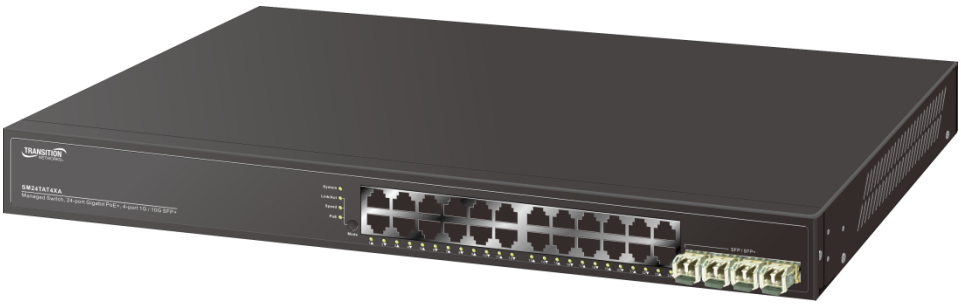
# SM24TAT4XA



## 24-Port 10/100/1000Base-T +
## 4 1G/10G SFP+ slots
## Managed POE Switch

# User Guide (CLI)

Rev.A1
30-Jul-13

# Revision History

| Date | Revision |
|---|---|
| 07/30/2013 | A1 |
| | |
| | |

# CONTENTS

# Chapter 1 Operation of CLI Management

## Initial Configuration

This chapter instructs you how to configure and manage the SM24TAT4XA through the CLI interface. With this facility, you can easily access and monitor through console port of the switch all the status of the switch, including MIBs status, each port activity, Spanning tree status, port aggregation status, multicast traffic, VLAN and priority status, even illegal access record and so on.

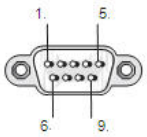
The serial port's configuration requirements are as follows:

- Default Baud rate—115,200 bps
- Character Size—8 Characters
- Parity—None
- Stop bit—One
- Data bits—8
- Flow control—none

The default username is **"admin"** and password is **"admin"**. For the first time to use, please enter the default username and password, and then click the **Enter** button. The login process now is completed.

**About Null Console Cable identity:**

**Figure 1: Serial Port (DB-9 DTE) Pin-Out**




The DB-9 cable is used for connecting a terminal or terminal emulator to the Managed Switch's RS-232 port to access the command-line interface.

The table below shows the pin assignments for the DB-9 cable.

| Function | Mnemonic | Pin |
|---|---|---|
| Carrier | CD | 1 |
| Receive Data | RXD | 2 |
| Transmit Data | TXD | 3 |
| Data Terminal Ready | DTR | 4 |
| Signal Ground | GND | 5 |
| Data Set Ready | DSR | 6 |
| Request To Send | RTS | 7 |
| Clear To Send | CTS | 8 |



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## CONNECTING TO THE CONSOLE PORT

The DB-9 serial port on the switch's front panel is used to connect to the switch for out-of-band console configuration.

The command-line-driven configuration program can be accessed from a terminal or a PC running a terminal emulation program. The pin assignments used to connect to the serial port are provided in the following table

**Figure 2: Plug in the Console Port**

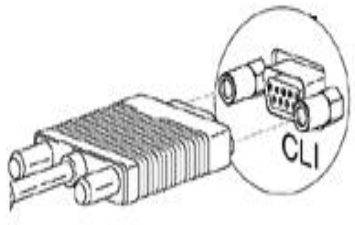
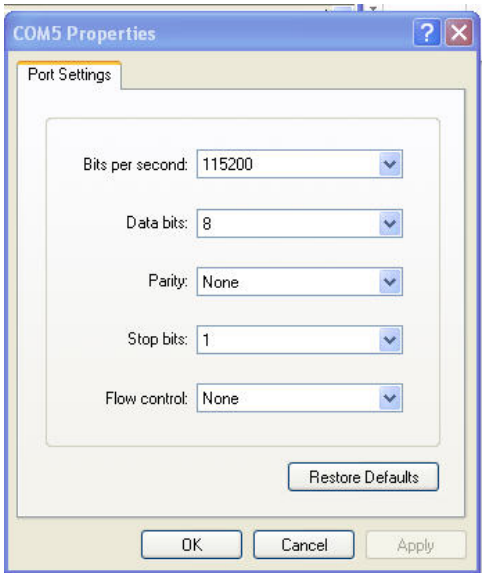


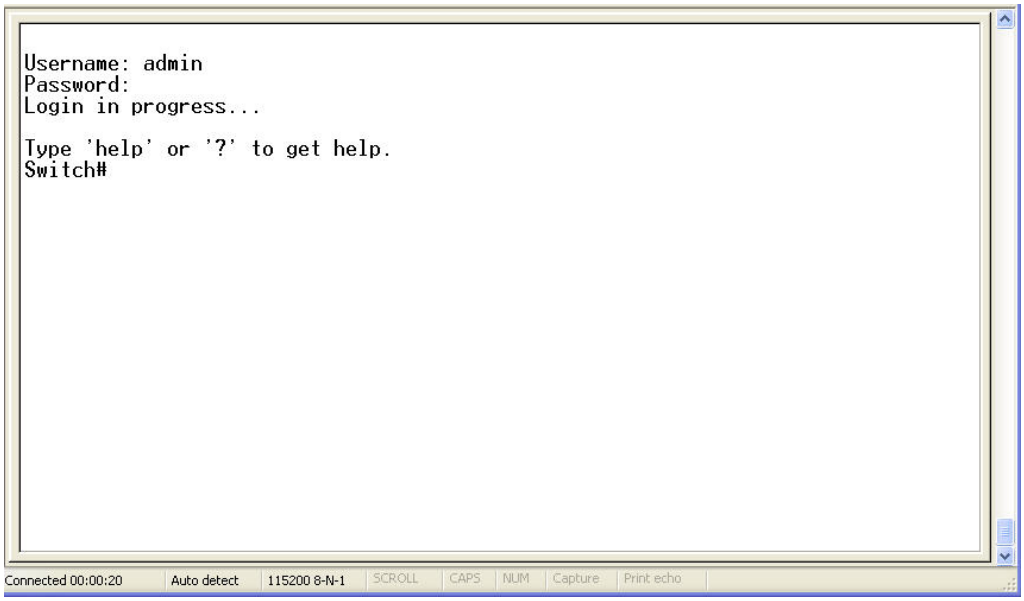

**Figure 3: Console configure**



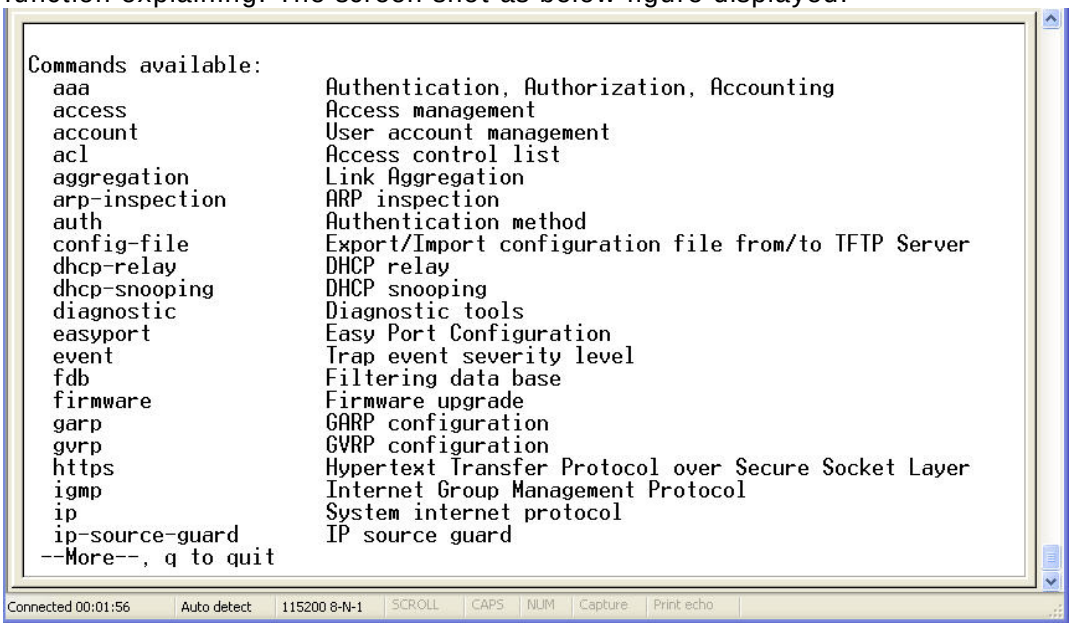

You can access the SM24TAT4XA via Console port. For instance, it will show the following screen and ask you inputting username and password in order to login and access authentication.

The default username is **"admin"** and password is **"admin"**. For the first time to use, please enter the default username and password, and then click the **<Enter>** button. The login process now is completed. In this login menu, you have to input the complete username and password respectively, the switch will not give you a shortcut to username automatically. This looks inconvenient, but safer.

**Figure 4: Console CLI interface**




**NOTE:** You can type “?” or “help” to get the switch help includes syntax or all function explaining. The screen shot as below figure displayed.



# Chapter 2 AAA Commands of CLI



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## AAA

This section shows you to use an AAA (Authentication, Authorization, Accounting) server to provide access control to your network. The AAA server can be a TACACS+ or RADIUS server to create and manage objects that contain settings for using AAA servers.

**Table1: AAA Commands in CLI**

| Command | Function |
|---|---|
| acc-radius | Configure RADIUS accounting Server |
| accounting | Configure Accounting mode |
| authorization | Configure Authorization mode |
| deadtime | Configure server dead time |
| fallback-author | Configure Authorization mode |
| radius | Configure RADIUS authentication server |
| show | Show AAA information |
| tacacs+ | Configure TACACS+ authentication server |
| timeout | Configure server response timeout |

## acc-radius:

The command lets you configure the RADIUS accounting server parameter.

**Syntax:** **acc-radius** <index> <enable/disable> <ip-hostname> <0-65535> <Line>

**Parameter :**

**<index>** The RADIUS accounting Server index. The available value is from 1 to 5

**<disable/enable>** To enable or disable the RADIUS accounting service.

**<ip-hostname>** The RADIUS accounting server IP address or hostname.

**<0-65535>** The RADIUS accounting server UDP port. If the port is set to 0 (zero), then the default port (1813) is used.

**<LINE>** Secret shared with external accounting server. The Available value is up to 29 characters long.

**EXAMPLE:**

```
Switch(aaa)# acc-radius 1 enable 192.168.2.22 65535 radius
Switch(aaa)# show config

Server Timeout   : 15 seconds
Server Dead Time : 300 seconds
TACACS+ Authorization and Accounting Configuration:
Authorization               : Disable
Fallback to Local Authorization: Disable
Accounting                  : Disable
```

```
RADIUS Authentication Server Configuration:
Server Mode    IP Address or Host Name    Port  Secret
------ -------- -------------------------- ----- ----------------------------
RADIUS Authentication Server Configuration:
Server Mode    IP Address or Host Name    Port  Secret
------ -------- -------------------------- ----- ----------------------------

1     Disabled                        1812
2     Disabled                        1812
3     Disabled                        1812
4     Disabled                        1812
5     Disabled                        1812

RADIUS Accounting Server Configuration:
Server Mode    IP Address or Host Name    Port  Secret
------ -------- -------------------------- ----- ----------------------------

1     Enabled  192.168.2.22             65535 radius
2     Disabled                        1813
3     Disabled                        1813
4     Disabled                        1813
5     Disabled                        1813

TACACS+ Authentication Server Configuration:
Server Mode    IP Address or Host Name    Port  Secret
------ -------- -------------------------- ----- ----------------------------

1     Disabled                    49
2     Disabled                    49
3     Disabled                    49
4     Disabled                    49
5     Disabled                    49
Switch(aaa)#
```

**accounting :** The command lets you enable or disable the RADIUS accounting operation mode.

**Syntax:** **accounting** <enable/disable>

**Parameter :**

**<disable>** Globally disable Accounting operation mode.

**<enable>** Globally enable Accounting operation mode.

**EXAMPLE:**

```
Switch(aaa)# accounting enable
Server disconnect!
Switch(aaa)# accounting disable
Switch(aaa)#
```

**NOTE:** If you didn't connect the RADIUS Server already then the switch will show "Server disconnect".

## authorization:

To configure (enable/disable) RADIUS Authorization mode.

**Syntax:** **authorization** <enable/disable>

**Parameter :** **<disable>** Globally disable Authorization operation mode.

**<enable>** Globally enable Authorization operation mode.

**EXAMPLE:**

```
Switch(aaa)# authorization enable
Switch(aaa)#
```

## deadtime:

The command lets you configure the RADIUS server deadtime.

**Syntax:** **deadtime** <0-3600>

**Parameter :** **<0-3600>** Time that a server is considered dead if it doesn't answer a request. The available value is from 0 to 3600 second

**Default Setting :** **None**

**EXAMPLE:**

```
Switch(aaa)# deadtime 3600
Server disconnect!
Switch(aaa)#
```

**NOTE:** If you didn't connect the RADIUS Server already then the switch will show "Server disconnect".

## fallback-author:

The command lets you configure the fallback function of RADIUS authorization with enable/disable if remote authorization fails.

**Syntax:** **fallback-author** <disable/ enable>.

**Parameter :** **<disable>** Disable fallback function.

**<enable>** Enable fallback function if remote authorization fails.

**EXAMPLE:**

```
Switch(aaa)# fallback-author enable
Server disconnect!
```

**NOTE:** If you didn't connect the RADIUS Server already then the switch will show "Server disconnect".

## radius:

The command lets you configure the RADIUS Server detail parameter

**Syntax:** **radius** <index> <enable/disable> <ip-hostname> <0-65535> <Line> .

**Parameter :**

**<index>** The RADIUS accounting Server index. The available value is from 1 to 5

**<disable/enable>** To enable or disable the RADIUS accounting service.

**<ip-hostname>** The RADIUS accounting server IP address or hostname.

**<0-65535>** The RADIUS accounting server UDP port. If the port is set to 0 (zero), then the default port (1813) is used.

**<LINE>** Secret shared with external accounting server. The Available value is up to 29 characters long.

**EXAMPLE:**

```
Switch(aaa)# radius 1 enable 192.168.2.22 0 radius
Server disconnect!
```

**NOTE:** If you didn't connect the RADIUS Server already then the switch will show "Server disconnect".

## Show:

The command lets you display the RADIUS AAA information.

**Syntax:** **Show** <config>

**Show** <statistics> <1-5>

**Parameter :**

**<config>** To show AAA configuration

**<statistics>** To show RADIUS statistics

**<1-5>** The RADIUS Server Index

**EXAMPLE:**

```
Switch(aaa)# show config

Server Timeout   : 15 seconds
Server Dead Time : 300 seconds

TACACS+ Authorization and Accounting Configuration:
Authorization               : Disable
Fallback to Local Authorization: Disable
Accounting                  : Disable

RADIUS Authentication Server Configuration:
Server Mode    IP Address or Host Name    Port  Secret
------ -------- ------------------------- ----- ------------------------------

1     Disabled                          1812
2     Disabled                          1812
3     Disabled                          1812
4     Disabled                          1812
5     Disabled                          1812

RADIUS Accounting Server Configuration:
Server Mode    IP Address or Host Name    Port  Secret
------ -------- ------------------------- ----- ------------------------------

1     Disabled                          1813
2     Disabled                          1813
3     Disabled                          1813
4     Disabled                          1813
5     Disabled                          1813

TACACS+ Authentication Server Configuration:
Server Mode    IP Address or Host Name    Port  Secret
------ -------- ------------------------- ----- ------------------------------

1     Disabled                       49
2     Disabled                       49
3     Disabled                       49
4     Disabled                       49
5     Disabled                       49
Switch(aaa)#

Switch(aaa)#  show statistics 1

Server #1 (0.0.0.0:1812) RADIUS Authentication Statistics:
Rx Access Accepts                 0  Tx Access Requests               0
Rx Access Rejects                 0  Tx Access Retransmissions         0
Rx Access Challenges              0  Tx Pending Requests               0
Rx Malformed Acc. Responses       0  Tx Timeouts                       0
Rx Bad Authenticators             0
Rx Unknown Types                  0
Rx Packets Dropped                0
State:                     Disabled
Round-Trip Time:                  0 ms

Server #1 (0.0.0.0:1813) RADIUS Accounting Statistics:
Rx Responses                      0  Tx Requests                     0
Rx Malformed Responses            0  Tx Retransmissions              0
Rx Bad Authenticators             0  Tx Pending Requests             0
Rx Unknown Types                  0  Tx Timeouts                     0
Rx Packets Dropped                0
State:                     Disabled
Round-Trip Time:                  0 ms
Switch(aaa)#
```

**tacacs+ :** The command lets you configure the TACACS+ authentication server detail parameter.

**Syntax:** **tacacs+** <index> <enable/disable> <ip-hostname> <0-65535> <Line>

**Parameter :** **<index>** The TACACS+ authentication Server index. The available value is from 1 to 5

**<disable/enable>** To enable or disable the TACACS+ authentication service.

**<ip-hostname>** The TACACS+ authentication server IP address or hostname.

**<0-65535>** The TACACS+ authentication server UDP port. If the port is set to 0 (zero), then the default port (1813) is used.

**<LINE>** Secret shared with external accounting server. The Available value is up to 29 characters long.

**EXAMPLE:**

```
Switch(aaa)# tacas+ 1 enable 192.168.2.22 0 tacacs
Server disconnect!
```

**NOTE:** If you didn't connect the TACACS+ Server already then the switch will show "Server disconnect".

## timeout :

The command lets you configure server response timeout

**Syntax:** **timeout** <3-3600>

**Parameter :** **<3-3600>** The Timeout, which can be set to a number between 3 and 3600 seconds, is the maximum time to wait for a reply from a server.

**EXAMPLE:**

```
Switch(aaa)# timeout 360
Switch(aaa)#
```

# Chapter 3 Access Commands of CLI

## Access

This section shows you to configure access management table of the Switch including HTTP/HTTPS, SNMP, and TELNET/SSH. You can manage the Switch over an Ethernet LAN, or over the Internet..

**Table 2: Access Commands in CLI**

| Command | Function |
|---|---|
| add | Add or modify access management entry |
| clear | Clear access management statistics |
| delete | Delete access management entry |
| mode | Configure the access management mode |
| show | Show access management information |

### add:

The command lets you add or modify access management entry

**Syntax:** **add** <1-16> <ipv4/ipv6> <ip-address> <ip-address> <all> <snmp> <telnet> <web>

**Parameter :**

**<1-16>** To set the entry index

**<ipv4>** IPv4 format address

**<ipv6>** IPv6 format address

**<ip-address>** Start IP address

**<ip-address>** End IP address

**<all>** All interfaces what the switch physical ports

**<snmp>** To set the SNMP interface

**<telnet>** To set up the TELNET/SSH interface

**<web>** To set the HTTP/HTTPS interface

**EXAMPLE:**

```
Switch(access)# add 1 ipv4 192.168.1.1  192.168.1.241 all
Switch(access)# show config
Access Management Mode : Disabled

W: WEB/HTTPS
S: SNMP
T: TELNET/SSH
Index Start IP Address              End IP Address              W S T
----- ------------------------------ ------------------------------ - - -
1    192.168.1.1                  192.168.1.241               Y Y Y
Switch(access)#
```

**clear:** The command lets you clear access management statistics

**Syntax:** **Clear** < statistics>

**Parameter :** **<None>** Clear access management statistics

**EXAMPLE:**

```
Switch(access)# clear statistics
Switch(access)#
```

**delete:** The command lets you delete access management entry.

**Syntax:** **Delete** <1-16>

**Parameter :** **<1-16>** Entry index

**EXAMPLE:**

```
Switch(access)# delete  1
Switch(access)# show config
Access Management Mode : Disabled
W: WEB/HTTPS
S: SNMP
T: TELNET/SSH
Index Start IP Address              End IP Address              W S T
----- ------------------------------ ------------------------------ - - -
Switch(access)#
```

**mode:** The command lets you configure the access management mode

**Syntax:** **mode** <disable> <enable>

**Parameter :** **<disable>** Disable access management mode operation

**<enable>** Enable access management mode operation

**EXAMPLE:**

```
Switch(access)# mode enable
Switch(access)#
Switch(access)# show config
Access Management Mode : Enabled
W: WEB/HTTPS
S: SNMP
T: TELNET/SSH
Index Start IP Address              End IP Address               W S T
----- ------------------------------ ------------------------------ - - -
1    192.168.2.22                192.168.2.250               Y Y Y
Switch(access)#
```

**show:** The command lets you display access setting information

**Syntax:** **show** < config> / < statistics>

**Parameter :** **<config>** Show access management configuration

**<statistics>** Show access management statistics

**EXAMPLE:**

```
Switch(access)# show config

Access Management Mode : Enabled

W: WEB/HTTPS
S: SNMP
T: TELNET/SSH
 Index Start IP Address             End IP Address               W S T
----- ------------------------------ ------------------------------


Switch(access)# show statistics
Client  Receive    Allow      Discard
------  ---------  ---------  ---------
HTTP    0          0          0
HTTPS   0          0          0
SNMP    0          0          0
TELNET  0          0          0
SSH     0          0          0
```

# Chapter 4 Account Commands of CLI

**Account**

In this function, only administrator can create, modify or delete the username and password. Administrator can modify other guest identities' password without confirming the password but it is necessary to modify the administrator-equivalent identity. Guest-equivalent identity can modify his password only. Please note that you must confirm administrator/guest identity in the field of Authorization in advance before configuring the username and password. Only one administrator is allowed to exist and unable to be deleted. In addition, up to 4 guest accounts can be created.

**Table 3: Account Commands**

| Command | Function |
|---|---|
| add | Add or modify user account |
| delete | Delete user account |
| show | Show user account information |

## add: This command lets you add or modify user account

**Syntax:** **add** <1-15> <word> <word>

**Parameter :** **<1-15>** User privilege level

**<WORD>** Up to 32 characters to identify the user name

**<WORD>:** The password for this user name

**EXAMPLE:**

```
Switch(account)# add 10 david david
Switch(account)# show
User Name                    Privilege Level
------------------------------ ---------------
admin                                    15
david                                    10
```

## delete: This command lets you delete a new operator user or you add one in the switch.

**Syntax:** **delete** <WORD>

**Parameter :** **<WORD>** Up to 32 characters to identify the user name

**EXAMPLE:**

```
Switch(account)# delete 12
Switch(account)# show
User Name                       Privilege Level
------------------------------- ---------------
admin                                        15
Switch(account)#
```

**show :** The command lets you display user account information what you set in the switch.

**Syntax:** **Show** <name>

**Parameter :** **<name>** Up to 32 characters to identify the user name

**EXAMPLE:**

```
Switch(account)# show
User Name                       Privilege Level
------------------------------- ---------------
admin                                        15
Switch(account)#
```

# Chapter 5 ACL Commands of CLI

**ACL**

The switch access control list (ACL) is probably the most commonly used object in the IOS. It is used for packet filtering but also for selecting types of traffic to be analyzed, forwarded, or influenced in some way. The ACLs are divided into EtherTypes. IPv4, ARP protocol, MAC and VLAN parameters etc. Here we will just go over the standard and extended access lists for TCP/IP. As you create ACEs for ingress classification, you can assign a policy for each port, the policy number is 1-8, however, each policy can be applied to any port. This makes it very easy to determine what type of ACL policy you will be working with.

**Table 4: ACL Commands**

| Command | Function |
|---|---|
| ace | Add or modify access control entry |
| action | Configure ACL port default action |
| Clear | Clear all ACL counters |
| delete | To delete the ACE (Access Control Entry) configuration on the switch |
| logging | Configure ACL port default logging operation |
| move | Move ACE |
| policy | Configure ACL port policy |
| rate-limiter | To set ACL rate limit |
| show | Show ACL information |
| shutdown | Configure ACL port default shut down operation |

## ace :

The command lets you add or modify Access Control Entry.

**Syntax:** **ace** <index>

**Parameter :** **<1-256> :** If the ACE ID is specified and an entry with this ACE ID already exists, the ACE will be modified. Otherwise, a new ACE will be added.

**<0-256>:** If the next ACE ID is non-zero, the ACE will be placed before this ACE in the list. If the next ACE ID is zero, the ACE will be placed last in the list.

**policy:** Policy ACE keyword, the rule applies to all ports configured with the specified policy.

**port:** Port ACE keyword, the rule applies to the specified port only.

**switch: Switch ACE keyword, the rule applies to all ports**

**<port-list> :** available value is from switch physic port density, format: 1,3-5

**any:** Any frame can match this ACE.

**arp :** Only ARP frames can match this ACE. Notice the ARP frames won't match the ACE with Ethernet type

**etype:** Only Ethernet Type frames can match this ACE

**icmp :** Only ICMP frames can match this ACE. Notice the ICM frames won't match the ACE with Ethernet type

**ipv4:** Only IPv4 frames can match this ACE. Notice the IPv4 frames won't match the ACE with Ethernet type

**tcp :** Only TCP frames can match this ACE. Notice the TCP frames won't match the ACE with Ethernet type

**udp:** Only UDP frames can match this ACE. Notice the UDP frames won't match the ACE with Ethernet type

**EXAMPLE:**

```
Switch(acl)# ace 1 0 port 1 ipv4
Switch(acl/ace-port(ipv4))#
Switch(acl/ace-port(ipv4))# show
ACE ID     : 1                  Rate Limiter: Disabled
Ingress Port: 1                  Port Copy   : Disabled
                                Mirror     : Disabled
Type       : User                Logging    : Disabled
Frame Type  : IPv4                Shutdown    : Disabled
Action     : Permit              Counter    : 0

MAC Parameters                   VLAN Parameters
--------------                   ---------------
DMAC Type   : Any                802.1Q Tagged: Any
                                VLAN ID     : Any
                                Tag Priority : Any
IP Parameters
-------------
Protocol    : Any
Source     : Any
Destination : Any
TTL        : Any
Fragment    : Any
Options    : Any

Switch(acl/ace-port(any))#
Switch(acl/ace-port(ipv4))# end
Success! ACE ID 1 added last
```

## action:

The command lets you configure ACL port default action

**Syntax:** **action** <port-list> <deny> <permit>.

**Parameter :** **<port-list> :** available value is from switch physic port density, format: 1,3-5

**deny :** Deny forwarding

**permit :** Permit forwarding

**EXAMPLE:**

```
Switch(acl)# action  1  permit
Switch(acl)#
Switch(acl)# show port
                Rate
Port Policy Action Limiter  Port Copy    Mirror   Logging  Shutdown Counter
---- ------ ------ -------- ------------ -------- -------- -------- ----------
1    1      Deny   Disabled Disabled     Disabled Disabled Disabled 0
2    1      Permit Disabled Disabled     Disabled Disabled Disabled 0
3    1      Permit Disabled Disabled     Disabled Disabled Disabled 0
4    1      Permit Disabled Disabled     Disabled Disabled Disabled 0
5    1      Permit Disabled Disabled     Disabled Disabled Disabled 0
……….

Rate Limiter  Rate
------------  ------------
1           1 PPS
2           1 PPS
3           1 PPS
4           1 PPS
```

## delete :

This command lets you delete the ACE (Access Control Entry) configuration on the switch.

**Syntax:** **delete** <1-256>.

**Parameter :** **<1-256>** ACE ID must be exist

**EXAMPLE:**

```
Switch(acl)# delete  1
Switch(acl)#
Switch(acl)# show acl-config
Number of ACEs: 0
```

## logging :

This command lets you configure ACL port default logging operation.

**Syntax:** **logging** <port-list> enable/disable

**Parameter :** **<port-list> :** Port list, available value is from switch physic port density, format: 1,3-5

**disable :** Frames received on the port are not logged

**enable :** Frames received on the port are stored in the system log

**EXAMPLE:**

```
Switch(acl)# logging  1  disable
Switch(acl)#
```

**move:** This command lets you move ACE configuration between two indexes.

**Syntax:** **Move** <1-256> <0-256>

**Parameter :** **<1-256>** ACE ID must be exist

**<0-256>** If the next ACE ID is non-zero, the ACE will be Placed before this ACE in the list. If the next ACE ID is zero, the ACE will be placed last in the list.

**EXAMPLE:**

```
Switch(acl)# move 1  0
Switch(acl)#
```

**policy:** This command lets you set acl port policy on switch.

**Syntax:** **policy** <port-list> <1-8>

**Parameter :** **<port-list>** Port list, available value is from switch physic port density, format: 1,3-5

**<1-8>** Policy number

**EXAMPLE:**

```
Switch(acl)# policy  1 1
Switch(acl)#
```

**port-rate:** This command lets you set acl port-rate on switch.

**Syntax:** **port-rate** <port-list> <1-8>

**Parameter :** **<port-list>** Port list, available value is from switch physic port density, format: 1,3-5

**disable** Disable rate limit

**<1-16>** Rate limiter ID

**EXAMPLE:**

```
Switch(acl)#  port-rate 1 1
Switch(acl)#
```

**rate-limiter:** This command lets you set the access control rule with rate limiter on switch.

**Syntax:** **rate-limiter** <1-16> <kbps> <0-10000>

**Parameter :**

**<1-16>** Rate limiter ID

**kbps** Kbits per second

**pps** Packets per second

**<0-10000>** Rate in 100Kbps

**EXAMPLE:**

```
Switch(acl)# rate-limiter 1 kbps 100
Switch(acl)#
```

**show :** This command lets you show all access control entry setting or information of the switch.

**Syntax:** **show** acl-config/acl-status/port/rate-limiter

**Parameter :**

**acl-config** Show ACL configuration

**acl-status** Show ACL status

**port** Show ACL port configuration

**rate-limiter** Show ACL rate limiter

**EXAMPLE:**

```
Switch(acl)# show acl-config
Number of ACEs: 0
```

```
Switch(acl)# show port
                Rate
Port Policy Action Limiter  Port Copy    Mirror   Logging  Shutdown Counter
---- ------ ------ -------- ------------ -------- -------- -------- ----------
1    1      Permit 1       Disabled     Disabled Disabled Disabled 0
2    1      Permit Disabled Disabled     Disabled Disabled Disabled 0
3    1      Permit Disabled Disabled     Disabled Disabled Disabled 0
4    1      Permit Disabled Disabled     Disabled Disabled Disabled 0
5    1      Permit Disabled Disabled     Disabled Disabled Disabled 0
6    1      Permit Disabled Disabled     Disabled Disabled Disabled 0
7    1      Permit Disabled Disabled     Disabled Disabled Disabled 0
8    1      Permit Disabled Disabled     Disabled Disabled Disabled 0
9A   1      Permit Disabled Disabled     Disabled Disabled Disabled 0
10A  1      Permit Disabled Disabled     Disabled Disabled Disabled 0
9B   1      Permit Disabled Disabled     Disabled Disabled Disabled 0
10B  1      Permit Disabled Disabled     Disabled Disabled Disabled 0

Rate Limiter  Rate
------------  ------------
1             1 PPS
2             1 PPS
3             1 PPS
4             1 PPS
5             1 PPS
 --More--, q to quit
```

# Chapter 6 Aggregation Commands of CLI

## Aggregation

The Aggregation is used to configure the settings of Link Aggregation. You can bundle more than one port with the same speed, full duplex and the same MAC to be a single logical port, thus the logical port aggregates the bandwidth of these ports. This means you can apply your current Ethernet equipment's to build the bandwidth aggregation. For example, if there are three Fast Ethernet ports aggregated in a logical port, then this logical port has bandwidth three times as high as a single Fast Ethernet port has.

**Table 5: Aggregation Commands**

| Command | Function |
|---|---|
| delete | Delete command |
| group | Configure the link aggregation group |
| mode | Configure the link aggregation traffic distribution mode |
| Show | Show aggregation group information |

### delete:

This command lets you delete the link aggregation entry on switch.

