop.
Dual switch QL:	Number of times as dual switch QuickLoop. These numbers are only valid when two switches are configured to run as peers in QuickLoop.
QL enabled:	Number of times QuickLoop is enabled
QL disabled:	Number of times QuickLoop is disabled
Port caused QL init:	Port that caused last QuickLoop initialization

NOTE: This command requires an Advanced Zoning license.

Operands

None.

Example

The following entry displays QuickLoop switch statistics:

```
switch:admin> qlStatsShow
Quick loop statistics for switch 1
Last QL init time            : Jan  1 00:00:00.000
QL init attempted            : 0
QL init succeeded            : 0
Single switch QL             : 0
Dual switch QL               : 0
QL enabled                   : 0
QL disabled                  : 0
Port started last init       : 0 on switch 0
switch:admin>
```

See Also

portStatShow

qlShow

quietMode

Toggle the shell quiet mode on and off.

Synopsis

```
quietMode [mode]
```

Availability

All users (display)

admin (set/clear)

Release

V3.0.x

Description

Use this command to change the output displayed on the switch console (serial port or telnet session).

By default, quiet mode is off and all switch tasks can send output to the console, including output caused by asynchronous events, such as the fabric reconfiguring, or devices logging in.

When quiet mode is on, only output produced by shell commands is shown; asynchronous output produced by other tasks is suppressed.

Turn quiet mode on when driving a telnet session using a script that does not expect asynchronous output.

Operands

This command has the following operand:

mode   Specify 0 to disable quiet mode where all tasks are printed in
                the console. Specify 1 to set quiet mode where only shell
                commands are displayed in the console. This operand is
                optional.

If no operand is specified the current value is displayed.

Example

To display the current mode, then reset to ON:

```
switch:admin> quietMode
Quiet Mode is OFF
switch:admin> quietMode 1
Committing configuration...done.
Quiet Mode is now ON
```

See Also

ramTest

ramTest

Bit write and read test of SDRAMs in the switch.

Synopsis

```
ramTest [patternSize]
```

Availability

admin

Release

V3.0.x

Description

Use this command to verify the address and data bus of the SDRAMs that serve as CPU memory in the switch.

The test consists of two subtests:

1. The **address subtest** verifies that SDRAM locations can be uniquely accessed.

   The method used is to write a unique pattern to each location in the SDRAMs. When all are written, the data is read back from each location and compared against the data previously written. A failure in the test implies that the address path between the CPU and the SDRAMs are faulty resulting in failures to program unique values.

   Following is the ramp pattern used in the test:

   ```
   0x57626f42, 0x57626f43, 0x57626f44, 0x57626f45, ...
   ```

2. The data subtest verifies that each cell in the SDRAMs can be independently written and read, and that there is no short, stuck-at-1, or stuck-at-0 faults between data cells.

   The method used is to write pattern D to location N, write the complementary pattern D to location N+1, and then read and compare location N to location N+1. Bump the location to test: N=N+1. Repeat the double write and read until all locations are tested with the following patterns:

   — 0x55555555

- — 0x69696969

- — 0x3c3c3c3c

- — 0x1e1e1e1e

- — 0x87878787

- — 0x14284281

- — 0x137ffec8

- — 0x0f0f0f0f

- — 0x00000000

Since the test requires the operating system to operate, it does not and cannot test all 16 MB of the memory. Instead it tests the largest portion as given by the OS, which is typically about 13 MB.

Operands

This command has the following operand:

patternSize   Specify a number from 0 to 9 to determine the number of patterns used for the data subtest. The default value is 0 which runs all nine patterns. A value from 1 to 9 will execute the specified number of patterns. Any value over 9 is truncated to 9. Only the data subtest is configurable. The address subtest is always executed. This operand is optional.

Example

To run the RAM test on a switch:

```
switch:admin> ramTest
Running System DRAM Test ...... passed.
```

Errors

Listed below are possible error messages if failures are detected:

```
DIAG-MEMORY
DIAG-MEMSZ
DIAG-MEMNULL
```

See Also

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

reboot

Reboot the switch.

Synopsis

```
reboot
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to reboot the switch. The reboot takes effect immediately as the switch resets, then executes the normal power-on booting sequence.

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

NOTE: For the StorageWorks Core switch, the **reboot** command will reboot both logical switches and both CPs. A confirmation message is displayed to verify that you want to **reboot** the switch.

Operands

None.

Example

This example is for the StorageWorks Core switch:

```
switch:admin> reboot
Warning: This command is being run on a control processor (CP)
based system and will cause the active CP to reboot. This will
cause disruption to devices attached to both switch 0 and switch 1.

To just reboot a logical switch on this system, use command
switchreboot(1M) on the logical switch you intend to reboot.
Are you sure you want to reboot the active CP [y/n]? y
```

See Also

fastboot

routeHelp

Display routing help commands.

Synopsis

```
routeHelp
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display routing help commands.

Operands

None.

Example

To view a list of routing related commands:

```
switch:admin> routeHelp

bcastShow            Print broadcast tree information
dlsReset             Turn off Dynamic Load Sharing
dlsSet               Turn on Dynamic Load Sharing
dlsShow              Print state of Dynamic Load Sharing
fspfShow             Print FSPF global information
interfaceShow        Print FSPF interface information
iodReset             Turn off In-Order Delivery
iodSet               Turn on In-Order Delivery
iodShow              Print state of In-Order Delivery
linkCost             Set or print the FSPF cost of a link
LSDbShow             Print Link State Database entry
mcastShow            Print multicast tree information
nbrStateShow         Print neighbor's summary information
nbrStatsClear        Reset FSPF neighbor's counters
topologyShow         Print paths to domain(s)
uRouteConfig         Configure static unicast route
uRouteRemove         Remove static unicast route
uRouteShow           Print port's unicast routing info
```

See Also

bcastShow

interfaceShow

uRouteShow

savecore

Save or remove core files created by daemons.

Synopsis

```
savecore
```

Availability

admin

Release

V4.0.x

Description

Use this command to FTP or remove core files that were created by daemons during signal processing such as SIGSEGV and SIGILL. This command is menu driven so no operands are required.

Operands

None.

Example

To remove core files from the current switch:

```
switch:admin> savecore

    Welcome to core files management utility.

    Menu
    1. Remove core files
    2. Ftp these files to a host

Your choice: 1
 No core files found!
switch:admin>
```

See Also

```
diaghelp
```

sensorShow

Display sensor readings.

Synopsis

```
sensorShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the current temperature, fan and power supply status and readings from sensors located on the switch. The actual location of the sensors varies depending on the switch type.

In the StorageWorks Core switch, the information returned with **sensorShow** is specific to the logical switch you are logged into:

- If you are logged into Logical switch 0, sensors 1 through 4 are for switch blade slots 1 through 4, respectively. Sensors 5 and 6 are for the two CPs in slots 5 and 6, respectively.

- If you are logged into Logical switch 1, sensors 1 and 2 are for the two CPs in slots 5 and 6, respectively. Sensors 3 through 6 are for switch blade slots 7 through 10, respectively.

- If you are logged into the Active CP through the console port, you are prompted to specify the logical switch this command is executed on. If you login to the Active CP through the Fabric OS shell, this command always executes on the default switch (logical switch 0).

- Regardless of logical switch, sensors 7 through 9 are for the three chassis fans, left to right, and sensors 10 through 13 are for the four chassis power supplies, bottom to top.

Operands

None.

Example

The output of this command is different between V3.0.x and V4.0.x.

Below is an example of the output of this command from V3.0.x:

```
switch30:admin> sensorshow
sensor  1: type 1 (Temp #1) is OK, value is 32
sensor  2: type 1 (Temp #2) is OK, value is 31
sensor  3: type 1 (Temp #3) is OK, value is 30
sensor  4: type 1 (Temp #4) is absent, value is unknown
sensor  5: type 1 (Temp #5) is absent, value is unknown
sensor  6: type 2 (Fan #1) is OK, value is 5820
sensor  7: type 2 (Fan #2) is OK, value is 5940
sensor  8: type 2 (Fan #3) is OK, value is 5910
sensor  9: type 2 (Fan #4) is OK, value is 5970
sensor 10: type 2 (Fan #5) is OK, value is 6030
sensor 11: type 2 (Fan #6) is absent, value is unknown
sensor 12: type 3 (Power Supply #1) is absent, value is unknown
sensor 13: type 3 (Power Supply #2) is absent, value is unknown
switch30:admin>
```

Below is an example of the output of this command from V4.0.x:

```
switch40:admin> sensorshow
sensor  1: (Temperature) is Ok, value is 32 C
sensor  2: (Temperature) is Absent
sensor  3: (Temperature) is Ok, value is 44 C
sensor  4: (Temperature) is Absent
sensor  5: (Temperature) is Ok, value is 40 C
sensor  6: (Temperature) is Absent
sensor  7: (Fan        ) is Ok, speed is 3125 RPM
sensor  8: (Fan        ) is Ok, speed is 2986 RPM
sensor  9: (Fan        ) is Ok, speed is 3013 RPM
sensor 10: (Power Supply ) is Ok
sensor 11: (Power Supply ) is Ok
sensor 12: (Power Supply ) is Absent
sensor 13: (Power Supply ) is Ok
switch40:admin>
```

See Also

fanShow

tempShow

---

setesdmode

Enable or disable ESD mode.

Synopsis

```
setesdmode [mode | -show]
```

Availability

admin

Release

V4.0.x

Description

Use this command to enable or disable ESD mode. The mode is saved in non-volatile 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 when enabled modifies the behavior of the diagnostic test methods and post scripts. The exact behavior varies but most commonly consists of disabling the ports defined with **diagsetports** when **spinsilk** or other functional tests are run for ESD or EMI testing purposes.

Operands

This command has the following operands:

mode	Specify 1 to enable ESD mode, specify 0 to disable ESD mode. This operand is optional.
-show	Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example

To set ESD mode:

```
switch:admin> setesdmode
Esd Mode is 0 (Disabled).
switch:admin> setesdmode 1
Config update Succeeded
Esd Mode is now 1 (Enabled).
switch:admin>
```

See Also

spinsilk

setgbicmode

Enable or disable GBIC mode.

Synopsis V3.0

```
setgbicmode [mode]
```

Synopsis V4.0

```
setgbicmode [mode | -show]
```

Availability

admin

Release

V3.0 and V4.0

Description

Use this command to enable or disable the GBIC mode. If the mode operand is 1, GBIC mode is enabled; if the mode operand is 0, GBIC mode is disabled. The mode is saved in non-volatile memory and the GBIC remains in that mode until the next execution of **setgbicmode**.

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

The GBIC mode, when enabled, forces **crossPortTest** and **spinSilk** to limit testing to ports with GBICs or SFPs present. Consequently, testing is limited to those ports with a suspected problem.

NOTE: The setgbicmode command will cause all ports with GBICs and SFPs to be tested.

Operands V3.0

This command has the following operand:

mode   Specify 1 to enable GBIC mode or 0 to disable GBIC mode. The mode is saved in non-volatile memory and remains unchanged until the next execution of the **setgbicmode** command. The default value (if no operand specified) is 0. This operand is optional.

Operands V4.0

This command has the following operands:

mode   Specify 1 to enable GBIC mode or 0 to disable GBIC mode. If no mode is specified the current value is displayed. The mode is saved in non-volatile memory and remains unchanged until the next execution of the **setgbicmode** command. This operand is optional.

-show   Specify the **-show** operand to display the current setting. This operand is optional.

Example

To enable or disable GBIC mode in V3.0:

```
switch:admin> setgbicmode 1
GBIC mode is now 1 (Enabled).
switch:admin> setgbicmode 0
GBIC mode is now 0 (disabled).
```

To enable or disable GBIC mode in V4.0:

```
switch:admin> setgbicmode 1
GBIC mode is now 1 (Enabled).
switch:admin> setgbicmode 0
GBIC mode is now 0 (disabled).
switch:admin> setgbicmode -show
GBIC mode is now 0 (disabled).
```

See Also

crossPortTest

spinSilk

setmfgmode

Enable or disable Mfg mode.

Synopsis

```
setmfgmode [mode | -show]
```

Availability

admin

Release

V4.0.x

Description

Use this command to enable or disable Mfg mode. The mode is saved in non-volatile memory and stays in that mode until the next execution of **setmfgmode**.

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

Mfg mode when enabled modifies the behavior of the diagnostic test methods and post scripts.   The exact behavior varies but most commonly consists of enabling extra manufacturing specific tests and data patterns.

Operands

This command has the following operands:

The following operands are optional:

mode	Specify 1 to enable Mfg mode, specify 0 to disable Mfg mode. This operand is optional.
-show	Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified the current value is displayed.

Example

To set Mfg mode:

```
switch:admin> setmfgmode
Mfg Mode is 0 (Disabled).
switch:admin> setmfgmode 1
Config update Succeeded
Mfg Mode is now 1 (Enabled).
switch:admin>
```

See Also

diaghelp

setsfpmode

Enable or disable SFP mode.

Synopsis V3.0.x

```
setsfpmode [mode]
```

Synopsis V4.0.x

```
setsfpmode [mode | -show]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to enable or disable the SFP mode. If the mode operand is 1, SFP mode is enabled; if the mode operand is 0, SFP mode is disabled. The mode is saved in non-volatile memory and the SFP remains in that mode until the next execution of **setsfpmode**.

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

The SFP mode, when enabled, forces **crossPortTest** and **spinSilk** to limit testing to ports with SFPs present. Consequently, testing is limited to those ports with a suspected problem.

Operands V3.0.x

This command has the following operand:

mode   Specify 1 to enable SFP mode or 0 to disable SFP mode. The mode is saved in non-volatile memory and remains unchanged until the next execution of the **setsfpmode** command. The default value (if no operand specified) is 0. This operand is optional.

Operands V4.0.x

This command has the following operands:

mode   Specify 1 to enable SFP mode or 0 to disable SFP mode. If no mode is specified the current value is displayed. The mode is saved in non-volatile memory and remains unchanged until the next execution of the **setsfpmode** command. This operand is optional.

-show   Specify the **-show** operand to display the current setting. This operand is optional.

Example

To enable or disable SFP mode in V3.0.x:

```
switch:admin> setsfpmode 1
SFP mode is now 1 (Enabled).
switch:admin> setsfpmode 0
SFP mode is now 0 (disabled).
```

To enable or disable SFP mode in V4.0.x:

```
switch:admin> setSFPMode 1
SFP mode is now 1 (Enabled).
switch:admin> setSFPMode 0
SFP mode is now 0 (disabled).
switch:admin> setSFPMode -show
SFP mode is now 0 (disabled).
```

See Also

crossPortTest

spinSilk

setSlot

Set the default slot number for diagnostic commands.

Synopsis

```
setslot slot
```

Availability

admin

Release

V4.0.x

Description

Use this command to set the default slot number for diagnostic commands. This command will set the current slot, which will affect the default slot number for diagnostic commands until the next issue of this command.

This command is for multi-blade systems and should not be used in non multi-blade systems.

NOTE: This command does not save to non-volatile memory, so the designation of a particular slot as the default is only valid per login session.

Operands

This command has the following operand:

slot   Specify a slot number as the default slot for diagnostic
                    commands. The default value is slot 1. This operand is
                    required.

Example

To set the default slot to slot 2:

```
switch:admin> setslot 2
```

See Also

diaghelp

setSplbMode

Enable or disable two port loopback.

Synopsis V3.0.x

```
setSplbMode [mode]
```

Synopsis V4.0.x

```
setSplbMode [mode | -show]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to enable or disable SPLB mode. The mode is saved in non-volatile 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 may be useful to isolate internal switch problems from SFP problems since the internal paths are used much less with SPLB mode enabled.

The SPLB mode, when disabled, 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
>
> where:
>
> >>> is a cable or internal loopback
>
> -> is a routing table entry

The connections between pairs of `M->M` ports will be chosen to exercise the connections between as many chips (or bloom quadrants) as possible subject to the setting of allow_intra_chip and the availability of pairs of `M->M` ports.

Any ports that are cross-cabled will be routed to each other in the normal manner regardless of the setting of SPLB mode:

> P1 TX >>> P2 RX -> P1 TX
>
> P2 TX >>> P1 RX -> P2 TX

Operands V3.0.x

This command has the following operand:

mode   Specify 1 to enable SPLB mode or 0 to disable SPLB mode. The default (if no operand specified) is SPLB disabled. This operand is optional.

Operands V4.0.x

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.

-show   Specify the **-show** operand to display the current setting. This operand is optional.

Example

To enable or disable a two port loopback:

```
switch:admin> setSplbMode 1
Config update Succeeded.
SPLB mode is now 1 (Enabled).
switch:admin> setSplbMode 0
Config update Succeed.
SPLB mode is now 0 (disabled).
```

See Also

setSfpMode

spinSilk

sfpShow

Display serial ID SFP information.

Synopsis

```
sfpShow [slotnumber/][portnumber]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

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

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

Use this command with the slot and portnumber operand to display detailed information about the Serial ID SFP in that port.

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

Operands

This command has the following operands:

slotnumber   Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.

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

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

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

Example

The example below shows SFP summary information followed by detailed information for an SFP:

```
switch12k:admin> sfpshow
Area  0: id (id) Vendor:  Serial No:
Area  1: id (sw) Vendor: FINISAR CORP.   Serial No: H1149T2
Area  2: id (sw) Vendor: FINISAR CORP.   Serial No: H112TUD
Area  3: id (sw) Vendor: FINISAR CORP.   Serial No: H112YFR
Area  4: id (sw) Vendor: IBM             Serial No: 21P53380BR0BE
Area  5: id (sw) Vendor: IBM             Serial No: 21P53380BS18A
Area  6: id (sw) Vendor: IBM             Serial No: 21P53380BS170
Area  7: id (sw) Vendor: IBM             Serial No: 21P53380BS26B
Area  8: --
Area  9: --
Area 10: --
Area 11: --
Area 12: --
Area 13: --
Area 14: --
Area 15: --
Area 16: id (sw) Vendor: AGILENT         Serial No: 0105091301045274
Area 17: id (sw) Vendor: AGILENT         Serial No: 0105091258486386
Area 18: id (sw) Vendor: FINISAR CORP.   Serial No: H114KY0
Area 19: id (sw) Vendor: FINISAR CORP.   Serial No: H114LNP
Area 20: id (sw) Vendor: FINISAR CORP.   Serial No: H112VPM
Area 21: id (sw) Vendor: FINISAR CORP.   Serial No: H112VMZ
Area 22: id (sw) Vendor: FINISAR CORP.   Serial No: H112U0L
Area 23: id (sw) Vendor: FINISAR CORP.   Serial No: H112VL5
Area 24: --
Area 25: --
Area 27: --
Area 28: --
Area 29: --
```

```
Area 30: --
Area 31: --
switch12k:admin> sfpshow 1/3
Identifier:   3    SFP
Connector:    7    LC
Transceiver: 050c402000000000 100,200_MB/s M5,M6 sw Inter_dist
Encoding:     1    8B10B
Baud Rate:    21   (units 100 megabaud)
Length 9u:    0    (units 100 meters)
Length 50u:   30   (units 10 meters)
Length 625u: 13    (units 10 meters)
Length Cu:    0    (units 1 meter)
Vendor Name: FINISAR CORP.
Vendor OUI:  00:90:65
Vendor PN:   FTRJ-8519-3-2.5
Vendor Rev:  X1
Options:      0012 Loss_of_Sig,Tx_Disable
BR Max:       0
BR Min:       0
Serial No:   H112YFR
Date Code:   010418
switch12k:admin>
```

See Also

```
switchShow
```

slotOff

Disable a blade slot.

