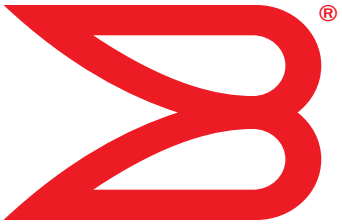
53-1002164-01
29 April 2011



Converged Enhanced Ethernet

Command Reference

Supporting Fabric OS v7.0.0

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Document History

Title	Publication number	Summary of changes	Date
Converged Enhanced Ethernet Command Reference	*53-1001217-01*	New document.	March 2009
Converged Enhanced Ethernet Command Reference	*53-1001347-01*	Updated for Fabric OS v6.3.0 Added new commands for 802.1x Port Authentication.	July 2009
Converged Enhanced Ethernet Command Reference	*53-1001762-01*	Added new commands for IGMP.	March 2010
Converged Enhanced Ethernet Command Reference	*53-1002062-01*	Added new commands for iSCSI TLV configuration.	October 2010
Converged Enhanced Ethernet Command Reference	*53-1002164-01*	Updated for Fabric OS v7.0.0.	April 2011

Contents

About This Document

In this chapter

How this document is organized

This document is organized to help you find the information that you want as quickly and easily as possible.

The document contains the following components:

- Chapter 1, "CLI Basics" describes how to access the switch and the CEE CLI command modes.
- Chapter 2, "CEE Commands" describes the commands to manage the configuration files and includes other file management commands.

Supported hardware and software

This document includes updated information specific to Fabric OS 7.0.0. The following hardware platforms are supported in this release of the CEE Administrator's Guide:

- Brocade 8000

The following blades are supported by this release of the CEE Administrator's Guide:

- Brocade FCOE10-24 blade

Within this manual, any appearance of the term "Brocade FCoE hardware" is referring to:

- Brocade 8000
- Brocade FCOE10-24 port blade

Although many different software and hardware configurations are tested and supported by Brocade Communications Systems, Inc. for Fabric OS 7.0.0, documenting all possible configurations and scenarios is beyond the scope of this document.

To obtain information about an OS version other than Fabric OS v7.0.0, refer to the documentation specific to that OS version.

What's new in this document

This document has been updated for for Fabric OS v7.0.0.

This document has been updated with corrections and updates for defects discovered since the release of the previous version.

For further information about new features and documentation updates for this release, refer to the release notes.

Document conventions

This section describes text formatting conventions and important notice formats used in this document.

Text formatting

The narrative-text formatting conventions that are used are as follows:

bold text	Identifies command names Identifies the names of user-manipulated GUI elements Identifies keywords and operands Identifies text to enter at the GUI or CLI
italic text	Provides emphasis Identifies variables Identifies paths and Internet addresses Identifies document titles
`code` text	Identifies CLI output Identifies command syntax examples

For readability, command names in the narrative portions of this guide are presented in mixed lettercase: for example, **switchShow**. In actual examples, command lettercase is all lowercase.

Command syntax conventions

Command syntax in this manual follows these conventions:

TABLE 1 Command syntax conventions

Convention	Description
[ ]	Default responses to system prompts appear in square brackets.
{x | y | z}	A choice of required keywords appears in braces separated by vertical bars. You must select one.
`screen font`	Examples of information displayed on the screen.
<>	Nonprinting characters, for example passwords, appear in angle brackets
[ ]	Keywords or arguments that appear within square brackets are optional.
bold face font	Commands and keywords.
italic	Variables for which you supply values.

Notes, cautions, and warnings

The following notices and statements are used in this manual. They are listed below in order of increasing severity of potential hazards.

NOTE
A note provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION
An Attention statement indicates potential damage to hardware or data.

CAUTION
A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

DANGER
A Danger statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Key terms

For definitions specific to Brocade and Fibre Channel, see the technical glossaries on Brocade Connect. See "Brocade resources" on page xiv for instructions on accessing Brocade Connect.

Notice to the reader

This document may contain references to the trademarks of the following corporations. These trademarks are the properties of their respective companies and corporations.

These references are made for informational purposes only.

Corporation	Referenced Trademarks and Products
Microsoft Corporation	Windows, Windows NT, Internet Explorer
Oracle Corporation	Oracle, Java
Netscape Communications Corporation	Netscape
Red Hat, Inc.	Red Hat, Red Hat Network, Maximum RPM, Linux Undercover

Additional information

This section lists additional Brocade and industry-specific documentation that you might find helpful.

Brocade resources

To get up-to-the-minute information, go to *http://my.brocade.com* and register at no cost for a user ID and password.

White papers, online demonstrations, and data sheets are available through the Brocade website at:

http://www.brocade.com/products-solutions/products/index.page

For additional Brocade documentation, visit the Brocade website:

http://www.brocade.com

Release notes are available on the MyBrocade website and are also bundled with the Fabric OS firmware.

Other industry resources

For additional resource information, visit the Technical Committee T11 website. This website provides interface standards for high-performance and mass storage applications for Fibre Channel, storage management, and other applications:

http://www.t11.org

For information about the Fibre Channel industry, visit the Fibre Channel Industry Association website:

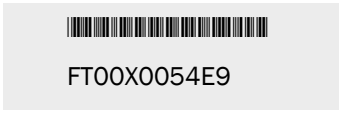
http://www.fibrechannel.org

Getting technical help

Contact your switch support supplier for hardware, firmware, and software support, including product repairs and part ordering. To expedite your call, have the following information available:

1. General Information
   - Switch model
   - Switch operating system version
   - Error numbers and messages received
   - **supportSave** command output
   - Detailed description of the problem, including the switch or fabric behavior immediately following the problem, and specific questions
   - Description of any troubleshooting steps already performed and the results
   - Serial console and Telnet session logs
   - syslog message logs
2. Switch Serial Number

   The switch serial number and corresponding bar code are provided on the serial number label, as illustrated below:

   The serial number label is located as follows:

   - *Brocade 8000* —On the switch ID pull-out tab located inside the chassis on the port side on the left.
3. World Wide Name (WWN)

   Use the **licenseIdShow** command to display the WWN of the chassis.

   If you cannot use the **licenseIdShow** command because the switch is inoperable, you can get the WWN from the same place as the serial number, except for the Brocade DCX. For the Brocade DCX, access the numbers on the WWN cards by removing the Brocade logo plate at the top of the nonport side of the chassis.

Document feedback

Quality is our first concern at Brocade and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you. Forward your feedback to:

documentation@brocade.com

Provide the title and version number of the document and as much detail as possible about your comment, including the topic heading and page number and your suggestions for improvement.

Chapter

CLI Basics

1

In this chapter

Management tools

The Brocade FCoE hardware runs traditional Fabric OS software and can be managed using the same tools traditionally used for SAN management. Using the Fabris OS command line interface (CLI), administrators have access to all commands and utilities common to other Brocade switches. In addition, Fabris OS software on the Brocade 8000 enables Brocade Web Tools to support the following features for configuring and managing a Converged Ethernet Network:

- CEE interface display and configuration
- FCoE trunk display and configuration
- CEE configuration including link aggregation control protocol (LACP), Virtual LANs (VLANs), Quality of Service (QoS), and Link Layer Discovery Protocol (LLDP)/Data Center Bridging eXchange (DCBX) protocol
- FCoE login groups

CEE command line interface

The Brocade CEE CLI is designed to support the management of CEE and Layer 2 Ethernet switching functionality. The CEE CLI uses an industry-standard hierarchical shell familiar to Ethernet/IP networking administrators.

All conventional port-related Fabric OS CLI commands are only applicable to Fibre Channel. These commands have no knowledge of the Ethernet ports. The CEE features and CEE ports can only be configured through the CEE CLI interface, which is accessed by entering the **cmsh** command from the Fabric OS shell.

The system starts up with the default Fabric OS configuration and the CEE startup configuration. After logging in, you are in the Fabric OS shell. For information on accessing the CEE commands from the Fabric OS shell, see "Accessing the CEE CLI from the Fabric OS shell" on page 3.

Some Fabric OS commands are available in the CEE shell. Enter the **Fabris OS ?** command at the CEE CLI privileged EXEC mode command prompt to view the available Fabric OS commands. The traditional Fabric OS command help found in the Fabric OS shell is not available through the CEE shell.

NOTE
The CEE configuration is not affected by the **configUpload** and **configDownload** commands entered in the Fabric OS shell.

Saving your configuration changes

Any configuration changes made to the switch are written into the running-config file. This is a dynamic file that is lost when the switch reboots. During the boot sequence, the switch resets all configuration settings to the values in the startup-config file.

To make your changes permanent, you must use either the **write memory** command or the **copy** command to commit the running-config file to the startup--config file.

Saving configuration changes with the copy command

Perform this task from privileged EXEC mode.

Enter the **copy** command to save the running-config file to the startup-config file.

```
switch#copy running-config startup-config
```

Saving configuration changes with the write memory command

Perform this task from privileged EXEC mode.

Enter the **write memory** command to save the running-config file to the startup-config file.

```
switch# write memory
Overwrite the startup config file (y/n): y
Building configuration...
```

CEE CLI RBAC permissions

Role-Based Action Control (RBAC) defines the capabilities that a user account has based on the role the account has been assigned. Table 2 displays the permissions matrix for CEE. Permissions are specifically defined as follows:

- OM—When you enter the **cmsh** command, you are put directly into privileged EXEC mode.
- O—When you enter the **cmsh** command, you are limited to EXEC mode.
- N—You are not allowed access to the CEE CLI.

TABLE 2 CEE RBAC permissions

Root	Factory	Admin	User	Operator	SwitchAdmin	FabricAdmin	ZoneAdmin	BasicSwitchAdmin	SecurityAdmin
OM	OM	OM	O	N	O	OM	N	N	O

O = observe, OM = observe and modify, N = access not allowed

Accessing the CEE CLI through the console or Telnet

The procedure to access the CEE CLI is the same through either the console interface or through a Telnet session; both access methods bring you to the login prompt.

NOTE
While this example uses the **admin** role to log in to the switch, any role listed in the "CEE CLI RBAC permissions" section can be used.

```
switch login: admin
Password:
switch:admin> cmsh
switch#
```

To return to the Fabric OS CLI, enter the following command.

```
switch#exit
switch:admin>
```

NOTE
Multiple users can use Telnet and issue commands using EXEC mode and privileged EXEC mode.

Accessing the CEE CLI from the Fabric OS shell

To enter the CEE CLI from the Fabric OS shell, enter the following command.

```
switch:admin> cmsh
switch#
```

To return to the Fabric OS shell, enter the following command.

```
switch#exit
switch:admin>
```

CEE CLI command modes

Figure 1 displays the CEE CLI command mode hierarchy.

FIGURE 1 CEE CLI command mode hierarchy

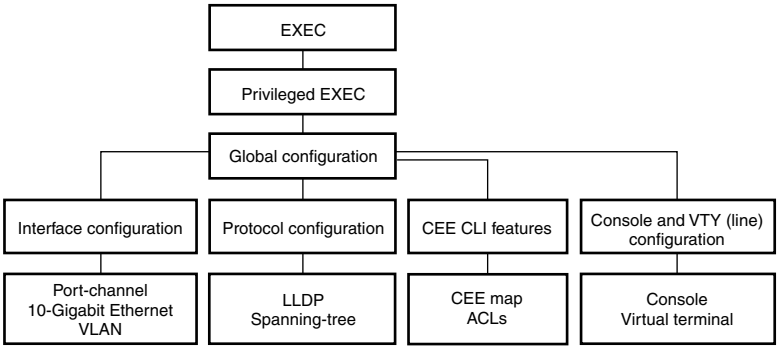


Table 3 lists the CEE CLI command modes and describes how to access them.

NOTE
At system startup, if you try to enter privileged EXEC mode before the system has fully booted, the following message is displayed:

```
%Info: Please wait. System configuration is being loaded.
```

After the system has fully booted, a RASlog message indicates that the CEE CLI is ready to accept configuration commands.

TABLE 3 CEE CLI command modes

Command mode	Prompt	How to access the command mode	Description
EXEC	`switch>`	Enter the **cmsh** command at the Fabric OS prompt after you have logged in as an appropriate user.	Display running system information and set terminal line parameters.
Privileged EXEC	`switch#`	From the EXEC mode, enter the **enable** command.	Display and change system parameters. Note that this is the administrative mode and also includes EXEC mode commands.
Global configuration	`switch(config)#`	From the EXEC mode, enter the **configure terminal** EXEC command.	Configure features that affect the entire switch.

Interface configuration	Port-channel:
	`switch(conf-if-po-63)#`
	
	10-Gigabit Ethernet (CEE port):
	`switch(conf-if-te-0/1)#`
	
	VLAN:
	`switch(conf-if-vl-1)#`
		From the global configuration mode, specify an interface by entering one of the following commands:
		• **interface port-channel**
		• **interface tengigabitethernet**
		• **interface vlan**
			Access and configure individual interfaces.

Protocol configuration	LLDP:
	`switch(conf-lldp)#`
	
	Spanning-tree:
	`switch(conf-mstp)#`
	`switch(conf-rstp)#`
	`switch(conf-stp)#`
		From the global configuration mode, specify a protocol by entering one of the following commands:
		• **protocol lldp**
		• **protocol spanning-tree mstp**
		• **protocol spanning-tree rstp**
		• **protocol spanning-tree stp**
			Access and configure protocols.

TABLE 3 CEE CLI command modes (Continued)

Command mode	Prompt	How to access the command mode	Description

Feature configuration	CEE map:
	`switch(config-ceemap)#`
	
	Standard ACL:
	`switch(conf-macl-std)#`
	
	Extended ACL:
	`switch(conf-macl-ext)#`
		From the global configuration mode, specify a CEE feature by entering one of the following commands:
		• **cee-map**
		• **mac access-list**
			Access and configure CEE features.
			
			Identify traffic based on the MAC addresses, such as VLAN IDs and different encapsulations.
			
			Standard Access Control Lists filter the traffic on a source address and block traffic close to a destination.
			
			Extended Access Control Lists block traffic based on any given packet attribute.

Console and VTY (line) configuration	`switch(config-line)#`	From the global configuration mode, configure a terminal connected through the console port by entering the **line console** command. Configure a terminal connected through a Telnet session by entering the **line vty** command.	Configure a terminal connected through the console port or a terminal connected through a Telnet session. After you apply the access list to an interface, a Virtual Teletype (VTY), or through a command using the access list keyword, it becomes effective.

NOTE
Pressing **Ctrl+Z** or entering the **end** command in any mode returns you to privileged EXEC mode. Entering **exit** in any mode returns you to the previous mode.

CEE CLI keyboard shortcuts

Table 4 lists CEE CLI keyboard shortcuts.

TABLE 4 CEE CLI keyboard shortcuts

Keystroke	Description
Ctrl+B or the left arrow key	Moves the cursor back one character.
Ctrl+F or the right arrow key	Moves the cursor forward one character.
Ctrl+A	Moves the cursor to the beginning of the command line.
Ctrl+E	Moves the cursor to the end of the command line.
Esc B	Moves the cursor back one word.
Esc F	Moves the cursor forward one word.
Ctrl+Z	Returns to privileged EXEC mode.
Ctrl+P or the up arrow key	Displays commands in the history buffer with the most recent command displayed first.
Ctrl+N or the down arrow key	Displays commands in the history buffer with the most recent command displayed last.

NOTE
In EXEC and privileged EXEC modes, use the **show history** command to list the commands most recently entered. The switch retains the history of the last 1000 commands entered.

Using the do command as a shortcut

You can use the **do** command to save time when you are working in any configuration mode and you want to run a command in EXEC or privileged EXEC mode.

For example, if you are configuring an LLDP and you want to execute a privileged EXEC mode command, such as the **dir** command, you would first have to exit the LLDP configuration mode. However, by using the **do** command with the **dir** command, you can ignore the need to change configuration modes, as shown in the following example.

```
switch(conf-lldp)#do dir
Contents of flash://
   -rw-r-----            1276   Wed Feb  4 07:08:49 2009    startup_rmon_config
   -rw-r-----            1276   Wed Feb  4 07:10:30 2009    rmon_config
   -rw-r-----            1276   Wed Feb  4 07:12:33 2009    rmon_configuration
   -rw-r-----            1276   Wed Feb  4 10:48:59 2009    starup-config
```

Displaying CEE CLI commands and command syntax

Enter a question mark (**?**) in any command mode to display the list of commands available in that mode.

```
switch>?
Exec commands:
enable    Turn on privileged mode command
  exit      End current mode and down to previous mode
  help      Description of the interactive help system
  logout    Exit from the EXEC
  quit      Exit current mode and down to previous mode
  show      Show running system information
  terminal  Set terminal line parameters
```

To display a list of commands that start with the same characters, type the characters followed by the question mark (**?**).

```
switch>e?
  enable  Turn on privileged mode command
  exit    End current mode and down to previous mode
```

To display the keywords and arguments associated with a command, enter the keyword followed by the question mark (**?**).

```
switch#terminal ?
  length  Set number of lines on a screen
  no      Negate a command or set its defaults
```

If the question mark (**?**) is typed within an incomplete keyword, and the keyword is the only keyword starting with those characters, the CLI displays help for that keyword only.

```
switch#show d?
  dot1x  IEEE 802.1X Port-Based Access Control
  <cr>
```

If the question mark (**?**) is typed within an incomplete keyword but the keyword matches several keywords, the CLI displays help for all the matching keywords.

```
switch#show i?
  interface  Interface status and configuration
  ip         Internet Protocol (IP)
```

The CEE CLI accepts abbreviations for commands. The following example is the abbreviation for the **show qos interface all** command.

```
switch#sh q i a
```

If the switch does not recognize a command after **Enter** is pressed, an error message displays.

```
switch#hookup
       ^
% Invalid input detected at '^' marker.
```

If an incomplete command is entered, an error message displays.

```
switch#show
% Incomplete command.
```

CEE CLI command completion

To automatically complete the spelling of commands or keywords, begin typing the command or keyword and then press **Tab**. For example, at the CLI command prompt, type **te** and press **Tab**:

```
switch#te
```

The CLI displays:

```
switch#terminal
```

If there is more than one command or keyword associated with the characters typed, the CEE CLI displays all choices. For example, at the CLI command prompt, type **show l** and press **Tab**:

```
switch#show l
```

The CLI displays:

```
switch#show l
lacp  line  lldp
```

CEE CLI command output modifiers

You can filter the output of the CEE CLI **show** commands using the output modifiers described in Table 5.

TABLE 5 CEE CLI command output modifiers

Output modifier	Description
append	Appends the output to a file.
redirect	Redirects the command output to the specified file.
include	Displays the command output that includes the specified expression.
exclude	Displays the command output that excludes the specified expression.
append	Appends the command output to the specified file.
begin	Displays the command output that begins with the specified expression.

TABLE 5 CEE CLI command output modifiers (Continued)

Output modifier	Description
last	Displays only the last few lines of the command output.
tee	Redirects the command output to the specified file. Note that this modifier also displays the command output.
FLASH	Redirects the output to flash memory.

Chapter

CEE Commands

2

advertise dcbx-fcoe-app-tlv

Advertises application Type, Length, Values (TLVs) to ensure interoperability of traffic over the Data Center Bridging eXchange protocol (DCBX), which runs over LLDP to negotiate an FCoE application TLV.

Synopsis **advertise dcbx-fcoe-app-tlv**

no advertise dcbx-fcoe-app-tlv

Operands None

Defaults Advertise is enabled.

Command Modes Protocol LLDP configuration mode

Description Use this command to advertise application TLVs to ensure interoperability of traffic over DCBX packets. Converged Enhanced Ethernet (CEE) parameters related to FCoE must be negotiated before FCoE traffic can begin on a CEE link. An FCoE application TLV is exchanged over LLDP, which negotiates information such as FCoE priority, and Priority Flow Control (PFC) pause. Use the **no advertise dcbx-fcoe-app-tlv** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples None

See Also advertise dot1-tlv, advertise dot3-tlv, advertise optional-tlv

advertise dcbx-fcoe-logical-link-tlv

Advertises to any attached device the FCoE status of the logical link.

Synopsis **advertise dcbx-fcoe-logical-link-tlv**

no advertise dcbx-fcoe-logical-link-tlv

Operands None

Defaults Advertise is enabled.

Command Modes Protocol LLDP configuration mode

Description Use this command to advertise to any attached device the FCoE status of the logical link. Use the **no advertise dcbx-fcoe-logical-link-tlv** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples None

See Also advertise dcbx-fcoe-app-tlv, advertise dcbx-iscsi-app-tlv

advertise dcbx-iscsi-app-tlv

Advertises application Type, Length, Values (TLVs) to ensure interoperability of traffic over the Data Center Bridging eXchange protocol (DCBX), which runs over LLDP to negotiate an iSCSI application TLV.

Synopsis **advertise dcbx-iscsi-app-tlv**

no advertise dcbx-iscsi-app-tlv

Operands None

Defaults Advertise is enabled.

Command Modes Protocol LLDP configuration mode

Description Use this command to advertise application TLVs to ensure interoperability of traffic over DCBX packets. Converged Enhanced Ethernet (CEE) parameters related to iSCSI must be negotiated before iSCSI traffic can begin on a CEE link. An iSCSI application TLV is exchanged over LLDP, which negotiates information such as iSCSI priority, and Priority Flow Control (PFC) pause. Use the **no advertise dcbx-iscsi-app-tlv** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples None

See Also advertise dcbx-fcoe-app-tlv

advertise dcbx-tlv

Advertises to any attached device mandatory Data Center Bridging eXchange protocol (DCBX) Type, Length, Values (TLVs).

Synopsis **advertise dcbx-tlv**

no advertise dcbx-tlv

Operands None

Defaults Advertise is enabled.

Command Modes Protocol LLDP configuration mode

Description Advertises to any attached device mandatory Data Center Bridging eXchange protocol (DCBX) Type, Length, Values (TLVs). Use the **no advertise dcbx-tlv** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples None

See Also advertise dot1-tlv, advertise dot3-tlv, advertise optional-tlv

advertise dot1-tlv

Advertises to any attached device IEEE 802.1 organizationally specific Type, Length, Value (TLV).

Synopsis **advertise dot1-tlv**

no advertise dot1-tlv

Operands None

Defaults Advertise is disabled.

Command Modes Protocol LLDP configuration mode

Description Use this command to advertise to any attached device IEEE 802.1 organizationally specific Type, Length, Value (TLV). Use the **no advertise dot1-tlv** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples None

See Also advertise dot3-tlv, advertise dcbx-tlv, advertise optional-tlv

advertise dot3-tlv

Advertises to any attached device IEEE 802.3 organizationally specific Type, Length, Value (TLV).

Synopsis **advertise dot3-tlv**

no advertise dot3-tlv

Operands None

Defaults Advertise is disabled.

Command Modes Protocol LLDP configuration mode

Description Use this command to advertise to any attached device IEEE 802.3 organizationally specific Type, Length, Value (TLV). Use the **no advertise dot3-tlv** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples None

See Also advertise dot1-tlv, advertise dcbx-tlv, advertise optional-tlv

advertise optional-tlv

Advertises the optional TLVs.

Synopsis **advertise optional-tlv** {**management-address** | **port-description** | **system-capabilities** | **system-description** | **system-name**}

no advertise optional-tlv

Operands

management-address	Describes the MAC address or IP address of the switch.
port-description	Describes information about the interface. This includes the name of the manufacturer, the product name, and the version of the interface hardware or software.
system-capabilities	Describes the capabilities of the device and its primary function.
system-description	Describes the system firmware version and the current image running on the system. This value is defined by the **system-description** command.
system-name	Describes the name of the system. This value is defined by the **system-name** command.

Defaults Advertise is enabled.

Command Modes Protocol LLDP configuration mode

Description Use this command to display the optional TLVs. Use the **no advertise optional-tlv** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples The following examples show how to advertise all of the options:

```
switch(conf-lldp)#advertise optional-tlv management-address
switch(conf-lldp)#advertise optional-tlv port-description
switch(conf-lldp)#advertise optional-tlv system-capabilities
switch(conf-lldp)#advertise optional-tlv system-name
switch(conf-lldp)#advertise optional-tlv system-description
```

See Also system-description, system-name

bridge-priority

Specifies the priority of the bridge.

Synopsis **bridge-priority** *priority*

no bridge-priority

Operands

priority	Specifies the bridge priority. The range of valid values is from 0 through 61440.

Defaults The default priority is 32678.

Command Modes Protocol Spanning Tree mode

Description Use this command to set the bridge priority for the common instance. Using a lower priority value indicates that the bridge might become root. Use the **no bridge-priority** command to return to the default settings.

Usage Guidelines This command must be used to specify the priority of the bridge. The priority values can be set only in increments of 4096.

Examples To specify the bridge priority:

```
switch#configure terminal
switch(config)#protocol spanning-tree stp
switch(conf-stp)#bridge-priority 8192
```

See Also protocol spanning-tree

cee

Applies the CEE map to an interface.

Synopsis **cee default**

no cee

Operands

default	The CEE map name.

Defaults The only map name allowed is “default”.

Command Modes Interface configuration mode

Description Applies the configured CEE map to the interface.

User Guidelines Use **no cee** to remove the map from the interface.

Examples Example of applying the CEE map to an interface.

```
switch(config)#interface tengigabit 0/1
switch(conf-if-te-0/1)#cee default
```

See Also cee-map

cee-map

Enters the CEE map configuration mode.

Synopsis **cee-map default**

no cee-map

Operands **default** The CEE map name.

Defaults The only map name allowed is “default”.

Command Modes Global configuration mode

Description Only a single CEE map is allowed, named “default”. It is created when the switch boots up.

Usage Guidelines Use **no cee-map** to revert to the default values for the map.

Examples The initial configuration of the default CEE map is:

```
switch(config)#cee-map default
 priority-group-table 2 weight 40 pfc
 priority-group-table 3 weight 60
 priority-table 2 2 2 1 2 2 2 2
```

See Also cee, fcoe-map

channel-group

Enables Link Aggregation on an interface.

Synopsis **channel-group** *number* **mode** {**active** | **passive** | **on**} {**type standard** | **brocade**}

no channel-group

Operands

number		Specifies a Link Aggregation Group (LAG) port channel-group number to which this link should administratively belong to. The range of valid values is from 1 through 63.
mode		Specifies the mode of Link Aggregation.
	active	Enables the initiation of LACP negotiation on an interface.
	passive	Disables LACP on an interface.
	on	Enables static link aggregation on an interface.
type		Specifies the type of LAG.
	standard	Specifies the 802.3ad standard-based LAG.
	brocade	Specifies the Brocade proprietary hardware-based trunking.

Defaults By default, the type is set to **standard**.

Command Modes Interface configuration mode

Description Use this command to add an interface to a port-channel specified by the channel-group number. This command enables link aggregation on an interface, so that it may be selected for aggregation by the local system. Use the **no channel-group** command to remove the port-channel members.

Usage Guidelines Only a maximum of 24 LAGs can be created. Note the following guidelines:

- A maximum of four link aggregation groups can be created per switch when the **type** is set to **brocade**.
- A maximum of four links can become part of a single aggregation group when the **type** is set to **brocade** and they must be on the same port-channel.
- Links 0 through 7 belong to port-channel 1; links 8 through 15 belong to port-channel 2, and links 16 through 23 belong to port-channel 3.
- For the **standard** type, a maximum of 16 links can be aggregated per aggregation group and they can be members of any port-channel.

Examples To set the channel-group number to 4 and the mode to active:

```
switch(conf-if)#channel-group 4 mode active
```

See Also interface

cisco-interoperability

Configures the switch to interoperate with some legacy Cisco switches.

Synopsis **cisco-interoperability** {**disable** | **enable**}

Operands

disable	Disables Cisco interoperability for the Multiple Spanning Tree Protocol (MSTP) switch.
enable	Enables Cisco interoperability for the MSTP switch.

Defaults Cisco interoperability is disabled.

Command Modes Multiple Protocol Spanning Tree mode

Description Use this command to enable or disable the switch to interoperate with some legacy Cisco switches. For some switches, the MSTP field Version 3 Length does not adhere to the current standards.

Usage Guidelines If Cisco interoperability is required on any switch in the network, then all switches in the network must be compatible, and therefore enabled using this command for interoperability with a Cisco switch.

Examples To enable Cisco interoperability on a switch:

```
switch#configure terminal
switch(config)#protocol spanning-tree mstp
switch(conf-mstp)#cisco-interoperability enable
```

To disable Cisco interoperability on a switch:

```
switch#configure terminal
switch(config)#protocol spanning-tree mstp
switch(conf-mstp)#cisco-interoperability disable
```

See Also None

clear counters

Clears statistics on one or all interfaces on the switch.

Synopsis **clear counters** {**all** | **access-list mac** *access_list_name* | {**interface port-channel** *number* | **tengigabitethernet** *slot/port* | *slot*}}

Operands

all Specifies to clear statistics on all interfaces.

access-list mac *access_list_name*
Specifies the name of the MAC access list.

interface Use this keyword to specify any of the following interfaces:

port-channel *number*
Specifies the port-channel number. The range of valid values is from 1 through 63.

tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

slot Specifies the slot number of the line card. For the Brocade 8000 switch, the slot number is always 0 (zero).

Description Use this command to clear statistics on one or on all interfaces.

Command Modes Privileged EXEC mode

Defaults There are no default configurations for this command.

User Guidelines The **clear counters all** command does not clear counters for any of the protocol daemon statistics, such as LLDP, LACP, MSTP, and so on.

Examples To clear the statistics for 10 Gbps Ethernet interface 0/1:

```
switch#clear counters interface tengigabitethernet 0/1
```

To clear the statistics for the MAC access list named “test”:

```
switch#clear counters access-list mac test
```

See Also show interface

clear counters access-list mac

Clears all the Media Access Control (MAC) access control list (ACL) counters for all interfaces that have an ACL applied on them or for a specific interface.