**Syntax:** **delete** <group>

**Parameter :** **<group>** The link aggregation group what you want to delete.

**EXAMPLE:**



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*Revision A1*

```
Switch(aggregation)# delete group 2
Switch(aggregation)# show
Aggregation Mode
---------------
Source MAC     : Disabled
Destination MAC : Disabled
IP Address     : Disabled
TCP/UDP Port   : Disabled
```

**group:** This command lets you configure the link aggregation group.

**Syntax:** **group** <1-14> <port-list>

**Parameter :** **<1-14>** The Aggregation group id.

**<port-list>** available value is from switch physic port density, format: 1,3-5

**EXAMPLE:**

```
Switch(aggregation)# group 2 5-7
Switch(aggregation)#
```

**mode:** The command lets you configure the link aggregation traffic distribution mod.

**Syntax:** **mode** dmac/ ip/ port/ smac disable/enable

**Parameter :** **dmac** Destination MAC address.

**ip** Source and destination IP address.

**port** Source and destination UDP/TCP port

**smac** Source MAC address

**disable** Disable field in traffic distribution

**enable** Enable field in traffic distribution

**EXAMPLE:**

```
Switch(aggregation)# mode ip disable
Switch(aggregation)#
Switch(aggregation)# show
Aggregation Mode
---------------
Source MAC     : Disabled
```

**show:** This command lets you display all aggregation configurations on the switch.

**Syntax:** **show** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(aggregation)# show
Aggregation Mode
---------------
Source MAC     : Enabled
Destination MAC : Disabled
IP Address     : Disabled
TCP/UDP Port   : Enabled

Group ID  Name   Type   Configured Ports  Aggregated Ports
--------  ------  ------  ---------------  ---------------
2        LLAG2   Static  5-7             None
Switch(aggregation)#
```

# Chapter 7 Arp-inspection Commands of CLI

## Arp inspection

The section describes to configure the ARP Inspection parameters of the switch. You could use the ARP Inspection configure to manage the ARP table.

**Table 6: Arp-inspection Commands**

| Command | Function |
|---|---|
| add | Add ARP inspection static entry |
| delete | Delete ARP inspection static entry |
| mode | Configure ARP inspection mode |
| port-mode | Configure ARP inspection port mode |
| show | Show ARP inspection information |

### add:

This command lets you add ARP inspection static entry.

**Syntax:** **add** <port-list> <1-4094> <ip-address> <mac-address>

**Parameter :** **<port-list>** Port list, available value is from switch physic port density, format: 1,3-5

**<1-4094>** VLAN ID, available value is from 1 to 4094

**<ip-address>** IP address allowed for doing ARP request

**<mac-address>** MAC address, format 0a-1b-2c-3d-4e-5f

**EXAMPLE:**

```
Switch(arp-inspection)# add 1  5 192.168.1.2 0a-1b-2c-3d-4e-5f
Switch(arp-inspection)#
```

### delete:

This command lets you delete ARP inspection static entry.

**Syntax:** **delete** <port-list> <1-4094> <ip-address> <mac-address>

**Parameter :** **<port-list>** Port list, available value is from switch physic port density, format: 1,3-5

**<1-4094>** VLAN ID, available value is from 1 to 4094

**<ip-address>** IP address allowed for doing ARP request

**<mac-address>** MAC address, format 0a-1b-2c-3d-4e-5f

**EXAMPLE:**

```
Switch(arp-inspection)# delet 1  5 192.168.1.2 0a-1b-2c-3d-4e-5f
Switch(arp-inspection)#
```

## mode :

The command lets you configure ARP inspection mode

**Syntax:** **delete** <port-list> <1-4094> <ip-address> <mac-address>

**Parameter :** **<port-list>** Port list, available value is from switch physic port density, format: 1,3-5

**<1-4094>** VLAN ID, available value is from 1 to 4094

**<ip-address>** IP address allowed for doing ARP request

**<mac-address>** MAC address, format 0a-1b-2c-3d-4e-5f

**EXAMPLE:**

```
Switch(arp-inspection)# mode disable
Switch(arp-inspection)#
```

## port-mode:

The command lets you configure ARP inspection port mode

**Syntax:** **Port-mode** <port-list> disable/ enable

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**disable** Disable ARP inspection port mode

**enable** Enable ARP inspection port mode

**EXAMPLE:**

```
Switch(arp-inspection)# port-mode 1 disable
Switch(arp-inspection)#
```

## show:

The command lets you display the ARP inspection configuration information.

**Syntax:** **show** config/ status

**Parameter :** **config** Show ARP inspection configuration

**status** Show ARP inspection static and dynamic entry

**EXAMPLE:**

```
Switch(arp-inspection)# show config

ARP Inspection Mode : Disabled

Port  Port Mode
----  ---------
1    Disabled
2    Disabled
3    Disabled
4    Disabled
5    Disabled
6    Disabled
7    Disabled
8    Disabled
9    Disabled
10   Disabled
11   Disabled
12   Disabled
13   Disabled
14   Disabled
15   Disabled
16   Disabled
17   Disabled
18   Disabled
19   Disabled
20   Disabled
21   Disabled
22   Disabled
23   Disabled
24   Disabled
25   Enabled
26   Disabled
27   Disabled
28   Disabled
Switch(arp-inspection)#
```

# Chapter 8 Auth Commands of CLI

## Auth method

This page shows how to configure a user with authenticated when he logs into the switch via one of the management client interfaces.

**Table 7: Auth Method Commands**

| Command | Function |
|---|---|
| fallback | Configure local authentication fallback |
| method | Configure authentication method |
| show | Show Authentication configuration |

### fallback:

The command lets you configure the local authentication fallback function.

**Syntax:** **fallback** < console>/< ssh >/ < telnet >/ < web >, disable/enable

**Parameter :**

**<console>** Settings the authenticate method fallback via console

**<ssh>** Settings the authenticate method fallback via ssh

**<telnet>** Settings the authenticate method fallback via telnet

**<web>** Settings the authenticate method fallback via web

**disable** Disable local authentication if remote authentication fails

**enable** Enable local authentication if remote authentication fails

**EXAMPLE:**

```
Switch(auth)# fallback ssh disable
Switch(auth)#
```

### method :

The command lets you configure Authentication method function.

**Syntax:** **method** < console>/< ssh >/ < telnet >/ < web >, local / none / radius / tacats+

**Parameter :**

**<console>** Settings the authenticate method via console

**<ssh>** Settings the authenticate method via ssh

**<telnet>** Settings the authenticate method via telnet

**<web>** Settings the authenticate method via web

**local** Use local authentication

**none** Authentication disabled

**telnet** Use remote RADIUS authentication

**tacacs+** Use remote TACACS+ authentication

**EXAMPLE:**

```
Switch(auth)# method ssh local
Switch(auth)#
```

**show:** The command lets you display the ARP inspection configuration information.

**Syntax:** **show** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(auth)# show
Client   Authentication Method  Local Authentication Fallback
-------  --------------------  ------------------------------
console  local                 Disabled
telnet   local                 Disabled
ssh      local                 Disabled
web      local                 Disabled10B   Disabled
```

# Chapter 9 Config-file Commands of CLI

## Config-file

This section describes how to export and import the Switch configuration. Any current configuration files will be exported as XML format.

**Table 8: Config-file Commands**

| Command | Function |
|---|---|
| export | Export configuration file to TFTP server |
| import | Import configuration file from TFTP server |

### export:

The command lets you run the export function to export the switch configuration to TFTP server.

**Syntax:** **export** < ip-address> <WORD>

**Parameter :** **<ip-address>** The TFTP server ip address

**<WORD>** Configuration file name

**EXAMPLE:**

```
Switch(config-file)# export 192.168.1.100  testfile
Switch(config-file)#
```

### Import:

The command lets you run run the import start function to import the switch configuration from TFTP server.

**Syntax:** **import** < ip-address> <WORD>

**Parameter :** **<ip-address>** The TFTP server ip address

**<WORD>** Configuration file name

**EXAMPLE:**

```
Switch(config-file)# import 192.168.1.100  testfile
Switch(config-file)#
```

# Chapter 10 DHCP Relay Commands of CLI

## DHCP Relay

The section describes how to forward DHCP requests to another specific DHCP server via DHCP relay. The DHCP servers may be on another network.

**Table 9: DHCP Relay Commands**

| Command | Function |
|---|---|
| clear | Clear DHCP relay statistics |
| mode | Configure DHCP relay mode |
| relay-option | Configure DHCP relay agent information option |
| server | Configure DHCP relay server |
| show | Show DHCP relay information |

### clear:

The command lets you clear DHCP relay statistics what you set on the switch.

**Syntax:** **clear** < statistics >

**Parameter :** **statistics** The parameter let you to clear DHCP relay statistics

**EXAMPLE:**

```
Switch(dhcp-relay)# clear statistics
Switch(dhcp-relay)#
```

### mode:

The command lets you configure DHCP relay mode on the switch.

**Syntax:** **mode** disable/ enable

**Parameter :** **disable** The parameter means you to disable DHCP relay mode.

**Enable** The parameter means you to enable DHCP snooping mode.

**NOTE:** When enable DHCP relay mode operation, the agent forward and to transfer DHCP messages between the clients and the server when they are not on the same subnet domain. And the DHCP broadcast message won't flood for security considered.

**EXAMPLE:**

```
Switch(dhcp-relay)# mode disable
Switch(dhcp-relay)#
```

**relay-option:** The command lets you configure DHCP relay agent information option

**Syntax:** **relay-option** disable/ enable

**Parameter :** **disable** The parameter means you to disable DHCP relay agent information option mode.

**Enable** The parameter means you to enable DHCP relay agent information option mode.

**NOTE:** The agent insert specific information (option 82) into a DHCP message when forwarding to DHCP server and remove it from a DHCP message when transferring to DHCP client. If agent receive a DHCP message that already contains relay agent information. It will enforce the policy.

**EXAMPLE:**

```
Switch(dhcp-relay)# relay-option disable
Switch(dhcp-relay)#
```

**server:** The command lets you configure DHCP relay server ip address on the switch.

**Syntax:** **server** <ip-address>

**Parameter :** **<ip-address>** The parameter let you type in the DHCP server IP address.

**EXAMPLE:**

```
Switch(dhcp-relay)# server 192.168.1.100
Switch(dhcp-relay)# show config
DHCP Relay Mode             : Disabled
DHCP Relay Server           : 192.168.1.100
DHCP Relay Information Mode   : Disabled
DHCP Relay Information Policy : Replace
Switch(dhcp-relay)#
```

**show:** The command lets you to display DHCP relay information

**Syntax:** **show** config/statistics

**Parameter :** **config** The parameter lets you to set for show DHCP relay configuration

**statistics** The parameter lets you to set for show DHCP relay statistics

**EXAMPLE:**

```
Switch(dhcp-relay)# show config
DHCP Relay Mode             : Disabled
DHCP Relay Server           : 192.168.1.100
DHCP Relay Information Mode   : Disabled
DHCP Relay Information Policy : Replace

Switch(dhcp-relay)# show statistics

Server Statistics:
------------------
Transmit to Server        :        0 Transmit Error             :        0
Receive from Server       :        0 Receive Missing Agent Option :        0
Receive Missing Circuit ID :         0 Receive Missing Remote ID    :        0
Receive Bad Circuit ID    :        0 Receive Bad Remote ID       :        0

Client Statistics:
--------------------
Transmit to Client   :        0   Transmit Error      :        0
Receive from Client  :        0   Receive Agent Option :         0
Replace Agent Option :        0   Keep Agent Option    :        0
Drop Agent Option    :        0
Switch(dhcp-relay)#
```

# Chapter 11 DHCP Snooping Commands of CLI

**DHCP snooping**

The section describes to configure the DHCP Snooping parameters of the switch. The DHCP Snooping can prevent attackers from adding their own DHCP servers to the network.

**Table 10: DHCP Snooping Commands**

| Command | Function |
|---|---|
| clear | Clear DHCP snooping statistics |
| mode | Configure DHCP snooping mode |
| Port-mode | Configure DHCP snooping port mode |
| show | Show DHCP snooping information |

## clear:

The command lets you clear DHCP snooping statistics entry what you set on the switch.

**Syntax:** **clear** <statistics> <port-list>

**Parameter :** **statistics** Clear DHCP snooping statistics

**<port-list>** Port list, available value is from 1 to 10B format:1,3-5

**EXAMPLE:**

```
Switch(dhcp-snooping)# clear statistics 1
Switch(dhcp-snooping)#
```

## mode:

The command lets you configure DHCP snooping mode

**Syntax:** **mode** disable /enable

**Parameter :** **disable** The parameter let you disable DHCP snooping mode

**enable** The parameter let you enable DHCP snooping mode.

**NOTE:** When enable DHCP snooping mode operation, the request DHCP messages will be forwarded to trusted ports and only allowed reply packets from trusted ports.

**EXAMPLE:**

```
Switch(dhcp-snooping)# mode disable
Switch(dhcp-snooping)#
```

**port-mode:** The command lets you configure DHCP snooping port mode

**Syntax:** **Mode** <port-list> trusted/ untrusted

**Parameter :** **<port-list>** Port list, available value is from 1 to 10B format:1,3-5

**trusted** Configures the port as trusted sources of the DHCP message

**untrusted** Configures the port as untrusted sources of the DHCP message

**EXAMPLE:**

```
Switch(dhcp-snooping)# port-mode 1 trusted
Switch(dhcp-snooping)#
Switch(dhcp-snooping)# show config

DHCP Snooping Mode : Disabled
Port  Port Mode
----  ---------
1     trusted
2     untrusted
3     untrusted
4     untrusted
5     untrusted
6     untrusted
7     untrusted
8     untrusted
9     untrusted
10    untrusted
11    untrusted
12    untrusted
13    untrusted
14    untrusted
15    untrusted
16    untrusted
17    untrusted
18    untrusted
--More--, q to quit
Switch(dhcp-snooping)#
```

**show:** The command lets you to show DHCP snooping information.

**Syntax:** **show** config/ statistics

**Parameter :** **config** Show DHCP snooping configuration

**statistics** Show DHCP snooping statistics

**EXAMPLE:**

```
Switch(dhcp-snooping)# port-mode 1 trusted
Switch(dhcp-snooping)#
Switch(dhcp-snooping)# show config

DHCP Snooping Mode : Disabled
Port  Port Mode
----  ---------
1    trusted
2    untrusted
3    untrusted
4    untrusted
5    untrusted
6    untrusted
7    untrusted
8    untrusted
9    untrusted
10   untrusted
11   untrusted
12   untrusted
13   untrusted
14   untrusted
15   untrusted
16   untrusted
17   untrusted
18   untrusted
--More--, q to quit
Switch(dhcp-snooping)#
```

```
Switch(dhcp-snooping)# show statistics 1
Port 1 Statistics:           Receive Packets                Transmit Packets
-------------------------------------  -------------------------------------
Rx Discover                       0  Tx Discover                       0
Rx Offer                          0  Tx Offer                          0
Rx Request                        0  Tx Request                        0
Rx Decline                        0  Tx Decline                        0
Rx ACK                            0  Tx ACK                            0
Rx NAK                            0  Tx NAK                            0
Rx Release                        0  Tx Release                        0
Rx Inform                         0  Tx Inform                         0
Rx Lease Query                    0  Tx Lease Query                    0
Rx Lease Unassigned               0  Tx Lease Unassigned               0
Rx Lease Unknown                  0  Tx Lease Unknown                  0
Rx Lease Active                   0  Tx Lease Active                   0
Switch(dhcp-snooping)#
```

# Chapter 12 Diagnostic Commands of CLI

## Diagnostic

This section provides a set of basic system diagnosis. It let users know that whether the system is health or needs to be fixed. The basic system check includes ICMP Ping, ICMPv6, and VeriPHY Cable Diagnostics.

**Table 11: Diagnostic Commands**

| Command | Function |
|---|---|
| ping | Uses the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit an ICMP ECHO_RESPONSE from a host or gateway. |
| ping6 | Uses the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit an ICMP ECHO_RESPONSE from a host or gateway. |
| veriphy | Run cable diagnostics. |

### ping:

The command lets you to use the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit an ICMP ECHO_RESPONSE from a host or gateway

**Syntax:** **clear** <ip-hostname> <60-1400>

**Parameter :** **<ip-hostname>** Hostname or IP address

**<60-1400>** Size of ICMP echo packet

**EXAMPLE:**

```
Switch(diagnostic)# ping 192.168.6.200 80
PING server 192.168.6.200, 80 bytes of data.
88 bytes from 192.168.6.200: icmp_seq=0, time=0ms
88 bytes from 192.168.6.200: icmp_seq=1, time=0ms
88 bytes from 192.168.6.200: icmp_seq=2, time=0ms
88 bytes from 192.168.6.200: icmp_seq=3, time=0ms
88 bytes from 192.168.6.200: icmp_seq=4, time=0ms
Sent 5 packets, received 5 OK, 0 bad
Switch(diagnostic)#
```

### ping6:

The command lets you to use the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit an ICMP ECHO_RESPONSE from a host or gateway

**Syntax:** **clear** <ipv6-address> <60-1400>

**Parameter :** **<ipv6-address>** The parameter you need to type IPv6 address

**<60-1400>** Size of ICMP echo packet

**EXAMPLE:**

```
Switch(diagnostic)# ping6 ff06:0:0:0:0:0:c3 80
PING6 server ff06::c3, 80 bytes of data.
88 bytes from 192.168.6.200: icmp_seq=0, time=0ms
88 bytes from 192.168.6.200: icmp_seq=1, time=0ms
88 bytes from 192.168.6.200: icmp_seq=2, time=0ms
88 bytes from 192.168.6.200: icmp_seq=3, time=0ms
88 bytes from 192.168.6.200: icmp_seq=4, time=0ms
Sent 5 packets, received 5 OK, 0 bad
Switch(diagnostic)#
```

## veriphy: The command lets you to run cable diagnostics

**Syntax:** **veriphy** <port-list>

**Parameter :** **<port-list>** Port list, available value is from 1 to 10B format:1,3-5

**EXAMPLE:**

```
Switch(diagnostic)# veriphy 1
Starting VeriPHY, please wait
Port   Pair A   Length   Pair B   Length   Pair C   Length   Pair D   Length
-----  -------  -------  -------  -------  -------  -------  -------  ------
1      OK       255      OK       255      OK       255      OK       255
Switch(diagnostic)#
```

# Chapter 13 Easyport Commands of CLI

## Easyport

Easy Port provides a convenient way to save and share common configurations. You can use it to enable features and settings based on the location of a switch in the network and for mass configuration deployments across the network. You could easy to implement included Voice IP phone, Wireless Access Point and IP Camera…etc. Others you can leverage configuration to run a converged voice, video, and data network considering quality of service (QoS), bandwidth, latency, and high performance.

**Table 12: Easyport Commands**

| Command | Function |
|---|---|
| ip-cam | To set the IP-CAM Configuration on the switch |
| ip-phone | To set the IP-Phone Configuration on the switch |
| wifi-ap | To set the WIFI-AP Configuration on the switch. |

## ip-cam:

The command lets you to configure ip-cam easily on the switch through profile and rule.

**Syntax:** **ip-cam** <port-list> (1st level), **below: 2nd level**

<access-vlan> <1-4094>.
<admin-edge> disable/ enable.
<auto-logout> <10-3600>
<bpdu-guard> disable/ enable.
<end>
<psec-action> both/ none/ shutdown/ trap.
<psec-limit> <1-50>
<psec-mode> disable/ enable.
<quit>
<restore> default/ user
<save> start/ user
<show>
<traffic-class> <0-7>
<vlan-mode> access/ hybrid/ trunk.

**Parameter :** **<port-list>** Port list, available value is from 1 to 10B format:1,3-5 **(1st level), below are 2nd level parameter.**

**<access-vlan>** The parameter lets you to configure access VLAN for IP

Camera.

**<1-4094>** Access VLAN ID, available value is from 1 to 4094.

**<admin-edge>** The parameter lets you to configure spanning tree admin-edge for IP Camera.

**disable** Disable spanning tree admin edge.

**enable** Enable spanning tree admin edge.

**<bpdu-guard>** The parameter lets you to configure spanning tree BPDU guard for IP Camera.

**disable** Disable spanning tree BPDU guard.

**enable** Enable spanning tree BPDU guard.

**<end>** The parameter lets you to finish Easy Port setting and return.

**<psec-action>** The parameter lets you to configure port security action for IP Camera.

**both** Send a SNMP trap and shutdown the port.

**none** Do nothing.

**shutdown** Shutdown the port.

**trap** Send a SNMP trap.

**<psec-limit>** The parameter lets you to configure port security maximum for IP Camera.

**<1-50>** Max. number of MAC addresses.

**<psec-mode>** The parameter lets you to configure port security mode for IP Camera.

**disable** Disable port security.

**enable** Enable port security.

**<show>** The parameter lets you to display Easy Port parameter.

**<traffic-class>** The parameter lets you to configure traffic class for IP Camera.

**<0-7>** 0:Low, 7:High.

**<vlan-mode>** The parameter lets you to configure VLAN mode for IP Camera.

**access** Untag all frames.

**hybrid** Tag all frames except VLAN ID same as PVID.

**trunk** Tag all frames.

**NOTE:** The command configuration has level rule, you need to set the port-list what you want to assign setting profile first, and then enter to 2nd level to set every parameters.

**EXAMPLE:**

```
Switch(easyport)# ip-cam 22
Switch(easyport/ip-cam)# vlan-mode trunk
Switch(easyport/ip-cam)# access-vlan 8
Switch(easyport/ip-cam)# traffic-class 7
Switch(easyport/ip-cam)# psec-action both
Switch(easyport/ip-cam)# psec-limit 40
Switch(easyport/ip-cam)# psec-mode enable
Switch(easyport/ip-cam)# admin-edge enable
Switch(easyport/ip-cam)# bpdu-guard enable
Switch(easyport/ip-cam)# show
Role                  : IP-CAM
Access VLAN            : 8
VLAN Mode              : Trunk
Traffic Class          : 7
Port Security Mode      : Enabled
Port Security Action    : Trap & Shutdown
Port Security Limit     : 40
STP Admin Edge         : Enabled
STP BPDU Guard         : Enabled

Switch(easyport/ip-cam)#
```

**ip-phone:** The command lets you to configure ip-phone easily on the switch through profile and rule

**Syntax:** **ip-phone** <port-list> (1st level), **below: 2nd level**

<access-vlan> <1-4094>.

<admin-edge> disable/ enable.

<auto-logout> <10-3600>

<bpdu-guard> disable/ enable.

<end>

<psec-action> both/ none/ shutdown/ trap.

<psec-limit> <1-50>

<psec-mode> disable/ enable.

<show>

<traffic-class> <0-7>

<vlan-mode> access/ hybrid/ trunk.

<voice-vlan> <1-4094>

**Parameter :** **<port-list>** Port list, available value is from 1 to 10B format:1,3-5 **(1st level), below are 2nd level parameter.**

**<access-vlan>** The parameter lets you to configure access VLAN for IP Camera.

**<1-4094>** Access VLAN ID, available value is from 1 to 4094.

**<admin-edge>** The parameter lets you to configure spanning tree admin-edge for IP Camera.

**disable** Disable spanning tree admin edge.

**enable** Enable spanning tree admin edge.

**<bpdu-guard>** The parameter lets you to configure spanning tree BPDU guard for IP Camera.

**disable** Disable spanning tree BPDU guard.

**enable** Enable spanning tree BPDU guard.

**<end>** The parameter lets you to finish Easy Port setting and return.

**<psec-action>** The parameter lets you to configure port security action for IP Camera.

**both** Send a SNMP trap and shutdown the port.

**none** Do nothing.

**shutdown** Shutdown the port.

**trap** Send a SNMP trap.

**<psec-limit>** The parameter lets you to configure port security maximum for IP Camera.

**<1-50>** Max. number of MAC addresses.

**<psec-mode>** The parameter lets you to configure port security mode for IP Camera.

**disable** Disable port security.

**enable** Enable port security.

**<show>** The parameter lets you to display Easy Port parameter.

**<traffic-class>** The parameter lets you to configure traffic class for IP Camera.

**<0-7>** 0:Low, 7:High.

**<vlan-mode>** The parameter lets you to configure VLAN mode for IP Camera.

**access** Untag all frames.

**hybrid** Tag all frames except VLAN ID same as PVID.

**trunk** Tag all frames.

**<voice-mode>** The parameter lets you to configure VLAN mode for IP Camera.

**<1-4094>** Voice VLAN ID, available value is from 1 to 4094.

**EXAMPLE:**

```
witch(easyport)# ip-phone 22
Switch(easyport/ip-phone)# access-vlan 20
Switch(easyport/ip-phone)# voice-vlan 20
Switch(easyport/ip-phone)# psec-mode enable
Switch(easyport/ip-phone)# psec-limit 30
Switch(easyport/ip-phone)# traffic-class 7
```

```
Switch(easyport/ip-phone)# vlan-mode access
Switch(easyport/ip-phone)# psec-action both
Switch(easyport/ip-phone)# save start
Switch(easyport/ip-phone)# show
Role                    : IP-Phone
Access VLAN             : 20
VLAN Mode               : Access
Voice VLAN              : 20
Traffic Class           : 7
Port Security Mode      : Enabled
Port Security Action    : Trap & Shutdown
Port Security Limit     : 30
STP Admin Edge          : Enabled
STP BPDU Guard          : Enabled

Switch(easyport/ip-phone)#
```

**wifi-ap:** The command lets you to configure WiFi-AP easily on the switch through profile and rule

**Syntax:** **wifi-ap** <port-list> (1st level), **below: 2nd level**

<access-vlan> <1-4094>.

<admin-edge> disable/ enable.

<auto-logout> <10-3600>

<bpdu-guard> disable/ enable.

<end>

<psec-action> both/ none/ shutdown/ trap.

<psec-limit> <1-50>

<psec-mode> disable/ enable.

<show>

<traffic-class> <0-7>

<vlan-mode> access/ hybrid/ trunk.

**Parameter :** **<port-list>** Port list, available value is from 1 to 10B format:1,3-5 **(1st level), below are 2nd level parameter.**

**<access-vlan>** The parameter lets you to configure access VLAN for IP Camera.

**<1-4094>** Access VLAN ID, available value is from 1 to 4094.

**<admin-edge>** The parameter lets you to configure spanning tree admin-edge for IP Camera.

**disable** Disable spanning tree admin edge.

**enable** Enable spanning tree admin edge.

**<bpdu-guard>** The parameter lets you to configure spanning tree BPDU guard for IP Camera.

**disable** Disable spanning tree BPDU guard.

**enable** Enable spanning tree BPDU guard.

**<end>** The parameter lets you to finish Easy Port setting and return.

**<psec-action>** The parameter lets you to configure port security action for IP Camera.

**both** Send a SNMP trap and shutdown the port.

**none** Do nothing.

**shutdown** Shutdown the port.

**trap** Send a SNMP trap.

**<psec-limit>** The parameter lets you to configure port security maximum for IP Camera.

**<1-50>** Max. number of MAC addresses.

**<psec-mode>** The parameter lets you to configure port security mode for IP Camera.

**disable** Disable port security.

**enable** Enable port security.

**<show>** The parameter lets you to display Easy Port parameter.

**<traffic-class>** The parameter lets you to configure traffic class for IP Camera.

**<0-7>** 0:Low, 7:High.

**<vlan-mode>** The parameter lets you to configure VLAN mode for IP Camera.

**access** Untag all frames.

**hybrid** Tag all frames except VLAN ID same as PVID.

**trunk** Tag all frames.

**EXAMPLE:**

```
Switch(easyport/wifi-ap)# access-vlan 55
Switch(easyport/wifi-ap)# admin-edge disable
Switch(easyport/wifi-ap)# bpdu-guard disable
Switch(easyport/wifi-ap)# psec-action both
Switch(easyport/wifi-ap)# psec-limit 30
Switch(easyport/wifi-ap)# psec-mode enable
Switch(easyport/wifi-ap)# traffic-class 4
Switch(easyport/wifi-ap)# vlan-mode hybrid
Switch(easyport/wifi-ap)# show
Role                 : WIFI-AP
Access VLAN           : 55
VLAN Mode             : Hybrid
Traffic Class         : 4
Port Security Mode     : Enabled
Port Security Action    : Trap & Shutdown
Port Security Limit     : 30
STP Admin Edge         : Disabled
STP BPDU Guard         : Disabled

Switch(easyport/wifi-ap)#
```

# Chapter 14 Event Commands of CLI

**Event** The function is used to set an Alarm trap and get the Event log. The Trap Events Configuration function is used to enable the switch to send out the trap information while pre-defined trap events occurred.

**Table 13: Event Commands**

| Command | Function |
|---|---|
| group | Configure trap event severity level |
| show | Show trap event configuration |

## group: The command lets you to configure trap event severity level

**Syntax:** **Group** <group-name><port-list>

**Parameter :** **<group-name>** Trap event group name
**<0-7>** Severity level
**<0>** Emergency: system is unusable
**<1>** Alert: action must be taken immediately
**<2>** Critical: critical conditions
**<3>** Error: error conditions
**<4>** Warning: warning conditions
**<5>** Notice: normal but significant condition
**<6>** Informational: informational messages
**<7>** Debug: debug-level messages

**EXAMPLE:**

```
Switch(event)# group acl 5
Switch(event)# show
Group Name                     Severity Level
------------------------------  ---------------
ACL                            Notice
ACL_Log                         Debug
Access_Mgmt                     Info
Auth_Failed                     Warning
Cold_Start                      Warning
Config_Info                     Info
Firmware_Upgrade                 Info
Import_Export                   Info
LACP                           Info
Passwd_Change                    Info
Port_Security                   Info
Thermal_Protect                  Info
VLAN                           Info
Warm_Start                       Warning
Switch(event)#
```


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*Revision A1*

**Show:** The command lets you display trap event configuration what you set on the switch

**Syntax:** **show** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(event)# show
Group Name                      Severity Level
------------------------------  ---------------
ACL                            Critical
ACL_Log                         Debug
Access_Mgmt                     Info
Auth_Failed                     Warning
Cold_Start                      Warning
Config_Info                     Info
Firmware_Upgrade                Info
Import_Export                   Info
Link_Status                     Warning
Login                          Info
Logout                         Info
Mgmt_IP_Change                  Info
Module_Change                   Notice
NAS                            Info
Passwd_Change                   Info
Port_Security                   Info
Thermal_Protect                 Info
VLAN                           Info
Warm_Start                      Warning
Switch(event)#
```

# Chapter 15 Fdb Commands of CLI

## Fdb (Filtering Data Base)

Filtering Data Base Configuration gathers many functions, including MAC Table Information, Static MAC Learning, which cannot be categorized to some function type.

**MAC table**

Switching of frames is based upon the DMAC address contained in the frame. The switch builds up a table that maps MAC addresses to switch ports for knowing which ports the frames should go to (based upon the DMAC address in the frame). This table contains both static and dynamic entries. The static entries are configured by the network administrator if the administrator wants to do a fixed mapping between the DMAC address and switch ports.

The frames also contain a MAC address (SMAC address), which shows the MAC address of the equipment sending the frame. The SMAC address is used by the switch to automatically update the MAC table with these dynamic MAC addresses. Dynamic entries are removed from the MAC table if no frame with the corresponding SMAC address has been seen after a configurable age time

**Table 14: fdb Commands**

| Command | Function |
|---|---|
| age-time | Configure aging time of MAC address |
| delete | Delete commands |
| flush | Flush out dynamic learned MAC address |
| learning | Configure learning mode of switch ports |
| static-mac | Configure static MAC address |
| show | Show MAC address table information |

### age-time:

The command lets you to configure the age-time of MAC address

**Syntax:** **age-time** disable/ <10-10000>

**Parameter :** **disable** The parameter let you to disable automatic aging.

**<10-1000000>** The parameter let you to configure the available age-time value is from 10 to 1000000 secs.

**EXAMPLE:**



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```
Switch(fdb)# age-time 1000
Switch(fdb)# show configuration
Automatic Aging : Enabled
Aging Time : 1000 seconds
Port  Learning Mode
----  -------------
1     Auto
2     Auto
3     Auto
4     Auto
……….
Switch(fdb)#
```

**delete:** The command lets you to delete a static MAC address entry what you set on the switch.

**Syntax:** **delete** static-mac <mac-address> <1-4094>

**Parameter :** **static mac** the parameter means you want to delete a static MAC entry.

**<mac-address>** the parameter is MAC address, format 0a-1b-2c-3d-4e-5f.

**<1-4094>** VLAN ID, available value is from 1 to 4094.

**EXAMPLE:**

```
Switch(fdb)# static-mac 00-1F-3B-6A-3B-11 3 22
Switch(fdb)# show static-mac
No    VID   MAC Address       Ports
----  ----  ----------------  --------------
1     3     00-1f-3b-6a-3b-11  22
Total static MAC address : 1
Switch(fdb)# delete static-mac 00-1F-3B-6A-3B-11 3
Switch(fdb)# show static-mac
Total static MAC address : 0
Switch(fdb)#
```

**flush:** The command lets you to flush out dynamic learned MAC address

**Syntax:** **flush** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(fdb)# flush
Switch(fdb)#
```

## learning:

The command lets you to configure learning mode of switch ports on the switch

**Syntax:** **learning** <port-list> auto/ disable/ secure

**Parameter :** **<port-list>** It is physical port available value is from 1 to 28 format: 1,3-5.

**auto** Learning is done automatically as soon as a frame with unknown SMAC is received.

**disable** The parameter lets you to disable learning.

**secure** Only static MAC entries are learned, all other frames are dropped.

**EXAMPLE:**

```
Switch(fdb)# learning 2 disable
Switch(fdb)# learning 4 secure
Switch(fdb)# show configuration
Automatic Aging : Enabled
Aging Time : 300 seconds
Port  Learning Mode
----  -------------
1     Auto
2     Disabled
3     Auto
4     Secure
……..
Switch(fdb)#
```

## static-mac:

The command lets you to configure static MAC address on the switch

**Syntax:** **static-mac** <mac-address> <1-4094> <port-list>/block

**Parameter :** **<mac-address>** the parameter is MAC address, format 0a-1b-2c-3d-4e-5f.

**<1-4094>** VLAN ID, available value is from 1 to 4094.

**<port-list>** It is physical port available value is from 1 to 28 format: 1,3-5.

**block** The parameter lets you to block the specific MAC address for all ports

**EXAMPLE:**

```
Switch(fdb)# static-mac 00-1F-3B-6A-3B-11 33 2
Switch(fdb)# show static-mac
No    VID   MAC Address       Ports
----  ----  ----------------  --------------
1     33    00-1f-3b-6a-3b-11  2
Total static MAC address : 1
Switch(fdb)#
```

**show:** The command lets you to display the MAC Table or configuration information what set on the switch

**Syntax:** **show** configuration <cr>.

**show** mac-table <mac-address> <cr>

**show** mac-table port <port-list> <cr>

**show** mac-table vid <1-4094> <cr>

**show** static-mac <cr>

**Parameter :** **configuration** Show MAC address table configuration.

**mac-table** Show MAC address table.

**<mac-address>** the parameter is MAC address, format 0a-1b-2c-3d-4e-5f.

**<port-list>** It is physical port available value is from 1 to 28 format: 1,3-5.

**<1-4094>** VLAN ID, available value is from 1 to 4094.

**static-mac** Show static MAC address.

**<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(fdb)# static-mac 00-1F-3B-6A-3B-11 33 2
Switch(fdb)# show static-mac
No    VID   MAC Address       Ports
----  ----  ----------------  --------------
1     33    00-1f-3b-6a-3b-11  2
Total static MAC address : 1
Switch(fdb)#
```

# Chapter 16 Firmware Commands of CLI

## firmware

This section describes how to upgrade Firmware. The Switch can be enhanced with more value-added functions by installing firmware upgrades.

