



CHAPTER 23

T Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See [“About the CLI Command Modes”](#) section on page 1-3 to determine the appropriate mode for each command.

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tacacs+ abort

To discard a TACACS+ Cisco Fabric Services (CFS) distribution session in progress, use the **tacacs+ abort** command in configuration mode.

tacacs+ abort

Syntax Description	This command has no other arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	Configuration mode.
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Command History	Release	Modification
	2.0(x)	This command was introduced.

Usage Guidelines	To use this command, TACACS+ must be enabled using the tacacs+ enable command.
-------------------------	---

Examples	The following example shows how to discard a TACACS+ CFS distribution session in progress:
-----------------	--

```
switch# config terminal
switch(config)# tacacs+ abort
```

Related Commands	Command	Description
	show tacacs+	Displays TACACS+ CFS distribution status and other details.
	tacacs+ distribute	Enables CFS distribution for TACACS+.
	tacacs+ enable	Enables TACACS+.

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tacacs+ commit

To apply the pending configuration pertaining to the TACACS+ Cisco Fabric Services (CFS) distribution session in progress in the fabric, use the **tacacs+ commit** command in configuration mode.

tacacs+ commit

Syntax Description	This command has no other arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	Configuration mode.
----------------------	---------------------

Command History	Release	Modification
	2.0(x)	This command was introduced.

Usage Guidelines	To use this command, TACACS+ must be enabled using the tacacs+ enable command.
-------------------------	---

Examples	The following example shows how to apply a TACACS+ configuration to the switches in the fabric:
	<pre>switch# config terminal switch(config)# tacacs+ commit</pre>

Related Commands	Command	Description
	show tacacs+	Displays TACACS+ CFS distribution status and other details.
	tacacs+ enable	Enables TACACS+.
	tacacs+ distribute	Enables CFS distribution for TACACS+.

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tacacs+ distribute

To enable Cisco Fabric Services (CFS) distribution for TACACS+, use the **tacacs+ distribute** command. To disable this feature, use the **no** form of the command.

tacacs+ distribute

no tacacs+ distribute

Syntax Description This command has no other arguments or keywords.

Defaults Disabled.

Command Modes Configuration mode.

Command History	Release	Modification
	2.0(x)	This command was introduced.

Usage Guidelines To use this command, TACACS+ must be enabled using the **tacacs+ enable** command.

Examples The following example shows how to enable TACACS+ fabric distribution:

```
switch# config terminal
switch(config)# tacacs+ distribute
```

Related Commands	Command	Description
	show tacacs+	Displays TACACS+ CFS distribution status and other details.
	tacacs+ commit	Commits TACACS+ database changes to the fabric.
	tacacs+ enable	Enables TACACS+.

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tacacs+ enable

To enable TACACS+ in a switch, use the **tacacs+ enable** command in configuration mode. To disable this feature, use the **no** form of the command.

tacacs+ enable

no tacacs+ enable

Syntax Description This command has no arguments or keywords.

Defaults None.

Command Modes Configuration mode.

Command History	Release	Modification
	1.3(1)	This command was introduced.
	NX-OS 4.1(1b)	This command was deprecated.

Usage Guidelines Additional TACACS+ commands are only available when the TACACS+ feature is enabled. Using SHA-1 as the hash algorithm may prevent RADIUS or TACACS+ usage.

Examples The following example shows how to enable TACACS+ in a switch:

```
switch# config terminal
switch(config)# tacacs+ enable
```

Related Commands	Command	Description
	show tacacs+	Displays TACACS+ server information.

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tacacs-server deadtime

To set a periodic time interval where a nonreachable (nonresponsive) TACACS+ server is monitored for responsiveness, use the **tacacs-server deadtime** command. To disable the monitoring of the nonresponsive TACACS+ server, use the **no** form of the command.

tacacs-server deadtime *time*

no tacacs-server deadtime *time*

Syntax Description	<i>time</i> Specifies the time interval in minutes. The range is 1 to 1440.	
Defaults	Disabled.	
Command Modes	Configuration mode.	
Command History	Release	Modification
	3.0(1)	This command was introduced.
Usage Guidelines	Setting the time interval to zero disables the timer. If the dead time interval for an individual TACACS+ server is greater than zero (0), that value takes precedence over the value set for the server group. When the dead time interval is 0 minutes, TACACS+ server monitoring is not performed unless the TACACS+ server is part of a server group and the dead time interval for the group is greater than 0 minutes.	
Examples	The following example shows how to set a duration of 10 minutes: <pre>switch# config terminal switch(config)# tacacs-server deadtime 10</pre>	
Related Commands	Command	Description
	deadtime	Sets a time interval for monitoring a nonresponsive TACACS+ server.
	show tacacs-server	Displays all configured TACACS+ server parameters.

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tacacs-server directed-request

To specify a TACACS+ server to send authentication requests to when logging in, use the **tacacs-server directed-request** command. To revert to sending the authentication request to the configured group, use the **no** form of the command.

tacacs-server directed-request

no tacacs-server directed-request

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	Disabled.
-----------------	-----------

Command Modes	Configuration mode.
----------------------	---------------------

Command History	Release	Modification
	3.0(1)	This command was introduced.

Usage Guidelines	The user can specify the <i>username@servername</i> during login. The user name is sent to the server name for authentication.
-------------------------	--

Examples	The following example shows how to specify a TACACS+ server to send authentication requests when logging in:
-----------------	--

```
switch# config terminal
switch(config)# tacacs-server directed-request
```

Related Commands	Command	Description
	show tacacs-server	Displays all configured TACACS+ server parameters.
	show tacacs-server directed request	Displays a directed request TACACS+ server configuration.

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tacacs-server host

To configure TACACS+ server options on a switch, use the **tacacs-server host** command in configuration mode. Use the **no** form of the command to revert to factory defaults.

tacacs-server host {*server-name* | *ipv4-address* | *ipv6-address*} [**key** [0|7] *shared-secret*] [**port** *port-number*] [**test** {**idle-time** *time* | **password** *password* | **username** *name*}] [**timeout** *seconds*]

no tacacs-server host {*server-name* | *ipv4-address* | *ipv6-address*} [**key** [0|7] *shared-secret*] [**port** *port-number*] [**test** {**idle-time** *time* | **password** *password* | **username** *name*}] [**timeout** *seconds*]

Syntax Description

<i>server-name</i>	Specifies the TACACS+ server DNS name. The maximum character size is 256.
<i>ipv4-address</i>	Specifies the TACACS+ server IP address. in the format <i>A.B.C.D</i> .
<i>ipv6-address</i>	Specifies the TACACS+ server IP address in the format <i>X:X::X</i> .
key	(Optional) Configures the TACACS+ server's shared secret key.
0	(Optional) Configures a preshared key specified in clear text (indicated by 0) to authenticate communication between the TACACS+ client and server. This is the default.
7	(Optional) Configures a preshared key specified in encrypted text (indicated by 7) to authenticate communication between the TACACS+ client and server.
<i>shared secret</i>	(Optional) Configures a preshared key to authenticate communication between the TACACS+ client and server.
port <i>port-number</i>	(Optional) Configures a TACACS+ server port for authentication. The range is 1 to 65535.
test	(Optional) Configures parameters to send test packets to the TACACS+ server.
idle-time <i>time</i>	(Optional) Specifies the time interval (in minutes) for monitoring the server. The time range is 1 to 1440 minutes.
password <i>password</i>	(Optional) Specifies a user password in the test packets. The maximum size is 32.
username <i>name</i>	(Optional) Specifies a user name in the test packets. The maximum size is 32.
timeout	(Optional) Configures a TACACS+ server timeout period.
<i>seconds</i>	(Optional) Specifies the timeout (in seconds) between retransmissions to the TACACS+ server. The range is 1 to 60 seconds.

Defaults

Idle-time is not set. Server monitoring is turned off.
Timeout is 1 second.
Username is test.
Password is test.

Command Modes

Configuration mode.

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Command History	Release	Modification
	1.3(1)	This command was introduced.
	3.0(1)	Added the <i>ipv6-address</i> argument and the test option.

Usage Guidelines This command is only available when the TACACS+ feature is enabled using the **tacacs+ enable** command.

When the idle time interval is 0 minutes, periodic TACACS+ server monitoring is not performed.

Examples The following example configures TACACS+ authentication:

```
switch# config terminal
switch(config)# tacacs-server host 10.10.2.3 key HostKey
switch(config)# tacacs-server host tacacs2 key 0 abcd
switch(config)# tacacs-server host tacacs3 key 7 1234
switch(config)# tacacs-server host 10.10.2.3 test idle-time 10
switch(config)# tacacs-server host 10.10.2.3 test username tester
switch(config)# tacacs-server host 10.10.2.3 test password 2B9ka5
```

Related Commands	Command	Description
	show tacacs-server	Displays TACACS+ server information.
	tacacs+ enable	Enables TACACS+.

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tacacs-server key

To configure a global TACACS+ shared secret, use the **tacacs-server key** command. Use the **no** form of this command to removed a configured shared secret.

tacacs-server key [**0** | **7**] *shared-secret*

no tacacs-server key [**0** | **7**] *shared-secret*

Syntax Description	key	Specifies a global TACACS+ shared secret.
	0	(Optional) Configures a preshared key specified in clear text (indicated by 0) to authenticate communication between the TACACS+ client and server. This is the default.
	7	(Optional) Configures a preshared key specified in encrypted text (indicated by 7) to authenticate communication between the TACACS+ client and server.
	<i>shared-secret</i>	Configures a preshared key to authenticate communication between the TACACS+ client and server.

Defaults None.