Synopsis **clear counters access-list mac** *name* {**interface** | **port-channel** *number* | **tengigabitethernet** *slot/port* | **vlan** *vlan_id*}

Operands.

name Specifies the name of the MAC ACL.

interface tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

port-channel *number*
Specifies the port-channel number. The range of valid values is from 1 through 63.

vlan *vlan_id* Specifies the VLAN number. The range of valid values is from 1 through 3583.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

Description Use this command to clear counters for all MAC ACL counters, or for a specific interface for the MAC ACL.

Usage Guidelines If the **interface** keyword is not specified, then ACL counters on all interfaces that have this ACL applied are cleared. There are 255 ACL counters supported per port group.

Examples To clear counters for the configured MAC ACL named test on an interface:

```
switch#clear counters access-list mac test interface tengigabitethernet 0/1
```

To clear counters for the configured MAC access list named test on all interfaces on which this ACL is applied:

```
switch#clear counters access-list mac test
```

See Also show mac access-group, show statistics access-list mac

clear dot1x statistics

Clears all 802.1X statistics.

Synopsis **clear dot1x statistics**

Operands None

Defaults There are no defaults for this command.

Command Modes Privileged access mode

Description Use this command to clear all accumulated port authentication statistics on all ports.

Usage Guidelines There are no usage guidelines for this command.

Examples To clear dot1x statistics:

```
switch#clear dot1x statistics
```

See Also clear dot1x statistics interface

clear dot1x statistics interface

Clears the 802.1X statistics for a port.

Synopsis **clear dot1x statistics interface** [**tengigabitethernet** *slot/port*]

Operands

tengigabitethernet Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

Defaults There are no defaults for this command.

Command Modes Privileged access mode

Description Use this command to clear all of the dot1x statistics for a specific interface port.

Usage Guidelines There are no usage guidelines for this command.

Examples To clear dot1x statistics on a port:

```
switch#clear dot1x statistics interface tengigabitethernet 0/1
```

See Also clear dot1x statistics

clear ip igmp group

Clears information related to learned groups in the IGMP module.

Synopsis **clear ip igmp group** {*A.B.C.D* {**interface tengigabitethernet** *slot/port* | **interface port-channel** *number* | **interface vlan** *vlan_id*} | **interface tengigabitethernet** *slot/port* | **interface port-channel** *number* | **interface vlan** *vlan_id*}

Operands

A.B.C.D Specifies the group address, as a subnet number in dotted decimal format (for example, 10.0.0.1), as the allowable range of addresses included in the multicast group.

interface tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

interface port-channel *number*
Specifies the interface is a port-channel. The range of valid values is from 1 through 63.

interface vlan *vlan_id*
Specifies which VLAN interface to display the snooping configuration-related information. The range of valid values is from 1 through 3583.

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

Description Use this command to clear the group information in the IGMP database, including entries for either a specific group on all interfaces or specific groups on specific interfaces.

Usage Guidelines There are no usage guidelines for this command.

Examples To clear information for a learned group:

```
switch#clear ip igmp group 10.0.0.1 interface tengigabitethernet 0/1
```

See Also None

clear ip igmp groups

Clears information related to learned groups in the IGMP protocol module.

Synopsis **clear ip igmp groups**

Operands None

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

Description Use this command to clear all IGMP group information in the IGMP database.

Usage Guidelines There are no usage guidelines for this command.

Examples To clear information for all groups in IGMP:

```
switch#clear ip igmp groups
```

See Also None

clear lacp

Clears the Link Aggregation Control Protocol (LACP) counters on a specific port-channel.

Synopsis **clear lacp** *number* **counters**

Operands

number	Specifies the port channel-group number. The range of valid values is from 1 through 63.
counters	Clears traffic counters.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

Description Use this command to clear the LACP counters per specified channel-group.

Usage Guidelines There are no default configurations for this command.

Examples To clear the LACP counters for a specific port-channel:

```
switch#clear lacp 10 counters
```

See Also show lacp counter

clear lacp counters

Clears the Link Aggregation Control Protocol (LACP) counters on all port-channels.

Synopsis **clear lacp counters**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

Description Use this command to clear the LACP counters for all port-channels.

Usage Guidelines There are no default configurations for this command.

Examples To clear the counters for all port-channels:

```
switch#clear lacp counters
```

See Also show lacp counter

clear lldp neighbors

Clears the Link Layer Discovery Protocol (LLDP) neighbor information on all or specified interfaces.

Synopsis **clear lldp neighbors** [**interface tengigabitethernet** *slot/port*]

Operands **interface tengigabitethernet**
Specifies a valid 10 Gbps Ethernet interface for which to clear the LLDP neighbor information.

slot	Specifies a valid slot number.
port	Specifies a valid port number.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

Description Use this command to clear the LLDP neighbor information about the devices learned through an interface.

Usage Guidelines If the **interface** operand is not specified, this command clears the LLDP neighbor information received on all the interfaces.

Examples To clear the LLDP neighbor information for all interfaces:

```
switch#clear lldp neighbors
```

To clear the LLDP neighbor information for a specific interface:

```
switch#clear lldp neighbors interface tengigabitethernet 0/1
```

See Also show lldp statistics

clear lldp statistics

Clears LLDP statistics for all interfaces or a specified interface.

Synopsis **clear lldp statistics** [**interface tengigabitethernet** *slot/port*]

Operands **interface tengigabitethernet**
Specifies a valid 10 Gbps Ethernet interface for which to clear the LLDP statistics.

slot	Specifies a valid slot number.
port	Specifies a valid port number.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

Description Use this command to clear LLDP statistics for all interfaces or a specified interface.

Usage Guidelines If the **interface** operand is not specified, this command clears all the LLDP statistics on all interfaces.

Examples To clear all the LLDP statistics for all interfaces:

```
switch#clear lldp statistics
```

To clear all the LLDP statistics for a specific interface:

```
switch#clear lldp statistics interface tengigabitethernet 0/1
```

See Also show lldp neighbors

clear spanning-tree counter

Clears all spanning-tree counters on the interface.

Synopsis **clear spanning-tree counter** {**interface**| **port-channel** *number* | **tengigabitethernet** *slot/port*}

Operands

interface	Specifies the interface on which to clear the spanning-tree counters.
port-channel *number*	Specifies the port-channel number. The range of valid values is from 1 through 63.
tengigabitethernet	Specifies a valid 10 Gbps Ethernet interface.
slot	Specifies a valid slot number.
port	Specifies a valid port number.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

Description Use this command to clear the spanning-tree counters on the interface.

Usage Guidelines If the **interface** operand is not specified, spanning-tree counters are cleared for all interfaces.

Examples To clear spanning-tree counters for all interfaces:

```
switch#clear spanning-tree counter
```

To clear spanning-tree counters for a 10 Gbps Ethernet interface:

```
switch#clear spanning-tree counter interface tengigabitethernet 0/1
```

To clear spanning-tree counters for port-channel 23:

```
switch#clear spanning-tree counter interface port-channel 23
```

See Also show spanning-tree

copy

Copies one file to another location.

Synopsis **copy** *source-file-url destination-file-url*

Operands

source-file-url		Specifies location of the source file to be copied using one of the following formats:
	flash	Copies from URL [flash://]filename
	FTP	Copies from URL ftp://[username[:password]@server/path]
	SCP	Copies from URL scp://[username[:password]@server/path]
destination-file-url		Specifies the destination file using one of the following formats:
	flash	Copies to URL [flash://]filename
	FTP	Copies to URL ftp://[username[:password]@server/path]
	SCP	Copies to URL scp://[username[:password]@server/path]
	running-config	Copies to the current running configuration.
	startup–config	Copies to the current startup configuration file.

Defaults There are no default values for this command.

Command Modes Privileged EXEC mode

Description Use this command to copy a file to another location.

Usage Guidelines The following guidelines apply when using this command:

- An error displays if there is no startup configuration file; for example:

```
switch #copy startup-config file2
% Error: No Startup-config.
```

- Use the **write memory** command to add entries in the startup configuration file.
- Use the **write erase** command to delete entries from the startup configuration file.

Examples To copy the source file to a remote machine using FTP:

```
switch#copy ftp://user@10.10.10.10/file1 file2
Source password[]?
```

To copy the source file from a remote machine using SCP:

```
switch#copy scp://user:password@10.10.10.10/file1 file2
```

To copy the source file from a local switch:

```
switch#copy flash://file1 file2
```

To copy the startup configuration file to the local switch:

```
switch#copy startup-config file2
Building configuration...
```

To copy the startup configuration file to a remote server through flash:

```
switch#copy startup-config flash://file2
Building configuration...
```

To copy the startup configuration file to a remote server through FTP:

```
switch#copy startup-config ftp://admin@10.10.10.10/file2
Source password[]?
Building configuration...
```

To copy the startup configuration file to a remote server through SCP:

```
switch#copy startup-config scp://admin@10.10.10.10/file2
Source password[]?
Building configuration...
```

See Also write erase

debug ip igmp all

Displays all IGMP information.

Synopsis **debug ip igmp** {**all** | **group** *A.B.C.D* | **interface tengigabitethernet** *slot/port* | **interface port-channel** *number*| **interface vlan** *vlan_id*}

Operands

all Displays all values.

group *A.B.C.D* Specifies the group address, as a subnet number in dotted decimal format (for example, 10.0.0.1), as the allowable range of addresses included in the multicast group.

interface tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

interface port-channel *number*
Specifies the interface is a port-channel. The range of valid values is from 1 through 63.

interface vlan *vlan_id*
Specifies which VLAN interface to display the snooping configuration-related information. The range of valid values is from 1 through 3583.

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Displays all of the IGMP packets received and sent, and IGMP host-related events.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

debug lacp

Enables debugging for the Link Aggregation Control Protocol (LACP).

Synopsis

debug lacp {**all** | **cli** | **event** | **nsm** | **pdu** {**rx all** | **rx interface tengigabitethernet** *slot/port*} | **tx all** | **tx interface tengigabitethernet** *slot/port*}| **sync** | **timer** | **trace level** *number*}

no debug lacp {**all** | **cli** | **event** | **nsm** | **pdu** {**rx all** | rx **interface tengigabitethernet** *slot/port*} | **tx all** | **tx interface tengigabitethernet** *slot/port*}| **sync** | **timer** | **trace level** *number*}

Operands

all	Turns on all debugging.
cli	Turns on command line interface (CLI) debugging.
event	Turns on event debugging.
nsm	Turns on Network Services Module (NSM) debugging.
pdu	Turns on protocol data unit (PDU) debugging.
rx all	Turns on debugging for received LACP packets on all interfaces.
rx interface	Turns on debugging for received LACP packets on the specified interface.
interface tengigabitethernet	Specifies the 10 Gbps Ethernet interface.
slot	Specifies the slot number.
port	Specifies the port number.
tx all	Turns on debugging for transmitted LACP packets on all interfaces.
tx interface	Turns on debugging for transmitted LACP packets on the specified interface.
interface tengigabitethernet	Specifies the 10 Gbps Ethernet interface.
slot	Specifies the slot number.
port	Specifies the port number.
sync	Turns on debugging for LACP sync transitions.
timer	Turns on debugging for LACP timers.
trace level *number*	Specifies the trace level number. The range of valid values is from 1 through 7.

Defaults

By default, debugging is not turned on.

Command Modes

Privileged EXEC mode

EXEC mode

Description

Use this command to enable debugging for Link Aggregation Control Protocol (LACP). Use the **no debug** command to disable debugging.

Usage Guidelines

To display debug outputs on a specific cmsh session, use the **terminal monitor** command.

Examples To enable debugging of LACP PDUs for transmitted and received packets on all interfaces:

```
switch#debug lacp pdu tx all
switch#debug lacp pdu rx all
switch#show debug lacp
 LACP rx debugging is on
 LACP tx debugging is on
```

See Also show debug lacp

debug lldp packet

Enables debugging for Link Layer Discovery Protocol (LLDP).

Synopsis **debug lldp packet** {**all** | **interface tengigabitethernet** *slot/port*} {**both** | **detail** {**both** | **rx** | **tx** } | **rx** | **tx**}

no debug lldp packet { **all** | **interface tengigabitethernet** *slot/port* }

Operands

all	Turns on LLDP packet debugging on all interfaces.
interface tengigabitethernet	Specifies the 10 Gbps Ethernet interface.
slot	Specifies the slot number.
port	Specifies the port number.
both	Turns on debugging for both transmit and receive packets.
detail	Turns on debugging with detailed information.
rx	Turns on debugging for only received LLDP packets.
tx	Turns on debugging for only transmitted LLDP packets.

Defaults By default, debugging is not turned on.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to enable debugging for Link Layer Discovery Protocol (LLDP).

Usage Guidelines To display debugging outputs on a particular cmsh session, use the **terminal monitor** command. Use the **no debug lldp packet** command to disable debugging.

Examples To enable debugging of LLDP for both received and transmitted packets on 10 Gbps Ethernet interface 0/1:

```
switch#debug lldp packet interface tengigabitethernet 0/1 both
switch#show debug lldp
LLDP debugging status:
Interface te0/1    : Transmit Receive
```

See Also show debug lldp

debug spanning-tree

Enables debugging for the Spanning Tree Protocol.

Synopsis

debug spanning-tree {**all** | **bpdu** {**rx** | **tx** {**all** | **interface port-channel** *number* | **interface tengigabitethernet** *slot/port*}}}

no debug spanning-tree {**all** | **bpdu** {**rx** | **tx** {**all** | **interface port-channel** *number* | **interface tengigabitethernet** *slot/port*}}}

Operands

all Turns on spanning-tree packet debugging on all interfaces.

bpdu Turns on Bridge Protocol Data Unit debugging.

rx Turns on debugging for only received spanning-tree packets.

tx Turns on debugging for only transmitted spanning-tree packets.

interface port-channel *number*
Specifies the port-channel interface. The range of valid values is from 1 through 63.

interface tengigabitethernet
Specifies the 10 Gbps Ethernet interface.

slot Specifies the slot number.

port Specifies the port number.

Defaults

By default, debugging is not turned on.

Command Modes

Privileged EXEC mode

EXEC mode

Description

Use this command to enable debugging for the Spanning Tree Protocol.

Usage Guidelines

To display debugging outputs on a particular cmsh session, use the **terminal monitor** command.

Use the **no debug** command to disable debugging.

Examples

To enable debugging of spanning-tree packets for both Rx and Tx on 10 Gbps Ethernet interface 0/1:

```
switch#debug spanning-tree bpdu rx interface tengigabitethernet 0/1
switch#debug spanning-tree bpdu tx interface tengigabitethernet 0/1
switch#show debug spanning-tree
MSTP debugging status:
  Spanning-tree rx debugging is off
    Te 0/1 rx is on
  Spanning-tree tx debugging is off
    Te 0/1 tx is on
```

See Also

show debug spanning-tree

delete

Deletes a specified file from flash memory.

Synopsis **delete** *filename*

Operands

filename	Specifies the name of the file to be deleted from flash memory on the local switch using the following format: [flash://]filename.

Defaults There is no default configuration for this command.

Command Modes Privileged EXEC mode

Description Use this command to delete a file from flash memory. After the file is deleted, it cannot be restored.

Usage Guidelines There are no usage guidelines for this command.

Examples To delete a file from flash memory:

```
switch#delete file1
% Warning: File will be deleted (from flash:)!
 Continue?(y/n):y

or

switch#delete flash://file1
% Warning: File will be deleted (from flash:)!
 Continue?(y/n):y
```

See Also copy

deny (extended ACLs)

Configures a MAC address rule to drop traffic based on the source and destination MAC addresses.

Synopsis

deny {**any** | **host** *MAC _ACL*| *MAC_ACL*} {**any** | **host** *MAC _ACL*| *MAC _ACL*} {*EtherType* | **arp** | **fcoe** | **ipv4**} [**count**]

no deny {**any** | **host** *MAC _ACL*| *MAC_ACL*} {**any** | **host** *MAC _ACL*| *MAC _ACL*} {*EtherType* | **arp** | **fcoe** | **ipv4**}

Operands

any	Specifies any source MAC address.
host *MAC_ACL*	Specifies a host-specific source host MAC address for which to set deny conditions. Use the format HHHH.HHHH.HHHH.
MAC_ACL	Specifies any MAC address for which to set deny conditions. Use the format HHHH.HHHH.HHHH.
any	Specifies any destination MAC address.
host *MAC_ACL*	Specifies a host-specific destination address for which to set deny conditions. Use the format HHHH.HHHH.HHHH.
MAC_ACL	Specifies any destination address for which to set deny conditions. Use the format HHHH.HHHH.HHHH.
Ethertype	Specifies the protocol number for which to set the deny conditions. The range of valid values is from 1536 through 65535.
arp	Specifies to deny the Address Resolution Protocol (0x0806).
fcoe	Specifies to deny the Fibre Channel over Ethernet Protocol (0x8906).
ipv4	Specifies to deny the IPv4 protocol (0x0800).
count	Enables counting of the packets matching the rule.

Defaults

By default, no MAC ACLs are configured.

Command Modes

Feature Access Control List configuration mode

Description

Use this command to configure rules to match and drop traffic based on the source and destination MAC addresses and the protocol type. You can also enable counters for a specific rule. There are 255 ACL counters supported per port group. Use the **no deny** command to remove a rule from the MAC ACL.

Usage Guidelines

The first set of {**any** | **host** *MAC_ACL* | *MAC_ACL*} parameters is specific to the source MAC address. The second set of {**any** | **host** *MAC_ACL* | *MAC_ACL*} parameters is specific to the destination MAC address. The **host** *MAC_ACL* parameters is used for host sources only.

Examples

To create a rule in an extended MAC ACL to drop IPv4 traffic from the source MAC address 0022.3333.4444 to the destination MAC address 0022.3333.5555 and to enable the counting of packets:

```
switch(conf-macl-ext)#deny 0022.3333.4444 0022.3333.5555 ipv4 count
```

To delete a rule from an extended MAC ACL:

```
switch(conf-macl-ext)#no deny 0022.3333.4444 0022.3333.5555 ipv4
```

See Also mac access-list extended, permit (extended ACLs)

deny (standard ACLs)

Configures a MAC address rule to drop traffic based on the source MAC address.

Synopsis

deny {*MAC_ACL* | **any**} [**count**]

no deny {*MAC_ACL* | **any**}

Operands

MAC_ACL	Specifies the source host MAC address for which to set deny conditions. Use the format HHHH.HHHH.HHHH.
any	Specifies any source MAC address.
count	Enables counting of the packets matching the rule.

Defaults

By default, no MAC ACLs are configured.

Command Modes

Feature Access Control List configuration mode

Description

Use this command to configure rules to match and to drop traffic based on the source MAC address. You can also enable counters for a specific rule. There are 255 ACL counters supported per port group. Use the **no deny** command to remove a rule from the MAC ACL.

Usage Guidelines

There are no usage guidelines for this command.

Examples

To create a rule in a standard MAC ACL to drop traffic from the source MAC address 0022.3333.4444 and to enable the counting of packets:

```
switch(conf-macl-std)#deny 0022.3333.4444 count
```

To delete a rule from a standard MAC ACL:

```
switch(conf-macl-std)#no deny 0022.3333.4444
```

See Also

mac access-list standard, permit (standard ACLs)

description (interface)

Specifies a string that contains the description of the interface.

Synopsis **description** *line*

no description

Operands

line	Specifies characters describing the interface. The maximum number of characters is 64.

Defaults There are no default configurations for this command.

Command Modes Interface configuration mode

Description Use this command to specify a string that contains the description of the interface. Use the **no description** command to remove the description.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the string describing tengigabitethernet interface 0/1:

```
switch(conf-if-te-0/1)#description converged_101
```

See Also None

description (LLDP)

Specifies a string that contains the description of the LLDP.

Synopsis **description** *line*

no description

Operands *line* Characters describing LLDP.

Defaults There are no default configurations for this command.

Command Modes Protocol LLDP configuration mode

Description Use this command to specify a string that contains the description of the LLDP. Use the **no description** command to remove the description.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the strings describing LLDP:

```
switch(conf-lldp)#description Brocade-LLDP
```

See Also None

dir

Lists the contents of the current directory.

Synopsis **dir**

Operands None

Defaults The default is the current directory.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to list the contents of the current directory.

Usage Guidelines There are no usage guidelines for this command.

Examples To list the contents of the current directory:

```
switch#dir
Contents of flash://
   -rw-r-----           1276   Wed Feb  4 07:08:49 2009    startup_rmon_config
   -rw-r-----            1276   Wed Feb  4 07:10:30 2009    rmon_config
   -rw-r-----            1276   Wed Feb  4 07:12:33 2009    rmon_configuration
   -rw-r-----            1276   Wed Feb  4 10:18:15 2009    starup-config
```

See Also delete

disable

Exits the privileged EXEC mode and returns to the EXEC mode.

Synopsis **disable**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

Description Use this command to exit the privileged EXEC mode and return to the EXEC mode. See "CEE CLI command modes" on page 3.

Usage Guidelines This is the only command that allows you to return to the EXEC mode. Using the **exit** or **quit** commands from the privileged EXEC mode ends the session instead of returning to the EXEC mode.

Examples To return to the EXEC mode:

```
switch#disable
switch>
```

See Also enable, end, exit, quit

do

Allows you to run commands in EXEC mode from the configuration mode.

Synopsis **do** *command*

Operands *command* Specifies the command you want to run.

Defaults There are no default configurations for this command.

Command Modes All configuration modes

Description Use this command to save time when you are configuring the switch in any configuration mode and you want to run a command in the privileged EXEC mode.

Usage Guidelines There are no usage guidelines for this command.

Examples To run the **clear counters all** command with the **do** command:

```
switch(config)#do clear counters all
```

To display the contents from the working directory using the **do** command:

```
switch(config)#do dir
Contents of flash://
   -rw-r-----           1276   Wed Feb  4 07:08:49 2009    startup_rmon_config
   -rw-r-----            1276   Wed Feb  4 07:10:30 2009    rmon_config
   -rw-r-----            1276   Wed Feb  4 07:12:33 2009    rmon_configuration
   -rw-r-----            1276   Wed Feb  4 10:48:59 2009    starup-config
```

See Also None

dot1x authentication

Enables 802.1X on a port.

Synopsis **dot1x authentication**

no dot1x authentication

Operands None

Defaults There are no defaults for this command.

Command Modes Interface configuration mode

Description Use this command to enable dot1x on a port. Use the **no dot1x authentication** command to disable dot1x on the port and remove the configuration from 802.1X management.

Usage Guidelines There are no usage guidelines for this command.

Examples To enable dot1x on a port:

```
switch(config)#interface tengigabitethernet 0/1
switch(conf-if-te-0/1)#dot1x authentication
```

See Also None

dot1x enable

Enables 802.1X authentication globally.

Synopsis **dot1x enable**

no dot1x enable

Operands None

Defaults By default, authentication is disabled globally.

Command Modes Global configuration mode

Description Use this command to enable 802.1X. Use the **no dot1x enable** command to disable 802.1X authentication globally.

Usage Guidelines There are no usage guidelines for this command.

Examples To enable 802.1X authentication globally:

```
switch(config)#dot1x enable
```

See Also None

dot1x port-control

Controls the authorization of a port state.

Synopsis **dot1x port-control** {**auto** | **force-authorized** | **force-unauthorized**}

no dot1x port-control

Operands

auto	Enables authentication on a port.
forced-authorized	Forces a port to remain in an authorized state.
force-unauthorized	Forces a port to remain in an unauthorized state.

Defaults The default port state is **auto**.

Command Modes Interface configuration mode

Description Use this command to control the authorization of a port state. Use the **no dot1x port-control** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples To enable the port state to auto:

```
switch(config)#interface tengigabitethernet 0/1
switch(conf-if-te-0/1)#dot1x port-control auto
```

See Also None

dot1x protocol-version

Sets the Extensible Authentication Protocol over LANs (EAPOL) version for 802.1x.

Synopsis **dot1x protocol-version** *version_value*

Operands *version_value* Defines the EAPOL version. The range of valid values is from 1 through 2.

Defaults The default EAPOL version is 2.

Command Modes Interface configuration mode

Description This commands sets the EAPOL version for 802.1x for the interface. There is little difference between version 1 and version 2. You should probably leave it set to version 2 unless you are having a specific issue.

User Guidelines 802.1x must be configured for the interface before executing this command.

Examples None

See Also None

dot1x quiet-period

Sets the number of seconds that a switch remains quiet between a failed authentication and an attempt to retry authentication.

Synopsis **dot1x quiet-period interval** *seconds*

no dot1x quiet-period

Operands

interval *seconds*	Specifies the time in seconds between attempts at authentication. The range of valid values is from 1 through 65535.

Defaults The default time is 60 seconds.

Command Modes Interface configuration mode

Description Use this command to set the time in seconds after which a switch attempts to perform authentication after a failed authentication. Use the **no dot1x quiet-period** command to return to the default setting. When a switch cannot authenticate a client, the switch remains idle for a quiet-period interval of time, then attempts the operation again.

Usage Guidelines Changing the quiet-period interval time to a number lower than the default can result in a faster response time.

Examples To change the interval time to 200 seconds:

```
switch(config)#interface tengigabiethernet 0/1
switch(conf-if-te-0/1)#dot1x quiet-period 200
```

See Also None

dot1x reauthenticate interface

Initiates reauthentication on a specified interface.

Synopsis **dot1x reauthenticate interface** *name*

Operands *name* Specifies the name of the interface.

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

Description Use this command to initiate the reauthentication on a specified interface.

Usage Guidelines There are no usage guidelines for this command.

Examples To initiate reauthentication on interface tengigabitethernet 0/1:

```
switch#dot1x reauthenticate interface tengigabitethernet 0/1
```

See Also None

dot1x reauthentication

Enables reauthentication on a port.

Synopsis **dot1x reauthentication**

Operands None

Defaults There are no defaults for this command.

Command Modes Interface configuration mode

Description Use this command to enable reauthentication on a port.

Usage Guidelines There are no usage guidelines for this command.

Examples To enable reauthentication on a port:

```
switch(config)#interface tengigabitethernet 0/1
switch(conf-if-te-0/1)#dot1x reauthentication
```

See Also None

dot1x reauthMax

Sets the maximum number of times that a port attempts to reauthenticate.

Synopsis **dot1x reauthMax** *number*

no dot1x reauthMax

Operands

number	Specifies the maximum number of reauthentication attempts before the port goes to the unauthorized state. The range of valid values is from 1 through 10.

Defaults The default number of times that a port attempts authentication is 2.

Command Modes Interface configuration mode

Description Use this command to set the maximum number of times that a port attempts to reauthenticate before a port changes to the unauthorized state. Use the **no dot1x reauthMax** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the maximum number of reauthentication attempts to 5:

```
switch(config)#interface tengigabitethernet 0/1
switch(conf-if-te-0/1)#dot1x reauthMax 5
```

To set the reauthentication maximum to the default value:

```
switch(config)#interface tengigabitethernet 0/1
switch(conf-if-te-0/1)#no dot1x reauthMax
```

See Also None

dot1x timeout re-authperiod

Sets the number of seconds between reauthorization attempts.

Synopsis **dot1x timeout re-authperiod** *seconds*

Operands

seconds	Specifies the seconds between reauthorization attempts. The range of valid values is from 1 through 4294967295.

Defaults The default time is 3600 seconds.

Command Modes Interface configuration mode

Description Use this command to set the number of seconds between reauthorization attempts.

Usage Guidelines There are no usage guidelines for this command.

Examples To set 25 seconds as the amount of time between reauthorization attempts:

```
switch(config)#interface tengigabitethernet 0/1
switch(conf-if-te-0/1)#dot1x timeout re-authperiod 25
```

See Also None

dot1x timeout server-timeout

Sets the authentication server response timeout.

Synopsis **dot1x timeout server-timeout** *seconds*

Operands

seconds	Specifies the number of seconds that a switch waits for the transmission of packets by the switch to the authentication server. The range of valid values is from 1 through 65535.

Defaults The default timeout is 30 seconds.

Command Modes Interface configuration mode

Description Use this command to set the authentication server response timeout.

Usage Guidelines There are no usage guidelines for this command.

Examples To set 40 seconds as the switch-to-authentication server transmission time:

```
switch(config)#interface tengigabitethernet 0/1
switch(config-if)#dot1x timeout server-timeout 40
```

See Also None

dot1x timeout supp-timeout

Sets the time in seconds that a switch waits for a response to an Extensible Authentication Protocol (EAP) request frame from the client before resending the request.

Synopsis **dot1x timeout supp-timeout** *seconds*

Operands

seconds	Specifies the number of seconds that the switch waits for a response to the EAP frame. The range of valid values is from 1 through 65535.

Defaults The default timeout is 30 seconds.

Command Modes Interface configuration mode

Description Use this command to specify the EAP response timeout.

Usage Guidelines There are no usage guidelines for this command.

Examples To set 40 seconds as the switch-to-client retransmission time for the EAP request frame:

```
switch(conf-if-te-0/1)#dot1x timeout supp-timeout 40
```

See Also None

dot1x timeout tx-period

Sets the number of seconds that the switch waits for a response to an Extensible Authentication Protocol (EAP) request or identity frame from the client before retransmitting the request.

Synopsis **dot1x timeout tx-period** *seconds*

Operands

seconds	Specifies the time in seconds between successive request ID attempts. The range of valid values is from 1 through 65535.

Defaults The default timeout is 30 seconds.

Command Modes Interface configuration mode

Description Use this command to set the interval between successive attempts to request an ID (EAP ID Req).

Usage Guidelines There are no usage guidelines for this command.

Examples To set 34 as the number of seconds to wait for a response to an EAP request or identity frame from the client before retransmitting the request:

```
switch(config)#interface tengigabitethernet 0/1
switch(config-if)#dot1x timeout tx-period 34
```

See Also None

enable

Enables the Privilege EXEC mode.

Synopsis **enable**

Operands None

Defaults There are no default configurations for this command.

Command Modes EXEC mode

Description Use this command to enable the privileged EXEC command mode.

Usage Guidelines To return to the EXEC mode from privileged EXEC mode, use the **disable** command. Using the **exit** or **quit** command from the privileged EXEC mode ends the session. See "CEE CLI command modes" on page 3.

Examples To enable the privileged EXEC mode:

```
switch> enable
switch#
```

See Also disable

end

Returns to the privileged EXEC command mode from all configuration modes.