**Table 15: firmware Commands**

| Command | Function |
|---|---|
| show | Show information about active and alternate firmware images |
| swap | Activate the alternate firmware image |
| upgrade | Upgrade system firmware |

### show:

The command lets you to display the active and alternate firmware image version information

**Syntax:** **show** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(firmware)# show
Active Image
------------
Image     : managed
Version   : SM24TAT4XA v1.14
Date      : 2011-12-21T10:41:33+08:00

Alternate Image
---------------
Image     : managed.bk
Version   : SM24TAT4XA  v1.13
Date      : 2011-12-08T11:37:00+08:00

Switch(firmware)#
```

### swap:

The command lets you swap the active firmware image to alternate firmware image or reverse between them

**Syntax:** **swap** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(firmware)# swap
... Erase from 0x40fd0000-0x40fdffff: .
... Program from 0x87ff0000-0x88000000 to 0x40fd0000: .
... Program from 0x87ff000a-0x87ff000c to 0x40fd000a: .
Alternate image activated, now rebooting.
Switch(firmware)# +M25PXX : Init device with JEDEC ID 0xC22018.
Jaguar-1 board detected (VSC7460 Rev. B).

RedBoot(tm) bootstrap and debug environment [ROMRAM]
Non-certified release, version 1_12-Vitesse - built 12:04:16, Aug  8 2011

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copies of it under certain conditions. Under the license terms, RedBoot's
source code and full license terms must have been made available to you.
Redboot comes with ABSOLUTELY NO WARRANTY.

Platform: VCore-III (MIPS32 24KEc) JAGUAR
RAM: 0x80000000-0x88000000 [0x80020c88-0x87fe1000 available]
FLASH: 0x40000000-0x40ffffff, 256 x 0x10000 blocks
== Executing boot script in 1.000 seconds - enter ^C to abort
RedBoot> fis load -d managed
Image loaded from 0x80040000-0x807083f8
RedBoot> go

Username: W snmp 00:00:02 23/snmp_conf_read_stack#4909: Warning: version mismatc
h, creating defaults
W snmp 00:00:02 23/snmp_conf_read_stack#5001: Warning: version mismatch, creatin
g defaults
W snmp 00:00:02 23/snmp_conf_read_stack#5043: Warning: conf_sec_open failed or
s
ize mismatch, creating defaults
W snmp 00:00:02 23/snmp_conf_read_stack#5093: Warning: version mismatch, creatin
g defaults
W priv_lvl 00:00:02 23/VTSS_PRIVILEGE_conf_read_stack#432: Warning: conf_sec_ope
n failed or size mismatch, creating defaults
W port 00:00:03 23/port_conf_read#2766: Warning: conf_sec_open failed or size mi
smatch, creating defaults

Username: admin
Password:
Login in progress...
Switch# firmware
Switch(firmware)# show
Active Image
------------
Image    : managed
Version  : SM24TAT4XA v1.13
Date     : 2011-12-08T11:37:00+08:00

Alternate Image
---------------
Image    : managed.bk
Version  :SM24TAT4XA v1.14
Date     : 2011-12-21T10:41:33+08:00

Switch(firmware)#
```

**upgrade :** The command lets you upgrade the system firmware to active or alternate division

**Syntax:** **upgrade** <ipv6-address> <word>

**upgrade** <ip-hostname> <word>

**Parameter :** **<ipv6-address>** TFTP server ipv6 address. IPv6 address is in 128-bit records represented as eight fields of up to four hexadecimal digits with a colon separate each field (:).For example, 'fe80::215:c5ff:fe03:4dc7'. The symbol '::' is a special syntax that can be used as a shorthand way of representing multiple 16-bit groups of contiguous zeros; but it can only appear once. It also used a following legally IPv4 address. For example, '::192.1.2.34'.

**<ip-hostname>** TFTP server ip address or hostname

**<word>** Firmware image file name

**NOTE:** This page facilitates an update of the firmware controlling the switch. Uploading software will update all managed switches to the location of a software image and click. After the software image is uploaded, a page announces that the firmware update is initiated. After about a minute, the firmware is updated and all managed switches restart. the switch restarts.

**WARNING:** While the firmware is being updated, Web access appears to be defunct. The front LED flashes Green/Off with a frequency of 10 Hz while the firmware update is in progress. Do not restart or power off the device at this time or the switch may fail to function afterwards.

**EXAMPLE:**

```
Switch(firmware)# upgrade 192.168.1.100 managed.bk
Switch(firmware)# show
Active Image
------------
Image     : managed
Version   : SM24TAT4XA v1.13
Date      : 2011-12-08T11:37:00+08:00

Alternate Image
---------------
Image     : managed.bk
Version   : SM24TAT4X) v1.14
Date      : 2011-12-21T10:41:33+08:00

Switch(firmware)#
```

# Chapter 17 GARP Commands of CLI

## GARP

The Generic Attribute Registration Protocol (GARP) provides a generic framework whereby devices in a bridged LAN, e.g. end stations and switches, can register and de-register attribute values, such as VLAN Identifiers, with each other. In doing so, the attributes are propagated to devices in the bridged LAN, and these devices form a ¡°reachability¡± tree that is a subset of an active topology. GARP defines the architecture, rules of operation, state machines and variables for the registration and de-registration of attribute values.

A GARP participation in a switch or an end station consists of a GARP application component, and a GARP Information Declaration (GID) component associated with each port or the switch. The propagation of information between GARP participants for the same application in a bridge is carried out by the GARP Information Propagation (GIP) component. Protocol exchanges take place between GARP participants by means of LLC Type 1 services, using the group MAC address and PDU format defined for the GARP application concerned.

**Table 16: garp Commands**

| Command | Function |
|---|---|
| applicant | Enable/Diable applicant administrative control |
| join-time | Set the GARP join timer configuration |
| leave-all | Set the GARP leave all timer configuration |
| leave-time | Set the GARP leave timer configuration |
| show | Show the GARP configuration |

## applicant:

The command lets you to enable or disable the applicant administrative control

**Syntax:** **applicant** <port-list> <non-participant/ normal-participant>

**Parameter :** **<port-list>** Port list, available value is from 1 to 14 format: 1,3-5.

**<non-participant>** Set applicant administrative control to non-participant

**<normal-participant>** Disable applicant administrative control to normal-participant.

**EXAMPLE:**

```
Switch(garp)# applicant 3 non-participant
Switch(garp)#
```

**join-time:** The command lets you set the GARP join timer configuration on the switch

**Syntax:** **join-time** <port-list> <time-value>

**Parameter :** **<port-list>** Port list, available value is from 1 to 14 format: 1,3-5.

**<time-value>** join time value, available value is from 200 to 400 seconds.

**EXAMPLE:**

```
Switch(garp)# join-time 3-5 200
Error! Set jointimer failed
```

**NOTE:** If you didn't set the GARP environment already then the switch will show "Set jointimer failed".

**leave-all:** The command lets you to set the GARP leave all timer configurations on the switch

**Syntax:** **leave-all** <port-list> <timer-value>

**Parameter :** **<port-list>** Port list, available value is from 1 to 14 format: 1,3-5.

**<timer-value>** leave all time value, available value is from 10000 to 100000 seconds.

**EXAMPLE:**

```
Switch(garp)# leave-all 3-5 10000
Error! Set leavealltimer failed
Switch(garp)#
```

**NOTE:** If you didn't set the GARP environment already then the switch will show "Set leave all timer failed".

**leave-time:** The command lets you to set GARP leave timer configuration on the switch

**Syntax:** **leave-time** <port-list> <timer-value>

**Parameter :** **<port-list>** Port list, available value is from 1 to 14 format: 1,3-5.

**<timer-value>** leave all time value, available value is from 10000 to

100000 seconds.

**EXAMPLE:**

```
Switch(garp)# leave-time 3-5 600
Error! Set leavetimer failed
Switch(garp)#
```

**NOTE:** If you didn't set the GARP environment already then the switch will show "Set leavetimer failed".

**show:** The command lets you to display the GARP configuration what you set on the switch

**Syntax:** **show** <statistic> <port-list>

**Parameter :** **<statistic>** Show the basic GARP port statistics

**<port-list>** Port list, available value is from 1 to 14 format: 1,3-5.

**EXAMPLE:**

```
Switch(garp)# show statistic 3-5 ?
  <cr>
Switch(garp)# show statistic 3-5
Port  Peer MAC          Failed Count
----  ----------------  ------------
3     -                 -
4     -                 -
5     -                 -
Switch(garp)#
```

**NOTE:** If you didn't set the GARP environment already then the switch will show "empty field value".

# Chapter 18 GVRP Commands of CLI

## GVRP

GVRP is an application based on Generic Attribute Registration Protocol (GARP), mainly used to automatically and dynamically maintain the group membership information of the VLANs. The GVRP offers the function providing the VLAN registration service through a GARP application. It makes use of GARP Information Declaration (GID) to maintain the ports associated with their attribute database and GARP Information Propagation (GIP) to communicate among switches and end stations. With GID information and GIP, GVRP state machine maintain the contents of Dynamic VLAN Registration Entries for each VLAN and propagate these information to other GVRP-aware devices to setup and update their knowledge database, the set of VLANs associated with currently active members, and through which ports these members can be reached.

**Table 17: gvrp Commands**

| Command | Function |
|---|---|
| clear | Clear the basic GVRP port statistics |
| control | Enable/Disable GVRP globally |
| mode | Enable/Disable GVRP on port |
| rrole | Enable/Disable GVRP restricted role on port |
| show | Show the GVRP configuration |

### clear:

The command lets you to clear the basic GVRP port statistics what be recorded by the switch

**Syntax:** **clear** <port-list>

**Parameter :** **<port-list>** Port list, available value is from 1 to 14 format: 1,3-5.

**EXAMPLE:**

```
Switch(gvrp)# clear 3-5

Switch(gvrp)#
```

**NOTE:** If you set the GVRP on port then you could show the port GVRP statistics information or clear all record on port.

**control:** The command lets you to enable or disable the GVRP globally

**Syntax:** **control** disable/ enable

**Parameter :** **disable** The parameter let you disable GVRP function globally.

**enable** The parameter let you enable GVRP function globally.

**EXAMPLE:**

```
Switch(gvrp)# control enable
Switch(gvrp)#
```

**mode:** The command lets you to enable or disable the GVRP function on port

**Syntax:** **mode** <port-list> disable/ enable

**Parameter :** **<port-list>** Port list, available value is from 1 to 14 format: 1,3-5.

**disable** The parameter let you disable GVRP function on port.

**enable** The parameter let you enable GVRP function on port.

**EXAMPLE:**

```
Switch(gvrp)# mode 3-5 enable
Switch(gvrp)#
```

**rrole:** The command lets you to enable or disable the GVRP restricted role on port

**Syntax:** **mode** <port-list> disable/ enable

**Parameter :** **<port-list>** Port list, available value is from 1 to 14 format: 1,3-5.

**disable** The parameter let you disable GVRP function on port.

**enable** The parameter let you enable GVRP function on port.

**EXAMPLE:**

```
Switch(gvrp)# rrole 3-5 enable
Switch(gvrp)#
```

**show:** The command lets you to display the GVRP function information

**Syntax:** **show** config / statistics

**Parameter :** **config** To show the GVRP configuration.

**statistics** To show the basic GVRP port statistics.

**EXAMPLE:**

```
Switch(gvrp)# show config
GVRP global mode : Enabled

Port  Mode      Restricted Role
----  --------- ---------------
1     Diabled   Diabled
2     Diabled   Diabled
3     Enabled   Enabled
4     Enabled   Enabled
5     Enabled   Enabled
6     Diabled   Diabled
7     Diabled   Diabled
8     Diabled   Diabled
9     Diabled   Diabled
……..
Switch(gvrp)#
Switch(gvrp)# show statistics 1-10
Port  Joins Tx Count       Leaves Tx Count
----  -------------------  -------------------
1     0                    0
2     0                    0
3     0                    0
4     0                    0
5     0                    0
6     0                    0
7     0                    0
8     0                    0
9     0                    0
……
Switch(gvrp)#
```

# Chapter 19 HTTPs Commands of CLI

## Https

This section shows you how to use HTTPS to securely access the Switch. HTTPS is a secure communication protocol that combines authentication and data encryption to provide secure encrypted communication via the browser.

**Table 18: HTTPs Commands**

| Command | Function |
|---|---|
| mode | Configure the HTTPS mode |
| redirect | Configure the HTTPS redirect mode |
| show | Show the HTTPs configuration |

### mode:

The command lets you to configure the HTTPs enable or disable on the switch

**Syntax:** **mode** disable/enable

**Parameter :** **disable** The parameter lets you to disable HTTPS mode operation

**enable** The parameter lets you to enable HTTPS mode operation

**EXAMPLE:**

```
Switch(https)# mode enable
Switch(https)#
```

### redirect:

The command lets you to configure the HTTPs redirect mode enable or disable

**Syntax:** **redirect** disable/enable

**Parameter :** **disable** The parameter lets you to disable redirect mode operation

**enable** The parameter lets you to enable redirect mode operation

**EXAMPLE:**

```
Switch(https)# redirect enable
Switch(https)#
```

**show:** The command lets you to display the HTTPs all setting on the switch or status information

**Syntax:** **show** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(https)# show
HTTPS Mode         : Enabled
HTTPS Redirect Mode : Enabled
Switch(https)#
```

# Chapter 20 IGMP Commands of CLI

## IGMP

The function, is used to establish the multicast groups to forward the multicast packet to the member ports, and, in nature, avoids wasting the bandwidth while IP multicast packets are running over the network. This is because a switch that does not support IGMP or IGMP Snooping cannot tell the multicast packet from the broadcast packet, so it can only treat them all as the broadcast packet. Without IGMP Snooping, the multicast packet forwarding function is plain and nothing is different from broadcast packet.

A switch supported IGMP Snooping with the functions of query, report and leave, a type of packet exchanged between IP Multicast Router/Switch and IP Multicast Host, can update the information of the Multicast table when a member (port) joins or leaves an IP Multicast Destination Address. With this function, once a switch receives an IP multicast packet, it will forward the packet to the members who joined in a specified IP multicast group before.

The packets will be discarded by the IGMP Snooping if the user transmits multicast packets to the multicast group that had not been built up in advance. IGMP mode enables the switch to issue IGMP function that you enable IGMP proxy or snooping on the switch, which connects to a router closer to the root of the tree. This interface is the upstream interface. The router on the upstream interface should be running IGMP.

**Table 19: IGMP Commands**

| Command | Function |
|---|---|
| compatibility | Set the Versions of IGMP Operating on Hosts and Routers |
| delete | Delete commands what you set on the switch |
| fast-leave | Set per-port Fast Leave |
| filtering | The IP Multicast Group that will be filtered |
| flooding | Set IGMP Flooding Mode |
| lmqi | Set per-VLAN Last Member Query Interval |
| proxy | Set IGMP Proxy Mode |
| qi | Set per-VLAN Query Interval |
| qri | Set per-VLAN Query Response Interval |
| querier | Set per-VLAN IGMP Querier |
| router | Set Router Port |
| rv | Set per-VLAN Robustness Variable |
| show | Show IGMP Snooping Information |

| | |
|---|---|
| **snooping** | Set IGMP Snooping Mode |
| **ssm-range** | Set IGMP SSM Range |
| **state** | Enable/Disable per-VLAN IGMP Snooping Mode |
| **throttling** | Set per-port Throttling |
| **uri** | Set per-VLAN Unsolicited Report Interval |

## compatibility:

The command lets you to configure the compatibility parameters on the switch

**Syntax:** **compatibility** <vlan-list> Forced-IGMPv1/ Forced-IGMPv2/ Forced-IGMPv3 /IGMP-Auto

**Parameter :** **<vlan-list>** VLAN list, available value is from 1 to 4094 format: 1, 3-5.

**Forced-IGMPv1 :** Set IGMPv1 of IGMP operating on hosts and routers

**Forced-IGMPv2 :** Set IGMPv2 of IGMP operating on hosts and routers

**Forced-IGMPv3 :** Set IGMPv3 of IGMP operating on hosts and routers

**IGMP-Auto:** Set auto mode of IGMP operating on hosts and routers

**EXAMPLE:**

```
Switch(igmp)# compatibility 1 IGMP-Auto
Switch(igmp)# show status 1
     Querier Rx        Tx        Rx        Rx        Rx        Rx
VID   Status  Query     Query     V1 Join   V2 Join   V3 Join   V2 Leave
----  ------  --------- --------- --------- --------- --------- ----------
Switch(igmp)#
```

## delete:

The command lets you to delete the setting on the switch

**Syntax:** **delete** <port-list> <ipmc-address>

**Parameter :** **<port-list>** The switch physical port, available value is from 1 to 28 format: 1,3-5.

**ipmc-address:** Type which ipmc-address to delete IGMP filtering group. Available range from 224.0.0.0 to 239.255.255.255

**EXAMPLE:**

```
Switch(igmp)# delete  3 224.0.0.2
Switch(igmp)#
```

**NOTE:** If you type illegal ipmc-address, then switch won't allow you to delete it. And screen will display e.g. **Invalid argument "223.224.223.224"**

## fast-leave:

The command lets you to configure fast-leave per-port on the switch

**Syntax:** **fast-leave** <port-list> disable/ enable

**Parameter :** **<port-list>** The switch physical port, available value is from 1 to 28 format: 1,3-5.

**disable:** To disable the port fast-leave function.

**enable:** To enable the port fast-leave function

NOTE: When you enable IGMP fast-leave processing, the switch immediately removes a port when it detects an IGMP version 2 leave message on that port.

**EXAMPLE:**

```
Switch(igmp)# fast-leave 1 disable
Switch(igmp)#
```

## filtering:

The command lets you to configure the filtering and the IP Multicast Group that will be filtered

**Syntax:** **filtering** <port-list> <ipmc-address>

**Parameter :** **<port-list>** The switch physical port, available value is from 1 to 28 format: 1,3-5.

**ipmc-address:** Type which ipmc-address to delete IGMP filtering group. Available range from 224.0.0.0 to 239.255.255.255

**EXAMPLE:**

```
Switch(igmp)# filtering 5 224.0.0.1
Switch(igmp)#
```

NOTE: If you type illegal ipmc-address, then switch won't allow you to filter it. And screen will display e.g. **Invalid argument "223.224.223.224"**

## flooding:

The command lets you to configure the flooding mode on the switch

**Syntax:** **flooding** enable/ disable

**Parameter :** **disable:** To disable the flooding function.

**enable:** To enable the flooding function.

**EXAMPLE:**

```
Switch(igmp)# flooding enable
Switch(igmp)# show config
IGMP Snooping : Disabled

IGMP Flooding Control : Enabled
IGMP Proxy : Disabled

IGMP SSM Range: 232.0.0.0/8
Port  Router    Dynamic Router  Fast Leave  Group Throttling Number
----  --------  --------------  ----------  ----------------------
1     Disabled  No              Disabled    Unlimited
2     Disabled  No              Disabled    Unlimited
3     Disabled  No              Disabled    Unlimited
4     Disabled  No              Disabled    Unlimited
5     Disabled  No              Disabled    Unlimited
6     Disabled  No              Disabled    Unlimited
7     Disabled  No              Disabled    Unlimited
8     Disabled  No              Disabled    Unlimited
9     Disabled  No              Disabled    Unlimited
…….
Switch(igmp)#
```

## lmqi:

The command lets you to set per-VLAN Last Member Query Interval on the switch

**Syntax:** **lmqi** <vlan-list> <0-31744>

**Parameter :** **<vlan-list>:** VLAN list, available value is from 1 to 4094, and the format: 1,3-5.

**<0-31744>:** Range:0~31744 tenths of sec, Default:100 tenths of sec

**EXAMPLE:**

```
Switch(igmp)# lmqi 45 379
Switch(igmp)#
```

## proxy:

The command lets you to enable or disable the IGMP proxy function on the switch

**Syntax:** **proxy** enable/ disable

**Parameter :** **disable:** To disable the IGMP proxy function.

**enable:** To enable the IGMP proxy function.

**EXAMPLE:**

```
Switch(igmp)# proxy enable
Switch(igmp)# show config

IGMP Snooping : Disabled

IGMP Flooding Control : Enabled
IGMP Proxy : Enabled

IGMP SSM Range: 232.0.0.0/8
Port  Router    Dynamic Router  Fast Leave  Group Throttling Number
----  --------  --------------  ----------  ----------------------
1     Disabled  No              Disabled    Unlimited
2     Disabled  No              Disabled    Unlimited
3     Disabled  No              Disabled    Unlimited
4     Disabled  No              Disabled    Unlimited
5     Disabled  No              Disabled    Unlimited
6     Disabled  No              Disabled    Unlimited
7     Disabled  No              Disabled    Unlimited
8     Disabled  No              Disabled    Unlimited
9     Disabled  No              Disabled    Unlimited
…….
Switch(igmp)#
```

# Chapter 21 IP Commands of CLI

**IP**

IP is an acronym for Internet Protocol. It is a protocol used for communicating data across an internet network.

IP is a "best effort" system, which means that no packet of information sent over is assured to reach its destination in the same condition it was sent. Each device connected to a Local Area Network (LAN) or Wide Area Network (WAN) is given an Internet Protocol address, and this IP address is used to identify the device uniquely among all other devices connected to the extended network.

The current version of the Internet protocol is IPv4, which has 32-bits Internet Protocol addresses allowing for in excess of four billion unique addresses. This number is reduced drastically by the practice of webmasters taking addresses in large blocks, the bulk of which remain unused. There is a rather substantial movement to adopt a new version of the Internet Protocol, IPv6, which would have 128-bits Internet Protocol addresses. This number can be represented roughly by a three with thirty-nine zeroes after it. However, IPv4 is still the protocol of choice for most of the Internet.

**Table 20: IP Commands**

| Command | Function |
|---|---|
| dhcp | Enable/Disable DHCP client |
| dns-proxy | Enable/Disable DNS proxy |
| mgmt-vlan | Set the management VLAN ID |
| name-server | Set DNS IP address |
| setup | Set the IP address |
| show | Show ip information |

## dhcp: The command lets you to configure the DHCP client

**Syntax:** **dhcp** disable/ enable/ renew

**Parameter :** **disable:** Disable DHCP client

**enable:** Enable DHCP client

**renew:** Force DHCP client to renew IP address

**EXAMPLE:**



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```
Switch(ip)# dhcp enable
Switch(ip)# show
                    Configured     Current
                    -------------- --------------
DHCP Client         : Enabled
IP Address          : 192.168.20.1    0.0.0.0
IP Mask             : 255.255.255.0   0.0.0.0
IP Gateway          : 192.168.20.250  0.0.0.0
VLAN ID             : 1               1
DNS Server          : 0.0.0.0         0.0.0.0
DNS Proxy           : Enabled
```

## dns-proxy: The command lets you to configure DNS proxy

**Syntax:** **dns-proxy** disable/ enable

**Parameter :** **disable:** Disable DNS proxy operation

**enable:** Enable DNS proxy operation

**EXAMPLE:**

```
Switch(ip)# dns-proxy enable
Switch(ip)# show
                    Configured     Current
                    -------------- --------------
DHCP Client         : Enabled
IP Address          : 192.168.20.1    0.0.0.0
IP Mask             : 255.255.255.0   0.0.0.0
IP Gateway          : 192.168.20.250  0.0.0.0
VLAN ID             : 1               1
DNS Server          : 0.0.0.0         0.0.0.0
DNS Proxy           : Enabled
```

## mgmt-vlan: The command lets you to set the management VLAN ID

**Syntax:** **mgmt-vlan** <1-4094> disable/ enable

**Parameter :** **<1-4094>** Management VLAN ID, available value is from 1 to 4094

**EXAMPLE:**

```
Switch(ip)# mgmt-vlan 2
Switch(ip)# show
                    Configured     Current
                    -------------- --------------
DHCP Client         : Disabled
IP Address          : 192.168.20.1    192.168.20.1
IP Mask             : 255.255.255.0   255.255.255.0
IP Gateway          : 192.168.20.250  192.168.20.250
VLAN ID             : 2               2
DNS Server          : 0.0.0.0         0.0.0.0
DNS Proxy           : Disabled
```

## name-server: The command lets you to set DNS IP address

**Syntax:** **name-server** <ip-address>

**Parameter :** **<ip-address>** DNS IP address

**EXAMPLE:**

```
Switch(ip)# name-server 192.168.20.10
Switch(ip)# show
                    Configured     Current
                    -------------- --------------
DHCP Client         : Disabled
IP Address          : 192.168.20.1    192.168.20.1
IP Mask             : 255.255.255.0   255.255.255.0
IP Gateway          : 192.168.20.250  192.168.20.250
VLAN ID             : 2               2
DNS Server          : 192.168.20.10   192.168.20.10
DNS Proxy           : Disabled
```

## setup: The command lets you to configure the IP address

**Syntax:** **setup <ip-address> <ip-mask> <ip-address>**

**Parameter :** **<ip-address>** IP address

**<ip-mask>** IP subnet mask

**<ip-address>** Gateway IP address

**EXAMPLE:**

```
Switch(ip)# setup 192.168.20.10 255.255.255.0 192.168.20.250
Switch(ip)# show
                    Configured     Current
                    -------------- --------------
DHCP Client         : Disabled
IP Address          : 192.168.20.10   192.168.20.10
IP Mask             : 255.255.255.0   255.255.255.0
IP Gateway          : 192.168.20.250  192.168.20.250
VLAN ID             : 2               2
DNS Server          : 0.0.0.0         0.0.0.0
DNS Proxy           : Disabled
```

**NOTE:** The IP address and the router must be on the same subnet.

## show: The command lets you to show IP information

**Syntax:** **show** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(ip)# show
                   Configured     Current
                   -------------- --------------
DHCP Client         : Disabled
IP Address          : 192.168.20.10   192.168.20.10
IP Mask            : 255.255.255.0   255.255.255.0
IP Gateway          : 192.168.20.250  192.168.20.250
VLAN ID            : 2             2
DNS Server          : 0.0.0.0       0.0.0.0
DNS Proxy          : Disabled
```

# Chapter 22 IP-Source-Guard Commands of CLI

**IP-Source -Guard**

The section describes to configure the IP Source Guard detail parameters of the switch. You could use the IP Source Guard configure to enable or disable with the Port of the switch.

**Table 21: IP-Source-Guard Commands**

| Command | Function |
|---|---|
| add | Add or modify IP source guard static entry |
| delete | Delete IP source guard static entry |
| limit | IP source guard port limitation for dynamic entries |
| mode | Configure IP source guard mode |
| port-mode | Configure IP source guard port mode |
| show | Show IP source guard information |
| translate | Translate IP source guard dynamic entries into static entries |

## add:

The command lets you add or modify IP source guard static entry.

**Syntax:** **add** <port-list> <1-4094> <ip-address> <ip-mask>

**Parameter :**

**<port-list>** available value is from switch physic port density, format: 1,3-5

**<1-4094>:** VLAN ID, available value is from 1 to 4094

**<ip-address>:** IP address allowed for doing IP source guard

**<ip-mask>:** IP mask for allowed IP address

**EXAMPLE:**

```
Switch(ip-source-guard)# add 1 1 192.168.1.1 255.255.0.0
Switch(ip-source-guard)# show binding-table
Type    Port  VLAN  IP Address      MAC Address
------- ----  ----  --------------  -----------------
Static     1    1  192.168.1.1     5a-80-70-64-60-80
```

## delete:

The command lets you delete IP source guard static entry

**Syntax:** **delete** <port-list> <1-4094> <ip-address> <ip-mask>

**Parameter :** **<port-list>:** available value is from 1 to 28 format: 1,3-5

**<1-4094>:** VLAN ID, available value is from 1 to 4094

**<ip-address>:** IP address

**<ip-mask>:** IP mask for allowed IP address

**EXAMPLE:**

```
Switch(ip-source-guard)# delete 1 1 192.168.1.1 255.255.255.0
Switch(ip-source-guard)# show binding-table
Type    Port  VLAN  IP Address      MAC Address
-------  ----  ----  --------------  -----------------
```

**limit:** This command lets you set up IP source guard port limitation for dynamic entries.

**Syntax:** **limit** <port-list> <0-2>/ Unlimited

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**<0-2>:** Specify the maximum number of dynamic clients that can be learned on given port. If the port mode is enabled and the value of max dynamic client is equal to 0, itmeans only allow the IP packets forwarding that are matched in static entries on the specific port unlimited

**Unlimited:** dynamic clients

**EXAMPLE:**

```
Switch(ip-source-guard)# limit 1 0
Switch(ip-source-guard)# show config

IP Source Guard Mode : Disabled

Port  Port Mode  Dynamic Entry Limit
----  ---------  -------------------
1     Disabled   0
2     Disabled   unlimited
3     Disabled   unlimited
4     Disabled   unlimited
5     Disabled   unlimited
6     Disabled   unlimited
7     Disabled   unlimited
8     Disabled   unlimited
9     Disabled   unlimited
10    Disabled   unlimited
11    Disabled   unlimited
12    Disabled   unlimited
13    Disabled   unlimited
14    Disabled   unlimited
15    Disabled   unlimited
16    Disabled   unlimited
17    Disabled   unlimited
18    Disabled   unlimited
19    Disabled   unlimited
20    Disabled   unlimited
21    Disabled   unlimited
22    Disabled   unlimited
23    Disabled   unlimited
24    Disabled   unlimited
25    Disabled   unlimited
26    Disabled   unlimited
27    Disabled   unlimited
28    Disabled   unlimited
```

**mode:** This command lets you configure IP source guard mode.

**Syntax:** **mode** enable/disable

**Parameter :** **disable:** Globally disable IP source guard mode

**enable:** Globally enable IP source guard mode. All configured ACEs will be lost when the mode is enabled

**EXAMPLE:**

```
Switch(ip-source-guard)# mode enable
Switch(ip-source-guard)# show config

IP Source Guard Mode : Enabled

Port  Port Mode  Dynamic Entry Limit
----  ---------  -------------------
1     Disabled   0
2     Disabled   unlimited
3     Disabled   unlimited
4     Disabled   unlimited
5     Disabled   unlimited
6     Disabled   unlimited
7     Disabled   unlimited
8     Disabled   unlimited
9     Disabled   unlimited
10    Disabled   unlimited
11    Disabled   unlimited
12    Disabled   unlimited
13    Disabled   unlimited
14    Disabled   unlimited
15    Disabled   unlimited
16    Disabled   unlimited
17    Disabled   unlimited
18    Disabled   unlimited
19    Disabled   unlimited
20    Disabled   unlimited
21    Disabled   unlimited
22    Disabled   unlimited
23    Disabled   unlimited
24    Disabled   unlimited
25    Disabled   unlimited
26    Disabled   unlimited
27    Disabled   unlimited
28    Disabled   unlimited
```

## port-mode: This command lets you IP source guard port mode.

**Syntax:** **Move** <port-list> enable/disable

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**disable:** Disable IP source guard port mode

**enable:** Enable IP source guard port mode

**EXAMPLE:**

```
Switch(ip-source-guard)# port-mode 1 enable
Switch(ip-source-guard)# show config

IP Source Guard Mode : Enabled

Port  Port Mode  Dynamic Entry Limit
----  ---------  -------------------
1     Enabled    unlimited
2     Disabled   unlimited
3     Disabled   unlimited
4     Disabled   unlimited
5     Disabled   unlimited
6     Disabled   unlimited
7     Disabled   unlimited
8     Disabled   unlimited
9     Disabled   unlimited
10    Disabled   unlimited
11    Disabled   unlimited
12    Disabled   unlimited
13    Disabled   unlimited
14    Disabled   unlimited
15    Disabled   unlimited
16    Disabled   unlimited
17    Disabled   unlimited
18    Disabled   unlimited
19    Disabled   unlimited
20    Disabled   unlimited
21    Disabled   unlimited
22    Disabled   unlimited
23    Disabled   unlimited
24    Disabled   unlimited
25    Disabled   unlimited
26    Disabled   unlimited
27    Disabled   unlimited
28    Disabled   unlimited
```

## show: This command shows IP source guard information.

**Syntax:** **show** binding-table/ config

**Parameter :** **binding-table:** Show IP-MAC binding table

**config:** Show IP source guard configuration

**EXAMPLE:**

```
Switch(ip-source-guard)# show binding-table
Type    Port  VLAN  IP Address      MAC Address
------- ----  ----  --------------  -----------------
Static     1    1  192.168.1.1     5a-80-70-64-60-80
```

**translate:** This command translate IP source guard dynamic entries into static entries.

**Syntax:** **translate**

**Parameter :** **<cr>:** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(ip-source-guard)# translate
IP Source Guard:
       Translate 0 dynamic entries into static entries.
```

# Chapter 23 IPv6 Commands of CLI

## IPv6

This section describes how to configure the switch-managed IPv6 information. The Configured column is used to view or change the IPv6 configuration. And the Current column is used to show the active IPv6 configuration.
Configure the switch-managed IPv6 information on this page.
The Configured column is used to view or change the IPv6 configuration.
The Current column is used to show the active IPv6 configuration.