Command Modes Configuration mode.

Command History	Release	Modification
	1.0(2)	This command was introduced.

Usage Guidelines You need to configure the TACACS+ preshared key to authenticate the switch to the TACACS+ server. The length of the key is restricted to 65 characters and can include any printable ASCII characters (white spaces are not allowed). You can configure a global key to be used for all TACACS+ server configurations on the switch. You can override this global key assignment by explicitly using the **key** option in the **tacacs-server host** command.

This command is only available when the TACACS+ feature is enabled using the **tacacs+ enable** command.

Examples The following example configures TACACS+ server shared keys:

```
switch# config terminal
switch(config)# tacacs-server key AnyWord
switch(config)# tacacs-server key 0 AnyWord
switch(config)# tacacs-server key 7 public
```

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Related Commands	Command	Description
	show tacacs-server	Displays TACACS+ server information.
	tacacs+ enable	Enable TACACS+.

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tacacs-server test

To configure a parameter to send test packets, use the **tacacs-server test** command. To disable this feature, use the **no** form of the command.

tacacs-server test {{**username** {*username*} | {{**password** {*password*} [**idle-time** {*time*}}] | [**idle-time** {*time*}}] }} | {**password** {*password*} [**idle-time** {*time*}] } | {**idle-time** {*time*} } }

no tacacs-server test {{**username** {*username*} | {{**password** {*password*} [**idle-time** {*time*}}] | [**idle-time** {*time*}}] }} | {**password** {*password*} [**idle-time** {*time*}] } | {**idle-time** {*time*} } }

Syntax Description

username	Specifies the username in test packets.
<i>user name</i>	Specifies user name. The maximum size is 32 characters.
password	(Optional) Specifies the user password in test packets.
<i>password</i>	Specifies the user password. The maximum size is 32 characters.
idle-time	(Optional) Specifies the time interval for monitoring the server.
<i>time period</i>	Specifies the time period in minutes. The range is from 1 to 4440.

Defaults

None.

Command Modes

Configuration mode.

Command History

Release	Modification
NX-OS 5.0(1a)	This command was introduced.

Usage Guidelines

Defaults will be used for anything not provided by CLI. Also doing a "no" of any parameters will revert it back to default.

Examples

The following example shows how to display the username in test packets:

```
switch# config t
switch(config)# tacacs-server test username test idle-time 0
switch(config)# tacacs-server test username test password test idle-time 1
switch(config)#
```

The following example shows how to display the time interval for monitoring the server:

```
switch(config)# tacacs-server test idle-time 0
switch(config)#
```

The following example shows how to display the user password in test packets:

```
switch(config)# tacacs-server test password test idle-time 0
switch(config)#
```

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Related Commands	Command	Description
	show tacacs-server	Displays TACACS+ server information.
	tacacs+ enable	Enable TACACS+.

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tacacs-server timeout

To specify the time between retransmissions to the TACACS+ servers, use the **tacacs-server timeout** command. You can revert the retransmission time to its default by using the **no** form of the command.

tacacs-server timeout *seconds*

no tacacs-server timeout *seconds*

Syntax Description	<i>seconds</i> Specifies the time (in seconds) between retransmissions to the RADIUS server. The default is one (1) second and the valid range is 1 to 60 seconds.							
Defaults	None.							
Command Modes	Configuration mode.							
Command History	<table><tr><th>Release</th><th>Modification</th></tr><tr><td>1.3(2)</td><td>This command was introduced.</td></tr></table>		Release	Modification	1.3(2)	This command was introduced.		
Release	Modification							
1.3(2)	This command was introduced.							
Usage Guidelines	This command is only available when the TACACS+ feature is enabled using the tacacs+ enable command.							
Examples	The following example configures the TACACS+ server timeout value: switch# config terminal switch(config)# tacacs-server timeout 30							
Related Commands	<table><tr><th>Command</th><th>Description</th></tr><tr><td>show tacacs-server</td><td>Displays TACACS+ server information.</td></tr><tr><td>tacacs+ enable</td><td>Enable TACACS+.</td></tr></table>		Command	Description	show tacacs-server	Displays TACACS+ server information.	tacacs+ enable	Enable TACACS+.
Command	Description							
show tacacs-server	Displays TACACS+ server information.							
tacacs+ enable	Enable TACACS+.							

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tail

To display the last lines (tail end) of a specified file, use the **tail** command in EXEC mode.

tail *filename* [*number-of-lines*]

Syntax Description	<i>filename</i>	The name of the file for which you want to view the last lines.
	<i>number-of-lines</i>	(Optional) The number of lines you want to view. The range is 0 to 80 lines.

Defaults	Displays the last 10 lines.
-----------------	-----------------------------

Command Modes	EXEC mode.
----------------------	------------

Command History	Release	Modification
	1.0(2)	This command was introduced.

Usage Guidelines	You need two separate CLI terminals to use this command. In one terminal, execute the run-script or any other desired command. In the other, enter the tail command for the mylog file. On the second terminal session, you will see the last lines of the mylog file (as it grows) that is being saved in response to the command issued in the first terminal.
-------------------------	--

If you specify a long file and would like to exit in the middle, press **Ctrl-C** to exit this command.

Examples	The following example displays the last lines (tail end) of a specified file:
-----------------	--

```
switch# run-script slot0:test mylog
```

In another terminal, enter the **tail** command for the mylog file:

```
switch# tail mylog
config terminal
```

In the second CLI terminal, you see the last lines of the mylog file (as it grows) that is being saved in response to the command entered in the first terminal.

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tape-bkgrp

To configure a crypto tape backup group, use the **tape-bkgrp** command. Use the **no** form of this command to disable this feature.

tape-bkgrp *groupname*

no tape-bkgrp *groupname*

Syntax Description	<i>groupname</i> Specifies the backup tape group.
---------------------------	---

Defaults	None.
-----------------	-------

Command Modes	Cisco SME cluster configuration mode submode.
----------------------	---

Command History	Release	Modification
	3.2(2)	This command was introduced.

Usage Guidelines	A tape volume group is a group of tapes that are categorized by function. For example, HR1 could be designated tape volume group for all Human Resources backup tapes. Adding tape groups allows you to select VSANs, hosts, storage devices, and paths that Cisco SME will use for encrypted data. For example, adding a tape group for HR data sets the mapping for Cisco SME to transfer data from the HR hosts to the dedicated HR backup tapes.
-------------------------	--

Examples	The following example adds a backup tape group:
-----------------	---

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-bkgrp group1
switch(config-sme-cl-tape-bkgrp)#
```

The following example removes a backup tape group:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# no tape-bkgrp group1
switch(config-sme-cl-tape-bkgrp)#
```

Related Commands	Command	Description
	clear sme	Clears Cisco SME configuration.
	show sme cluster	Displays information about the Cisco SME cluster

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tape compression

To configure tape compression, use the **tape-compression** command. To disable this feature, use the **no** form of the command.

tape-compression

no tape-compression

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	Cisco SME cluster configuration submode.
----------------------	--

Command History	Release	Modification
	3.2(2)	This command was introduced.

Usage Guidelines	Use this command to compress encrypted data.
-------------------------	--

Examples	The following example enables tape compression:
-----------------	---

```
switch#config t
switch(config)#sme cluster c1
switch(config-sme-c1)#tape-compression
```

The following example disables tape compression:

```
switch#config t
switch(config)#sme cluster c1
switch(config-sme-c1)#no tape-compression
```

Related Commands	Command	Description
	clear sme	Clears Cisco SME configuration.
	show sme cluster	Displays information about the Cisco SME cluster.
	show sme cluster tape	Displays information about all tape volume groups or a specific group.

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tape-device

To configure a crypto tape device, use the **tape-device** command. To disable this feature, use the **no** form of the command.

tape-device *device name*

no tape-device *device name*

Syntax Description	<i>device name</i> Specifies the name of the tape device.
---------------------------	---

Defaults	None.
-----------------	-------

Command Modes	Cisco SME tape volume configuration submode.
----------------------	--

Command History	Release	Modification
	3.2(2)	This command was introduced.

Usage Guidelines	The tape device commands are available in the (config-sme-cl-tape-bkgrp-tapedevice) submode.
-------------------------	---

Examples	The following example configures a crypto tape device:
-----------------	--

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-bkgrp group1
switch(config-sme-cl-tape-bkgrp)# tape-device devicename1
switch(config-sme-cl-tape-bkgrp-tapedevice)#
```

The following example removes a crypto tape device:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-bkgrp group1
switch(config-sme-cl-tape-bkgrp)# no tape-device devicename1
switch(config-sme-cl-tape-bkgrp-tapedevice)#
```

Related Commands	Command	Description
	clear sme	Clears Cisco SME configuration.
	show sme cluster	Displays information about the Cisco SME cluster
	show sme cluster tape	Displays information about all tape volume groups or a specific group

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tape-keyrecycle

To configure tape key recycle policy, use the **tape-keyrecycle** command. To disable this feature, use the **no** form of the command.

tape-keyrecycle

no tape-keyrecycle

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	Cisco SME cluster configuration submode.
----------------------	--

Command History	Release	Modification
	3.2(2)	This command was introduced.