Synopsis **end**

Operands None

Defaults There are no default configurations for this command.

Command Modes All configuration modes

Description Use this command to return to the privileged EXEC command mode from any command mode. See "CEE CLI command modes" on page 3.

Usage Guidelines There are no usage guidelines for this command.

Examples To return to the privileged EXEC mode from interface configuration mode:

```
switch(config)#interface tengigabitethernet 0/0
switch(conf-if-te-0/0)#end
switch#
```

See Also disable, enable, exit

erase flash

Erases all the files from flash memory.

Synopsis **erase flash**

Operands None

Defaults There are no default configurations for this command.

Command Modes EXEC mode

Description Use this command to erase the files from flash memory.

Usage Guidelines There are no usage guidelines for this command.

Examples To erase the files from flash memory:

```
switch#erase flash
%% Warning: Erasing flash filesystem will remove all files in flash://.
Continue to erase?(y/n):y
switch#
```

See Also dir, delete

error-disable-timeout enable

Enables the timer to bring the interface out of the error-disabled state.

Synopsis **error-disable-timeout enable**

Operands None

Defaults There are no default configurations for this command.

Command Modes Spanning Tree Protocol configuration mode

Description Use this command to enable the timer to bring the interface out of the disabled state.

Usage Guidelines When the Spanning Tree Protocol (STP) Bridge Protocol Data Unit (BPDU) guard disables a port, the port remains in the disabled state unless the port is enabled manually. This command allows you to enable the interface from the disabled state.

Examples To bring the interface out of the disabled state:

```
switch(conf-rstp)#error-disable-timeout enable
```

See Also error-disable-timeout interval

error-disable-timeout interval

Sets the interface to time out when an error occurs.

Synopsis **error-disable-timeout interval** *seconds*

Operands

seconds	Specifies the range of time in seconds for the interface to time out. The range of valid values is from 10 through 1000000.

Defaults The default is 300 seconds. The timeout feature is disabled.

Command Modes Spanning Tree Protocol configuration mode

Description Use this command to set the interface to time out when an error occurs.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the timeout value to 10 seconds:

```
switch(conf-rstp)#error-disable-timeout interval 10
```

See Also error-disable-timeout enable

exec-timeout

Sets the interval that the EXEC command interpreter waits for user input.

Synopsis **exec-timeout** *minutes seconds*

no exec-timeout

Operands

minutes	Specifies the time interval in minutes. The range is from 0 through 35791.
seconds	Specifies the time interval in seconds. The range is from 0 through 2147483.

Defaults The default is 10 minutes.

Command Modes Console and VTY (line) configuration mode

Description Use this command to set the interval; the command interpreter waits for user input detected. Use **no exec-timeout** to disable the wait interval that the command interpreter waits.

Usage Guidelines The **exec-timeout** command is used to set the time the Telnet session waits for an idle VTY session, before it time outs. An **exec-timeout** setting of 0 (zero) causes the Telnet session to wait indefinitely.

Examples To configure the wait interval for the console session:

```
switch(config)#line console 0
switch(conf-line)#exec-timeout 2 30

switch(config)#line vty 0 9
switch(conf-line)#exec-timeout 30 30
```

See Also line console, line vty, show line

exit

Exits the current mode and returns to the previous mode.

Synopsis **exit**

Operands None

Defaults There are no default configurations for this command.

Command Modes All command modes

Description Use this command to exit the current mode, and return to the previous mode. When used in EXEC and privileged EXEC modes, the **exit** command terminates the session. See "CEE CLI command modes" on page 3.

Usage Guidelines There are no usage guidelines for this command.

Examples To exit the Interface configuration mode, and return to the global configuration mode:

```
switch(config)#interface tengigabitethernet 0/0
switch(conf-if-te-0/0)#exit
switch(config)#exit
```

See Also disable, enable, end

fcoe-map

Activates the FCoE map configuration mode.

Synopsis **fcoe-map default**

Operands **default** The FCoE map name.

Defaults The only map name allowed is “default”.

Command Modes Global configuration mode

Description Only a single FCoE map is allowed, named “default”.

If you do not execute the **fcoe-vlan** command first, VLAN 1002 is created automatically and becomes the FCoE VLAN. If VLAN 1002 already exists, it is modified to become the FCoE VLAN.

User Guidelines There are no usage guidelines for this command.

Examples To activate the FCoE map:

```
switch(config)#fcoe-map default
   fcoe-map     : default
   fcoe-vlan    : 1002
```

See Also cee-map, fcoeport, fcoe-vlan

fcoeport

Applies the FCoE map to an interface.

Synopsis **fcoeport**

Operands None

Defaults There are no default configurations for this command.

Command Modes Interface configuration mode

Description Use this command to apply the FCoE map to an interface. You must be in interface configuration mode for a selected interface.

This command makes the interface FCoE-capable. The CEE map is added to the interface, and if the interface is CEE-capable, the FCoE VLAN is added to the interface.

User Guidelines There are no usage guidelines for this command.

Examples To enter interface configuration mode and then apply the FCoE map:

```
switch(config)#interface tengigabitethernet 0/20
switch(conf-if-te-0/20)#fcoeport
```

See Also cee-map, fcoe-map, fcoe-vlan

fcoe-priority-bits

Sets the FCoE priority bit for LLDP.

Synopsis **fcoe-priority-bits** {**none** | **list** *value_1* | *value_2* | *value_3* | *value_4* | *value_5* | *value_6* | *value_7* | *value_8*}

Operands

none	Removes all priority bits.
list	List the FCoE priorities for LLDP.
value_1	The first CoS value. The range of valid values is from 0 through 7.
value_2	The second CoS value. The range of valid values is from 0 through 7.
value_3	The third CoS value. The range of valid values is from 0 through 7.
value_4	The fourth CoS value. The range of valid values is from 0 through 7.
value_5	The fifth CoS value. The range of valid values is from 0 through 7.
value_6	The sixth CoS value. The range of valid values is from 0 through 7.
value_7	The seventh CoS value. The range of valid values is from 0 through 7.
value_8	The eighth CoS value. The range of valid values is from 0 through 7.

Defaults The default list value is 3.

Command Modes Protocol LLDP configuration mode

Description The FCoE priority bit setting is a bitmap setting where each bit position stands for a priority. When you set a bit for a particular priority, that priority setting is applied to the FCoE traffic (that is, the incoming FCoE traffic will have that priority).

FCoE traffic is only supported on the priority level that also has flow control enabled. This means that the final advertised FCoE priority consists of the configured FCoE priority setting and the per-priority flow control setting.

User Guidelines Though setting multiple bits is allowed (exercising the full range of values), there is no reason to set more than one bit because the adapters do not support multiple priorities for FCoE.

Examples The following example sets the first CoS value:

```
switch(conf-lldp)#fcoe-priority-bits list 0
```

See Also lldp fcoe-priority-bits

fcoe-vlan

Configures an FCoE VLAN to the FCoE map and deletes the previous FCoE VLAN.

Synopsis **fcoe-vlan** *vlan_id*

Operands

vlan_id	Specifies the VLAN interface. The range of valid values is from 2 through 3583.

Defaults The default VLAN is 1002.

Command Modes Feature configuration mode

Description Use this command to configure an FCoE VLAN to the FCoE map. Using this command deletes the previous FCoE VLAN.

User Guidelines There are no usage guidelines for this command.

Examples You must first enter FCoE map mode, then configure the VLAN:

```
switch(config)#fcoe-map default
switch(conf-fcoe-map)#fcoe-vlan 1002
```

See Also cee-map, fcoeport

forward-delay

Specifies the time an interface spends in each of the listening and learning states.

Synopsis **forward-delay** *seconds*

no forward-delay

Operands

seconds	Specifies the range of time in seconds that an interface spends in the Spanning Tree Protocol (STP) learning and listening states. The range of valid values is from 4 through 30.

Defaults The default is 15 seconds.

Command Modes Spanning Tree Protocol configuration mode

Description Use this command to specify how long the listening and learning states last before the interface begins the forwarding of all spanning-tree instances. Use the **no forward-delay** command to return to the default settings.

Usage Guidelines STP interface states:

- Listening - The interface processes the Bridge Protocol Data Units (BPDUs) and awaits possible new information that might cause it to return to the blocking state.
- Learning - The interface does not yet forward frames (packets). Instead it learns source addresses from frames received and adds them to the filtering database (switching database).
- Forwarding - An interface receiving and sending data (normal operation). STP still monitors incoming BPDUs that can indicate it should return to the blocking state to prevent a loop.
- Blocking - An interface that can cause a switching loop (no user data is sent or received), but it might go to the forwarding state if the other links in use fail and the STP determines that the interface may transition to the forwarding state. BPDU data continues to be received in the blocking state.

When you change the spanning-tree forward-delay time, it affects all spanning-tree instances. When configuring the forward-delay, the following relationship should be kept:

2*(forward-delay - 1)>=max-age>=2*(hello-time + 1)

Examples To configure the forward-delay time to 18 seconds:

```
switch(conf-mstp)#forward-delay 18
```

See Also hello-time, max-age, max-hops

fos

Executes Fabric OS commands from the from the cmsh shell.

Synopsis **fos** *command*

Operands *command* Specifies the Fabric OS command.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

Description Use this command to execute the following Fabric OS commands from the cmsh shell.

alishow

cfgactvshow

cfgshow

errclear

errshow

fabricshow

fcoe

firmwareshow

ipaddrshow

nsallshow

nscamshow

nsshow

portcfg

portcfgshow

portdisable

portenable

porterrshow

portlogshow

portperfshow

portrouteshow

portstatsclear

portstatsshow

slotpoweroff

slotpoweron

slotshow

supportsave

switchshow

zoneshow

Usage Guidelines The Fabric OS syntax applies to the listed commands. The **fcoelogincfg**, **fcoelogingroup**, and **fcoelogincfg** commands are not supported from the cmsh shell. See the *Fabric OS Command Reference* for additional information on these commands.

Examples To run the Fabric OS command **switchshow** from the Privilege EXEC mode:

```
switch#fos switchshow
switchName:     switch
switchType:     76.6
switchState:    Online
switchMode:     Native
switchRole:     Principal
switchDomain:   1
switchId:       fffc01
switchWwn:      10:00:00:05:1e:76:42:00
zoning:         OFF
switchBeacon:   OFF

Area Port Media Speed State     Proto
==================================
  0   0   --    N8   No_Module   FC
  1   1   --    N8   No_Module   FC
  2   2   --    N8   No_Module   FC
  3   3   --    N8   No_Module   FC
  4   4   --    N8   No_Module   FC
  5   5   --    N8   No_Module   FC
  6   6   --    N8   No_Module   FC
  7   7   --    N8   No_Module   FC
  8   8   --    10   Online     FCoE F-Port  20:08:00:05:1e:76:42:00
  9   9   --    10   Online     FCoE F-Port  20:09:00:05:1e:76:42:00
 10  10   --    10   Online     FCoE F-Port  20:0a:00:05:1e:76:42:00
 11  11   --    10   Online     FCoE F-Port  20:0b:00:05:1e:76:42:00
 12  12   --    10   Online     FCoE F-Port  20:0c:00:05:1e:76:42:00
 13  13   --    10   Online     FCoE F-Port  20:0d:00:05:1e:76:42:00
```

See Also None

hello

Sets the Hello transmit interval.

Synopsis **hello** *seconds*

no hello

Operands

seconds	Sets the Hello transmit interval. The range of valid values is from 4 through 180 seconds.

Defaults The default is 30 seconds.

Command Modes Protocol LLDP configuration mode

Description Use this command to set the interval between LLDP hello messages. Use the **no hello** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the time interval to 10 seconds between the transmissions:

```
switch(conf-lldp)#hello 10
```

See Also None

hello-time

Sets the interval between the hello Bridge Protocol Data Units (BPDUs) sent on an interface.

Synopsis

hello-time *seconds*

no hello-time

Operands

seconds	Specifies the time range in seconds for the interval between the hello BPDUs sent on an interface. The range of valid values is from 1 through 10.

Defaults

The default is 2 seconds.

Command Modes

Spanning Tree Protocol configuration mode

Description

Use this command to configure the spanning-tree bridge hello time, which determines how often the device broadcasts hello messages to other devices. Use the **no hello-time** command to return to the default settings.

Usage Guidelines

When configuring the hello-time, the **max-age** setting must be greater than the **hello-time** setting. The following relationship should be kept:

2*(forward-delay - 1)>=max-age>=2*(hello-time + 1)

Examples

To configure the spanning-tree bridge hello time to 5 seconds:

```
switch(conf-stp)#hello-time 5
```

See Also

forward-delay, max-age

instance

Maps a VLAN to a Multiple Spanning Tree Protocol (MSTP) instance.

Synopsis **instance** *instance_id* {**vlan** *vlan_id* | **priority** *priority_id*}

no instance

Operands

instance_id Specifies the MSTP instance. The range of valid values is from 1 through 15.

vlan *vlan_id* Specifies the VLAN to map to an MSTP instance. The range of valid values is from 1 through 3583.

priority *priority_id* Specifies the priority for the specified instance. The range of valid values is from 0 through 61440. The priority values can be set only in increments of 4096.

Defaults The default **priority** value is 32768.

Command Modes Multiple Spanning Tree Protocol configuration mode

Description Use this command to map a VLAN to an MTSP instance. You can group a set of VLANs to an instance. This command can be used only after the VLAN is defined. Use the **no instance** command to unmap the VLAN from the MSTP instance.

Usage Guidelines The following rules apply:

- VLANs must be created before mapping to instances.
- VLAN instance mapping is removed from the configuration if the underlying VLANs are deleted.

Examples To map a VLAN to an MTSP instance:

```
switch(conf-mstp)#instance 1 vlan 2, 3
switch(conf-mstp)#instance 2 vlan 4-6
switch(conf-mstp)#instance 1 priority 4096
```

See Also show spanning-tree

interface

Enters the interface configuration mode to configure an interface.

Synopsis **interface** {**port-channel** *number* | **tengigabitethernet** *slot/port* | **vlan** *vlan id*}

no interface {**port-channel** *number* | **vlan** *vlan id*}

Operands

port-channel *number*
Specifies the port-channel number. The range of valid values is from 1 through 63.

tengigabitethernet Configures the specified 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

vlan *vlan_id* Specifies the VLAN number. The range of valid values is from 1 through 3583.

Defaults There are no default configurations for this command.

Command Modes Global configuration mode

Description Use this command to create or enter the interface configuration mode to configure an interface.

Usage Guidelines There are no usage guidelines for this command.

Examples None

See Also show interface, interface vlan

interface vlan

Configures a VLAN interface.

Synopsis **interface vlan** *vlan_id*

no interface vlan *vlan_id*

Operands

vlan_id	Specifies the VLAN interface to configure. The range of valid values is from 1 through 3583.

Defaults VLAN 1 is predefined on the switch.

Command Modes Global configuration mode

Description Use this command to configure a VLAN interface. Use the **no interface vlan** *vlan_id* command to delete a VLAN interface.

Usage Guidelines All of the ports on the switch are a part of the default VLAN 1.

Examples To create a VLAN with ID 56:

```
switch(config)#interface vlan 56
switch-cmsh(conf-if-vl-56)#
```

See Also switchport, shutdown (interface)

ip igmp last-member-query-interval

Sets the last member query interval.

Synopsis **ip igmp last-member-query-interval** *milliseconds*

Operands

milliseconds	Response time in milliseconds. Valid range is from 100 through 25500 milliseconds.

Defaults The default value is 1000 milliseconds.

Command Modes Privileged EXEC mode

Description The last member query interval is the amount of time in seconds that the IGMP router waits to receive a response to a group query message.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

ip igmp query-interval

Sets the query interval.

Synopsis **ip igmp query-interval** *seconds*

Operands

seconds	Response time in seconds. Valid range is from 1 through 18000 seconds.

Defaults The default value is 125 seconds.

Command Modes Privileged EXEC mode

Description The query interval is the amount of time in seconds between IGMP query messages sent by the switch.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

ip igmp query-max-response-time

Sets the maximum query response response time.

Synopsis **ip igmp query-max-response-time** *seconds*

Operands *seconds* Response time in seconds. Valid range is 1 to 25 seconds.

Defaults Default value is 10 seconds.

Command Modes Privileged EXEC mode

Description When a host receives the query packet, it starts counting to a random value, less than the maximum response time. When this timer expires, the switch replies with a report, provided that no other host has responded yet.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

ip igmp snooping enable (global version)

Enables the Internet Group Management Protocol (IGMP) snooping for all VLAN interfaces.

Synopsis **ip igmp snooping enable**

no ip igmp snooping enable

Operands None

Defaults IGMP snooping is globally disabled.

Command Modes Global configuration mode

Description Use this command to enable or disable the Internet Group Management Protocol (IGMP) snooping globally. Use the **no ip igmp snooping enable** command to return to the default setting.

Usage Guidelines This command performs IGMP snooping at the interface level.

Examples To enable IGMP globally:

```
switch(config)# ip igmp snooping enable
```

See Also show ip igmp snooping, ip igmp snooping enable (VLAN version)

ip igmp snooping enable (VLAN version)

Enables the Internet Group Management Protocol (IGMP) snooping for a specific VLAN interface.

Synopsis

ip igmp snooping enable

no ip igmp snooping enable

Operands

None

Defaults

When snooping is enabled globally, IGMP snooping is enabled on all VLAN interfaces.

Command Modes

Interface VLAN configuration mode

Description

Use this command to enable or disable the Internet Group Management Protocol (IGMP) snooping on a specific VLAN interface.

Usage Guidelines

This command performs IGMP snooping at the VLAN interface level.

Use the no version of this command to disable the function.

Examples

To enable IGMP for a specific VLAN interface, enter Interface VLAN mode and execute the following commands:

```
switch(config)#interface vlan 10
switch(config-if-vl-10)#ip igmp snooping
```

See Also

show ip igmp snooping, ip igmp snooping enable (global version)

ip igmp snooping fast-leave

Enables snooping fast-leave.

Synopsis **ip igmp snooping fast-leave**

no ip igmp snooping fast-leave

Operands None

Description IGMP snooping fast-leave processing allows the removal of an interface from the forwarding table without sending out group-specific queries to the interface.

Command Modes Global configuration mode

Defaults This mode is disabled by default.

User Guidelines Use **no ip igmp snooping fast-leave** to disable this function.

Examples None

See Also None

ip igmp snooping mrouter

Configures a VLAN port member to be a multicast router interface.

Synopsis **ip igmp snooping mrouter** {**interface tengigabitethernet** *slot/port* | **interface port-channel** *number*}

no ip igmp snooping mrouter {**interface tengigabitethernet** *slot/port* | **interface port-channel** *number*}

Operands

interface tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

interface port-channel *number*
Specifies the interface is a port-channel. The range of valid values is from 1 through 63.

Defaults There are no default configurations for this command.

Command Modes Interface VLAN configuration mode

Description Use this command to configure a VLAN port member to be a multicast router interface.

Usage Guidelines Use **no ip igmp snooping mrouter** to return the interface to the default setting.

Examples To configure a VLAN port member to be a multicast router interface:

```
switch(config)#interface vlan 10
switch(config-if-vl-10)#ip igmp snooping mrouter interface tengigabitethernet
0/1
```

See Also None

ip igmp snooping mrouter-timeout

Configures the multicast router-timeout

Synopsis **ip igmp snooping mrouter-timeout** *seconds*

Operands *seconds* Timeout time in seconds. Valid range is from 1 through 60000 seconds.

Defaults Default value is 300 seconds.

Command Modes Privileged EXEC mode

Description This command sets the timeout range for when multicast router ports are automatically learned.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

ip igmp snooping querier

Enables the IGMP snooping querier functionality for the VLAN.

Synopsis **ip igmp snooping querier**

no ip igmp snooping querier

Operands None

Defaults This feature is not enabled by default.

Command Modes Interface VLAN configuration mode

Description Use this command to activate or deactivate the IGMP snooping querier functionality for the VLAN.

Usage Guidelines Use **no ip igmp snooping querier** to return to the default setting.

Examples To enable the IGMP snooping querier feature:

```
switch(config)#interface vlan 10
switch(config-if-vl-10)#ip igmp snooping querier
```

See Also None

ip igmp static-group

Configures the static group membership entries.

Synopsis **ip igmp static-group** *A.B.C.D* {**interface tengigabitethernet** *slot/port* | **interface port-channel** *number*}

no ip igmp static-group *A.B.C.D* {**interface tengigabitethernet** *slot/port* | **interface port-channel** *number*}

Operands

A.B.C.D Specifies the group address, as a subnet number in dotted decimal format (for example, 10.0.0.1), as the allowable range of addresses included in the multicast group.

interface tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

interface port-channel *number*
Specifies the interface is a port-channel. The range of valid values is from 1 through 63.

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

Description Using **ip igmp static-group**, packets to the group are fast-switched out of the interface, providing that the packets were received on the correct reverse path forwarding (RPF) interface. Static group membership entries are automatically added to the IGMP cache and mroute table.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

iscsi-priority-bits

Sets the iSCSI priority bitmap.

Synopsis **iscsi-priority-bits list** *value_1 value_2 value_3 value_4 value_5 value_6 value_7*

no iscsi-priority-bits

Operands

value_1	The first priority bitmap value. The valid range of values is from 0 through 7.
value_2	The second priority bitmap value. The valid range of values is from 0 through 7.
value_3	The third priority bitmap value. The valid range of values is from 0 through 7.
value_4	The fourth priority bitmap value. The valid range of values is from 0 through 7.
value_5	The fifth priority bitmap value. The valid range of values is from 0 through 7.
value_6	The sixth priority bitmap value. The valid range of values is from 0 through 7.
value_7	The seventh priority bitmap value. The valid range of values is from 0 through 7.

Defaults The default value for all value entries is 4.

Command Modes Protocol LLDP configuration mode

Description This command allows the user to set the iSCSI priority bitmap for use in the DCBX iSCSI TLV. Use the **no iscsi-priority-bits** command to return to the default value.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

lacp system-priority

Sets the Link Aggregation Control Protocol (LACP) system priority.

Synopsis **lacp system-priority** *value*

no lacp system-priority

Operands

value	Specifies the value of the LACP system priority. The range of valid values is from 1 through 65535.

Defaults The default system priority value is 32768.

Command Modes Global configuration mode

Description Use this command to set the system priority of a local system. This determines which system is responsible for resolving conflicts in the choice of aggregation groups. Use the **no lacp system-priority** command to reset the system priority to the default value.

Usage Guidelines Lower numerical values have higher priorities.

Examples To set the LACP system priority to 68:

```
switch(config)#lacp system-priority 68
```

To clear the configured LACP system priority:

```
switch(config)#no lacp system-priority
```

See Also None

lacp timeout

Sets the timeout value used by LACP to exchange packets on a dynamic trunk port.

Synopsis **lacp timeout** {**long** | **short**}

no lacp timeout

Operands

timeout	Specifies the number of seconds before invalidating a received Link Aggregation Control Protocol (LACP) data unit.
long	Specifies a long timeout value.
short	Specifies a short timeout value.

Defaults By default, the short timeout value is 3 seconds for Brocade trunks. For standard trunks, the long timeout value is 90 seconds.

Command Modes Interface configuration mode

Description Use this command to set the short timeout value for Brocade trunks or to set the long timeout value for standard trunks.

Usage Guidelines If the LACP_timeout bit (encoded in Actor_State and Partner_State fields) is set to 1, the short timeout takes effect; if set to 0 (zero), the long timeout takes effect.

Use the **no lacp timeout** command to return to the default value.

Examples To set the LACP short timeout value:

```
switch(conf-if-te-0/1)#lacp timeout short
```

To set the LACP long timeout value:

```
switch(conf-if-te-0/1)#lacp timeout long
```

See Also None

line console

Configures the Line configuration mode.

Synopsis **line console 0**

Operands None

Defaults There are no default configurations for this command.

Command Modes Global configuration mode

Description Use this command to configure the Line configuration mode, which allows you to configure the virtual terminal line settings.

Usage Guidelines There are no usage guidelines for this command.

Examples To configure the wait interval for the console session:

```
switch>enable
switch#configure terminal
switch(config)#line console 0
switch(config-line)#exec-timeout 2 30
switch(config-line)#exit
```

See Also show line

line vty

Configures the virtual terminal line setting to allow you to set the wait time interval for the Telnet session to time out.

Synopsis **line vty** *first number last number*

Operands

first number	Specifies the first line number. The range of valid values is from 0 through 31.
last number	Specifies the last line number. The range of valid values is from 0 through 31.

Defaults There are no default configurations for this command.

Command Modes Global configuration mode

Description Use this command to configure the virtual terminal line settings to set the exec-timeout.

Usage Guidelines There are no usage guidelines for this command.

Examples To configure the wait interval for the Telnet session to time out after 2 minutes, 30 seconds if there is no response from the user:

```
switch#configure terminal
switch(config)#line vty 23 31
switch(conf-line)#exec-timeout 2 30
```

See Also show line

lldp dcbx-version

Specifies which version of the Data Center Bridging eXchange (DCBX) protocol to use.

Synopsis **lldp dcbx-version** {**cee** | **pre-cee**}

no lldp dcbx-version

Operands

cee	Specifies to use the Converged Enhanced Ethernet (CEE) DCBX version.
pre-cee	Specifies to use the standard DCBX version, which is the version released prior to the CEE DCBX release.

Defaults There are no default values for this command.

Command Modes Interface configuration mode

Description Use this command to specify which version of the DCBX protocol to use.

Usage Guidelines Use the **no lldp dcbx-version** command to deactivate this functionality.

Examples To specify which DCBX version to use:

```
switch(conf-if-te-0/1)#lldp dcbx-version cee
```

See Also None

lldp disable

Disables LLDP on the interface.

Synopsis

lldp disable

no lldp disable

Operands

None

Defaults

By default, LLDP is enabled at both the global and interface levels.

Command Modes

Interface configuration mode

LLDP protocol configuration mode

Description

Use this command to disable LLDP on the interface.

Usage Guidelines

Use the **no lldp disable** command to enable LLDP on the interface.

Examples

To disable LLDP on the interface.

```
switch(conf-if-te-0/1)#lldp disable
```

See Also

None

lldp fcoe-priority-bits

Sets the priorities on which FCoE traffic will be allowed.

Synopsis **lldp fcoe-priority-bits** *value*

no lldp fcoe-priority-bits

Operands *value* Specifies the bitmap value. The range of valid values is from 0 through 7.

Defaults The default value is 3.

Command Modes Interface configuration mode

Description Use this command to set the priorities on which FCoE traffic will be allowed.

Usage Guidelines The **no lldp fcoe-priority-bits** command returns to the default setting.

Examples To set the priorities on which FCoE traffic will be allowed:

```
switch(conf-if-te-0/1)#lldp fcoe-priority-bits 0xff
```

See Also protocol lldp

lldp iscsi-priority-bits

Sets the priorities on which iSCSI traffic will be allowed.

Synopsis **lldp iscsi-priority-bits** *value*

no lldp iscsi-priority-bits

Operands *value* Specifies the bitmap value. The range of valid values is from 0 through 7.

Defaults The default value is 4.

Command Modes Interface configuration mode

Description Use this command to set the priorities on which iSCSI traffic will be allowed. The **no lldp iscsi-priority-bits** command returns to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the priorities on which iSCSI traffic will be allowed:

```
switch(conf-if-te-0/1)#lldp iscsi-priority-bits 0xff
```

See Also protocol lldp

lldp profile

Applies a Link Layer Discovery Protocol (LLDP) profile on an interface.

Synopsis **lldp profile** *name*

no lldp profile

Operands

name	Specifies the profile name.

Defaults If the parameters are not defined in the profile, the default values are used.

Command Modes Interface configuration mode

Description Use this command to apply a Link Layer Discovery Protocol (LLDP) profile on an interface. Use the **no lldp profile** command to delete the profile from the interface.

Usage Guidelines You must use the **lldp profile** command to create an LLDP profile before you can apply the profile to the interface. Only one LLDP profile can exist at any time for a particular interface. When this command is not present, the parameters defined in the global LLDP configuration are used.

Examples To apply an LLDP profile on an interface:

```
switch(conf-if-te-0/1)#lldp profile test
```

See Also protocol lldp

logout

Exits from EXEC and privileged EXEC mode.

Synopsis **logout**

Operands None

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Exits from EXEC and privileged EXEC command mode. See "CEE CLI command modes" on page 3.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

mac access-group

Applies rules specified in a MAC ACL to traffic entering an interface.

Synopsis

mac access-group *name* **in**

no mac access-group *name*

Operands

name	Specifies the name of the standard or extended MAC access list.
in	Specifies to filter inbound packets only.

Default

There are no access lists applied to the interface.

Command Modes

Interface configuration mode

Description

Use this command to apply a MAC ACL to a Layer 2 or a VLAN interface. You create the MAC ACL by using the **mac access-list** global configuration command. Use the **no mac access-group** command to remove the MAC ACL from the interface.

Usage Guidelines

You can assign one MAC ACL (standard or extended) to an interface.

When a packet is received on an interface with a MAC ACL applied, the switch checks the rules in the ACL. If any of the rules match, the switch permits or drops the packet, according to the rule. If the specified ACL does not exist, the switch permits all the packets.

Examples

To apply a MAC ACL named macacl2 on an interface:

```
switch(conf-if)#mac access-group macacl2 in
```

To remove a MAC ACL named macacl2 from an interface:

```
switch(conf-if)#no mac access-group macacl2
```

See Also

mac access-list extended, mac access-list standard, show statistics access-list mac

mac access-list extended

Creates and assigns a name to the extended MAC access list.

Synopsis

mac access-list extended *name*

no mac access-list extended *name*

Operands

name	Assigns a name to the extended MAC access list. The maximum character limit is 63.

Defaults

There are no default configurations for this command.

Command Modes

Global configuration mode

Description

Use this command to create an extended MAC access list. If the ACL is already created, this command puts the switch in the extended MAC access-list configuration mode. Use the **no mac access-list extended** command to remove the access list.

Extended ACLs allow you to filter traffic based on the following:

- Source MAC address
- Destination MAC address
- EtherType

You can apply named extended MAC ACLs to VLANs and to Layer 2 interfaces.