**Table 22: IPv6 Commands**

| Command | Function |
|---|---|
| autoconfig | Configure IPv6 autoconfig mode |
| setup | Set the IPv6 address |
| show | Show IPv6 information |

## autoconfig:

The command lets you configure IPv6 autoconfig mode.

**Syntax:** **autoconfig** disable/ enable/ renew

**Parameter :** **disable:** Disable autoconfig mode

**enable:** Enable autoconfig mode

**renew:** Force to renew IPv6 address

**EXAMPLE:**

```
Switch(ipv6)# autoconfig enable
Switch(ipv6)# show config
Auto Configuration : Enabled
Address          : ::192.168.1.1
Prefix           : 96
Gateway          : ::
```

## setup:

The command lets you set the IPv6 address

**Syntax:** **setup** <ipv6-address> <deny> <permit>.

**Parameter :** **<ipv6-address>:** IPv6 address is in 128-bit records represented as eight fields of up to four hexadecimal digits with a colon separates each field (:).

For example, 'fe80::215:c5ff:fe03:4dc7'. The symbol '::' is a special syntax that can be used as a shorthand way of representing multiple

16-bit groups of contiguous zeros; but it can only appear once. It also used a following legally IPv4 address. For example, '::192.1.2.34'

**<1-128>: IPv6 prefix**

**<ipv6-address>:** Gateway IPv6 address IPv6 address is in 128-bit records represented as eight fields of up to four hexadecimal digits with a colon separates each field (:).

For example, 'fe80::215:c5ff:fe03:4dc7'. The symbol '::' is a special syntax that can be used as a shorthand way of representing multiple 16-bit groups of contiguous zeros; but it can only appear once. It also used a following legally IPv4 address. For example, '::192.1.2.34'

**EXAMPLE:**

```
witch(ipv6)# setup ::192.168.6.1 1 ::192.168.0.0
Switch(ipv6)# show config
Auto Configuration : Enabled
Address          : ::192.168.6.1
Prefix           : 1
Gateway          : ::192.168.0.0
```

## show: This command show IPv6 information on the switch.

**Syntax:** **show** config/ current

**Parameter :** **config:** Show IPv6 configuration

**current:** Show IPv6 current information

**EXAMPLE:**

```
Switch(ipv6)# show config
Auto Configuration : Disabled
Address          : ::192.168.6.1
Prefix           : 96
Gateway          : ::


Switch(ipv6)# show current

Active Configuration for IPv6: (Static with Stateless)
Link-Local Address : fe80::240:c7ff:fe34:3400
Address          : ::192.168.6.1
Prefix           : 96
Gateway          : ::
```

# Chapter 24 LACP Commands of CLI

**LACP**

Ports using Link Aggregation Control Protocol (according to IEEE 802.3ad specification) as their trunking method can choose their unique LACP GroupID to form a logic “trunked port”. The benefit of using LACP is that a port makes an agreement with its peer port before it becomes a ready member of a “trunk group” (also called aggregator). LACP is safer than the other trunking method - static trunk.

**Table 23: LACP Commands**

| Command | Function |
|---|---|
| clear | Clear command |
| key | Configure the LACP key |
| mode | Configure the LACP mode |
| role | Configure the LACP role |
| Show | Show LACP information |

## clear:

This command lets you clear the link aggregation entry on switch.

**Syntax:** **clear** statistics

**Parameter :** **statistics:** Clear LACP statistics.

**EXAMPLE:**

```
Switch(lacp)# clear statistics
Switch(lacp)# show statistics
Port  Rx Frames   Tx Frames   Rx Unknown  Rx Illegal
----  ----------  ----------  ----------  ----------
1     0           0           0           0
2     0           0           0           0
3     0           0           0           0
4     0           0           0           0
```

## key:

This command lets you configure the LACP key.

**Syntax:** **key** <port-list> <1-65535>/ auto

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**<1-65535>:** LACP key

**auto:** The Auto setting will set the key as appropriate by the physical



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*Revision A1*

link speed, 10Mb = 1, 100Mb = 2, 1Gb = 3

**EXAMPLE:**

```
Switch(lacp)# key 1 10000
Switch(lacp)# show config
Port  Mode     Key    Role
----  --------  -----  ------
1    Disabled  10000  Active
2    Disabled  Auto   Active
3    Disabled  Auto   Active
4    Disabled  Auto   Active
5    Disabled  Auto   Active
```

## mode: The command lets you configure the LACP mode.

**Syntax:** **mode** <port-list> disable/enable

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**disable:** Disable LACP protocol

**enable:** Enable LACP protocol

**EXAMPLE:**

```
Switch(lacp)# mode 1 enable
Switch(lacp)# show config
Port  Mode     Key    Role
----  --------  -----  ------
1    Enabled   Auto   Active
2    Disabled  Auto   Active
3    Disabled  Auto   Active
4    Disabled  Auto   Active
```

## role: This command lets you configure the LACP role

**Syntax:** **role** <port-list> active/ passive

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**active:** Initiate LACP negotiation, and transmit LACP packets each second

**passive:** Listen for LACP packets

**EXAMPLE:**

```
Switch(lacp)# role 1 passive
Switch(lacp)# show config
Port  Mode     Key    Role
----  --------  -----  ------
1    Disabled  Auto   Passive
2    Disabled  Auto   Active
3    Disabled  Auto   Active
```

**show:** This command show LACP information.

**Syntax:** **show** config/ statistics/ status

**Parameter :** **config:** Show LACP configuration

**statistics:** Show LACP statistics

**status:** Show LACP status

**EXAMPLE:**

```
Switch(lacp)# show config
Port  Mode     Key    Role
----  --------  -----  ------
1    Disabled  Auto   Passive
2    Disabled  Auto   Active

Switch(lacp)# show statistics
Port  Rx Frames   Tx Frames   Rx Unknown  Rx Illegal
----  ----------  ----------  ----------  ----------
1    0          0          0          0
2    0          0          0          0
3    0          0          0          0

witch(lacp)# show status

Port  Mode     Key    Aggr ID  Partner System ID  Partner Port
----  --------  -----  -------  -----------------  ------------
1    Disabled  -      -       -                -
2    Disabled  -      -       -                -
3    Disabled  -      -       -                -
```

# Chapter 25 LLDP Commands of CLI

## LLDP

The switch supports the LLDP. For current information on your switch model, The Link Layer Discovery Protocol (LLDP) provides a standards-based method for enabling switches to advertise themselves to adjacent devices and to learn about adjacent LLDP devices. The Link Layer Discovery Protocol (LLDP) is a vendor-neutral Link Layer protocol in the Internet Protocol Suite used by network devices for advertising their identity, capabilities, and neighbors on a IEEE 802 local area network, principally wired Ethernet. The protocol is formally referred to by the IEEE as Station and Media Access Control Connectivity Discovery specified in standards document IEEE 802.1AB.

**Table 24: LLDP Commands**

| Command | Function |
|---|---|
| cdp-aware | Configure CDP (Cisco Discovery Protocol) aware mode |
| clear | Clear LLDP statistics |
| delay | Configure ARP inspection mode |
| hold | Configure LLDP Tx hold value |
| interval | Configure LLDP transmission interval |
| mode | Configure the LLDP mode |
| option-tlv | Configure LLDP Optional TLVs |
| reinit | Configure LLDP reinit delay |
| show | Show LLDP information |

### cdp-aware:

This command lets you configure CDP (Cisco Discovery Protocol) aware mode.

**Syntax:** **add** <port-list> disable/ enable

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**disable:** Disable CDP awareness

**enable:** Enable CDP awareness (CDP discovery information is added to the LLDP neighbor table)

**EXAMPLE:**

```
Switch(lldp)# cdp-aware 1 enable
Switch(lldp)# show config
Interval   : 30
Hold       : 4
Tx Delay   : 2
Reinit Delay: 2
            Port       System   System     System     Management CDP
Port Mode    Description Name    Description Capability  Address    awareness
---- -------- ----------- -------- ----------- ---------- ---------- ---------
1    Disabled Enabled     Enabled  Enabled     Enabled    Enabled    Enabled
2    Disabled Enabled     Enabled  Enabled     Enabled    Enabled    Disabled
3    Disabled Enabled     Enabled  Enabled     Enabled    Enabled    Disabled
```

**clear:** This command lets you clear LLDP statistics.

**Syntax:** **clear**

**Parameter :** **<cr>**

**EXAMPLE:**

```
Switch(lldp)# clear
Switch(lldp)# show statistics
LLDP global counters
Neighbor entries was last changed at 2011-01-01 00:00:00 (5600 sec. ago).
Total Neighbors Entries Added    0.
Total Neighbors Entries Deleted  0.
Total Neighbors Entries Dropped  0.
Total Neighbors Entries Aged Out 0.

LLDP local counters
      Rx      Tx      Rx      Rx      Rx TLV   Rx TLV   Rx TLV
Port   Frames   Frames   Errors   Discards Errors   Unknown  Organz.  Aged
----   ------   ------   ------   -------- ------   -------  -------  -----
1     0       0       0       0       0       0       0       0
2     0       0       0       0       0       0       0       0
3     0       0       0       0       0       0       0       0
```

**delay :** The command lets you configure LLDP Tx delay.

**Syntax:** **delay** <1-8192>

**Parameter :** **<1-8192>:** LLDP transmission delay

**EXAMPLE:**

```
Switch(lldp)# delay 5
Switch(lldp)# show config
Interval   : 30
Hold       : 4
Tx Delay   : 5
Reinit Delay: 2
            Port       System   System     System     Management CDP
Port Mode    Description Name    Description Capability  Address    awareness
---- -------- ----------- -------- ----------- ---------- ---------- ---------
1    Disabled Enabled     Enabled  Enabled     Enabled    Enabled    Disabled
2    Disabled Enabled     Enabled  Enabled     Enabled    Enabled    Disabled
3    Disabled Enabled     Enabled  Enabled     Enabled    Enabled    Disabled
```

**hold:** The command lets you configure LLDP Tx hold value.

**Syntax:** **hold** <2-10>

**Parameter :** **<2-10>:** LLDP hold value

**EXAMPLE:**

```
Switch(lldp)# hold 10
Switch(lldp)# show config
Interval   : 30
Hold       : 10
Tx Delay   : 2
Reinit Delay: 2
            Port       System   System     System     Management CDP
Port Mode    Description Name    Description Capability  Address    awareness
---- -------- ----------- -------- ----------- ---------- ---------- ---------
1    Disabled Enabled     Enabled  Enabled     Enabled    Enabled    Disabled
2    Disabled Enabled     Enabled  Enabled     Enabled    Enabled    Disabled
3    Disabled Enabled     Enabled  Enabled     Enabled    Enabled    Disabled
```

**interval:** The command lets you configure LLDP transmission interval.

**Syntax:** **interval** <5-32768>

**Parameter :** **<5-32768>:** LLDP transmission interval

**EXAMPLE:**

```
Switch(lldp)# interval 40
Switch(lldp)# show config
Interval   : 40
Hold       : 4
Tx Delay   : 2
Reinit Delay: 2
            Port       System   System     System     Management CDP
Port Mode    Description Name     Description Capability  Address    awareness
---- -------- ----------- -------- ----------- ----------- ---------- ---------
1    Disabled Enabled     Enabled  Enabled     Enabled     Enabled    Disabled
2    Disabled Enabled     Enabled  Enabled     Enabled     Enabled    Disabled
3    Disabled Enabled     Enabled  Enabled     Enabled     Enabled    Disabled
```

## mode: The command lets you configure the LLDP mode.

**Syntax:** **mode** <port-list> disable/ enable

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**disable:** The switch will not send out LLDP information, and will drop LLDP information received from neighbours

**enable:** The switch will send out LLDP information, and will analyze LLDP information received from neighbours

**EXAMPLE:**

```
Switch(lldp)# mode 1 enable
Switch(lldp)# show config
Interval   : 30
Hold       : 4
Tx Delay   : 2
Reinit Delay: 2
            Port       System   System     System     Management CDP
Port Mode    Description Name     Description Capability  Address    awareness
---- -------- ----------- -------- ----------- ----------- ---------- ---------
1    Enabled  Enabled     Enabled  Enabled     Enabled     Enabled    Disabled
2    Disabled Enabled     Enabled  Enabled     Enabled     Enabled    Disabled
3    Disabled Enabled     Enabled  Enabled     Enabled     Enabled    Disabled
```

## option-tiv: The command lets you configure LLDP Optional TLVs.

**Syntax:** **option-tlv** <port-list> mgmt-addr/ port-desc/ sys-capa/ sys-desc/ sys-name disable/ enable

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**mgmt-addr:** Management IP address

**port-desc:** Port description

**sys-capa:** System capability

**sys-desc:** System description

**sys-name:** System name

**disable** Disable TLV

**enable** Enable TLV

**EXAMPLE:**

```
Switch(lldp)# option-tlv 1 mgmt-addr disable
Switch(lldp)# option-tlv 1 port-desc disable
Switch(lldp)# option-tlv 1 sys-capa disable
Switch(lldp)# option-tlv 1 sys-desc disable
Switch(lldp)# option-tlv 1 sys-name disable
Switch(lldp)# show config
Interval   : 30
Hold       : 4
Tx Delay   : 2
Reinit Delay: 2
            Port       System   System     System     Management CDP
Port Mode    Description Name    Description Capability  Address    awareness
---- -------- ----------- -------- ----------- ---------- ---------- ---------
1    Disabled Disabled    Disabled Disabled    Disabled   Disabled   Disabled
2    Disabled Enabled     Enabled  Enabled     Enabled    Enabled    Disabled
3    Disabled Enabled     Enabled  Enabled     Enabled    Enabled    Disabled
```

## reinit:

The command lets you configure LLDP reinit delay.

**Syntax:** **reinit** <1-10>

**Parameter :** **<1-10>:** LLDP reinit delay

**EXAMPLE:**

```
Switch(lldp)# reinit 10
Switch(lldp)# show config
Interval   : 30
Hold       : 4
Tx Delay   : 2
Reinit Delay: 10
```

## show:

The command show LLDP information.

**Syntax:** **show** config/ info/ statistics

**Parameter :** **config:** Show LLDP configuration

**info:** Show LLDP neighbor device information

**statistics:** Show LLDP statistics

**EXAMPLE:**

```
Switch(lldp)# show config
Interval   : 30
Hold       : 4
Tx Delay   : 2
Reinit Delay: 2
           Port       System   System     System     Management CDP
Port Mode    Description Name    Description Capability  Address    awareness
---- -------- ----------- -------- ----------- ---------- ---------- ---------
1   Disabled Enabled    Enabled  Enabled    Enabled    Enabled    Disabled
2   Disabled Enabled    Enabled  Enabled    Enabled    Enabled    Disabled

Switch(lldp)# show info 1
No LLDP entries found

Switch(lldp)# show statistics
LLDP global counters
Neighbor entries was last changed at 2011-01-01 00:00:00 (8222 sec. ago).
Total Neighbors Entries Added    0.
Total Neighbors Entries Deleted  0.
Total Neighbors Entries Dropped  0.
Total Neighbors Entries Aged Out 0.

LLDP local counters
      Rx      Tx      Rx      Rx      Rx TLV   Rx TLV   Rx TLV
Port   Frames   Frames   Errors   Discards Errors   Unknown  Organz.  Aged
----   ------   ------   ------   -------- ------   -------  -------  -----
1     0       0       0       0       0       0       0       0
2     0       0       0       0       0       0       0       0
```

# Chapter 26 LLDP Media Commands of CLI

## LLDP Media

Media Endpoint Discovery is an enhancement of LLDP, known as LLDP-MED, that provides the following facilities:
Auto-discovery of LAN policies (such as VLAN, Layer 2 Priority and Differentiated services (Diffserv) settings) enabling plug and play networking.
Device location discovery to allow creation of location databases and, in the case of Voice over Internet Protocol (VoIP), Enhanced 911 services.
Extended and automated power management of Power over Ethernet (PoE) end points.
Inventory management, allowing network administrators to track their network devices, and determine their characteristics (manufacturer, software and hardware versions, serial or asset number).
This page allows you to configure the LLDP-MED. This function applies to VoIP devices which support LLDP-MED.

**Table 25: LLDP Media Commands**

| Command | Function |
|---|---|
| civic | Configure LLDP-MED civic address location |
| coordinate | Configure LLDP-MED coordinate location |
| delete | Delete the selected policy |
| ecs | Configure LLDP-MED Emergency Call Service |
| fast | Configure LLDP-MED fast start repeat count |
| policy | Configure LLDP-MED policy |
| port-policy | Configure LLDP-MED port policy |
| show | Show LLDP-MED information |

### civic:

The command lets you configure LLDP-MED civic address location function.

**Syntax:** **civic** additional-code/... <LINE>

**Parameter :** **additional-code:** Additional code

**additional-info:** Additional location info

**apartment:** Unit (Apartment, suite)

**block:** Neighbourhood, block

**building:** Building (structure)

**city:** City, township, shi (Japan)

**comm-name:** Postal community name

**country-code:** The two-letter ISO 3166 country code

**county:** County, parish, gun (Japan), district

**district:** City division, borough, city district, ward, chou(Japan)

**floor:** Floor

**house-no:** House number

**house-no-suffix:** House number suffix

**landmark:** Landmark or vanity address

**leading-street-direction:** Leading street direction

**name:** Name (residence and office occupant)

**p.o.box:** Post office box (P.O. BOX)

**place-type:** Place type

**room-number:** Room number

**state:** National subdivisions (state, canton, region, province, prefecture)

**street: Street**Room number

National subdivisions (state, canton, region, province, prefecture)

Stree

**street-suffix:** Street suffix

**trailing-street-suffix:** Trailing street suffix

**zip_code:** Postal/zip code

**<LINE>:** The value for the Civic Address Location entry

**EXAMPLE:**

```
Switch(lldpmed)# civic city taipei
Switch(lldpmed)# civic floor 1
Switch(lldpmed)# show config

Fast Start Repeat Count   : 4

Location Coordinates
--------------------
Latitude               : 0.0000 North
Longitude              : 0.0000 East
Altitude               : 0.0000 meter(s)
Map datum              : WGS84

Civic Address Location
----------------------
Country code            :
National subdivison      :
County                 :
City                   : taipei
City district           :
Block (Neighborhood)     :
Street                 :
Street Dir              :
Trailling Street         :
Street Suffix           :
House No.               :
House No. Suffix         :
Landmark               :
Additional Location Info  :
Name                   :
Zip                    :
Building                :
Unit                   :
Floor                  : 1
Room No.                :
Placetype               :
Postal Community Name    :
P.O. Box               :
Addination Code         :

Emergency Call Service   :
```

**coordinate:** The command lets you configure LLDP-MED coordinate location function.

**Syntax:** **coordinate** altitude <coordinate-value> floor/ meter

**coordinate** datum nad83-mllw/ nad83-navd88/ wgs84

**coordinate** latitude <coordinate-value> north/ south

**coordinate** longitude <coordinate-value> east/ west

**Parameter :** **altitude:** Altitude

**<coordinate-value>:** -32767 to 32767 Meters or floors with max. 4 digits

**floor:** Representing altitude in a form more relevant in buildings which have different floor-to-floor dimensions

**meter:** Representing meters of Altitude defined by the vertical datum specified

**datum :** Map datum

| | |
|---|---|
| **nad83-mllw** | North American Datum 1983, CRS Code 4269, Prime Meridian<br>Name: Greenwich; The associated vertical datum is Mean<br>Lower Low Water (MLLW).<br>This datum pair is to be used when referencing locations on water/sea/ocean |
| **nad83-navd88** | North American Datum 1983, CRS Code 4269, Prime Meridian<br>Name: Greenwich; The associated vertical datum is the<br>North American Vertical Datum of 1988 (NAVD88).<br>This datum pair is to be used when referencing locations on land, not near tidal water (which would use Datum = NAD83/MLLW) |
| **wgs84** | (Geographical 3D) - World Geodesic System 1984, CRS Code 4327, Prime Meridian Name: Greenwich |

**latitude:** Latitude

**<coordinate-value>**: 0 to 90 degress with max. 4 digits

**north**: North of the equator

**south**: South of the equator

**longitude:** Longitude

**<coordinate-value>**: 0 to 180 degress with max. 4 digits

**east**: East of the prime meridian

**west**: West of the prime meridian

**EXAMPLE:**

```
itch(lldpmed)# coordinate altitude 10 floor
Switch(lldpmed)# coordinate datum nad83-mllw
Switch(lldpmed)# coordinate latitude 60 north
Switch(lldpmed)# coordinate longitude 30 east
Switch(lldpmed)# show config

Fast Start Repeat Count   : 4

Location Coordinates
--------------------
Latitude               : 60.0000 North
Longitude              : 30.0000 East
Altitude               : 10.0000 floor
Map datum              : NAD83/MLLW
```

**delete:** The command lets you delete the selected policy.

**Syntax:** **delete <0-31>**

**Parameter :** **<0-31>:** Policy ID, available value is from 0 to 31

**EXAMPLE:**

```
Switch(lldpmed)# delete 1
Switch(lldpmed)# show policy
Policy Id  Application Type        Tag      Vlan ID  L2 Priority  DSCP
---------  ----------------------  --------  -------  -----------  ----
```

**ecs:** The command lets you configure LLDP-MED Emergency Call Service.

**Syntax:** **ecs <number>**

**Parameter :** **<number>:** The numerical digit string for the Emergency Call Service

**EXAMPLE:**

```
Switch(lldpmed)# ecs 0921555678
Switch(lldpmed)# show config

Fast Start Repeat Count   : 4

Location Coordinates
--------------------
Latitude               : 60.0000 North
Longitude              : 30.0000 East
Altitude               : 10.0000 floor
Map datum              : NAD83/MLLW


Emergency Call Service    : 0921555678
```

**fast:** The command lets you configure LLDP-MED fast start repeat count function.

**Syntax:** **fast** < console>/< ssh >/ < telnet >/ < web >, local / none / radius / tacats+

**Parameter :** **<1-10>:** The number of times the fast start LLDPDU are being sent during the activation of the fast start mechanism defined by LLDP-MED

**EXAMPLE:**

```
witch(lldpmed)# fast 10
Switch(lldpmed)# show config

Fast Start Repeat Count   : 10

Location Coordinates
--------------------
Latitude               : 60.0000 North
Longitude              : 30.0000 East
Altitude               : 10.0000 floor
Map datum              : NAD83/MLLW
```

**policy:** The command lets you configure LLDP-MED policy.

**Syntax:** **policy** tagged/ untagged <1-4094> <0-7> <0-63> guest-voice/…

**Parameter :** **tagged:** The device is using tagged frames

**untagged:** The device is using untagged frames

**<1-4094>:** VLAN ID, available value is from 1 to 4094

**<0-7>:** Layer 2 priority to be used for the specified application type

**<0-63>:** DSCP value to be used to provide Diffserv node beha viour for the specified application type as defined in IETF RFC 2474

| | |
|---|---|
| **guest-voice** | Guest Voice to support a separate limited feature-set voice service for guest users and visitors with their own IP Telephony handsets and other similar appliances supporting interactive voice services |
| **guest-voice-signaling** | Guest Voice Signaling (conditional) for use in network topologies that require a different policy for the guest voice signaling than for the guest voice media |
| **softphone-voice** | Softphone Voice for use by softphone applications on typical data centric devices, such as PCs or laptops.<br>This class of endpoints frequently does not support multiple VLANs, if at all,and are typically configured to use an untagged VLAN or a single tagged data specific VLAN |
| **streaming-video** | Streaming Video for use by broadcast or multicast based video content distribution and other similar applications supporting streaming video services that require specific network policy treatment. Video applications relying on TCP with buffering would not be an intended use of this application type |
| **video-conferencing** | Video Conferencing for use by dedicated Video Conferencing equipment and other similar appliances supporting real-time |

| | |
|---|---|
| | interactive video/audio services |
| **video-signaling** | ideo Signaling (conditional) for use in network topologies that require a separate policy for the video signaling than for the video media |
| **voice** | Voice for use by dedicated IP Telephony handsets and other similar appliances supporting interactive voice services. These devices are typically deployed on a separate VLAN for ease of deployment and enhanced security by isolation from data applications |
| **voice-signaling** | Voice Signaling (conditional) for use in network topologies that require a different policy for the voice signaling than for the voice media |

**EXAMPLE:**

```
Switch(lldpmed)# policy  tagged  1 0 60 guest-voice
New policy added with policy id: 1
Switch(lldpmed)# show policy
Policy Id  Application Type         Tag      Vlan ID  L2 Priority  DSCP
---------  -----------------------  --------  -------  -----------  ----
0         Guest Voice             Tagged    1       0           60
```

**port-policy:** The command lets you configure LLDP-MED port policy function.

**Syntax:** **port-policy** <port-list> <0-31> disable/enable

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**<0-31>:** Policy ID, available value is from 0 to 31

**disable:** Disable the policy to a given port

**enable:** Enable the policy to a given port

**EXAMPLE:**

```
Switch(lldpmed)# port-policy 1 2 enable
Switch(lldpmed)# show port-policy
Port    Policies
----    -------------
1       2
2       none
3       none
4       none
5       none
```

**show:** The command lets you display LLDP-MED information.

**Syntax:** **show** config/ info/ policy/ port-policy

**Parameter :** **config:** Show LLDP-MED configuration

**info:** Show LLDP-MED neighbor device information

**policy:** Show LLDP-MED policy configuration

**port-policy:** Show LLDP-MED port policy configuration

**EXAMPLE:**

```
witch(lldpmed)# show config

Fast Start Repeat Count   : 10

Location Coordinates
--------------------
Latitude               : 60.0000 North
Longitude              : 30.0000 East
Altitude               : 10.0000 floor
Map datum              : NAD83/MLLW

Civic Address Location
----------------------
Country code            :
National subdivison      :
County                 :
City                   : taipei
City district           :
Block (Neighborhood)     :
Street                 :
Street Dir              :
Trailling Street         :
Street Suffix           :
House No.              :
House No. Suffix         :
Landmark               :
Additional Location Info  :
Name                   :
Zip                    :
Building               :
Unit                   :
Floor                  : 1
Room No.               :
Placetype              :
Postal Community Name    :
P.O. Box               :
Addination Code         :

Emergency Call Service    : 0921555678

Switch(lldpmed)# show info 1
No LLDP-MED entries found

Switch(lldpmed)# show policy
Policy Id  Application Type         Tag      Vlan ID  L2 Priority  DSCP
---------  -----------------------  --------  -------  -----------  ----
0         Guest Voice             Tagged    1       0           60

Switch(lldpmed)# show port-policy
Port    Policies
----    -------------
1       2
2       none
3       none
```

# Chapter 27 Loop protection Commands of CLI

**Loop protection**

The loop detection is used to detect the presence of traffic. When switch receives packet's (looping detection frame) MAC address the same as oneself from port, show Loop Protection happens. The port will be locked when it received the looping detection frames.

**Table 26: Loop protection Commands**

| Command | Function |
|---|---|
| interval | Configure loop protection transmit interval |
| mode | Configure loop protection mode |
| port-action | Configure loop protection port action |
| port-mode | Configure loop protection port mode |
| port-transmit | Configure loop protection port transmit mode |
| show | Display loop protection information |
| shutdown | Configure loop protection shutdown time |

## interval:

The command lets you configure loop protection transmit interval.

**Syntax:** **interval** <1-10>

**Parameter :** **<1-10>** Transmit time interval

**EXAMPLE:**

```
Switch(loop-protect)# interval 3
Switch(loop-protect)# show config
Loop Protection   : Disabled
Transmission Time : 3
Shutdown Time     : 180
```

## mode:

The command lets you configure loop protection mode.

**Syntax:** **mode** disable/ enable

**Parameter :** **disable:** Disable loop protection operation

**enable:** Enable loop protection operation

**EXAMPLE:**

```
Switch(loop-protect)# mode enable
Switch(loop-protect)# show config
Loop Protection   : Enabled
Transmission Time : 3
Shutdown Time     : 180

Port  Mode     Action          Transmit
----  -------- --------------- --------
1     Enabled  Shutdown        Enabled
2     Enabled  Shutdown        Enabled
3     Enabled  Shutdown        Enabled
4     Enabled  Shutdown        Enabled
```

**port-action:** The command lets you configure loop protection port action.

**Syntax:** **port-action** <port-list> both/ log/ shutdown

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**both:** Shutdown the port and log event

**log**: Log the event only

**shutdown**: Shutdown the port

**EXAMPLE:**

```
Switch(loop-protect)# port-action 1 both
Switch(loop-protect)# show config
Loop Protection   : Disabled
Transmission Time : 3
Shutdown Time     : 180

Port  Mode     Action          Transmit
----  -------- --------------- --------
1     Enabled  Shutdown and Log  Enabled
2     Enabled  Shutdown        Enabled

Switch(loop-protect)# port-action 1 log
Switch(loop-protect)# show config
Loop Protection   : Disabled
Transmission Time : 3
Shutdown Time     : 180

Port  Mode     Action          Transmit
----  -------- --------------- --------
1     Enabled  Log Only        Enabled
2     Enabled  Shutdown        Enabled

Switch(loop-protect)# port-action 1 shutdown
Switch(loop-protect)# show config
Loop Protection   : Disabled
Transmission Time : 3
Shutdown Time     : 180

Port  Mode     Action          Transmit
----  -------- --------------- --------
1     Enabled  Shutdown        Enabled
2     Enabled  Shutdown        Enabled
```

**port-mode:** The command lets you configure loop protection port mode.

**Syntax:** **port-mode** <port-list> disable/ enable

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**disable:** Disable loop protection operation

**enable:** Enable loop protection operation

**EXAMPLE:**

```
Switch(loop-protect)# port-mode 1 disable
Switch(loop-protect)# show config
Loop Protection   : Disabled
Transmission Time : 3
Shutdown Time     : 180

Port  Mode     Action          Transmit
----  -------- --------------- --------
1     Disabled Shutdown         Enabled
2     Enabled  Shutdown         Enabled
3     Enabled  Shutdown         Enabled
```

**port-transmit:** The command lets you configure loop protection port transmit mode.

**Syntax:** **reinit** <1-10>

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**disable:** Passively looking for looped PDU's

**enable:** Actively generating loop protection PDU's

**EXAMPLE:**

```
Switch(loop-protect)# port-transmit 1 disable
Switch(loop-protect)# show config
Loop Protection   : Disabled
Transmission Time : 3
Shutdown Time     : 180

Port  Mode     Action          Transmit
----  -------- --------------- --------
1     Disabled Shutdown         Disabled
2     Enabled  Shutdown         Enabled
```

**show:** The command display loop protection information.

**Syntax:** **show** config/ status

**Parameter :** **config:** Show loop protection configuration

**status:** Show loop protection status

**EXAMPLE:**

```
Switch(loop-protect)# show config
Loop Protection   : Disabled
Transmission Time : 5
Shutdown Time     : 180

Port  Mode     Action          Transmit
----  -------- --------------- --------
1     Enabled  Shutdown        Enabled
2     Enabled  Shutdown        Enabled
3     Enabled  Shutdown        Enabled
4     Enabled  Shutdown        Enabled

Switch(loop-protect)# show status
Port  Action          Transmit  Loops    Status   Loop  Time of Last Loop
----  --------------- --------  -------- -------- ----
------------------
1     Shutdown        Enabled        0  Down     -     -
2     Shutdown        Enabled        0  Down     -     -
3     Shutdown        Enabled        0  Down     -     -
4     Shutdown        Enabled        0  Down     -     -
```

**shutdown:** The command lets you configure loop protection shutdown time.

**Syntax:** **shutdown** <0-604800>

**Parameter :** **<0-604800>:** Shutdown time interval. A value of zero disables re-enabling the port

**EXAMPLE:**

```
Switch(loop-protect)# shutdown 200
Switch(loop-protect)# show config
Loop Protection   : Disabled
Transmission Time : 3
Shutdown Time     : 200
```

# Chapter 28 Port Mirroring Commands of CLI

## Mirroring

You can mirror traffic from any source port to a target port for real-time analysis. You can then attach a logic analyzer or RMON probe to the target port and study the traffic crossing the source port in a completely unobtrusive manner.
Mirror Configuration is to monitor the traffic of the network. For example, we assume that Port A and Port B are Monitoring Port and Monitored Port respectively, thus, the traffic received by Port B will be copied to Port A for monitoring.

**Table 27: Port Mirroring Commands**

| Command | Function |
|---|---|
| analyzer-port | Configure analyzer port |
| port-mode | Configure port mode |
| show | Show port mirroring information |

## analyzer-port:

The command lets you configure analyzer port on the switch.

**Syntax:** **analyzer-port** disable/ <port>

**Parameter :** **disable:** Disable port mirroring

**<port>:** Analyzer port, available value is from 1 to switch physic port density

**EXAMPLE:**

```
Switch(mirror)# analyzer-port 1
Switch(mirror)# show

Analyzer Port: 1

Port  Mode
----  --------
1     Disabled
2     Disabled
```

## port-mode:

The command lets you configure port mode on the switch.

**Syntax:** **port-mode** <port-list> disable/ enable/ rx-only/ tx-only

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5



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**disable:** The parameter means you to disable DHCP relay mode.