Usage Guidelines	Cisco SME allows you to recycle the tape keys. If you enable tape key recycling, all the previous instances of the tape key will be deleted. If you do not enable tape key recycle, all the previous instances and the current instance of the tape key is maintained, and the current instance is incremented by 1.
-------------------------	--

Examples	The following example enables tape key recycling:
-----------------	---

```
switch# config t
switch(config) #sme cluster c1
switch(config-sme-cl) #tape-keyrecycle
```

The following example disables tape key recycling:

```
switch# config t
switch(config) #sme cluster c1
switch(config-sme-cl) #no tape-keyrecycle
```

Related Commands	Command	Description
	clear sme	Clears Cisco SME configuration.
	show sme cluster	Displays information about the Cisco SME cluster

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tape-read command-id

To configure a SCSI tape read command for a SAN tuner extension N port, use the **tape-read command-id** command.

tape-read command-id *cmd-id* **target** *pwwn* **transfer-size** *bytes* [**continuous** [**filemark-frequency** *frequency*]] | **num-transactions** *number* [**filemark-frequency** *frequency*]]

Syntax Description	<i>cmd-id</i>	Specifies the command identifier. The range is 0 to 2147483647.
	target <i>pwwn</i>	Specifies the target port WWN. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> .
	transfer-size <i>bytes</i>	Specifies the transfer size in multiples of 512 bytes. The range is 512 to 8388608.
	continuous	(Optional) Specifies that the command is performed continuously.
	filemark-frequency <i>frequency</i>	(Optional) Specifies the filemark frequency. The range is 1 to 2147483647.
	num-transactions <i>number</i>	(Optional) Specifies a number of transactions. The range is 1 to 2147483647.

Defaults Filemark frequency: 0.

Command Modes SAN extension N port configuration submode.

Command History	Release	Modification
	3.0(1)	This command was introduced.

Usage Guidelines To stop a continuous SCSI tape read command in progress, use the **stop command-id** command.



Note

There can be just one outstanding I/O at a time to the virtual N port that emulates the tape behavior.

Examples

The following example configures a single SCSI tape read command:

```
switch# san-ext-tuner
switch(san-ext)# nwwn 10:00:00:00:00:00:00:00
switch(san-ext)# nport pwwn 12:00:00:00:00:00:00:56 vsan 13 interface gigabitethernet
1/2
switch(san-ext-nport)# tape-read command-id 100 target 22:22:22:22:22:22:22:22
transfer-size 512000 num-transactions 5000000 filemark-frequency 32
```

The following example configures a continuous SCSI tape read command.

```
switch# san-ext-tuner
switch(san-ext)# nwwn 10:00:00:00:00:00:00:00
```

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```
switch(san-ext)# nport pwn 12:00:00:00:00:00:56 vsan 13 interface gigabitethernet
1/2
switch(san-ext-nport)# tape-read command-id 100 target 22:22:22:22:22:22:22:22
transfer-size 512000 continuous filemark-frequency 32
```

Related Commands

Command	Description
nport pwn	Configures a SAN extension tuner N port.
san-ext-tuner	Enables the SAN extension tuner feature.
show san-ext-tuner	Displays SAN extension tuner information.
stop	Cancels a SCSI command in progress on a SAN extension tuner N port.

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tape-volgrp

To configure the crypto tape volume group, use the **tape-volgrp** command. To disable this command, use the **no** form of the command.

tape-volgrp *group name*

no tape-volgrp *group name*

Syntax Description	<i>group name</i> Specifies the tape volume group name.
---------------------------	---

Defaults	None.
-----------------	-------

Command Modes	Cisco SME crypto backup tape group configuration submode.
----------------------	---

Command History	Release	Modification
	3.2(2)	This command was introduced.

Usage Guidelines	The tape volume group commands are available in the Cisco SME crypto tape volume group (config-sme-cl-tape-bkgrp-volgrp) submode.
-------------------------	--

Examples	The following example configures a crypto tape volume group:
-----------------	--

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-bkgrp tbg1
switch(config-sme-cl-tape-bkgrp)# tape-volgrp tv1
switch(config-sme-cl-tape-bkgrp-volgrp)#
```

The following example removes a crypto tape volume group:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-bkgrp tbg1
switch(config-sme-cl-tape-bkgrp)# no tape-volgrp tv1
```

Related Commands	Command	Description
	clear sme	Clears Cisco SME configuration.
	show sme cluster tape	Displays information about tapes

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tape-write command-id

To configure a SCSI tape write command for a SAN tuner extension N port, use the **tape-write command-id** command.

tape-write command-id *cmd-id* **target** *pwwn* **transfer-size** *bytes* [**continuous** [**filemark-frequency** *frequency*] | **num-transactions** *number* [**filemark-frequency** *frequency*]]

Syntax Description	<i>cmd-id</i>	Specifies the command identifier. The range is 0 to 2147483647.
	target <i>pwwn</i>	Specifies the target port WWN. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> .
	transfer-size <i>bytes</i>	Specifies the transfer size in multiples of 512 bytes. The range is 512 to 8388608.
	continuous	(Optional) Specifies that the command is performed continuously.
	filemark-frequency <i>frequency</i>	(Optional) Specifies the filemark frequency. The range is 1 to 2147483647.
	num-transactions <i>number</i>	(Optional) Specifies a number of transactions. The range is 1 to 2147483647.

Defaults Filemark frequency: 0.

Command Modes SAN extension N port configuration submode.

Command History	Release	Modification
	3.0(1)	This command was introduced.

Usage Guidelines To stop a continuous SCSI tape write command in progress, use the **stop command-id** command.



Note

There can be just one outstanding I/O at a time to the virtual N port that emulates the tape behavior.

Examples The following example configures a single SCSI tape write command:

```
switch# san-ext-tuner
switch(san-ext)# nwwn 10:00:00:00:00:00:00:00
switch(san-ext)# nport pwwn 12:00:00:00:00:00:00:56 vsan 13 interface gigabitethernet 1/2
switch(san-ext-nport)# tape-write command-id 100 target 22:22:22:22:22:22:22:22
transfer-size 512000 num-transactions 5000000 filemark-frequency 32
```

The following example configures a continuous SCSI tape write command:

```
switch# san-ext-tuner
switch(san-ext)# nwwn 10:00:00:00:00:00:00:00
```

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```
switch(san-ext)# nport pwwn 12:00:00:00:00:00:56 vsan 13 interface gigabitethernet
1/2
switch(san-ext-nport)# tape-write command-id 100 target 22:22:22:22:22:22:22
transfer-size 512000 continuous filemark-frequency 32
```

Related Commands

Command	Description
nport pwwn	Configures a SAN extension tuner N port.
san-ext-tuner	Enables the SAN extension tuner feature.
show san-ext-tuner	Displays SAN extension tuner information.
stop	Cancels a SCSI command in progress on a SAN extension tuner N port.

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target (iSLB initiator configuration)

To configure an iSLB initiator target, use the **target** command in iSLB initiator configuration submode. To remove the target configuration, use the **no** form of the command.

target { **device-alias** *device-alias* | **pwwn** *pWWN* } [**vsan** *vsan-id*] [**no-zone**] [**trespass**]
 [**revert-primary-port**] [**fc-lun** *LUN* **iscsi-lun** *LUN*] [**sec-device-alias** *device-alias* | **sec-pwwn** *pWWN*] [**sec-vsan** *sec-vsan-id*] [**sec-lun** *LUN*] [**iqn-name** *target-name*]

no target { **device-alias** *device-alias* | **pwwn** *pWWN* } [**vsan** *vsan-id*] [**no-zone**] [**trespass**]
 [**revert-primary-port**] [**fc-lun** *LUN* **iscsi-lun** *LUN*] [**sec-device-alias** *device-alias* | **sec-pwwn** *pWWN*] [**sec-vsan** *sec-vsan-id*] [**sec-lun** *LUN*] [**iqn-name** *target-name*]

Syntax Description		
device-alias <i>device-alias</i>		Specifies the device alias of the Fibre Channel target.
pwwn <i>pWWN</i>		Specifies the pWWN of the Fibre Channel target. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> .
vsan <i>vsan-id</i>		(Optional) Assigns VSAN membership to the initiator target. (Optional) Specifies the VSAN ID. The range is 1 to 4093.
no-zone		(Optional) Indicates no automatic zoning.
trespass		(Optional) Enables trespass support.
revert-primary-port		(Optional) Reverts to the primary port when it comes back up.
fc-lun <i>LUN</i>		(Optional) Specifies the Fibre Channel LUN of the Fibre Channel target. The format is <i>0xhhhh[:hhhh[:hhhh[:hhhh]]]</i> .
iscsi-lun <i>LUN</i>		(Optional) Specifies the iSCSI LUN. The format is <i>0xhhhh[:hhhh[:hhhh[:hhhh]]]</i> .
sec-device-alias <i>target-device-alias</i>		(Optional) Specifies the device alias of the secondary Fibre Channel target. (Optional) Specifies the initiator's target device alias. The maximum size is 64.
sec-pwwn <i>pWWN</i>		(Optional) Specifies the pWWN of the secondary Fibre Channel target. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> .
sec-vsan <i>sec-vsan-id</i>		(Optional) Assigns VSAN membership to the initiator. (Optional) Specifies the VSAN ID. The range is 1 to 4093.
sec-lun <i>LUN</i>		(optional) Specifies the FC LUN of the secondary Fibre Channel target. The format is <i>0xhhhh[:hhhh[:hhhh[:hhhh]]]</i> .
iqn-name <i>target-name</i>		(Optional) Specifies the name of the target. Specifies the initiator's target name. The maximum size is 223.

Defaults None.

Command Modes iSLB initiator configuration submode.

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Command History

Release	Modification
3.0(1)	This command was introduced.

Usage Guidelines

You can configure an iSLB initiator target using the device alias or the pWWN. You have the option of specifying one or more of the following optional parameters:

- Secondary pWWN
- Secondary device alias
- LUN mapping
- IQN
- VSAN identifier



Note

The VSAN identifier is optional if the target is online. If the target is not online, the VSAN identifier is required.