Usage Guidelines

Standard and extended MAC ACLs cannot share the same name.

Examples

To create a extended MAC ACL named mac1:

```
switch(config)#mac access-list extended mac1
switch(conf-macl-ext)#
```

To delete a extended MAC ACL named mac1:

```
switch(config)#no mac access-list extended mac1
```

See Also

deny (extended ACLs), permit (extended ACLs), show statistics access-list mac

mac access-list standard

Creates and assigns a name to the standard MAC access list.

Synopsis

mac access-list standard *name*

no mac access-list standard *name*

Operands

name	Assigns a name to the standard standard MAC access list. The maximum character limit is 63.

Defaults

There are no default configurations for this command.

Command Modes

Global configuration mode

Description

Use this command to create a standard MAC access list. If the ACL is already created, this command puts the switch in the standard MAC access-list configuration mode. Use the **no mac access-list standard** command to remove the access list.

Standard ACLs allow you to filter traffic based on the source MAC address. You can apply named standard MAC ACLs to VLANs and to Layer 2 interfaces.

Usage Guidelines

Standard and extended MAC ACLs cannot share the same name.

Examples

To create a standard MAC ACL named mac1:

```
switch(config)#mac access-list standard mac1
switch(conf-macl-std)#
```

To delete a standard MAC ACL named mac1:

```
switch(config)#no mac access-list standard mac1
```

See Also

deny (standard ACLs), permit (standard ACLs), show statistics access-list mac

mac-address-table

Use this command to set the aging time or to add static addresses to the MAC address table.

Synopsis **mac-address-table** {**aging-time** *seconds*| **static** *mac-addr* **forward** {**port-channel** *number* | **tengigabitethernet** *slot/port* | **vlan** *vlan_id*}}

no mac-address-table {**aging-time** | **static** *mac-addr* **forward** {**port-channel** *number* | **tengigabitethernet** *slot/port* | **vlan** *vlan_id*}}

Operands

aging-time *seconds*
Specifies the time in seconds that a learned MAC address will persist after the last update. If the aging time is set to zero (0), it means that aging is disabled. The range of valid values is from 10 through 100000.

static *mac-addr* — Specifies the Media Access Control (MAC) address (unicast or multicast) to add to the address table. Packets with this destination address received in the specified VLAN are forwarded to the specified interface.

forward — Forwards the MAC address to the interface.

port-channel *number*
Specifies the port-channel number. The range of valid values is from 1 through 63.

tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot — Specifies a valid slot number.

port — Specifies a valid port number.

vlan *vlan_id* — Specifies the VLAN number. The range of valid values is from 1 through 3583.

Defaults The default aging time is 300 seconds.

Command Modes Global configuration mode

Description Use this command to set the aging time or to add static addresses to the MAC address table.

Usage Guidelines The **vlan** keyword is mandatory because the switch only supports independent VLAN learning (IVL). Use the **no mac-address-table** version of this command to disable functionality.

Examples To add the static address 0011.2222.3333 to the MAC address table with a packet received on VLAN 100:

```
switch(config)#mac-address-table static 0011.2222.3333 forward
tengigabitethernet 0/1 vlan 100
```

To set the aging time to 10 minutes:

```
switch(config)#mac-address-table aging-time 600
```

See Also show statistics access-list mac

max-age

Sets the interval time in seconds between messages that the spanning tree receives from the interface.

Synopsis **max-age** *seconds*

no max-age

Operands

seconds	Configures the Spanning Tree Protocol interface maximum age. The range of valid values is from 6 through 40.

Defaults The default is 20 seconds.

Command Modes Spanning Tree Protocol configuration mode

Description Use this command to control the maximum length of time that passes before an interface saves its configuration Bridge Protocol Data Unit (BPDU) information. Use the **no max-age** command to return to the default configuration.

Usage Guidelines When configuring the maximum age, the **max-age** setting must be greater than the **hello-time** setting. The following relationship should be kept:

2*(forward-delay - 1)>=max-age>=2*(hello-time + 1)

Examples To configure the maximum age to 10 seconds:

```
switch(conf-rstp)#max-age 10
```

See Also hello-time, forward-delay

max-hops

Configures the maximum number of hops for a Bridge Protocol Data Unit (BPDU) in an MSTP region.

Synopsis **max-hops** *hop_count*

no max-hops

Operands

hop_count	Specifies the maximum number of hops for which the BPDU will be valid. The range of valid values is from 1 through 40.

Defaults The default is 20 hops.

Command Modes Multiple Spanning Tree Protocol configuration mode

Description Use this command to configure the maximum number of hops for a BPDU in an MSTP region. This parameter is used by all the instances of the MSTP. Use the **no max-hops** command to return to the default value.

Usage Guidelines Specifying the maximum hops for a BPDU prevents the messages from looping indefinitely on the interface. When you change the number of hops, it affects all spanning-tree instances.

Examples To set the number of maximum hops to 25 for all MSTPs:

```
switch(config)#protocol spanning-tree mstp
switch(conf-mstp)#max-hops 25
```

See Also show spanning-tree mst brief, show spanning-tree mst detail

mode

Sets the LLDP mode on the switch.

Synopsis **mode tx | rx**

no mode

Operands

tx	Specifies to enable only the transmit mode.
rx	Specifies to enable only the receive mode.

Defaults Both transmit and receive modes are enabled.

Command Modes Protocol LLDP configuration mode

Description Use this command to set the LLDP mode on the switch. Use the **no mode** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples To enable only the transmit mode:

```
switch(conf-lldp)#mode tx
```

See Also show lldp

mtu

Specifies the MTU on the interface.

Synopsis **mtu** *size*

Operands

size	Specifies the size of the maximum transmission unit (MTU) of an interface. The allowed MTU size is from 1522 through 9208 bytes.

Defaults By default, all 10 Gbps Ethernet interfaces use a default MTU of 2500 bytes.

Command Modes Interface configuration mode

Description Use this command to specify the MTU on the interface.

Usage Guidelines Creating MTUs under VLAN interfaces is not valid.

Examples None

See Also None

multiplier

Sets the number of consecutive misses of hello messages before LLDP declares the neighbor as dead.

Synopsis **multiplier** *value*

no multiplier

Operands

value	Specifies a multiplier value to use. The range of valid values is from 2 through 10.

Defaults The default multiplier value is 4.

Command Modes Protocol LLDP configuration mode

Description Use this command to set the number of consecutive misses of hello messages before LLDP declares the neighbor as dead. Use the **no multiplier** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the number of consecutive misses:

```
switch(conf-lldp)#multiplier 2
```

See Also hello

permit (extended ACLs)

Configures a MAC address rule to permit traffic based on the source and destination MAC addresses.

Synopsis

permit {**any** | **host** *MAC _ACL* | *MAC_ACL*} {**any** | **host** *MAC _ACL* | *MAC _ACL*} {*EtherType* | **arp** | **fcoe** | **ipv4**} [**count**]

no permit {**any** | **host** *MAC _ACL* | *MAC_ACL*} {**any** | **host** *MAC _ACL* | *MAC _ACL*} {*EtherType* | **arp** | **fcoe** | **ipv4**}

Operands

any	Specifies any source MAC address.
host *MAC_ACL*	Specifies a host-specific source MAC address for which to set permit conditions. Use the format HHHH.HHHH.HHHH.
MAC_ACL	Specifies any MAC address for which to set permit conditions. Use the format HHHH.HHHH.HHHH.
any	Specifies any destination MAC address.
host *MAC_ACL*	Specifies a host-specific source MAC address for which to set permit conditions. Use the format HHHH.HHHH.HHHH.
MAC_ACL	Specifies any host address for which to set permit conditions. Use the format HHHH.HHHH.HHHH.
Ethertype	Specifies the protocol number for which to set the permit conditions. The range of valid values is from 1536 through 65535.
arp	Specifies to permit the Address Resolution Protocol (0x0806).
fcoe	Specifies to permit the Fibre Channel over Ethernet Protocol (0x8906).
ipv4	Specifies to permit the IPv4 protocol (0x0800).
count	Enables counting of the packets matching the filter rule.

Defaults

By default, no MAC ACLs are configured.

Command Modes

Feature Access Control List configuration mode

Description

Use this command to configure rules to match and to permit traffic based on the source and destination MAC addresses, and the protocol type. You can also enable counters for a specific rule. There are 255 ACL counters supported per port group. Use the **no permit** command to remove a rule from the MAC ACL.

Usage Guidelines

The first set of {**any** | **host** *MAC_ACL* | *MAC_ACL*} parameters is specific to the source MAC address. The second set of {**any** | **host** *MAC_ACL* | *MAC_ACL*} parameters is specific to the destination MAC address.

Examples

To create a rule in an extended MAC ACL to permit IPv4 traffic from the source MAC address 0022.3333.4444 to the destination MAC address 0022.3333.5555 and to enable the counting of packets:

```
switch(conf-macl-ext)#permit 0022.3333.4444 0022.3333.5555 ipv4 count
```

To delete a filter rule in an extended MAC ACL:

```
switch(conf-macl-ext)#no permit 0022.3333.4444 0022.3333.5555 ipv4
```

See Also mac access-list extended, seq (extended MAC ACLs)

permit (standard ACLs)

Configures a MAC address rule to permit traffic based on the source MAC address.

Synopsis **permit** {*MAC_ACL* | **any**} [**count**]

no permit {*MAC_ACL* | **any**}

Operands

MAC_ACL	Specifies the source host MAC address for which to set permit conditions. Use the format HHHH.HHHH.HHHH.
any	Specifies any source MAC address.
count	Enables the counting of the packets matching the rule.

Defaults By default, no MAC ACLs are configured.

Command Modes Feature Access Control List configuration mode

Description Use this command to configure rules to match and to permit traffic based on the source MAC address. You can also enable counters for a specific rule. There are 255 ACL counters supported per port group. Use the **no permit** command to remove a rule from the MAC ACL.

Usage Guidelines There are no usage guidelines for this command.

Examples To create a rule in a standard MAC ACL to permit traffic from the source MAC address 0022.3333.4444 and to enable the counting of packets:

```
switch(conf-macl-std)#permit 0022.3333.4444 count
```

To delete a rule from a standard MAC ACL:

```
switch(conf-macl-std)#no permit 0022.3333.4444
```

See Also mac access-list standard, seq (standard MAC ACLs)

port-channel path-cost

Sets the path-cost behavior.

Synopsis **port-channel path-cost** {**custom** | **standard**}

Operands

custom	Specifies to use the custom behavior, which sets the path-cost changes according to the port-channel's bandwidth.
standard	Specifies to use the standard behavior, which sets that the path-cost does not change according to the port-channel's bandwidth.

Defaults The default path-cost is **standard**.

Command Modes Spanning Tree Protocol configuration mode

Description Use this command to set the path-cost behavior for the port-channel.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the behavior for the path-cost to **custom**:

```
switch(conf-mstp)#port-channel path-cost custom
```

To set the behavior for the path-cost to **standard**:

```
switch(conf-mstp)#port-channel path-cost standard
```

See Also None

priority-group-table

Configures the bandwidth for each Priority Group.

Synopsis **priority-group-table** *pgid* [**weight** *weight*] [**pfc**]

no priority-group-table *pgid*

Operands

pgid	Specifies the Priority Group ID (PGID) assigned to a Priority Group. The range of valid values is from 0 through 7, and the range from 15.0 through 15.7 is for eight reserved strict priority PGIDs.
weight *weight*	Maps a weight to a Deficit Weighted Round Robin (DWRR) scheduler queue. This parameter is only valid for the DWRR Priority Group. The sum of all DWRR Priority Group weight values must equal 100 percent. The range of valid values is from 1 through 100.
pfc	Enables the Priority-based Flow Control (PFC) for each priority that gets mapped to the Priority Group.

Defaults There is no default value for the weight. The PFC is disabled.

Command Modes CEE map configuration mode

Description Use this command to configure the bandwidth for each Priority Group, to associate a weight to a DWRR scheduler queue, and to enable the PFC.

You can define up to eight additional DWRR Priority Groups with the PGID values in the range from 0 through 7. Strict Priority Groups take priority in order from the lowest PGID value to the highest PGID value. For example, a PGID of 15.0 is a higher priority than a PGID of 15.1 and PGID 15.1 is higher priority than PGID 15.2.

Use the **no priority-group-table** *pgid* command to return the Priority Group to the default values. For the Strict Priority Group, the PGID is still valid, but the PFC is disabled. For the DWRR Priority Group, the PGID is no longer valid and is deleted; the PGID can only be deleted when it is not bound to any Priority-to-Priority Group Table entry.

TABLE 6 Bandwidth allocation to user Priority Groups

PGID	PG%	PFC	Description
0	50	Y	SAN
1	50	N	LAN

Usage Guidelines A PGID value of 15 is a special value, which allows you to configure priorities with no bandwidth limit. The Strict Priority Groups 15.0 through 15.7 are predefined in the switch.

Examples To define the CEE map and configure the bandwidth with the Priority Group, use the values in Table 6.

```
switch(config)#cee-map test
switch(conf-ceemap)#priority-group-table 0 weight 50 pfc
switch(conf-ceemap)#priority-group-table 1 weight 50
```

See Also cee-map, priority-table, show qos maps

priority-table

Provisions the CEE Priority-to-Priority Group Table; this table maps each of the eight ingress CoSs into a Priority Group.

Synopsis

priority-table *pgid0 pgid1 pgid2 pgid3 pgid4 pgid5 pgid6 pgid7*

no priority-table

Operands

pgid0	Sets the Priority Group ID for all packets with CoS 0.
pgid1	Sets the Priority Group ID for all packets with CoS 1.
pgid2	Sets the Priority Group ID for all packets with CoS 2.
pgid3	Sets the Priority Group ID for all packets with CoS 3.
pgid4	Sets the Priority Group ID for all packets with CoS 4.
pgid5	Sets the Priority Group ID for all packets with CoS 5.
pgid6	Sets the Priority Group ID for all packets with CoS 6.
pgid7	Sets the Priority Group ID for all packets with CoS 7.

Defaults

The default CEE Priority mapping table matches the IEEE 802.1Q recommendation for systems supporting eight traffic classes. The 802.1Q maps CoS 0 (best effort) to Strict Priority Traffic Class 1 (PGID 15.6) and CoS 1 to below best effort Traffic Class 0 (PGID 15.7). All other CoS values go through unchanged; for example, CoS 2 maps to Traffic Class 2 (PGID 15.5), up to CoS 7 and Traffic Class 7 (PGID 15.0).

Command Modes

CEE map configuration mode

Description

Use this command to provision the CEE Priority-to-Priority Group Table. This table maps each of the eight ingress CoSs into a Priority Group. Use the **no priority-table** command to return the Priority mapping table to the default values.

Usage Guidelines

Only a single CoS can be mapped to a PFC-enabled priority queue. The CoS number must be identical to the priority queue number. If your configuration violates this restriction, an error message displays and the Priority Group Table is set back to the default values.

When the CEE map is applied, and the interface is connected to the CNA, only one strict priority PGID (PGID 15.0 to PGID 15.7) is allowed.

TABLE 7 Mapping of incoming Priority-to-Priority Groups

Priority	PGID
0	1
1	1
2	0
3	1
4	1
5	1

TABLE 7 Mapping of incoming Priority-to-Priority Groups (Continued)

Priority	PGID
6	1
7	15.0

Examples

To define a CEE map of the incoming Priority-to-Priority Groups, use the values in Table 7.

```
switch(config)#ceemap test
switch(conf-ceemap)#priority-table 1 1 0 1 1 1 1 15.0
```

See Also

cee, cee-map, priority-group-table

profile

Creates an LLDP profile.

Synopsis **profile** *name*

no profile *name*

Operands

name	Assigns a name to the profile. The valid value is a maximum of 32 characters.

Defaults None

Command Modes Protocol LLDP configuration mode

Description Use this command to create an LLDP profile.

Usage Guidelines When you apply an LLDP profile on an interface using the **lldp profile** command, it overrides the global configuration. If a profile is not present, then the default global profile is used until you create a valid profile. Up to 64 profiles can be created, but the best practice is to limit this to one profile for each port.

Examples To create a profile named test:

```
switch(conf-lldp)#profile test
```

To delete a profile named test:

```
switch(conf-lldp)#no profile test
```

See Also lldp profile

protocol lldp

Enters the Link Layer Discovery Protocol (LLDP) configuration mode.

Synopsis **protocol lldp**

no protocol lldp

Operands None

Defaults The LLDP and DCBX protocols are enabled.

Command Modes Global configuration mode

Description Use this command to enter LLDP configuration mode to be able to make changes to the parameters. Use the **no protocol lldp** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples To clear all LLDP configurations:

```
switch(config)#no protocol lldp
```

See Also None

protocol spanning-tree

Creates a context for the specified STP protocol.

Synopsis **protocol spanning-tree** {**mstp** | **rstp** | **stp**}

no protocol spanning-tree

Operands

mstp	Specifies the Multiple Spanning Tree Protocol (MSTP).
rstp	Specifies the Rapid Spanning Tree (RSTP).
stp	Specifies the Spanning Tree Protocol (STP).

Defaults By default, STP is not enabled. STP is not required in a loop-free topology.

Command Modes Global configuration mode

Description Use this command to create a context for the protocol specified. Use the **no protocol spanning-tree** command to delete the context and all the configurations defined within the context or protocol for the interface.

Usage Guidelines Consider enabling STP to detect or avoid loops. You must turn off one form of STP before turning on another form.

Packet drops or packet flooding may occur if you do not enable STP on all devices connected on both sides of parallel links.

Examples To enable the Spanning Tree Protocol:

```
switch(config)#protocol spanning-tree stp
```

See Also show spanning-tree

pwd

Print Working Directory (**pwd**) displays the contents of the current working directory.

Synopsis **pwd**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to view the current working directory.

Usage Guidelines There are no usage guidelines for this command.

Examples To view the current working directory:

```
switch#pwd
flash:
```

See Also None

qos cos

Specifies the interface Class of Service (CoS) value.

Synopsis **qos cos** *value*

no qos cos

Operands *value* Specifies the CoS value. The range of valid values is from 0 through 7.

Defaults The default CoS value is 0 (zero).

Command Modes Interface configuration mode

Description Use this command to specify the interface default CoS value. When the interface ingress QoS Trust is in the untrusted mode, then the Interface default CoS value is applied to all ingress traffic for user priority mapping. When the interface ingress QoS Trust is in the CoS mode, then the interface default CoS value is applied to all non-priority tagged ingress traffic for user priority mapping. Use the **no qos cos** command to return the CoS value to the default.

Usage Guidelines If the interface is QoS trusted, the CoS value of the interface is used to assign a CoS value to all untagged packets entering the interface.

Examples To set the interface CoS value to 2:

```
switch(conf-if-te-0/2)#qos cos 2
```

To return the interface CoS value to the default:

```
switch(conf-if-te-0/2)#no qos cos
```

See Also qos map cos-mutation, qos trust cos, show qos maps

qos cos-mutation

Applies a CoS-to-CoS mutation QoS map on an interface.

Synopsis **qos cos-mutation** *name*

no qos cos-mutation

Operands

name	Specifies the name of the CoS-to-CoS mutation map.

Defaults There is no explicit CoS-to-CoS mutation QoS map applied; by default, the inbound CoS equals the outbound CoS.

Command Modes Interface configuration mode

Description Use this command to apply a CoS-to-CoS mutation QoS map on an interface.

Usage Guidelines This command applies a CoS-to-CoS mutation map on an interface. The **qos cos-mutation** command is not available if the interface is in CEE Provisioning mode. Use the **no qos cos-mutation** command to remove the CoS-to-CoS mutation map.

Examples To activate the CoS-to-CoS mutation QoS map on the interface:

```
switch(conf-if-te-0/1)#qos cos-mutation test
```

To remove the CoS-to-CoS mutation QoS map on the interface:

```
switch(conf-if-te-0/1)#no qos cos-mutation
```

See Also qos cos-mutation, show qos maps

qos cos-traffic-class

Applies a CoS-to-Traffic Class QoS map on an interface.

Synopsis **qos cos-traffic-class** *name*

no qos cos-traffic-class

Operands

name	Specifies the name of a previously created CoS-to-Traffic Class QoS map. Only one CoS-to-Traffic Class QoS map can exist at a time. An existing CoS-to-Traffic Class QoS map must be removed before a new one can be applied.

Defaults There is no explicit CoS-to-Traffic Class QoS map applied; the implicit behavior is to match the IEEE 802.1Q recommendations for systems supporting eight Traffic Classes.

Command Modes Interface configuration mode

Description Use this command to apply a CoS-to-Traffic Class QoS map to an interface. Use the **no qos cos-traffic-class** command to remove the CoS-to-Traffic Class mapping.

Usage Guidelines This command is not available when the interface is in the CEE Provisioning mode.

Examples To apply a CoS-to-Traffic Class QoS map to an interface:

```
switch(conf-if-te-0/1)#qos cos-traffic-class test
```

See Also qos map cos-traffic-class, qos trust cos, qos cos-mutation, show qos maps

qos map cos-mutation

Creates a QoS map for performing CoS-to-CoS mutation.

Synopsis **qos map cos-mutation** *name cos0 cos1 cos2 cos3 cos4 cos5 cos6 cos7*

no qos map cos-mutation *name*

Operands

name	Specifies a unique name across all CoS-to-CoS mutation QoS maps defined within the system. If the named CoS-to-CoS mutation QoS map does not exist, then it is created. If the named CoS-to-CoS mutation QoS map already exists, then it is updated and new mapping is automatically propagated to all interfaces bound to the QoS map.
cos0	Sets the outbound CoS value for all packets with inbound CoS 0.
cos1	Sets the outbound CoS value for all packets with inbound CoS 1.
cos2	Sets the outbound CoS value for all packets with inbound CoS 2
cos3	Sets the outbound CoS value for all packets with inbound CoS 3.
cos4	Sets the outbound CoS value for all packets with inbound CoS 4.
cos5	Sets the outbound CoS value for all packets with inbound CoS 5.
cos6	Sets the outbound CoS value for all packets with inbound CoS 6.
cos7	Sets the outbound CoS value for all packets with inbound CoS 7.

Defaults There are no CoS-to-CoS mutation QoS maps defined.

Command Modes Global configuration mode

Description Use this command to create a QoS map for performing CoS-to-CoS mutation. A CoS-to-CoS mutation takes an inbound CoS value and maps it to an outbound CoS value. The inbound CoS value is the user priority after any interface ingress QoS trust and interface default CoS policy have been applied. The outbound CoS value is used in selecting Traffic Class and egress packet marking. The default is no CoS-to-CoS mutation QoS maps defined. Use the **no qos map cos-mutation** *name* command to delete the named CoS-to-CoS mutation QoS map. A QoS map can only be deleted if it is not bound to any interface.

Usage Guidelines There are no usage guidelines for this command.

Examples To create a CoS-to-CoS mutation QoS map to swap CoS 4 and CoS 5 and apply it on an interface, for example inbound CoS 4 is mapped to outbound CoS 5 and inbound CoS 5 is mapped to outbound CoS 4; all other CoS values go through unchanged:

```
switch(config)#qos map cos-mutation test 0 1 2 3 5 4 6 7
```

See Also qos map cos-mutation, show qos maps

qos map cos-traffic-class

Creates a QoS map for performing CoS-to-Traffic Class mapping.

Synopsis **qos map cos-traffic-class** *name tc0 tc1 tc2 tc3 tc4 tc5 tc6 tc7*

no qos map cos-traffic-class

Operands.

name	Specifies the CoS-to-Traffic Class QoS map name. If the named CoS-to-Traffic Class QoS map does not exist, then it is created. If the named CoS-to-Traffic Class QoS map already exists, then it is updated and new mappings are automatically propagated to all interfaces bound to the QoS map.
tc0	Sets the Traffic Class value for all packets with outbound CoS 0.
tc1	Sets the Traffic Class value for all packets with outbound CoS 1.
tc2	Sets the Traffic Class value for all packets with outbound CoS 2.
tc3	Sets the Traffic Class value for all packets with outbound CoS 3.
tc4	Sets the Traffic Class value for all packets with outbound CoS 4.
tc5	Sets the Traffic Class value for all packets with outbound CoS 5.
tc6	Sets the Traffic Class value for all packets with outbound CoS 6.
tc7	Sets the Traffic Class value for all packets with outbound CoS 7.

Defaults There are no CoS-to-Traffic Class QoS maps defined.

Command Modes Global configuration mode

Description Use this command to create a QoS map for performing CoS-to-Traffic Class mapping. A CoS-to-Traffic Class QoS map takes an outbound CoS value and maps it to a Traffic Class. The outbound CoS value is used as the packet user priority after applying the configured interface QoS trust, interface default CoS, and CoS-to-CoS mutation policies. Traffic Class is a reference to a scheduler queue and packet servicing policy. Use the **no qos map cos-traffic-class** *name* command to delete the CoS-to-Traffic Class QoS map specified by the name. The CoS-to-Traffic Class QoS map can only be deleted when it is not bound to any interface. All other CoS values go through unchanged. This mapping matches the default behavior recommended in IEEE 802.1Q for systems supporting eight Traffic Classes.

Usage Guidelines There are no usage guidelines for this command.

Examples To create a CoS-to-Traffic Class QoS map to map CoS 0 to Traffic Class 1 and CoS 1 to Traffic Class 0:

```
switch(config)#qos map cos-traffic-class test 1 0 2 3 4 5 6 7
```

To delete a CoS-to-Traffic Class QoS map:

```
switch(config)#no qos map cos-traffic-class test
```

See Also qos trust cos, qos map cos-mutation

qos queue multicast scheduler

Configures the multicast Traffic Class packet expansion scheduler policy. All multicast Traffic Class packet expansion queues are serviced by Deficit Weighted Round Robin (DWRR).

Synopsis **qos queue multicast scheduler dwrr** *mTC0_WEIGHT mTC1_WEIGHT mTC2_WEIGHT mTC3_WEIGHT*

no qos queue multicast scheduler

Operands

dwrr	Configures the DWRR multicast Traffic Class packet expansion policy.
mTC0_WEIGHT	Sets the DWRR weight for multicast Traffic Class 0 packet expansion in units of bandwidth percentage. The sum of all weight values must equal 100 percent. The range of valid values is from 0 through 100.
mTC1_WEIGHT	Sets the DWRR weight for multicast Traffic Class 1 packet expansion in units of bandwidth percentage. The sum of all weight values must equal 100 percent. The range of valid values is from 0 through 100.
mTC2_WEIGHT	Sets the DWRR weight for multicast Traffic Class 2 packet expansion in units of bandwidth percentage. The sum of all weight values must equal 100 percent. The range of valid values is from 0 through 100.
mTC3_WEIGHT	Sets the DWRR weight for multicast Traffic Class 3 packet expansion in units of bandwidth percentage. The sum of all weight values must equal 100 percent. The range of valid values is from 0 through 100.

Defaults The default weight value is 25 percent bandwidth for each multicast Traffic Class.

Command Modes Global configuration mode

Description Use this command to configure the multicast Traffic Class packet expansion scheduler policy. All multicast Traffic Class packet expansion queues are serviced by Deficit Weighted Round Robin (DWRR). This multicast Traffic Class packet expansion scheduler policy is applied uniformly across the entire system. Use the **no qos queue multicast scheduler** command to return the multicast Traffic Class packet expansion scheduler to the default value.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the multicast Traffic Class packet expansion scheduler for Traffic Class 0 getting 10 percent bandwidth, Traffic Class 1 getting 20 percent bandwidth, Traffic Class 2 getting 30 percent bandwidth, and Traffic Class 3 getting 40 percent bandwidth:

```
switch(config)#qos queue multicast scheduler dwrr 10 20 30 40
```

To return the system to the default multicast Traffic Class packet expansion scheduler policy:

```
switch(config)#no qos queue multicast scheduler
```

See Also qos rcv-queue multicast rate-limit

qos queue scheduler

Configures the Traffic Class packet scheduler policy.

Synopsis **qos queue scheduler strict-priority** *strict-priority number* **dwrr** *weight0 weight1 weight2 weight3 weight4 weight5 weight6 weight7*

no qos queue scheduler

Operands

strict-priority Configures the Strict Priority Traffic Class policy. All Strict Priority Traffic Classes are serviced before any DWRR Traffic Classes.

strict-priority number
Sets the number of the Strict Priority Traffic Class. This is the strict priority Traffic Class. For example if the strict priority number is 3, then the Strict Priority Traffic Class are Traffic Classes 7, 6, and 5. The range of valid values is from 0 through 8.

dwrr Configures the Deficit Weighted Round Robin (DWRR) Traffic Class policy. There are a variable number of DWRR weight values accepted that are dependent on the setting of the strict priority number. The strict priority number plus the number of DWRR weight values must always add up to 8 Traffic Classes.

weight0 Sets the DWRR weight for Traffic Class 0 in units of bandwidth percentage left over after servicing all of the Strict Priority Traffic Classes. The sum of all weight values must equal 100 percent. The *weight0* value is only valid when the strict priority number is less than 8. The range of valid values is from 0 through 100 percent.

weight1 Sets the DWRR weight for Traffic Class 1 in units of bandwidth percentage left over after servicing all of the Strict Priority Traffic Classes. The sum of all weight values must equal 100 percent. The *weight1* value is only valid when the strict priority number is less than 7. The range of valid values is from 0 through 100 percent.

weight2 Sets the DWRR weight for Traffic Class 2 in units of bandwidth percentage left over after servicing all of the Strict Priority Traffic Classes. The sum of all weight values must equal 100 percent. The *weight2* value is only valid when the strict priority number is less than 6. The range of valid values is from 0 through 100 percent.

weight3 Sets the DWRR weight for Traffic Class 3 in units of bandwidth percentage left over after servicing all of the Strict Priority Traffic Classes. The sum of all weight values must equal 100 percent. The *weight3* value is only valid when the strict priority number is less than 5. The range of valid values is from 0 through 100 percent.

weight4 Sets the DWRR weight for Traffic Class 4 in units of bandwidth percentage left over after servicing all of the Strict Priority Traffic Classes. The sum of all weight values must equal 100 percent. The *weight4* value is only valid when the strict priority number is less than 4. The range of valid values is from 0 through 100 percent.

weight5 Sets the DWRR weight for Traffic Class 5 in units of bandwidth percentage left over after servicing all of the Strict Priority Traffic Classes. The sum of all weight values must equal 100 percent. The *weight5* value is only valid when the strict priority number is less than 3. The range of valid values is from 0 through 100 percent.

weight6 Sets the DWRR weight for Traffic Class 6 in units of bandwidth percentage left over after servicing all of the Strict Priority Traffic Classes. The sum of all weight values must equal 100 percent. The *weight6* value is only valid when the strict priority number is less than 2. The range of valid values is from 0 through 100 percent.

weight7 Sets the DWRR weight for Traffic Class 7 in units of bandwidth percentage left over after servicing all of the Strict Priority Traffic Classes. The sum of all weight values must equal 100 percent. The *weight7* value is only valid when the strict priority number is less than 1. The range of valid values is from 0 through 100 percent.