**Enable:** The parameter means you to enable DHCP snooping mode.

**rx-only:** Enable Rx mirroring

**tx-only:** Enable Tx mirroring

**EXAMPLE:**

```
Switch(mirror)# port-mode 2 enable
Switch(mirror)# port-mode 3 rx-only
Switch(mirror)# port-mode 4 tx-only
Switch(mirror)# port-mode 1 disable
Switch(mirror)# show

Analyzer Port: 1

Port  Mode
----  --------
1     Disabled
2     Enabled
3     Rx-only
4     Tx-only
```

**show:** The command lets you show port mirroring information.

**Syntax:** **show**

**Parameter :** <cr>

**EXAMPLE:**

```
Switch(mirror)# show

Analyzer Port: Disabled

Port  Mode
----  --------
1     Disabled
2     Disabled
3     Disabled
4     Disabled
```

# Chapter 29 MLD Commands of CLI

## MLD

Curiously enough, a network node that acts as a source of IPv6 multicast traffic is only an indirect participant in MLD snooping—it just provides multicast traffic, and MLD doesn't interact with it. (Note, however, that in an application like desktop conferencing a network node may act as both a source and an MLD host; but MLD interacts with that node only in its role as an MLD host.)

A source node creates multicast traffic by sending packets to a multicast address. In IPv6, addresses with the first eight bits set (that is, "FF" as the first two characters of the address) are multicast addresses, and any node that listens to such an address will receive the traffic sent to that address. Application software running on the source and destination systems cooperates to determine what multicast address to use. (Note that this is a function of the application software, not of MLD.)

When MLD snooping is enabled on a VLAN, the switch acts to minimize unnecessary multicast traffic. If the switch receives multicast traffic destined for a given multicast address, it forwards that traffic only to ports on the VLAN that have MLD hosts for that address. It drops that traffic for ports on the VLAN that have no MLD hosts.

**Table 28: MLD Commands**

| Command | Function |
|---|---|
| compatibility | Set the Versions of MLD Operating on Hosts and Routers |
| delete | Delete commands |
| fast-leave | Set per-port Fast Leave |
| filtering | The IP Multicast Group that will be filtered |
| flooding | Set MLD Flooding Mode |
| lmqi | Set the per-VLAN Last Member Query Interval |
| proxy | Set MLD Proxy Mode |
| qi | Set the per-VLAN Query Interval |
| qri | Set the per-VLAN Query Response Interval |
| querier | Enable/Disable the per-VLAN MLD Querier |
| router | Set Router Port |
| rv | Set the per-VLAN Robustness Variable |
| show | Show MLD Information |
| snooping | Set MLD Snooping Mode |
| ssm-range | Set MLD SSM Range |

| | |
|---|---|
| **state** | Enable/Disable the per-VLAN MLD Snooping |
| **throttling** | Set per-port Throttling |
| **uri** | Set the per-VLAN Unsolicited Report Interval |

## compatibility:

The command lets you set the Versions of MLD Operating on Hosts and Routers.

**Syntax:** **compatibility** < vlan-list > Forced-MLDv1/ Forced-MLDv2/ MLD-Auto

**Parameter :** **<vlan-list>:** VLAN list, available value is from 1 to 4094 format: 1,3-5

**Forced-MLDv1:** Set MLDv1 of MLD operating on hosts and routers

**Forced-MLDv2:** Set MLDv2 of MLD operating on hosts and routers

**MLD-Auto:** Set auto mode of MLD operating on hosts and routers

**EXAMPLE:**

```
Switch(mld)# compatibility 1 forced-MLDv1
```

## delete:

The command lets you delete commands

**Syntax:** **delete** <port-list> <ipv6-address>

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**<ipv6-address>:** Delete MLD filtering group.

**EXAMPLE:**

```
Switch(mld)# delete 1 fe80::202:b3ff:fe1e:8329
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Enabled
MLd Proxy : Disabled
```

## fast-leave:

The command lets you set per-port Fast Leave

**Syntax:** **fast-leave** <port-list> disable/ enable

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**disable:** Disable fast leave

**enable:** Enable fast leave

**EXAMPLE:**

```
Switch(mld)# fast-leave 1 enable
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Enabled
MLd Proxy : Disabled

MLD SSM Range: ff3e::/96
Port  Router   Dynamic Router  Fast Leave  Group Throttling Number
----  -------- --------------  ----------  ----------------------
1    Disabled  No            Enabled    Unlimited
2    Disabled  No            Disabled   Unlimited
3    Disabled  No            Disabled   Unlimited
4    Disabled  No            Disabled   Unlimited
```

**filtering:** The command lets you to set the IP Multicast Group that will be filtered.

**Syntax:** **filtering** <port-list> <ipv6-address>

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**<ipv6-address>:** IPv6 address is in 128-bit records represented as eight fields of up to four hexadecimal digits with a colon separates each field (:). For example, 'fe80::215:c5ff:fe03:4dc7'. The symbol '::' is a special syntax that can be used as a shorthand way of representing multiple 16-bit groups of contiguous zeros; but it can only appear once. It also used a following legally IPv4 address. For example, '::192.1.2.34'

**EXAMPLE:**

```
Switch(mld)# filtering 1 fe80::215:c5ff:fe03:4dc7
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Enabled
MLd Proxy : Disabled

MLD SSM Range: ff3e::/96
Port  Router   Dynamic Router  Fast Leave  Group Throttling Number
----  -------- --------------  ----------  ----------------------
1    Disabled  No            Enabled    Unlimited
2    Disabled  No            Disabled   Unlimited
3    Disabled  No            Disabled   Unlimited
4    Disabled  No            Disabled   Unlimited

VID   State    Querier   Compatibility  RV   QI    QRI   LLQI   URI
----  -------- --------  -------------  ---  -----  -----  -----  -----
1    Disabled  Enabled

Port  Filtering Groups
----  ------------------------------------
1    6665:3830:3a3a:3231:353a:6335:6666:3a66
2    No Filtering Group
3    No Filtering Group
```

**flooding:** The command lets you set MLD Flooding Mode.

**Syntax:** **flooding** disable/ enable

**Parameter :** **disable:** Disable unregistered IPMCv6 traffic flooding.

**Enable:** Enable unregistered IPMCv6 traffic flooding.

**EXAMPLE:**

```
Switch(mld)# flooding disable
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Disabled
MLd Proxy : Disabled
```

## lmqi: The command lets you set the per-VLAN Last Member Query Interval

**Syntax:** **lmqi** <vlan-list> <0-31744>

**Parameter :** **<vlan-list>:** VLAN list, available value is from 1 to 4094 format: 1,3-5.

**<0-31744>:** Range:0~31744 tenths of sec, default:100 tenths of sec.

**EXAMPLE:**

```
Switch(mld)# lmqi 1 31744
```

## proxy: The command lets you set MLD Proxy Mode

**Syntax:** **proxy** disable/ enable

**Parameter :** **disable:** Disable MLD proxy.

**Enable:** Enable MLD proxy.

**EXAMPLE:**

```
Switch(mld)# proxy enable
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Disabled
MLd Proxy : Enabled
```

## qi: The command lets you set the per-VLAN Query Interval

**Syntax:** **qi** <vlan-list> <1-255>

**Parameter :** **<vlan-list>:** VLAN list, available value is from 1 to 4094 format: 1,3-5.

**<1-255>:** Range:1~255 sec, default:125 sec

**EXAMPLE:**

```
Switch(mld)# state 1 enable
Switch(mld)# qi 1 888
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Enabled
MLd Proxy : Disabled

MLD SSM Range: ff3e::/96
Port  Router   Dynamic Router  Fast Leave  Group Throttling Number
----  --------  -------------  ----------  ----------------------
1    Disabled  No            Disabled   Unlimited
2    Disabled  No            Disabled   Unlimited

VID   State    Querier   Compatibility  RV   QI    QRI    LLQI   URI
----  --------  --------  -------------  ---  -----  -----  -----  -----
1    Enabled   En
```

## qri: The command lets you set the per-VLAN Query Response Interval

**Syntax:** **qri** <vlan-list> <0-31744>

**Parameter :** **<vlan-list>:** VLAN list, available value is from 1 to 4094 format: 1,3-5.

**<0-31744>:** Range:0~31744 tenths of sec, default:100 tenths of sec.

**EXAMPLE:**

```
Switch(mld)# state 1 enable
Switch(mld)# qri 1 555
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Enabled
MLd Proxy : Disabled

MLD SSM Range: ff3e::/96
Port  Router   Dynamic Router  Fast Leave  Group Throttling Number
----  --------  -------------  ----------  ----------------------
1    Disabled  No            Disabled   Unlimited
2    Disabled  No            Disabled   Unlimited

VID   State    Querier   Compatibility  RV   QI    QRI    LLQI   URI
----  --------  --------  -------------  ---  -----  -----  -----  -----
1    Enabled   Enabled   IGMP-Auto     2    888    555    10    1
```

## querier: The command lets you Enable/Disable the per-VLAN MLD Querier

**Syntax:** **querier** <vlan-list> disable/ enable

**Parameter :** **<vlan-list>:** VLAN list, available value is from 1 to 4094 format: 1,3-5.

**disable:** Disable the per-VLAN MLD querie.

**Enable:** Enable the per-VLAN MLD querier.

**EXAMPLE:**

```
Switch(mld)# querier 1 enable
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Enabled
MLd Proxy : Disabled

MLD SSM Range: ff3e::/96
Port  Router    Dynamic Router  Fast Leave  Group Throttling Number
----  --------  --------------  ----------  ----------------------
1     Disabled  No              Disabled    Unlimited
2     Disabled  No              Disabled    Unlimited


VID   State     Querier   Compatibility  RV   QI     QRI    LLQI   URI
----  --------  --------  -------------  ---  -----  -----  -----  -----
1     Enabled   Enabled   IGMP-Auto      99   888    555    10     1
```

## router: The command lets you set Router Port

**Syntax:** **router** <port-list> disable/ enable

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5.

**disable:** Disable router port

**Enable:** Enable router port.

**EXAMPLE:**

```
Switch(mld)# router 1 enable
Switch(mld)# show config
MLD Snooping : Enabled
MLd Flooding Control : Disabled
MLd Proxy : Enabled

MLD SSM Range: ff3e::/96
Port  Router    Dynamic Router  Fast Leave  Group Throttling Number
----  --------  --------------  ----------  ----------------------
1     Enabled   No              Disabled    Unlimited
2     Disabled  No              Disabled    Unlimited
3     Disabled  No              Disabled    Unlimited
4     Disabled  No              Disabled    Unlimited
```

## rv: The command lets you set the per-VLAN Robustness Variable

**Syntax:** **rv** <vlan-list> <2-255>

**Parameter :** **<vlan-list>:** VLAN list, available value is from 1 to 4094 format: 1,3-5.

**<2-255>:** Range:2~255, default:2.

**EXAMPLE:**

```
Switch(mld)# rv 1 99
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Enabled
MLd Proxy : Disabled

MLD SSM Range: ff3e::/96
Port  Router    Dynamic Router  Fast Leave  Group Throttling Number
----  --------  --------------  ----------  ----------------------
1     Disabled  No              Disabled    Unlimited
2     Disabled  No              Disabled    Unlimited


VID   State     Querier   Compatibility  RV   QI    QRI    LLQI   URI
----  --------  --------  -------------  ---  -----  -----  -----  -----
1     Enabled   Enabled   IGMP-Auto      99   888    555    10     1
```

## show: The command lets you show MLD Information

**Syntax:** **show** config

**show** groups/ ssm/ status/ version <1-4094>

**Parameter :** **config:** Show MLD Configuration

**groups:** Entries in the MLD Group table

**ssm:** Entries in the MLDv2 information table

**status:** Show MLD status

**version:** Show MLD working querier/host version currently

**<1-4094>:** VLAN ID, available value is from 1 to 4094

**EXAMPLE:**

```
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Enabled
MLd Proxy : Disabled

MLD SSM Range: ff3e::/96
Port  Router    Dynamic Router  Fast Leave  Group Throttling Number
----  --------  --------------  ----------  ----------------------
1     Disabled  No              Disabled    Unlimited
2     Disabled  No              Disabled    Unlimited
3     Disabled  No              Disabled    Unlimited
4     Disabled  No              Disabled    Unlimited

VID   State     Querier   Compatibility  RV   QI     QRI    LLQI   URI
----  --------  --------  -------------  ---  -----  -----  -----  -----
1     Disabled  Enabled

Port  Filtering Groups
----  ------------------------------------
1     No Filtering Group
2     No Filtering Group
3     No Filtering Group
4     No Filtering Group
```

## snooping:

The command lets you set MLD Snooping Mode

**Syntax:** **snooping** disable/ enable

**Parameter :** **disable:** Disable the global MLD snooping

**Enable:** Enable the global MLD snooping

**EXAMPLE:**

```
Switch(mld)# snoop enable
Switch(mld)# show config
MLD Snooping : Enabled
MLd Flooding Control : Disabled
MLd Proxy : Enabled
```

## ssm-range:

The command lets you set MLD SSM Range

**Syntax:** **ssm-range** <ipv6-address> <8-128>

**Parameter :** **<ipv6-address>:** Set MLD SSM range address.

**<8-128>:** Set MLD SSM range value.

**EXAMPLE:**

```
ssm-range ::ffff:192.168.1.6 10
```

## state:

The command lets you Enable/Disable the per-VLAN MLD Snooping

**Syntax:** **relay-option** disable/ enable

**Parameter :** **<vlan-list>:** VLAN list, available value is from 1 to 4094 format: 1,3-5.

**disable:** Disable the per-VLAN MLD snooping

**Enable:** Enable the per-VLAN MLD snooping

**EXAMPLE:**

```
Switch(mld)# state 1 enable
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Enabled
MLd Proxy : Disabled

MLD SSM Range: ff3e::/96
Port  Router   Dynamic Router  Fast Leave  Group Throttling Number
----  -------- -------------- ----------  ----------------------
1    Disabled  No            Disabled    Unlimited
2    Disabled  No            Disabled    Unlimited


VID   State    Querier   Compatibility  RV   QI    QRI    LLQI   URI
----  -------- --------  -------------  ---  -----  -----  -----  -----
1    Enabled   Enabled   IGMP-Auto     99   888    555    10    1
```

## throtting: The command lets you set per-port Throttling

**Syntax:** **throtting** <port-list> <0-10>

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5.

**<0-10>:** Set port group limit number, range:0~10, 0:unlimited

**EXAMPLE:**

```
witch(mld)# throttling 1 10
Switch(mld)# show config
MLD Snooping : Enabled
MLd Flooding Control : Disabled
MLd Proxy : Enabled

MLD SSM Range: ff3e::/96
Port  Router   Dynamic Router  Fast Leave  Group Throttling Number
----  -------- -------------- ----------  ----------------------
1    Disabled  No            Disabled    10
2    Disabled  No            Disabled    Unlimited
3    Disabled  No            Disabled    Unlimited
4    Disabled  No            Disabled    Unlimited
```

## uri: The command lets you set the per-VLAN Unsolicited Report Interval

**Syntax:** **uri** <vlan-list> <0-31744>

**Parameter :** **<vlan-list>:** VLAN list, available value is from 1 to 4094 format: 1,3-5.

**<0-31744>:** Range:0~31744 sec, default:1 sec

**EXAMPLE:**

```
Switch(mld)# uri 1 777
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Enabled
MLd Proxy : Disabled

MLD SSM Range: ff3e::/96
Port  Router    Dynamic Router  Fast Leave  Group Throttling Number
----  --------  --------------  ----------  ----------------------
1     Disabled  No              Disabled    Unlimited
2     Disabled  No              Disabled    Unlimited


VID   State     Querier   Compatibility  RV   QI     QRI    LLQI   URI
----  --------  --------  -------------  ---  -----  -----  -----  -----
1     Enabled   Enabled   IGMP-Auto      99   888    555    10     777
```

# Chapter 30 MVR Commands of CLI

## MVR

The MVR feature enables multicast traffic forwarding on the Multicast VLAN. In a multicast television application, a PC or a television with a set-top box can receive the multicast stream. Multiple set-top boxes or PCs can be connected to one subscriber port, which is a switch port configured as an MVR receiver port. When a subscriber selects a channel, the set-top box or PC sends an IGMP join message to Switch A to join the appropriate multicast. Uplink ports that send and receive multicast data to and from the multicast VLAN are called MVR source ports.

**Table 29: MVR Commands**

| Command | Function |
|---|---|
| immediate-leave | Configure MVR port state about immediate leave |
| mode | Configure MVR mode |
| port-mode | Configure MVR port mode |
| port-type | Configure MVR port type |
| show | Show command |

### immediate-leave:

The command lets you to configure MVR port state about immediate leave

**Syntax:** **immediate-leave** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**disable:** Disable immediate leave on the specific port
**enable:** Enable immediate leave on the specific port

**EXAMPLE:**

```
Switch(mvr)# immediate-leave 1 enable
Switch(mvr)# show config
MVR Mode        : Disabled
Muticast VLAN ID : 100

Port  Port Mode  Port Type  Immediate Leave
----  ---------  ---------  -----------------
1     Disabled   Receive    Enabled
2     Disabled   Receive    Disabled
3     Disabled   Receive    Disabled
4     Disabled   Receive    Disabled
```


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## mode: The command lets you to configure MVR mode

**Syntax:** **mode** disable/ enable <1-4094>

**Parameter :** **disable:** Disable MVR

**enable:** Enable multicast traffic forwarding on the Multicast VLAN
**<1-4094>:** Multicast VLAN ID, available is from 1 to 4094

**EXAMPLE:**

```
Switch(mvr)# mode enable 1
Switch(mvr)# show config
MVR Mode        : Enabled
Muticast VLAN ID : 1
```

## port-mode: The command lets you to configure MVR port mode

**Syntax:** **port-mode** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**disable:** Disable MVR on the specific port

**enable:** Enable MVR on the specific port

**EXAMPLE:**

```
Switch(mvr)# port-mode 1 enable
Switch(mvr)# show config
MVR Mode        : Disabled
Muticast VLAN ID : 1

Port  Port Mode  Port Type  Immediate Leave
----  ---------  ---------  -----------------
1     Enabled    Receive    Enabled
2     Disabled   Receive    Disabled
3     Disabled   Receive    Disabled
4     Disabled   Receive    Disabled
```

## port-type: The command lets you to configure MVR port type

**Syntax:** **port-type** <port-list> receiver/ source

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**receiver:** Define the port as receiver port

**source:** Define the port as source port

**EXAMPLE:**

```
witch(mvr)# port-type 2 source
Switch(mvr)# show config
MVR Mode        : Disabled
Muticast VLAN ID : 1

Port  Port Mode  Port Type  Immediate Leave
----  ---------  ---------  -----------------
1     Enabled    Receive    Enabled
2     Disabled   Source     Disabled
3     Disabled   Receive    Disabled
4     Disabled   Receive    Disabled
```

## show: The command lets you to show command

**Syntax:** **show** config/ group/ statistics

**Parameter :** **config:** Show MVR configuration

**group:** Show MVR group information

**statistics:** Show MVR statistics information

**EXAMPLE:**

```
Switch(mvr)# show config
MVR Mode        : Disabled
Muticast VLAN ID : 100

Port  Port Mode  Port Type  Immediate Leave
----  ---------  ---------  -----------------
1     Disabled   Receive    Disabled
2     Disabled   Receive    Disabled
3     Disabled   Receive    Disabled
4     Disabled   Receive    Disabled

Switch(mvr)# show group

Switch(mvr)# show statistics
```

# Chapter 31 NAS Commands of CLI

**NAS**

The section describes to configure the Network Access Server parameters of the switch. The NAS server can be employed to connect users to a variety of resources including Internet access, conference calls, printing documents on shared printers, or by simply logging on to the Internet.

**Table 30: NAS Commands**

| Command | Function |
|---|---|
| agetime | Configure the time in seconds between check for activity on successfully authenticated MAC addresses |
| clear | Clear NAS statistics |
| eapol-timeout | Configure the time between EAPOL retransmissions |
| guest-vlan | Configure the Guest VLAN mode |
| hold-time | Configure the time in seconds before a MAC-address that failed authentication gets a new authentication chance |
| mode | Configure the NAS mode |
| port-guest-vlan | Configure the Guest VLAN mode of switch ports |
| port-radius-qos | Configure the RADIUS-assigned QoS mode of switch ports |
| port-radius-vlan | Configure the RADIUS-assigned VLAN mode of switch ports |
| port-state | Configure the NAS port state |
| radius-qos | Configure the RADIUS-assigned QoS mode |
| radius-vlan | Configure the RADIUS-assigned VLAN mode |
| reauth-period | Configure the period between reauthentications |
| reauthentication | Configure the NAS reauthentication mode |
| restart | Restart NAS authentication process |
| show | Show NAS information |

**agetime:**

The command lets you to configure the time in seconds between check for activity on successfully authenticated MAC addresses.

**Syntax:** **agetime** <10-1000000>

**Parameter :** **<10-1000000>:** Time in seconds between checks for activity on a MAC address that succeeded authentication

**EXAMPLE:**

```
Switch(nas)# agetime 9999
Switch(nas)# show config
Mode                              : Disabled
Reauthentication                    : Disabled
Reauthentication Period             : 3600
EAPOL Timeout                      : 30
Age Period                         : 9999
Hold Time                          : 10
RADIUS QoS                         : Disabled
RADIUS VLAN                        : Disabled
Guest VLAN                         : Disabled
Guest VLAN ID                      : 1
Maximum Reauthentication Count       : 2
Allow Guest VLAN if EAPOL Frame Seen : Disabled
```

## clear:

The command lets you to clear NAS statistics

**Syntax:** **clear** <port-list>

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**EXAMPLE:**

```
Switch(nas)# clear 1
```

## eapol-timeout:

The command lets you to configure the time between EAPOL retransmissions

**Syntax:** **eapol-timeout** <1-65535>

**Parameter :** **<1-65535>:** Time in seconds between EAPOL retransmissions

**EXAMPLE:**

```
Switch(nas)# eapol-timeout 8888
Switch(nas)# show config
Mode                              : Disabled
Reauthentication                    : Disabled
Reauthentication Period             : 3600
EAPOL Timeout                      : 8888
Age Period                         : 9999
Hold Time                          : 10
RADIUS QoS                         : Disabled
RADIUS VLAN                        : Disabled
Guest VLAN                         : Disabled
Guest VLAN ID                      : 1
Maximum Reauthentication Count       : 2
Allow Guest VLAN if EAPOL Frame Seen : Disabled
```

## guest-vlan: The command lets you configure the Guest VLAN mode

**Syntax:** **guest-vlan** disable

enable <1-4094> <1-255> allow_if_eapol_seen disable/ enable

**Parameter :** **disable:** Disable Guest VLAN

**Enable:** Enable Guest VLAN

**<1-4094>**: Guest VLAN ID used when entering the Guest VLAN

**<1-255>:** The number of times a Request Identity EAPOL frame is sent without reasponse before considering entering the Guest VLAN

**allow_if_eapol_seen:** The switch remembers if an EAPOL frame has been received on the port for the life-time of the port. Once the switch considers whether to enter the Guest VLAN, it will first check if this option is enabled or disabled

**disable:** The Guest VLAN can only be entered if no EAPOL frames have been received on a port for the lifetime of the port

**enable:** The Guest VLAN can be entered even if an EAPOL frame has been received during the lifetime of the port

**EXAMPLE:**

```
Switch(nas)# guest-vlan enable 90 150 allow_if_eapol_seen enable
Switch(nas)# show config
Mode                              : Disabled
Reauthentication                    : Disabled
Reauthentication Period             : 3600
EAPOL Timeout                      : 8888
Age Period                         : 9999
Hold Time                          : 10
RADIUS QoS                         : Disabled
RADIUS VLAN                        : Disabled
Guest VLAN                         : Enabled
Guest VLAN ID                      : 90
Maximum Reauthentication Count       : 150
Allow Guest VLAN if EAPOL Frame Seen : Enabled
```

## hold-time: The command lets you configure the time in seconds before a MAC-address that failed authentication gets a new authentication chance

**Syntax:** **old-time** <10-1000000>

**Parameter :** **<10-1000000>:** Hold time before MAC addresses that failed authentication expire

**EXAMPLE:**

```
Switch(nas)# hold-time 7777
Switch(nas)# show config
Mode                              : Disabled
Reauthentication                    : Disabled
Reauthentication Period             : 3600
EAPOL Timeout                      : 8888
Age Period                         : 9999
Hold Time                          : 7777
RADIUS QoS                         : Disabled
RADIUS VLAN                        : Disabled
Guest VLAN                         : Enabled
Guest VLAN ID                       : 90
Maximum Reauthentication Count       : 150
Allow Guest VLAN if EAPOL Frame Seen : Enabled
```

## mode:

The command lets you configure the NAS mode

**Syntax:** **mode** disable/ enable

**Parameter :** **disable:** Globally disable NAS operation mode

**Enable:** Globally enable NAS operation mode

**EXAMPLE:**

```
Switch(nas)# mode enable
Switch(nas)# show config
Mode                              : Enabled
Reauthentication                    : Disabled
Reauthentication Period             : 3600
EAPOL Timeout                      : 8888
Age Period                         : 9999
Hold Time                          : 7777
RADIUS QoS                         : Disabled
RADIUS VLAN                        : Disabled
Guest VLAN                         : Enabled
Guest VLAN ID                       : 90
Maximum Reauthentication Count       : 150
Allow Guest VLAN if EAPOL Frame Seen : Enabled
```

## port-guest-vlan:

The command lets you configure the Guest VLAN mode of switch ports

**Syntax:** **port-guest-vlan** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**disable:** Disable Guest VLAN

**Enable:** Enable Guest VLAN

**EXAMPLE:**

```
Switch(nas)# port-guest-vlan 1 enable
Switch(nas)# show port-config
Port  Admin State        RADIUS-Assigned QoS  RADIUS-Assigned VLAN  Guest VLAN
----  -----------------  -------------------  --------------------
----------
1     Force Authorized    Disabled           Disabled            Enabled
2     Force Authorized    Disabled           Disabled            Disabled
3     Force Authorized    Disabled           Disabled            Disabled
4     Force Authorized    Disabled           Disabled            Disabled
```

## port-radius-qos:

The command lets you configure the RADIUS-assigned QoS mode of switch ports

**Syntax:** **port-radius-qos** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**disable:** Disable RADIUS-assigned QoS

**Enable:** Enable RADIUS-assigned QoS

**EXAMPLE:**

```
Switch(nas)# port-radius-qos 2 enable
Switch(nas)# show port-config
Port  Admin State        RADIUS-Assigned QoS  RADIUS-Assigned VLAN  Guest VLAN
----  -----------------  -------------------  --------------------
----------
1     Force Authorized    Disabled           Disabled            Enabled
2     Force Authorized    Enabled            Disabled            Disabled
3     Force Authorized    Disabled           Disabled            Disabled
4     Force Authorized    Disabled           Disabled            Disabled
```

## port-radius-vlan:

The command lets you configure the RADIUS-assigned VLAN mode of switch ports

**Syntax:** **port-radius-vlan** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**disable:** Disable RADIUS-assigned VLAN

**Enable:** Enable RADIUS-assigned VLAN

**EXAMPLE:**

```
Switch(nas)# port-radius-vlan 3 enable
Switch(nas)# show port-config
Port  Admin State        RADIUS-Assigned QoS  RADIUS-Assigned VLAN  Guest VLAN
----  -----------------  -------------------  --------------------
----------
1    Force Authorized    Disabled           Disabled            Enabled
2    Force Authorized    Enabled            Disabled            Disabled
3    Force Authorized    Disabled           Enabled             Disabled
4    Force Authorized    Disabled           Disabled            Disabled
```

## port-state:

The command lets you configure the NAS port state

**Syntax:** **port-state** <port-list> force-auth/ force-unauth/ mac-based/ multi/ port-based/ single

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**force-auth:** Port access is allowed

**force-unauth:** Port access is not allowed

**mac-based:** Switch authenticates on behalf of the client

**multi:** Multiple Host NAS Authentication

**port-based:** Port-based NAS Authentication

**single:** Single Host NAS Authentication

**EXAMPLE:**

```
Switch(nas)# port-state 4 force-unauth
Switch(nas)# port-state 5 mac-based
Switch(nas)# port-state 6 multi
Switch(nas)# port-state 7 port-based
Switch(nas)# port-state 8 single
Switch(nas)# show port-config
Port  Admin State        RADIUS-Assigned QoS  RADIUS-Assigned VLAN  Guest VLAN
----  -----------------  -------------------  --------------------
----------
1    Force Authorized    Disabled           Disabled            Disabled
2    Force Authorized    Disabled           Disabled            Disabled
3    Force Authorized    Disabled           Disabled            Disabled
4    Force Unauthorized  Disabled           Disabled            Disabled
5    MAC-Based Auth      Disabled           Disabled            Disabled
6    Multi 802.1X        Disabled           Disabled            Disabled
7    Port-based 802.1X   Disabled           Disabled            Disabled
8    Single 802.1X       Disabled           Disabled            Disabled
```

## radius-qos:

The command lets you configure the RADIUS-assigned QoS mode

**Syntax:** **radius-qos** disable/ enable

**Parameter :** **disable:** Disable RADIUS-assigned QoS

**Enable:** Enable RADIUS-assigned QoS

**EXAMPLE:**

```
Switch(nas)# radius-qos enable
Switch(nas)# show config
Mode                              : Enabled
Reauthentication                   : Disabled
Reauthentication Period             : 3600
EAPOL Timeout                      : 8888
Age Period                         : 9999
Hold Time                          : 7777
RADIUS QoS                         : Enabled
RADIUS VLAN                        : Disabled
Guest VLAN                         : Enabled
Guest VLAN ID                      : 90
Maximum Reauthentication Count      : 150
Allow Guest VLAN if EAPOL Frame Seen : Enabled
```

## radius-vlan:

The command lets you configure the RADIUS-assigned VLAN mode

**Syntax:** **radius-vlan** disable/ enable

**Parameter :** **disable:** Disable RADIUS-assigned VLAN

**Enable:** Enable RADIUS-assigned VLAN

**EXAMPLE:**

```
Switch(nas)# radius-vlan enable
Switch(nas)# show config
Mode                              : Enabled
Reauthentication                   : Disabled
Reauthentication Period             : 3600
EAPOL Timeout                      : 8888
Age Period                         : 9999
Hold Time                          : 7777
RADIUS QoS                         : Enabled
RADIUS VLAN                        : Enabled
Guest VLAN                         : Enabled
Guest VLAN ID                      : 90
Maximum Reauthentication Count      : 150
Allow Guest VLAN if EAPOL Frame Seen : Enabled
```

## reauth-period:

The command lets you configure the period between reauthentications

**Syntax:** **reauth-period** <1-3600>

**Parameter :** **<1-3600>:** Period between reauthentications

**EXAMPLE:**

```
Switch(nas)# reauth-period 666
Switch(nas)# show config
Mode                              : Enabled
Reauthentication                    : Disabled
Reauthentication Period             : 666
EAPOL Timeout                      : 8888
Age Period                         : 9999
Hold Time                          : 7777
RADIUS QoS                         : Enabled
RADIUS VLAN                        : Enabled
Guest VLAN                         : Enabled
Guest VLAN ID                       : 90
Maximum Reauthentication Count       : 150
Allow Guest VLAN if EAPOL Frame Seen : Enabled
```

**reauthentication:** The command lets you configure the NAS reauthentication mode

**Syntax:** **reauthentication** disable/ enable

**Parameter :** **disable:** Disable NAS reauthentication

**Enable:** Enable NAS reauthentication

**EXAMPLE:**

```
Switch(nas)# reauthentication enable
Switch(nas)# show config
Mode                              : Enabled
Reauthentication                    : Enabled
Reauthentication Period             : 666
EAPOL Timeout                      : 8888
Age Period                         : 9999
Hold Time                          : 7777
RADIUS QoS                         : Enabled
RADIUS VLAN                        : Enabled
Guest VLAN                         : Enabled
Guest VLAN ID                       : 90
Maximum Reauthentication Count       : 150
Allow Guest VLAN if EAPOL Frame Seen : Enabled
```

**reatart:** The command lets you restart NAS authentication process

**Syntax:** **restart** <port-list> reauthenticate/ reinitialize

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**reauthenticate:** Schedules a reauthentication whenever the quiet-period of the port runs out (EAPOL-based authentication). For MAC-based authentication, reauthentication will be attempted immediately

**reinitialize:** Forces a reinitialization of the clients on the port and

thereby a reauthentication immediately

**EXAMPLE:**

```
Switch(nas)# restart 1 reauthenticate
```

## show: Show NAS information

**Syntax:** **show** config / port-config/ status

**show** statistics <port-list>

**Parameter :** **config:** Show NAS configuration

**port-config:** Show NAS port configuration

**statistics:** Show NAS statistics

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**status:** Show NAS status

**EXAMPLE:**

```
Switch(nas)# show config
Mode                              : Disabled
Reauthentication                  : Disabled
Reauthentication Period           : 3600
EAPOL Timeout                     : 30
Age Period                        : 300
Hold Time                         : 10
RADIUS QoS                        : Disabled
RADIUS VLAN                       : Disabled
Guest VLAN                        : Disabled
Guest VLAN ID                     : 1
Maximum Reauthentication Count    : 2
Allow Guest VLAN if EAPOL Frame Seen : Disabled


Switch(nas)# show port-config
Port  Admin State       RADIUS-Assigned QoS  RADIUS-Assigned VLAN  Guest VLAN
----  ----------------  -------------------  --------------------
----------
1    Force Authorized   Disabled           Disabled            Disabled
2    Force Authorized   Disabled           Disabled            Disabled
3    Force Authorized   Disabled           Disabled            Disabled
4    Force Authorized   Disabled           Disabled            Disabled


Switch(nas)# show statistics 1

Port 1 EAPOL Statistics:
Rx Total                        0  Tx Total                        0
Rx Response/Id                   0  Tx Request/Id                    0
Rx Response                     0  Tx Request                      0
Rx Start                        0
Rx Logoff                       0
Rx Invalid Type                  0
Rx Invalid Length                0

Port 1 Backend Server Statistics:
Rx Access Challenges              0  Tx Responses                    0
Rx Other Requests                0
Rx Auth. Successes               0
Rx Auth. Failures                0


Switch(nas)# show status
Port Port State          Last Source      Last ID          QoS VLAN
---- -------------------- ---------------- ----------------- ---
------------
1   Link Down           -              -
2   Link Down           -              -
3   Link Down           -              -
4   Link Down           -              -
```

# Chapter 32 Port configuration Commands of CLI

**Port**

This chapter describes how to view the current port configuration and how to configure ports to non-default settings, including
Linkup/Linkdown
Speed (Current and configured)
Flow Control (Current Rx, Current Tx and Configured)
Maximum Frame Size
Excessive Collision Mode
Power Control.