If you configure an IQN for an initiator target, then that name is used to identify the initiator target. Otherwise, a unique IQN is generated for the initiator target.

Examples

The following example configures an iSLB initiator using an IP address and then enters iSLB initiator configuration submode:

```
switch# config t
switch(config)# islb initiator ip-address 209.165.200.226
```

The following example grants iSLB initiator access to the target using a pWWN with auto zoning enabled (default):

```
switch (config-islb-init)# target pwn 26:00:01:02:03:04:05:06
```

The following example grants iSLB initiator access to the target using a pWWN with auto zoning disabled:

```
switch (config-islb-init)# target pwn 26:00:01:02:03:04:05:06 no-zone
```

The following example grants iSLB initiator access to the target using a device alias and optional LUN mapping:

```
switch(config-islb-init)# target device-alias SampleAlias fc-lun 0x1234 iscsi-lun 0x2345
```

The following example grants iSLB initiator access to the target using a device alias and an optional IQN:

```
switch(config-islb-init)# target device-alias SampleAlias iqn-name  
iqn.1987-01.com.cisco.initiator
```

The following example grants iSLB initiator access to the target using a device alias and a VSAN identifier:

```
switch(config-islb-init)# target device-alias SampleAlias vsan 10
```

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**Note**

The VSAN identifier is optional if the target is online. If the target is not online, the VSAN identifier is required.

The following example disables the configured iSLB initiator target.

```
switch (config-islb-init)# no target pwn 26:00:01:02:03:04:05:06
```

Related Commands

Command	Description
islb initiator	Assigns an iSLB name and IP address to the iSLB initiator and enters iSLB initiator configuration submode.
show islb initiator	Displays iSLB CFS information.
show islb initiator detail	Displays detailed iSLB initiator information.
show islb initiator summary	Displays iSLB initiator summary information.

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tcp cwm

To configure congestion window monitoring (CWM) TCP parameters, use the **tcp cwm** command. Use the **no** form of this command to disable this feature or revert to its factory defaults.

tcp cwm [**burstsize** *size*]

no tcp cwm [**burstsize** *size*]

Syntax Description	burstsize <i>size</i> (Optional) Specifies the burstsize ranging from 10 to 100 KB.	
Defaults	Enabled. The default FCIP burst size is 10 KB. The default iSCSI burst size is 50 KB	
Command Modes	FCIP profile configuration submode.	
Command History	Release	Modification
	1.3(4)	This command was introduced.
Usage Guidelines	Use these TCP parameters to control TCP retransmission behavior in a switch.	
Examples	The following example configures a FCIP profile and enables congestion monitoring: <pre>switch# config terminal switch(config)# fcip profile 5 switch(config-profile)# tcp cwm</pre> The following example assigns the burstsize value at 20 KB: <pre>switch(config-profile)# tcp cwm burstsize 20</pre> The following example disables congestion monitoring: <pre>switch(config-profile)# no tcp cwm</pre> The following example leaves the CWM feature in an enabled state but changes the burstsize to the default of 10 KB: <pre>switch(config-profile)# no tcp cwm burstsize 25</pre>	
Related Commands	Command	Description
	fcip profile	Configures FCIP profile parameters.
	show fcip profile	Displays FCIP profile information.

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tcp keepalive-timeout

To configure the interval between which the TCP connection verifies if the FCIP link is functioning, use the **tcp keepalive-timeout** command. Use the **no** form of this command to disable this feature or revert to its factory defaults.

tcp keepalive-timeout *seconds*

no tcp keepalive-timeout *seconds*

Syntax Description	<i>seconds</i> Specifies the time in seconds. The range is 1 to 7200.	
Defaults	60 seconds.	
Command Modes	FCIP profile configuration submode.	
Command History	Release	Modification
	1.1(1)	This command was introduced.
Usage Guidelines	This command can be used to detect FCIP link failures.	
Examples	The following example configures a FCIP profile: <pre>switch# config terminal switch(config)# fcip profile 5 switch(config-profile)#</pre>	
	The following example specifies the keepalive timeout interval for the TCP connection: <pre>switch(config-profile)# tcp keepalive-timeout 120</pre>	
Related Commands	Command	Description
	fcip profile	Configures FCIP profile parameters.
	show fcip profile	Displays FCIP profile information.

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tcp maximum-bandwidth-kbps

To manage the TCP window size in Kbps, use the **tcp maximum-bandwidth-kbps** command. Use the **no** form of this command to disable this feature or revert to its factory defaults.

tcp max-bandwidth-kbps *bandwidth* **min-available-bandwidth-kbps** *threshold*
 { **round-trip-time-ms** *milliseconds* | **round-trip-time-us** *microseconds* }

no tcp max-bandwidth-kbps *bandwidth* **min-available-bandwidth-kbps** *threshold*
 { **round-trip-time-ms** *milliseconds* | **round-trip-time-us** *microseconds* }

Syntax Description		
<i>bandwidth</i>		Specifies the Kbps bandwidth. The range is 1000 to 1000000.
min-available-bandwidth-kbps		Configures the minimum slow start threshold.
<i>threshold</i>		Specifies the Kbps threshold. The range is 1000 to 1000000.
round-trip-time-ms <i>milliseconds</i>		Configures the estimated round-trip time across the IP network to reach the FCIP peer end point in milliseconds. The range is 0 to 300.
round-trip-time-us <i>microseconds</i>		Configures the estimated round-trip time across the IP network to reach the FCIP peer end point in microseconds. The range is 0 to 300000.

Defaults

Enabled.

The FCIP defaults are **max-bandwidth** = 1G, **min-available-bandwidth** = 500 Mbps, and **round-trip-time** = 1 ms.

The iSCSI defaults are **max-bandwidth** = 1G, **min-available-bandwidth** = 70 Kbps, and **round-trip-time** = 1 ms.

Command Modes

FCIP profile configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

The **maximum-bandwidth** option and the **round-trip-time** option together determine the window size.

The **minimum-available-bandwidth** option and the **round-trip-time** option together determine the threshold below which TCP aggressively increases its size. After it reaches the threshold the software uses standard TCP rules to reach the maximum available bandwidth.

Examples

The following example configures a FCIP profile:

```
switch# config terminal
switch(config)# fcip profile 5
switch(config-profile)#
```

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The following example configures the maximum available bandwidth at 900 Kbps, the minimum slow start threshold as 300 Kbps, and the round trip time as 10 milliseconds:

```
switch(config-profile)# tcp max-bandwidth-kbps 900 min-available-bandwidth-kbps 300  
round-trip-time-ms 10
```

The following example reverts to the factory defaults:

```
switch(config-profile)# no tcp max-bandwidth-kbps 900 min-available-bandwidth-kbps 300  
round-trip-time-ms 10
```

The following example configures the maximum available bandwidth at 2000 Kbps, the minimum slow start threshold as 2000 Kbps, and the round trip time as 200 microseconds:

```
switch(config-profile)# tcp max-bandwidth-kbps 2000 min-available-bandwidth-kbps 2000  
round-trip-time-us 200
```

Related Commands

Command	Description
fcip profile	Configures FCIP profile parameters.
show fcip profile	Displays FCIP profile information.

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tcp maximum-bandwidth-mbps

To manage the TCP window size in Mbps, use the **tcp maximum-bandwidth-mbps** command. Use the **no** form of this command to disable this feature or revert to its factory defaults.

tcp max-bandwidth-mbps *bandwidth* **min-available-bandwidth-mbps** *threshold*
 { **round-trip-time-ms** *milliseconds* | **round-trip-time-us** *microseconds* }

no tcp max-bandwidth-mbps *bandwidth* **min-available-bandwidth-mbps** *threshold*
 { **round-trip-time-ms** *milliseconds* | **round-trip-time-us** *microseconds* }

Syntax Description	<i>bandwidth</i>	Specifies the Mbps bandwidth. The range is 1 to 1000.
	min-available-bandwidth-mbps	Configures the minimum slow start threshold.
	<i>threshold</i>	Specifies the Mbps threshold. The range is 1 to 1000.
	round-trip-time-ms <i>milliseconds</i>	Configures the estimated round trip time across the IP network to reach the FCIP peer end point in milliseconds. The range is 0 to 300.
	round-trip-time-us <i>microseconds</i>	Configures the estimated round trip time across the IP network to reach the FCIP peer end point in microseconds. The range is 0 to 300000.

Defaults

Enabled.

The FCIP defaults are **max-bandwidth** = 1G, **min-available-bandwidth** = 500 Mbps, and **round-trip-time** = 1 ms.

The iSCSI defaults are **max-bandwidth** = 1G, **min-available-bandwidth** = 70 Kbps, and **round-trip-time** = 1 ms.

Command Modes

FCIP profile configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

The **maximum-bandwidth** option and the **round-trip-time** option together determine the window size.

The **minimum-available-bandwidth** option and the **round-trip-time** option together determine the threshold below which TCP aggressively increases its size. After it reaches the threshold the software uses standard TCP rules to reach the maximum available bandwidth.

Examples

The following example configures a FCIP profile:

```
switch# config terminal
switch(config)# fcip profile 5
switch(config-profile)#
```

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The following example configures the maximum available bandwidth at 900 Mbps, the minimum slow start threshold as 300 Mbps, and the round trip time as 10 milliseconds:

```
switch(config-profile)# tcp max-bandwidth-mbps 900 min-available-bandwidth-mbps 300  
round-trip-time-ms 10
```

The following example reverts to the factory defaults:

```
switch(config-profile)# no tcp max-bandwidth-mbps 900 min-available-bandwidth-mbps 300  
round-trip-time-ms 10
```

The following example configures the maximum available bandwidth at 2000 Mbps, the minimum slow start threshold as 2000 Mbps, and the round trip time as 200 microseconds:

```
switch(config-profile)# tcp max-bandwidth-mbps 2000 min-available-bandwidth-mbps 2000  
round-trip-time-us 200
```

Related Commands

Command	Description
fcip profile	Configures FCIP profile parameters.
show fcip profile	Displays FCIP profile information.