Defaults The default strict priority value is 8. There is no default value for each weight value.

Command Modes Global configuration mode

Description Use this command to configure the Traffic Class packet scheduler policy. Eight Traffic Classes are supported with a configurable number of them being Strict Priority and any remaining ones being serviced by DWRR. This Traffic Class packet scheduler policy is applied uniformly across the entire system. Actual Traffic Class packet scheduling is performed independently by each switch. Use the **no qos queue scheduler** command to return the Traffic Class packet scheduler to the default value.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the Traffic Class packet scheduler for Strict Priority Traffic Class 4 and DWRR Traffic Class 4 with Traffic Class 0 getting 10 percent bandwidth, Traffic Class 1 getting 20 percent bandwidth, Traffic Class 2 getting 30 percent bandwidth, and Traffic Class 3 getting 40 percent bandwidth:

```
switch(config)#qos queue scheduler strict-priority 4 dwrr 10 20 30 40
```

To return the system to the default Traffic Class packet scheduler policy:

```
switch(config)#no qos queue scheduler
```

See Also qos rcv-queue multicast rate-limit

qos rcv-queue multicast rate-limit

Configures a limit on the maximum rate for multicast packet expansion.

Synopsis **qos rcv-queue multicast rate-limit** *rate* [**burst** *burst-size*]

no qos rcv-queue multicast rate-limit

Operands

rate	Specifies the maximum rate for multicast packet expansion in units of packets per second (pkt/s). This places a limit on the sum of the first level expansion. For example, the ingress packets replicated for each egress switch plus the second level expansion. The range of valid values is from 6500 through 20000000 pkt/s.
burst *burst-size*	Configures a limit on the maximum burst size for multicast packet expansion, for example, packet replication. The burst size represents the maximum amount of multicast packet expansion that can be performed back-to-back as a single burst in units of packets (pkt). The range of valid values is from 50 through 65535 pkt.

Defaults The default burst size is 4096 packets. The default rate value is 3000000 pkt/s.

Command Modes Global configuration mode

Description Use this command to configure a limit on the maximum rate for multicast packet expansion. This rate limit is applied uniformly across the entire system. This rate limit is enforced independently by each switch. Use the **no qos rcv-queue multicast rate-limit** command to return the multicast packet expansion rate limit to the default settings.

Usage Guidelines There are no usage guidelines for this command.

Examples To lower the maximum multicast packet expansion rate to 10000 pkt/s:

```
switch(config)#qos rcv-queue multicast rate-limit 10000
```

To return the system to the default multicast packet expansion rate limit values:

```
switch(config)#no qos rcv-queue multicast rate-limit
```

See Also qos rcv-queue multicast threshold

qos rcv-queue multicast threshold

Configures a limit on the maximum queue depth for multicast packet expansion queues.

Synopsis **qos rcv-queue multicast threshold** *mTC0 mTC1 mTC2 mTC3*

no qos rcv-queue multicast threshold

Operands

mTC0	Sets the Tail Drop Threshold for multicast Traffic Class 0 packet expansion queue in units of packets (pkt). The range of valid values is from 0 through 16383 packets.
mTC1	Sets the Tail Drop Threshold for multicast Traffic Class 1 packet expansion queue in units of packets (pkt). The range of valid values is from 0 through 16383 packets.
mTC2	Sets the Tail Drop Threshold for multicast Traffic Class 2 packet expansion queue in units of packets (pkt). The range of valid values is from 0 through 16383 packets.
mTC3	Sets the Tail Drop Threshold for multicast Traffic Class 3 packet expansion queue in units of packets (pkt). The range of valid values is from 0 through 16383 packets.

Defaults The default is 64 packets for each multicast Traffic Class.

Command Modes Global configuration mode

Description Use this command to configure a limit on the maximum queue depth for multicast packet expansion queues. The individual Tail Drop Threshold is specified for each of the four multicast traffic classes. These Tail Drop Thresholds are applied uniformly across the entire system. These queue depths are enforced independently by each switch. Use the **no qos rcv-queue multicast threshold** command to return the multicast expansion queues to the default value.

Usage Guidelines There are no usage guidelines for this command.

Examples To increase the multicast packet expansion Tail Drop Threshold to 1000 pkt for each multicast Traffic Class:

```
switch(config)#qos rcv-queue multicast threshold 1000 1000 1000 1000 1000 1000
1000 1000
```

To return the system to the default multicast packet expansion Tail Drop Threshold value:

```
switch(config)#no qos rcv-queue multicast threshold
```

See Also qos rcv-queue multicast rate-limit

qos trust cos

Specifies the interface QoS trust mode for incoming traffic.

Synopsis **qos trust cos**

no qos trust

Operands None

Defaults The QoS trust CoS mode set to the untrusted state.

Command Modes Interface configuration mode

Description Use this command to specify the interface ingress QoS trust mode, which controls user priority mapping of incoming traffic. The untrusted mode overrides all incoming priority markings with the interface default CoS. The CoS mode sets the user priority based on the incoming CoS value. If the incoming packet is not priority tagged, then fallback is to the interface default CoS value. Use the **no qos trust** command to return to the default.

Usage Guidelines When a CEE map is applied on an interface, the **qos trust cos** command is not allowed. The CEE map always puts the interface in the CoS trust mode. This command is not applicable for port-channel interfaces.

Examples To set the interface QoS to the trust mode:

```
switch(conf-if-te-0/1)#qos trust cos
```

To return the interface QoS to the default value or to the untrusted state:

```
switch(conf-if-te-0/1)#no qos trust
```

When a CEE map is applied, the switch does not allow the **qos trust cos** command and displays the following error:

```
switch(conf-if-te-0/1)#cee demo
switch(conf-if-te-0/1)#qos trust cos
% Error: QoS is not in non-CEE Provisioning mode
```

See Also qos cos, show qos interface

quit

Exits the current mode and moves down to the previous mode.

Synopsis **quit**

Operands None

Defaults There are no default values for this command.

Command Modes All modes

Description This command exits the current mode and moves to the next higher mode. See "CEE CLI command modes" on page 3.

User Guidelines There are no user guidelines for this command.

Examples None

See Also **exit**, **end**

region

Specifies the Multiple Spanning Tree Protocol (MSTP) region.

Synopsis **region** *region-name*

no region

Operands

region-name	Assigns a name to an MSTP region. The *region-name* string has a maximum length of 32 characters and is case-sensitive.

Defaults There are no default configurations for this command.

Command Modes Multiple Spanning Tree Protocol configuration mode

Description Use this command to assign a name to an MSTP region.

Usage Guidelines Use the **no region** command to delete the name.

Examples To assign a name to an MSTP region named brocade1:

```
switch(config)#protocol spanning-tree mstp
switch(conf-mstp)#region brocade1
```

See Also revision, show spanning-tree

rename

Renames a file in flash memory.

Synopsis **rename** *sourcefile renamedfile*

Operands

sourcefile	Specifies the file name to change.
renamedfile	Specifies the new name of the file.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

Description Use this command to rename a file in flash memory.

Usage Guidelines There are no usage guidelines for this command.

Examples To rename a file in flash memory:

```
switch#rename file1 file2
switch#dir
Contents of flash://
-rw-r-----            1276   Wed Feb  4 13:16:00 2009 file2
```

See Also None

resequence access-list mac

Specifies the renumbering of the rules in a MAC ACL.

Synopsis **resequence access-list mac** {*name* | *seq_num* | *increment*}

Operands

name	Specifies the name of a standard or an extended MAC ACL.
seq_num	Specifies the starting sequence number in the MAC ACL. The range of valid values is from 1 through 65535.
increment	Specifies a value to increment the sequence number between rules. The range of valid values is from 1 through 65535.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

Description Use this command to reassign sequence numbers to entries of an existing MAC access list.

Usage Guidelines Reordering the sequence numbers is useful when you need to insert rules into an existing MAC ACL and there are not enough sequence numbers available. When all sequence numbers between rules are exhausted, this command allows the reassigning of new sequence numbers to entries of an existing access list.

Examples To reorder the rules in a MAC ACL:

```
switch#show running-config access-list mac test
!
mac access-list standard test
 seq 1 permit 0011.2222.3333
 seq 2 permit 0011.2222.4444
 seq 3 permit 0011.2222.5555
 seq 4 deny 0011.2222.6666
!

switch#resequence access-list mac test 10 10

switch#show running-config access-list mac test
!
mac access-list standard test
 seq 10 permit 0011.2222.3333
 seq 20 permit 0011.2222.4444
 seq 30 permit 0011.2222.5555
 seq 40 deny 0011.2222.6666
!
```

See Also mac access-list extended, mac access-list standard, seq (extended MAC ACLs), seq (standard MAC ACLs)

revision

Assigns a version number to the Multiple Spanning Tree Protocol (MSTP) configuration.

Synopsis **revision** *number*

no revision

Operands

number	Specifies the revision or version number of the MSTP region. The range of valid values is from 0 through 255.

Defaults The default is 0.

Command Modes Multiple Spanning Tree Protocol configuration mode

Description Use this command to specify the configuration revision number. Use the **no revision** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the configuration revision to 1:

```
switch(config)#protocol spanning-tree mstp
switch(conf-mstp)#revision 1
```

See Also region, show spanning-tree

rmon alarm

Sets alarm conditions.

Synopsis **rmon alarm** *index snmp_oid* **interval** *seconds* {**absolute** | **delta**} **rising-threshold** *value* **event** *number* **falling-threshold** *value* **event** *number* **owner** *name*

no rmon alarm index *snmp_oid* **interval** *seconds* {**absolute** | **delta**} **rising-threshold** *value* **event** *number* [**falling-threshold** *value* **event** *number* **owner** *name*

Operands

index	Specifies the alarm index. The range of valid values is from 1 through 65535.
snmp_oid	Specifies the MIB object to monitor. The variable must be in the SNMP OID format, for example, 1.3.6.1.2.1.16.1.1.1.5.65535. The object type must be a counter32.
interval *seconds*	Specifies the alarm sample interval in seconds. The range of valid values is from 1 through 2147483648.
absolute	Sets the sample type as absolute.
delta	Sets the sample type as delta.
rising-threshold *value*	Specifies the alarm rising threshold. The range of valid values is from 0 through 4294967295.
event *number*	Specifies the event for the rising alarm. The range of valid values is from 1 through 65535.
falling-threshold *value*	Specifies the alarm falling threshold. The range of valid values is from 0 through 4294967295.
event *number*	Specifies the event for the falling alarm. The range of valid values is from 1 through 65535.
owner *name*	Specifies the identity of the owner. The maximum number of characters is 32.

Defaults There are no alarms configured.

Command Modes Global configuration mode

Description Use this command to set alarm conditions. Use the **no rmon alarm** command to disable the alarm conditions.

Usage Guidelines There are no usage guidelines for this command.

Examples To set alarm conditions:

```
switch(config)#rmon alarm 100 1.3.6.1.2.1.16.1.1.1.5.65535 interval 5 absolute
rising-threshold 10000 event 100 falling-threshold 1000 event 101 owner admin
```

See Also rmon event, show rmon

rmon collection

Collects Ethernet group statistics on an interface.

Synopsis **rmon collection** {**stats** *number* [**owner** *name*] | **history** *index* {**buckets** *number* | **interval** *seconds* | **owner** *name*}

no rmon collection stats *number* [**owner** *name*]

Operands

stats		Specifies RMON ether statistics collection.
	number	Specifies the RMON collection control index value. The range of valid values is from 1 through 65535.
	owner *name*	Specifies the identity of the owner.
history *index*		vv
	buckets *number*	The number of history instances. The range of valid values is from 1 through 65535
	interval *seconds*	History sampling interval in seconds. The range of valid values is from 1 through 3600
	owner *name*	Specifies the identity of the owner.

Defaults The collection of RMON statistics is not enabled.

Command Modes Interface configuration mode

Description Use this command to collect Ethernet group statistics on an interface.

Usage Guidelines Buckets refers to the number of history instances that can be configured. If 100 buckets are configured, then 100 unique instances are stored. The 101st entry over-writes the oldest entry.

Use the **no rmon collection** versions of this command to disable the collection of statistics.

Examples To collect RMON statistics for the owner admin on 10 Gbps Ethernet interface 0/1:

```
switch(config)#interface tengigabitethernet 0/1
switch(conf-if-te-0/1)#rmon collection stats 2 owner admin
```

See Also show rmon

rmon event

Adds or removes an event in the RMON event table associated to the RMON alarm number.

Synopsis **rmon event** *index* [**description** *word*] [**log**] [**owner** *name*] [**trap** *word*]

no rmon event *index* [**description** *word*] [**log**] [**owner** *name*] [**trap** *word*]

Operands

index	Specifies the RMON event number. The range of valid values is from 1 through 65535.
description *word*	Specifies a description of the event.
log	Generates an RMON log when an event is triggered.
owner *name*	Specifies the owner of the event. The maximum number of characters is 32.
trap *word*	Specifies the SNMP community or string name to identify this trap.

Defaults There are no events configured.

Command Modes Global configuration mode

Description Use this command to add or remove an event in the RMON event table that is associated with an RMON alarm number. Use the **no rmon event** command to remove the event configuration.

Usage Guidelines There are no usage guidelines for this command.

Examples To configure an RMON event:

```
switch(config)#rmon event 2 log description “My Errorstoday” owner gjack
```

See Also show rmon

seq (extended MAC ACLs)

Inserts a rule anywhere in the MAC ACL.

Synopsis

seq *value* {**deny** | **permit**} {**any** | **host** *MAC _ACL*| *MAC_ACL*} {**any** | **host** *MAC _ACL*| *MAC _ACL*} {*EtherType* |**arp** |**fcoe** | **ipv4**} [**count**]

no seq *value*

Operands

value	Specifies the sequence number for the rule. The range of valid values is from 0 through 65535.
permit	Specifies rules to permit traffic.
deny	Specifies rules to deny traffic.
any	Specifies any source MAC address.
host *MAC_ACL*	Specifies a host-specific source MAC address for which to set permit or deny conditions. Use the format HHHH.HHHH.HHHH.
MAC_ACL	Specifies any source MAC address for which to set permit or deny conditions. Use the format HHHH.HHHH.HHHH.
any	Specifies any destination MAC address.
host *MAC_ACL*	Specifies a host-specific destination address for which to set permit or deny conditions. Use the format HHHH.HHHH.HHHH.
MAC_ACL	Specifies any destination address for which to set permit or deny conditions. Use the format HHHH.HHHH.HHHH.
Ethertype	Specifies the protocol number for which to set the permit or deny conditions. The range of valid values is from 1536 through 65535.
arp	Specifies to permit or deny the Address Resolution Protocol (0x0806).
fcoe	Specifies to permit or deny the Fibre Channel over Ethernet Protocol (0x8906).
ipv4	Specifies to permit or deny the IPv4 protocol (0x0800).
count	Enables the counting of the packets matching the rule.

Defaults

By default, no MAC ACLs are configured.

Command Modes

Feature Access Control List configuration mode

Description

Use this command to insert a rule anywhere in the MAC ACL; it configures rules to match and permits or drops traffic based on the source and destination MAC addresses, and the protocol type. You can also enable counters for a specific rule. There are 255 ACL counters supported per port group. Use the **no seq** *value* command to remove a rule from the MAC ACL.

Usage Guidelines

The first set of {**any** | **host** *MAC_ACL* | *MAC_ACL*} parameters is specific to the source MAC address. The second set of {**any** | **host** *MAC_ACL* | *MAC_ACL*} parameters is specific to the destination MAC address.

Examples To create a rule in a extended MAC ACL to permit or drop IPv4 traffic from the source MAC address 0022.3333.4444 to the destination MAC address 0022.3333.5555 and to enable the counting of packets:

```
switch(conf-macl-ext)#seq 100 deny 0022.3333.4444 0022.3333.5555 ipv4 count
switch(conf-macl-ext)#seq 1000 permit 0022.3333.4444 0022.3333.5555 ipv4 count
```

To delete a rule from a extended MAC ACL:

```
switch(conf-macl-ext)#no seq 100
```

See Also deny (extended ACLs), permit (extended ACLs), resequence access-list mac

seq (standard MAC ACLs)

Inserts a rule anywhere in the MAC ACL.

Synopsis

seq *value* {**deny** | **permit**} {**any** | **host** *MAC _ACL*| *MAC_ACL*} [**count**]

no seq *value*

Operands

value	Specifies the sequence number for the rule. The range of valid values is from 0 through 65535.
permit	Specifies rules to permit traffic.
deny	Specifies rules to deny traffic.
any	Specifies any source MAC address.
host *MAC_ACL*	Specifies the host-specific source MAC address for which to set permit or deny conditions. Use the format HHHH.HHHH.HHHH.
MAC_ACL	Specifies any source MAC address for which to set permit or deny conditions. Use the format HHHH.HHHH.HHHH.
count	Enables the counting of the packets matching the rule.

Defaults

By default, no MAC ACLs are configured.

Command Modes

Feature Access Control List configuration mode

Description

Use this command to configure rules to match and permit or drop traffic based on source and destination MAC address and protocol type. You can also enable counters for a specific rule. There are 255 ACL counters supported per port group. Use the **no seq** *value* command to remove a rule from the MAC ACL.

Usage Guidelines

There are no usage guidelines for this command.

Examples

To create a rule in a standard MAC ACL to permit or to drop traffic from the source MAC address 0022.3333.4444 and to enable the counting of packets:

```
switch(conf-macl-std)#seq 100 deny 0022.3333.4444 count
switch(conf-macl-std)#seq 1000 permit 0022.3333.4444 count
```

To delete a filter rule in a standard MAC ACL:

```
switch(conf-macl-std)#no seq 100
```

See Also

deny (standard ACLs), permit (standard ACLs), resequence access-list mac

show accounting

Displays the audit logs.

Synopsis **show accounting logs**

Operands None

Defaults There are no default values for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description This command displays the audit logs for the switch, if any exist.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

show calendar

Displays the current date and time based on the switch hardware clock.

Synopsis **show calendar**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the current date and time based on the switch hardware clock.

Usage Guidelines There are no usage guidelines for this command.

Examples To display calendar information:

```
switch#show calendar
16:33:30 UTC Tue Feb 14 2009
```

See Also None

show cee maps

Displays information on the defined CEE maps.

Synopsis **show cee maps** *name*

Operands

name	Restricts the output to report on only the named CEE map.

Defaults The default behavior without the optional operand is to report on all defined CEE maps.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display information on a specified defined CEE map or on all of the defined CEE maps. For each CEE map, the configuration state is displayed with a list of all of the Layer 2 interfaces bound to the CEE map.

Usage Guidelines There are no usage guidelines for this command.

Examples To display information on all of the defined CEE maps:

```
switch#show cee maps
CEE Map test
   Precedence 1
   Priority Group Table
     0:  Weight 50, PFC Enabled, TrafficClass 4, BW% 50
     1:  Weight 50, PFC Disabled, TrafficClass 2, BW% 50
     15.0: PFC Disabled, TrafficClass 6
     15.1: PFC Disabled
     15.2: PFC Disabled
     15.3: PFC Disabled
     15.4: PFC Disabled
     15.5: PFC Disabled
     15.6: PFC Disabled
     15.7: PFC Disabled
   Priority Table
      CoS:    0    1    2    3    4    5    6    7
     ---------------------------------------------
     PGID:    1    1    0    0    1    1    1 15.0
    FCoE CoS: 3
    Enabled on the following interfaces
     te0/4
```

See Also cee, cee-map

show clock

Displays the time and date from the system clock.

Synopsis **show clock**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the time and date from the system clock.

Usage Guidelines There are no usage guidelines for this command.

Examples To display the time and date from the system clock:

```
switch#show clock
23:45:55.512800 UTC Wed Feb 18 2009
```

See Also show calendar

show debug ip igmp

Displays the IGMP packets received and transmitted, as well as related events.

Synopsis **show debug ip igmp**

Operands None

Description This command displays the IGMP packets received and transmitted.

Command Modes Privileged EXEC mode

EXEC mode

Defaults There are no defaults for this command.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

show debug lacp

Displays the LACP debugging status on the switch.

Synopsis **show debug lacp**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the LACP debugging status on the switch.

Usage Guidelines There are no usage guidelines for this command.

Examples None

See Also None

show debug lldp

Displays the LLDP debugging status on the switch.

Synopsis **show debug lldp**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the LLDP debugging status on the switch.

Usage Guidelines There are no usage guidelines for this command.

Examples To display the LLDP debugging status on the switch:

```
switch#show debug lldp
LLDP debugging status:
Interface te0/0    : Transmit Receive  Detail
```

See Also None

show debug spanning-tree

Displays the STP debugging status on the switch.

Synopsis **show debug spanning-tree**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the STP debugging status on the switch.

Usage Guidelines There are no usage guidelines for this command.

Examples None

See Also None

show dot1x

Displays the overall state of dot1x on the system.

Synopsis **show dot1x**

Operands None

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the overall state of dot1x on the system.

Usage Guidelines There are no usage guidelines for this command.

Examples To display the state of the system:

```
switch#show dot1x
802.1X Port-Based Authentication Enabled
PAE Capability:           Authenticator Only
Protocol Version:         2
Auth Server:              RADIUS

RADIUS Configuration
--------------------
Position:                 1
Server Address:           172.21.162.51
Port:                     1812
Secret:                   sharedsecret
Position:                 2
Server Address:           10.32.154.113
Port:                     1812
Secret:                   sharedsecret
```

See Also None

show dot1x all

Displays detailed 802.1X information for all of the ports.

Synopsis **show dot1x all**

Operands None

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display detailed 802.1X information for all of the ports.

Usage Guidelines There are no usage guidelines for this command.

Examples To display detailed 802.1X information for all of the ports:

```
switch#show dot1x all
802.1X Port-Based Authentication Enabled
PAE Capability:           Authenticator Only
Protocol Version:         2
Auth Server:              RADIUS
RADIUS Configuration
--------------------
Position:                 1
Server Address:           172.21.162.51
Port:                     1812
Secret:                   sharedsecret
Position:                 2
Server Address:           10.32.154.113
Port:                     1812
Secret:                   sharedsecret
802.1X info for interface te0/1
-----------------------------------
Port Control:             Auto
Port Auth Status:         Unauthorized
Protocol Version:         2
ReAuthentication:         Disabled
Auth Fail Max Attempts:   0
ReAuth Max:               2
Tx Period:                30 seconds
Quiet Period:             60 seconds
Supplicant Timeout:       30 seconds
Server Timeout:           30 seconds
Re-Auth Interval:         3600 seconds
PAE State:                Connected
BE State:                 Invalid
Supplicant Name:          --
Supplicant Address:       0000.0000.0000
Current Id:               1
Id From Server:           0
```

See Also None

show dot1x diagnostics interface

Displays all diagnostics information for the authenticator associated with a port.

Synopsis **show dot1x diagnostics interface** *name*

Operands *name* Specifies the name of the interface.

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display all diagnostics information for the authenticator associated with a port.

Usage Guidelines There are no usage guidelines for this command.

Examples To display all diagnostics information for the authenticator associated with a port:

```
switch#show dot1x diagnostics interface tengigabitethernet 0/1
802.1X Diagnostics for interface te0/1
 authEnterConnecting: 0
 authEaplogoffWhileConnecting: 1
 authEnterAuthenticating: 0
 authSuccessWhileAuthenticating: 0
 authTimeoutWhileAuthenticating: 0
 authFailWhileAuthenticating: 0
 authEapstartWhileAuthenticating: 0
 authEaplogoggWhileAuthenticating: 0
 authReauthsWhileAuthenticated: 0
 authEapstartWhileAuthenticated: 0
 authEaplogoffWhileAuthenticated: 0
 BackendResponses: 0
 BackendAccessChallenges: 0
 BackendOtherrequestToSupplicant: 0
 BackendAuthSuccess: 0
 BackendAuthFails: 0
```

See Also None

show dot1x interface

Displays the state of a specified interface.

Synopsis **show dot1x interface** *name*

Operands *name* Specifies the name of the interface.

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the state of a specified interface.

Usage Guidelines There are no usage guidelines for this command.

Examples To display the state of 10 Gbps Ethernet interface 0/1:

```
switch#show dot1x interface tengigabitethernet 0/1
Dot1x Global Status:      Enabled
802.1X info for interface te0/1
----------------------------------
Port Control:             Auto
Port Auth Status:         Unauthorized
Protocol Version:         2
ReAuthentication:         Disabled
Auth Fail Max Attempts:   0
ReAuth Max:               2
Tx Period:                30 seconds
Quiet Period:             60 seconds
Supplicant Timeout:       30 seconds
Server Timeout:           30 seconds
Re-Auth Interval:         3600 seconds
PAE State:                Connected
BE State:                 Invalid
Supplicant Name:          --
Supplicant Address:       0000.0000.0000
Current Id:               1
Id From Server:           0
```

See Also None

show dot1x session-info interface

Displays all statistical information of an established session.

Synopsis **show dot1x session-info interface** *name*

Operands *name* Specifies the name of the interface.

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display all statistical information of the established session for a specified interface.

Usage Guidelines There are no usage guidelines for this command.

Examples To display all statistical information of the established session:

```
switch#show dot1x session-info interface tengigabitethernet 0/1
802.1X Session info for te0/1
------------------------------
User Name:               testuser
Session Time:            3 mins 34 secs
Terminate Cause:         Not terminated yet
```

See Also None

show dot1x statistics interface

Displays the statistics of a specified interface.

Synopsis **show dot1x statistics interface** *name*

Operands *name* Specifies the name of the interface for which to display information.

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the statistics of a specified interface.

Usage Guidelines There are no usage guidelines for this command.

Examples To display the statistics for 10 Gbps Ethernet interface 0/1:

```
switch#show dot1x statistics interface tengigabitethernet 0/1
802.1X statistics for interface te0/1
  EAPOL Frames Rx: 0 - EAPOL Frames Tx: 0
  EAPOL Start Frames Rx: 0 - EAPOL Logoff Frames Rx: 0
  EAP Rsp/Id Frames Rx: 2 - EAP Response Frames Rx: 10
  EAP Req/Id Frames Tx: 35 - EAP Request Frames Tx: 0
  Invalid EAPOL Frames Rx: 0 - EAP Length Error Frames Rx: 0
  EAPOL Last Frame Version Rx: 0 - EAPOL Last Frame Src: 0000.0000.0000
```

See Also None

show environment

Displays fan, temperature, redundant power system (RPS) availability, and power information for the switch.

Synopsis **show environment**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display fan, temperature, redundant power system (RPS) availability, and power information for the switch.

Usage Guidelines There are no usage guidelines for this command.

Examples To display both fan and temperature environmental status:

```
switch#show environment
-- Fan Status --
Fan 1 is Ok
Fan 2 is Ok
Fan 3 is Ok

-- Power Supplies  --
PS0 is OK
PS1 is faulty

-- Unit Environment Status   --
Sensor  State           Centigrade     Fahrenheit
  ID
================================================
  1     Ok                  44            111
  2     Ok                  40            104
  3     Ok                  47            116
  4     Ok                  32             89
```

See Also None

show file

Displays the contents of a text file in the local flash memory.

Synopsis **show file** *file_name*

Operands *file_name* Specifies the file for which the contents are to be displayed.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the contents of a text file in the local flash memory.

Usage Guidelines There are no usage guidelines for this command.

Examples To show the file system for internal flash:

```
switch#show file flash://file1
!
protocol spanning-tree mstp
  instance 1 vlan 100
!

[or]

switch#show file file1
!
protocol spanning-tree mstp
  instance 1 vlan 100
!
```

See Also dir

show history

Displays the session command history.

Synopsis **show history**

Operands None

Defaults There are no default values for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description This command displays the command history for the current session.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

show interface

Displays the configuration and status of an interface.

Synopsis **show interface** {**tengigabitethernet** *slot/port* | **port-channel** *number*| **switchport**}

Operands

tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

port-channel *number*
Specifies the interface is a port-channel. The range of valid values is from 1 through 63.

switchport Specifies the Layer 2 interface.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to show the running system status and configuration for a specified interface.

Usage Guidelines There are no usage guidelines for this command.