Synopsis

```
slotOff slot
```

Availability

admin

Release

V4.0.x

Description

Use this command to disable a non-faulty blade unit while leaving the blade unit powered on.

Operands

This command has the following operands:

slot   Specify the physical slot number of the blade to be disabled.
                This operand is required.

Example

To power off blade unit 3:

```
switch:admin> slotOff 3
Slot 3 is being disabled.
```

See Also

```
slotShow
slotOn
```

slotOn

Enable a blade slot.

Synopsis

```
slotOn slot
```

Availability

admin

Release

V4.0.x

Description

Use this command to re-enable a blade unit that was previously disabled.

Operands

This command has the following operands:

slot   Specify the physical slot number of the blade to be enabled. This operand is required.

Example

To power off blade unit 3:

```
switch:admin> sloton 3
Slot 3 is being enabled.
```

See Also

```
slotShow
slotOff
```

slotpoweroff

Power off a blade unit.

Synopsis

```
slotPowerOff slot
```

Availability

admin

Release

V4.0.x

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 operands:

slot   Specify the physical slot number of the blade to be powered
                        down. This operand is required.

Example

To power off blade unit 3:

```
switch:admin> slotPowerOff 3
Slot 3 is being powered off
```

See Also

slotShow

slotPowerOn

slotpoweron

Power on a blade unit.

Synopsis

```
slotPowerOn slot
```

Availability

admin

Release

V4.0.x

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.

Operands

This command has the following operands:

slot   Specify the physical slot number of the blade to be powered on. This operand is required.

Example

To power on blade unit 3:

```
switch:admin> slotPowerOn 3
Powering on slot 3.
```

See Also

slotShow

slotPowerOff

slotShow

Display slot status.

Synopsis

```
slotShow
```

Availability

All users.

Release

V4.0.x

Description

Use this command to inventory and display the current status of each slot in the system. The format of the display includes a header and four fields for each slot. The fields and their possible values are as follows:

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 initialization power on self tests.
- DIAG RUNNING POST2
  The blade is present, powered on, and running the POST (power on self tests)
- ENABLED
  The blade is on and enabled.
- DISABLED
  The blade is powered on but disabled.
- FAULTY
  The blade is faulty because an error was detected.
  UNKNOWN
  The blade is inserted but its state cannot be determined.

Operands

None.

Example

To display a blade inventory and status:

```
switch:admin> slotShow
Slot    Blade Type   ID    Status
--------------------------------
1       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
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

>   chassisShow
>   slotOn
>   slotOff
>   slotPowerOn
>   slotPowerOff

snmpMibCapSet

View and modify options for configuring SNMP MIB trap capability.

Synopsis

```
snmpMibCapSet
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

This command enables a user to turn on or off certain MIBS and TRAPS. This command also enables a user to turn on or off group information and SSN in SW trap messages. It first displays current settings and then prompts the user to change the values for each parameter.

- FA-MIB - Specifying **yes** means the user can access FA MIB variables with an SNMP manager. The default value is **yes**.

- SW-TRAP - Specifying **yes** means the SNMP management application can receive SW traps from the switch. The default value is **yes**.

- FA-TRAP - Specifying **yes** means the SNMP management application can receive FA traps from the switch. The default value is **yes**.

Operands

None.

Example

To view or modify the options for configuring SNMP MIB traps:

```
switch:admin> snmpmibcapset
The SNMP Mib/Trap Capability has been set to support
FE-MIB SW-MIB FA-MIB SW-TRAP FA-TRAP
FA-MIB (yes, y, no, n): [yes]
SW-TRAP (yes, y, no, n): [yes]
FA-TRAP (yes, y, no, n): [yes]
no change
```

See Also

agtcfgShow

agtcfgSet

agtcfgDefault

spinFab

Test for Cascaded switch ISL links.

Synopsis V3.0.x

```
spinFab [nmill[, ePortBeg[, ePortEnd[, failmode]]]]
```

Synopsis V4.0.x

```
spinfab [-nmegs nmill][-ports list][-setfail failmode]
[-domain domain]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Used to verify the intended functional operation of the ISL links between switches at the maximum speed of 2Gbps by setting up the routing hardware such that test frames received by each E_Port retransmitted on the same E_Port. Several frames are then sent to the neighbor port attached to each active E_Port specified. Since the default action for such frames (which never occur for normal traffic) is to route them back to the sender, the frames that are sent in this manner will circulate until the test stops them.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running. While the frames are circulating, the RX frame count and port CRC and encoder error statistics are monitored and errors will be generated if a port stops or a low level error occurs. Every one million frames the circulating frames will be captured to verify that they are still circulating and that they are still in-order. In this manner the entire path to the remote switch may be verified.

The switch will remain in normal operation while this test is running; however some performance degradation will occur 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 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 loopback plug and run **crossporttest** to verify the local switch and SFP. If these tests pass then the fault lies in the cable or remote switch/SFP.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running.

Operands

This command has the following operands:

nmill	Number of million frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value for nmill is 10, so the number of frames sent will be at least 10 million. The counting is not exact so the actual number of frames sent will tend to be slightly larger, particularly at 2G link speeds.
ePortBeg	Specify the first port to test, if omitted 0 will be used. This operand is optional. This operand is only used in V3.0.x.
ePortEnd	Specify the last port to test. The test will be performed on ePortBeg to ePortEnd inclusive. If ePortEnd is omitted then the default will be to test all ports. This operand is optional. This operand is only used in V3.0.x.
-ports list	A list of user ports to test. By default all of the ISL ports in the current switch will be tested. This option may be used to restrict testing to the specified ports. This operand is optional. This operand is only used in V4.0.x.

`failmode`	This parameter may be used to cause **spinFab** to mark failing ports as bad like a normal diagnostic. 1 = Mark failing ports as BAD, 0 = do not mark failed ports as bad. To minimize the impact on live fabrics this test normally logs errors but does not set the port status to FAILED. This parameter is provided to force the failing ports to be marked as BAD in the same manner as other diagnostics. In test or qualification environments without live traffic this may be useful with large values of nmill. This mode is disabled by default.
`-domain domain`	The domain parameter is used to specify a specific remote domain that the switch is connected to. The default is to automatically determine the remote domain number, but this does not work properly in some conditions. This operand is optional. This operand is only used in V4.0.x.

Example

This example is for V3.0.x. To run spinFab on ports 0-4:

```
switch:admin> spinfab 3, 0, 4
spinfab running...

spinfab: Completed 3 megs, status:  passed.
port 0 test status: 0x00000000 --  passed.
port 1 test status: 0x00000000 --  passed.
port 2 test status: 0x00000000 --  passed.
port 3 test status: 0x00000000 --  passed.
port 4 test status: 0x02000000 --  SKIPPED!
Test...
```

This example is for V4.0.x. To run spinFab on ports 0-4:

```
switch:admin> spinfab -nmegs 3 -ports 0-4
spinfab running...

spinfab: Completed 3 megs, status:  passed.
port 0 test status: 0x00000000 --  passed.
port 1 test status: 0x00000000 --  passed.
port 2 test status: 0x00000000 --  passed.
port 3 test status: 0x00000000 --  passed.
port 4 test status: 0x02000000 --  SKIPPED!
Test...
```

Diagnostics

When it detects failures, the test may report one or more of the following error messages:

```
0x20 ERR_STAT_ENCIN
0x21 ERR_STAT_CRC

0x22 ERR_STAT_TRUNC
0x23 ERR_STAT_2LONG
0x24 ERR_STAT_BADEOF
0x25 ERR_STAT_ENCOUT
0x26 ERR_STAT_BADOS
0x27 ERR_STAT_C3DISC
0x28 ERR_STAT
0x29 XMIT
0x2a PORT_M2M
0x2b PORT_ABSENT
0x2c PORT_DIED
0x2d PORT_ENABLE
0x2e PORT_STOPPED
0x2f PORT_WRONG
0x30 ERR_STATS_ENCIN
0x31 ERR_STATS_CRC
0x32 ERR_STATS_TRUNC
0x33 ERR_STATS_2LONG
0x34 ERR_STATS_BADEOF
0x35 ERR_STATS_ENCOUT
0x36 ERR_STATS_BADOS
0x37 ERR_STATS_C3DISC
0x38 ERR_STATS
0x3a INIT
0x3b DATA
0x3c NO_SEGMENT
0x39 TIMEOUT
0x3d STATS_FTX
0x3e STATS_FRX
0x3f STATS_C3FRX
0x40 STATS
0x41 MBUF_STATE_ERR
0x42 FINISH_MSG_ERR
0x43 RXQ_RAM_PERR
```

See Also

```
crossPortTest

portLoopbackTest

spinSilk

setDbg
```

spinSilk

Functional test of internal and external transmit and receive paths at full speed.

Synopsis V3.0.x

```
spinSilk [nmill[, gbicmode[, lbmode[, spdmode]]]]
```

Synopsis V4.0.x

```
spinSilk [-nmegs nmill][-gbic_mode gbicmode][-lb_mode lbmode]
[-spd_mode spdmode][-ports list]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

This command verifies the functional operation of the switch by setting up the routing hardware such that frames received by port M are retransmitted through port N. Likewise frames received by port N are retransmitted through port M. Each port M sends 1 frame to its partner port N through an external fiber cable, exercising all the switch components.

NOTE: The **spinsilk** command may not be executed on an operational switch. You must first disable the switch using the **switchDisable** command.

The cables can be connected to any port combination with the condition that the cables and SFPs connected are of the same technology. For example, a short wavelength SFP port must be connected to another short wavelength SFP port through a short wavelength cable; or a long wavelength port must be connected to another long wavelength port.

Optimum test coverage occurs with lb_mode 1, M->M loopback plugs and **splbMode** disabled. In this case every port will exchange frames with every other port and all of the ASIC to ASIC connections are tested.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running.

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

1. CSPAT: 0x7e, 0x7e, 0x7e, 0x7e, ...

2. BYTE_LFSR: 0x69, 0x01, 0x02, 0x05, ...

3. CHALF_SQ: 0x4a, 0x4a, 0x4a, 0x4a, ...

4. QUAD_NOT: 0x00, 0xff, 0x00, 0xff, ...

5. CQTR_SQ: 0x78, 0x78, 0x78, 0x78, ...

6. CRPAT: 0xbc, 0xbc, 0x23, 0x47, ...

7. RANDOM: 0x25, 0x7f, 0x6e, 0x9a, ...

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

spinSilk Modes

These are the test modes. These modes can be used together to test specific ports.

- Loopback mode
- SFP mode

LoopBack Mode

There are four loopback modes that can be used when executing the **spinSilk** command. The modes are specified by entering:

- 0 for cable mode. This loopback mode is the default mode and tests only M->N connections. It requires that the user connect a cable from one port to a different port.

- 1 for single port also loopback mode. This lb_mode tests M->N and M->M connections.

   If M->N cable connections are used, the **spinsilk** command operates identically in lb_mode **0** and lb_mode 1.

   If M->M loopback plugs are used with SPLB mode disabled, the **spinsilk** command will circulate frames between pairs of M->M connected ports as follows:

   P1 TX >>> P1 RX -> P2 TX >>> P2 RX -> P1 TX

where:

>>> is a cable or internal loopback

-> is a routing table entry

The connections between pairs of M->M ports are chosen to exercise the connections between as many ASICs as possible subject to the availability of pairs of M->M ports.

In mode 1 with SPLB mode disabled the **spinsilk** command only circulates frames within each single port and none of the ASIC to ASIC connections are tested. This mode should only be used for fault isolation.

- 2 for external loopback mode. The external loopback test creates a test loop between two ports on different ASICs and also tests the Serializer Deserializer functionality.

- 5 for internal loopback mode. The internal loopback test creates a test loop between two ports on a single ASIC.

See the **setSplbmode** command for more information on how the loopback mode setting changes the execution of this command.

GBIC/SFP Mode

If the **spinSilk** command is executed with GBIC mode activated, only ports containing GBICs are tested. To activate GBIC mode, execute the following command prior to executing the **spinSilk** command:

```
switch:admin> setSfpMode 1
```

The state of the GBIC mode is saved in non-volatile memory and remains active over a reboot until it is disabled as follows:

```
switch:admin> setSfpMode 0
```

Prior to running this command make sure you disable the switch, set the GBIC mode to 1, and install loopback cables on all GBIC ports you want to test.

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

Operands

This command has the following operands:

nmill   Specify the number of million frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value for nmill is 10, so the number of frames sent will be at least 10 million.

lbmode   Specify the loopback point for the test. By default, **spinsilk** uses loopback plugs as described above. However for debug purposes you can select other loopback modes as follows:

- 0: Cable Loopback.
- 1: Port Loopback (loopback plugs).
- 2: External (serdes) loopback.
- 3: Silkscreen loopback.
- 4: Serial link wrapback.
- 5: Internal (parallel) loopback.

spdmode   Specify the speed mode for the test. This parameter is only used for V3.0.x and V4.0.x series based switches where it controls the speed at which each port is operated. For 1G only products it is ignored. The exact operation of modes 3 through 6 depends upon the loopback mode selected. When speed modes 3 through 6 are used with cables, they must be connected EVEN to ODD or the test will fail.

- 0: set all ports' speed for auto-negotiate.
- 1: set all ports' speed to lock at 1 Gbps.
- 2: set all ports' speed to lock at 2 Gbps.

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

- 3: set all even ports' speed for auto-negotiate, set all odd ports' speed for 1 Gbps.
- 4: set all even ports' speed for auto-negotiate, set all odd ports' speed for 2 Gbps.
- 5: set all odd ports' speed for auto-negotiate, set all even ports' speed for 1 Gbps.
- 6: set all odd ports' speed for auto-negotiate, set all even ports' speed for 2 Gbps.

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

- 3,5: set all even ports' speed for 2 Gbps, set all odd ports' speed for 1 Gbps.
- 4,6: set all even ports' speed for 1 Gbps, set all odd ports' speed for 2 Gbps

gbicmode	Specify the GBIC mode for the test. The GBICmode parameter may be used to override the global GBIC mode described above for the duration of this test. When it is enabled (1) testing is limited to user ports with GBICs or SFPs installed.
-ports list	Specify a list of user ports to test. By default all of the user ports in the current switch are tested. This option may be used to restrict testing to the specified ports.

Example

To run spinsilk on a switch::

```
switch:admin> switchdisable
switch:admin> spinsilk
Running Spin Silk .............
One moment please ...
Waiting for Port(s) to Segment.
**************
<output truncated>
```

Errors

Below are the possible error messages if failures are detected:

```
DIAG-INIT
DIAG-PORTDIED
DIAG-XMIT
DIAG-PORTSTOPPED
DIAG-ERRSTAT
DIAG-ERRSTATS
```

See Also

        portRegTest

        centralMemoryTest

        cmiTest

        sramRetentionTest

        turboRamTest

        camTest

        statsTest

        filterTest

        portLoopbackTest

sramRetentionTest

Data retention test of the miscellaneous SRAMs in ASIC.

Synopsis

```
sramRetentionTest [passCount]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to verify that data written into the miscellaneous SRAMs in the ASIC are retained after a 10 second wait. The test method is to write a fill pattern to all SRAMs, wait 10 seconds, and then read all SRAMs checking that data read matches data previously written. Then the test is repeated using the complementary version of the pattern. The following patterns are used:

```
0xffffffff (and 0x00000000)
0x55555555 (and 0xaaaaaaaa)
0x33333333 (and 0xcccccccc)
0x0f0f0f0f (and 0xf0f0f0f0)
QUAD_RAMP with a random seed value (and its invert)
```

NOTE: The **sramRetentionTest** command may not be executed on an operational switch. You must first disable the switch using the **switchDisable** command.

Operands

This command has the following operand:

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

Example

To run a data retention test:

```
switch:admin> sramRetentionTest
Running SRAM Retention Test ... passed.
Test Complete: "sramretentiontest" Pass 1 of 1
Duration 0hr, 2 min & 30 sec (0:2:30:.72).
```

Errors

Below are the possible error messages if failures are detected:

```
DIAG-REGERR
DIAG-REGERR_UNRST
DIAG-BUS_TIMEOUT
```

See Also

portRegTest

centralMemoryTest

cmiTest

turboRamTest

filterTest

portLoopbackTest

spinSilk

statsTest

Run a statistics counter diagnostic test.

Synopsis V3.0.x

```
statsTest [passcount]
```

Synopsis V4.0.x

```
statsTest [-passcnt passcount][-ports list]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to verify the bloom statistics counter logic. It can run on every base port of quadrant, and send the frame through internal loopback with no CRC data to induce the CRC error. This command is also called from **camtest**.

This test covers following statistics counter functionality.

1. The number of received frames with the CRC error that matched the SID-DID pair specified in the LINK table. There are a total 16 of these statistics counters (0-15), respectively.

2. The number of received words in frames that matched the SID-DID pair specified in the LINK table. There are a total 16 of these statistics counters (0-15), respectively.

3. The number of transmitted words in frames that matched the SID-DID pair specified in the LINK table. There are a total of 16 of these statistics counters (0-15), respectively.

4. The number of frames with the CRC error that matched the corresponding ALI (0-127), respectively.

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

NOTE: There is a LINK table that stores 16 pairs of SID-DID address. Each of the SID-DID pair is named a LINK. This table is used for gathering statistics that match the LINK.

Operands

This command has the following operands:

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

-ports list   Specify the port numbers to perform this test. All ports are set in default.

Diagnostics

When it detects failures, the subtest may report one or more of the following error messages:

```
DIAG-STSINIT

DIAG-STSNULL

DIAG-STSSID

DIAG-STSXMIT

DIAG-STSRCV

DIAG-STSFRMCNT

DIAG-STSWRDCNT

DIAG-STSALPACNT
```

Example

To run a statistics counter test on a switch:

```
switch:admin> statsTest
Running Statistics Cnt Test ... passed.
switch:admin>
```

See Also

portRegTest

centralMemoryTest

cmiTest

sramRetentionTest

turboRamTest

camTest

filterTest

portLoopbackTest

spinSilk

supportShow

Print switch information for debugging purposes.