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tcp max-jitter

To estimate the maximum delay jitter experienced by the sender in microseconds, use the **tcp max-jitter** command. Use the **no** form of this command to disable this feature or revert to its factory defaults.

tcp max-jitter *microseconds*

no tcp max-jitter *microseconds*

Syntax Description	<i>microseconds</i> Specifies the delay time in microseconds ranging from 0 to 10000.				
Defaults	Enabled. The default value is 100 microseconds for FCIP and 500 microseconds for iSCSI interfaces.				
Command Modes	FCIP profile configuration submode.				
Command History	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>1.3(4)</td><td>This command was introduced.</td></tr> </table>	Release	Modification	1.3(4)	This command was introduced.
Release	Modification				
1.3(4)	This command was introduced.				
Usage Guidelines	None.				
Examples	The following example configures delay jitter time: <pre> switch# config terminal Enter configuration commands, one per line. End with CNTL/Z. switch(config)# fcip profile 3 switch(config-profile)# tcp max-jitter 600 switch(config-profile)# do show fcip profile 3 FCIP Profile 3 Internet Address is 10.3.3.3 (interface GigabitEthernet2/3) Tunnels Using this Profile: fcip3 Listen Port is 3225 TCP parameters SACK is enabled PMTU discovery is enabled, reset timeout is 3600 sec Keep alive is 60 sec Minimum retransmission timeout is 200 ms Maximum number of re-transmissions is 4 Send buffer size is 0 KB Maximum allowed bandwidth is 1000000 kbps Minimum available bandwidth is 500000 kbps Estimated round trip time is 1000 usec Congestion window monitoring is enabled, burst size is 10 KB Configured maximum jitter is 600 us </pre>				

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Related Commands	Command	Description
	fcip profile	Configures FCIP profile parameters.
	show fcip profile	Displays FCIP profile information.

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tcp max-retransmissions

To specify the maximum number of times a packet is retransmitted before TCP decides to close the connection, use the **tcp max-retransmissions** command. Use the **no** form of this command to disable this feature or revert to its factory defaults.

tcp max-retransmissions *number*

no tcp max-retransmissions *number*

Syntax Description	<i>number</i> Specifies the maximum number. The range is 1 to 8.	
Defaults	Enabled.	
Command Modes	FCIP profile configuration submode.	
Command History	Release	Modification
	1.1(1)	This command was introduced.
Usage Guidelines	The default is 4 and the range is from 1 to 8 retransmissions.	
Examples	The following example configures a FCIP profile:	
	<pre>switch# config terminal switch(config)# fcip profile 5</pre>	
	The following example specifies the maximum number of retransmissions :	
	<pre>switch(config-profile)# tcp max-retransmissions 6</pre>	
Related Commands	Command	Description
	fcip profile	Configures FCIP profile parameters.
	show fcip profile	Displays FCIP profile information.

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tcp min-retransmit-time

To control the minimum amount of time TCP waits before retransmitting, use the **tcp min-retransmit-time** command. Use the **no** form of this command to disable this feature or revert to its factory defaults.

tcp min-retransmit-time *milliseconds*

no tcp min-retransmit-time *milliseconds*

Syntax Description	<i>milliseconds</i> Specifies the time in milliseconds. The range is 200 to 5000.	
Defaults	300 milliseconds.	
Command Modes	FCIP profile configuration submode.	
Command History	Release	Modification
	1.1(1)	This command was introduced.
Usage Guidelines	None.	
Examples	The following example configures a FCIP profile: <pre>switch# config terminal switch(config)# fcip profile 5 switch(config-profile)#</pre>	
	The following example specifies the minimum TCP retransmit time for the TCP connection: <pre>switch(config-profile)# tcp min-retransmit-time 500</pre>	
Related Commands	Command	Description
	fcip profile	Configures FCIP profile parameters.
	show fcip profile	Displays FCIP profile information.

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tcp pmtu-enable

To configure path MTU (PMTU) discovery, use the **tcp pmtu-enable** command. Use the **no** form of this command to disable this feature or revert to its factory defaults.

tcp pmtu-enable [**reset-timeout** *seconds*]

no tcp pmtu-enable [**reset-timeout** *seconds*]

Syntax Description	reset-timeout <i>seconds</i> (Optional) Specifies the PMTU reset timeout. The range is 60 to 3600 seconds.	
Defaults	Enabled. 3600 seconds.	
Command Modes	FCIP profile configuration submode.	
Command History	Release	Modification
	1.1(1)	This command was introduced.
Usage Guidelines	None.	
Examples	The following example configures a FCIP profile: <pre>switch# config terminal switch(config)# fcip profile 5 switch(config-profile)#</pre> The following example disables PMTU discovery: <pre>switch(config-profile)# no tcp pmtu-enable</pre> The following example enables PMTU discovery with a default of 3600 seconds: <pre>switch(config-profile)# tcp pmtu-enable</pre> The following example specifies the PMTU reset timeout to 90 seconds: <pre>switch(config-profile)# tcp pmtu-enable reset-timeout 90</pre> The following example leaves the PMTU in an enabled state but changes the timeout to the default of 3600 seconds: <pre>switch(config-profile)# no tcp pmtu-enable reset-timeout 600</pre>	

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Related Commands	Command	Description
	fcip profile	Configures FCIP profile parameters.
	show fcip profile	Displays FCIP profile information.

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tcp qos

To specify the differentiated services code point (DSCP) value to mark all IP packets (type of service—TOS field in the IP header) on an iSCSI interface, use the **tcp qos** command. Use the **no** form of this command to disable this feature or revert to its factory defaults.

tcp qos *value*

no tcp qos *value*

Syntax Description	<i>value</i> Applies the control DSCP value to all outgoing frames in the control TCP connection.	
Defaults	0	
Command Modes	FCIP profile configuration submode.	
Command History	Release	Modification
	1.1(1)	This command was introduced.
Usage Guidelines	Use these TCP parameters to control TCP retransmission behavior in a switch.	
Examples	The following example configures the TCP QoS value on an iSCSI interface: <pre>switch# config terminal switch(config)# interface iscsi 1/2 switch(config-if)# tcp qos 5</pre>	
Related Commands	Command	Description
	fcip profile	Configures FCIP profile parameters.
	show fcip profile	Displays FCIP profile information.

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tcp qos control

To specify the differentiated services code point (DSCP) value to mark all IP packets (type of service—TOS field in the IP header), use the **tcp qos control** command. Use the **no** form of this command to disable this feature or revert to its factory defaults.

tcp qos control *value* **data** *value*

no tcp qos control *value* **data** *value*

Syntax Description

<i>value</i>	Applies the control DSCP value to all FCIP frames in the control TCP connection.
data <i>value</i>	Applies the data DSCP value applies to all FCIP frames in the data connection.

Defaults

Enabled.

Command Modes

FCIP profile configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

Use these TCP parameters to control TCP retransmission behavior in a switch.

Examples

The following example configures a FCIP profile:

```
switch# config terminal
switch(config)# fcip profile 5
switch(config-profile)#
```

The following example configures the control TCP connection and data connection to mark all packets on that DSCP value:

```
switch(config-profile)# tcp qos control 3 data 5
```

Related Commands

Command	Description
fcip profile	Configures FCIP profile parameters.
show fcip profile	Displays FCIP profile information.

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tcp sack-enable

To enable selective acknowledgment (SACK) to overcome the limitations of multiple lost packets during a TCP transmission, use the **tcp sack-enable** command. Use the **no** form of this command to disable this feature or revert to its factory defaults.

tcp sack-enable

no tcp sack-enable

Syntax Description This command has no arguments or keywords.

Defaults Enabled

Command Modes FCIP profile configuration submode.

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines The receiving TCP sends back SACK advertisements to the sender. The sender can then retransmit only the missing data segments.

Examples The following example configures a FCIP profile:

```
switch# config terminal
switch(config)# fcip profile 5
switch(config-profile)#
```

The following example enables the SACK mechanism on the switch:

```
switch(config-profile)# tcp sack-enable
```

Related Commands	Command	Description
	fcip profile	Configures FCIP profile parameters.
	show fcip profile	Displays FCIP profile information.

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tcp send-buffer-size

To define the required additional buffering beyond the normal send window size that TCP allows before flow-controlling the switch's egress path for the FCIP interface, use the **tcp send-buffer-size** command. Use the **no** form of this command to disable this feature or revert to its factory defaults.

tcp send-buffer-size *size*

no tcp send-buffer-size *size*

Syntax Description	size Specifies the buffer size in KB. The range is 0 to 8192.							
Defaults	Enabled. The default FCIP buffer size is 0 KB. The default iSCSI buffer size is 4096 KB							
Command Modes	FCIP profile configuration submode.							
Command History	<table><tr><th>Release</th><th>Modification</th></tr><tr><td>1.3(4)</td><td>This command was introduced.</td></tr></table>		Release	Modification	1.3(4)	This command was introduced.		
Release	Modification							
1.3(4)	This command was introduced.							
Usage Guidelines	None.							
Examples	The following example configures a FCIP profile: <pre>switch# config terminal switch(config)# fcip profile 5 switch(config-profile)#</pre> The following example configure the advertised buffer size to 5000 KB: <pre>switch(config-profile)# tcp send-buffer-size 5000</pre>							
Related Commands	<table><tr><th>Command</th><th>Description</th></tr><tr><td>fcip profile</td><td>Configures FCIP profile parameters.</td></tr><tr><td>show fcip profile</td><td>Displays FCIP profile information.</td></tr></table>		Command	Description	fcip profile	Configures FCIP profile parameters.	show fcip profile	Displays FCIP profile information.
Command	Description							
fcip profile	Configures FCIP profile parameters.							
show fcip profile	Displays FCIP profile information.							