Examples To display information for a 10 Gbps Ethernet interface:

```
switch#show interface tengigabitethernet 0/1
TenGigabitEthernet 0/1 is up, line protocol is down (link protocol down)
Hardware is Ethernet, address is 0005.1e53.ebab
    Current address is 0005.1e53.ebab
Pluggable media not present
Interface index (ifindex) is 402718721
MTU 2500 bytes
Beacon is turned off
LineSpeed: 10000 Mbit, Duplex: Full
Flowcontrol rx: on, tx: on
Last clearing of show interface counters: 11:55:28
Queueing strategy: fifo
Receive Statistics:
    0 packets, 0 bytes
    Unicasts: 0, Multicasts: 0, Broadcasts: 0
    64-byte pkts: 0, Over 64-byte pkts: 0, Over 127-byte pkts: 0
    Over 255-byte pkts: 0, Over 511-byte pkts: 0, Over 1023-byte pkts: 0
    Over 1518-byte pkts(Jumbo): 0
    Runts: 0, Jabbers: 0, CRC: 0, Overruns: 0
    Errors: 0, Discards: 0
Transmit Statistics:
    0 packets, 0 bytes
    Unicasts: 0, Multicasts: 0, Broadcasts: 0
    Underruns: 0
    Errors: 0, Discards: 0
Rate info (interval 299 seconds):
```

```
    Input 0.000000 Mbits/sec, 0 packets/sec, 0.00% of line-rate
    Output 0.000000 Mbits/sec, 0 packets/sec, 0.00% of line-rate
Time since last interface status change: 11:55:28
```

To display Layer 2 information for all interfaces:

```
switch#show interface switchport

 Interface name          : TenGigabitEthernet 0/8
 Switchport mode         : access
 Ingress filter          : enable
 Acceptable frame types  : all
 Default Vlan            : 1
 Active Vlans            : 1
 Inactive Vlans          : -

 Interface name          : TenGigabitEthernet 0/19
 Switchport mode         : converged
 Ingress filter          : enable
 Acceptable frame types  : all
 Default Vlan            : 1
 Active Vlans            : 1
 Inactive Vlans          : 100

 Interface name          : TenGigabitEthernet 0/20
 Switchport mode         : trunk
 Ingress filter          : enable
 Acceptable frame types  : vlan-tagged only
 Default Vlan            : 0
 Active Vlans            : 1
 Inactive Vlans          : -
```

See Also None

show ip igmp groups

Displays information related to learned groups in the IGMP module.

Synopsis **show ip igmp groups** {*A.B.C.D* |**detail**} {**interface** [**detail**] | **interface tengigabitethernet** *slot/port* [**detail**] | **interface port-channel** *number* [**detail**] | [**interface vlan** *vlan_id* [**detail**]}

Operands

A.B.C.D	Specifies the group address, as a subnet number in dotted decimal format (for example, 10.0.0.1), as the allowable range of addresses included in the multicast group.
detail	Displays the IGMPv3 source information.
interface tengigabitethernet	Specifies a valid 10 Gbps Ethernet interface.
slot	Specifies a valid slot number.
port	Specifies a valid port number.
detail	Displays the IGMPv3 source information.
interface port-channel *number*	Specifies the interface is a port-channel. The range of valid values is from 1 through 63.
detail	Displays the IGMPv3 source information.
interface vlan *vlan_id*	Specifies which VLAN interface to display the snooping configuration-related information. The range of valid values is from 1 through 3583.
detail	Displays the IGMPv3 source information.

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the IGMP database, including configured entries for either all groups on all interfaces, or all groups on specific interfaces, or specific groups on specific interfaces.

Usage Guidelines There are no usage guidelines for this command.

Examples None

See Also None

show ip igmp interface

Displays IGMP information for the specified interface.

Synopsis **show ip igmp interface**

Operands None

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description This command displays information related to the IGMP configuration on the specified interface.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

show ip igmp mrouter

Displays multicast router information related to the IGMP configuration.

Synopsis **ip igmp snooping mrouter** {**interface tengigabitethernet** *slot/port* | **interface port-channel** *number*}

Operands

interface tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot	Specifies a valid slot number.
port	Specifies a valid port number.

interface port-channel *number*
Specifies the interface is a port-channel. The range of valid values is from 1 through 63.

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description This command displays multicast router information related to the IGMP configuration on the specified interface.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

show ip igmp snooping

Displays IGMP snooping information.

Synopsis **show ip igmp snooping** {**interface vlan** *vlan_id* | **mrouter interface vlan** *vlan_id* | **statistics interface vlan** *vlan_id*}

Operands

interface vlan *vlan_id*
Specifies which VLAN interface to display the snooping configuration-related information. The range of valid values is from 1 through 3583.

mrouter interface vlan *vlan_id*
Specifies which VLAN interface to display the snooping configuration-related information. The range of valid values is from 1 through 3583.

statistics interface vlan *vlan_id*
Specifies which VLAN interface to display the snooping configuration-related information. The range of valid values is from 1 through 3583.

Defaults There are no defaults for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display IGMP snooping information, multicast router port-related information for the specified VLAN, or to display snooping statistics for the specified VLAN in the IGMP module.

Usage Guidelines There are no usage guidelines for this command.

Examples To display IGMP snooping information for VLAN 5:

```
switch#show ip igmp snooping interface vlan 5
```

See Also None

show ip interface

Displays the IP interface status and configuration of all interfaces or a specified interface.

Synopsis **show ip interface** {**brief** | **port-channel** *number* **brief**| **tengigabitethernet** *slot/port* **brief**| **vlan** *vlan_id* **brief**}

Operands

brief Specifies to display a brief summary of the IP status and configuration.

port-channel *number*
Specifies to display the port-channel number. The range of valid values is from 1 through 63.

tengigabitethernet
Specifies to display a specific 10 Gbps Ethernet interface.

slot Specifies to display a valid slot number.

port Specifies to display a valid port number.

vlan *vlan_id* Specifies to display a the VLAN number. The range of valid values is from 1 through 3583.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the IP interface status and configuration of all interfaces or a specified interface.

Usage Guidelines There are no usage guidelines for the command.

Examples To display information about all of the interfaces in the summary format:

```
switch#show ip interface brief
Interface                IP-Address      Status               Protocol
========                 ==========      ======               ========
Port-channel 10          unassigned      up                     down
Port-channel 11          unassigned      up                     down
Port-channel 12          unassigned      up                     down
Port-channel 13          unassigned      up                     up
Port-channel 14          unassigned      up                     down
Port-channel 15          unassigned      up                     up
TenGigabitEthernet 0/0   unassigned      up                     up
TenGigabitEthernet 0/1   unassigned      up                     down
TenGigabitEthernet 0/2   unassigned      up                     up
TenGigabitEthernet 0/3   unassigned      up                     up
TenGigabitEthernet 0/4   unassigned      up                     down
TenGigabitEthernet 0/5   unassigned      up                     down
TenGigabitEthernet 0/6   unassigned      up                     down
TenGigabitEthernet 0/7   unassigned      up                     up
TenGigabitEthernet 0/8   unassigned      up                     up
TenGigabitEthernet 0/9   unassigned      up                     up
TenGigabitEthernet 0/10  unassigned      up                     down
TenGigabitEthernet 0/11  unassigned      up                     down
```

```
TenGigabitEthernet 0/12   unassigned      up                    up
TenGigabitEthernet 0/13   unassigned      up                    up
TenGigabitEthernet 0/14   unassigned      up                    down
TenGigabitEthernet 0/15   unassigned      up                    up
TenGigabitEthernet 0/16   unassigned      up                    down
TenGigabitEthernet 0/17   unassigned      up                    up
TenGigabitEthernet 0/18   unassigned      up                    down
TenGigabitEthernet 0/19   unassigned      up                    up
TenGigabitEthernet 0/20   unassigned      up                    up
TenGigabitEthernet 0/21   unassigned      up                    up
TenGigabitEthernet 0/22   unassigned      up                    up
TenGigabitEthernet 0/23   unassigned      up                    up
Vlan 1                    unassigned      administratively down  down
Vlan 100                  unassigned      administratively down  down
Vlan 200                  unassigned      administratively down  down
```

See Also show interface

show lacp counter

Displays the Link Aggregation Control Protocol (LACP) counters on all port-channels or a specified interface.

Synopsis **show lacp counter** *number*

Operands

number	Specifies the port-channel number to display. The range of valid values is from 1 through 63.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the LACP packet counters on all interfaces that belong to a port-channel or a specific interface.

Usage Guidelines There are no usage guidelines for this command.

Examples To show the LACP counters for port-channel 10:

```
switch#show lacp counter 10
% Traffic statistics
Port      LACPDUs         Marker          Pckt err
        Sent    Recv    Sent    Recv    Sent    Recv
% Aggregator  Po 10 1000000
Te 0/1     65      0       0      0             0   0
Te 0/2     64      0       0      0             0   0
Te 0/3     64      0       0      0             0   0
Te 0/4     0       0       0      0             0   0
switch#
```

See Also clear lacp counters

show lacp sys-id

Displays the Link Aggregation Control Protocol (LACP) system ID and priority information.

Synopsis **show lacp sys-id**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the LACP system ID and priority.

Usage Guidelines The system priority and the system Media Access Control (MAC) address make up the system identification. The first two bytes are the system priority, and the last six bytes are the globally administered individual MAC addresses associated with the system.

Examples To display the local system ID:

```
switch#show lacp sys-id
% System 8000,00-05-1e-76-1a-a6
```

See Also None

show line

Displays line parameters.

Synopsis **show line** {**first line** *number*| **last line** *number*}

Operands

first line *number*	Specifies the first line number. The range of valid values is from 0 through 31.
last line *number*	Specifies the last line number. The range of valid values is from 0 through 31.

Defaults If the line is not specified, it displays all VTY and console information.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display line parameters.

Usage Guidelines There are no usage guidelines for this command.

Examples To display line parameters:

```
switch#show line 10 22
  Status    Type        Timeout(m/s)     Length
  Idle      console 0     10:0             24
  Idle      vty 10        10:0             24
  Idle      vty 11        10:0             24
  Idle      vty 12        10:0             24
  Idle      vty 13        10:0             24
  Idle      vty 14        10:0             24
  Idle      vty 15        10:0             24
  Idle      vty 16        10:0             24
  Idle      vty 17        10:0             24
  Idle      vty 18        10:0             24
  Idle      vty 19        10:0             24
  Idle      vty 20        10:0             24
  Idle      vty 21        10:0             24
  Idle      vty 22        121:1212         24

switch#show line 0
  Status    Type        Timeout(m/s)     Length
  Idle      console 0     10:0             24
* Active    vty 0         10:0             24
```

See Also exec-timeout, line console, line vty

show lldp

Displays the global information for LLDP.

Synopsis **show lldp**

Operands None

Defaults There are no default values for this comand.

Command Modes Privileged EXEC mode

EXEC mode

Description This command displays the global information for the LLDP settings.

User Guidelines There are no user guidelines for this command.

Examples

```
switch#show lldp
LLDP Global Information
  system-name: WT.IT.48
  system-description: Fibre Channel Switch
  description:
  State:                    Disabled
  Mode:                     Receive/Transmit
  Advertise transmitted:    30 seconds
  Hold time for advertise: 120 seconds
  Re-init Delay Timer:      2 seconds
  Tx Delay Timer:           1 seconds
  Transmit TLVs:            Chassis ID              Port ID
                            TTL                     IEEE DCBx
                            DCBx FCoE App           DCBx FCoE Logical Link
                            Link Prim               Brocade Link
  DCBx FCoE Priority Values: 4 5
  DCBx iSCSI Priority Values: 4
```

See Also show lldp interface, show lldp neighbors, show lldp statistics

show lldp interface

Displays the LLDP status information on the specified interface.

Synopsis **show lldp** [**interface tengigabitethernet** *slot/port*]

Operands **interface tengigabitethernet**
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the LLDP status on the specified interface.

Usage Guidelines There are no usage guidelines for this command.

Examples To display all the LLDP interface status information for a selected interface:

```
switch#show lldp interface tengigabitethernet 0/0
LLDP information for Te 0/0
  State:                   Enabled
  Mode:                    Receive/Transmit
  Advertise Transmitted:   30 seconds
  Hold time for advertise: 120 seconds
  Re-init Delay Timer:     2 seconds
  Tx Delay Timer:          1 seconds
  DCBX Version :           CEE
  Auto-Sense :             Yes
  Transmit TLVs:           Chassis ID              Port ID
                           TTL                     IEEE DCBX
                           DCBX FCoE App           DCBX FCoE Logical Link
                           Link Prim               Brocade Link
  DCBX FCoE Priority Bits: 0x8
```

See Also show lldp, show lldp neighbors, show lldp statistics

show lldp neighbors

Displays LLDP information for all neighboring devices on the specified interface.

Synopsis **show lldp neighbors** {**interface tengigabitethernet** *slot/port* | **detail**}

Operands

interface tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot	Specifies a valid slot number.
port	Specifies a valid port number.
detail	Displays all the LLDP neighbor information in detail for the specified interface.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display LLDP information for all neighboring devices on the specified interface.

Usage Guidelines If you do not use the **interface tengigabitethernet** operand, only the mandatory TLVs are displayed.

Examples To display detailed LLDP neighbor information on a specific interface:

```
switch#show lldp neighbors interface tengigabitethernet 0/8 detail

Neighbors for Interface Te 0/8

MANDATORY TLVs
===============
Local Interface: Te 0/8    Remote Interface: Te 0/8 (IF Name)
Dead Interval: 120 secs  Remaining Life : 100 secs Tx: 536  Rx: 535
Chassis ID: 0005.1e76.1020 (MAC)
Remote Mac: 0005.1e76.102c

OPTIONAL TLVs
==============
Port Interface Description: Te 0/8
System Name: sw0
System Description: Fibre Channel Switch.
System Capabilities: Switching Routing
System Capabilities Enabled: Switching

Link Prim: 257
Remote Protocols Advertised:  Multiple Spanning Tree Protocol
Remote VLANs Configured: VLAN ID: 1  VLAN Name: default
AutoNego Support: Supported Not Enabled
AutoNego Capability: 0
Operational MAU Type: 0
Link Aggregation Capability: Capable
Link Aggregation Status: Disabled
Port Vlan Id: 1
```

```
Port & Protocol Vlan Flag: Supported Not enabled
Port & Protocol Vlan Id: 0
Link Aggregation Port Id: 0
Max Frame Size: 2500
Management Address: 10.32.152.21 (IPv4)
Interface Numbering: 2
Interface Number: 0x4080100 (67633408)
OID: 0x100f99b4

DCBX TLVs
===========

DCBX Version : pre-CEE
DCBX Ctrl OperVersion: 0  MaxVersion: 0  SeqNo: 2  AckNo: 1
DCBX ETS OperVersion: 0  MaxVersion: 0  EN: 1  Will: 0 Err: 0
Pri-Map: 15 15 15 15 15 15 15 15
BWG ID: 00  Percentage: 000
BWG ID: 01  Percentage: 000
BWG ID: 02  Percentage: 000
BWG ID: 03  Percentage: 000
BWG ID: 04  Percentage: 000
BWG ID: 05  Percentage: 000
BWG ID: 06  Percentage: 000
BWG ID: 07  Percentage: 000
DCBX PFC OperVersion: 0  MaxVersion: 0  EN: 1  Will: 0 Err: 0
Admin-Map: 0xf0
FCoE App OperVersion: 0  MaxVersion: 0  EN: 1  Will: 0 Err: 0
User-Pri-Map: 0x00
FCoE LLS OperVersion: 0  MaxVersion: 0  EN: 1  Will: 0 Err: 0
Logic Link Status: Down
LAN LLS OperVersion: 0  MaxVersion: 0  EN: 1  Will: 0 Err: 0
Logic Link Status: Up
switch#
```

See Also show lldp, show lldp interface, show lldp statistics

show lldp statistics

Displays the LLDP statistics on all interfaces or a specified interface.

Synopsis **show lldp statistics** [**interface tengigabitethernet** *slot/port*]

Operands **interface tengigabitethernet**
Specifies a valid 10 Gbps Ethernet interface for which to display the LLDP statistics.

slot	Specifies a valid slot number.
port	Specifies a valid port number.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display LLDP statistics on all interfaces or a specified interface.

Usage Guidelines If you do not specify the **interface tengigabitethernet** operand, this command displays the LLDP statistics for all interfaces.

Examples To display LLDP statistics on the specified interface:

```
switch#show lldp statistics interface tengigabitethernet 0/8
LLDP Interface statistics for Te 0/8
Frames transmitted: 555
Frames Aged out:    0
Frames Discarded:   0
Frames with Error:  0
Frames Recieved:    554
TLVs discarded:     0
TLVs unrecognized:  0
```

See Also show lldp, show lldp interface, show lldp neighbors

show logging

Displays the internal syslog buffer of the switch.

Synopsis **show logging**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the RASlog messages stored in the internal buffer.

Usage Guidelines The RASlog messages contain the module name, error code, and message details.

Examples To display the RASlog messages stored in the internal buffer:

```
switch#show logging
Fabos OS Version: v6.1.2

Number of Messages: 1024

2009/02/03-00:19:43: %NSM-4-1001:  Interface TenGigabitEthernet 0/4 is online.
2009/02/03-00:20:14: %NSM-4-1002:  Interface TenGigabitEthernet 0/4 is
protocol down.
2009/02/03-00:20:14: %NSM-4-1001:  Interface TenGigabitEthernet 0/4 is online.
2009/02/03-00:21:10: %NSM-4-1003:  Interface Port-channel 10 is link down
```

See Also None

show mac access-group

Displays the current MAC ACL mapping to interfaces.

Synopsis **show mac access-group** {**interface port-channel** *number* | **tengigabitethernet** *slot/port* | **vlan** *vlan_id*}

Operands

interface	Specifies the interface for which to display the MAC ACL mapping.
port-channel *number*	Specifies the port-channel number. The range of valid values is from 1 through 63.
tengigabitethernet	Specifies a valid 10 Gbps Ethernet interface.
slot	Specifies a valid slot number.
port	Specifies a valid port number.
vlan *vlan_id*	Specifies the VLAN number. The range of valid values is from 1 through 3583.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the current MAC ACL mapping to interfaces.

Usage Guidelines If you do not specify an interface, this command shows MAC ACL mapping for all interfaces.

Examples To display the current MAC ACL mapping for 10 Gbps Ethernet interface 0/1:

```
switch#show mac access-group interface tengigabitethernet 0/1
Interface Te 0/1
   Inbound access-list is std_acl
```

To display the current MAC ACL mapping for interface VLAN 100:

```
switch#show mac access-group interface vlan 100
Interface Vl 100
   Inbound access-list is ext_acl
```

To display the current MAC ACL mapping for 10 Gbps Ethernet interface 0/7 where there is no ACL applied:

```
switch#show mac access-group interface tengigabitethernet 0/7
Interface Te 0/7
   Inbound access-list is not set
```

See Also show running-config, show statistics access-list mac

show mac-address-table

Displays a specific MAC address table static and dynamic entry or the MAC address table static and dynamic entries for a specific interface or VLAN.

Synopsis **show mac-address-table** {**address** *mac-addr* | **aging-time** | **count** | **dynamic** | {**interface tengigabitethernet** *slot/port* | **port-channel** *number*} | **linecard interface tengigabitethernet** *slot/port* | **static** | **vlan** *vlan_id* }

Operands

address *mac-address*
Specifies a 48-bit MAC address. The valid format is H.H.H (available in EXEC mode only).

aging-time Displays the aging time.

count Displays the count of forwarding entries.

dynamic Displays the dynamic MAC addresses.

interface tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

port-channel *number*
Specifies the port-channel number. The range of valid values is from 1 through 63.

linecard Displays the line card information.

interface tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

static Displays the static MAC addresses.

vlan *vlan_id* Specifies the VLAN number. The range of valid values is from 1 through 3583.

Defaults No static addresses are configured.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display a specific static or dynamic MAC address entry or all entries for a specific interface, a specific VLAN, a specific line card, or for all interfaces and all VLANs.

Usage Guidelines There are no usage guidelines for this command.

Examples To display a specific MAC address in the table:

```
switch#show mac-address-table address 0011.2222.3333
VlanId   Mac-address       Type     State      Ports
100      0011.2222.3333    Static   Inactive   Te 0/1
Total MAC addresses   : 1
```

To display the aging time for a specific MAC address table:

```
switch#show mac-address-table aging-time
MAC Aging-time : 300 seconds
```

To display a dynamic MAC address table:

```
switch#show mac-address-table dynamic
VlanId   Mac-address       Type     State      Ports
100      0011.2222.5555 Dynamic  Inactive  Te 0/1
100      0011.2222.6666 Dynamic Inactive   Te 0/1
Total MAC addresses   : 2
```

See Also None

show media

Displays the SFP information for all the interfaces present on a switch.

Synopsis **show media**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display a summary of all SFP information for the switch. The output will be several pages long.

Usage Guidelines There are no usage guidelines for this command.

Examples To display all SFP information:

```
switch#show media
Interface        TenGigabitEthernet 0/1
  Identifier     3    SFP
  Connector      7    LC
  Transceiver    0000000000000010 10_GB/s
  Name           id
  Encoding       6
  Baud Rate      103 (units 100 megabaud)
  Length 9u      0   (units km)
  Length 9u      0   (units 100 meters)
  Length 50u     8   (units 10 meters)
  Length 62.5u   3   (units 10 meters)
  Length Cu      0   (units 1 meter)
  Vendor Name    BROCADE
  Vendor OUI     42:52:4f
  Vendor PN      57-0000075-01
  Vendor Rev     A
  Wavelength     850 (units nm)
  Options        001a Loss_of_Sig,Tx_Fault,Tx_Disable
  BR Max         0
  BR Min         0
  Serial No      AAA108454100431
  Date Code      081108
  Temperature    44 Centigrade
  Voltage        3246.8  (Volts)
  Current        0.002  (mAmps)
  TX Power       0.1  (uWatts)
  RX Power       0.1  (uWatts)
(output truncated)
```

See Also show media interface, show media linecard

show media interface

Displays the SFP information for a specific interface.

Synopsis **show media interface tengigabitethernet** *slot/port*

Operands

tengigabitethernet	Specifies a valid 10 Gbps Ethernet interface.
slot	Specifies a valid slot number.
port	Specifies a valid port number.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display a summary of the SFP information for the specified interface.

Usage Guidelines There are no usage guidelines for this command.

Examples To display SFP information for an interface:

```
switch#show media interface tengigabitethernet 0/1
Interface        TenGigabitEthernet 0/1
  Identifier     3    SFP
  Connector      7    LC
  Transceiver    0000000000000010 10_GB/s
  Name           id
  Encoding       6
  Baud Rate      103 (units 100 megabaud)
  Length 9u      0   (units km)
  Length 9u      0   (units 100 meters)
  Length 50u     8   (units 10 meters)
  Length 62.5u   3   (units 10 meters)
  Length Cu      0   (units 1 meter)
  Vendor Name    BROCADE
  Vendor OUI     42:52:4f
  Vendor PN      57-0000075-01
  Vendor Rev     A
  Wavelength     850 (units nm)
  Options        001a Loss_of_Sig,Tx_Fault,Tx_Disable
  BR Max         0
  BR Min         0
  Serial No      AAA108454100431
  Date Code      081108
  Temperature    44 Centigrade
  Voltage        3246.8  (Volts)
  Current        0.002  (mAmps)
  TX Power       0.1  (uWatts)
  RX Power       0.1  (uWatts)
```

See Also show media, show media linecard

show media linecard

Displays the SFP information for all the interfaces of a specific line card.

Synopsis **show media linecard** *number*

Operands

number	Line card number.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display a summary of the SFP information for a specific line card. The output contains information for each interface on the line card, and is several pages long.

Usage Guidelines There are no usage guidelines for this command.

Examples To show the SFP information for line card number 0:

```
switch#show media linecard 0
Interface        TenGigabitEthernet 0/1
  Identifier     3    SFP
  Connector      7    LC
  Transceiver    0000000000000010 10_GB/s
  Name           id
  Encoding       6
  Baud Rate      103 (units 100 megabaud)
  Length 9u      0   (units km)
  Length 9u      0   (units 100 meters)
  Length 50u     8   (units 10 meters)
  Length 62.5u   3   (units 10 meters)
  Length Cu      0   (units 1 meter)
  Vendor Name    BROCADE
  Vendor OUI     42:52:4f
  Vendor PN      57-0000075-01
  Vendor Rev     A
  Wavelength     850 (units nm)
  Options        001a Loss_of_Sig,Tx_Fault,Tx_Disable
  BR Max         0
  BR Min         0
  Serial No      AAA108454100431
  Date Code      081108
  Temperature    44 Centigrade
  Voltage        3246.8  (Volts)
  Current        0.002  (mAmps)
  TX Power       0.1  (uWatts)
  RX Power       0.1  (uWatts)
(output truncated)
```

See Also show media, show media interface

show port-channel

Displays the Link Aggregation Group (LAG) information for a port-channel.

Synopsis **show port-channel** {*channel-group-number* | **detail** | **load-balance** | **summary**}

Operands

channel-group number
Specifies a LAG port channel-group number to display. The range of valid values is from 1 through 63.

detail Displays detailed LAG information for a port-channel.

load-balance Displays the load-balance or frame-distribution scheme among ports in the port-channel.

summary Displays the summary information per channel-group.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Displays the LAGs present on the system with details about the LACP counters on their member links.

Usage Guidelines If you do not specify a port-channel, all port-channels are displayed.

LAG interfaces are called port-channels.

Examples To display information for port-channel 10:

```
switch#show port-channel 10
% Aggregator Po 10 0 Admin Key: 0010 - Oper Key 0010 Partner System ID:
0x0000,00-00-00-00-00-00 Partner Oper
 Key 0000
%   Link: Te 0/1 (67174401) sync: 0
%   Link: Te 0/2 (67239938) sync: 0
```

See Also None

show power supply

Displays the current status of the power supply.

Synopsis **show power supply**

Operands None

Defaults There are no default values for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description This command displays the current status of the power supply.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

show privilege

Displays the privilege level of the current status.

Synopsis **show privilege**

Operands None

Defaults There are no default values for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description This command displays the privilege level of the current status.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

show processes cpu

Displays information about the active processes in the switch and their corresponding CPU utilization statistics.

Synopsis **show processes cpu summary**

Operands **summary** Shows a summary of CPU usage by all processes.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display information about the active processes in the switch and their corresponding CPU utilization statistics.

Usage Guidelines There are no usage guidelines for this command.

Examples To show the information for all processes:

```
switch#show processes cpu summary
CPU Utilization current: 0.90%; One minute: 0.00%; Five minutes: 0.00%;
Fifteen minutes: 0.00%
```

To show CPU usage information by individual processes:

```
switch#show processes cpu
CPU Utilization current: 0.90%; One minute: 0.00%; Five minutes: 0.00%;
Fifteen minutes: 0.00%
  PID   Process          CPU%  State   Started
    1   init             0.00   S      14:18:35 Feb 19, 2009
    2   ksoftirqd/0      0.00   S      14:18:35 Feb 19, 2009
    3   events/0         0.00   S      14:18:35 Feb 19, 2009
    4   khelper          0.00   S      14:18:35 Feb 19, 2009
    5   kthread          0.00   S      14:18:35 Feb 19, 2009
   40   kblockd/0        0.00   S      14:18:35 Feb 19, 2009
   73   pdflush          0.00   S      14:18:35 Feb 19, 2009
```

See Also None

show processes memory

Displays the memory usage information based on processes running in the system.

Synopsis **show processes memory summary**

Operands **summary** Shows a summary of memory usage by all processes.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to view memory usage information based on processes running in the system.

Usage Guidelines There are no usage guidelines for this command.

Examples To show a summary of memory usage by all processes:

```
switch#show processes memory summary
%Memory Used: 39.463%; TotalMemory: 1028020 KB; Total Used: 405688 KB; Total
Free: 622332 KB
```

To show memory usage information by individual processes:

```
switch#show processes memory
%Memory Used: 39.463%; TotalMemory: 1028020 KB; Total Used: 405688 KB; Total
Free: 622332 KB
  PID   Process          MEM%   Mem Used(bytes)  Heap Total  Heap Used
    1   init             0.00           1736704      -           -
    2   ksoftirqd/0      0.00                 0      -           -
    3   events/0         0.00                 0      -           -
    4   khelper          0.00                 0      -           -
    5   kthread          0.00                 0      -           -
```

See Also None

show qos flowcontrol interface

Displays all of the configured flow control information for an interface.

Synopsis **show qos flowcontrol interface** {**tengigabitethernet** *slot/port* | **linecard** *slot* | **portset** *chip* | **all**}

Operands

tengigabitethernet Reports QoS flow control statistics for a single 10 Gbps Ethernet interface.

- *slot* Specifies the 10 Gbps Ethernet line card slot number within the chassis.
- *port* Specifies the 10 Gbps Ethernet port number within the port.
- **linecard** *slot* Specifies the ASIC line card slot number within the chassis.
- **portset** Reports the QoS flow control statistics for all 10 Gbps Ethernet interfaces within an ASIC.
- *chip* Specifies the ASIC number within the line card.

all Reports QoS flow control statistics for all interfaces within the system.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display all of the configured flow control information for a specific interface.

Usage Guidelines Use this command to display the runtime state retrieved from the dataplane reflecting the operation of 802.3x pause or Priority Flow Control (PFC) on an interface. The administrative state for pause generation and reception or processing is presented for the interface (802.3x mode) or for each CoS (PFC mode). TX_Pause frame generation statistics are always presented for the interface. The RX_Pause BitTimes is presented for the interface (802.3x mode) or for each CoS (PFC mode). When PFC is deployed under the CEE Provisioning model, then the command reports whether the Data Center Bridging eXchange protocol (DCBX) has overridden the user configuration.

Examples To display all of the configured flow control information for a 10 Gbps Ethernet interface:

```
switch#show qos flowcontrol interface tengigabitethernet 0/1
Interface TenGigabitEthernet 0/1
  Mode PFC
  DCBX enabled for PFC negotiation
  TX 0 frames
         TX   TX    RX   RX Output Paused
  CoS Admin Oper Admin Oper  512 BitTimes
  ---------------------------------------
    0   Off  Off   Off  Off             0
    1   Off  Off   Off  Off             0
    2    On  Off    On  Off             0
    3   Off  Off   Off  Off             0
    4   Off  Off   Off  Off             0
    5   Off  Off   Off  Off             0
    6   Off  Off   Off  Off             0
    7   Off  Off   Off  Off             0
```

See Also show qos interface, show cee maps

show qos interface

Displays a summary of all QoS configurations applied on an interface.

Synopsis **show qos interface** {**tengigabitethernet** *slot/port* | **linecard** *slot* | **portset** *chip* | **all**}

Operands

tengigabitethernet	Reports the QoS configuration for a single 10 Gbps Ethernet interface.
slot	Specifies the 10 Gbps Ethernet line card slot number within the chassis.
port	Specifies the 10 Gbps Ethernet port number within the line card.
linecard *slot*	Specifies the ASIC line card slot number within the chassis.
portset	Reports the QoS flow control statistics for all interfaces within an ASIC.
chip	Specifies the ASIC number within the line card.
all	Reports QoS configurations for all interfaces within the system.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display a summary of all QoS configurations applied on an interface, including QoS Provisioning mode, CEE map, Layer 2 priority, Traffic Class mapping, congestion control, and the scheduler policy.