Synopsis V3.0.x

```
supportShow [firstPort, lastPort, nLog]
```

Synopsis V4.0.x

```
supportShow slotnumber[/port1-port2] [lines]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to print the switch information for debugging purposes.

NOTE: The output of this command can be very long.

This command executes the listed commands in the following order:

1. version
2. uptime
3. tempShow
4. psShow
5. licenseShow
6. diagShow
7. errDump
8. switchShow
9. portFlagsShow
10. portErrShow

11. portShow

12. portRegShow

13. portRouteShow

14. fabricShow

15. trunkShow

16. topologyShow

17. nsShow

18. nsAllShow

19. cfgShow

20. portLogDump

Operands V3.0.x

This command has the following operands:

firstPort	Specify the first port of a range of ports to dump information. The default (if no operand specified) is to print state of port 0. If only firstPort is specified, only information for firstPort is printed. This operand is optional for V3.0.x.
lastPort	Specify the last port of range of ports to dump information. If firstPort is specified but lastPort is not specified, only firstPort information is printed for the port based commands (**portShow**, **portRegShow**, **portRouteShow**). If no operand is supplied, firstPort is set to 0 and lastPort is set to maximum port of switch. This operand is optional for V3.0.x.
nLog	Specify the number of lines of **PortLogDump** to print: • 0 = dump all lines (default) • N = dump the last N lines • <0 = skip portLogDump This operand is optional.

Operands V4.0.x

This command has the following operands:

slotnumber	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
port1	Specify the first port of a range of ports to display information. Enter the port area number. The default (if no operand specified) is to print the state of port 0. If only startPort is specified, only information for startPort is printed. This operand is required for V4.0.x.
port2	Specify the last port of range of ports to display information. Enter the port area number. If startPort is specified but endPort is not specified, only endPort information is printed for the port based commands (**portShow**, **portRegShow**, **portRouteShow**). If no operand is supplied, startPort is set to 0 and endPort is set to maximum port of switch. This operand is required for V4.0.x.
lines	Specify the number of lines output from this command. This operand is optional.

Example

To display switch information for debugging:

```
switch:admin> supportShow 4/0, 15
version:
Kernel:    2.4.2
Fabric OS: 4.x.0
Made on:   Thu Oct 25 00:58:55 2001
Flash:     Thu Oct 25 00:58:55 2001
BootProm:  Unknown

uptime:
 11:46pm  up  4:39,  3 users,  load average: 1.85, 1.45, 1.15

tempshow:
Index    Slot    State              Centigrade    Fahrenheit
===========================================================
  1       1      Absent
  2       2      Absent
  3       3      Absent
  4       4      Ok                    40             104
  5       5      Ok                    27              80
  6       6      Absent

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

See Also

switchShow

switchBeacon

Set switch beaconing mode on or off.

Synopsis

```
switchBeacon [mode]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to set the switch beaconing mode on (if the operand is 1) or off (if the operand is 0).

When beaconing mode is turned on, the port LEDs flash amber in a running pattern from port 0 to port 15, and then back again. The user sees a running pattern in amber LEDs, from left to right and right to left. The pattern continues until turned off by the user.

Beaconing mode affects only the port LEDs. Other commands are still executable and functional. The normal flashing LED pattern (associated with an active, faulty or disabled port) is suppressed and the beaconing pattern is shown. However, if diagnostic frame based tests (**portLoopbackTest**, **crossPortTest**, and **spinSilk**) are executed, two patterns are interleaved. The diagnostic test flickers the LEDs green and simultaneously the beaconing mode runs the LEDs amber.

Use the **switchShow** command to display the status of beaconing.

Operands

This command has the following operand:

mode   Specify 1 to enable beaconmode or 0 to disable beaconmode.
                This operand is optional.

If no operand is specified the current value is displayed.

Example

To turn beaconing mode ON:

```
switch:admin> switchBeacon 1
```

To turn beaconing mode OFF:

```
switch:admin> switchBeacon 0
```

See Also

switchShow

switchCfgSpeed

Configure all ports of the switch to a particular speed level.

Synopsis

    switchCfgSpeed speed_level

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to configure the speed of all the ports on a switch to a particular level. The configuration is saved in the non-volatile memory and persists across switch reboot or power cycle.

The output of **portShow** displays achieved speed level and **portCfgShow** displays the user's desired speed setting. In the **portShow** output, the speed level is indicated as the current port speed of "1Gbps" or "2Gbps". In the portCfgShow output, the speed level is indicated as "1G","2G", or "AN"(Auto-Negotiate).

Operands

This command has the following operand:

speed_level   Specify the speed of a port. This operand is required. Valid values are one of the following:

- 0: Auto-sensing mode.
  The port automatically configures for the highest speed.
- 1: 1 Gbps mode.
  The port will be at fixed speed of 1 Gbps.
- 2: 2 Gbps mode.
  The port will be at fixed speed of 2 Gbps.

Example

To set the speed level for all ports on a switch:

```
switch:admin> switchCfgSpeed 2
done.
switch:admin>
```

See Also

portCfgSpeed

switchShow

switchCfgTrunk

Enable or disable trunking on all the ports of a switch.

Synopsis

    switchCfgTrunk mode

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to enable or disable trunking on all the ports of a switch.

NOTE: This command requires the Trunking license.

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.

Example

To enable trunking on a switch:

```
switch:admin> switchCfgTrunk 1
done.
```

See Also

portCfgTrunkPort

portShow

portCfgShow

switchShow

switchDisable

Disable the switch.

Synopsis

    switchDisable

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to disable the switch. All Fibre Channel ports are taken offline; if the switch was part of a fabric, the remaining switches reconfigure.

The switch must be disabled before making configuration changes (using **configure** or **configDefault**) or before running many of the diagnostic tests. All commands that require the switch to be disabled send an error if invoked while the switch is enabled.

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

As each port is disabled, the front panel LED changes to a slow flashing yellow.

Operands

None.

Example

To disable the switch:

```
switch:admin> switchDisable
```

See Also

    switchEnable
    switchShow

switchEnable

Enable the switch.

Synopsis

```
switchEnable
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to enable the switch. All Fibre Channel ports that passed POST are enabled. They can come online if connected to a device, or remain offline if disconnected. A switch may need to be enabled if it was previously disabled to make configuration changes or to run diagnostics.

If the switch is connected to a fabric, it rejoins the fabric. When this command is issued, the 10 second fabric stability count down is displayed. If this switch remains the principal switch at the end of the count down, then it assigns itself a domain 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

None.

Example

To enable a switch:

```
switch:admin> switchEnable
10  9  8  7  6  5  4  3  2  1
fabric: Principal switch
fabric: Domain 1
```

See Also

switchDisable

switchShow

switchName

Display or set switch name.

Synopsis

```
switchName ["newName"]
```

Availability

All users. (display)

admin (set)

Release

V3.0.x and V4.0.x

Description

Use this command without a operand to display the current switch name. This name is also shown in the telnet prompt, under each switch icon on the Web Tools Fabric View, and in the output of many telnet commands.

Use this command with the `newName` operand to assign a new switch name. Switch names can be up to 15 characters long, must begin with an alpha character, and can consist of a combination of alpha, numeric, and underscore characters.

Changing the switch name causes a domain address format RSCN to be issued (see FC-FLA for a description of RSCNs).

Operands

This command has the following operand:

`newName`   Specify a new name for the switch, in quotation marks. This operand is optional.

Example

To change a switch name to sw10:

```
switch:admin> switchName "sw10"
Committing configuration...
Done.
sw10:admin>
```

See Also

switchShow

fabricShow

switchReboot

Halt and bring down the operational switch.

Synopsis

```
switchReboot
```

Availability

admin

Release

V4.0.x

Description

This command reboots the operational switch without disrupting the other switch in the StorageWorks Core switch chassis. The administrator uses this command when the problem with the switch cannot be determined. Using this command brings the switch back to an operational state without disturbing the software state of the system in general.

This command is equal to running **switchShutdown** and **switchStart**.

NOTE: For the StorageWorks Core switch, the **switchreboot** command will reboot only the logical switch you are currently logged into. The other logical switch and both CPs remain unaffected.

Operands

None.

Example

To bring down an operational switch:

```
switch:admin> switchreboot
Selecting i2c bus...Done.
Stopping all switch daemons...Done.
Releasing i2c bus...Done.
Powering off slot 7...Done.
Checking all slots are powered off....Done.
Cleaning up kernel modules...Done.
Initializing kernel modules...Done.
setup FCIP IP: ifconfig fc1 ip=192.168.69.190, netmask=255.255.255.0
Starting all switch daemons...Done.
Powering on slot 7...Done.
Checking diagnostics..............
Start Apache -- /etc/rc.d/init.d/httpd.sh start 1 192.168.174.95
192.168.69.190
Start snmpd -- /etc/rc.d/init.d/snmpd.sh start 1
starting http server [1] ...
.Starting snmpd:\n
SNMP Research SNMP Agent Resident Module Version 15.2.1.3
Copyright 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998,
1999 SNMP
Research, Inc..
/fabos/webtools/bin/apachectl.1 start: httpd started
done.
```

See Also

switchShutdown

switchStart

switchShow

Display switch and port status.

Synopsis

```
switchShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display switch and port status information. Information may vary by switch model. Below is the information provided. The first section provides switch summary information; it is followed by a section covering summary information by port.

Switch summary information:

switchName	Displays the switch symbolic name.
switchType	Displays the switch model and firmware revision number.
switchState	Displays the switch state: online, offline, testing, faulty.
switchMode	Displays the switch mode: native. This value is only displayed in V3.0.x.
switchRole	Displays the switch role: principal, subordinate, disabled.
switchDomain	Displays the switch domain ID: 0-31 or 1-239.
switchId	Displays the switch embedded port D_ID.
switchWwn	Displays the switch worldwide name.
switchBeacon	Displays the switch's beaconing state (either ON or OFF).
blade_n:Beacon	Displays the blade's beaconing state (either ON or OFF). Each blade is numbered by its position in the StorageWorks Core switch chassis (from 1 to 10). This parameter is for V4.0.x only.

Zoning   Displays the switch zoning mode: On or Off. This value is only displayed in V3.0.x.

The switch summary is followed by one line per port:

Area   Each slot and port combination in the StorageWorks Core switch is assigned an area number. For example, the area number of slot 3/port 15 is 63 (in switch 0), the area number for slot 10/port 15 is also 63 (in switch 1). This parameter is for V4.0.x only.

Slot   Slot number. The StorageWorks Core switch has 10 slots numbered from 1 to 4 and 7 to 10. Slots 5 and 6 are control processor cards. This parameter is for V4.0.x only.

Port   Port number. Valid values vary depending on the switch type. The StorageWorks Core switch has 16 ports per slot, and ports are numbered from 0 to 15.

SFP   Port module type (SFP or other):

-- no module present

sw - shortwave laser

lw - longwave laser

cu - copper

id - serial ID

Speed   The speed of the port:

1G - 1G per second fixed transfer speed

2G - 2G per second fixed transfer speed

N1 - 1G per second negotiated transfer speed

N2 - 2G per second negotiated transfer speed

AN - Auto negotiating

State	Port state information:
	No_Card - no interface card present
	No_Module - no module (SFP or other) present
	No_Light - module not receiving light
	No_Sync - module receiving light but out of sync
	In_Sync - module receiving light and in sync
	Laser_Flt - module signaling a laser fault
	Port_Flt - port marked faulty
	Diag_Flt - port failed diagnostics
	Lock_Ref - locking to the reference signal
	Testing - running diagnostics
	Online - port is up and running
comment	The comment field may be blank, or it may display:

- Disabled - the port is disabled
- Bypassed - port is bypassed (loop only)
- Loopback - port is in loopback mode
- E_Port - fabric port, shows WWN and name of attached switch
- F_Port - point-to-point port, shows WWN of attached N_Port
- G_Port - point-to-point but not yet E_Port or F_Port
- L_Port - loop port, shows number of NL_Ports
- (Trunk master) - This port is the master port in a group of trunking ports
- (Trunk port, master is port #x) - This port is configured as a trunking port, the master port is port number x.
- (upstream) - This E-port is an upstream path towards the principal switch of the fabric.
- (downstream) - This E-port is a downstream path away from the principal switch of the fabric.
- WWN - This is the WWN of the switch connected to the E-port.
- "switch_name" - This is the switch name of the connected switch.

Operands

None.

Example

The following example shows a StorageWorks Core switch:

```
switch:admin> switchshow

switchName:       san94
switchType:       10.1
switchState:      Online
switchRole:       Subordinate
switchDomain:     2
switchId:         fffc02
switchWwn:        10:00:00:60:69:50:02:8f
switchBeacon:     OFF
blade7: Beacon:   OFF

Area Slot Port SFP Speed State
===================================
 0    7    0   id   N2   Online    E-Port  10:00:00:60:69:00:54:e8 "san94"
(downstream)
 1    7    1   id   N2   Online    E-Port  10:00:00:60:69:00:54:e8 "san94"
 2    7    2   id   N2   Online    E-Port  10:00:00:60:69:00:54:e8 "san94"
 3    7    3   id   N2   Online    E-Port  10:00:00:60:69:00:54:e8 "san94"
 4    7    4   id   N1   Online    E-Port  10:00:00:60:69:12:34:e2 "san180"
 5    7    5   id   1G   No_Light
 6    7    6   --   1G   No_Module
 7    7    7   --   1G   No_Module
 8    7    8   --   1G   No_Module
 9    7    9   id   N2   Online    F-Port  21:00:00:e0:8b:04:1a:76
10    7   10   id   N2   Online    E-Port  10:00:00:60:69:00:54:e8 "san94"
11    7   11   id   N2   Online    E-Port  10:00:00:60:69:00:54:e8 "san94"
12    7   12   --   1G   No_Module
13    7   13   --   1G   No_Module
14    7   14   id   N1   Online    E-Port  10:00:00:60:69:10:9b:06 "san176"
(upstream)
15    7   15   id   N2   Online    F-Port  10:00:00:00:c9:27:2e:69
```

The following example shows a StorageWorks 2 Gb SAN switch:

```
Switch:admin> switchshow
switchName:     Switch
switchType:     16.2
switchState:    Testing
switchRole:     Disabled
switchDomain:   1 (unconfirmed)
switchId:       fffc01
switchWwn:      10:00:00:60:69:c0:06:71
switchBeacon:   OFF
port  0: id 1G No_Light     Disabled
port  1: id 1G No_Light     Disabled
port  2: id 1G No_Light     Disabled
port  3: id 1G No_Light     Disabled
port  4: id 1G No_Light     Disabled
port  5: id 1G No_Light     Disabled
port  6: id 1G No_Light     Disabled
port  7: id 1G No_Light     Disabled
Switch:admin>
```

See Also

switchDisable

switchEnable

switchName

switchShutdown

Halt the operational switch.

Synopsis

```
switchShutdown
```

Availability

admin

Release

V4.0.x

Description

This command halts the switch operation without disrupting the other switch in the StorageWorks Core switch chassis.

This command has to be used in combination with **switchStart**.

This command brings down all the daemons associated with the switch; frees the resources and object states associated with the switch to a clear state and disables all the ports and blades associated with the switch.

Operands

None.

Example

To bring down the operational switch:

```
switch:admin> switchShutdown
Stopping Switch 1 daemons:done.
```

See Also

```
switchStart
switchReboot
```

switchStart

Initialize the switch to operational.

Synopsis

```
switchStart
```

Availability

admin

Release

V4.0.x

Description

This command initializes a logical switch without disrupting the other switch in the StorageWorks Core 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/blades associated with the switch.

Operands

None.

Example

To initialize the switch to operational:

```
switch:admin> switchStart
Starting Switch 1 daemons: fabricd zoned fspfd nsd msd asd
psd fcpd rpcd evmd
```

See Also

```
switchShutdown
```

```
switchReboot
```

switchStatusPolicySet

Set the policy parameters that determine the overall switch status.

Synopsis

```
switchStatusPolicySet
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to set the policy parameters for calculating the overall status of the switch enclosure. The policy parameter values determine how many failed or faulty units of each contributor are allowed before triggering a status change in the switch from HEALTHY to MARGINAL or DOWN.

The command will print the current parameters in a three column table format. The first column specifies the contributor; the second column specifies the minimum number that contributes to the DOWN/FAILED status; the third column specifies the minimum number that contributes to the MARGINAL/WARNING status. This command then prompts the user to change the values for each policy parameter. The default values for the policy parameters are as follows:

Table 1–20: Contributor Value and Status

Contributor	Default Value for DOWN	Default Value for MARGINAL
FaultyPorts	2	1
MissingSFPs	0	0
PowerSupplies	2 in the StorageWorks 2 Gb SAN switch 3 in the StorageWorks Core switch	1
Temperatures	2	1

Table 1–20: Contributor Value and Status (Continued)

Contributor	Default Value for DOWN	Default Value for MARGINAL
Fans	2	1
PortStatus	0	0
ISLStatus	2	1

Any single contributor can force the overall status of the switch to MARGINAL or DOWN. For example, assuming that the switch contributor values are set to the default values, if there is one faulty port in a switch, then this contributor would set the overall switch status to MARGINAL. If two ports were faulty, then this contributor would set the overall switch status to DOWN.

This command enables you to set a threshold for each contributor, so that a certain number of failures are required to change the overall status of the switch.

If the value of a policy parameter is set to 0, it means that this factor is not used to determine the status of the switch. If the range of values for a particular contributor are set to 0 for both MARGINAL and DOWN, that contributor is not used in the calculation of the overall switch status.

ISLStatus monitors ISLs that are part of a defined switch group. The status of other ISLs on the same switch but outside of the group definition will not be considered when calculating switch status. If no switch groups are defined on this switch, then these ISLStatus settings will have no effect on switch status.

The ISLStatus does not affect the status of the switch as quickly as the other contributors. It may take a few minutes for a switch group ISL status change to affect the state of the switch.

When **PortStatus** monitoring is set to values of (0,0), port status changes are not logged to the event log and console. Similarly, SFP removal does not generate a message to the event log and console if **MissingSFPs** is set to (0,0). By configuring these options, the user can more closely monitor for port status and removal of SFPs.

Operands

None.