**Table 31: Port Commands**

| Command | Function |
|---|---|
| clear | Clear port counter |
| description | Interface specific description |
| excessive-collision | Configure excessive collision operation |
| flow-control | Configure flow operation |
| max-frame | Configure maximum receive frame size |
| port-state | Configure port state operation |
| power-saving | Configure power saving operation |
| show | Show port information |
| speed-duplex | Configure speed duplex operation |

## clear: The command lets you to clear port counter

**Syntax:** **clear** <port-list>

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**EXAMPLE:**

```
Switch(port)# clear 1
Switch(port)# show simple-counter
Port       Packets            Bytes          Errors    Drops    Filtered
------ ----------------- ------------------- ---------- ---------- ----------
  1/Rx               0                   0         0         0         0
  1/Tx               0                   0         0         0
--------------------------------------------------------------------------------
--
  2/Rx               0                   0         0         0         0
  2/Tx               0                   0         0         0
--------------------------------------------------------------------------------
--
  3/Rx               0                   0         0         0         0
  3/Tx               0                   0         0         0
--------------------------------------------------------------------------------
-
```

**description:** The command lets you display Interface specific description

**Syntax:** **description** <port-list> <LINE>

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**<LINE>:** Up to 47 characters describing this interface

**EXAMPLE:**

```
Switch(port)# description 1 david
Switch(port)# show configuration
Port  State   Speed Duplex  Flow Control  Max. Frame  Excessive  Power
Description
--------------------------------------------------------------------------------
---
1    Enabled  Auto        -           10056      -        -
david
--------------------------------------------------------------------------------
---
2    Enabled  Auto        -           10056      -        -

--------------------------------------------------------------------------------
---
3    Enabled  Auto        -           10056      -        -

--------------------------------------------------------------------------------
---
```

**excessive-collision:** The command lets you configure excessive collision operation

**Syntax:** **excessive-collision** <port-list> discard/ restart

**Parameter :** **<port-list>:** available value is from switch TP port number, format: 1,3-5
**discard:** Discard the packet when excessive collision
**restart:** Retransmit the packet, regardless of the number of collisions

**EXAMPLE:**

```
Switch(port)# excessive-collision 21 restart
Switch(port)# show configuration
Port  State   Speed Duplex  Flow Control  Max. Frame  Excessive  Power
Description
------------------------------------------------------------------------------
---
1    Enabled  Auto        -           10056      -        -
david
------------------------------------------------------------------------------
---
2    Enabled  Auto        -           10056      -        -
------------------------------------------------------------------------------
---
21   Enabled  SFP_Auto_AMS  Disabled     10056      Restart   Disabled

------------------------------------------------------------------------------
---
22   Enabled  SFP_Auto_AMS  Disabled     10056      Discard   Disabled

------------------------------------------------------------------------------
---
```

## flow-control: The command lets you configure flow operation

**Syntax:** **flow-control** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch TP port number, format: 1,3-5

**disable:** Disable flow control operation

**enable:** Enable flow control operation

**EXAMPLE:**

```
Switch(port)# flow-control 21 enable
Switch(port)# show configuration
Port  State   Speed Duplex  Flow Control  Max. Frame  Excessive  Power
Description
------------------------------------------------------------------------------
---
1    Enabled  Auto        -           10056      -        -
david
------------------------------------------------------------------------------
---
2    Enabled  Auto        -           10056      -        -


------------------------------------------------------------------------------
---
21   Enabled  SFP_Auto_AMS  Enabled      10056      Restart   Disabled

------------------------------------------------------------------------------
---
22   Enabled  SFP_Auto_AMS  Disabled     10056      Discard   Disabled

------------------------------------------------------------------------------
---
23   Enabled  SFP_Auto_AMS  Disabled     10056      Discard   Disabled

------------------------------------------------------------------------------
```

## max-frame:

The command lets you configure maximum receive frame size

**Syntax:** **max-frame** <port-list> <1518-10056>

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**<1518-10056>:** Maximum receive frame size in bytes

**EXAMPLE:**

```
Switch(port)# max-frame 1 1600
Switch(port)# show configuration
Port  State   Speed Duplex  Flow Control  Max. Frame  Excessive  Power
Description
------------------------------------------------------------------------------
---
1    Enabled  Auto        -            1600       -        -
david
------------------------------------------------------------------------------
---
2    Enabled  Auto        -            10056      -        -

------------------------------------------------------------------------------
---
3    Enabled  Auto        -            10056      -        -
```

## port-state:

The command lets you configure port state operation

**Syntax:** **port-state** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**disable:** Disable port state operation
**enable:** Enable port state operation

**EXAMPLE:**

```
Switch(port)# port-state 1 disable
Switch(port)# show configuration
Port  State   Speed Duplex  Flow Control  Max. Frame  Excessive  Power
Description
-------------------------------------------------------------------------------
---
1    Disabled Auto        -           1600       -        -
david
-------------------------------------------------------------------------------
---
2    Enabled  Auto        -           10056      -        -

-------------------------------------------------------------------------------
---
3    Enabled  Auto        -           10056      -        -
```

## power-saving:

The command lets you configure power saving operation

**Syntax:** **power-saving** <port-list> actiphy/ disable/ dynamic/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**actiphy:** Enable ActiPHY power control
**disable:** Disable power saving
**dynamic:** Enable dynamic power control
**enable:** Enable power saving

**EXAMPLE:**

```
Switch(port)# power-saving 21 actiphy
Switch(port)# power-saving 22 dynamic
Switch(port)# power-saving 23 enable
Switch(port)# show configuration
Port  State   Speed Duplex  Flow Control  Max. Frame  Excessive  Power
Description
------------------------------------------------------------------------------
---
1    Disabled Auto        -           1600       -        -
david
------------------------------------------------------------------------------
---
2    Enabled  Auto        -           10056      -        -

------------------------------------------------------------------------------
---
21   Enabled  SFP_Auto_AMS  Enabled      10056      Restart   ActiPHY

------------------------------------------------------------------------------
---
22   Enabled  SFP_Auto_AMS  Disabled     10056      Discard   Dynamic

------------------------------------------------------------------------------
---
23   Enabled  SFP_Auto_AMS  Disabled     10056      Discard   Enabled

------------------------------------------------------------------------------
---
24   Enabled  SFP_Auto_AMS  Disabled     10056      Discard   Disabled

------------------------------------------------------------------------------
---
```

## Show: The command lets you show port information

**Syntax:** **show** configuration

detail-counter <port-list>

sfp <port-list>

simple-counter

status <port-list>

**Parameter :** **configuration:** Show port configuration

**detail-counter:** Show detailed traffic statistics for specific switch port

**<port-list>:** Port number

**sfp:** Show sfp information

**<port-list>:** SFP port number, available value is from SFP port number

**simple-counter:** Show general traffic statistics for all switch ports

**status:** Show port status

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**EXAMPLE:**

```
Switch(port)# show simple-counter
Port       Packets              Bytes          Errors    Drops    Filtered
------ ---------- -------------------- ---------- --------- ----------
  1/Rx               0                    0         0         0         0
  1/Tx               0                    0         0         0
--------------------------------------------------------------------------
---
  2/Rx               0                    0         0         0         0
  2/Tx               0                    0         0         0
--------------------------------------------------------------------------
---
  3/Rx               0                    0         0         0         0
  3/Tx               0                    0         0         0
--------------------------------------------------------------------------
---
  4/Rx               0                    0         0         0         0
  4/Tx               0                    0         0         0
--------------------------------------------------------------------------
---
--------------------------------------------------------------------------
---
 21/Rx            37999             14338676     10258         6         6
 21/Tx             8922              1817882         0         0
--------------------------------------------------------------------------
---
 22/Rx              0                    0         0         0         0
 22/Tx              0                    0         0         0
--------------------------------------------------------------------------
---
 23/Rx              0                    0         0         0         0
 23/Tx              0                    0         0         0
--------------------------------------------------------------------------
---
 24/Rx            10875              2276667         0         3         3
 24/Tx            39016             14923782         0         0
```

**speed-duplex:** The command lets you configure speed duplex operation

**Syntax:** **speed-duplex <port-list> 10-full/ 10-half…/ 100fx-ams**

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**10-full:** Force speed duplex to 10-full operation

**10-half:** Force speed duplex to 10-half operation

**100-full:** Force speed duplex to 100-full operation

**100-half:** Force speed duplex to 100-half operation

**1000-full:** Force speed duplex to 1000-full operation

**1000x:** Force speed duplex to 1000BASE-X operation

**1000x-ams:** 1000BASE-X with auto media sense

**100fx :** Force speed duplex to 100BASE-FX operation

**100fx-ams:** 100BASE-FX with auto media sense

**10g-full:** Force speed duplex to 10G-full operation

**auto:** Enable auto speed duplex configuration

**sfp-auto-ams:** Auto detection of SFP with auto media sense

**EXAMPLE:**

```
Switch(port)# speed-duplex 1 100-full
Switch(port)# speed-duplex 2 1000-full
Switch(port)# show configuration
Port  State   Speed Duplex  Flow Control  Max. Frame  Excessive  Power
Description
------------------------------------------------------------------------------
---
1    Disabled 100 Full     -           1600       -         -
david
------------------------------------------------------------------------------
---
2    Enabled  1G Full      -           10056      -         -

------------------------------------------------------------------------------
---
```

# Chapter 33 Port security Commands of CLI

## Port security

This section shows you to to configure the Port Security settings of the Switch. You can use the Port Security feature to restrict input to an interface by limiting and identifying MAC addresses.

**Table 32: Port security Commands**

| Command | Function |
|---|---|
| action | Configure the action involved with exceeding the limit |
| aging | Configure the aging mode and period |
| limit | Configure the max. number of MAC addresses that can be learned on the port |
| mode | Configure the global limit control mode |
| port-mode | Configure the port mode |
| reopen | Reopen one or more ports whose limit is exceeded and shut down |
| show | Show port security status |

### action:

The command lets you to configure the action involved with exceeding the limit

**Syntax:** **action** <port-list> both/ none/ shutdown/ trap

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**both:** Send a SNMP trap and shutdown the port

**none:** Do nothing

**shutdown:** Shutdown the port

**trap:** Send a SNMP trap

**EXAMPLE:**

```
Switch(port-security)# action 1 both
Switch(port-security)# action 2 none
Switch(port-security)# action 3 shutdown
Switch(port-security)# action 4 trap
Switch(port-security)# show config
Mode     : Disabled
Aging    : Disabled
Age Period: 3600

Port  Mode     Limit  Action
----  -------- -----  ---------------
1     Disabled     4  Trap & Shutdown
2     Disabled     4  None
3     Disabled     4  Shutdown
4     Disabled     4  Trap
5     Disabled     4  None
```

## aging:

The command lets you to configure the aging mode and period

**Syntax:** **aging** disable

enable <10-10000000>

**Parameter :** **disable:** Disable aging

**enable:** Enable aging

**<10-10000000>**: Aging time in seconds between checks for activity on a MAC address

**EXAMPLE:**

```
Switch(port-security)# aging enable 20
Switch(port-security)# show config
Mode     : Disabled
Aging    : Enabled
Age Period: 20
```

## limit:

The command lets you to configure the max. number of MAC addresses that can be learned on the port

**Syntax:** **limit** <port-list> <1-1024>

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**<1-1024>:** Max. number of MAC addresses on selected port

**EXAMPLE:**

```
Switch(port-security)# limit 1 999
Switch(port-security)# show config
Mode     : Disabled
Aging    : Enabled
Age Period: 20

Port  Mode     Limit  Action
----  --------  -----  ---------------
1    Disabled    999  Trap & Shutdown
2    Disabled      4  None
3    Disabled      4  Shutdown
```

**mode:** The command lets you to configure the global limit control mode

**Syntax:** **mode** disable/ enable

**Parameter :** **disable:** Globally disable port security

**enable:** Globally enable port security

**EXAMPLE:**

```
Switch(port-security)# mode enable
Switch(port-security)# show config
Mode     : Enabled
Aging    : Enabled
Age Period: 20
```

**port-mode:** The command lets you to configure the port mode

**Syntax:** **port-mode** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** Disable port security on selected port

**enable:** Enable port security on selected port

**EXAMPLE:**

```
Switch(port-security)# port-mode 1 enable
Switch(port-security)# show config
Mode     : Disabled
Aging    : Enabled
Age Period: 20

Port  Mode     Limit  Action
----  --------  -----  ---------------
1    Enabled    999  Trap & Shutdown
2    Disabled     4  None
3    Disabled     4  Shutdown
4    Disabled     4  Trap
5    Disabled     4  None
```

**reopen:** The command lets you to reopen one or more ports whose limit is exceeded and shut down

**Syntax:** **reopen** <port-list>

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**EXAMPLE:**

```
Switch(port-security)# reopen 1
Switch(port-security)# show config
Mode     : Disabled
Aging    : Enabled
Age Period: 20

Port  Mode     Limit  Action
----  --------  -----  ---------------
1    Enabled    999  Trap & Shutdown
2    Disabled     4  None
3    Disabled     4  Shutdown
4    Disabled     4  Trap
```

**show:** The command lets you to show port security status

**Syntax:** **show** config/ switch-status

port-status <port>

**Parameter :** **config:** Show port security configuration

**port-status:** Show MAC addresses learned by port security

**<port>:** Port number, available value is from switch physic port density

**switch-status:** Show port security switch status

**EXAMPLE:**

```
Switch(port-security)# show config
Mode     : Disabled
Aging    : Disabled
Age Period: 3600

Port  Mode     Limit  Action
----  --------  -----  ---------------
1    Disabled     4  None
2    Disabled     4  None
3    Disabled     4  None
4    Disabled     4  None


Switch(port-security)# show port-status 1
MAC Address       VID   State      Time of Addition         Age/Hold Time
----------------  ----  ----------  ------------------------  -------------
<none>


Switch(port-security)# show switch-status
Users:
L = Limit Control
8 = 802.1X
D = DHCP Snooping

Port  Users  State        MAC Count
----  -----  -------------  ---------
1    ---   Disabled      0
2    ---   Disabled      0
3    ---   Disabled      0
```

# Chapter 34 Privilege level Commands of CLI

**privilege**

This page provides an overview of the privilege levels. The switch provides user set Account, Aggregation, Diagnostics, EEE, GARP, GVRP, IP, IPMC Snooping LACP LLDP LLDP MED MAC Table MRP MVR MVRP Maintenance Mirroring POE Ports Private VLANs QoS SMTP SNMP Security Spanning Tree System Trap Event VCL VLANs Voice VLAN Privilege Levels form 1 to 15 .

**Table 33: privilege Commands**

| Command | Function |
|---|---|
| group | Configure a privilege level group |
| show | Show privilege configuration |

## group: The command lets you configure a privilege level group

**Syntax:** **group** <group-name> <1-15>

**Parameter :** **<group-name>:** Privilege group name

**<1-15>:** Privilege level

**EXAMPLE:**

```
Switch(privilege)# group account 13
Switch(privilege)# show
Privilege Current Level: 15

Group Name                     Privilege Level
-------------------------------  ---------------
Account                        13
Aggregation                     10
Diagnostics                     10
```

## show: The command lets you show privilege configuration

**Syntax:** **show** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(privilege)# show
Privilege Current Level: 15

Group Name                     Privilege Level
-------------------------------  ----------------
Account                         13
Aggregation                      10
Diagnostics                      10
EPS                             10
ERPS                            10
ETH_LINK_OAM                     10
EVC                             10
GARP                            10
GVRP                            10
IP                              10
IPMC_Snooping                    10
LACP                            10
LLDP                            10
LLDP_MED                         10
Loop_Protect                     10
MAC_Table                        10
MEP                             10
MVR                             10
Maintenance                      15
Mirroring                        10
PTP                             10
Ports                            10
Private_VLANs                    10
QoS                             10
SMTP                            10
SNMP                            10
Security                         10
Spanning_Tree                    10
System                          10
Trap_Event                       10
VCL                             10
VLAN_Translation                   10
VLANs                           10
```

# Chapter 35 Private VLAN Commands of CLI

**Private VLAN** In a private VLAN, communication between ports in that private VLAN is not permitted. A VLAN can be configured as a private VLAN.

**Table 34: Private VLAN Commands**

| Command | Function |
|---|---|
| delete | Delete private VLAN group |
| port-isolate | Configure port isolation |
| private-vlan | Configure private VLAN group |
| show | Show private VLAN information |

## delete: The command lets you delete private VLAN group

**Syntax:** **delete** private-vlan <1- X>

**Parameter :** **private-vlan:** private VLAN KEYWORD

**<1- X>:** Private VLAN ID. The allowed range for a Private VLAN ID is the same as the switch port number range

**EXAMPLE:**

```
Switch(pvlan)# delete private-vlan 12
```

**NOTE:** In Private VLAN ID **<1-X>**, the number X is the max value you can set based on the port count on the switch.

## port-isolate: The command lets you configure port isolation

**Syntax:** **port-isolate** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**disable:** Disable port isolation

**enable:** Enable port isolation

**EXAMPLE:**

```
Switch(pvlan)# port-isolate 1 enable
Switch(pvlan)# show port-isolate
Port  Isolation
----  ---------
1     Enabled
2     Disabled
3     Disabled
4     Disabled
```

## private-vlan: The command lets you configure private VLAN group

**Syntax:** **private-vlan** <1-X>

**Parameter :** **<1-X>:** Private VLAN ID. The allowed range for a Private VLAN ID is the same as the switch port number range

**EXAMPLE:**

```
Switch(pvlan)# private-vlan 2 10
Switch(pvlan)# show private-vlan
PVLAN ID  Ports
--------  ---------------
1         1-26
2         10
```

**NOTE:** In Private VLAN ID **<1-X>**, the number X is the max value you can set based on the port count on the switch.

## show: The command lets you show private VLAN information

**Syntax:** **show** port-isolate/ private-vlan

**Parameter :** **port-isolate:** Show port isolation information

**private-vlan:** Show private VLAN membership information

**EXAMPLE:**

```
Switch(pvlan)# show port-isolate
Port  Isolation
----  ---------
1     Disabled
2     Disabled
3     Disabled
4     Disabled
5     Disabled Switch(garp)#


Switch(pvlan)# show private-vlan
PVLAN ID  Ports
--------  ---------------
1         1-29
```

**NOTE:** The default Private VLAN includes all port members on the switch. Use 29-port switch as example.

# Chapter 36 QoS Commands of CLI

## QoS

The switch support four QoS queues per port with strict or weighted fair queuing scheduling. It supports QoS Control Lists (QCL) for advance programmable QoS classification, based on IEEE 802.1p, Ethertype, VID, IPv4/IPv6 DSCP and UDP/TCP ports and ranges.

High flexibility in the classification of incoming frames to a QoS class. The QoS classification looks for information up to Layer 4, including IPv4 and IPv6 DSCP, IPv4 TCP/UDP port numbers, and user priority of tagged frames. This QoS classification mechanism is implemented in a QoS control list (QCL). The QoS class assigned to a frame is used throughout the device for providing queuing, scheduling, and congestion control guarantees to the frame according to what was configured for that specific QoS class.

The switch support advanced memory control mechanisms providing excellent performance of all QoS classes under any traffic scenario, including jumbo frame. A super priority queue with dedicated memory and strict highest priority in the arbitration. The ingress super priority queue allows traffic recognized as CPU traffic to be received and queued for transmission to the CPU even when all the QoS class queues are congested.

**Table 35: QoS Commands**

| Command | Function |
|---|---|
| **delete** | Delete QCE |
| **dscp-classification** | Configure DSCP ingress classification |
| **dscp-map** | Configure DSCP mapping table. This table is used to map QoS class and DP level based on DSCP value. DSCP value used to map QoS class and DPL is either translated DSCP value or incoming frame DSCP value |
| **dscp-remap** | Configure DSCP egress remap table. This table is used if the port egress remarking mode is 'remap' and the purpose is to map the DSCP and DP level to a new DSCP value |
| **dscp-translation** | Configure global ingress DSCP translation table. If port DSCP translation is enabled, translation table is used to translate incoming frame's DSCP value and translated value is used to map QoS class and DP level |
| **dscp-trust** | Configure trusted DSCP value which is used for QoS classification. The DSCP value to be checked for trust is either translated value if DSCP translation is enabled for the ingress port or incoming frame DSCP value if translation is disabled for the port. Trusted DSCP value is only used for QoS classification |
| **port-classify** | QoS ingress port classification |
| **port-dscp** | QoS port DSCP configuration |
| **port-policer** | Port policer |
| **port-scheduler** | QoS egress port schedulers |

| | |
|---|---|
| **port-shaper** | Port shaper |
| **qce** | Add or modify QoS control entry |
| **queue-shaper** | Queue shaper |
| **show** | Show QoS information |
| **storm** | Configure storm rate control |
| **tag-remarking** | QoS egress port tag remarking |
| **show** | Show the GVRP configuration |

## delete: The command lets you delete QCE

**Syntax:** **delete** <1-256>

**Parameter :** **<1-256>:** QCE ID must be exist

**EXAMPLE:**

```
Switch(qos)# delete 1
```

**NOTE:** If you set the GVRP on port then you could show the port GVRP statistics information or clear all record on port.

## dscp-classification: The command lets you configure DSCP ingress classification

**Syntax:** **dscp-classification** map <class-list> <0-63>
mode <dscp-list> disable/ enable

**Parameter :** **map:** Configure DSCP ingress classification mapping table. This table is used to map DSCP from QoS class and DP level. The DSCP which needs to be classified depends on port DSCP classification and DSCP classification mode. Incoming frame DSCP may be translated before using the value for classification

**<class-list>:** QoS class list, available value is from 0 to 7

**<0-63>:** Mapped DSCP

**mode:** Configure DSCP ingress classification mode. If port DSCP classification is 'selected', DSCP will be classified based on QoS class and DP level only for DSCP value with classification mode 'enabled'. DSCP may be translated DSCP if translation is enabled for the port

**<dscp-list>:** DSCP list, format : 1,3,5-7

**disable:** Disable DSCP ingress classification

**enable:** Enable DSCP ingress classification

**EXAMPLE:**

```
Switch(qos)# dscp-classification map 7 10
Switch(qos)# show class-map
QoS Class  DSCP
---------  ----
0          0
1          0
2          0
3          0
4          0
5          0
6          0
7          10


Switch(qos)# dscp-classification mode 1 enable
Switch(qos)# show dscp-translation
     Ingress     Ingress   Egress
DSCP  Translation  Classify  Remap
----  -----------  --------  ---------
0     0          Disabled  0
1     1          Enabled   1
2     2          Disabled  2
3     3          Disabled  3
4     4          Disabled  4
```

## dscp-map:

The command lets you configure DSCP mapping table

**Syntax:** **dscp-map** <dscp-list> <0-7> <0-3>

**Parameter :** **<dscp-list>:** DSCP list, format : 1,3,5-7

**<0-7>:** QoS classenable The parameter let you enable GVRP function on port.

**<0-3>:** Drop Precedence Level

**EXAMPLE:**

```
Switch(qos)# dscp-map 2 6 2
Switch(qos)# show dscp-map
DSCP   Trust    QoS Class  DP Level
---------  --------  ---------  --------
0  (BE)    Disabled  0          0
1          Disabled  0          0
2          Disabled  6          2
3          Disabled  0          0
```

## dscp-remap:

The command lets you configure DSCP egress remap table

**Syntax:** **dscp-remap** <dscp-list> <0-63>

**Parameter :** **<dscp-list>:** DSCP list, format : 1,3,5-7

**<0-63>:** Egress remapped DSCP

**EXAMPLE:**

```
Switch(qos)# dscp-remap 3 44
Switch(qos)# show dscp-translation
     Ingress     Ingress   Egress
DSCP  Translation  Classify  Remap
----  -----------  --------  ---------
0     0          Disabled  0
1     1          Enabled   1
2     2          Disabled  2
3     3          Disabled  44
4     4          Disabled  4
```

## dscp-translation:

The command lets you configure global ingress DSCP translation table

**Syntax:** **dscp-translation** <dscp-list> <0-63>

**Parameter :** **<dscp-list>:** DSCP list, format : 1,3,5-7

**<0-63>:** Translated DSCP

**EXAMPLE:**

```
Switch(qos)# dscp-translation 4 55
Switch(qos)# show dscp-translation
     Ingress     Ingress   Egress
DSCP  Translation  Classify  Remap
----  -----------  --------  ---------
0     0          Disabled  0
1     1          Enabled   1
2     2          Disabled  2
3     3          Disabled  44
4     55         Disabled  4
5     5          Disabled  5
```

## dscp-trust:

The command lets you configure trusted DSCP value which is used for QoS classification

**Syntax:** **dscp-trust** <port-list>

**Parameter :** **<dscp-list>:** DSCP list, format : 1,3,5-7

**disable:** Set DSCP as untrusted DSCP

**enable:** Set DSCP as trusted DSCP

**EXAMPLE:**

```
Switch(qos)# dscp-trust 6 enable
Switch(qos)# show dscp-map
DSCP   Trust    QoS Class  DP Level
---------  --------  ---------  --------
0  (BE)    Disabled  0         0
1         Disabled  0         0
2         Disabled  6         2
3         Disabled  0         0
4         Disabled  0         0
5         Disabled  0         0
6         Enabled   0         0
7         Disabled  0         0
```

## port-classify:

The command lets you configure QoS ingress port classification

**Syntax:** **port-classify** class <port-list> <0-7>

dei <port-list> <0-1>

dpl <port-list> <0-3>

dscp <port-list> disable/ enable
map <port-list> <0-7> <0-1> <0-7> <0-3>

pcp <port-list> <0-7>

tag <port-list> disable/ enable

**Parameter :** **class:** Configure the default QoS class

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**<0-7>:** QoS class for frames not classified in any other way. There is a one to one mapping between QoS class, queue and priority. A QoS class of 0 (zero) has the lowest priority

**dei:** Configure the default DEI for untagged frames

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**<0-1>:** Drop Eligible Indicator. It is a 1-bit field in the VLAN tag

**dpl:** Configure the default DP level

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**<0-3>:** DP level for frames not classified in any other way

**dscp:** Configure DSCP based classification mode

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** Disable DSCP based classification

**enable:** Enable DSCP based classification

**map:** Configure the port classification map. This map is used when port classification tag is enabled, and the purpose is to translate the Priority Code Point (PCP) and Drop Eligible Indicator (DEI) from a tagged frame to QoS class and DP level

**<port-list>:** available value is from switch physic port density,

format: 1,3-5

**<0-7>:** Priority Code Point

**<0-1>:** Drop Eligible Indicator

**<0-7>:** QoS class

**<0-3>:** Drop precedence level

**pcp:** Configure the default PCP for untagged frames

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**<0-7>:** Priority Code Point. It is a 3-bit field storing the priority level for the 802.1Q frame

**tag:** Configure the classification mode for tagged frames

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** Use default QoS class and DP level for tagged frames

**enable:** Use mapped versions of PCP and DEI for tagged frames

**EXAMPLE:**

```
Switch(qos)# port-classify class 7 4
Switch(qos)# show port-classify
Port  QoS class  DP level  PCP  DEI  Tag class.  DSCP Based
----  ---------  --------  ---  ---  ----------  ----------
1     0         0        0    0    Disabled    Disabled
2     0         0        0    0    Disabled    Disabled
3     0         0        0    0    Disabled    Disabled
4     0         0        0    0    Disabled    Disabled
5     0         0        0    0    Disabled    Disabled
6     0         0        0    0    Disabled    Disabled
7     4         0        0    0    Disabled    Disabled
8     0         0        0    0    Disabled    Disabled


Switch(qos)# port-classify dei 1 1
Switch(qos)# show port-classify
Port  QoS class  DP level  PCP  DEI  Tag class.  DSCP Based
----  ---------  --------  ---  ---  ----------  ----------
1     0         0        0    1    Disabled    Disabled
2     0         0        0    0    Disabled    Disabled
3     0         0        0    0    Disabled    Disabled


Switch(qos)# port-classify dpl 2 3
Switch(qos)# show port-classify
Port  QoS class  DP level  PCP  DEI  Tag class.  DSCP Based
----  ---------  --------  ---  ---  ----------  ----------
1     0         0        0    1    Disabled    Disabled
2     0         3        0    0    Disabled    Disabled
3     0         0        0    0    Disabled    Disabled
```

```
Switch(qos)# port-classify dscp 3 enable
Switch(qos)# show port-classify
Port  QoS class  DP level  PCP  DEI  Tag class.  DSCP Based
----  ---------  --------  ---  ---  ----------  ----------
1     0          0         0    1    Disabled    Disabled
2     0          3         0    0    Disabled    Disabled
3     0          0         0    0    Disabled    Enabled


Switch(qos)# port-classify map 4 5 1 6 3
Switch(qos)# show port-map 4
Port  PCP  DEI  QoS class  DP level
----  ---  ---  ---------  --------
4     0    0    1          0
      0    1    1          1
      1    0    0          0
      1    1    0          1
      2    0    2          0
      2    1    2          1
      3    0    3          0
      3    1    3          1
      4    0    4          0
      4    1    4          1
      5    0    5          0
      5    1    6          3
      6    0    6          0
      6    1    6          1
      7    0    7          0
      7    1    7          1
```

```
Switch(qos)# port-classify pcp 5 3
Switch(qos)# show port-classify
Port  QoS class  DP level  PCP  DEI  Tag class.  DSCP Based
----  ---------  --------  ---  ---  ----------  ----------
1     0          0         0    1    Disabled    Disabled
2     0          3         0    0    Disabled    Disabled
3     0          0         0    0    Disabled    Enabled
4     0          0         0    0    Disabled    Disabled
5     0          0         3    0    Disabled    Disabled


Switch(qos)# port-classify tag 6 enable
Switch(qos)# show port-classify
Port  QoS class  DP level  PCP  DEI  Tag class.  DSCP Based
----  ---------  --------  ---  ---  ----------  ----------
1     0          0         0    1    Disabled    Disabled
2     0          3         0    0    Disabled    Disabled
3     0          0         0    0    Disabled    Enabled
4     0          0         0    0    Disabled    Disabled
5     0          0         3    0    Disabled    Disabled
6     0          0         0    0    Enabled     Disabled
```

## port-dscp: The command lets you do QoS port DSCP configuration

**Syntax:** **port-dscp** <port-list>

**Parameter :** **classification:** Configure DSCP classification based on QoS class and DP level. This enables per port to map new DSCP value based on QoS class and DP level

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**all:** Classify all DSCP

**disable:** Disable DSCP ingress classification

**selected:** Classify only selected DSCP for which classification is enabled as specified in DSCP Translation window for the specific DSCP

**zero:** Classify DSCP if DSCP = 0

**egress-remark:** Configure the port DSCP remarking mode

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** Disable DSCP egress rewrite

**enable:** Enable DSCP egress rewrite with the value received from analyzer

**remap:** Rewrite DSCP in egress frame with remapped DSCP

**translation:** Configure DSCP ingress translation mode. If translation is enabled for a port, incoming frame DSCP value is translated and translated value is used for QoS classification

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** Disable DSCP ingress translation

**enable:** Enable DSCP ingress translation

**EXAMPLE:**

```
Switch(qos)# port-dscp classification 1 all
Switch(qos)# port-dscp classification 2 selected
Switch(qos)# port-dscp classification 3 zero
Switch(qos)# show port-dscp
Port  DSCP translation  Ingress classification  Egress remark
----  ----------------  ----------------------  -------------
1     Disabled          All                     Disabled
2     Disabled          Selected                Disabled
3     Disabled          DSCP = 0                Disabled
4     Disabled          Disabled                Disabled


Switch(qos)# port-dscp egress-remark 4 enable
Switch(qos)# port-dscp egress-remark 5 remap
Switch(qos)# show port-dscp
Port  DSCP translation  Ingress classification  Egress remark
----  ----------------  ----------------------  -------------
1     Disabled          All                     Disabled
2     Disabled          Selected                Disabled
3     Disabled          DSCP = 0                Disabled
4     Disabled          Disabled                Enabled
5     Disabled          Disabled                Remapped


Switch(qos)# port-dscp translation 6 enable
Switch(qos)# show port-dscp
Port  DSCP translation  Ingress classification  Egress remark
----  ----------------  ----------------------  -------------
1     Disabled          All                     Disabled
2     Disabled          Selected                Disabled
3     Disabled          DSCP = 0                Disabled
4     Disabled          Disabled                Enabled
5     Disabled          Disabled                Remapped
6     Enabled           Disabled                Disabled
```

## port-policer: The command lets you do Port policer

**Syntax:** **port-policer** flow-control/ mode <port-list> disable/ enable
rate <port-list> Kbps/… fps <1-10000>/<100-10000000>

**Parameter :** **flow-control:** Configure the port policer flow control mode

**mode:** Configure the port policer mode

**rate:** Configure the port policer rate

**Kbps:** Rate in kilo bits per second (Kbps)
**<100-10000000>:** Rate
**Kfps**: Rate in kilo frame per second (Kfps)
**<1-10000>:** Rate
**Mbps**: Rate in mega bits per second (Mbps)
**<1-10000>:** Rate
**fps**: Rate in frame per second (fps)
**<100-10000000>:** Rate

**<port-list>:** available value is from switch physic port density, format: 1,3-5
**disable:** Disable port policer flow control

**enable:** Enable port policer flow control

**EXAMPLE:**