Usage Guidelines If no interface is specified, QoS information about all interfaces is displayed.

Examples To display all of the configured QoS information for a 10 Gbps Ethernet interface:

```
switch#show qos interface tengigabitethernet 0/1
Interface TenGigabitEthernet 0/1
  Provisioning mode cee
  CEE Map demo
  Default CoS 0
  Interface trust cos
  CoS-to-CoS Mutation map 'default'
                  In-CoS:   0   1   2   3   4   5   6   7
     ------------------------------------------------------
     Out-CoS/TrafficClass: 0/4 1/4 2/6 3/4 4/4 5/4 6/4 7/4
  Tail Drop Threshold 1081344 bytes
  Per-CoS Tail Drop Threshold (bytes)
           CoS:      0      1      2      3      4      5      6      7
     ------------------------------------------------------------------
     Threshold: 129761 129761 129761 129761 129761 129761 129761 129761
  Flow control mode PFC
     CoS2 TX on, RX on
  Multicast Packet Expansion Rate Limit 3000000 pkt/s, max burst 4096 pkts
  Multicast Packet Expansion Tail Drop Threshold (packets)
TrafficClass:    0    1    2    3    4    5    6    7
     ------------------------------------------------
Threshold:      64   64   64   64   64   64   64   64
  Traffic Class Scheduler configured for 0 Strict Priority queues
```

```
     TrafficClass:   0   1   2   3   4   5   6   7
     ------------------------------------------
       DWRRWeight:   0   0   0   0  60   0  40   0
  Multicast Packet Expansion Traffic Class Scheduler
TrafficClass:    0    1    2    3    4    5    6    7
     ---------------------------------------------
DWRRWeight:     25   25   25   25   25   25   25   25
```

See Also cee-map, priority-table

show qos maps

Displays information on the defined QoS maps.

Synopsis **show qos maps** {[**cos-mutation** [*name*]] | [**cos-traffic-class** [*name*]]}

Operands

cos-mutation	Specifies to report on all CoS-to-CoS mutation QoS maps.
name	Specifies to report on only the named CoS-to-CoS mutation QoS map.
cos-traffic-class	Specifies to report on all CoS-to-Traffic Class QoS maps.
name	Specifies to report on only the named CoS-to-Traffic Class QoS map.

Defaults The default behavior without any specified operands is to report on all defined QoS maps.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display information on the defined QoS maps. For each QoS map, the configuration state is displayed with a list of all interfaces bound to the QoS map.

Usage Guidelines There are no usage guidelines for this command.

Examples To display information on the defined QoS maps:

```
switch#show qos maps
  CoS-to-CoS Mutation map 'test'
      In-CoS:  0  1  2  3  4  5  6  7
     ---------------------------------
     Out-CoS:  0  1  2  3  5  4  6  7
     Enabled on the following interfaces:
      Te 0/5

  CoS-to-Traffic Class map 'test'
          Out-CoS:  0  1  2  3  4  5  6  7
     ------------------------------------
     TrafficClass:  0  1  2  3  5  4  6  7
     Enabled on the following interfaces:
      Te 0/5
```

See Also qos map cos-mutation, show qos interface

show qos queue interface

Displays the runtime state retrieved from the interface reflecting the number of packets and bytes sent and received for each priority.

Synopsis **show qos queue interface** {**tengigabitethernet** *slot/port* | **all**}

Operands

tengigabitethernet Specifies the 10 Gbps Ethernet interface.

slot Specifies the 10 Gbps Ethernet interface line card slot number.

port Specifies the 10 Gbps Ethernet interface port number within the line card.

all Reports QoS statistics for all interfaces within the system.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the runtime state retrieved from the interface reflecting the number of packets and bytes sent and received for each priority.

Usage Guidelines For a stand-alone switch, all ASICs are considered as slot number zero (0).

Examples To display the queueing information for a 10 Gbps Ethernet interface:

```
switch#show qos queue interface tengigabitethernet 0/2
Interface TenGigabitEthernet 0/2
               RX             RX                  TX             TX
  CoS      Packets          Bytes      TC      Packets          Bytes
  ------------------------------     ------------------------------
    0       680458       87098624       0            0              0
    1            0              0       1        32318              0
    2            0              0       2            0              0
    3            0              0       3            0              0
    4            0              0       4            0              0
    5            0              0       5            0              0
    6            0              0       6            0              0
    7            0              0       7            0              0
```

See Also qos map cos-mutation, cee-map

show qos rcv-queue interface

Displays a summary of all QoS configurations applied to a Layer 2 interface.

Synopsis **show qos rcv-queue interface** {**tengigabitethernet** *slot/port* | **all**}

Operands

tengigabitethernet Specifies the 10 Gbps Ethernet interface.

slot Specifies the interface line card slot number.

port Specifies the interface port number within the line card.

all Reports QoS configurations for all interfaces within the system.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display a summary of all QoS configurations applied to a Layer 2 interface. This includes the QoS Provisioning mode, CEE Map, Layer 2 Priority, Traffic Class Mapping, Congestion Control, and the Scheduler policy.

Usage Guidelines There are no usage guidelines for this command.

Examples To display the runtime ingress queue state information retrieved from the dataplane for a 10 Gbps Ethernet interface:

```
switch#show qos rcv-queue interface tengigabitethernet 0/2
Interface TenGigabitEthernet 0/2
  In-use 404019 bytes, Total buffer 1081344 bytes
  0 packets dropped
          In-use        Max
  CoS      Bytes      Bytes
  ------------------------
    0          0    1081344
    1          0    1081344
    2     404019    1081344
    3          0    1081344
    4          0    1081344
    5          0    1081344
    6          0    1081344
    7          0    1081344
```

See Also show qos rcv-queue multicast

show qos rcv-queue multicast

Displays the runtime state retrieved from the dataplane reflecting any multicast packet expansion packet drops resulting from a queue crossing the maximum queue depth.

Synopsis **show qos rcv-queue multicast** {**tengigabitethernet** *slot/port* | **all**}

Operands

tengigabitethernet Specifies the 10 Gbps Ethernet interface.

slot Specifies the 10 Gbps Ethernet interface line card slot number.

port Specifies the 10 Gbps Ethernet interface port number within the line card.

all Reports QoS multicast packet expansion receive queueing statistics for all ASICs within the system.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the runtime state information retrieved from the interface reflecting any multicast packet expansion packet drops resulting from a queue crossing the maximum queue depth.

Usage Guidelines For a stand-alone switch, all ASICs are considered as slot number zero (0).

Examples To display the queueing information:

```
switch#show qos rcv-queue multicast tengigabitethernet 0/2
Dropped Counts
  Linecard/Portset           TC 0           TC 1           TC 2           TC 3
-------------------------------------------------------------------------------
         0/0                    0              0              0              0
```

See Also show qos rcv-queue interface

show rmon

Displays the current RMON status on the switch.

Synopsis **show rmon alarms** [*number* [**brief**]] {**events** [*number* [**brief**]] | | **history** [*event_number*] | **history statistics** [*event_number*] | **logs** [*event_number*] | **statistics** [*number* [**brief**]]}

Operands

alarms	Specifies to display the RMON alarm table.
number	Specifies the alarm index identification number. The range of valid values is from 1 through 65535.
brief	Specifies to display a brief summary of the output.
events	Specifies to display the RMON events table.
number	Specifies the event index identification number. The range of valid values is from 1 through 65535.
brief	Specifies to display a brief summary of the output.
history	Specifies to display the RMON historical information.
event_number	Specifies the event index identification number. The range of valid values is from 1 through 65535.
history statistics	Specifies to display the RMON historical statistics.
event_number	Specifies the event index identification number. The range of valid values is from 1 through 65535.
logs	Specifies to display the RMON log table.
event_number	Specifies the event index identification number. The range of valid values is from 1 through 65535.
statistics	Specifies to display the statistics identification number.
number	Specifies the statistics identification number. The range of valid values is from 1 through 65535.
brief	Specifies a brief summary of the output.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the status of the current RMON on the switch.

Usage Guidelines There are no usage guidelines for this command.

Examples To display the RMON statistics:

```
switch#show rmon statistics
rmon collection index 4
    Interface index is Id: 67108864 , Name : TenGigabitEthernet 0/0
    Receive Statistics:
```

```
            218903 packets, 14015626 bytes,  0 packs dropped
            Multicasts: 218884, Broadcasts: 18

            Under-size : 0, Jabbers: 0, CRC: 0
            Fragments: 0, Collisions: 0
            64 byte pkts: 218722, 65-127 byte pkts: 174
            128-255 byte pkts: 0, 256-511 byte pkts: 6
            512-1023 byte pkts: 0, 1024-1518 byte pkts: 0
            Over 1518-byte pkts(Oversize - Jumbo): 0

        Owner: RMON_SNMP
        Status: ok(1)
```

To display the RMON events:

```
switch#show rmon events
event Index = 4
        Description "My Description"
        Event type Log & SnmpTrap
        Event community name admin
        Last Time Sent = 00:00:00
        Owner  admin
```

See Also rmon alarm, rmon collection, rmon event

show running-config

Displays the contents of the configuration file currently running on the system.

Synopsis **show running-config** {**access-list** |**cee-map** | **interface** | **lldp** | **rmon** | **spanning-tree**}

Operands

access-list	Displays the running configuration of the access list.
cee-map	Displays the QoS Converged Enhanced Ethernet (CEE) maps configuration.
interface	Displays the interface configuration.
lldp	Displays the LLDP configuration.
rmon	Displays the Remote Monitoring Protocol (RMON) configuration.
spanning-tree	Displays the STP switch configuration.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the contents of the configuration file currently running on the system. The **show running-config** command displays only the commands that were successfully executed.

Usage Guidelines There are no usage guidelines for this command.

Examples To display the content of the current configuration file:

```
switch#show running-config
!
no protocol spanning-tree
!
interface Vlan 1
!
interface TenGigabitEthernet 0/0
 shutdown
!
interface TenGigabitEthernet 0/1
 shutdown
!
interface TenGigabitEthernet 0/2
 shutdown
!
interface TenGigabitEthernet 0/3
 shutdown
!
interface TenGigabitEthernet 0/4
 shutdown
!
```

See Also show startup-config

show running-config igmp

Displays the IGMP configuration.

Synopsis **show running-config igmp**

Operands None

Description This command displays the IGMP contents of the currently running configuration. Note that this information may differ from the contents of the actual running-config file.

Command Modes Privileged EXEC mode

EXEC mode

Defaults There are no defaults for this command.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

show spanning-tree

Displays all Spanning Tree Protocol information.

Synopsis **show spanning-tree**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display all STP information.

Usage Guidelines There are no usage guidelines for this command.

Examples To display all STP information:

```
switch#show spanning-tree
Spanning-tree Mode: Multiple Spanning Tree Protocol

 CIST Root Id: 8000.0005.1e76.1aa0 (self)
 CIST Bridge Id: 8000.0005.1e76.1aa0
 CIST Reg Root Id: 8000.0005.1e76.1aa0 (self)

 CIST Root Forward Delay: 15; Hello Time: 2; Max Age: 20; Max-hops: 20
 Configured Forward Delay: 15; Hello Time: 2; Max Age: 20; Max-hops: 20;
 Tx-HoldCount: 6
 Number of topology change(s): 0

 Bpdu-guard errdisable timeout: disabled
 Bpdu-guard errdisable timeout interval: 300 sec
 Migrate Time: 3 sec

 Port Te 0/0 enabled
     IfIndex: 67108864; Id: 8000; Role: Disabled; State: Discarding
     Designated External Path Cost: 0; Internal Path Cost 0
     Configured Path Cost: 2000
     Designated Port Id: 0; CIST Priority: 128
     Designated Bridge: 0000.0000.0000.0000
     CIST Port Hello Time: 2
     Number of forward-transitions: 0
     Version Multiple Spanning Tree Protocol - Received None - Send MSTP
     Edgeport: off; AutoEdge: no; AdminEdge: no; EdgeDelay: 3 sec
     Configured Root guard: off; Operational Root guard: off
     Boundary: yes
     Bpdu-guard: off
     Bpdu-filter: off
     Link-type: point-to-point
     Received BPDUs: 0; Sent BPDUs: 0

 Port Te 0/8 enabled
     IfIndex: 67633408; Id: 8008; Role: Disabled; State: Discarding
     Designated External Path Cost: 0; Internal Path Cost 0
```

```
    Configured Path Cost: 2000
    Designated Port Id: 0; CIST Priority: 128
    Designated Bridge: 0000.0000.0000.0000
    CIST Port Hello Time: 2
    Number of forward-transitions: 0
    Version Multiple Spanning Tree Protocol - Received None - Send MSTP
    Edgeport: off; AutoEdge: no; AdminEdge: no; EdgeDelay: 3 sec
    Configured Root guard: off; Operational Root guard: off
    Boundary: yes
    Bpdu-guard: off
    Bpdu-filter: off
    Link-type: point-to-point
    Received BPDUs: 0; Sent BPDUs: 0

Port Te 0/19 enabled
    IfIndex: 68354563; Id: 8013; Role: Disabled; State: Discarding
    Designated External Path Cost: 0; Internal Path Cost 0
    Configured Path Cost: 2000
    Designated Port Id: 0; CIST Priority: 128
    Designated Bridge: 0000.0000.0000.0000
    CIST Port Hello Time: 2
    Number of forward-transitions: 0
    Version Multiple Spanning Tree Protocol - Received None - Send MSTP
    Edgeport: off; AutoEdge: no; AdminEdge: no; EdgeDelay: 3 sec
    Configured Root guard: off; Operational Root guard: off
    Boundary: yes
    Bpdu-guard: off
    Bpdu-filter: off
    Link-type: point-to-point
    Received BPDUs: 0; Sent BPDUs: 0

Port Te 0/20 enabled
    IfIndex: 68420100; Id: 8014; Role: Disabled; State: Discarding
    Designated External Path Cost: 0; Internal Path Cost 0
    Configured Path Cost: 2000
    Designated Port Id: 0; CIST Priority: 128
    Designated Bridge: 0000.0000.0000.0000
    CIST Port Hello Time: 2
    Number of forward-transitions: 0
    Version Multiple Spanning Tree Protocol - Received None - Send MSTP
    Edgeport: off; AutoEdge: no; AdminEdge: no; EdgeDelay: 3 sec
    Configured Root guard: off; Operational Root guard: off
    Boundary: yes
    Bpdu-guard: off
    Bpdu-filter: off
    Link-type: point-to-point
    Received BPDUs: 0; Sent BPDUs: 0
```

See Also show spanning-tree interface

show spanning-tree brief

Displays the status and parameters of the Spanning Tree Protocol.

Synopsis **show spanning-tree brief**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the status and parameters of the Spanning Tree Protocol. It includes the port roles and port states. The following describes the port roles, states, and types:

- Port roles—root port, designated port, alternate port, and backup port
- Port states—discarding, learning, and forwarding
- Port types—edge port (PortFast), point-to-point, and shared port

Usage Guidelines There are no usage guidelines for this command.

Examples To display the status and parameters of the Spanning Tree Protocol:

```
switch#show spanning-tree brief
Spanning-tree Mode: Rapid Spanning Tree Protocol

      Root ID      Priority 32768
                   Address  0005.1e76.1aa0
                   Hello Time 2, Max Age 20, Forward Delay 15

      Bridge ID    Priority 32768
                   Address  0005.1e76.1aa0
                   Hello Time 2, Max Age 20, Forward Delay 15, Tx-HoldCount 6
                   Migrate Time 3 sec

Interface     Role  Sts  Cost       Prio  Link-type        Boundary  Edge
-------------------------------------------------------------------------
Te 0/0        DIS   DSC  2000       128   P2P               Yes      No
Te 0/1        ALT   BLK  2000       128   P2P               Yes      No
Te 0/2        RTPT  BLK  2000       128   P2P               Yes      No
Te 0/3        DIS   BLK  2000       128   P2P               Yes      No
Te 0/8        DIS   DSC  2000       128   P2P               Yes      No
Te 0/19       DIS   DSC  2000       128   P2P               Yes      No
Te 0/20       DIS   DSC  2000       128   P2P               Yes      No
```

See Also show spanning-tree interface

show spanning-tree interface

Displays the state of the Spanning Tree Protocol for all named port-channels or 10 Gbps Ethernet interfaces.

Synopsis **show spanning-tree interface** {**port-channel** *number* | **tengigabitethernet** *slot/port*}

Operands

port-channel *number*
Specifies the port-channel number. The range of valid values is from 1 through 63.

tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the state of the spanning tree for all named port-channels or 10 Gbps Ethernet interfaces.

Usage Guidelines The following describes the port roles, states, and types:

- Port roles—root port, designated port, alternate port, and backup port
- Port states—discarding, learning, and forwarding
- Port types—edge port (PortFast), point-to-point, and shared port

Examples To display information on a 10 Gbps Ethernet interface:

```
switch#show spanning-tree interface tengigabitethernet 0/0
Spanning-tree Mode: Rapid Spanning Tree Protocol
Root Id: 8000.0005.1e76.1aa0 (self)
 Bridge Id: 8000.0005.1e76.1aa0
Port Te 0/0 enabled
     IfIndex: 67108864; Id: 8000; Role: Disabled; State: Discarding
     Designated Path Cost: 0
     Configured Path Cost: 2000
     Designated Port Id: 0; Port Priority: 128
     Designated Bridge: 0000.0000.0000.0000
     Number of forward-transitions: 0
     Version Rapid Spanning Tree Protocol - Received None - Send RSTP
     Edgeport: off; AutoEdge: no; AdminEdge: no; EdgeDelay: 3 sec
     Configured Root guard: off; Operational Root guard: off
     Boundary: yes
     Bpdu-guard: off
     Bpdu-filter: off
     Link-type: point-to-point
     Received BPDUs: 0; Sent BPDUs: 0
```

See Also show spanning-tree brief

show spanning-tree mst brief

Displays the status and parameters of the Multiple Spanning Tree Protocol (MSTP) instance information in brief.

Synopsis **show spanning-tree mst brief**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the status and parameters of the Multiple Spanning Tree Protocol (MSTP) instance information. It includes the port roles, port states, and port types.

Usage Guidelines The following describes the port roles, states, and types:

- Port roles—root port, designated port, alternate port, and backup port
- Port states—discarding, learning, and forwarding
- Port types—edge port (PortFast), point-to-point, and shared port

Examples To display the status and parameters of the MSTP instance information:

```
switch#show spanning-tree mst brief

Spanning-tree Mode: Multiple Spanning Tree Protocol

CIST Root ID            Priority 32768
                         Address  0005.1e76.1aa0
CIST Bridge ID          Priority 32768
                         Address  0005.1e76.1aa0
CIST Regional Root ID   Priority 32768
                         Address  0005.1e76.1aa0

Configured Hello Time 2, Max Age 20, Forward Delay 15
Max Hops 20, Tx-HoldCount 6
CIST Root  Hello Time 2, Max Age 20, Forward Delay 15, Max Hops 20
CIST Root path cost 0

Interface     Role  Sts  Cost       Prio  Link-type        Boundary  Edge
-------------------------------------------------------------------------
Te 0/0        DIS   DSC  2000       128   P2P               Yes      No
Te 0/1        ALT   BLK  2000       128   P2P               Yes      No
Te 0/2        RTPT  BLK  2000       128   P2P               Yes      No
Te 0/3        DIS   BLK  2000       128   P2P               Yes      No
Te 0/8        DIS   DSC  2000       128   P2P               Yes      No
Te 0/19       DIS   DSC  2000       128   P2P               Yes      No
Te 0/20       DIS   DSC  2000       128   P2P               Yes      No
```

See Also show spanning-tree mst instance, show spanning-tree mst interface

show spanning-tree mst detail

Displays details on an interface for the active Multiple Spanning Tree Protocol (MSTP) instance running.

Synopsis **show spanning-tree mst detail** {**interface port-channel** *number* | **interface tengigabitethernet** *slot/port*}

Operands

interface Specifies the interface for which to display the spanning-tree information.

port-channel *number*
Specifies the port-channel of the interface. The range of valid values is from 1 through 63.

interface tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display details on a specified interface for the active MSTP instance.

Usage Guidelines There are no usage guidelines for this command.

Examples To display MSTP information on the switch in detail:

```
switch#show spanning-tree mst detail
Spanning-tree Mode: Multiple Spanning Tree Protocol
CIST Root Id: 8000.0005.1e76.1aa0 (self)
 CIST Bridge Id: 8000.0005.1e76.1aa0
 CIST Reg Root Id: 8000.0005.1e76.1aa0 (self)
CIST Root Forward Delay: 15; Hello Time: 2; Max Age: 20; Max-hops: 20
 Configured Forward Delay: 15; Hello Time: 2; Max Age: 20; Max-hops: 20;
 Tx-HoldCount: 6
 Number of topology change(s): 0
Bpdu-guard errdisable timeout: disabled
 Bpdu-guard errdisable timeout interval: 300 sec
 Migrate Time: 3 sec
CIST Port Details.
 ==================
 Instance: 0; Vlans:1, 100
Port Te 0/0 enabled
     IfIndex: 67108864; Id: 8000; Role: Disabled; State: Discarding
     Designated External Path Cost: 0; Internal Path Cost 0
     Configured Path Cost: 2000
     Designated Port Id: 0; CIST Priority: 128
     Designated Bridge: 0000.0000.0000.0000
     CIST Port Hello Time: 2
     Number of forward-transitions: 0
```

```
     Version Multiple Spanning Tree Protocol - Received None - Send MSTP
     Edgeport: off; AutoEdge: no; AdminEdge: no; EdgeDelay: 3 sec
     Configured Root guard: off; Operational Root guard: off
     Boundary: yes
     Bpdu-guard: off
     Bpdu-filter: off
     Link-type: point-to-point
     Received BPDUs: 0; Sent BPDUs: 0
Port Te 0/8 enabled
     IfIndex: 67633408; Id: 8008; Role: Disabled; State: Discarding
     Designated External Path Cost: 0; Internal Path Cost 0
     Configured Path Cost: 2000
     Designated Port Id: 0; CIST Priority: 128
     Designated Bridge: 0000.0000.0000.0000
     CIST Port Hello Time: 2
     Number of forward-transitions: 0
     Version Multiple Spanning Tree Protocol - Received None - Send MSTP
     Edgeport: off; AutoEdge: no; AdminEdge: no; EdgeDelay: 3 sec
     Configured Root guard: off; Operational Root guard: off
     Boundary: yes
     Bpdu-guard: off
     Bpdu-filter: off
     Link-type: point-to-point
     Received BPDUs: 0; Sent BPDUs: 0
Port Te 0/19 enabled
     IfIndex: 68354563; Id: 8013; Role: Disabled; State: Discarding
     Designated External Path Cost: 0; Internal Path Cost 0
     Configured Path Cost: 2000
     Designated Port Id: 0; CIST Priority: 128
     Designated Bridge: 0000.0000.0000.0000
     CIST Port Hello Time: 2
     Number of forward-transitions: 0
     Version Multiple Spanning Tree Protocol - Received None - Send MSTP
     Edgeport: off; AutoEdge: no; AdminEdge: no; EdgeDelay: 3 sec
     Configured Root guard: off; Operational Root guard: off
     Boundary: yes
     Bpdu-guard: off
     Bpdu-filter: off
     Link-type: point-to-point
     Received BPDUs: 0; Sent BPDUs: 0
Port Te 0/20 enabled
     IfIndex: 68420100; Id: 8014; Role: Disabled; State: Discarding
     Designated External Path Cost: 0; Internal Path Cost 0
     Configured Path Cost: 2000
     Designated Port Id: 0; CIST Priority: 128
     Designated Bridge: 0000.0000.0000.0000
     CIST Port Hello Time: 2
     Number of forward-transitions: 0
     Version Multiple Spanning Tree Protocol - Received None - Send MSTP
     Edgeport: off; AutoEdge: no; AdminEdge: no; EdgeDelay: 3 sec
     Configured Root guard: off; Operational Root guard: off
     Boundary: yes
     Bpdu-guard: off
     Bpdu-filter: off
     Link-type: point-to-point
     Received BPDUs: 0; Sent BPDUs: 0
MSTI details.
```

See Also show spanning-tree mst instance, show spanning-tree mst interface

show spanning-tree mst instance

Displays information on a specified Multiple Spanning Tree Protocol (MSTP) instance.

Synopsis **show spanning-tree mst instance** *instance_id* {**interface port-channel** *number* | **interface tengigabitethernet** *slot/port*}

Operands

instance_id	Specifies the MSTP instance for which to display information. The range of valid values is from 1 through 15.
interface	Specifies the interface for which to display the MSTP instance information.
port-channel *number*	Specifies the port-channel of the interface. The range of valid values is from 1 through 63.
interface tengigabitethernet	Specifies a valid 10 Gbps Ethernet interface for which to display the MSTP instance information.
slot	Specifies a valid slot number.
port	Specifies a valid port number.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display information on a specified instance of the MSTP.

Usage Guidelines There are no usage guidelines for this command.

Examples To display information on MSTP instance 1:

```
switch#show spanning-tree mst instance 1 interface tengigabitethernet 0/0

 Instance: 1; VLANs: 100
 MSTI Root Id: 8001.0005.1e76.1aa0 (self)
 MSTI Bridge Id: 8001.0005.1e76.1aa0
 MSTI Bridge Priority: 32768
```

See Also show spanning-tree mst brief, show spanning-tree mst detail

show spanning-tree mst interface

Displays information for a specified interface for a Multiple Spanning Tree Protocol (MSTP) instance.

Synopsis **show spanning-tree mst interface** {**port-channel** *number*| **tengigabitethernet** slot/port}

Operands

port-channel *number*
Specifies the port-channel of the interface. The range of valid values is from 1 through 63.

tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display MSTP protocol-specific information such as Common and Internal Spanning Tree (CIST) spanning-tree-related information, information to each MSTP instance (MSTI), and the state of the port specific to each MSTI.

Usage Guidelines There are no usage guidelines for this command.

Examples To display information for the MSTP interface:

```
switch#show spanning-tree mst interface tengigabitethernet 0/0
Spanning-tree Mode: Multiple Spanning Tree Protocol

 CIST Root Id: 8000.0005.1e76.1aa0 (self)
 CIST Bridge Id: 8000.0005.1e76.1aa0
 CIST Reg Root Id: 8000.0005.1e76.1aa0 (self)

    CIST Operational Port Hello Time: 0
    Number of forward-transitions: 0
    Version: Multiple Spanning Tree Protocol - Received None - Send MSTP
    Edgeport: off; AutoEdge: no; AdminEdge: no; EdgeDelay: 3 sec
    Configured Root guard: off; Operational Root guard: off
    Boundary: yes
    Bpdu-guard: off
    Bpdu-filter: off
    Link-type: point-to-point
    Received BPDUs: 0; Sent BPDUs: 0
Instance     Role  Sts  Cost       Prio  VLANs
 ------------------------------------------------------------------------
 0            DIS   DSC  2000       128   1
```

See Also show spanning-tree brief, show spanning-tree mst brief

show startup-config

Displays the content of the startup configuration file.

Synopsis **show startup-config**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the contents of the startup configuration file.

Usage Guidelines The following guidelines apply when using this command:

- An error displays if there are no entries in the startup configuration file; for example:

```
switch#show startup-config
% No Startup-config
```

- Use the **write memory** command to add entries to the startup configuration file.
- Using the **write erase** command to delete entries from the startup configuration file.

Examples To show the content of the startup configuration file:

```
switch#show startup-config
!
no protocol spanning-tree
!
interface Vlan 1
!
interface TenGigabitEthernet 0/0
 shutdown
!
interface TenGigabitEthernet 0/1
 shutdown
!
interface TenGigabitEthernet 0/2
 shutdown
!
interface TenGigabitEthernet 0/3
 shutdown
```

See Also write erase, write memory

show statistics access-list mac

Shows active MAC ACL rules in the switch and if the rules have counters enabled.

Synopsis **show statistics access-list mac** *name* {**interface port-channel** *number* | **tengigabitethernet** *slot/port* | **vlan** *vlan_id*}

Operands

name	Specifies a unique name for the MAC ACL.
interface	Specifies the interface for which to display the statistics.
port-channel *number*	Specifies the port-channel number. The range of valid values is from 1 through 63.
tengigabitethernet	Specifies a valid 10 Gbps Ethernet interface.
slot	Specifies a valid slot number.
port	Specifies a valid port number.
vlan *vlan_id*	Specifies the VLAN number. The range of valid values is from 1 through 3583.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display the active rules on the switch and whether those rules have counters enabled.

Usage Guidelines There are no usage guidelines for this command.

Examples To display the statistics for standard and extended MAC ACL applied on two interfaces, 10 Gbps Ethernet interface and VLAN 100:

```
switch#show statistics access-list mac std_acl
mac access-list standard std_acl on interface Te 0/1
 seq 10 deny 0011.2222.3333 count (6312 frames)
 seq 20 deny 0011.2222.4444 count (20 frames)
 seq 30 deny 0011.2222.5555
 seq 40 deny 0011.2222.6666 count (100000 frames)

switch#show statistics access-list mac ext_acl
mac access-list extended ext_acl on interface Vl 100
 seq 10 deny 0011.2222.2222 0022.2222.2222 ipv4 count (4350 frames)
 seq 20 deny 0011.2222.2222 0022.2222.2222 fcoe count (0 frames)
 seq 30 deny 0011.2222.2222 0022.2222.2222 arp
 seq 40 deny 0011.2222.2222 0022.2222.2222 10000 count (560 frames)
```

If the rule is not written into the hardware, the output displays as in the following example:

```
seq 8 permit 00c0.e000.0080 count (unwritten)
```

If the rule is written into the hardware, but the counters are not enabled for that rule, the output displays as in the following example:

```
seq 9 permit 00c0.e000.0090 count (uncounted)
```

See Also show running-config, show mac access-group

show system

Displays system information.