Example

Notice that in the following example, the only parameter modified is the number of MissingSFPS allowed before a MARGINAL status is triggered:

```
switch:admin> switchStatusPolicySet
    To change the overall switch status policy parameters
    The current overall switch status policy parameters:
                      Down      Marginal
    ---------------------------------
            FaultyPorts  1         0
            MissingSFPs  0         1
          PowerSupplies  2         1
           Temperatures  2         1
                   Fans  2         1
             PortStatus  0         0
              ISLStatus  2         1


    Note that the value, 0, for a parameter, means that it is
    NOT used in the calculation.
    ** In addition, if the range of settable values in the prompt is (0..0),
    ** the policy parameter is NOT applicable to the switch.
    ** Simply hit the Return key.
    The minimum number of
      FaultyPorts contributing to DOWN status: (0..64) [2]
      FaultyPorts contributing to MARGINAL status: (0..64) [1]
      MissingSFPs contributing to DOWN status: (0..64) [0]
      MissingSFPs contributing to MARGINAL status: (0..64) [0] 1
      Bad PowerSupplies contributing to DOWN status: (0..4) [2]
      Bad PowerSupplies contributing to MARGINAL status: (0..4) [1]
      Bad Temperatures contributing to DOWN status: (0..8) [2]
      Bad Temperatures contributing to MARGINAL status: (0..8) [1]
      Bad Fans contributing to DOWN status: (0..3) [2]
      Bad Fans contributing to MARGINAL status: (0..3) [1]
      Down PortStatus contributing to DOWN status: (0..64) [0]
      Down PortStatus contributing to MARGINAL status: (0..64) [0]
      Down ISLStatus contributing to DOWN status: (0..64) [2]
      Down ISLStatus contributing to MARGINAL status: (0..64) [1]
Policy parameter set has been changed
```

See Also

switchStatusPolicyShow

switchStatusShow

switchStatusPolicyShow

Display the policy parameters that determine the overall switch status.

Synopsis

```
switchStatusPolicyShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to view the current policy parameters set for the switch. These policy parameters determine the number of failed or non-operational units allowed for each contributor before triggering a status change in the switch.

The command will print the current parameters in a three column table format. The first column specifies the contributor; the second column specifies the minimum number that contributes to the DOWN/FAILED status; the third column specifies the minimum number that contributes to the MARGINAL/WARNING status. The default values for the policy parameters are as follows:

Table 1–21: Contributor Value and Status

Contributor	Default Value for DOWN	Default Value for MARGINAL
FaultyPorts	2	1
MissingSFPs	0	0
PowerSupplies	2 in the StorageWorks 2 Gb SAN switch 3 in the StorageWorks Core switch	1
Temperatures	2	1
Fans	2	1
PortStatus	0	0

Table 1–21: Contributor Value and Status (Continued)

Contributor	Default Value for DOWN	Default Value for MARGINAL
ISLStatus	2	1

The policy parameters determine the number of failed or non-operational units for each contributor that trigger a status change in the switch. For example, if the FaultyPorts DOWN parameter is set to 3, and 3 ports fail in the switch, then the status of the switch changes to DOWN.

Operands

None.

Example

To display the switch status policy:

```
switch:admin> switchStatusPolicyShow
The current overall switch status policy parameters:
                   Down     Marginal
       -------------------------------
          FaultyPorts  1          0
          MissingSFPs  0          1
        PowerSupplies  2          1
         Temperatures  3          1
                 Fans  3          1
           PortStatus  0          0
            ISLStatus  2          1
```

See Also

switchStatusShow

switchStatusPolicySet

switchStatusShow

Display the overall status of the switch.

Synopsis

```
switchStatusShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the overall status of the switch. The overall status is calculated based on the most severe status of all contributors:

- Internal Switch Status
- Faulty Ports
- Missing SFPs
- Power Supplies
- Fans
- Temperatures
- Port Status

The overall status can be one of the following:

- Healthy/OK - every contributor is healthy
- Marginal/Warning - one or more components are causing a warning status
- Down/Failed - one or more contributors have failed

If the overall status is not HEALTHY/OK, the contributing factors are listed.

Operands

None.

Example

There are two examples below. The first shows a switch with a status of MARGINAL, the second shows the same switch after all the errors have been fixed.

```
switch:admin> switchStatusShow
The overall switch status is Marginal/Warning
Contributing factors:
*   1 missing power supply triggered the Marginal/Warning status
*   1 bad fans, 2 good fans triggered the Marginal/Warning status
*   1 missing SFP triggered the Marginal/Warning status

switch:admin> switchStatusShow
The overall switch status is HEALTHY/OK
```

See Also

switchStatusPolicyShow

switchStatusPolicySet

switchuptime

Display the amount of time the switch has been operating.

Synopsis

```
switchuptime
```

Availability

All users.

Release

V4.0.x

Description

Use this command to display the current time and the amount of time the switch has been operational.

Operands

None.

Example

To view the uptime for the switch:

```
switch:admin> switchuptime
2:00pm   up for 17 hrs 44 mins
sqab14:admin>
```

See Also

switchStart

switchShutdown

switchReboot

syslogdIpAdd

Add the IP address of a syslog daemon.

Synopsis

```
syslogdIpAdd IPaddress
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to add the IP address of a syslog daemon, that is, the IP address of the server which is running the syslogd process. Syslog daemon (syslogd) is a process available on most UNIX systems that reads and forwards system messages to the appropriate log files and 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 operand:

IPaddress   Specify the IP address of the server running `syslogd`. This operand is required.

Example

To add the address `192.168.1.60` to the list of machines to which system messages are sent:

```
switch:admin> syslogdIpAdd "192.168.1.60"
```

See Also

       `errShow`

       `syslogdIpRemove`

       `syslogdIpShow`

syslogdIpRemove

Remove the IP address of a syslog daemon.

Synopsis

```
syslogdIpRemove IPaddress
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to remove the IP address of a syslog daemon, that is, the IP address of the server which is running the `syslogd` process.

Operands

This command has the following operand:

IPaddress   Specify the IP address of the server running `syslogd`. This operand is required.

Example

To remove the address 192.168.1.60 from the list of machines to which system messages are sent:

```
switch:admin> syslogdIpRemove "192.168.1.60"
```

See Also

errShow

syslogdIpAdd

syslogdIpShow

syslogdIpShow

Display all syslog daemon IP addresses.

Synopsis

```
syslogdIpShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display all syslog daemon IP addresses in the configuration database.

Operands

None.

Example

To display all syslog daemon IP addresses:

```
switch:admin> syslogdIpShow
syslog.IP.address.1:    192.168.1.60
syslog.IP.address.2:    192.168.1.88
syslog.IP.address.3:    192.168.2.77
```

See Also

```
errShow
```
```
syslogdIpAdd
```
```
syslogdIpRemove
```

systemtest

Run diagnostics on a switch blade.

Synopsis

```
systemtest [-slot slot]
```

Availability

admin

Release

V4.0.x

Description

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

- PortRegTest
- CentralMemoryTest
- CmiTest
- CamTest
- FilterTest
- StatisticsTest
- PortLoopbackTest—internal
- PortLoopbackTest—serdes
- Txdpath—internal
- CrossPortTest—serdes
- SpinSilk—internal
- SpinSilk—serdes
- BackPort—current blade

- BackPort—all blades

After the command has executed the above commands, it lists an overall summary of the slot status.

Operands

This command has the following operands:

-slot slot   Specify the slot to run diagnostics on. If no operand is
                        specified, the current slot is used. You can set the current
                        slot using the **setslot** command.

Example

To run a suite of diagnostics on blade 7:

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


PortRegTest

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


CentralMemoryTest

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

<output truncated>
```

See Also

setslot

diaghelp

tempShow

Display temperature readings.

Synopsis

```
tempShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the current temperature readings of all temperature sensors in a switch. Each temperature sensor has an index. The indices start from 1. There can be more than one sensor per slot. The slot number to which a sensor belongs is displayed in the column next to the index. The temperature readings are given in both Centigrade and Fahrenheit.

Refer to the Hardware Reference Manual for your switch to determine the normal temperature range values.

Operands

None.

Example

This example shows a StorageWorks Core switch:

```
switch:admin> tempshow
Index    Slot    State            Centigrade    Fahrenheit
=========================================================
  1       1      Ok               47            116
  2       2      Absent
  3       3      Absent
  4       4      Ok               46            114
  5       5      Ok               33             91
  6       6      Ok               33             91
switch:admin>
```

NOTE: For the StorageWorks Core switch, this command only returns the temperature sensor values for the logical switch you are logged into, not for the entire chassis.

This example shows a StorageWorks 2 Gb SAN switch:

```
switch:admin> tempshow
26 26 27 27 26 Centigrade
78 78 80 80 78 Fahrenheit
switch:admin>
```

See Also

sensorShow

fanShow

psShow

slotShow

topologyShow

Display the unicast fabric topology.

Synopsis

```
topologyShow [domainnumber]
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the fabric topology, as it appears to the local switch.

This includes:

- A list of all domains that are part of the fabric, and to each of those domains, all possible paths from the local switch.

- For each path - cost, the number of hops from the local switch to the destination switch, and a summary of all ports are routed through that path.

A path is described by the output port that a frame addressed to a certain domain will be forwarded to by the switches' routing hardware, in order to reach the domain.

With the domain number specified, this command displays the topology information for the specified destination domain.

The display contains the following fields:

Local Domain 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 that incoming frame will be forwarded to, in order 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:

domainnumber	Specify the destination domain for which topology information is to be displayed. This operand is optional. When no domain number is specified, this command displays the topology information of all the domains in the fabric.

Examples

The following example is for V4.0.x:

```
switch:admin> topologyShow

2 domains in the fabric; Local Domain ID: 1
Domain:         6
Metric:         500
Name:           cylon218
Path Count:     4
        Hops:               1
        Out Port:           60
        In Ports:           None
        Total Bandwidth:    2 Gbps
        Bandwidth Demand:   0 %
        Flags:              D

        Hops:               1
        Out Port:           61
        In Ports:           None
        Total Bandwidth:    2 Gbps
        Bandwidth Demand:   0 %
        Flags:              D

        Hops:               1
        Out Port:           62
        In Ports:           None
        Total Bandwidth:    2 Gbps
        Bandwidth Demand:   0 %
        Flags:              D

        Hops:               1
        Out Port:           58
        In Ports:           None
        Total Bandwidth:    2 Gbps
        Bandwidth Demand:   0 %
        Flags:              D
```

The following example is for V3.0.x:

```
switch:admin> topologyShow
1 domains in the fabric; Local Domain ID: 1

Domain   Metric   Hops   Out Port   In Ports   Flags   Bandwidth   Name
------------------------------------------------------------------------
Switch:admin>
```

See Also

portRouteShow

uRouteShow

trackChangesSet

Enable configuring of track-changes feature.

Synopsis

```
trackChangesSet [mode], [snmptrapmode]
```

Availability

admin

Release

V3.0.x and V4.0.x

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 **errShow** 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.

Example

The following shows how to use this command in V4.0.x:

```
switch12k:admin> trackchangesset 1, 1
Committing configuration...done.
switch12k:admin> trackchangesshow
Track changes status: ON
Track changes generate SNMP-TRAP: YES
switch12k:admin>
```

The following example shows how to use this command in V3.0.x:

```
Switch:admin> trackchangesset 1, 1
0x10280010 (tShell): Feb  5 10:33:56
    INFO TRACK-TRACK_ON, 4, Track-changes on

Committing configuration...done.
0x10280010 (tShell): Feb  5 10:33:59
    INFO TRACK-CONFIG_CHANGE, 4, Config file change from task:tShell

Switch:admin>
```

See Also

agtcfgSet

agtcfgShow

trackChangesShow

trackChangesHelp

trackChangesShow

Display status of track-changes feature.

Synopsis

```
trackChangesShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display status of the track-changes feature. It shows if the feature is turned on or off and if SNMP trap are generated.

The output from the track-changes feature is dumped to the error log for the switch. Use the **errDump** command or **errShow** command to view the error log.

Operands

None.

Example

To display the status of the track-changes feature:

```
switch:admin> trackChangesShow
Track changes status: ON
Track changes generate SNMP-TRAP: YES
```

See Also

```
trackChangesSet
```

```
trackChangesHelp
```

trunkDebug

Debug a trunk link failure.

Synopsis

```
trunkDebug port1, port2
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to debug a trunk link failure. This command reports one of the following messages based on the trunking properties of the two specified ports:

- Switch does not support trunking
- Trunking license required
- port<port_id> is not E_Port
- port<port_id> trunking disabled
- port<port_id> speed is not 2G
- port<port_id> and port<port_id> are not on same quad
- port<port_id> and port<port_id> connect to different switches
- port<port_id> is not Trunking port due to: E_Port being disabled, or trunking may be disabled at remote port
- port<port_id> and port<port_id> can't trunk, please check link length to make sure difference is less than 400 m

Operands

This command has the following operands:

port1   For V3.x, specify the first port number of a trunk connection where you want to debug a trunking link error.

For V4.x, use the area number to specify port1. Use the **switchshow** command to view the area numbers for a port. This operand is required.

port2   For V3.x, specify the second port number of a trunk connection where you want to debug a trunking link error.

For V4.x, use the area number to specify port2. Use the **switchshow** command to view the area numbers for a port. This operand is required.

Example

To debug a trunk connection:

```
switch:admin> trunkDebug 3, 4
port 3 is not E port
```

See Also

trunkShow

portCfgTrunkport

switchCfgTrunk

trunkShow

Display trunking information.

Synopsis

```
trunkShow
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display trunking information. The fields displayed are as follows:

`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`	Displays the single trip time difference between trunked links. Each number corresponds to 10 ns.
`Master`	Displays whether this trunking port connection is the master port connection for the trunking group.

Operands

None.

Example

To display trunking information for a switch:

```
switch:admin> trunkShow
1: 1 ->  1   10:00:00:60:69:04:10:83   deskew 16   MASTER
   0 ->  0   10:00:00:60:69:04:10:83   deskew 55
2: 4 ->  4   10:00:00:60:69:04:01:94   deskew 45   MASTER
   5 ->  5   10:00:00:60:69:04:01:94   deskew 34
   7 ->  7   10:00:00:60:69:04:01:94   deskew 22
   6 ->  6   10:00:00:60:69:04:01:94   deskew 65
3:14 -> 14   10:00:00:60:69:04:10:83   deskew 46   MASTER
  15 -> 15   10:00:00:60:69:04:10:83   deskew 33
```

See Also

portCfgTrunkport

switchCfgTrunk

turboRamTest

Turbo SRAM logic test for 2-Gb ASICs.

Synopsis V3.0.x

```
turboramtest [passcount]
```

Synopsis V4.0.x

```
turboramtest [--slot slot][-passcnt passcount][-ports list]
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

This command verifies the on chip SRAM located in the 2-Gb 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: turboram r-m-w inc 1)

3. For each incrementing address read 0000 FFFF pattern and write FFFF 0000. (Subtest 3: turboram r-m-w inc 2)

4. For each decrementing address read FFFF 0000 pattern and write 0000 FFFF. (Subtest 4: turboram r-m-w dec 1)

5. For each decrementing address read 0000 FFFF pattern and write FFFF 0000. (Subtest 5: turboram r-m-w dec 2)

6. Repeat steps 1-5 with AAAA 5555 pattern.

Operands

This command has the following operands:

`--slot slot`	Specify which slot to test. This operand is optional when you specify the default slot using the **setslot** command.
`passcount`	Specify the number of times to perform this test. The default value is 1. This operand is optional.
`-ports list`	Specify which blade ports to test. All ports on the current slot is the default.

Example

This example is for V3.0.x. To execute this test:

```
switch:admin> turboRamTest
Running Turbo RAM Test ........ passed.
```

This example is for V4.0.x. To execute this test:

```
switch:admin> setslot 7
switch:admin> turboRamTest
Running Turbo RAM Test ........ passed.
```

Diagnostics

When it detects failures, the subtest may report one or more of the following error messages:

DIAG-WTEST - Memory fill operation failed.

DIAG-INC_RWTEST - Memory r-m-w increment subtest failed.

DIAG-DEC_RWTEST - Memory r-m-w decrement subtest failed.

DIAG-RAMINIT_TO - Memory initialization timed out.

See Also

       portRegTest

       centralMemoryTest

       cmiTest

       camTest

       sramRetentionTest

uptime

Display length of time the system has been operational.

Synopsis

```
uptime
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the length of time the system has been in operation (also known as "up time"), the total cumulative amount of "up time" since the system was first powered-on, the date and time of the last reboot, and the reason for the last reboot.

For up and powered-on times less than 60 seconds, the time is displayed in seconds. For times greater than or equal to 60 seconds, the time is displayed in minutes. The output format adjusts accordingly.

The reason for the last switch reboot is also recorded in the error log. Reasons are listed below. Not all the below responses are applicable to all switch models:

Unknown	Reason is unknown.
Bus time-out*	Port ASIC was accessed and no response was received.
Bus error*	Non-existent system address was accessed.
Panic*	Firmware detected a critical hardware error or an internal inconsistency.
Fault*	CPU signaled a fault condition (critical firmware error).
Power-on	Last reboot was caused by a power-on.
Watchdog*	Watchdog timer caused a reset.

PushButtons	Push buttons 1 and 3 were depressed for two seconds, causing a system reset.
Reboot	Last reboot was caused by a user (from any management interface).
Powerfail NMI*	Power supply caused a nonmaskable interrupt.
Watchdog NMI*	Watchdog timer caused a nonmaskable interrupt.
PushButton NMI*	Push buttons 2 and 4 were depressed for two seconds, causing a nonmaskable interrupt.
Software NMI*	Firmware caused a nonmaskable interrupt.

NOTE: The items marked with an asterisk (*) are usually caused by hardware or firmware failures. Information on the failure is stored in the switch. Follow the procedures in the switch manual.

Operands

None.

Example

The following example shows a V4.0.x switch:

```
switch:admin> uptime
12:03am  up  4:56,  3 users,  load average: 1.17, 1.08, 1.08
```

The following example shows a V3.0.x switch:

```
Switch:admin> uptime
Up for:      6 days,  1:34
Powered for: 69 days, 11:39
Last up at:  Wed Jan 30 09:10:09 2002
Reason:      Reboot
Switch:admin>
```

See Also

date

errShow

fastboot

reboot

uRouteConfig

Configure a static route.

Synopsis

```
uRouteConfig InArea Domain OutArea
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to configure static routes. A static route is a route that is assigned to a specific path, and will not change when a topology change occurs, unless the path used by the route becomes unavailable.

After this command is issued, and if **OutArea** is a usable port, all frames coming in from **InArea** port addressed to **Domain** will be forwarded through **OutArea** port.

If **OutArea** port is not usable, then the routing assignment is not affected by this command. When **OutArea** port becomes usable again, the static route assignment for **InArea** is enforced.

OutArea port is usable if it is on a minimum cost path to the destination domain.

InArea port can be either an F_Port or an E_Port.

NOTE: When using static routes, load sharing may be affected. The switch attempts to achieve optimum load sharing, but if too many routes are statically configured to use the same output port, a fair load sharing may not be achievable.