```
Switch(qos)# port-policer flow-control 1 enable
Switch(qos)# show port-policer
Port  Mode     Rate      Flow Control
----  -------- --------- ------------
1    Disabled   500 kbps  Enabled
2    Disabled   500 kbps  Disabled
3    Disabled   500 kbps  Disabled
4    Disabled   500 kbps  Disabled


Switch(qos)# port-policer mode 2 enable
Switch(qos)# show port-policer
Port  Mode     Rate      Flow Control
----  -------- --------- ------------
1    Disabled   500 kbps  Disabled
2    Enabled    500 kbps  Disabled
3    Disabled   500 kbps  Disabled
4    Disabled   500 kbps  Disabled


Switch(qos)# port-policer rate 3 mbps 99
Switch(qos)# show port-policer
Port  Mode     Rate      Flow Control
----  -------- --------- ------------
1    Disabled   500 kbps  Disabled
2    Disabled   500 kbps  Disabled
3    Disabled    99 Mbps  Disabled
4    Disabled   500 kbps  Disabled
```

## port-schedulers: The command lets you do QoS egress port schedulers

**Syntax:** **port-scheduler** mode <port-list> strict/ weighted
weight <port-list> <0-5> <1-100>

**Parameter :** **mode:** Configure the port scheduler mode

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**strict:** Strict priority scheduler mode

**weighted:** Weighted scheduler mode

**weight:** Configure the port scheduler weight

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**<0-5>:** Weighted queue

**<1-100>:** Scheduler weight

**EXAMPLE:**

```
Switch(qos)# port-scheduler mode 1 weighted
Switch(qos)# show scheduler-mode
Port  Mode
----  --------
1     Weighted
2     Strict
3     Strict



Switch(qos)# port-scheduler weight 2 5 99
witch(qos)# show scheduler-weight 2
Port  Queue  Weight
----  -----  ---------
2     0      17  (9%)
      1      17  (9%)
      2      17  (9%)
      3      17  (9%)
      4      17  (9%)
      5      99  (55%)
```

## port-shaper: The command lets you do Port shaper

**Syntax:** **port-shaper** mode <port-list> disable/ enable
rate <port-list> <100-10000000>

**Parameter :** **mode:** Configure the port shaper mode

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** Disable

**enable:** Enable

**rate:** Configure the port shaper rate

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**<100-10000000>**: Rate in kilo bits per second (Kbps)

**EXAMPLE:**

```
Switch(qos)# port-shaper mode 1 enable
Switch(qos)# show port-shaper
Port  Mode     Rate
----  --------  ---------
1     Enabled   500 kbps
2     Disabled  500 kbps
3     Disabled  500 kbps


Switch(qos)# port-shaper rate 2 999
Switch(qos)# show port-shaper
Port  Mode     Rate
----  --------  ---------
1     Enabled   500 kbps
2     Disabled  999 kbps
3     Disabled  500 kbps
4     Disabled  500 kbps
```

## qce: The command lets you add or modify QoS control entry

**Syntax:** **qce** <1-256> <0-256> <port-list> any/…/ snap

**class** default/<0-7>

**classified-dscp** default/<0-63>

**dei** any/<0-1>

**dmac** any/…/unicast

**sp** default/<0-3>

**end** <cr>

**pcp** 0-1/ 0-3/2-3/4-5/4-7/ 6-7/any/<0-7>

**show** <cr>

**smac** <oui-address>/ any

**tag** any/disable/enable

**vid** any/<vlan-range>

**Parameter :** **<1-256>:** If the QCE ID parameter <qce_id> is specified and an entry with this QCE ID already exists, the QCE will be modified. Otherwise, a new QCE will be added

**<0-256>:** If the next QCE ID is non zero, the QCE will be placed before this QCE in the list. If the next QCE ID is zero, the QCE will be placed last in the list

**<port-list>:** Port member for QCE

**any:** Only Ethernet Type frames can match this QCE

**etype:** Only Ethernet Type frames can match this QCE

**ipv4:** Only IPv4 frames can match this QCE

**ipv6:** Only IPv6 frames can match this QCE

**llc:** Only LLC frames can match this QCE

**snap:** Only SNAP frames can match this QCE

**class:** Action of QoS class for this QCE

**default:** Basic classification

**<0-7>:** QoS class value

**classified-dscp:** Action of DSCP for this QCE

**default:** Basic classification

**<0-63>:** DSCP value

**dei:** Specify whether frames can hit the action according to DEI

**any:** Don't care

**<0-1>:** Drop Eligible Indicator value

**dmac:** Configure destination MAC address for this QCE

**any:** Don't care

**broadcast:** Frame must be broadcast

**multicast:** Frame must be multicast

**unicast:** Frame must be unitcast

**dp:** Action of drop precedence level for this QCE

**default**: Basic classification

**<0-3>:** Drop precedence level

**end:** Finish QCE setting and return to QoS mode

**pcp:** Specify whether frames can hit the action according to PCP

**0-1:** Priority Code Point (0-1)

**0-3:** Priority Code Point (0-3)

**2-3:** Priority Code Point (2-3)

**4-5:** Priority Code Point (4-5)

**4-7:** Priority Code Point (4-7)

**6-7:** Priority Code Point (6-7)

**any:** Don't care

**<0-7>**: Priority Code Point

**show**: Show QCE

**smac**: Configure source MAC address for this QCE

**<oui-address>**: A frame that hits this QCE matches this source OUI address value

**any**: Don't care

**tag:** Specify whether frames can hit the action according to the 802.1Q tagged

**any:** Don't care

**disable:** Untagged frame only

**enable:** Tagged frame only

**vid:** Specify the VLAN ID filter for this QCE

**any:** No VLAN ID filter is specified. (VLAN ID filter status is don't-care.)

**<vlan-range>:** A frame that hits this QCE matches this VLAN range

**EXAMPLE:**

```
Switch(qos)# qce 13 23 25 etype
Switch(qos/qce-etype)# class 7
Switch(qos/qce-etype)# classified-dscp 63
Switch(qos/qce-etype)# dei 1
Switch(qos/qce-etype)# dmac unicast
Switch(qos/qce-etype)# dp 3
Switch(qos/qce-etype)# pcp 5
Switch(qos/qce-etype)# smac any
Switch(qos/qce-etype)# tag enable
Switch(qos/qce-etype)# vid 21-25
Switch(qos/qce-etype)# show
QCE ID    : 13
Frame Type : Ethernet             Port    : 25,29

VLAN Parameters                  MAC Parameters
---------------                  --------------
Tag       : Tagged               SMAC    : Any
VID       : 21-25                DMAC Type: Unicast
PCP       : 5
DEI       : 1

Ethernet Parameters               Action Parameters
-------------------               ----------------
Ether Type : Any                  Class   : 7
                                DP      : 3
                                DSCP    : 63
```

## queue-shaper: The command lets you do Queue shaper

**Syntax:** **queue-shaper** excess <port-list> <queue-list> disable/ enable

**Parameter :** **excess:** Configure the port queue excess bandwidth mode

**mode:** Configure the port queue shaper mode

**rate:** Configure the port queue shaper rate

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**<queue-list>:** Queue list, available value is from 0 to 7

**disable:** Disable use of excess bandwidth

**enable:** Enable use of excess bandwidth

**EXAMPLE:**

```
Switch(qos)# queue-shaper excess 1 7 enable
Switch(qos)# show queue-shaper 1
Port  Queue  Mode     Rate      Excess
----  -----  --------  ---------  --------
1     0      Disabled   500 kbps  Disabled
      1      Disabled   500 kbps  Disabled
      2      Disabled   500 kbps  Disabled
      3      Disabled   500 kbps  Disabled
      4      Disabled   500 kbps  Disabled
      5      Disabled   500 kbps  Disabled
      6      Disabled   500 kbps  Disabled
      7      Disabled   500 kbps  Enabled
```

## show: The command lets you show QoS information

**Syntax:** **show** <port-list>

**Parameter :**

**class-map:** Show QoS class and DP level to DSCP mapping

**dscp-map:** Show DSCP to QoS class and DP level mapping

**dscp-translation:** Show DSCP ingress and egress translation

**port-classify:** Show QoS ingress port classification

**port-dscp:** Show port DSCP configuration

**port-map:** Show port classification (PCP, DEI) to (QoS class, DP level) mapping table

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**port-policer:** Show port policer configuration

**port-shaper:** Show port shaper configuration

**qce:** Show QCL control list

**<1-256>**: QCE ID

**qcl-status:** Show QCL status

**combined:** Show the combined status

**conflicts:** Show all conflict status

**static:** Show the static user configured status

**voice-vlan:** Show the status by Voice VLAN

**queue-shaper:** Show port queue shaper configuration

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**remarking-map:** Show port tag remarking mapping table

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**scheduler-mode:** Show port scheduler mode configuration

**scheduler-weight:** Show port scheduler weight configuration

**storm:** Show storm control configuration

**tag-remarking:** Show port tag remarking configuration

**wred:** Show WRED configuration

**EXAMPLE:**

```
Switch(qos)# show class-map
QoS Class  DSCP
---------  ----
0          0
1          0
2          0
3          0
4          0
5          0
6          0
7          0


Switch(qos)# show dscp-map
DSCP   Trust    QoS Class  DP Level
---------  --------  ---------  --------
0  (BE)    Disabled  0          0
1          Disabled  0          0
2          Disabled  0          0
3          Disabled  0          0


Switch(qos)# show dscp-translation
     Ingress     Ingress   Egress
DSCP  Translation  Classify  Remap
----  -----------  --------  ---------
0     0           Disabled  0
1     1           Disabled  1
2     2           Disabled  2
3     3           Disabled  3


Switch(qos)# show port-classify
Port  QoS class  DP level  PCP  DEI  Tag class.  DSCP Based
----  ---------  --------  ---  ---  ----------  ----------
1     0          0         0    0    Disabled    Disabled
2     0          0         0    0    Disabled    Disabled
3     0          0         0    0    Disabled    Disabled
```

```
Switch(qos)# show port-dscp
Port  DSCP translation  Ingress classification  Egress remark
----  ----------------  ----------------------  -------------
1     Disabled          Disabled                Disabled
2     Disabled          Disabled                Disabled
3     Disabled          Disabled                Disabled


Switch(qos)# show port-map 1
Port  PCP  DEI  QoS class  DP level
----  ---  ---  ---------  --------
1     0    0    1          0
      0    1    1          1
      1    0    0          0


Switch(qos)# show port-policer
Port  Mode      Rate       Flow Control
----  --------  ---------  ------------
1     Disabled  500 kbps   Disabled
2     Disabled  500 kbps   Disabled
3     Disabled  500 kbps   Disabled


Switch(qos)# show port-shaper
Port  Mode      Rate
----  --------  ---------
1     Disabled  500 kbps
2     Disabled  500 kbps
3     Disabled  500 kbps
```

```
Switch(qos)# show qce 200


Switch(qos)# show qcl-status combined
Number of QCEs: 0
Switch(qos)# show qcl-status conflicts
Number of QCEs: 0
Switch(qos)# show qcl-status static
Number of QCEs: 0
Switch(qos)# show qcl-status voice-vlan


Switch(qos)# show queue-shaper 1
Port  Queue  Mode     Rate      Excess
----  -----  --------  ---------  --------
1     0     Disabled   500 kbps  Disabled
      1     Disabled   500 kbps  Disabled
      2     Disabled   500 kbps  Disabled
      3     Disabled   500 kbps  Disabled
      4     Disabled   500 kbps  Disabled
      5     Disabled   500 kbps  Disabled
      6     Disabled   500 kbps  Disabled
      7     Disabled   500 kbps  Disabled


Switch(qos)# show remarking-map 1
Port  QoS class  DP level  PCP  DEI
----  ---------  --------  ---  ---
1     0         0        1    0
      0         1        1    1
      1         0        0    0
      1         1        0    1
      2         0        2    0
      2         1        2    1
      3         0        3    0
      3         1        3    1
      4         0        4    0
      4         1        4    1
      5         0        5    0
      5         1        5    1
      6         0        6    0
      6         1        6    1
      7         0        7    0
      7         1        7    1
```

```
Switch(qos)# show scheduler-mode
Port  Mode
----  --------
1     Strict
2     Strict
3     Strict


Switch(qos)# show scheduler-weight 1
Port  Queue  Weight
----  -----  ---------
1     0      17  (17%)
      1      17  (17%)
      2      17  (17%)
      3      17  (17%)
      4      17  (17%)
      5      17  (17%)


Switch(qos)# show storm
           Unicast            Broadcast            Unknown
Port  Mode      Rate       Mode      Rate       Mode      Rate
----  --------  ---------  --------  ---------  --------  ---------
1     Disabled   500 kbps  Disabled   500 kbps  Disabled   500 kbps
2     Disabled   500 kbps  Disabled   500 kbps  Disabled   500 kbps
3     Disabled   500 kbps  Disabled   500 kbps  Disabled   500 kbps
4     Disabled   500 kbps  Disabled   500 kbps  Disabled   500 kbps
```

```
Switch(qos)# show tag-remarking ?
  <cr>
Switch(qos)# show tag-remarking
Port  Mode        PCP  DEI
----  ----------  ---  ---
1     Classified  0    0
2     Classified  0    0
3     Classified  0    0


Switch(qos)# show wred
Queue  Mode      Min. Threshold  Max. DP 1  Max. DP 2  Max. DP 3
-----  --------  --------------  ---------  ---------  ---------
0      Disabled  0               1          5          10
1      Disabled  0               1          5          10
2      Disabled  0               1          5          10
3      Disabled  0               1          5          10
4      Disabled  0               1          5          10
5      Disabled  0               1          5          10
```

## storm: The command lets you configure storm rate control

**Syntax:** **storm** broadcast/ unicast/ unknown <port-list> disable/ enable Kbps/…/ fps <1-10000>/ <100-10000000>

**Parameter :**

**broadcast:** Broadcast frame storm control

**unicast:** Unicast frame storm control

**unknown:** Unknown frame storm control

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** Disable port storm control

**enable:** Enable port storm control

**Kbps:** Rate in kilo bits per second (Kbps)

**Kfps:** Rate in kilo frame per second (Kfps)

**Mbps:** Rate in mega bits per second (Mbps)

**fps:** Rate in frame per second (fps)

**<1-10000> / <100-10000000>:** Rate

**EXAMPLE:**

```
Switch(qos)# storm broadcast 1 enable mbps 99
Switch(qos)# storm unicast 2 enable mbps 88
Switch(qos)# storm unknown 3 enable fps 777
Switch(qos)# show storm
          Unicast           Broadcast           Unknown
Port  Mode     Rate      Mode     Rate      Mode     Rate
----  -------- --------- -------- --------- -------- ---------
1     Disabled   500 kbps  Enabled    99 Mbps  Disabled   500 kbps
2     Enabled    88 Mbps  Disabled   500 kbps  Disabled   500 kbps
3     Disabled   500 kbps  Disabled   500 kbps  Enabled    777 fps
4     Disabled   500 kbps  Disabled   500 kbps  Disabled   500 kbps
5     Disabled   500 kbps  Disabled   500 kbps  Disabled   500 kbps
```

## tag-remarking:

The command lets you do QoS egress port tag remarking

**Syntax:** **tag-remarking** dei <port-list> <0-1>

map <port-list> <class-list> <dpl-list> <0-7> <0-1>

mode <port-list> classified/ default/ mapped

pcp <port-list> <0-7>

**Parameter :** **dei**: Configure the default DEI. This value is used when port tag remarking mode is set to 'default'

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**<0-1>:** Drop Eligible Indicator

**map:** Configure the port tag remarking map. This map is used when port tag remarking mode is set to 'mapped', and the purpose is to translate the classified QoS class (0-7) and DP level (0-1) to PCP and DEI

**<class-list>**: QoS class list, available value is from 0 to 7

**<dpl-list>**: Drop precedence level list, available value is from 0 to 1

**<0-7>**: Priority Code Point

**<0-1>**: Drop Eligible Indicator

**mode:** Configure the port tag remarking mode

**classified:** Use classified PCP/DEI values

**default:** Use default PCP/DEI values

**mapped:** Use mapped versions of QoS class and DP level

**pcp:** Configure the default PCP. This value is used when port tag remarking mode is set to 'default'

**<0-7>:** Priority Code Point

**EXAMPLE:**

```
Switch(qos)# tag-remarking dei 1 1
Switch(qos)# tag-remarking mode 2 mapped
Switch(qos)# tag-remarking pcp 3 7
Switch(qos)# show tag-remarking
Port  Mode       PCP  DEI
----  ----------  ---  ---
1     Classified  0    1
2     Mapped     0    0
3     Classified  7    0
4     Classified  0    0


Switch(qos)# tag-remarking map 2 7 1 7 1
```

## wred:

The command lets you configure Weighted Random Early Detection

**Syntax:** **wred** <queue-list> disable/ enable <0-100> <0-100> <0-100> <0-100>

**Parameter :** **<queue-list>:** Queue list, available value is from 0 to 5

**disable:** Disable

**enable:** Enable

**<0-100>:** Minimum threshold

**<0-100>:** Maximum Drop Probability for DP level 1

**<0-100>:** Maximum Drop Probability for DP level 2

**<0-100>:** Maximum Drop Probability for DP level 3

**EXAMPLE:**

```
Switch(qos)# wred 5 enable 10 20 30 40
Switch(qos)# show wred
Queue  Mode     Min. Threshold  Max. DP 1  Max. DP 2  Max. DP 3
-----  --------  --------------  ---------  ---------  ---------
0     Disabled  0             1         5         10
1     Disabled  0             1         5         10
2     Disabled  0             1         5         10
3     Disabled  0             1         5         10
4     Disabled  0             1         5         10
5     Enabled   10            20        30        40
```

# Chapter 37 Reboot Commands of CLI

## Reboot

This section describes how to restart switch for any maintenance needs. Any configuration files or scripts that you saved in the switch should still be available afterwards.

**Table 36: Reboot Commands**

| Command | Function |
|---|---|
| reboot | Reboot the system |

### reboot: The command lets you reboot the system

**Syntax:** **Reboot** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch# reboot
```

# Chapter 38 SFlow Commands of CLI

## SFlow

The sFlow Collector configuration for the switch can be monitored and modified here. Up to 1 Collector is supported. This page allows for configuring sFlow collector IP type, sFlow collector IP Address,Port Number, for each sFlow Collector

**Table 37: SFlow Commands**

| Command | Function |
|---|---|
| collector | sFlow Collector Configuration |
| sampler | sFlow sampler Configuration |
| show | Show sFlow |

## collector:

The command lets you set sFlow Collector Configuration

**Syntax:** **collector** IPv4/ IPv6 <ip-address> <1-65535> <0-2147483647> <200-1500>

**Parameter :**

**IPv4:** IP type

**IPv6:** IP type

**<ip-address>:** IP address

**<1-65535>:** TCP/UDP port number. By default, the port number is 6343

**<0-2147483647>:** Set the receiver timeout for list of receiver ID (RID). Collector cannot collect samples unless receivertimeout

**<200-1500>:** Set the reciever datagram length for list of receiver ID (RID)

**EXAMPLE:**

```
Switch(sflow)# collector ipv4 192.168.100.100 6345 99 1500
Switch(sflow)# show
% Incomplete command
Switch(sflow)# show collector
            Configured      Current
            --------------- ---------------
Collector Id  1              1
IP Type       IPv4           IPv4
IP Address    192.168.100.100  192.168.100.100
Port         6345            6345
Time Out      99             90 Timer is still alive!
Datagram Size 1500            1500
```



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## sampler: The command lets you sFlow sampler Configuration

**Syntax:** **sampler** <port-list> ALL/ RX/ TX/ none <0-4095> <14-200> <0-3600>

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**ALL:** Sample on both RX and TX

**RX**: Sample on RX

**TX:** Sample on TX

**none:** Sampling is disabled

**<0-4095>:** If parameter sample_rate is 'N' then 1/N of packets is sampled

**<14-200>**: Configures the size of the header of the sampled frame to be copied to the Queue for further processing. The Max header size ranges from 14 to 200 bytes

**<0-3600>:** Configures the polling interval for the counter sampling. The accepted value for Counter Polling Interval ranges from 0 to 3600 seconds. Default value is 0 seconds which means polling is disabled.

**EXAMPLE:**

```
Switch(sflow)# sampler 2 aLL 400 199 3600
Switch(sflow)# show sampler
sFlow sFlow   Sampler  Sampling Max Hdr Counter Polling
Ports Instance Type    Rate    Size    Interval
----- -------- -------- -------- ------- ---------------
   1       1    None       0    128            0
   2       1     ALL     400    199          3600
   3       1    None       0    128            0
   4       1    None       0    128            0
```

## show The command lets you dhow sFlow

**Syntax:** **show** collector/ sampler

**Parameter :** **collector:** Show sFlow collector

**sampler:** Show sFlow sampler

**EXAMPLE:**

```
Switch(sflow)# show collector
            Configured      Current
            --------------- ---------------
Collector Id  1              1
IP Type      IPv4           IPv4
IP Address    0.0.0.0        0.0.0.0
Port         6343           6343
Time Out      0              0 Timer is still alive!
Datagram Size 1400           1400


Switch(sflow)# show sampler
sFlow sFlow    Sampler  Sampling Max Hdr Counter Polling
Ports Instance Type     Rate     Size    Interval
----- -------- -------- -------- ------- ---------------
   1       1    None       0    128             0
   2       1    None       0    128             0
   3       1    None       0    128             0
   4       1    None       0    128             0
```

# Chapter 39 Single IP Commands of CLI

**Single IP**

Single IP Management (SIM), a simple and useful method to optimize network utilities and management, is designed to manage a group of switches as a single entity, called an SIM group. Implementing the SIM feature will have the following advantages for users

- Simplify management of small workgroups or wiring closets while scaling networks to handle increased bandwidth demand.
- Reduce the number of IP addresses needed on the network.
- Virtual stacking structure - Eliminate any specialized cables for stacking and remove the distance barriers that typically limit topology options when using other stacking technology.

**Table 38: Single IP Commands**

| Command | Function |
|---|---|
| connect | Connect to slave switch |
| group-name | Configure single ip group name |
| mode | Configure single ip mode |
| show | Show single ip information |

## connect: The command lets you connect to slave switch

**Syntax:** **connect** <1-16>

**Parameter :** **<1-16>:** Slave switch index

**EXAMPLE:**

```
Switch(sip)# connect 1
```

## group-name: The command lets you configure single IP group name

**Syntax:** **group-name** disable/ enable

**Parameter :** **<WORD>:** Up to 64 characters describing group name

**EXAMPLE:**

```
Switch(sip)# group-name david
Switch(sip)# show config
Mode            : Disabled
Group Name       : david
```

## mode: The command lets you configure single IP mode

**Syntax:** **mode** disable/ master/ slave

**Parameter :** **disable:** Disable single ip operation

**master:** Configure as master

**slave:** Configure as slave

**EXAMPLE:**

```
Switch(sip)# mode master
Switch(sip)# show c
Mode            : Master
Group Name       : david
```

## show: The command lets you show single IP information

**Syntax:** **show** config/ info

**Parameter :** **config:** Show single ip configuration

**info:** Show single ip group information

**EXAMPLE:**

```
Switch(sip)# show config
Mode            : Disabled
Group Name       : VirtualStack


Switch(sip)# show info
Index  Model Name      MAC Address
-----  --------------  -----------------
```

# Chapter 40 SMTP Commands of CLI

**SMTP** The function, is used to set a Alarm trap when the switch alarm then you could set the SMTP server to send you the alarm mail.

**Table 39: SMTP Commands**

| Command | Function |
|---|---|
| delete | Delete command |
| level | Configure Severity level |
| mail-address | Configure email user name |
| return-path | Configure email sender |
| sender | Configure email sender |
| server | Configure email server |
| show | Show email configuration |
| username | Show DHCP snooping information |

## delete: The command lets you delete command

**Syntax:** **delete** mail-address <1-6>
return-path/ sender/ server/ username

**Parameter :** **mail-address:** Delete email address
**<1-6>:** Delete email address id
**return-path:** Delete return path
**sender:** Delete sender
**server:** Delete email server
**username:** Delete username and password

**EXAMPLE:**

```
Switch(smtp)# delete mail-address 2
Switch(smtp)# show
Mail Server     :
User Name       :
Password        :
Severity level  : Info
Sender          :
Return Path     :
Email Adress 1  :
Email Adress 2  :
Email Adress 3  :
Email Adress 4  :
Email Adress 5  :
Email Adress 6  :
```

## level: The command lets you configure Severity level

**Syntax:** **level** <0-7>

**Parameter :** **<0-7>:** Severity level <0> Emergency: system is unusable
<1> Alert: action must be taken immediately
<2> Critical: critical conditions
<3> Error: error conditions
<4> Warning: warning conditions
<5> Notice: normal but significant condition
<6> Informational: informational messages
<7> Debug: debug-level messages

**EXAMPLE:**

```
Switch(smtp)# level 7
Switch(smtp)# show
Mail Server     :
User Name       :
Password        :
Severity level  : Debug
Sender          :
Return Path     :
Email Adress 1  :
Email Adress 2  :
Email Adress 3  :
Email Adress 4  :
Email Adress 5  :
Email Adress 6  :
```

## mail-address: The command lets you configure email user name

**Syntax:** **mail-address** <1-6> <mail-address>

**Parameter :** **<1-6>:** Email address index
**<mail-address>:** Up to 47 characters describing mail address

**EXAMPLE:**

```
Switch(smtp)# mail-address 6 david@tech.com.tw
Switch(smtp)# show
Mail Server     :
User Name       :
Password        :
Severity level  : Debug
Sender          :
Return Path     :
Email Adress 1  :
Email Adress 2  :
Email Adress 3  :
Email Adress 4  :
Email Adress 5  :
Email Adress 6  : david@tech.com.tw
```

**return-path:** The command lets you configure the address of email sender

**Syntax:** **return-path** <return-path>

**Parameter :** **<return-path>:** Up to 47 characters describing return path

**EXAMPLE:**

```
Switch(smtp)# return-path david@tech.com.tw
Switch(smtp)# show
Mail Server     :
User Name       :
Password        :
Severity level  : Debug
Sender          :
Return Path     : david@tech.com.tw
Email Adress 1  :
Email Adress 2  :
Email Adress 3  :
Email Adress 4  :
Email Adress 5  :
Email Adress 6  : david@tech.com.tw
```

**sender:** The command lets you configure email sender

**Syntax:** **sender** <sender>

**Parameter :** **<sender>:** Up to 47 characters describing sender

**EXAMPLE:**

```
Switch(smtp)# sender tech
Switch(smtp)# show
Mail Server    :
User Name      :
Password       :
Severity level  : Debug
Sender         : david
Return Path    : david@mail. tech.com.tw
Email Adress 1  :
Email Adress 2  :
Email Adress 3  :
Email Adress 4  :
Email Adress 5  :
Email Adress 6  : david@tech.com.tw
```

## server: The command lets you configure email server

**Syntax:** **mode** server

**Parameter :** **<server>:** Up to 47 characters describing email server

**EXAMPLE:**

```
Switch(smtp)# server davidserver
Switch(smtp)# show
Mail Server    : davidserver
User Name      :
Password       :
Severity level  : Debug
Sender         : davidtech
Return Path    : david@mail.davidtech.com.tw
Email Adress 1  :
Email Adress 2  :
Email Adress 3  :
Email Adress 4  :
Email Adress 5  :
Email Adress 6  : jack@davidtech.com.tw
```

## show: The command lets you show email configuration

**Syntax:** **show** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**NOTE:** When enable DHCP snooping mode operation, the request DHCP messages will be forwarded to trusted ports and only allowed reply packets from trusted ports.

**EXAMPLE:**

```
Switch(smtp)# show
Mail Server    :
User Name      :
Password       :
Severity level  : Info
Sender         :
Return Path    :
Email Adress 1  :
Email Adress 2  :
Email Adress 3  :
Email Adress 4  :
Email Adress 5  :
Email Adress 6  :
```

**username:** The command lets you configure email user name

**Syntax:** **mode** username password

**Parameter :** **<username>:** Up to 47 characters describing user name

**<password>:** Up to 47 characters describing password

**EXAMPLE:**

```
Switch(smtp)# username david 1111
Switch(smtp)# show
Mail Server    : davidserver
User Name      : david
Password       : ********
Severity level  : Debug
Sender         : davidtech
Return Path    : david@mail.davidtech.com.tw
Email Adress 1  :
Email Adress 2  :
Email Adress 3  :
Email Adress 4  :
Email Adress 5  :
Email Adress 6  : rose@davidtech.com.tw
```

# Chapter 41 SNMP Commands of CLI

## SNMP

Any Network Management System (NMS) running the Simple Network Management Protocol (SNMP) can manage the Managed devices equipped with SNMP agent, provided that the Management Information Base (MIB) is installed correctly on the managed devices. The SNMP is a protocol that is used to govern the transfer of information between SNMP manager and agent and traverses the Object Identity (OID) of the management Information Base (MIB), described in the form of SMI syntax. SNMP agent is running on the switch to response the request issued by SNMP manager.

Basically, it is passive except issuing the trap information. The switch supports a switch to turn on or off the SNMP agent. If you set the field SNMP "Enable", SNMP agent will be started up. All supported MIB OIDs, including RMON MIB, can be accessed via SNMP manager. If the field SNMP is set "Disable", SNMP agent will be de-activated, the related Community Name, Trap Host IP Address, Trap and all MIB counters will be ignored.