Synopsis **show system** [**mac-address reserved**]

Operands **mac-address reserved**
Displays the MAC address information.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display system information and the MAC address details.

Usage Guidelines There are no usage guidelines for this command.

Examples To display the system information:

```
switch#show system mac-address reserved
Base MAC address : 00:05:1E:53:EB:86
End MAC address  : 00:05:1E:53:ED:86
switch#show system
Stack MAC       : 00:05:1E:76:42:00

  -- UNIT 0 --
Unit Name       : switch
Status          : Online
Hardware Rev    : 76.6
FC Port(s)      : 8
Tengig Port(s)  : 24
Up Time         : 18:28:27 up 4:09
FOS Version     : v6.1.2
Jumbo Capable   : yes
Burned In MAC   : 00:05:1E:76:42:00
Management IP   : 10.35.155.204
Status          : UP

  -- Power Supplies --
PS0 is OK
PS1 is OK

  -- Fan Status --
Fan 1 is Ok
Fan 2 is Ok
Fan 3 is Ok
```

See Also show version, show environment

show tech-support

Displays output for troubleshooting.

Synopsis **show tech-support**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to run a script that automatically runs a variety of **show** commands with output that is useful to Technical Support for troubleshooting.

Usage Guidelines There are no usage guidelines for this command.

Examples To display output for troubleshooting:

```
switch#show tech-support

------------------ date ------------------
Thu Feb 19 18:30:13 UTC 2009

--------------show version ------------------
Fabric Operating System Software
Fabric Operating System Version: 6.1
Copyright (c) 1995-2008 Brocade Communications Systems, Inc.
Build Time: 03:35:17 Feb 18, 2009
switch uptime: 04:11:09
Firmware name: v6.1.2

Switch Model Name: Brocade 8000
Control Processor: Freescale Semiconductor 8548E with 1016 MB of memory

4MB of boot flash memory.

  8 FC Port(s)
 24 Ten GigabitEthernet/IEEE 802.3 interface(s)

------------------ show running-config ------------------
!
switch#
```

See Also None

show users

Displays information on all users currently logged in to the switch.

Synopsis **show users**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to view information on all users logged in to the switch.

Usage Guidelines

Type	Displays the line numbers.
Idle	Displays how long the session has been idle.
Location	Displays the IP address of the user.
User	Displays the user name of all users logged in.

Examples To display information on users logged in to the switch:

```
switch#show users
  Type       Idle       Location        User
* vty 0      00:00:00   172.21.252.244  root
```

See Also show line

show version

Displays version information for the hardware and software.

Synopsis **show version**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display hardware and software version information.

Usage Guidelines There are no usage guidelines for this command.

Examples To display version information:

```
switch#show version
Fabric Operating System Software
Fabric Operating System Version: 6.1
Copyright (c) 1995-2008 Brocade Communications Systems, Inc.
Build Time: 03:35:17 Feb 18, 2009
E209 uptime: 04:14:43
Firmware name: v6.1.2

Switch Model Name: Brocade 8000
Control Processor: Freescale Semiconductor 8548E with 1016 MB of memory

4MB of boot flash memory.

  8 FC Port(s)
 24 Ten GigabitEthernet/IEEE 802.3 interface(s)
switch#
```

See Also show system

show vlan

Displays information about a specific VLAN interface.

Synopsis **show vlan** {*vlan_id* | **brief** |**classifier** | **fcoe**}

Operands

vlan_id	Specifies the VLAN interface to display. The range of valid values is from 1 through 3583.
brief	Specifies to display VLAN information for all interfaces, including static and dynamic interfaces.
classifier	Specifies to display all VLAN classification information.
fcoe	Specifies to display all FCoe VLAN interfaces.

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display information about a specific VLAN.

Usage Guidelines There are no usage guidelines for this command.

Examples To show information on a VLAN:

```
switch#show vlan 1
VLAN     Name            State   Ports

                                 (u)-Untagged, (t)-Tagged

                                 (c)-Converged

======= ================ ======= ==============================

1       default          ACTIVE  Te 0/0(t) Te 0/4(t) Te 0/5(t)

                                 Te 0/8(t) Te 0/10(t) Te 0/11(c)

                                 Po 1(t) Po 63(t)
```

See Also None

show vlan classifier

Displays information about a specific VLAN classifier group.

Synopsis **show vlan classifier** {**group** *number* | **interface** {**group** *group number* | **port-channel** *number* | **tengigabitethernet** *slot/port*}

Operands

group *number* Specifies the VLAN classifier group number. The range of valid values is from 1 through 16.

interface group *number*
Specifies the VLAN classifier interface group number. The range of valid values is from 1 through 16.

interface port-channel *number*
Specifies the VLAN classifier port-channel number. The range of valid values is from 1 through 63.

interface tengigabitethernet
Specifies a valid 10 Gbps Ethernet interface.

slot Specifies a valid slot number.

port Specifies a valid port number

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to display information about all configured VLAN classifier groups or a specific VLAN interface group.

Usage Guidelines If a group ID is not specified, all configured VLAN classifier groups are shown. If a group ID is specified, a specific configured VLAN classifier group is shown.

Examples To display the VLAN classifier for group 1:

```
switch#show vlan classifier group 1
vlan classifier group 1 rule 1
```

See Also None

shutdown (interface)

Disables the selected interface.

Synopsis **shutdown**

no shutdown

Operands None

Defaults The interface is disabled.

Command Modes Interface configuration mode

Description Use this command to disable an interface.

Usage Guidelines There are no usage guidelines for this command.

Examples To disable an interface:

```
switch(conf-if-te-0/1)#shutdown
```

To enable an interface:

```
switch(conf-if-te-0/1)#no shutdown
```

See Also interface, show ip interface, show interface

shutdown (Spanning Tree Protocol)

Disables the Multiple Spanning Tree Protocol (MSTP), Rapid Spanning Tree Protocol (RSTP), or the Spanning Tree Protocol (STP) globally.

Synopsis **shutdown**

no shutdown

Operands None

Defaults STP is not required in a loop-free topology and is not enabled by default.

Command Modes Spanning Tree Protocol configuration mode

Description Use this command to disable MSTP, RSTP, or STP globally.

Usage Guidelines This command has no usage guidelines.

Examples To disable STP globally:

```
switch(config)#protocol spanning-tree stp
switch(conf-rstp)#shutdown
```

To enable STP globally:

```
switch(config)#protocol spanning-tree stp
switch(conf-rstp)#no shutdown
```

See Also None

spanning-tree autoedge

Enables automatic edge detection.

Synopsis **spanning-tree autoedge**

no spanning-tree autoedge

Operands None

Defaults Automatic edge detection is not enabled.

Command Modes Interface configuration mode

Description Use this command to automatically identify the edge port.

Usage Guidelines The port can become an edge port if no Bridge Protocol Data Unit (BPDU) is received.

Examples To enable automatic edge detection:

```
switch(conf-if-te-0/1)#spanning-tree autoedge
```

See Also protocol spanning-tree

spanning-tree cost

Changes an interface's spanning-tree port path cost.

.Synopsis **spanning-tree cost** *cost*

Operands

cost	Specifies the path cost for the Spanning Tree Protocol (STP) calculations. The range of valid values is from 1 through 200000000.

Defaults The default path cost is 200000000.

Command Modes Interface configuration mode

Description Use this command to configure the path cost for spanning-tree calculations.

Usage Guidelines A lower path cost indicates a greater chance of becoming the root.

Examples To set the port path cost to 128:

```
switch(conf-if-te-0/1)#spanning-tree cost 128
```

See Also show spanning-tree

spanning-tree edgeport

Enables the edge port on an interface to allow the interface to quickly transition to the forwarding state.

Synopsis **spanning-tree edgeport** {**bpdu-filter** | **bpdu-guard**}

Operands

bpdu-filter	Sets the edge port Bridge Protocol Data Unit (BPDU) filter for the port.
bpdu-guard	Guards the port against the reception of BPDUs.

Defaults Edge port is disabled.

Command Modes Interface configuration mode

Description Use this command to enable the edge port feature. This command is only for RSTP and MSTP. Use the **spanning-tree portfast** command for STP.

Usage Guidelines Note the following details about edge ports and their behavior:

- A port can become an edge port if no BPDU is received.
- When an edge port receives a BPDU, it becomes a normal spanning-tree port and is no longer an edge port.
- Because ports directly connected to end stations cannot create bridging loops in the network, edge ports directly transition to the forwarding state, and skip the listening and learning states.

Examples To enable a port to quickly transition to the forwarding state:

```
switch(conf-if-te-0/1)#spanning-tree edgeport
```

To set the edge port BPDU filter for the port:

```
switch(conf-if-te-0/1)#spanning-tree edgeport bpdu-filter
```

To guard the port against reception of BPDUs:

```
switch(conf-if-te-0/1)#spanning-tree edgeport bpdu-guard
```

See Also spanning-tree autoedge

spanning-tree guard root

Enables the guard root to restrict which interface is allowed to be the spanning-tree root port or the path to the root for the switch.

Synopsis

spanning-tree guard root

no spanning-tree guard root

Operands

None

Defaults

The guard root is disabled.

Command Modes

Interface configuration mode

Description

Use this command to enable the guard root on the interface. Use the **no spanning-tree guard root** command to disable the guard root on the selected interface.

Usage Guidelines

The root port provides the best path from the switch to the root switch.

The guard root protects the root bridge from malicious attacks and unintentional misconfigurations where a bridge device that is not intended to be the root bridge becomes the root bridge. This causes severe bottlenecks in the datapath. The guard root ensures that the port on which it is enabled is a designated port. If the guard root-enabled port receives a superior Bridge Protocol Data Unit (BPDU), it goes to a discarding state.

Examples

To enable the guard root:

```
switch(conf-if-te-0/1)#spanning-tree guard root
```

See Also

spanning-tree cost

spanning-tree hello-time

Configures the hello-time in seconds on the interface.

Synopsis **spanning-tree hello-time** *seconds*

no spanning-tree hello-time

Operands

seconds	Sets the interval between the hello Bridge Protocol Data Units (BPDUs) sent by the root switch configuration messages. The range of valid values is from 1 through 10.

Defaults The default is 2 seconds.

Command Modes Interface configuration mode

Description Use this command to set the interval time between the BPDUs sent by the root switch. Use the **no spanning-tree hello-time** command to return to the default setting. This command is only for MSTP.

Usage Guidelines Changing the hello-time affects all spanning-tree instances. The **max-age** setting must be greater than the **hello-time** setting.

Examples To set the hello-time to 5 seconds:

```
switch(conf-if-te-0/1)#spanning-tree hello-time 5
```

See Also forward-delay, max-age, show spanning-tree

spanning-tree instance

Sets restrictions for the port of a particular MSTP instance.

Synopsis **spanning-tree instance** *instance_id* {**cost** *cost* | **priority** *priority* | **restricted-role** | **restricted-tcn**}

no spanning-tree instance *instance_id* {**cost** *cost* | **priority** *priority* | **restricted-role** | **restricted-tcn**}

Operands

instance_id	Specifies the MSTP instance. The range of valid values is from 1 through 15.
cost *cost*	Specifies the path-cost for a port. The range of valid values is from 1 through 20000000.
priority *priority*	Specifies the port priority for a bridge in increments of 16. The range of valid values is from 0 through 240.
restricted-role	Specifies to restrict the role of a port.
restricted-tcn	Specifies to restrict the propagation of the topology change notifications from a port.

Defaults The default path-cost value is 2000 on a 10 Gbps Ethernet interface.

Command Modes Interface configuration mode

Description Use this command to set restrictions for a port on a particular MSTP instance.

Usage Guidelines Use this command for MSTP-specific configurations.

Examples To set restrictions for the port of MSTP instance 1 with the cost of 40000:

```
switch(conf-if-te-0/1)#spanning-tree instance 1 cost 40000
```

See Also instance, show spanning-tree

spanning-tree link-type

Enables and disables the rapid transition for the Spanning Tree Protocol.

Synopsis **spanning-tree link-type** {**point-to-point** | **shared**}

no spanning-tree link-type

Operands

point-to-point	Enables rapid transition.
shared	Disables rapid transition.

Defaults The default is **point-to-point**.

Command Modes Interface configuration mode

Description Use this command to specify a link type for the Spanning Tree Protocol.

Usage Guidelines This command overrides the default setting of the link type.

Examples To specify the link type as shared:

```
switch(conf-if-te-0/0)#spanning-tree link-type shared
```

See Also None

spanning-tree portfast

Enables the Port Fast feature on an interface to allow the interface to quickly transition to the forwarding state.

Synopsis **spanning-tree portfast** {**bpdu-filter** | **bpdu-guard**}

Operands

bpdu-filter	Sets the Port Fast BPDU filter for the port.
bpdu-guard	Guards the port against the reception of BPDUs.

Defaults Port Fast is disabled.

Command Modes Interface configuration mode

Description Use this command to enable the Port Fast feature. This command is only for STP. Port Fast immediately puts the interface into the forwarding state without having to wait for the standard forward time. Use the **spanning-tree edgeport** command for MSTP and RSTP.

Usage Guidelines If you enable **spanning-tree portfast bpdu-guard** on an interface and the interface receives a BPDU, the software disables the interface and puts the interface in the ERR_DISABLE state.

Examples To enable a port to quickly transition to the forwarding state:

```
switch(conf-if-te-0/1)#spanning-tree portfast
```

To set the Port Fast BPDU filter for the port:

```
switch(conf-if-te-0/1)#spanning-tree portfast bpdu-filter
```

To guard the port against the reception of BPDUs:

```
switch(conf-if-te-0/1)#spanning-tree portfast bpdu-guard
```

See Also spanning-tree autoedge

spanning-tree priority

Changes an interface's STP port priority.

Synopsis **spanning-tree priority** *priority*

no spanning-tree priority *priority*

Operands

priority	Specifies the interface priority for the spanning tree. The range of valid values is from 0 through 240. Port priority is in increments of 16.

Defaults The default value is 128.

Command Modes Interface configuration mode

Description Use this command to change an interface's spanning-tree port priority. Use the **no spanning-tree priority** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples To configure the port priority to 16:

```
switch(conf-if-te-0/1)#spanning-tree priority 16
```

See Also spanning-tree cost, show spanning-tree

spanning-tree restricted-role

Restricts the role of the port from becoming a root port.

Synopsis **spanning-tree restricted-role**

no spanning-tree restricted-role

Operands None

Defaults The restricted role is disabled.

Command Modes Interface configuration mode

Description Use this command to restricts the port from becoming a root port. Use the **no spanning-tree restricted-role** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples To restrict the port from becoming a root port:

```
switch(conf-if-te-0/1)#spanning-tree restricted-role
```

See Also show spanning-tree

spanning-tree restricted-tcn

Restricts the topology change notification (TCN) Bridge Protocol Data Units (BPDUs) sent on the port.

Synopsis **spanning-tree restricted-tcn**

no spanning-tree restricted-tcn

Operands None

Defaults The restricted TCN is disabled.

Command Modes Interface configuration mode

Description Use this command to restrict the topology change notification Bridge Protocol Data Units (BPDUs) sent on the port.

Usage Guidelines There are no usage guidelines for this command.

Examples To restrict the TCN on a specific interface:

```
switch(conf-if-te-0/1)#spanning-tree restricted-tcn
```

See Also show spanning-tree

spanning-tree shutdown

Enables or disables Spanning Tree Protocol (STP) on the interface.

Synopsis

spanning-tree shutdown

no spanning-tree shutdown

Operands

None

Defaults

Spanning Tree Protocol is not enabled.

Command Modes

Interface configuration mode

Description

Use this command to disable STP on the interface or VLAN. Use the **no spanning-tree shutdown** command to enable STP on the interface or VLAN.

Once all of the interface ports have been configured for a VLAN, you can enable STP for all members of the VLAN with a single command. Whichever protocol is currently selected is used by the VLAN. Only one type of STP can be active at a time.

A physical interface port can be a member of multiple VLANs. For example, a physical port can be a member of VLAN 100 and VLAN 55 simultaneously. In addition, VLAN 100 can have STP enabled and VLAN 55 can have STP disabled simultaneously.

Usage Guidelines

There are no usage guidelines for this command.

Examples

To disable STP on a specific interface:

```
switch(config)#interface tengigabitethernet 0/1
switch(conf-if-te-0/1)#spanning-tree shutdown
```

To enable STP on VLAN 100 :

```
switch(config)#interface vlan 100
switch(conf-if-vl-100)#no spanning-tree shutdown
```

See Also

protocol spanning-tree

spanning-tree tc-flush-standard

Flushes the Media Access Control (MAC) address based on the optimal scheme.

Synopsis **spanning-tree tc-flush-standard**

no spanning-tree tc-flush-standard

Operands None

Defaults MAC address flushing is enabled.

Command Modes Global configuration mode

Description Use this command to flush the MAC address based on the optimal scheme. Use the **no spanning-tree tc-flush-standard** command to disable the MAC address flushing.

Usage Guidelines There are no usage guidelines for this command.

Examples To disable the MAC address flushing upon receiving any topology change notification:

```
switch(config)#no spanning-tree tc-flush-standard
```

See Also show spanning-tree brief

switchport

Puts the interface to Layer 2 mode and sets the switching characteristics of the Layer 2 interface to the defaults.

Synopsis **switchport**

no switchport

Operands None

Defaults By default, all Layer 2 interfaces are mapped to default VLAN 1 and the interface is set to access mode.

Command Modes Interface configuration mode

Description Use this command to set the switching characteristics of the Layer 2 interface. Use the **no switchport** command to take the switch out of the Layer 2 mode.

Usage Guidelines For changing the interface configuration mode to trunk or changing the default VLAN mapping, use additional **switchport** commands.

Examples To put an interface in Layer 2 mode:

```
switch(conf-if-te-0/1)#switchport
```

To remove an interface from Layer 2 mode:

```
switch(conf-if-te-0/1)#no switchport
```

See Also show vlan, show interface, switchport mode, switchport access, switchport trunk

switchport access

Sets the Layer 2 interface as access.

Synopsis **switchport access vlan** *vlan_id*

no switchport access vlan

Operands

vlan *vlan_id*	Sets the port VLAN (PVID) to the specified *vlan_id*. The range of valid values is from 1 through 3583.

Defaults By default, all Layer 2 interfaces are in access mode and belong to the VLAN ID 1.

Command Modes Interface configuration mode

Description Use this command to set the Layer 2 interface as access. In access mode, the interface only allows untagged and priority tagged packets. Use the **no switchport access vlan** command to set the PVID to the default VLAN 1.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the Layer 2 interface PVID to 100:

```
switch(conf-if-te-0/19)#switchport access vlan 100
```

See Also show vlan, show interface, switchport mode, switchport trunk

switchport converged

Adds or removes native and tagged VLANs on a Layer 2 interface.

Synopsis **switchport converged** {**vlan** *vlan_id* | **allowed vlan** {**add** *vlan_id* | **all** | **none** | **remove** *vlan_id*}}

no switchport converged

Operands

vlan *vlan_id*	Sets the default native VLAN for the Layer 2 interface.
allowed vlan	Sets the VLANs that will transmit and receive through the Layer 2 interface.
add *vlan_id*	Adds a VLAN to transmit and receive through the Layer 2 interface. The range of valid values is from 2 through 3583.
all	Allows all VLANs to transmit and receive through the Layer 2 interface.
none	Allows no VLANs to transmit and receive through the Layer 2 interface.
remove *vlan_id*	Removes a VLAN that transmits and receives through the Layer 2 interface. The range of valid values is from 2 through 3583.

Defaults The default native VLAN for a converged interface is 1.

Command Modes Interface configuration mode

Description Converged mode allows tagged and untagged traffic on the interface. The untagged traffic on should be tagged to a VLAN. By default it is assigned to VLAN 1. To change the default VLAN, use the command **switchport converged vlan** <*vlanid*>.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the native VLAN of 200 on an interface:

```
switch(conf-if-te-0/19)#switchport converged vlan 200
```

To set the tagged VLAN on an interface to 100:

```
switch(conf-if-te-0/19)#switchport converged allowed vlan add 100
```

To remove the tagged VLAN 100 from the interface:

```
switch(conf-if-te-0/19)#switchport converged allowed vlan remove 100
```

See Also show vlan, show interface, switchport mode, switchport trunk

switchport mode

Sets the mode of the Layer 2 interface.

Synopsis **switchport mode** {**access** | **trunk** | **converged**}

Operands

access	Sets the Layer 2 interface as access.
trunk	Sets the Layer 2 interface as trunk.
converged	Sets the Layer 2 interface as converged.

Defaults There are no defaults for this command.

Command Modes Interface configuration mode

Description Use this command to set the mode of the Layer 2 interface.

Usage Guidelines Converged mode is not available in interface port-channel configuration mode.

Examples To set the mode of the interface to access:

```
switch(conf-if-te-0/19)#switchport mode access
```

To set the mode of the interface to trunk:

```
switch(conf-if-te-0/19)#switchport mode trunk
```

To set the mode of the interface to converged:

```
switch(conf-if-te-0/19)#switchport mode converged
```

See Also show vlan, show interface, switchport mode, switchport trunk

switchport trunk

Adds or removes tagged VLANs on a Layer 2 interface.

Synopsis

switchport trunk allowed vlan {**add** *vlan_id* | **all** | **except** *vlan_id* | **none** | **remove** *vlan_id*}

no switchport trunk

Operands

allowed vlan	Sets the VLANs that will transmit and receive through the Layer 2 interface.
add *vlan_id*	Adds a VLAN to transmit and receive through the Layer 2 interface. The range of valid values is from 2 through 3583.
all	Allows all VLANs to transmit and receive through the Layer 2 interface.
except *vlan_id*	Allows all VLANs except the VLAN ID to transmit and receive through the Layer 2 interface. The range of valid values is from 2 through 3583.
none	Allows no VLANs to transmit and receive through the Layer 2 interface.
remove *vlan_id*	Removes a VLAN that transmits and receives through the Layer 2 interface. The range of valid values is from 2 through 3583.

Defaults

There are no default configurations for this command.

Command Modes

Interface configuration mode

Description

Use this command to add or remove tagged VLANs on a Layer 2 interface.

Usage Guidelines

There are no usage guidelines for this command.

Examples

To set the tagged VLAN on an interface to 100:

```
switch(conf-if-te-0/19)#switchport truck allowed vlan add 100
```

To remove the tagged VLAN 100 from the interface:

```
switch(conf-if-te-0/19)#switchport truck allowed vlan remove 100
```

See Also

show vlan, show interface, switchport mode, switchport trunk

system-description

Sets the global system description specific to LLDP.

Synopsis **system-description** *line*

no system-description

Operands

line	Specifies a description for the LLDP system. The valid value is a maximum of 50 characters.

Defaults There are no default configurations for this command.

Command Modes Protocol LLDP configuration mode.

Description Use this command to set the global system description specific to LLDP. Use the **no system-description** command to clear the global LLDP system description.

Usage Guidelines There are no usage guidelines for this command.

Examples To set the global system description specific to LLDP:

```
switch(conf-lldp)#system-description Brocade
```

See Also system-name

system-name

Sets the global system name specific to LLDP.

Synopsis **system-name** *name*

Operands

name	Specifies a system name for the LLDP. The valid value is a maximum of 32 characters.

Defaults By default, the host name from the switch is used.

Command Modes Protocol LLDP configuration mode

Description Use this command to set the global system name specific to LLDP.

Usage Guidelines The name used in this command must begin with a letter, and can consist of letters, digits, hyphens, and underscore characters. Spaces are prohibited. Special characters are not supported, and cause the name to truncate.

Examples To specify a system name for the LLDP:

```
switch(conf-lldp)#system-name Brocade
```

See Also system-description

terminal length

Sets the number of lines to display on a screen.

Synopsis **terminal length** *number*

Operands

number	Specifies the number of lines to display on a screen. The range of valid values is from 0 through 512.

Defaults The default length is 24.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to set the number of lines to display on the screen.

Usage Guidelines If 0 (zero), the switch does not pause between screens of output.

Examples To set the number of lines to display on the screen to 30:

```
switch#terminal length 30
```

See Also None

terminal monitor

Displays the RASlog and debug outputs on a terminal.

Synopsis **terminal monitor**

terminal no monitor

Operands None

Defaults The terminal monitor option is disabled.

Command Modes Privileged EXEC mode

EXEC mode

Description Use this command to enable or disable the display of the RASlog and debug outputs on a terminal.

Usage Guidelines There are no usage guidelines for this command.

Examples To enable the display of the RASlog and the debug outputs on a terminal:

```
switch#terminal monitor
```

To disable the display of the RASlog and the debug outputs on a terminal:

```
switch#terminal no monitor
```

See Also None

transmit-holdcount

Configures the maximum number of Bridge Protocol Data Units (BPDUs) transmitted per second for the Multiple Spanning Tree Protocol (MSTP) and the Rapid Spanning Tree Protocol (RSTP).

Synopsis **transmit-holdcount** *number*

no transmit-holdcount

Operands

number	Specifies the value in seconds for the number of BPDUs than can be sent before pausing for one second. The range of valid values is from 1 through 10.

Defaults The default is 6 seconds.

Command Modes Multiple Spanning Tree Protocol configuration mode

Description Use this command to configure the BPDU burst size by changing the transmit hold count value. Use the **no transmit-holdcount** command to return to the default setting.

Usage Guidelines There are no usage guidelines for this command.

Examples To change the number of BPDUs transmitted to 3 seconds:

```
switch(conf-mstp)#transmit-holdcount 3
```

See Also show spanning-tree mst detail

undebug

Exits debug mode.

Synopsis **undebug all**

Operands None

Defaults There are no default values for this command.

Command Modes Privileged EXEC mode

EXEC mode

Description This command disables all debugging functions.

User Guidelines There are no user guidelines for this command.

Examples None

See Also None

vlan classifier activate group

Activates a VLAN classifier group.

Synopsis **vlan classifier activate group** *number* **vlan** *vlan_id*

no vlan classifier activate group

Operands

number	Specifies which VLAN classifier group to activate. The range of valid values is from 1 through 16.
vlan *vlan_id*	Specifies which VLAN interface to activate. The range of valid values is from 1 through 3583.

Defaults There are no default configurations for this command.

Command Modes Interface configuration mode

Description Use this command to activate a VLAN classifier group for a specified VLAN. Use the **no vlan classifier activate group** command to remove the specified group.

Usage Guidelines There are no usage guidelines for this command.

Examples To activate VLAN classifier group 1 for VLAN 5:

```
switch-cmsh(conf-if-te-0/10)#vlan classifier activate group 1 vlan 5
```

See Also None

vlan classifier group

Adds and deletes rules to a VLAN classifier group.

Synopsis **vlan classifier group** *number* {**add rule** *number*| **delete rule** *number*}

no vlan classifier group *number*

Operands

number	Specifies the VLAN group number for which rules are to be added or deleted. The range of valid values is from 1 through 16.
add rule *number*	Specifies a rule is to be added. The range of valid values is from 1 through 256.
delete rule *number*	Specifies a rule is to be deleted. The range of valid values is from 1 through 256.

Defaults There are no default configurations for this command.

Command Modes Global configuration mode

Description Use this command to add and delete rules from VLAN classifier groups.

Usage Guidelines Use the **no vlan classifier group** *number* to delete a classifier group.

Examples To add rule 1 to VLAN classifier group 1:

```
switch(config)#vlan classifier group 1 add rule 1
```

See Also None

vlan classifier rule

Creates a VLAN classifier rule.

Synopsis

vlan classifier rule *rule_id* [**mac** *mac_address*] {**proto** {*hex_addr* **encap** {**ethv2** | **nosnapllc** | **snapllc**} | **arp encap** {**ethv2** | **nosnapllc** | **snapllc**} | **ip encap** {**ethv2** | **nosnapllc** | **snapllc**} | **ipv6 encap** {**ethv2** | **nosnapllc** | **snapllc**}

no vlan classifier rule

Operands

rule_id	Specifies the VLAN identification rule. The range of valid values is from 1 through 256.
mac	Specifies the Media Access Control (MAC) list.
mac_address	Specifies the MAC address-based VLAN classifier rule used to map to a specific VLAN.
proto	Specifies the protocol to use for the VLAN classifier rule.
hex_addr	An Ethernet hexadecimal value. The range of valid values is from 0x0000 through 0xffff
arp	Specifies to use the Address Resolution Protocol.
ip	Specifies to use the Internet Protocol.
ipv6	Specifies to use the Internet Protocol version 6.
encap	Specifies to encapsulate the Ethernet frames sent for the VLAN classifier rule.
ethv2	Specifies to use the Ethernet version 2 encapsulated frames.
nosnapllc	Specifies to use the Ethernet version 2 non-SNA frames.
snapllc	Specifies to use the Ethernet version 2 with SNA frames.

Defaults

There are no default configurations for this command.

Command Modes

Global configuration mode

Description

Use this command to dynamically classify Ethernet packets on an untagged interface into VLANs. Use the **no vlan classifier rule** *rule_id* command to delete the rule.

Usage Guidelines

VLAN classifiers are created individually and are managed separately. Up to 256 VLAN classifiers can be provisioned. One or more VLAN classifiers can be grouped into a classifier group. This classifier group can further be applied on an interface.

Examples

To create an ARP VLAN classifier rule:

```
switch(config)#vlan classifier rule 2 proto arp encap ethv2
```

See Also

show vlan

write erase

Removes the startup configuration from the switch.

Synopsis **write erase**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

Description Use this command to remove a startup configuration.

Usage Guidelines Executing the **write erase** command causes the running-configuration file for the switch is erased.

Examples To clear a startup configuration:

```
switch#write erase
```

See Also write memory

write memory

Copies the current running configuration to the startup configuration file.

Synopsis **write memory**

Operands None

Defaults There are no default configurations for this command.

Command Modes Privileged EXEC mode

Description Use this command to copy the current running configuration to the startup configuration file.

Usage Guidelines There are no usage guidelines for this command.

Examples To write configuration data to the startup configuration file:

```
switch#write memory
Overwrite the startup config file (y/n): y
Building configuration...
```

See Also write erase