NOTE: In order to prevent routing loops, a static route configuration using a non-minimum cost path is not allowed. If an attempt is made to configure such a route, the user is queried on whether the entry should be saved in the database.

Operands

This command has the following operands:

InArea	Specify the port to be statically routed. This operand is required.
Domain	Specify the destination domain. This operand is required.
OutArea	Specify the output port where traffic is forwarded. This operand is required.

Examples

To configures a static route for all traffic coming in from port 1 and addressed to domain 2 to go through port 5:

```
switch:admin> uRouteConfig 1 2 5
done.
switch:admin> configShow
route.ucastRoute.1.2:5
route.ucastRouteCount:   1
```

See Also

configShow

interfaceShow

uRouteRemove

uRouteShow

uRouteRemove

Remove a static route.

Synopsis

```
uRouteRemove InArea Domain
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to remove a previously configured static route.

After this command is issued, the route to **Domain** for **InArea** may or may not change. It changes if the previous static route was not along a minimum cost path. Also, after this command is issued, the load sharing to **Domain** is re-evaluated.

InArea can be either an F_Port or an E_Port.

Operands

This command has the following operands:

InArea	The port that is statically routed. This operand is required.
Domain	The destination domain. This operand is required.

Examples

To remove a static route for all traffic coming in from port 1 and addressed to domain 2:

```
switch:admin> uRouteRemove 1 2
done.
```

See Also

```
configShow
uRouteConfig
uRouteShow
```

uRouteShow

Display unicast routing information.

Synopsis

    uRouteShow [slotnumber/][portnumber][, domainnumber]

Availability

All users.

Release

V3.0.x and V4.0.x

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.

When no operand is specified, this command displays the routing information for all the active ports on the local switch, to all the domains in the fabric.

When only slot number and port number are specified, this command displays the routing information for the specified port to all the domains connected to it.

When slot number, port number, and domain number are all specified, this command only displays the routing information for the specified port to the specified domain.

The following information is displayed:

Local Domain ID:	Domain number of local switch.
In Port:	Port from which a frame is received.
Domain:	Destination domain of incoming frame.
Out Port:	Port to which the incoming frame is to be forwarded.
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`	Specify the slot number in a StorageWorks Core switch. The slot number must be followed by a slash (/) and the port number.
	The StorageWorks Core switch has a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4 and 7 through 10 are switch cards. On each switch card, there are 16 ports counted from the bottom 0 to 15. A particular port must be represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).
	This operand is not required for switches that do not have blades.
`portnumber`	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.
`domainnumber`	Displays routing information for the specified domain. This operand is optional. This operand should only be specified when the port number is specified.

If no operand is specified, this command displays routing information for all active ports on the local switch, to all the domains in the fabric.

Examples

The first example displays the routing information of all the active ports, The second command displays the routing information of port 11 on slot 1, and the third command displays the routing information of port 11 to domain 4 only:

```
switch:admin> uRouteShow
Local Domain ID: 3
In Port    Domain    Out Port    Metric    Hops    Flags    Next (Dom, Port)
---------------------------------------------------------------------------
  0          1         11        1000        1       D             1,0
 11          2          0        1500        2       D             4,0
             4          0         500        1       D             4,0
 16          1         27        1000        1       D             1,1
 27          2         16        1500        2       D             4,16
             4          0         500        1       D             4,0


switch:admin> uRouteShow 1/11
Local Domain ID: 3
In Port    Domain    Out Port    Metric    Hops    Flags    Next (Dom, Port)
---------------------------------------------------------------------------
 11          2         16        1500        2       D             4,16
             4         16         500        1       D             4,16


switch:admin> uRouteShow 1/11, 4
       Local Domain ID: 3
In Port    Domain    Out Port    Metric    Hops    Flags    Next (Dom, Port)
---------------------------------------------------------------------------
 11          4         16         500        1       D             4,16
```

See Also

portRouteShow

topologyShow

uRouteConfig

uRouteRemove

version

Display firmware version information.

Synopsis

```
version
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display firmware version information and build dates.

The following is displayed:

`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:`	For V4.0.x, this field displays the version of the firmware stored in the boot PROM.
	For V3.0.x, this field displays the build date of firmware stored in boot PROM.

Usually the Made on and Flash dates are the same, since the switch starts running flash firmware at power-on. However, in the time period between **firmwareDownload** and the next reboot, the dates can differ.

Operands

None.

Example

The following example shows the firmware version information on a StorageWorks Core switch:

```
switch12k:admin> version
Kernel:     2.4.2
Fabric OS: V4.0.x.0
Made on:    Fri Feb 1 23:02:08 2002
Flash:      Fri Feb 1 18:03:35 2002
BootProm:   3.1.13b
switch12k:admin>
```

The following example shows the firmware version information on a StorageWorks 2 Gb SAN switch:

```
Switch:admin> version
Kernel:     5.3.1
Fabric OS: V3.0.x.2
Made on:    Fri Jan 25 10:01:42 PST 2002
Flash:      Thu Jan 31 08:12:49 PST 2002
BootProm:   Tue Oct 30 10:24:38 PST 2001
Switch:admin>
```

See Also

firmwareDownload

reboot

wwn

View a switch WWN.

Synopsis

```
wwn
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display the WWN of a switch. All switches have a numeric address that is the unique Fibre Channel address used for communicating with the switch. The WWN is shown in the output of the switchShow command.

Operands

None.

Example

To display the switch WWN:

```
switch:admin> wwn
10:00:00:60:69:00:54:e9

switch:admin>
```

See Also

```
switchShow
```

zoneAdd

Add a member to the zone.

Synopsis

```
zoneAdd "zoneName", "member;member"
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

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

NOTE: This command requires an Advanced Zoning license.

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:

- For V3.x, a switch domain and physical port number pair. For example, "2, 12".
- For V4.x, a switch domain and port area number pair. For example, "2, 20". View the area numbers for ports using the **switchShow** command.
- Node or port WWN.
- QuickLoop AL_PA
- Zone alias name

Example

To add aliases for three disk arrays to "Blue_zone":

```
switch:admin> zoneAdd "Blue_Zone", "array3; array4; array5"
```

See Also

zoneCreate

zoneDelete

zoneRemove

zoneShow

zoneCreate

Create a zone.

Synopsis

```
zoneCreate "zoneName", "member;member"
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to create a new zone.

NOTE: This command requires an Advanced Zoning license.

A zone name is a C-style name beginning with a letter and followed by any number of letters, digits, and underscore characters. Names are case sensitive; for example, "Zone_1" indicates a different zone than "zone_1". Blank spaces are ignored.

The zone member list must have at least one member (empty lists are not allowed). The members are described by a list of member definitions separated by semicolons.

In V3.x, specify ports by domain and port number. The values are entered as a pair of numbers "s,p" where "s" is the switch number (domain ID) and "p" is the port number. For example, "2,12" specifies port 12 on switch number 2. When a zone member is specified by physical fabric port number, then all devices connected to that port are in the zone. If this port is an arbitrated loop, then all devices on the loop are in the zone.

In V4.x, specify ports by domain and port area number. The values are entered as a pair of numbers "s,p" where "s" is the switch number (domain ID) and "p" is the port area number. For example,
"2, 20" specifies port area number 20 on switch domain 2. When a zone member is specified by port area number, then all devices connected to that port are in the zone. If this port is an arbitrated loop, then all devices on the loop are in the zone.

Specify a *Worldwide name* as eight hex numbers separated by colons, for example "10:00:00:60:69:00:00:8a". Advanced Zoning has no knowledge of the fields within a Worldwide Name; the eight bytes are simply compared with the Node and Port Names presented by a device in a login frame (FLOGI or PLOGI). When a zone member is specified by Node Name, then all ports on that device are in the zone. When a zone member is specified by Port 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. It is created with the **aliCreate** command. The alias must resolve to a list of one or more of the following:

- For V3.0.x, a switch domain and physical port number pair.

- For V4.0.x, a switch domain and port area number pair. View the area numbers for ports using the **switchShow** command.

- Worldwide Names

- QuickLoop AL_PAs

The types of zone members used to define a zone may be mixed. For example, a zone defined with the following members: "2,12; 2,14; 10:00:00:60:69:00:00:8a" would contain all devices connected to switch 2, ports 12 and 14, and to the device with the worldwide 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.

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.

Operands

The following operands are required:

zoneName   Name for a zone to be created, in quotation marks. This name cannot be used for any other zone object.

	List of members to be included in zone, in quotation marks, separated by semicolons. Can be one or more of the following:
`member`	

- For V3.x, a switch domain and physical port number pair. For example, "2, 12".
- For V4.x, a switch domain and port area number pair. For example, "2, 20" View the area numbers for ports using the **switchShow** command.
- Worldwide names
- QuickLoop AL_PAs
- Zone alias names

Example

To create three zones using a combination of port numbers and zone aliases:

```
switch:admin> zoneCreate "Red_zone", "1,0; loop1"
switch:admin> zoneCreate "Blue_zone", "1,1; array1; 1,2; array2"
switch:admin> zoneCreate "Green_zone", "1,0; loop1; 1,2; array2"
```

See Also

zoneAdd

zoneDelete

zoneRemove

zoneShow

zoneDelete

Delete a zone.

Synopsis

```
zoneDelete "zoneName"
```

Availability

admin

Release

V3.0.x and V4.0.x

Description

Use this command to delete a zone.

NOTE: This command requires an Advanced Zoning license.

Operands

This command has the following operands:

zoneName   Name of the zone to be deleted, in quotation marks. This
                      operand is required.

Example

To delete the zone "Blue_zone":

```
switch:admin> zoneDelete "Blue_zone"
```

See Also

```
zoneAdd
zoneCreate
zoneRemove
zoneShow
```

zoneHelp

Display help information on zone commands.

Synopsis

```
zoneHelp
```

Availability

All users.

Release

V3.0.x and V4.0.x

Description

Use this command to display help information on zone commands.

Operands

None.

Example

To display zone command help information:

```
switch:admin>
aliAdd                   Add a member to a zone alias
aliCreate                Create a zone alias
aliDelete                Delete a zone alias
aliRemove                Remove a member from a zone alias
aliShow                  Print zone alias information

cfgAdd                   Add a member to a configuration
cfgCreate                Create a zone configuration
cfgDelete                Delete a zone configuration
cfgRemove                Remove a member from a configuration
cfgShow                  Print zone configuration information

qloopAdd                 Add a member to a qloop
qloopCreate              Create a qloop
qloopDelete              Delete a qloop
qloopRemove              Remove a member from a qloop
qloopShow                Print qloop information

zoneAdd                  Add a member to a zone
zoneCreate               Create a zone
zoneDelete               Delete a zone
zoneRemove               Remove a member from a zone
zoneShow                 Print zone information

fazoneAdd                Add a member to a fabric assist zone
fazoneCreate             Create a fabric assist zone
fazoneDelete             Delete a fabric assist zone
fazoneRemove             Remove a member from a fabric assist zone
fazoneShow               Print Fabric Assist Zone information

cfgClear                 Clear all zone configurations
cfgDisable               Disable a zone configuration
cfgEnable                Enable a zone configuration
cfgSave                  Save zone configurations in flash

cfgTransAbort            Abort zone configuration transaction
```

zoneRemove

Remove a member from a zone.

Synopsis

```
zoneRemove "zoneName", "member;member"
```

Availability

admin

Release

V3.0.x and V4.0.x

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.

NOTE: This command requires an Advanced Zoning license.

Operands

The following operands are required:

zoneName	Name of the zone, in quotation marks.
member	List of members to be removed from zone, in quotation marks, separated by semicolons. Can be one or more of the following:

- For V3.x, a switch domain and physical port number pair. For example, "2, 12".
- For V4.x, a switch domain and port area number pair. For example, "2, 20" View the area numbers for ports using the **switchShow** command.
- Worldwide names
- QuickLoop AL_PAs
- Zone alias names

Example

To remove "array2" from "Blue_zone":

```
switch:admin> zoneRemove "Blue_zone", "array2"
switch:admin> zoneRemove "Blue_zone", "2,20"
```

See Also

zoneAdd

zoneCreate

zoneDelete

zoneShow

zoneShow

Display zone information.

Synopsis

```
zoneShow ["pattern"][, mode]
```

Availability

All users.

Release

V3.0.x and V4.0.x

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: This command requires an Advanced Zoning license.

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 may contain:
	• Question mark "?" that matches any single character
	• Asterisk "*" that matches any string of characters
	• Ranges "[0-9a-f]" that match any character within the range
mode	Specify 1 to display the contents of the transaction buffer, or specify 0 to display the contents of the RAM. The default value is 0. This operand is optional.

Example

To show all zones beginning with the letters "A" through "C":