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tcp-connection

To configure the number of TCP connections for the FCIP interface, use the **tcp-connection** command. To revert to the default, use the **no** form of the command.

tcp-connection *number*

no tcp-connection *number*

Syntax Description	<i>number</i> Enters the number of attempts (1 or 2).	
Defaults	Two attempts.	
Command Modes	Interface configuration submode.	
Command History	Release	Modification
	1.1(1)	This command was introduced.
Usage Guidelines	Access this command from the switch(config-if)# submode. Use the tcp-connection option to specify the number of TCP connections from a FCIP link. By default, the switch tries two (2) TCP connections for each FCIP link.	
Examples	The following example configures the TCP connections: <pre>switch# config terminal switch(config)# interface fcip 50 switch(config-if)# tcp-connection 1 switch(config-if)# no tcp-connection 1</pre>	
Related Commands	Command	Description
	show interface fcip	Displays an interface configuration for a specified FCIP interface.

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telnet

To log in to a host that supports Telnet, use the **telnet** command in EXEC mode.

telnet {*hostname* | *ip-address*} [*port*]

Syntax Description	<i>hostname</i>	Specifies a host name. Maximum length is 64 characters.
	<i>ip-address</i>	Specifies an IP address.
	<i>port</i>	(Optional) Specifies a port number. The range is 0 to 2147483647.

Defaults	None.
----------	-------

Command Modes	EXEC mode.
---------------	------------

Command History	Release	Modification
	1.0(2)	This command was introduced.

Usage Guidelines	None.
------------------	-------

Examples	The following example establishes a Telnet session to the specified IP address:
----------	---

```
switch# telnet 172.22.91.153
Trying 172.22.91.153...
Connected to 172.22.91.153.
Login:xxxxxxxxx
Password:xxxxxxxxx
switch#
```

Related Commands	Command	Description
	telnet server enable	Enables the Telnet server.

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telnet server enable

To enable the Telnet server if you want to return to a Telnet connection from a secure SSH connection, use the **telnet server enable** command. To disable the Telnet server, use the **no** form of this command

telnet server enable

no telnet server enable

Syntax Description This command has no arguments or keywords.

Defaults Enabled.

Command Modes Configuration mode.

Command History	Release	Modification
	1.0(2)	This command was introduced.

Usage Guidelines None.

Examples

The following example enables the Telnet server:

```
switch(config)# telnet server enable
updated
```

The following example disables the Telnet server:

```
switch(config)# no telnet server enable
updated
```

Related Commands	Command	Description
	telnet	Logs in to a host that supports Telnet.

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terminal

To configure terminal attributes, use the **terminal** command in EXEC mode. To revert to the defaults, use the **no** form of the command.

terminal {**length** *lines* | **monitor** | **session-timeout** | **terminal-type** *type* | **tree-update** | **width** *integer*}

no terminal {**length** | **monitor** | **session-timeout** | **terminal-type** | **width**}

Syntax Description		
length <i>lines</i>		Specifies the number of lines on the screen. The range is 0 to 512. Enter 0 to scroll continuously.
monitor		Copies Syslog output to the current terminal line.
session-timeout		Specifies the session timeout value in minutes. The range is 0 to 525600. Enter 0 to disable.
terminal-type <i>type</i>		Sets the terminal type. Maximum length is 80 characters.
tree-update		Updates the main parse tree.
width <i>integer</i>		Sets the width of the display terminal, from 0 to 80.

Defaults The default number of lines for the length is 24. The default width is 80 lines.

Command Modes EXEC mode.

Command History	Release	Modification
	1.0(2)	This command was introduced.

Usage Guidelines Remember that all terminal parameter-setting commands are set locally and do not remain in effect after a session is ended. You must perform this task at the EXEC prompt at each session to see the debugging messages.

If the length is not 24 and the width is not 80, then you need to set a length and width.

Examples The following example displays debug command output and error messages during the current terminal session:

```
switch# terminal monitor
Aug  8 10:32:42 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_CFG_PWRDN: Module 1 powered down
Aug  8 10:32:42 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_PWRDN: Module 1 powered down
Aug  8 10:32:42 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_INSERT: Module 1 has been inserted
Aug  8 10:33:12 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_PWRON: Module 1 powered up
Aug  8 10:33:13 sup48 % LOG_MODULE-5-MOD_REG_OK: LCM - Registration succeeded for module 1
Aug  8 10:38:15 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_CFG_PWRDN: Module 1 powered down
Aug  8 10:38:15 sup48 % LOG_PLATFORM-5-PLATFORM_MOD_INSERT: Module 1 has been inserted
.....
```

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The following example stops the current terminal monitoring session:

```
switch# terminal no monitor
```

Related Commands	Command	Description
	show terminal	Displays terminal configuration information.

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terminal event-manager bypass

To bypass the CLI event manager, use the **terminal event-manager bypass** command. To disable this command, use the **no** form of the command.

terminal event-manager bypass

no terminal event-manager bypass

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	Event manager is enabled.
-----------------	---------------------------

Command Modes	Any
----------------------	-----

Command History	Release	Modification
	NX-OS 4.2(1)	Added a note.
	4.1(3)	This command was introduced.

Usage Guidelines	None.
-------------------------	-------



Note

If you want to allow the triggered event to process any default actions, you must configure the **EEM** policy to allow the default action. For example, if you match a **CLI** command in a match statement, you must add the event-default action statement to the **EEM** policy or **EEM** will not allow the CLI command to execute. You can use the **terminal event-manager bypass** command to allow all EEM policies with **CLI** matches to execute the **CLI** commands.

Examples	This example shows how to disable the CLI event manager:
-----------------	--

```
switch# terminal event-manager bypass
switch#
```

Related Commands	Command	Description
	show terminal	Displays terminal configuration.

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test aaa authorization

To verify if the authorization settings are correct or not, use the **test aaa authorization** command.

```
test aaa authorization command-type {commands | config-commands} user {username}
command {cmd}
```

Syntax Description

command-type	Specifies the command type. You can use the keywords for the command type.
commands	Specifies authorization for all commands.
config-commands	Specifies authorization for configuration commands.
user	Specifies the user to be authorized. The maximum size is 32.
<i>username</i>	Specifies the user to be authorized.
<i>cmd</i>	Specifies command to be authorized.

Defaults

None.

Command Modes

EXEC mode.

Command History

Release	Modification
NX-OS 4.2(1)	This command was introduced.

Usage Guidelines

None.

Examples

The following example shows how to verify if the authorization settings are correct or not:

```
switch(config)# test aaa authorization command-type commands user u1 command "feature
dhcp"
% Success
switch(config)#
```

Related Commands

Command	Description
show aaa authorization all	Displays all authorization information.

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time

To configure the time for the command schedule, use the **time** command. To disable this feature, use the **no** form of the command.

```
time {daily daily-schedule | monthly monthly-schedule | start {start-time | now} |  
      weekly weekly-schedule}
```

```
no time
```

Syntax Description		
daily <i>daily-schedule</i>		Configures a daily command schedule. The format is <i>HH:MM</i> , where <i>HH</i> is hours (0 to 23) and <i>MM</i> is minutes (0 to 59). Maximum length is 5 characters.
monthly <i>monthly-schedule</i>		Configures a monthly command schedule. The format is <i>dm:HH:MM</i> , where <i>dow</i> is the day of the month (1 to 31), <i>HH</i> is hours (0 to 23) and <i>MM</i> is minutes (0 to 59). Maximum length is 8 characters.
start		Schedules a job to run at a future time.
<i>start-time</i>		Specifies the future time to run the job. The format is <i>yyyy:mmm:dd:HH:MM</i> , where <i>yyyy</i> is the year, <i>mmm</i> is the month (jan to dec), <i>dd</i> is the day of the month (1 to 31), <i>HH</i> is hours (0 to 23) and <i>MM</i> is minutes (0 to 59). Maximum length is 18 characters.
now		Starts the job two minutes after the command is entered.
weekly <i>weekly-schedule</i>		Configures a weekly command schedule. The format is <i>dow:HH:MM</i> , where <i>dow</i> is the day of the week (1 to 7, Sun to Sat), <i>HH</i> is hours (0 to 23) and <i>MM</i> is minutes (0 to 59). Maximum length is 10 characters.

Defaults	Disabled.
-----------------	-----------

Command Modes	Scheduler job configuration submode.
----------------------	--------------------------------------

Command History	Release	Modification
	2.0(x)	This command was introduced.

Usage Guidelines	To use this command, the command scheduler must be enabled using the scheduler enable command.
-------------------------	---

Examples	The following example shows how to configure a command schedule job to run every Friday at 2200:
-----------------	--

```
switch# config terminal  
switch(config)# scheduler schedule name MySchedule  
switch(config-schedule)# time weekly 6:22:00
```

The following example starts a command schedule job in two minutes and repeats every 24 hours:

```
switch(config-schedule)# time start now repeat 24:00
```

time

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Related Commands	Command	Description
	scheduler enable	Enables the command scheduler.
	scheduler schedule name	Configures a schedule for the command scheduler.
	show scheduler	Displays schedule information.