```
switch:admin> zoneShow "[A-C]*"
zone: Blue_zone 1,1; array1; 1,2; array2
```

See Also

zoneAdd

zoneCreate

zoneDelete

zoneRemove

2

Fabric OS Commands for Licensed Products

This chapter summarizes the commands that are only available with a license key.

- Advanced Zoning Commands on page 2–1

- QuickLoop Fabric Assist Mode Commands on page 2–3

- Extended Fabric Command on page 2–3

- Fabric Watch Commands on page 2–4

- Trunking Commands on page 2–4

- Advanced Performance Monitoring Commands on page 2–5

NOTE: For more information about Zoning, QuickLoop, Extended Fabrics, Fabric Watch, Trunking, or Performance Monitoring refer to the specific user guide for that feature.

Advanced Zoning Commands

The following commands are available with the purchase of an Advanced Zoning license key. For detailed information about zoning refer to the *HP StorageWorks Zoning Version 3.0.x/4.0.x User Guide*.

Table 2–1: Zoning Commands

Command	Description
Zone Alias	
aliAdd	Add a member to a zone alias.
aliCreate	Create a zone alias.
aliDelete	Delete a zone alias.
aliRemove	Remove a member from a zone alias.

Table 2–1: Zoning Commands (Continued)

Command	Description
Zoning	
zoneAdd	Add a member to a zone.
zoneCreate	Create a zone.
zoneDelete	Delete a zone.
zoneRemove	Remove a member from a zone.
QuickLoop Zoning	
qloopAdd	Add a member to a QuickLoop.
qloopCreate	Create a QuickLoop.
qloopDelete	Delete a QuickLoop.
qloopRemove	Remove a member from a QuickLoop.
Zone Configuration	
cfgAdd	Add a zone to a zone configuration.
cfgCreate	Create a zone configuration.
cfgDelete	Delete a zone configuration.
cfgRemove	Remove a zone from a zone configuration.
Zone Management	
cfgClear	Clear all zone configurations.
cfgDisable	Disable a zone configuration.
cfgEnable	Enable a zone configuration.
cfgSave	Save zone configurations in flash memory.
cfgTransAbort	Aborts the current zoning transaction.

QuickLoop Fabric Assist Mode Commands

The following commands are for QuickLoop Fabric Assist Mode. For detailed information about Extended Fabrics refer to the *HP StorageWorks QuickLoop Fabric Assist Version 3.0.x User Guide*.

Table 2–2: QuickLoop Fabric Assist Mode Commands

Command	Description
fazoneAdd	Add members to an existing QuickLoop Fabric Assist zone.
fazoneCreate	Creates a QLFA zone.
fazoneDelete	Delete an existing QuickLoop Fabric Assist zone.
fazoneRemove	Remove member or members from an existing QuickLoop Fabric Assist zone.

NOTE: The Quickloop Fabric Assist Mode feature is available on Fabric OS V3.0.x only.

Extended Fabric Command

The following commands are available with the purchase of a Extended Fabrics license key. For detailed information about Extended Fabrics refer to the *HP StorageWorks QuickLoop Fabric Assist Version 3.0.x User Guide*.

Table 2–3: Extended Fabric Commands

Command	Description
portCfgLongDistance	Configure a port to support long distance links.

Fabric Watch Commands

The following commands are available with the purchase of a Fabric Watch license key. For detailed information about Fabric Watch refer to the *HP StorageWorks Fabric Watch Version 3.0.x/4.0.x User Guide*.

Table 2–4: 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 email alerts in Fabric Watch.
fwSetToDefault	Set boundary and alarm levels to the default values.
fwSetToCustom	Set boundary and alarm levels to custom values.

Trunking Commands

The following commands are available with the purchase of a Trunking license key. For detailed information about trunking refer to the *HP StorageWorks ISL Trunking Version 3.0.x/4.0.x User Guide*.

Table 2–5: 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 following commands are available with the purchase of an Advanced Performance Monitoring license key. For more detailed information about Performance Monitoring refer to the *HP StorageWorks Advanced Performance Monitoring Version 3.0.x/4.0.x User Guide*.

Table 2–6: 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.
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.

3

Fabric OS Version Comparison

This chapter summarizes the commands available in V3.0.x and V4.0.x.

Command Differences Between Versions

This table provides a list of which commands are available in V3.0.x and in V4.0.x. It also provides notes on differences that may exist for a particular command between versions.

Table 3–1: Fabric OS Command Version Support (Sheet 1 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
agtcfgDefault	Yes	Yes	
agtcfgSet	Yes	Yes	
agtcfgShow	Yes	Yes	
aliasDelete	Yes	No	Not supported in V4.0.x
aliasJoin	Yes	No	Not supported in V4.0.x
aliasPurge	Yes	No	Not supported in V4.0.x
aliasShow	Yes	No	Not supported in V4.0.x
aliAdd	Yes	Yes	Specify members using area number in V4.0.x
aliCreate	Yes	Yes	Specify members using area number in V4.0.x
aliDelete	Yes	Yes	
aliRemove	Yes	Yes	Specify members using area number in V4.0.x
aliShow	Yes	Yes	
backplanetest	No	Yes	Specific to the StorageWorks Core switch

Table 3–1: Fabric OS Command Version Support (Sheet 2 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
backPort	No	Yes	Specific to the StorageWorks Core switch
backSpace	Yes	No	Not supported in V4.0.x
bcastShow	Yes	Yes	
bladeBeacon	No	Yes	Specific to the StorageWorks Core switch
bladeDiag	No	Yes	Specific to the StorageWorks Core switch
bladeDiagShort	No	Yes	Specific to the StorageWorks Core switch
bladePropShow	No	Yes	Specific to the StorageWorks Core switch
bsn	Yes	No	Not supported in V4.0.x. Functionality was replaced by the **chassisshow** command in V4.0.x.
camTest	Yes	Yes	Not supported with the StorageWorks Core switch
centralMemoryTest	Yes	Yes	New operands in V4.0.x
cfgAdd	Yes	Yes	
cfgClear	Yes	Yes	
cfgCreate	Yes	Yes	
cfgDelete	Yes	Yes	
cfgDisable	Yes	Yes	
cfgEnable	Yes	Yes	
cfgRemove	Yes	Yes	
cfgSave	Yes	Yes	
cfgShow	Yes	Yes	
cfgTransAbort	Yes	Yes	
chassisName	No	Yes	Specific to the StorageWorks Core switch

Table 3–1: Fabric OS Command Version Support (Sheet 3 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
chassisShow	No	Yes	Specific to the StorageWorks Core switch
chippropshow	No	Yes	New command for V4.0.x
chipregshow	No	Yes	New command for V4.0.x
cmemRetentionTest	Yes	Yes	New operands in V4.0.x
cmiTest	Yes	Yes	New operands in V4.0.x
configDefault	Yes	Yes	
configDownload	Yes	Yes	V4.0.x no longer supports RSHD.
configShow	Yes	Yes	
configUpload	Yes	Yes	V4.0.x no longer supports RSHD.
configure	Yes	Yes	Parameter modifications in V4.0.x
crossPortTest	Yes	Yes	New operands in V4.0.x
dataTypeShow	Yes	Yes	
date	Yes	Yes	
diagClearError	Yes	Yes	
diagCommandShow	No	Yes	New command for V4.0.x
diagDisablePost	Yes	Yes	
diagEnablePost	Yes	Yes	
diagesdPorts	No	Yes	New command for V4.0.x
diagfailLimit	No	Yes	New command for V4.0.x
diagHelp	Yes	Yes	
diagloopid	No	Yes	New command for V4.0.x
diagmodepr	No	Yes	New command for V4.0.x
diagpost	No	Yes	New command for V4.0.x
diagretry	No	Yes	New command for V4.0.x
diagsetburnin	No	Yes	New command for V4.0.x

Table 3–1: Fabric OS Command Version Support (Sheet 4 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
diagsetcycle	No	Yes	New command for V4.0.x
diagShow	Yes	Yes	
diagshowtime	No	Yes	New command for V4.0.x
diagsilkworm	No	Yes	New command for V4.0.x
diagskiptests	No	Yes	New command for V4.0.x
diagstopburnin	No	Yes	New command for V4.0.x
dlsReset	Yes	Yes	
dlsSet	Yes	Yes	
dlsShow	Yes	Yes	
errDump	Yes	Yes	
errShow	Yes	Yes	
fabricShow	Yes	Yes	
fabStatsShow	Yes	Yes	
fanDisable	No	Yes	New command for V4.0.x
fanEnable	No	Yes	New command for V4.0.x
fanShow	Yes	Yes	
faStatsShow	Yes	No	Not supported in V4.0.x
fastboot	Yes	Yes	
fazoneAdd	Yes	Yes	Specify members using area number in V4.0.x
fazoneCreate	Yes	Yes	Specify members using area number in V4.0.x
fazoneDelete	Yes	Yes	
fazoneRemove	Yes	Yes	Specify members using area number in V4.0.x
fazoneShow	Yes	Yes	
filterTest	Yes	Yes	New operands in V4.0.x
firmwareCommit	No	Yes	New command for V4.0.x

Table 3–1: Fabric OS Command Version Support (Sheet 5 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
firmwareDownload	Yes	Yes	V4.0.x has new operands, no longer supports RSHD, and uses new file format.
firmwareRestore	Yes	Yes	New command for V4.0.x
fspfShow	Yes	Yes	
fwAlarmsFilterSet	Yes	Yes	
fwAlarmsFilterShow	Yes	Yes	
fwClassInit	Yes	Yes	
fwConfigReload	Yes	Yes	
fwConfigure	Yes	Yes	New Environmental Classes in V4.0.x
fwFruCfg	No	Yes	New command for V4.0.x
fwHelp	Yes	Yes	
fwMailCfg	Yes	Yes	
fwSetToCustom	Yes	Yes	
fwSetToDefault	Yes	Yes	
fwShow	Yes	Yes	Output modified in V4.0.x
h	Yes	Yes	
haDisable	No	Yes	Specific to the StorageWorks Core switch
haEnable	No	Yes	Specific to the StorageWorks Core switch
haFailover	No	Yes	Specific to the StorageWorks Core switch
haShow	No	Yes	Specific to the StorageWorks Core switch
help	Yes	Yes	
historyLastShow	No	Yes	New command for V4.0.x
historyShow	No	Yes	New command for V4.0.x
i	Yes	Yes	

Table 3–1: Fabric OS Command Version Support (Sheet 6 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
ifModeSet	Yes	No	Not supported in V4.0.x
ifModeShow	Yes	No	Not supported in V4.0.x
ifShow	Yes	No	Not supported in V4.0.x
interfaceShow	Yes	Yes	Addition of the slot operand
iodReset	Yes	Yes	
iodSet	Yes	Yes	
iodShow	Yes	Yes	
ipAddrSet	Yes	Yes	This command has unique parameters based on switch type
ipAddrShow	Yes	Yes	This command displays unique information based on switch type
licenseAdd	Yes	Yes	
licenseHelp	Yes	Yes	
licenseIdShow	No	Yes	New command for V4.0.x
licenseRemove	Yes	Yes	
licenseShow	Yes	Yes	
linkCost	Yes	Yes	Addition of the slot operand
logout	Yes	Yes	
loopdiagClear	Yes	No	Not supported in V4.0.x
loopdiagDone	Yes	No	Not supported in V4.0.x
loopdiagRestore	Yes	No	Not supported in V4.0.x
loopdiagStart	Yes	No	Not supported in V4.0.x
loopdiagStop	Yes	No	Not supported in V4.0.x
LSDbShow	Yes	Yes	
lutil	No	Yes	New command for V4.0.x
mcastShow	Yes	Yes	

Table 3–1: Fabric OS Command Version Support (Sheet 7 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
memshow	No	Yes	New command for V4.0.x
minispropshow	No	Yes	New command for V4.0.x
minisregshow	No	Yes	New command for V4.0.x
msCapabilityShow	No	Yes	Renamed in V4.0.x from the msPLCapabilityShow command
msConfigure	Yes	Yes	
msPlatShow	Yes	Yes	
msPlCapabilityShow	Yes	No	Renamed in V4.0.x to the msCapabilityShow command
msPlClearDB	Yes	Yes	
msPlMgmtActivate	Yes	Yes	
msPlMgmtDeactivate	Yes	Yes	
msTdDisable	Yes	Yes	
msTdEnable	Yes	Yes	
msTdReadConfig	No	Yes	New command for V4.0.x
myid	No	Yes	New command for V4.0.x
nbrStatsClear	Yes	Yes	Addition of the slot operand
nbrStateShow	Yes	Yes	Addition of the slot operand
nsAllShow	Yes	Yes	
nsShow	Yes	Yes	
parityCheck	Yes	No	Not supported in V4.0.x
passwd	Yes	Yes	
perfAddEEMonitor	Yes	Yes	Addition of the slot operand
perfAddIPMonitor	Yes	Yes	Addition of the slot operand

Table 3–1: Fabric OS Command Version Support (Sheet 8 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
perfAddReadMonitor	Yes	Yes	Addition of the slot operand
perfAddRWMonitor	Yes	Yes	Addition of the slot operand
perfAddSCSIMonitor	Yes	Yes	Addition of the slot operand
perfAddUserMonitor	Yes	Yes	Addition of the slot operand
perfAddWriteMonitor	Yes	Yes	Addition of the slot operand
perfCfgClear	Yes	Yes	
perfCfgRestore	Yes	Yes	
perfCfgSave	Yes	Yes	
perfClrAlpaCrc	Yes	Yes	Addition of the slot operand
perfDelEEMonitor	Yes	Yes	Addition of the slot operand
perfDelFilterMonitor	Yes	Yes	Addition of the slot operand
perfHelp	Yes	Yes	
perfSetPortEEMask	Yes	Yes	Addition of the slot operand
perfShowAlpaCrc	Yes	Yes	Addition of the slot operand
perfShowEEMonitor	Yes	Yes	Addition of the slot operand
perfShowFilterMonitor	Yes	Yes	Addition of the slot operand
perfShowPortEEMask	Yes	Yes	Addition of the slot operand
portCfgEport	Yes	Yes	Addition of the slot operand

Table 3–1: Fabric OS Command Version Support (Sheet 9 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
portCfgGport	Yes	Yes	Addition of the slot operand
portCfgLongDistance	Yes	Yes	Addition of the slot operand
portCfgLport	Yes	Yes	Addition of the slot operand
portcfgMcastLoopback	Yes	Yes	Addition of the slot operand
portCfgShow	Yes	Yes	Addition of the slot operand
portCfgSpeed	Yes	Yes	Addition of the slot operand
portCfgTrunkport	Yes	Yes	Addition of the slot operand
portDisable	Yes	Yes	Addition of the slot operand
portEnable	Yes	Yes	Addition of the slot operand
portErrShow	Yes	Yes	
portLEDtest	Yes	Yes	
portLogClear	Yes	Yes	
portLogDump	Yes	Yes	
portLogDumpPort	Yes	Yes	
portLogShow	Yes	Yes	
portLoopbackTest	Yes	Yes	
portPerfShow	Yes	Yes	
portRegTest	Yes	Yes	New operands for V4.0.x
portRouteShow	Yes	Yes	Addition of the slot operand
portShow	Yes	Yes	Addition of the slot operand

Table 3–1: Fabric OS Command Version Support (Sheet 10 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
portStatsShow	Yes	Yes	Addition of the slot operand
powerOffListSet	No	Yes	New command for 4.x
powerOffListShow	No	Yes	New command for 4.x
psShow	Yes	Yes	
ptdatashow	No	Yes	New command for V4.0.x
ptphantomshow	No	Yes	New command for V4.0.x
ptpropshow	No	Yes	New command for V4.0.x
ptregshow	No	Yes	New command for V4.0.x
ptrouteshow	No	Yes	New command for V4.0.x
ptstatsshow	No	Yes	New command for V4.0.x
qlDisable	Yes	No	Not supported in V4.0.x
qlEnable	Yes	No	Not supported in V4.0.x
qloopAdd	Yes	No	Not supported in V4.0.x
qloopCreate	Yes	No	Not supported in V4.0.x
qloopDelete	Yes	No	Not supported in V4.0.x
qloopRemove	Yes	No	Not supported in V4.0.x
qloopShow	Yes	No	Not supported in V4.0.x
qlPartner	Yes	No	Not supported in V4.0.x
qlPortDisable	Yes	No	Not supported in V4.0.x
qlPortEnable	Yes	No	Not supported in V4.0.x
qlPortShowAll	Yes	No	Not supported in V4.0.x
qlShow	Yes	No	Not supported in V4.0.x
qlStatsShow	Yes	No	Not supported in V4.0.x
quietMode	Yes	No	Not supported in V4.0.x
ramTest	Yes	No	Not supported in V4.0.x
reboot	Yes	Yes	Reboots entire chassis in StorageWorks Core switch
routeHelp	Yes	Yes	

Table 3–1: Fabric OS Command Version Support (Sheet 11 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
sensorShow	Yes	Yes	
setesdmode	No	Yes	New command for V4.0.x
setmfgmode	No	Yes	New command for V4.0.x
setSfpMode	Yes	Yes	
setSplbMode	Yes	Yes	
sfpShow	Yes	Yes	Addition of the slot operand
slotOff	No	Yes	Specific to the StorageWorks Core switch
slotOn	No	Yes	Specific to the StorageWorks Core switch
slotpoweroff	No	Yes	Specific to the StorageWorks Core switch
slotpoweron	No	Yes	Specific to the StorageWorks Core switch
slotShow	No	Yes	Specific to the StorageWorks Core switch
snmpMibCapSet	Yes	Yes	
spinFab	Yes	Yes	New operands in V4.0.x
spinSilk	Yes	Yes	New operands in V4.0.x
sramRetentionTest	Yes	Yes	New operands in V4.0.x
statsTest	Yes	Yes	New operands in V4.0.x
supportShow	Yes	Yes	Addition of the slot operand
switchBeacon	Yes	Yes	
switchCfgSpeed	Yes	Yes	
switchCfgTrunk	Yes	Yes	
switchDisable	Yes	Yes	
switchEnable	Yes	Yes	
switchName	Yes	Yes	

Table 3–1: Fabric OS Command Version Support (Sheet 12 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
switchReboot	No	Yes	Reboots the current logical switch in StorageWorks Core switch
switchShow	Yes	Yes	
switchShutdown	No	Yes	Specific to the StorageWorks Core switch
switchStart	No	Yes	Specific to the StorageWorks Core switch
switchStatusPolicySet	Yes	Yes	
switchStatusPolicyShow	Yes	Yes	
switchStatusShow	Yes	Yes	
switchuptime	No	Yes	New command in V4.0.x
syslogdIpAdd	Yes	Yes	
syslogdIpRemove	Yes	Yes	
syslogdIpShow	Yes	Yes	
systemtest	No	Yes	New command in V4.0.x
tempShow	Yes	Yes	
topologyShow	Yes	Yes	
trackChangesSet	Yes	Yes	
trackChangesShow	Yes	Yes	
trunkDebug	Yes	Yes	
trunkShow	Yes	Yes	
turboRamTest	Yes	Yes	Addition of the slot operand
txdpath	No	Yes	New command for V4.0.x
uptime	Yes	Yes	
uRouteConfig	Yes	Yes	Addition of the area parameter
uRouteRemove	Yes	Yes	Addition of the area parameter

Table 3–1: Fabric OS Command Version Support (Sheet 13 of 13)

Command	Supported in V3.0.x	Supported in V4.0.x	Notes
uRouteShow	Yes	Yes	Addition of the slot operand
version	Yes	Yes	Output modified in V4.0.x
wwn	Yes	Yes	
zoneAdd	Yes	Yes	Specify members using area number in V4.0.x
zoneCreate	Yes	Yes	Specify members using area number in V4.0.x
zoneDelete	Yes	Yes	
zoneHelp	Yes	Yes	
zoneRemove	Yes	Yes	Specify members using area number in V4.0.x
zoneShow	Yes	Yes	

4

Fabric and Switch Management

This chapter explains the different methods used to manage an HP StorageWorks SAN switch. In order to manage a switch, you must have access to one of the available management methods.

- Fabric OS Command Line Interface on page 4–2

- Web Tools on page 4–3

- Fabric Manager on page 4–4

- Fabric Watch on page 4–5

- Fabric OS Access Layer (API) on page 4–5

- Management Server on page 4–6

Overview

Telnet, SNMP and Web Tools require that the switch be accessible using a network connection. The network connection can be from the switch Ethernet port (out of band) or from Fibre Channel (in band). The switch must be configured with an IP address to allow for the network connection. Refer to the hardware manual for your specific switch for information on physically connecting to the switch.

Before changing any of the factory default settings, become familiar with the operations described in this chapter, including both the switch functions and interactive characteristics.

NOTE: Switches can be accessed simultaneously from different connections. If this happens, changes from one connection may not be updated to the other, and some modifications may be lost. Make sure when connecting with simultaneous multiple connections that you do not overwrite the work of another connection.

User Access Level

There are four levels of user access for the HP switch:

- root
- factory
- admin
- user

In Fabric OS V4.0.x, each user access level can have the following number of simultaneous logins:

Table 4–1: StorageWorks Core switch User Access Maximum Sessions

User Name	Maximum Number of Simultaneous Sessions
Root	4
Factory	4
Admin	2
User	4
Web Tools	4

NOTE: In Fabric OS V3.0.x and earlier, multiple user access to a switch is limited. Each switch allows only a single session per management access method, regardless of user level. Switches can, however, be accessed simultaneously from different connections (for example, through the CLI and Web Tools). If this happens, changes from one connection may not be updated to the other, and some changes may be lost. Make sure when connecting with simultaneous multiple connections that you do not overwrite the work of another connection.

Fabric OS Command Line Interface

The Fabric OS command line interface (CLI) accessed through telnet or serial console provides the user with the full range of management capability on an HP switch. The Fabric OS CLI enables an administrator to monitor and manage entire fabrics, individual switches, and ports from a standard workstation. The entire suite of Fabric OS features and capabilities is available across an entire fabric, from a single access point.

Access is controlled by a switch level password for each user level (factory, root, admin, user). The commands available through the CLI are based on the users login level, and the license keys used to unlock certain features.

Generally speaking, all configuration, and management tasks are available using the admin or user level ID. The root and factory levels should be used with caution. This manual lists all the commands available to the User and Admin level login IDs.

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

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

- A full set of tools to assist administrators with the configuration, monitoring, dynamic provisioning, and daily management of every aspect of Storage Area Networks.

- Provides a deeper view of the tasks involved with managing an HP switch.

- Configure and manage the HP fabric on multiple efficient levels.

- Identify, isolate and manage SAN events across every switch in the fabric.

- Manage switch licenses.

- Perform Fabric Stamping.

Web Tools

Web Tools provides a graphical interface that allows the administrator to monitor and manage entire fabrics and individual switches and ports from a standard workstation.

Web Tools is an excellent partner to the traditional Fabric OS CLI commands, and in many ways can provide faster and more effective results than can be achieved strictly through the CLI. Following are some of the features that make Web Tools an important part of the switch management and administration process:

- Web Tools can be used simultaneously with Fabric OS CLI commands. Simply open a second window and you can take advantage of the benefits of both interfaces at the same time.

- Web Tools can help you find the appropriate Fabric OS CLI command to perform a desired function. For instance, you can perform a function using Web Tools, and watch in a second window as the Fabric OS CLI commands are displayed.

- Web Tools can be used from a standard workstation and provides the user the advantage of being "virtually" in front of any fabric, switch, or port.

- Web Tools makes zoning a simple "click and drag" process, rather than having to tediously type out IP addresses and port numbers to put in a configuration.

- Web Tools provides the "Performance Monitor" feature. This feature allows you to view the status and traffic of a switch or port in seconds by easily creating a variety of effective graphs.

- Web Tools is easy and intuitive to use.

Fabric Manager

Fabric Manager provides a graphical interface that allows the administrator to monitor and manage an entire fabric from a standard workstation. Fabric Manager can be used to manage fabrics containing integrated Fabrics, in addition to individual HP switches. Fabric Manager provides high-level information about all switches in the fabric, launching the Web Tools application when more detailed information is required. The launching of Web Tools is transparent, providing a seamless user interface. In addition to the ability to view the switches as a group, Fabric Manager provides improved performance over Web Tools alone. Fabric Manager is installed on the workstation, and can be used to manage any HP switches that have Fabric OS v2.2 or later.

Fabric Manager is the complete SAN management power tool for HP SANs, and provides the following advantages to administrators:

- Provides a highly scalable Java-based application that manages multiple switches and multiple fabrics (up to 8) in real-time.

- Assists SAN administrators with the configuration, monitoring, dynamic provisioning and daily management of Storage Area Networks.

- Lowers the cost of SAN ownership by intuitively facilitating SAN management tasks.

- Saves time by enabling the global integration and execution of processes across multiple fabrics, through its single-point SAN management platform.

- Allows more effective management by providing rapid access to critical SAN information across both Fabric OS SANs and enhanced Fabric OS SANs.

- Configure and manage the HP fabric on multiple efficient levels.

- Intelligently group multiple SAN objects and SAN management functions to provide ease and time-efficiency in administering tasks.

- Identify, isolate and manage SAN events across multiple switches and fabrics.

- Provide drill-down capability to individual SAN components through tightly coupled Web Tools and Fabric Watch integration.

- Discover all SAN components and view the real-time state of all HP fabrics.

- Execute multi-fabric administration of Secure Fabric OS SANs through a single encrypted console.

- Implement scalable SAN management tasks through functionality and tools that intelligently span 8 fabrics and 200 switches.

- Monitor Inter Switch Links (ISLs)

- Manage switch licenses

- Perform Fabric Stamping

Fabric Watch

Fabric Watch software monitors the performance and status of Fibre Channel networks and HP switches, and can alert SAN managers when problems arise. The real-time alerts from Fabric Watch software help SAN managers solve problems before they become costly failures. SAN managers can configure Fabric Watch software to monitor any of the following:

- Fabric events (such as topology re-configurations and zone changes)

- Physical switch conditions (such as fans, power supplies, and temperature)

- Port behavior (such as state changes, errors, and performance)

- SFPs behavior

With Fabric Watch software, SAN managers can place limits, or *thresholds*, on the behavior of different switch and fabric elements. Fabric Watch then monitors these behavior variables, or *counters*, and issues an alarm to address problems when a counter exceeds a threshold. An alarm may email the SAN manager or lock out a port log, depending on how the manager configures the alarm.

Fabric OS Access Layer (API)

The Fabric OS Access Layer is an application programming interface (API) that enables any application to access critical information about an HP SAN. With Fabric Access, an application can query or control individual switches or the entire fabric.

The Fabric OS Access Layer has the following advantages

- Use third party software to manage an HP fabric

- Ability to create SAN management applications specific to your needs, using the tools available in the Fabric OS

Management Server

The Management Server allows a Storage Area Network (SAN) management application to retrieve and administer the fabric and interconnect elements such as switches, servers, and storage devices.

An ACL of WWN addresses determines which systems have access to the Management Server database. If the list is empty (default), the Management Server is accessible to all systems connected in-band to the Fabric. For a more secured access, an administrator may specify WWNs in the ACL. These WWNs are usually associated with the management applications. If any WWNs are entered into the ACL then access to the Management Server is restricted to only those WWNs listed in the ACL.

5

Control Processor Commands

This chapter lists the commands available when logged into the Active CP and Standby CP in a StorageWorks Core switch.

Active CP Commands

When you are logged into the Active CP, the full suite of commands are supported (subject to which license keys are installed).

When you are logged into the Active CP, most commands are still specific to a single logical switch. That is, they are executed on one logical switch but not the other. If you are logged into the Active CP through the console port, you are prompted to specify the logical switch which commands are executed on. If you login to the Active CP through the Fabric OS telnet shell, commands always execute on the default switch (logical switch 0).

Some commands when executed from the Active CP affect the entire chassis. For example, when the reboot command is issued on the Active CP the command reboots both logical switches and the Active CP.

Standby CP Commands

The following commands are supported when logged into the Standby CP.

Table 5–1: StorageWorks Core switch Standby CP Commands

Command	Notes
date	Print/set the system date and time.
fastboot	Reboot switch, bypassing the POST.
firmwarecommit	Commit firmware to stable storage.
firmwaredownload	Download firmware into the switch.
h	Display shell history.

Table 5–1: StorageWorks Core switch Standby CP Commands (Continued)

hashow	Display high availability status
help	Display help commands available in the standby CP.
reboot	Reboot this processor. When executed from the Standby CP, only the Standby CP is rebooted.
myid	Display current login ID details.
savecore	FTP or Remove core files generated by daemons.
uptime	Display how long switch has been up.
version	Display firmware version information.

Glossary

This glossary defines terms used in this guide or related to this product and is not a comprehensive glossary of computer terms.

16-port card
The Fibre Channel port card provided with the StorageWorks Core switch. Contains 16 Fibre Channel ports and the corresponding LEDs indicating port status and speed.

See also port card.

8b/10b Encoding
An encoding scheme that converts each 8-bit byte into 10 bits. Used to balance ones and zeros in high-speed transports.

Access Control List
Enables an organization to bind a specific WWN to a specific switch port or set of ports, preventing a port in another physical location from assuming the identity of a real WWN. May also refer to a list of the Read/Write access of a particular community string.

See also device connection controls.

Account Level Switches
Refers to switches that have four login accounts into the operating system (in descending order): root, factory, admin, and user.

See also root account, factory account, admin account, and user account.

Address Identifier
A 24-bit or 8-bit value used to identify the source or destination of a frame.

Admin Account
A login account intended for use by the customer to control switch operation.

See also account level switches.

AL_PA

Arbitrated Loop Physical Address. A unique 8-bit value assigned during loop initialization to a port in an arbitrated loop.

Alias

An alternate name for an element or group of elements in the fabric. Aliases can be used to simplify the entry of port numbers and WWNs when creating zones.

Alias Address Identifier

An address identifier recognized by a port in addition to its standard identifier. An alias address identifier may be shared by multiple ports.

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. The governing body for Fibre Channel standards in the U.S.A.

API

Application Programming Interface. Defined protocol that allows applications to interface with a set of services.

Arbitrated Loop

A shared 100 or 200 MBps Fibre Channel transport structured as a loop. Can support up to 126 devices and one fabric attachment.

See also topology.

Arbitrating State

The state in which a port has become the loop master. This state is only available from the Open state.

Area Number
A number assigned to each potential port location in the StorageWorks Core switch. Used to distinguish StorageWorks Core switch ports that have the same port number but are on different port Blades.

ASIC
Application Specific Integrated Circuit.

ATM
Asynchronous Transfer Mode. A transport used for transmitting data over LANs or WANs that transmit fixed-length units of data. Provides any-to-any connectivity, and allows nodes to transmit simultaneously.

Auto-negotiate Speed
Process that allows two devices at either end of a link segment to negotiate common features, speed (e.g., 1 or 2 Gbps) and functions.

Autosense
Process during which a network device automatically senses the speed of another device.

AW_TOV
Arbitration Wait Time-out Value. The minimum time an arbitrating L_Port waits for a response before beginning loop initialization.

Backup FCS Switch
Backup fabric configuration server switch. The switch or switches assigned as backup in case the primary FCS switch fails.

See also FCS switch, primary FCS switch.

Bandwidth
The total transmission capacity of a cable, link, or system. Usually measured in bps (bits per second). May also refer to the range of transmission frequencies available to a network.

See also throughput.

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
When all the port LEDs on a switch are set to flash from one side of the switch to the other, to enable identification of an individual switch in a large fabric. A switch can be set to beacon by telnet command or through Web Tools.

Beaconing
The state of the switches LEDs when the switch is set to Beacon.

See also Beacon.

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.

Bit Synchronization
See BER.

Blade
See 16-port card.

Blind-mate Connector
A two-way connector used in some switches to provide a connection between the motherboard and the power supply.

Block
As applies to Fibre Channel, upper-level application data that is transferred in a single sequence.

Blower Assembly
A fan that prevents a switch (or individual elements within a switch) from overheating.

Boot Flash
Flash memory that stores the boot code and boot parameters. The processor executes its first instructions from boot flash. Data is cached in RAM.

Boot Monitor
Code used to initialize the CP (control processor) environment after powering on. Identifies the amount of memory available and how to access it, and retrieves information about system buses.

Broadcast
The transmission of data from a single source to all devices in the fabric, regardless of zoning.

See also 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.

Cascade
Two or more interconnected Fibre Channel switches. StorageWorks 1 Gb SAN switches (running Fabric OS V2) and later 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.

Chassis
The metal frame in which the switch and switch components are mounted.

Circuit
An established communication path between two ports. Consists of two virtual circuits capable of transmitting in opposite directions.

See also link.

Class 1
Service that provides a dedicated connection between two ports (also called connection-oriented service), with notification of delivery or nondelivery.

Class 2
Service that provides multiplex and connectionless frame switching service between two ports, with notification of delivery or nondelivery.

Class 3

Service that provides a connectionless frame switching service between two ports, without notification of delivery or nondelivery of data. This service can also be used to provide a multicast connection between the originator and recipients, with notification of delivery or nondelivery.

Class F

Connectionless service for control traffic between switches, with notification of delivery or nondelivery of data between the E_Ports.

Class of Service

A specified set of delivery characteristics and attributes for frame delivery.

CLI

Command line interface. Interface that depends entirely on the use of commands, such as through telnet or SNMP, and does not involve a Graphic User Interface (GUI).

CLS

Close Primitive Signal. Only in an Arbitrated Loop; sent by an L_Port that is currently communicating on the loop, to close communication to an other L_Port.

Comma

A unique pattern (either 1100000 or 0011111) used in 8b/10b encoding to specify character alignment within a data stream.

See also K28.5.

Community (SNMP)

A relationship between a group of SNMP managers and an SNMP agent, in which authentication, access control, and proxy characteristics are defined.

See also SNMP.

Compact Flash

Flash memory that stores the run-time operating system and is used like hard disk storage. Not visible within the processor's memory space. Data is stored in file system format.

Configuration

How a system is set up. May refer to hardware or software.

- Hardware: The number, type, and arrangement of components that make up a system or network.
- Software: The set of parameters that guide switch operation. May include general system parameters, IP address information, domain ID, and other information. Modifiable by any login with administrative privileges.

May also refer to a set of zones.

See also zone configuration.

Connection Initiator

A port that has originated a Class 1 dedicated connection and received a response from the recipient.

Connection Recipient

A port that has received a Class 1 dedicated connection request and transmitted a response to the originator.

Control Panel

Refers to the left-side panel of Web Tools, which accesses fabric-wide functions such as Zoning and Events.

Core Switch

A switch whose main task is to interconnect other switches.

See also SAN switch.

CP Card

Control Processor Card. The central processing unit of the StorageWorks Core switch, which contains two CP Card slots to provide redundancy. Provides Ethernet, serial, and modem ports with the corresponding LEDs.

CRC

Cyclic Redundancy Check. A check for transmission errors included in every data frame.

Credit

As applies to Fibre Channel, the number of receive buffers available for transmission of frames between ports.

See also BB_Credit, EE_Credit.

CT_HDR
Common Transport Header. A header that conforms to the Fibre Channel Common Transport (FC_CT) protocol.

CT_IU
Common Transport Information Unit. An information unit that conforms to the Fibre Channel Common Transport (FC_CT) protocol.

Current Fill Word
The fill word currently selected by the LPSM.

See also fill word, LPSM.

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.

Data Word
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.

DB-9 connector
A 9-pin version of the RS-232C port interface. May be either the male of female interface.

See also RS-232 port.

dBm
Logarithmic unit of power used in electronics. Indicates signal strength in decibels above the reference level, which is 1 milliwatt for dBm. An increase of 10 dBm or represents a 10-fold increase in power.

DCE port
A data communications equipment port capable of interfacing between a DTE (data terminal equipment) port and a transmission circuit. DTE devices with an RS-232 (or EIA-232) port interface transmit on pin 3, and receive on pin 2.

See also DTE port, RS-232 port.

Defined Zone Configuration

The set of all zone objects defined in the fabric. May include multiple zone configurations.

See also enabled zone configuration, zone configuration.

Device Connection Controls

Enables organizations to bind an individual device port to a set of one or more switch ports. Device ports are specified by a WWN and typically represent HBAs (servers).

See also access control lists.

Device

A disk, a RAID, or an HBA.

Disparity

The relationship of ones and zeros in an encoded character. "Neutral disparity" means an equal number of each, "positive disparity" means a majority of ones, and "negative disparity" means a majority of zeros.

DLS

Dynamic Load Sharing. Dynamic distribution of traffic over available paths. Allows for recomputing of routes when an Fx_Port or E_Port changes status.

Domain ID

As applies to HP StorageWorks switches, a unique number between 1 and 239 that identifies the switch to the fabric and is used in routing frames. Usually automatically assigned by the switch, but can be manually assigned.

DTE port

A data terminal equipment port capable of interfacing to a transmission circuit through a connection to a DCE (data communications equipment) port. DTE devices with an RS-232 (or EIA-232) port interface transmit on pin 3, and receive on pin 2 in a 9-pin connector (reversed in 25-pin connectors).

See also DCE port, RS-232 port.

DWDM

Dense Wavelength Multiplexing. A means to concurrently transmit more than one stream of data through a single fiber by modulating each stream of data onto a different wavelength of light.

E_D_TOV

Error Detect Time-out Value. The minimum amount of time a target waits for a sequence to complete before initiating recovery. Can also be defined as the maximum time allowed for a round-trip transmission before an error condition is declared.

See also R_A_TOV, RR_TOV.

E_Port

Expansion Port. A type of switch port that can be connected to an E_Port on another switch to create an ISL.

See also ISL.

EE_Credit

End-to-end Credit. The number of receive buffers allocated by a recipient port to an originating port. Used by Class 1 and 2 services to manage the exchange of frames across the fabric between source and destination.

See also End-to-end Flow Control, BB_Credit.

EIA Rack

A storage rack that meets the standards set by the Electronics Industry Association.

ELWL

Extra Long Wave Length. Laser light with a periodic length greater than 1300 nm (e.g., 1420 or 1550). ELWL lasers are used to transmit Fibre Channel data over distances greater than 10 Km.

Also known as XLWL.

Enabled Zone Configuration

The currently enabled zone configuration. 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

Basic HP license that allows one E_Port per switch. Not supported by StorageWorks Core switches.

Error

As applies to Fibre Channel, a missing or corrupted frame, time-out, loss of synchronization, or loss of signal (link errors).

See also loop failure.

ESD

Electrostatic Discharge.

Exchange

The highest level Fibre Channel mechanism used for communication between N_Ports. Composed of one or more related sequences, and can work in either one or both directions.

Extended Fabric

An HP product that runs on Fabric OS and allows creation of a Fibre Channel fabric interconnected over distances of up to 100 kilometers.

Extended Fabric is a means of allowing the implementation and management of SANs over extended distances. This is achieved by adjusting the Buffer-to-Buffer Credits to guaranteed allocation of buffers to specific ports.

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.

Fabric

A Fibre Channel network containing two or more interconnected switches in addition to hosts and devices. May also be referred to as a switched fabric.

See also topology, SAN, cascade.

Fabric Access

An HP product that consists of a set of APIs that allow third party applications to interface with Fabric OS.

Fabric Access allows the application to control the fabric directly for functions such as discovery, access (zoning), management, performance, and switch control. Consists of a host-based library that interfaces the application to switches in the fabric over an out-of-band TCP/IP connection or in-band using an IP-capable Host Bus Adapter (HBA).

Fabric Assist
An HP feature that enables private and public hosts to access public targets anywhere on the fabric, provided they are in the same Fabric Assist zone. This feature is available only when both QuickLoop and Zoning are installed on the switch.

Fabric Assist is a means of allowing private hosts to communicate with public targets across a switched fabric. Fabric Assist also allows private hosts to communicate with private targets that are not resident on the same switch across a switched fabric.

See also QuickLoop.

Fabric Configuration Server
One or more designated HP switches that store and manage the configuration parameters for all other switches in the fabric. These switches are designated by WWN, and the list of designated switches is known fabric-wide.

Fabric Manager
An HP product that works in conjunction with Web Tools to provide a graphical user interface for managing switch groups (such as the SAN Switch Integrated/32) as a single unit, instead of as separate switches. Fabric Manager is installed on and run from a computer workstation.

Fabric Name
The unique identifier assigned to a fabric and communicated during login and port discovery.

Fabric OS
The proprietary operating system on HP StorageWorks switches.

Fabric Watch
An HP product that runs on Fabric OS and allows monitoring and configuration of fabric and switch elements.

Allows the SAN manager to monitor key fabric and switch elements, making it easy to quickly identify and escalate potential problems. It monitors each element for out-of-boundary values or counters and provides notification when defined boundaries are exceeded. The SAN manager can configure which elements, such as error, status, and performance counters, are monitored within an HP switch.

See also Fabric Manager.

Factory Account
A login used during manufacturing to initialize and test a switch and is not intended for customer use.

See also account level switches.

Failover
The act that causes control to pass from one redundant unit to another. In the StorageWorks Core switch one may failover from the currently Active Control Processor (CP) to the Standby CP.

FAN
Fabric access notification. Retains the AL_PA and fabric address when loop re-initializes (if the switch supports FAN).

FC-AL-3
The Fibre Channel Arbitrated Loop standard defined by ANSI. Defined on top of the FC-PH standards.

FC-FLA
The Fibre Channel Fabric Loop Attach standard defined by ANSI.

FCIA
Fibre Channel Industry Association. An international organization of Fibre Channel industry professionals. Among other things, provides oversight of ANSI and industry developed standards.

FCP
Fibre Channel Protocol. Mapping of protocols onto the Fibre Channel standard protocols. For example, SCSI FCP maps SCSI-3 onto Fibre Channel.

FC-PH-1, 2, 3
The Fibre Channel Physical and Signaling Interface standards defined by ANSI.

FC-PI
The Fibre Channel Physical Interface standard defined by ANSI.

FC-PLDA
The Fibre Channel Private Loop Direct Attach standard defined by ANSI. Applies to the operation of peripheral devices on a private loop.

FCS switch

Fabric configuration server switch. One or more designated HP switches that store and manage the configuration parameters for all switches in the fabric. FCS switches are designated by WWN, and the list of designated switches is communicated fabric-wide.

See also backup FCS switch, primary FCS switch.

FC-SW-2

The second generation of the Fibre Channel Switch Fabric standard defined by ANSI. Specifies tools and algorithms for the interconnection and initialization of Fibre Channel switches in order to create a multi-switch Fibre Channel fabric.

Fibre Channel Transport

A protocol service that supports communication between Fibre Channel service providers.

See also FSP.

FIFO

First In, First Out. May also refer to a data buffer that follows the first in, first out rule.

Fill Word

An IDLE or ARB ordered set that is transmitted during breaks between data frames to keep the Fibre Channel link active.

Firmware Download

Loading firmware down from a server into a switch.

Firmware

The basic operating system provided with the hardware.

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 Partition

Two redundant usable areas, called "partitions," into which firmware can be downloaded in the StorageWorks Core switch.

Flash

Programmable NVRAM memory that maintains its contents.

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.

Frame
The Fibre Channel structure used to transmit data between ports. Consists of a start-of-frame delimiter, header, any optional headers, the data payload, a cyclic redundancy check (CRC), and an end-of-frame delimiter. There are two types of frames: Link control frames (transmission acknowledgements, etc.) and data frames.