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time-stamp

To enable FCIP time stamps on a frame, use the **time-stamp** command. To disable this command for the selected interface, use the **no** form of the command.

time-stamp [acceptable-diff *number*]

no time-stamp [acceptable-diff *number*]

Syntax Description	acceptable-diff <i>number</i> (Optional) Configures the acceptable time difference for timestamps in milliseconds. The range is 500 to 10000.					
Defaults	Disabled.					
Command Modes	Interface configuration submode.					
Command History	<table><tr><th>Release</th><th>Modification</th></tr><tr><td>1.1(1)</td><td>This command was introduced.</td></tr></table>		Release	Modification	1.1(1)	This command was introduced.
Release	Modification					
1.1(1)	This command was introduced.					
Usage Guidelines	Access this command from the switch(config-if)# submode. The time-stamp option instructs the switch to discard frames that are older than a specified time.					
Examples	The following example enables the timestamp for an FCIP interface: <pre>switch# config terminal switch(config)# interface fcip 50 switch(config-if)# time-stamp switch(config-if)# time-stamp acceptable-diff 4000</pre>					
Related Commands	<table><tr><th>Command</th><th>Description</th></tr><tr><td>show interface fcip</td><td>Displays the configuration for a specified FCIP interface.</td></tr></table>		Command	Description	show interface fcip	Displays the configuration for a specified FCIP interface.
Command	Description					
show interface fcip	Displays the configuration for a specified FCIP interface.					

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tlport alpa-cache

To manually configure entries in an ALPA cache, use the **tlport alpa-cache** command. To disable the entries in an ALPA cache, use the **no** form of the command.

tlport alpa-cache interface *interface* **pwwn** *pwwn* **alpa** *alpa*

no tlport alpa-cache interface *interface* **pwwn** *pwwn*

Syntax Description	interface <i>interface</i>	Specifies a Fibre Channel interface.
	pwwn <i>pwwn</i>	Specifies the peer WWN ID for the ALPA cache entry.
	alpa <i>alpa</i>	Specifies the ALPA cache to which this entry is to be added.
Defaults	Disabled.	
Command Modes	Configuration mode.	
Command History	Release	Modification
	1.3(5)	This command was introduced.
Usage Guidelines	Generally, ALPA cache entries are automatically populated when an ALPA is assigned to a device. Use this command only if you want to manually add additional entries.	
Examples	The following example configures the specified pWWN as a new entry in this cache:	
	<pre>switch# config terminal switch(config)# tlport alpa-cache interface fc1/2 pwwn 22:00:00:20:37:46:09:bd alpa 0x02</pre>	
Related Commands	Command	Description
	show tlport	Displays TL port information.

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traceroute

To print the route an IP packet takes to a network host, use the **traceroute** command in EXEC mode.

traceroute [**ipv6**] [*hostname* [**size** *packet-size*] | *ip-address*] | *hostname* | *ip-address*]

Syntax Description	ipv6	(Optional) Traces a route to an IPv6 destination.
	hostname	(Optional) Specifies a host name. Maximum length is 64 characters.
	size <i>packet-size</i>	(Optional) Specifies a packet size. The range is 0 to 64.
	<i>ip-address</i>	(Optional) Specifies an IP address.

Defaults None.

Command Modes EXEC mode.

Command History	Release	Modification
	1.0(2)	This command was introduced.
	3.0(1)	Added the ipv6 argument.

Usage Guidelines This command traces the route an IP packet follows to an Internet host by launching UDP probe packets with a small TTL (time to live) and then listening for an ICMP (Internet Control Message Protocol) “time exceeded” reply from a gateway.



Note

Probes start with a TTL of one and increase by one until encountering an ICMP “port unreachable.” This means that the host was accessed or a maximum flag was found. A line is printed showing the TTL, address of the gateway, and round-trip time of each probe. If the probe answers come from different gateways, the address of each responding system is printed.

Examples The following example prints the route IP packets take to the network host www.cisco.com:

```
switch# traceroute www.cisco.com
traceroute to www.cisco.com (171.71.181.19), 30 hops max, 38 byte packets
 1  kingfisher1-92.cisco.com (172.22.92.2)  0.598 ms  0.470 ms  0.484 ms
 2  nubulab-gw1-bldg6.cisco.com (171.71.20.130)  0.698 ms  0.452 ms  0.481 ms
 3  172.24.109.185 (172.24.109.185)  0.478 ms  0.459 ms  0.484 ms
 4  sjc12-lab4-gw2.cisco.com (172.24.111.213)  0.529 ms  0.577 ms  0.480 ms
 5  sjc5-sbb4-gw1.cisco.com (171.71.241.174)  0.521 ms  0.495 ms  0.604 ms
 6  sjc12-dc2-gw2.cisco.com (171.71.241.230)  0.521 ms  0.614 ms  0.479 ms
 7  sjc12-dc2-cec-css1.cisco.com (171.71.181.5)  2.612 ms  2.093 ms  2.118 ms
 8  www.cisco.com (171.71.181.19)  2.496 ms * 2.135 ms
```

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transfer-ready-size

To configure the target transfer ready size for SCSI write commands on a SAN tuner extension N port, use the **transfer-ready-size** command.

transfer-ready-size *bytes*

Syntax Description	<i>bytes</i>	Specifies the transfer ready size in bytes. The range is 0 to 2147483647.
---------------------------	--------------	---

Defaults	None.
-----------------	-------

Command Modes	SAN extension N port configuration submode.
----------------------	---

Command History	Release	Modification
	2.0(x)	This command was introduced.

Usage Guidelines	For a SCSI write command-id command with a larger transfer size, the target performs multiple transfers based on the specified transfer size.
-------------------------	--

Examples	The following example configures the transfer ready size on a SAN extension tuner N port: <pre>switch# san-ext-tuner switch(san-ext)# nwwn 10:00:00:00:00:00:00:00 switch(san-ext)# nport pwwn 12:00:00:00:00:00:00:56 vsan 13 interface gigabitethernet 1/2 switch(san-ext-nport)# transfer-ready-size 512000</pre>
-----------------	---

Related Commands	Command	Description
	nport pwwn	Configures a SAN extension tuner N port.
	san-ext-tuner	Enables the SAN extension tuner feature.
	show san-ext-tuner	Displays SAN extension tuner information.
	write command-id	Configures a SCSI write command for a SAN extension tuner N port.

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transport email

To configure the customer ID with the Call Home function, use the **transport email** command in Call Home configuration submode. To disable this feature, use the **no** form of the command.

transport email {**from** *email-address* | **reply-to** *email-address* | **smtp-server** *ip-address* [**port** *port-number*]

no transport email {**from** *email-address* | **reply-to** *email-address* [**port** *port-number*]

Syntax Description

from <i>email-address</i>	Specifies the from e-mail address. For example: SJ-9500-1@xyz.com. The maximum length is 255 characters.
reply-to <i>email-address</i>	Specifies the reply to e-mail address. For address, example: admin@xyz.com. The maximum length is 255 characters.
smtp-server <i>ip-address</i>	Specifies the SMTP server address, either DNS name or IP address. The maximum length is 255 characters.
port <i>port-number</i>	(Optional) Changes depending on the server location. The port usage defaults to 25 if no port number is specified.

Defaults

None.

Command Modes

Call Home configuration submode.

Command History

Release	Modification
1.0(2)	This command was introduced.

Usage Guidelines

None.

Examples

The following example configures the from and reply-to e-mail addresses:

```
switch# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# callhome
switch(config-callhome)# transport email from user@company1.com
switch(config-callhome)# transport email reply-to person@place.com
```

The following example shows how to remove the callhome configuration smtp-server:

```
switch(config-callhome)# transport email smtp-server none
switch(config-callhome)#
```

The following example configures the SMTP server and ports:

```
switch(config-callhome)# transport email smtp-server 192.168.1.1
switch(config-callhome)# transport email smtp-server 192.168.1.1 port 30
```

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Related Commands	Command	Description
	callhome	Configures the Call Home function.
	callhome test	Sends a dummy test message to the configured destination(s).
	show callhome	Displays configured Call Home information.

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transport email mail-server

To configure an SMTP server address, use the **transport email mail-server** command. To disable this feature, use the **no** form of the command.

transport email mail-server {**ipv4** | **ipv6** | *hostname*} [**port** *port number*] [**priority** *priority number*]

no transport email mail-server {**ipv4** | **ipv6** | *hostname*} [**port** *port number*] [**priority** *priority number*]

Syntax Description	ipv4	Specifies IPV4 SMTP address.
	ipv6	Specifies IPV6 SMTP address.
	<i>hostname</i>	Specifies DNS or IPV4 or IPV6 address.
	port <i>port number</i>	(Optional) Specifies SMTP server port. The range is from 1 to 65535.
	priority <i>priority number</i>	(Optional) Specifies SMTP server priority. The range is from 1 to 100.

Defaults	Enabled.
----------	----------

Command Modes	Configuration mode.
---------------	---------------------

Command History	Release	Modification
	NX-OS 5.0(1a)	This command was introduced.

Usage Guidelines	None.
------------------	-------

Examples The following example shows how to configure an SMTP server port:

```
switch# callhome
switch(config-callhome)# transport email mail-server 192.168.10.23 port 4
switch# config t
```

The following example shows how to configure an SMTP server priority:

```
switch(config-callhome)# transport email mail-server 192.168.10.23 priority 60
switch# config t
```

Related Commands	Command	Description
	callhome	Configures the Call Home function.

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terminal verify-user

To verify the command and do not execute, use the **terminal verify-user** command.

terminal verify-user username {name}

Syntax Description	username	Specifies user name for AAA authorization.
	name	Specifies command to be authorized.

Defaults	None.
----------	-------

Command Modes	EXEC mode.
---------------	------------

Command History	Release	Modification
	NX-OS 4.2(1)	This command was introduced.

Usage Guidelines	You can verify the authorization profile for different commands. When enabled, all the commands are directed to the Access Control Server (ACS) for verification. The verification details are displayed once the verification is completed.
------------------	--

Examples	The following example shows how to verify if the authorization settings are correct or not: <pre>switch# terminal verify-only username user1 switch# config terminal Enter configuration commands, one per line. End with CNTL/Z. switch(config)# feature telnet % Success switch(config)# feature ssh %Authorization Failed</pre>
----------	---

Related Commands	Command	Description
	show aaa authorization all	Displays all authorization information.

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trunk protocol enable

To configure the trunking protocol, use the **trunk protocol enable** command in configuration mode. To disable this feature, use the **no** form of the command.

trunk protocol enable

no trunk protocol enable

Syntax Description	This command has no other arguments or keywords.
---------------------------	--

Defaults	Enabled.
-----------------	----------

Command Modes	Configuration mode.
----------------------	---------------------

Command History	Release	Modification
	1.0(2)	This command was introduced.

Usage Guidelines	If the trunking protocol is disabled on a switch, no port on that switch can apply new trunk configurations. Existing trunk configurations are not affected—the TE port continues to function in trunking mode, but only supports traffic in VSANs that it negotiated previously (when the trunking protocol was enabled). Also, other switches that are directly connected to this switch are similarly affected on the connected interfaces. In some cases, you may need to merge traffic from different port VSANs across a non-trunking ISL. If so, you need to disable the trunking protocol.
-------------------------	--

Examples	The following example shows how to disable the trunk protocol feature:
-----------------	--

```
switch# config terminal
switch(config)# no trunk protocol enable
```

The following example shows how to enable the trunk protocol feature:

```
switch(config)# trunk protocol enable
```

Related Commands	Command	Description
	show trunk protocol	Displays the trunk protocol status.

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trustedcert

To set the trustedcert, use the **trustedcert** command. To disable this feature, use the **no** form of the command.

trustedcert *attribute-name attribute-name search-filter string base-DN string*

no trustedcert *attribute-name attribute-name search-filter string base-DN string*

Syntax Description	attribute-name	Specifies LDAP attribute name. The maximum size is 128 characters.
	<i>attribute-name</i>	
	search-filter	Specifies LDAP search filter. The maximum length is 128 characters.
	<i>string</i>	Specifies search map search filter . The maximum length is 128 characters.
	base-DN	Configure base DN to be used for search operation. The Maximum length is 63 characters.
	<i>string</i>	Specifies search map base DN name. The Maximum length is 63 characters.

Defaults None.

Command Modes Configuration mode.

Command History	Release	Modification
	NX-OS 5.0(1a)	This command was introduced.

Usage Guidelines None.

Examples The following example shows how to specify the LDAP trustcert :

```

switch(config)#ldap search-map s1
switch(config-ldap-search-map)# trusted attribute-name cACertificate
"(&(objectClass=certificationAuthority))" base-DN "CN=NTAuthCertificates,CN=Public Key
Services,CN=Services,CN=Configuration,DC=DCBU-ACS"
GROUP_NAME: map1
CRL
ATTR_NAME: map1
SEARCH_FLTR: map1
BASE_DN: DN1
Sending the SET_REQ
switch(config-ldap-search-map)#end

```

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Related Commands	Command	Description
	show ldap-server groups	Displays the configured LDAP server groups.

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tune

To configure the tune IOA parameters, use the **tune** command. To delete the tune IOA parameter, use the **no** form of the command.

tune { **lrtp-retx-timeout** *msec* | **round-trip-time** *ms* | **ta-buffer-size** *KB* | **timer load-balance** { **global** | **target** *seconds* | **rscn-suppression** *seconds* | **wa-buffer-size** *MB* | **wa-max-table-size** *KB* }

no tune { **lrtp-retx-timeout** *msec* | **round-trip-time** *ms* | **ta-buffer-size** *KB* | **timer load-balance** { **global** | **target** *seconds* | **rscn-suppression** *seconds* | **wa-buffer-size** *MB* | **wa-max-table-size** *KB* }

Syntax Description

lrtp-retx-timeout <i>msec</i>	Specifies LRTP retransmit timeout in milliseconds. The value can vary from 500 to 5000 msec. 2500 msec is the default.
round-trip-time <i>ms</i>	Specifies round-trip time in milliseconds. The value can vary from 1 to 100 ms. 15 ms is the default.
ta-buffer-size <i>KB</i>	Specifies tape acceleration buffer size in KB. The value can vary from 64 to 12288.
timer	Specifies tune IOA timers.
load-balance	Specifies IOA load-balance timers.
global <i>seconds</i>	Specifies global load-balancing timer value. The value can vary from 5 to 30 seconds. 5 seconds is the default.
target <i>seconds</i>	Specifies target load-balancing timer value. The value can vary from 2 to 30 seconds. 2 seconds is the default.
rscn-suppression <i>seconds</i>	Specifies IOA RSCN suppression timer value. The value can vary from 1 to 10 seconds. 5 seconds is the default.
wa-buffer-size <i>MB</i>	Specifies write acceleration buffer size in MB. The value can vary from 50 to 100 MB. 70 MB is the default.
wa-max-table-size <i>KB</i>	Specifies Write Max Table size in KB. The value can vary from 4 to 64 KB. 4 KB is the default.

Defaults

None.

Command Modes

Configuration submode.

Command History

Release	Modification
NX-OS 4.2(1)	This command was introduced.

Usage Guidelines

None.

Examples

The following example shows how to configure a IOA RSCN suppression timer value:

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```
switch# conf t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ioa cluster tape_vault
switch(config-ioa-cl)# tune timer rscn-suppression 1
:switch(config-ioa-cl)#
```

The following example shows how to configure an IOA target load-balance timer value:

```
switch# conf t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ioa cluster tape_vault
switch(config-ioa-cl)# tune timer load-balance target 2
switch(config-ioa-cl)#
```

The following example shows how to configure a global IOA target load-balance timer value:

```
switch# conf t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ioa cluster tape_vault
switch(config-ioa-cl)# tune timer load-balance global 5
switch(config-ioa-cl)#
```

The following example shows how to configure the round-trip time in milliseconds:

```
switch# conf t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ioa cluster tape_vault
switch(config-ioa-cl)# tune round-trip-time 15
switch(config-ioa-cl)#
```

The following example shows how to configure the tape acceleration buffer size in KB:

```
switch# conf t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ioa cluster tape_vault
switch(config-ioa-cl)# tune ta-buffer-size 64
switch(config-ioa-cl)#
```

The following example shows how to configure the write acceleration buffer size in MB:

```
switch# conf t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ioa cluster tape_vault
switch(config-ioa-cl)# tune wa-buffer-size 15
switch(config-ioa-cl)#
```

The following example shows how to configure the write Max Table Size in KB:

```
switch# conf t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ioa cluster tape_vault
switch(config-ioa-cl)# tune wa-max-table-size 4
switch(config-ioa-cl)#
```

The following example shows how to configure the LRTP retransmit timeout in milliseconds:

```
switch# conf t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ioa cluster tape_vault
```

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```
switch(config-ioa-cl)# tune lrtx-retry-timeout 2500  
switch(config-ioa-cl)#
```

Related Commands

Command	Description
flowgroup	Configures IOA flowgroup.

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tune-timer

To tune the Cisco SME timers, use the **tune-timer** command. To disable this command, use the **no** form of the command.

```
tune-timer { global_lb_timer global_lb_timer_value | rscn_suppression_timer
rscn_suppresion_timer_value | tgt_lb_timer tgt_lb_timer_value }
```

```
no tune-timer { global_lb_timer global_lb_timer_value | rscn_suppression_timer
rscn_suppresion_timer_value | tgt_lb_timer tgt_lb_timer_value }
```

Syntax Description		
global_lb_timer		Specifies the global load-balancing timer value.
<i>global_lb_timer_value</i>		Identifies the timer value. The range is from 5 to 30 seconds. The default value is 5 seconds.
rscn_suppression_timer		Specifies the Cisco SME Registered State Change Notification (RSCN) suppression timer value.
<i>rscn_suppresion_timer_value</i>		Identifies the timer value. The range is from 1 to 10 seconds. The default value is 5 seconds.
tgt_lb_timer		Specifies the target load-balancing timer value.
<i>tgt_lb_timer_value</i>		Identifies the timer value. The range is from 2 to 30 seconds. The default value is 2 seconds.

Defaults None.

Command Modes Cisco SME cluster configuration submode.

Command History	Release	Modification
	3.3(1a)	This command was introduced.

Usage Guidelines The **tune-timer** command is used to tune various Cisco SME timers such as the RSCN suppression, global load balancing and target load-balancing timers. These timers should be used only in large scaling setups. The timer values are synchronized throughout the cluster.

Examples The following example configures a global load-balancing timer value:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-c1)# tune-timer tgt_lb_timer 6
switch(config-sme-c1)#
```

The following example configures a Cisco SME RSCN suppression timer value:

```
switch# config t
switch(config)# sme cluster c1
```

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```
switch(config-sme-cl)# tune-timer rscn_suppression_timer 2  
switch(config-sme-cl)#
```

The following example configures a target load-balancing timer value:

```
switch# config t  
switch(config)# sme cluster c1  
switch(config-sme-cl)# tune-timer rscn_suppression_timer 2  
switch(config-sme-cl)#
```