See also Data Word.

FRU
Field Replaceable Unit. A component that can be replaced on site.

FS_ACC
Fibre Channel Services Accept. The information unit used to indicate acceptance of a request for a Fibre Channel service.

FS_IU
Fibre Channel Services Information Unit. An information unit that has been defined by a Fibre Channel service.

FS_REQ
Fibre Channel Services Request. A request for a Fibre Channel services function, or notification of a fabric condition or event.

FS_RJT
Fibre Channel Services Reject. An indication that a request for Fibre Channel services could not be processed.

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.

FSPF
Fabric Shortest Path First. HP routing protocol for Fibre Channel switches.

FSP

Fibre Channel Service Protocol. The common protocol for all fabric services, transparent to the fabric type or topology.

See also FS.

Full Fabric

The HP license that allows multiple E_Ports on a switch, making it possible to create multiple ISL links.

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 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. Typically refers only to the SC-form factor transceivers.

See also SFP.

Gbps

Gigabits per second (1,062,500,000 bits/second).

GBps

Gigabytes per second (1,062,500,000 bytes/second).

Half-duplex
A mode of communication that allows a port to either transmit or receive frames at any time, but not simultaneously (with the exception of link control frames, which can be transmitted at any time).

See also 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. The following two hardware translative modes are available to a QuickLoop-enabled switch:

• Standard Translative Mode: Allows public devices to communicate with private devices that are directly connected to the fabric.

• QuickLoop Mode: Allows initiator devices to communicate with private or public devices that are not in the same loop.

HBA
Host Bus Adapter. The interface card between a server or workstation bus and the Fibre Channel network.

High Availability
An attribute of equipment that identifies it as being capable of conducting customer operations well in excess of 99% of the time. Typically High Availability is identified by the number of nines in that percentage. "Five Nines" means the equipment is rated as being capable of conducting customer operations 99.999% of the time without failure.

Host
A computer that accesses storage devices over the fabric. May also be referred to as a server.

See also workstation.

Hot Pluggable
A FRU capability that indicates it may be extracted or installed while customer data is otherwise flowing in the chassis.

Hub
A Fibre Channel wiring concentrator that collapses a loop topology into a physical star topology. Nodes are automatically added to the loop when active and removed when inactive.

IBTA

The InfiniBand Trade Association (IBTA). The IBTA is an industry consortium of more than 200 companies working together to develop a new common I/O specification designed to bring greater scalability and performance to server I/O. InfiniBand defines a new channel based, switched-fabric technology for server-to-server and server-to-I/O interconnection that is expected to improve scalability and performance over existing PCI Bus technologies.

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.

Infiniband

See IBTA.

Initiator

A server or workstation on a Fibre Channel network that initiates communications with storage devices.

See also Target.

Integrated Fabric

The fabric created by a SAN Switch Integrated/32 and SAN Switch Integrated/64, consisting of six SAN Switch 16-EL switches cabled together and configured to handle traffic as a seamless group.

IOD

In-order Delivery. A parameter that, when set, guarantees that frames are either delivered in order or dropped.

IPA

Initial Process Associator. An identifier associated with a process at an N_Port.

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.

ISL

Interswitch Link. a Fibre Channel link from the E_Port of one switch to the E_Port of another.

See also E_Port, cascade, ISL trunking.

ISL Trunking

An HP feature that enables distribution of traffic over the combined bandwidth of up to four ISLs (between adjacent switches), while preserving in-order delivery. A set of trunked ISLs is called a trunking group; each port employed in a trunking group is called a trunking port.

See also Master Port.

IU

Information Unit. A set of information as defined by either 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.

K28.5

A special 10-bit character used to indicate the beginning of a transmission word that performs Fibre Channel control and signaling functions. The first seven bits of the character are the comma pattern.

See also comma.

Kernel Flash

lash memory that stores the bootable kernel code and is visible within the processor's memory space. Data is stored as raw bits.

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.

L_Port

Loop Port. A node port (NL_Port) or fabric port (FL_Port) that has arbitrated loop capabilities. An L_Port can be in one of two modes:

- *Fabric mode.* Connected to a port that is not loop capable, and using fabric protocol.

- *Loop mode.* In an arbitrated loop and using loop protocol. An L_Port in loop mode can also be in participating mode or non-participating mode.

See also Non-participating Mode, Participating Mode.

Latency

The period of time required to transmit a frame, from the time it is sent until it arrives. Together, latency and bandwidth define the speed and capacity of a link or system.

LED

Light Emitting Diode. Used on HP switches to indicate the status of various switch elements.

Link Services

A protocol for link-related actions.

Link

As applies to Fibre Channel, a physical connection between two ports, consisting of both transmit and receive fibers.

See also Circuit.

LIP

Loop Initialization Primitive. The signal used to begin initialization in a loop. Indicates either loop failure or resetting of a node.

LIS_HOLD_TIME

Loop Initialization Sequence Hold Time. The maximum period of time for a node to forward a loop initialization sequence**.**

LM_TOV

Loop Master Time-out Value. The minimum time that the loop master waits for a loop initialization sequence to return.

Login BB_Credit

The number of receive buffers a receiving L_Port has available when a circuit is first established.

See also BB_Credit.

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 time-out value.

See also error.

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_ID
A hex value representing one of the 127 possible AL_PA values in an arbitrated loop.

Looplet
A set of devices connected in a loop to a port that is a member of another loop.

LPSM
Loop Port State Machine. The logical entity that performs arbitrated loop protocols and defines the behavior of L_Ports when they require access to an arbitrated loop.

LWL
Long Wavelength. A type of fiber optic cabling that is based on 1300-mm lasers and supports link speeds of 1.0625 Gbps. May also refer to the type of GBIC or SFP.

See also SWL.

Master Port
As relates to trunking, the port that determines the routing paths for all traffic flowing through the trunking group. One of the ports in the first ISL in the trunking group is designated as the master port for that group.

See also ISL Trunking.

Media
See transceiver.

MIB
Management Information Base. An SNMP structure to help with device management, providing configuration and device information.

Modem Serial Port
The upper serial port on the CP Card of the StorageWorks Core switch. Can be used to connect the CP Card to a modem with a standard 9-pin modem cable. Consists of a DB-9 connector wired as a RS-232 device, and can be connected by serial cable to a DCE device. A Hayes-compatible modem or Hayes-emulation is required. The device name is ttyS1.

See also DB-9 connector, DCE port, terminal serial port.

Monitoring State
The state in which a port is monitoring the flow of information for data relevant to the port.

Multicast
The transmission of data from a single source to multiple specified N_Ports (as opposed to all the ports on the network).

See also broadcast, unicast.

Multimode
A fiber optic cabling specification that allows up to 500 meters between devices for 1 Gb, or 300 meters between devices for 2 Gb.

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.

NAA
Network Address Authority. An identifier that indicates the format of a network address.

Name Server
Frequently used to indicate Simple Name Server.

See also SNS.

Native Address Identifier
A unique, 64-bit address is assigned to each port, and is referred to as its World-Wide Name (WWN). If a port connects to an arbitrated loop, it will also be assigned a dynamic 8-bit address, referred to as its arbitrated loop physical address, or AL_PA. If it connects to a fabric, it will be assigned a dynamic 24-bit address, referred to as its Native Address Identifier.

Negotiate
See auto-negotiate speed and autosense.

NL_Port
Node Loop Port. A node port that has arbitrated loop capabilities. Used to connect an equipment port to the fabric in a loop configuration through an FL_Port.

See also N_Port, Nx_Port.

Node Name
The unique identifier for a node, communicated during login and port discovery.

Node
A Fibre Channel device that contains an N_Port or NL_Port.

Non-participating Mode
A mode in which an L_Port in a loop is inactive and cannot arbitrate or send frames, but can retransmit any received transmissions. This mode is entered if there are more than 127 devices in a loop and an AL_PA cannot be acquired.

See also L_Port, Participating Mode.

Nx_Port
A node port that can operate as either an N_Port or NL_Port.

Open Originator
The L_Port that wins arbitration in an arbitrated loop and sends an OPN ordered set to the destination port, then enters the Open state.

Open Recipient
The L_Port that receives the OPN ordered set from the open originator, and then enters the Open state.

Open State
The state in which a port can establish a circuit with another port. A port must be in the Open state before it can arbitrate.

OPN
Open Primitive Signal.

Ordered Set
A transmission word that uses 8B/10B mapping and begins with the K28.5 character. Ordered sets occur outside of frames, and include the following items:

- *Frame delimiters.* Mark frame boundaries and describe frame contents.
- *Primitive signals.* Indicate events.
- *Primitive sequences.* Indicate or initiate port states.

Ordered sets are used to differentiate Fibre Channel control information from data frames and to manage the transport of frames.

Packet

A set of information transmitted across a network.

See also Frame.

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, Non-participating Mode.

Path Selection

The selection of a transmission path through the fabric. HP StorageWorks switches use the FSPF protocol.

Performance Monitor

Comprehensive HP tool for monitoring the performance of networked storage resources.

Performance Monitoring

An HP product that provides error and performance information to the administrator and end user for use in storage management.

Phantom Address

An AL_PA value that is assigned to an 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.

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 Cage

The metal casing extending out of the optical port on the switch, and in which the SFP can be inserted.

Port Card

A Fibre Channel card that contains optical or copper port interfaces, and acts like a switch module.

See also 16-port card.

Port Module

A collection of ports in a switch.

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.

Primary FCS Switch

Primary fabric configuration server switch. The switch that actively manages the configuration parameters for all switches in the fabric.

See also backup FCS switch, FCS switch.

Private Device

A device that supports arbitrated loop protocol and can interpret 8-bit addresses, but cannot log into the fabric.

Private Loop

An arbitrated loop that does not include a participating FL_Port.

Private NL_Port

An NL_Port that communicates only with other private NL_Ports in the same loop and does not log into the fabric.

Protocol

A defined method and a set of standards for communication.

PSU

Power Supply Unit.

Public Device
A device that supports arbitrated loop protocol, can interpret 8-bit addresses, and can log into the fabric.

Public Loop
An arbitrated loop that includes a participating FL_Port, and may contain both public and private NL_Ports.

Public NL_Port
An NL_Port that logs into the fabric, can function within either a public or a private loop, and can communicate with either private or public NL_Ports.

Quad
A group of four adjacent ports that share a common pool of frame buffers.

QuickLoop
An HP StorageWorks product that makes it possible to allow private devices within loops to communicate with public and private devices across the fabric through the creation of a larger loop.

May also refer to the arbitrated loop created using this software. A QuickLoop can contain a number of devices or looplets; all devices in the same QuickLoop share a single AL_PA space.

A means of allowing private hosts to communicate with private targets across a switched fabric.

The QuickLoop/Fabric Assist feature also allows:

- private hosts to communicate with public targets across a switched fabric.
- private hosts to communicate with private targets that are not resident on the same switch across a switched fabric.

See also Fabric Access, fabric assist, and translative mode.

QuickLoop Zoning
Protects devices from disruption by unrelated devices during critical processes; for example, during a tape backup session.

R_A_TOV
Resource Allocation Time-out Value. The maximum time a frame can be delayed in the fabric and still be delivered.

See also E_D_TOV, RR_TOV.

R_RDY

Receiver ready. A primitive signal indicating that the port is ready to receive a frame.

RAID

Redundant Array of Independent Disks. A collection of disk drives that appear as a single volume to the server and are fault tolerant through mirroring or parity checking.

See also JBOD.

Remote Fabric

A fabric that spans across WANs by using protocol translation (a process also known as tunneling) such as Fibre Channel over ATM or Fibre Channel over IP.

Remote Switch

Bridges two switches into a SAN as large as 3000KM or more through protocol encapsulation in ATM networks via the Computer Network Technologies (CNT) UltraNet Open Systems Gateway.

Request Rate

The rate at which requests arrive at a servicing entity.

See also service rate.

RLS Probing

Read link status of the AL_PAs.

Root Account

A login used for debugging purposes by HP engineers and is not intended for customer use.

See also account level switches.

Route

As applies to a fabric, the communication path between two switches. May also apply to the specific path taken by an individual frame, from source to destination.

See also FSPF.

Routing

The assignment of frames to specific switch ports, according to frame destination.

RR_TOV

Resource Recovery Time-out Value. The minimum time a target device in a loop waits after a LIP before logging out a SCSI initiator.

See also E_D_TOV, R_A_TOV.

RS-232 port

A port that conforms to a set of Electrical Industries Association (EIA) standards. Used to connect DTE and DCE devices for communication between computers, terminals, and modems.

See also DCE port, DTE port.

RSCN

Registered State Change Notification. A switch function that allows notification of fabric changes to be sent from the switch to specified nodes.

RX_ID

Responder Exchange Identifier. A 2-byte field in the frame header used by the responder of the Exchange to identify frames as being part of a particular exchange.

SAN

Storage Area Network. A network of systems and storage devices that communicate using Fibre Channel protocols.

See also fabric.

SAN Switch

A switch whose main task is to connect nodes into the fabric.

See also core switch.

SCSI

Small Computer Systems Interface. A parallel bus architecture and protocol for transmitting large data blocks to a distance of 15 - 25 meters.

SDRAM

Synchronous Dynamic Random Access Memory. The main memory for the switch. Used for volatile storage during switch operation.

See also flash.

Sequence

A group of related frames transmitted in the same direction between two N_Ports.

Service Rate

The rate at which an entity can service requests.

See also request rate.

SFF

Small Form Factor.

SFP Cable

The latest innovation in high-speed copper cabling for Fibre Channel and InfiniBand. It incorporates the SFP module directly onto the cable assembly, eliminating the need for a separate SFP copper module and an HSSDC2 cable assembly.

SFP

Small form factor pluggable. A transceiver used on 2 Gbps switches that replaces the GBIC. Refers to the LC-form factor transceiver.

See also GBIC.

SID/DID

Source identifier/Destination identifier. S_ID is a 3-byte field in the frame header that is used to indicate the address identifier of the N_Port from which the frame was sent.

Single Mode

The fiber optic cabling standard that, when used in conjunction with a 1300 nm laser light, can transfer data up to 10 km between devices. When used in conjunction with a 1550 nm laser light, single mode cabling can transfer data over 10 km.

See also multimode, LWL, ELWL, and XLWL.

SI

Sequence Initiative.

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).

SNMPv1

The original SNMP, now labeled v1.

SNS
Simple Name Server. A switch service that stores names, addresses, and attributes for up to 15 minutes, and provides them as required to other devices in the fabric. SNS is defined by Fibre Channel standards and exists at a well-known address. May also be referred to as directory service.

See also FS.

StorageWorks SAN switch
The brand name for the HP family of switches.

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
Hardware that routes frames according to Fibre Channel protocol and is controlled by software.

SWL
Short Wavelength. A type of fiber optic cabling that is based on 850-mm lasers and supports 1.0625-Gbps link speeds. May also refer to the type of GBIC or SFP.

See also LWL.

Tachyon
A chip developed by Hewlett-Packard, and used in various devices. This chip has FC-0 through FC-2 on one chip.

Target
A storage device on a Fibre Channel network.

See also Initiator.

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.

Terminal Serial Port
May also be referred to as the console port. The lower serial port on the CP Card of the StorageWorks Core switch. This port sends switch information messages and can receive commands. Can be used to connect the CP Card to a computer terminal. Has an RS-232 connector wired as a DTE device, and can be connected by serial cable to a DCE device. The connector pins two and three are swapped so that a straight-through cable can be used to connect to a terminal. The device name is ttyS0.

See also DCE port, modem serial port.

Throughput
The rate of data flow achieved within a cable, link, or system. Usually measured in bps (bits per second).

See also bandwidth.

Topology
As applies to Fibre Channel, 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.

Transceiver
Device that converts one form of signaling to another for transmission and reception; in fiber optics, it refers to optical and electrical.

Transfer State
The state in which a port can establish circuits with multiple ports without reentering the arbitration cycle for each circuit. This state can only be accessed by an L_Port in the Open state.

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.

See also data word.

Trap (SNMP)
The message sent by an SNMP agent to inform the SNMP management station of a critical error.

See also SNMP.

Trunking
See ISL Trunking.

Tunneling
A technique for enabling two networks to communicate when the source and destination hosts are both on the same type of network, but are connected by a different type of network.

U_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_TOV
Upper-level Time-out Value. The minimum time that a SCSI ULP process waits for SCSI status before initiating ULP recovery.

ULP
Upper-level Protocol. The protocol that runs on top of Fibre Channel. Typical upper-level protocols are SCSI, IP, HIPPI, and IPI.

Unicast
The transmission of data from a single source to a single destination.

See also broadcast, multicast.

user account
A login intended for use by the customer to monitor, but not control, switch operation.

See also account level switches.

VC
Virtual circuit. A one-way path between N_Ports that allows fractional bandwidth.

Web Tools

An HP product that runs on Fabric OS and provides a graphical interface to allow monitoring and management of individual switches or entire fabrics from a standard workstation running a browser.

Well-known Address

As pertaining to Fibre Channel, a logical address defined by the Fibre Channel standards as assigned to a specific function, and stored on the switch.

Workstation

A computer used to access and manage the fabric. May also be referred to as a management station or host.

WWN

World-Wide Name. An identifier that is unique worldwide. Each entity in a fabric has a separate WWN.

XLWL

Xtra Long Wave Length. Laser light with a periodic length greater than 1300 nm (e.g., 1420 or 1550). XLWL lasers are used to transmit Fibre Channel data over distances greater than 10 Km.

Also known as ELWL.

Xmitted Close State

The state in which an L_Port cannot send messages, but can retransmit messages within the loop. A port in the XMITTED CLOSE state cannot attempt to arbitrate.

Zone

A set of devices and hosts attached to the same fabric and configured as being in the same zone. Devices and hosts within the same zone have access permission to others in the zone, but are not visible to any outside the zone.

See also Zoning.

Zone Alias

A name assigned to a device or group of devices in a zone. Aliases can greatly simplify the zone administrative process.

See also alias.

Zone Configuration

A specified set of zones. Enabling a configuration enables all zones in that configuration.

See also defined zone configuration, enabled zone configuration.

Zone Member

A port, node, WWN, or alias, which is part of a zone.

Zone Schemes

The level of zoning granularity selected. For example, zoning may be done by switch/port, WWN, AL_PA, or a mixture.

See also zone configuration.

Zone Set

See zone configuration.

Zoning

An HP product that runs on Fabric OS and allows partitioning of the fabric into logical groupings of devices. Devices in a zone can only access and be accessed by devices in the same zone.

See also zone.

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