**Table 40: SNMP Commands**

| Command | Function |
|---|---|
| access | Configure SNMP access |
| community | Configure SNMP community |
| delete | Delete command |
| engine-id | Set SNMP Engine ID |
| getcommunity | Configure SNMP Get Community |
| group | Configure SNMP groups |
| mode | Enable/Disable SNMP mode |
| setcommunity | Configure SNMP Set Community |
| show | Show SNMP command |
| trap | Configure SNMP trap |
| user | Configure SNMP users |
| view | Configure SNMP views |

### access: The command lets you configure SNMP access

**Syntax:** **access** any/ usm AuthNoPriv/ AuthPriv/ NoAuthNoPriv <WORD> <WORD>

**access** v1/ v2c AuthNoPriv <WORD> <WORD>

**Parameter :** **<WORD>**: group name: max 32 chars

**any:** Security Model

**usm**: Security Model

**AuthNoPriv**: Security Level. If security_model is not usm, the security_level value must be NoAuthNoPriv

**AuthPriv**: Security Level. If security_model is not usm, the security_level value must be NoAuthNoPriv

**NoAuthNoPriv**: Security Level. If security_model is not usm, the security_level value must be NoAuthNoPriv

**<WORD>**: read_view_name: The scope for a specified instance can read, None is reserved for Empty.

**<WORD>**: write_view_name: The scope for a specified instance can write,None is reserved for Empty.

**v1**: Security Model

**v2c**: Security Model

AuthNoPriv: Security Level. If security_model is not usm, the security_level value must be NoAuthNoPriv

**EXAMPLE:**

```
Switch(snmp)# access g usm noAuthNoPriv v v
Switch(snmp)# show access

SNMPv3 Accesses Table:
Idx   Group Name    Model SecurityLevel   Read View Name  Write View Name
--- --------------- ----- -------------- --------------- ---------------
1   g             usm   NoAuth, NoPriv v             v
```

## comminity: The command lets you configure SNMP community

**Syntax:** **community** <WORD> <WORD> <ip-address> <ip-mask>

**Parameter :** **<WORD>**: community: max 32 chars<60-1400> Size of ICMP echo packet

**<WORD>**: user name: max 32 chars

**<ip-address>:** SNMP access source ip

**<ip-mask>:** SNMP access source address mask

**EXAMPLE:**

```
witch(snmp)# community david pm 192.168.6.127 255.255.255.0
Switch(snmp)# show community

SNMP Community Table:
Idx Community       UserName        Source IP      Source Mask
--- --------------- --------------- -------------- --------------
1   david           pm             192.168.6.127   255.255.255.0

Number of entries: 1
```

## delete: The command lets you delete command

**Syntax:** **delete** access/ community/ group/ trap/ user/ view <1-14>/<1-4>/<1-6>/<1-10>/<1-48>

**Parameter :** **access:** Delete snmpv3 access entry

**<1-14>**: table index

**community:** Delete community entry

**<1-4>:** table index

**group:** Delete snmpv3 groups entry

**<1-14>**: table index

**trap:** Delete trap entry

**<1-6>**: table index

**user**: Delete snmpv3 users entry

**<1-10>**: table index

**view**: Delete snmpv3 views entry

**<1-48>**: table index

**EXAMPLE:**

```
Switch(snmp)# delete access 14
```

## engine-id: The command lets you set SNMP Engine ID

**Syntax:** **engine-id** <HEX>

**Parameter :** **<HEX>**: the format may not be all zeros or all 'ff'H,and is restricted to 5 - 32 octet string

**EXAMPLE:**

```
Switch(snmp)# engine-id ffffffffffffffff
```

**getcommunity:** The command lets you configure SNMP Get Community

**Syntax:** **getcommunity** <WORD>

**Parameter :** **<WORD>:** community: max 32 chars, default : public

**EXAMPLE:**

```
Switch(snmp)# getcommunity rose
Switch(snmp)# show snmp

SNMP Configuration
-------------------------------
Get Community     : rose
Set Community Mode : Enable
Set Community     : jack
```

**group:** The command lets you configure SNMP groups

**Syntax:** **group** <WORD> usm/ v1/ v2c

**Parameter :** **<WORD>**:user name: max 32 chars

**usm**: Security Model

**v1**: Security Model

**v2c**: Security Model

**EXAMPLE:**

```
Switch(snmp)# group pm v1 ccc
Switch(snmp)# show group

SNMPv3 Groups Table:
Idx Model Security Name                 Group Name
--- ----- ------------------------------ ------------------------------
1   v1    pm                           ccc

Number of entries: 1


Switch(snmp)# group pm v2c aaa
Switch(snmp)# show group

SNMPv3 Groups Table:
Idx Model Security Name                 Group Name
--- ----- ------------------------------ ------------------------------
1   v2c   pm                           aaa
```

## mode:

The command lets you Enable/Disable SNMP mode

**Syntax:** **mode** disable/ enable

**Parameter :** **disable:** Disable SNMP mode

**enable:** Enable SNMP mode

**EXAMPLE:**

```
Switch(snmp)# mode enable
Switch(snmp)# show mode

SNMPv3 State Show
SNMP State          : Enabled
SNMPv3 Engine ID    : 80001455030040c7232600
```

## setcommunity:

The command lets you configure SNMP Set Community

**Syntax:** **setcommunity** disable/ enable

**Parameter :** **disable:** Disable SNMP Set Community

**enable:** Enable SNMP Set Community

**<WORD>:** community: max 32 chars, default : private

**EXAMPLE:**

```
Switch(snmp)# setcommunity enable jack
Switch(snmp)# show snmp

SNMP Configuration
------------------------------
Get Community     : eee
Set Community Mode : Enable
Set Community     : jack
```

## show: The command lets you show SNMP command

**Syntax:** **show** access/ community/ group/ mode/ snmp/ trap/ user/ view

**Parameter :** **access**: Show snmpv3 access entry

**community**: Show snmpv3 community entry

**group:** Show snmpv3 groups entry

**mode**: Show snmp configuration

**snmp:** Show snmp community configuration

**trap:** Show snmp trap entry

**user**: Show snmpv3 users entry

**view:** Show snmpv3 views entry

**EXAMPLE:**

```
Switch(snmp)# show access

SNMPv3 Accesses Table:
Idx   Group Name    Model SecurityLevel   Read View Name  Write View Name
--- --------------- ----- -------------- --------------- ---------------

Number of entries: 0

Switch(snmp)# show community

SNMP Community Table:
Idx Community       UserName        Source IP      Source Mask
--- --------------- --------------- -------------- --------------
1   david           pm             192.168.6.127   255.255.255.0

Number of entries: 1
```

## trap: The command lets you configure SNMP trap

**Syntax:** **trap** <1-6> v2/ v3 ipv4/ ipv6 <ip-address> <1-65535> <0-7>

**Parameter :** **<1-6>**: trap index : 1 - 6

**v2**: version

**v3**: version

**ipv4**: Trap host IP type

**ipv6**: Trap host IP type

**<ip-address>**: Trap host IPv4 address

**<1-65535>**: trap port

**<0-7>** Severity level
- **<0>** Emergency: system is unusable
- **<1>** Alert: action must be taken immediately
- **<2>** Critical: critical conditions
- **<3>** Error: error conditions
- **<4>** Warning: warning conditions
- **<5>** Notice: normal but significant condition
- **<6>** Informational: informational messages
- **<7>** Debug: debug-level messages

**EXAMPLE:**

```
Switch(snmp)# trap 2 v2 ipv4 192.168.6.127 65535 7 aaa
Switch(snmp)# show trap
SNMPv3 Trap Host Configuration:

                            Community             Severity    Auth.     Priv.
No Ver Server IP      Port Security Name          Level     Protocol  Protocol
-- --- --------------- ---- ---------------------- --------- --------- --------
1
2  v2c 192.168.6.127   65535 aaa                   Debug
3
4
5
6
```

## user: The command lets you configure SNMP users

**Syntax:** **user** <WORD> AuthNoPriv/ AuthPriv/ NoAuthNoPriv MD5/ SHA <WORD>

**Parameter :**

**<WORD>**: user name: max 32 chars

**AuthNoPriv**: Security_Level

**AuthPriv**: Security_Level

**NoAuthNoPriv**: Security_Level

**MD5**: Authentication Protocol

**SHA**: Authentication Protocol

**<WORD>**: MD5 Authentication Password is restricted to 8 - 32

**EXAMPLE:**

```
Switch(snmp)# user wade authnoPriv md5 12345678
Switch(snmp)# show user

SNMPv3 Users Table:
Index User Name                    Security Level Auth Priv
----- ------------------------------ ------------- ---- ----
1    wade                         AuthNoPriv    MD5  None

Number of entries: 1
```

**view:** The command lets you configure SNMP views

**Syntax:** **view** <WORD> excluded/ included <WORD>

**Parameter :** <WORD>: view name: max 32 chars

excluded: view_type

included: view_type

<WORD>: oid_subtree: The OID defining the root of the subtree.

**EXAMPLE:**

```
Switch(snmp)# view viewdavid included .1.3.6.1.2
Switch(snmp)# show view

SNMPv3 Views Table:
Idx View Name                     View Type OID Subtree
--- ------------------------------ --------- ------------------------------
1   viewdavid                    included  .1.3.6.1.2
```

# Chapter 42 SSH Commands of CLI

**SSH**

This section shows you to use SSH (Secure SHell) to securely access the Switch. SSH is a secure communication protocol that combines authentication and data encryption to provide secure encrypted communication.

**Table 41: SSH Commands**

| Command | Function |
|---|---|
| mode | Configure the SSH mode |
| show | Show SSH configuration |

## mode: The command lets you configure the SSH mode

**Syntax:** **mode** disable/ enable

**Parameter :** **disable:** Disable SSH mode operation

**enable:** Enable SSH mode operation

**EXAMPLE:**

```
Switch(ssh)# mode enable
Switch(ssh)# show
SSH Mode : Enabled
```

## show: The command lets you show SSH configuration

**Syntax:** **show** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(ssh)# show
SSH Mode : Enabled
```

# Chapter 43 STP Commands of CLI

## STP

The Spanning Tree Protocol (STP) can be used to detect and disable network loops, and to provide backup links between switches, bridges or routers. This allows the switch to interact with other bridging devices (that is, an STP-compliant switch, bridge or router) in your network to ensure that only one route exists between any two stations on the network, and provide backup links which automatically take over when a primary link goes down.

STP - STP uses a distributed algorithm to select a bridging device (STP-compliant switch, bridge or router) that serves as the root of the spanning tree network. It selects a root port on each bridging device (except for the root device) which incurs the lowest path cost when forwarding a packet from that device to the root device. Then it selects a designated bridging device from each LAN which incurs the lowest path cost when forwarding a packet from that LAN to the root device. All ports connected to designated bridging devices are assigned as designated ports. After determining the lowest cost spanning tree, it enables all root ports and designated ports, and disables all other ports. Network packets are therefore only forwarded between root ports and designated ports, eliminating any possible network loops.

Once a stable network topology has been established, all bridges listen for Hello BPDUs (Bridge Protocol Data Units) transmitted from the Root Bridge. If a bridge does not get a Hello BPDU after a predefined interval (Maximum Age), the bridge assumes that the link to the Root Bridge is down. This bridge will then initiate negotiations with other bridges to reconfigure the network to reestablish a valid network topology.

**Table 42: STP Commands**

| Command | Function |
|---|---|
| CName | Set MSTP Configuration name |
| FwdDelay | Set FwdDelay |
| MaxAge | Set Maxage |
| MaxHops | Set MaxHops |
| Statistics | Clear STP port statistics |
| Txhold | Set TxHold |
| Version | Set force-version |
| bpduFilter | Set edge port BPDU Filtering |
| bpduGuard | Set edge port BPDU Guard |
| migrate-check | Set the STP mCheck (Migration Check) variable for ports |

| | |
|---|---|
| **msti-vlan** | Map Vlan ID(s) to an MSTI |
| **p-AutoEdge** | Set the STP autoEdge port parameter |
| **p-bpduGuard** | Set the bpduGuard port parameter |
| **p-cost** | Set the STP port instance path cost |
| **p-edge** | Set the STP adminEdge port parameter |
| **p-mode** | Set the STP enabling for a port |
| **p-p2p** | Set the STP point2point port parameter |
| **p-priority** | Set the STP port instance priority |
| **priority** | Set the bridge instance priority |
| **r-role** | Set the MSTP restrictedRole port parameter |
| **r-tcn** | Set the MSTP restrictedTcn port parameter |
| **recovery** | Set edge port error recovery timeout |
| **show** | Show Region config, MSTI vlan mapping, instance parameters and port parameters |

## CName: The command lets you Set MSTP Configuration name

**Syntax:** **CName** <WORD> <0-65535>

**Parameter :** <WORD>: **A text string up to 32 characters long**

<0-65535>: **MSTP revision-level(0~65535)**

**EXAMPLE:**

```
Switch(stp)# cName david 65535
Switch(stp)# show cName
Configuration name: david
Configuration rev.: 65535
```

## FwdDelay: The command lets you Set FwdDelay

**Syntax:** **FwdDelay** <4-30>

**Parameter :** **<4-30>:** MSTP forward delay (4-30, and max_age <= (forward_delay -1)*2))

**EXAMPLE:**

```
Switch(stp)# fwdDelay 30
witch(stp)# show instance
STP Configuration
Protocol Version: MSTP
Max Age        : 20
Forward Delay   : 30
Tx Hold Count   : 6
Max Hop Count   : 20
BPDU Filtering  : Disabled
BPDU Guard     : Disabled
Error Recovery  : 0 seconds
Error Recovery  : Disabled
```

## MaxAge: The command lets you Set Maxage

**Syntax:** **maxage** <6-40>

**Parameter :** **<6-40>:** STP maximum age time (6-40, and max_age <= (forward_delay-1)*2)

**EXAMPLE:**

```
Tx Hold Count   : 6
Max Hop Count   : 20
BPDU Filtering  : Disabled
BPDU Guard     : Disabled
Error Recovery  : 0 seconds
Error Recovery  : Disabled
```

## MaxHops: The command lets you Set MaxHops

**Syntax:** **maxhops** <6-40>

**Parameter :** **<6-40>**: STP BPDU MaxHops (6-40))

**EXAMPLE:**

```
Switch(stp)# maxhops 38
Switch(stp)# show instance
STP Configuration
Protocol Version: MSTP
Max Age        : 39
Forward Delay   : 30
Tx Hold Count   : 6
Max Hop Count   : 38
BPDU Filtering  : Disabled
BPDU Guard     : Disabled
Error Recovery  : 0 seconds
Error Recovery  : Disabled
```

## Statistics: The command lets you Clear STP port statistics

**Syntax:** **statistics** clear

**Parameter :** **clear:** Clear the selected port statistics

**EXAMPLE:**

```
Switch(stp)# statistics clear
Port      Rx MSTP   Tx MSTP   Rx RSTP   Tx RSTP   Rx STP   Tx STP   Rx TCN   T
x TCN   Rx Ill.  Rx Unk.
--------- -------- -------- -------- -------- ------- ------- ------- -
------  -------  -------
```

## TxHold: The command lets you Set TxHold

**Syntax:** **txhold** <1-10>

**Parameter :** **<1-10>:** STP Transmit Hold Count (1-10)

**EXAMPLE:**

```
Switch(stp)# txhold 9
Switch(stp)# show instance
STP Configuration
Protocol Version: MSTP
Max Age        : 39
Forward Delay   : 30
Tx Hold Count   : 9
Max Hop Count   : 38
BPDU Filtering  : Disabled
BPDU Guard     : Disabled
Error Recovery  : 0 seconds
Error Recovery  : Disabled
```

## Version: The command lets you Set force-version

**Syntax:** **version** mstp/ rstp/ stp

**Parameter :** **mstp:** Multiple Spanning Tree Protocol

**rstp:** Rapid Spanning Tree Protocol

**stp:** Spanning Tree Protocol

**EXAMPLE:**

```
Switch(stp)# version stp
Switch(stp)# show instance
STP Configuration
Protocol Version: Compatible (STP)
Max Age        : 39
Forward Delay   : 30
Tx Hold Count   : 9
Max Hop Count   : 38
BPDU Filtering  : Disabled
BPDU Guard     : Disabled
Error Recovery  : 0 seconds
Error Recovery  : Disabled
```

**bpduFilter:** The command lets you Set edge port BPDU Filtering what you set on the switch

**Syntax:** **bpdufilter** disable/ enable

**Parameter :** **disable:** Disable BPDU Filtering for Edge ports

**enable:** Enable BPDU Filtering for Edge ports

**EXAMPLE:**

```
Switch(stp)# bpdufilter enable
Switch(stp)# show instance
STP Configuration
Protocol Version: Compatible (STP)
Max Age        : 39
Forward Delay   : 30
Tx Hold Count   : 9
Max Hop Count   : 38
BPDU Filtering  : Enabled
BPDU Guard     : Disabled
Error Recovery  : 0 seconds
Error Recovery  : Disabled
```

**bpduGuard:** The command lets you Set edge port BPDU Guard

**Syntax:** **bpduguard** disable/ enable

**Parameter :** **disable:** Disable BPDU Guard for Edge ports

**enable:** Enable BPDU Guard for Edge ports

**EXAMPLE:**

```
Switch(stp)# bpduguard enable
Switch(stp)# show instance
STP Configuration
Protocol Version: Compatible (STP)
Max Age        : 39
Forward Delay   : 30
Tx Hold Count   : 9
Max Hop Count   : 38
BPDU Filtering  : Enabled
BPDU Guard     : Enabled
Error Recovery  : 0 seconds
Error Recovery  : Disabled
```

## migrate-check:

The command lets you Set the STP mCheck (Migration Check) variable for ports

**Syntax:** **migrate-check** <port-list>

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**EXAMPLE:**

```
Switch(stp)# migrate-check 1
```

## msti-vlan:

The command lets you Map Vlan ID(s) to an MSTI

**Syntax:** **msti-vlan** add/ del <0-7> <1-4094>

**Parameter :** **add**: Add a VLAN to a MSTI

**del**: clear MSTP MSTI VLAN mapping configuration

**<0-7>**: STP bridge instance no (0-7, CIST=0, MSTI1=1, ...)

**<1-4094>**: available from 1 to 4094

**EXAMPLE:**

```
Switch(stp)# msti-vlan add 1 4094
Switch(stp)# show msti-vlan
MSTI  VLANs mapped to MSTI
----  --------------------
MSTI1  4094
MSTI2  No VLANs mapped
MSTI3  No VLANs mapped
MSTI4  No VLANs mapped
MSTI5  No VLANs mapped
MSTI6  No VLANs mapped
MSTI7  No VLANs mapped
```

**p-AutoEdge:** The command lets you Set the STP autoEdge port parameter

**Syntax:** **p-autoEdge** aggregations/<port-list> disable/ enable

**Parameter :** **aggregations:** available value is for aggregated port

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** disable: Disable MSTP autoEdges

**enable:** enable : Enable MSTP autoEdge

**EXAMPLE:**

```
Switch(stp)# p-autoEdge aggregations enable
Switch(stp)# show pconf

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  --------  ----------------  ----------------  --------------------
Aggr  Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Enabled

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  --------  ----------------  ----------------  --------------------
1    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto
2    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto
3    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto


Switch(stp)# p-autoEdge 1 disable
Switch(stp)# show pconf

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  --------  ----------------  ----------------  --------------------
Aggr  Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Enabled

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  --------  ----------------  ----------------  --------------------
1    Disabled  Disabled  Disabled  Disabled  Disabled  Disabled  Auto
2    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto
3    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto
```

## p-bpduGuard:

The command lets you Set the bpduGuard port parameter

**Syntax:** **p-bpduGuard** aggregations/<port-list> disable/ enable

**Parameter :** **aggregations:** available value is for aggregated port

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** disable: Disable port BPDU Guard

**enable:** enable : Enable port BPDU Guard

**EXAMPLE:**

```
witch(stp)# p-bpduGuard aggregations enable
Switch(stp)# show pconf

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  --------  ------------------  ------------------  --------------------
Aggr  Disabled  Disabled  Disabled   Disabled  Disabled  Enabled   Enabled

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  --------  ------------------  ------------------  --------------------
1    Disabled  Disabled  Disabled   Disabled  Disabled  Disabled  Auto
2    Disabled  Disabled  Disabled   Disabled  Disabled  Disabled  Auto
3    Disabled  Disabled  Disabled   Disabled  Disabled  Disabled  Auto


Switch(stp)# p-bpduGuard 1 enable
Switch(stp)# show pconf
Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  --------  ------------------  ------------------  --------------------
Aggr  Disabled  Disabled  Enabled   Disabled  Disabled  Enabled   Enabled

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  --------  ------------------  ------------------  --------------------
1    Disabled  Disabled  Disabled  Disabled  Disabled  Enabled   Auto
2    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto
3    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto
```

## p-cost:

The command lets you Set the STP port instance path cost

**Syntax:** **p-cost** <0-7> aggregations/<port-list> <0-200000000>

**Parameter :** **<0-7>:** STP bridge instance no (0-7, CIST=0, MSTI1=1, ...)

**aggregations:** available value is for aggregated port

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**<0-200000000>:** STP port path cost (1-200000000) or The value zero means auto status

**EXAMPLE:**

```
Switch(stp)# p-cost 0 aggregations 2000000
Switch(stp)# show p-config 0

MSTI  Port  Path Cost   Priority
----  ----  ----------  --------
CIST  Aggr  2000000    128

MSTI  Port  Path Cost   Priority
----  ----  ----------  --------
CIST  1     Auto       128
CIST  2     Auto       128
CIST  3     Auto       128


Switch(stp)# p-cost 1 3 9999
Switch(stp)# show p-config 1

MSTI  Port  Path Cost   Priority
----  ----  ----------  --------
MSTI1  Aggr  Auto       128

MSTI  Port  Path Cost   Priority
----  ----  ----------  --------
MSTI1  1     Auto       128
MSTI1  2     Auto       128
MSTI1  3     9999       128
```

**p-edge:** The command lets you Set the STP adminEdge port parameter

**Syntax:** **p-edge** aggregations/<port-list> disable/ enable

**Parameter :** **aggregations:** available value is for aggregated port

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** disable: Disable MSTP protocol

**enable:** enable : Enable MSTP protocol

**EXAMPLE:**

```
Switch(stp)# p-edge aggregations enable
Switch(stp)# show pconf

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  --------  ----------------  ----------------  --------------------
Aggr  Disabled  Enabled   Enabled   Disabled  Disabled  Enabled   Enabled

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  --------  ----------------  ----------------  --------------------
1    Disabled  Disabled  Disabled  Disabled  Disabled  Enabled   Auto
2    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto
```

## p-mode: The command lets you Set the STP enabling for a port

**Syntax:** **p-mode** aggregations/<port-list> disable/ enable

**Parameter :** **aggregations:** available value is for aggregated port

**<port-list>:** available value is from switch physic port density, format: 1,3-5
**disable:** disable: Disable MSTP protocol

**enable:** enable : Enable MSTP protoc

**EXAMPLE:**

```
Switch(stp)# p-mode aggregations enable
Switch(stp)# show pconf

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  --------  -----------------  -----------------  --------------------
Aggr  Enabled   Disabled  Enabled   Disabled  Disabled  Enabled   Enabled

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  --------  -----------------  -----------------  --------------------
1    Disabled  Disabled  Disabled  Disabled  Disabled  Enabled   Auto
2    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto
```

## p-p2p: The command lets you Set the STP point2point port

**Syntax:** **p-p2p** aggregations/<port-list> auto/ disable/ enable

**Parameter :** **aggregations:** available value is for aggregated port

**<port-list>:** available value is from switch physic port density, format: 1,3-5
**auto:** auto : Automatic MSTP point2point detection
**disable:** disable: Disable MSTP point2point

**enable:** enable : Enable MSTP point2point

**EXAMPLE:**

```
Switch(stp)# p-p2p aggregations auto
Switch(stp)# show pconf

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  -------- ----------------- ----------------- ------------------- ---------------------
Aggr  Enabled   Disabled  Enabled   Disabled  Disabled  Enabled   Auto

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  -------- ----------------- ----------------- ------------------- ---------------------
1    Disabled  Disabled  Disabled  Disabled  Disabled  Enabled   Auto
2    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto


Switch(stp)# p-p2p 2 disable
Switch(stp)# show pconf

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  -------- ----------------- ----------------- ------------------- ---------------------
Aggr  Enabled   Disabled  Enabled   Disabled  Disabled  Enabled   Auto

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  -------- ----------------- ----------------- ------------------- ---------------------
1    Disabled  Disabled  Disabled  Disabled  Disabled  Enabled   Auto
2    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Disabled
3    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto
```

**p-priority:** The command lets you Set the STP port instance priority

**Syntax:** **p-priority** <0-7> aggregations/<port-list> <0-240>

**Parameter :** **<0-7>:** STP bridge instance no (0-7, CIST=0, MSTI1=1, ...)

**aggregations:** available value is for aggregated port

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**<0-240>:** STP bridge priority (0/16/32/48/.../224/240)

**EXAMPLE:**

```
Switch(stp)# p-priority 3 aggregations 240
Switch(stp)# show p-config 3

MSTI  Port  Path Cost   Priority
----  ----  ----------  --------
MSTI3  Aggr  Auto       240

MSTI  Port  Path Cost   Priority
----  ----  ----------  --------
MSTI3  1    Auto       128
MSTI3  2    Auto       128


Switch(stp)# p-priority 1 2 224
Switch(stp)# show p-config 1

MSTI  Port  Path Cost   Priority
----  ----  ----------  --------
MSTI1  Aggr  Auto       128

MSTI  Port  Path Cost   Priority
----  ----  ----------  --------
MSTI1  1    Auto       128
MSTI1  2    Auto       224
```

**priority:** The command lets you Set the bridge instance priority

**Syntax:** **priority** <0-7> <0-240>

**Parameter :** **<0-7>:** STP bridge instance no (0-7, CIST=0, MSTI1=1, ...)

**<0-240>:** STP bridge priority (0/4096/8192/12288/.../57344/61440)

**EXAMPLE:**

```
Switch(stp)# priority 0 61440
Switch(stp)# show priority
MSTI#  Bridge Priority

-----  ---------------
CIST   61440
```

**r-role:** The command lets you Set the MSTP restrictedRole port parameter

**Syntax:** **r-role** aggregations/<port-list> disable/ enable

**Parameter :** **aggregations:** available value is for aggregated port

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** Disable MSTP restricted role

**enable:** Enable MSTP restricted role

**EXAMPLE:**

```
Switch(stp)# r-role aggregations enable
Switch(stp)# show pconf

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  -------- ----------------- ----------------- --------------------
Aggr  Enabled   Disabled  Enabled   Enabled   Disabled  Enabled   Auto

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  -------- ----------------- ----------------- --------------------
1    Disabled  Disabled  Disabled  Disabled  Disabled  Enabled   Auto
2    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Disabled
3    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto


Switch(stp)# r-role 2 enable
Switch(stp)# show pconf

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  -------- ----------------- ----------------- --------------------
Aggr  Enabled   Disabled  Enabled   Enabled   Disabled  Enabled   Auto

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  -------- ----------------- ----------------- --------------------
1    Disabled  Disabled  Disabled  Disabled  Disabled  Enabled   Auto
2    Disabled  Disabled  Enabled   Enabled   Disabled  Disabled  Disabled
```

**r-tcn:** The command lets you Set the MSTP restrictedTcn port parameter

**Syntax:** **r-tcn** aggregations/<port-list> disable/ enable

**Parameter :** **aggregations:** available value is for aggregated port

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** Disable MSTP restricted TCN

**enable:** Enable MSTP restricted TCN

**EXAMPLE:**

```
Switch(stp)# r-tcn aggregations enable
Switch(stp)# show pconf

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  -------- ----------------- ----------------- --------------------
Aggr  Enabled   Disabled  Enabled   Enabled   Enabled   Enabled   Auto

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  -------- ----------------- ----------------- --------------------
1    Disabled  Disabled  Disabled  Disabled  Disabled  Enabled   Auto
2    Disabled  Disabled  Enabled   Enabled   Disabled  Disabled  Disabled
```

**recovery:** The command lets you Set edge port error recovery timeout

**Syntax:** **recovery** <30-86400>

**Parameter :** **<30-86400>:** Time before error-disabled ports are reenabled (30-86400 seconds, 0 disables)

**EXAMPLE:**

```
Switch(stp)# recovery 86400
Switch(stp)# show instance
STP Configuration
Protocol Version: Compatible (STP)
Max Age        : 39
Forward Delay  : 30
Tx Hold Count  : 9
Max Hop Count  : 38
BPDU Filtering : Enabled
BPDU Guard     : Enabled
Error Recovery : 86400 seconds
Error Recovery : Disabled
```

**Show:** The command lets you Show Region config, MSTI vlan mapping, instance parameters and port parameters

**Syntax:** **show** CName/ Statistics/ instance/ msti-vlan/ msti-vlan / pconf

**show** Status/ p-config <0-7>

**Parameter :** **CName:** Show MSTP Configuration name

**Statistics:** Show STP port statistics

**Status:** Show STP Bridge status

**<0-7>:** STP bridge instance no (0-7, CIST=0, MSTI1=1, ...)

**instance:** Show instance status

**msti-vlan:** Show MSTP MSTI VLAN mapping configuration

**p-config:** Show the STP port instance configuration

**<0-7>:** STP bridge instance no (0-7, CIST=0, MSTI1=1, ...)

**pconf:** Show STP Port configuration

**priority:** show the bridge instance priority

**EXAMPLE:**

```
Switch(stp)# show cName
Configuration name: 00-40-c7-23-26-00
Configuration rev.: 0


Switch(stp)# show instance
STP Configuration
Protocol Version: MSTP
Max Age        : 20
Forward Delay  : 15
Tx Hold Count  : 6
Max Hop Count  : 20
BPDU Filtering : Disabled
BPDU Guard     : Disabled
Error Recovery : 0 seconds
Error Recovery : Disabled


Switch(stp)# show pconf

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  -------- ----------------- ----------------- --------------------
Aggr  Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Enabled

Port  Mode     AdminEdge AutoEdge  restrRole restrTcn  bpduGuard Point2point
----  -------- ----------------- ----------------- --------------------
1    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto
2    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto
3    Disabled  Disabled  Enabled   Disabled  Disabled  Disabled  Auto
```

# Chapter 44 Syslog Commands of CLI

**Syslog**

The Syslog is a standard for logging program messages . It allows separation of the software that generates messages from the system that stores them and the software that reports and analyzes them. It can be used as well a generalized informational, analysis and debugging messages. It is supported by a wide variety of devices and receivers across multiple platforms.

**Table 43: Syslog Commands**

| Command | Function |
|---|---|
| clear | Clear syslog entry |
| level | Configure syslog level |
| mode | Configure syslog mode |
| server | Configure syslog server IP address |
| show | Show syslog information |

## clear: The command lets you Clear syslog entry

**Syntax:** **clear** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(syslog)# clear
Switch(syslog)# show log
<0> Emergency: 0
<1> Alert    : 0
<2> Critical : 0
<3> Error    : 0
<4> Warning  : 0
<5> Notice   : 0
<6> Info     : 0
<7> Debug    : 0
   All     : 0

ID   Level    Time             Message
---- --------- ------------------- -------------------------------------
<none>
```

## level: The command lets you Configure syslog level

**Syntax:** **level** <0-7>

**Parameter :** **<0-7>:** Severity level

- **<0>** Emergency: system is unusable
- **<1>** Alert: action must be taken immediately
- **<2>** Critical: critical conditions
- **<3>** Error: error conditions
- **<4>** Warning: warning conditions
- **<5>** Notice: normal but significant condition
- **<6>** Informational: informational messages
- **<7>** Debug: debug-level messages

**EXAMPLE:**

```
Switch(syslog)# level 7
Switch(syslog)# show config
Server Mode     : Disabled
Server Address 1 :
Server Address 2 :
Syslog Level    : Debug
```

## mode: The command lets you Configure syslog mode

**Syntax:** **mode** disable/ enable

**Parameter :** **disable:** Disable syslog mode

**enable:** Enable syslog mode

**EXAMPLE:**

```
Switch(syslog)# mode enable
Switch(syslog)# show config
Server Mode     : Enabled
Server Address 1 :
Server Address 2 :
Syslog Level    : Debug
```

## server: The command lets you Configure syslog server IP address

**Syntax:** **server** <1-2> <ip-hostname>

**Parameter :** **<1-2>:** Syslog Server No.

**<ip-hostname>:** Syslog server IP address or host name

**EXAMPLE:**

```
Switch(syslog)# server 2 192.168.6.1
Switch(syslog)# show config
Server Mode     : Enabled
Server Address 1 :
Server Address 2 : 192.168.6.1
Syslog Level    : Debug
```

## show: The command lets you Show syslog information

**Syntax:** **show** config

**show** detail-log <log-id>

**show** log <0-7>

**Parameter :** **config:** Show syslog configuration

**detail-log:** Show detailed syslog information

<log-id>: Log ID

**log:** Show syslog entry

**<0-7>** : Show syslog entry that match the level

**EXAMPLE:**

```
witch(syslog)# show config
Server Mode     : Disabled
Server Address 1 :
Server Address 2 :
Syslog Level    : Info


Switch(syslog)# show detail-log 2
ID    : 2
Level  : Warning
Time   : 2011-01-01 01:00:27
Message:

Link up on port 2


Switch(syslog)# show log 2
<0> Emergency: 0
<1> Alert    : 0
<2> Critical : 0
<3> Error    : 0
<4> Warning  : 8
<5> Notice   : 0
<6> Info     : 12
<7> Debug    : 0
   All     : 20

ID   Level    Time              Message
---- --------- ------------------ -------------------------------------
<none>
```

# Chapter 45 System Commands of CLI

## System

After you login, the switch shows you the system information. This page is default and tells you the basic information of the system, including “Model Name”, “System Description”, “Contact”, “Device Name”, “System Up Time”, “BIOS Version”, “Firmware Version”, “Hardware-Mechanical Version”, “Serial Number”, “Host IP Address”, “Host Mac Address”, “Device Port”, “RAM Size” , “Flash Size” and. With this information, you will know the software version used, MAC address, serial number, how many ports good and so on. This is helpful while malfunctioning.

**Table 44: System Commands**

| Command | Function |
|---|---|
| contact | Configure system contact |
| location | Configure system location |
| name | Configure device name |
| show | Show system information |

### contact: The command lets you Configure system contact

**Syntax:** **contact** <LINE>

**Parameter :** **<LINE>:** Up to 255 characters describing system contact information

**EXAMPLE:**

```
Switch(system)# contact david
Switch(system)# show
Model Name                : SM24TAT4XA
System Description         : 24-Port 10/100/1000Base-T + 2 (100/1G) SFP PoE+
L2 Plus Managed Switch
Location                  :
Contact                   : david
Device Name                : SM24TAT4XA
System Uptime              : 3d 01:46:45
Current Time               : 2011-01-04 02:46:45
BIOS Version               : v1.00
Firmware Version           : v1.28
Hardware-Mechanical Version  : v1.00-v1.00
Series Number              : 010199887766
Host IP Address            : 192.168.6.127
Subnet Mask                : 255.255.255.0
Gateway IP Address         : 0.0.0.0
Host MAC Address           : 00-40-c7-23-26-00
Console Baudrate           : 115200
RAM Size                   : 64
Flash Size                 : 16
CPU Load (100ms, 1s, 10s)    : 0%, 18%, 16%
Bridge FDB Size            : 8192 MAC addresses
Transmit Queue             : 8 queues per port
Maximum Frame Size         : 9600
```

## location: The command lets you Configure system location

**Syntax:** **location** <LINE>

**Parameter :** **<LINE>:** Up to 255 characters describing system location

**EXAMPLE:**

```
Switch(system)# location taipei
Switch(system)# show
Model Name                : SM24TAT4XA
System Description         : 24-Port 10/100/1000Base-T + 2 (100/1G) SFP PoE+
L2 Plus Managed Switch
Location                  : Minnetonka
Contact                   : David
Device Name                : SM24TAT4XA
System Uptime              : 3d 01:47:59
Current Time               : 2011-01-04 02:47:59
BIOS Version               : v1.00
Firmware Version           : v1.28
Hardware-Mechanical Version  : v1.00-v1.00
Series Number              : 010199887766
Host IP Address            : 192.168.6.127
Subnet Mask                : 255.255.255.0
Gateway IP Address         : 0.0.0.0
Host MAC Address           : 00-40-c7-23-26-00
Console Baudrate           : 115200
RAM Size                   : 64
Flash Size                 : 16
CPU Load (100ms, 1s, 10s)    : 0%, 18%, 16%
Bridge FDB Size            : 8192 MAC addresses
Transmit Queue             : 8 queues per port
Maximum Frame Size         : 9600
```

## name: The command lets you Configure device name

**Syntax:** **name** <WORD>

**Parameter :** **<WORD>:** Up to 255 characters describing device name

**EXAMPLE:**

```
Switch(system)# name davidswitch
Switch(system)# show
Model Name                : SM24TAT4XA
System Description         : 24-Port 10/100/1000Base-T + 2 (100/1G) SFP PoE+
L2 Plus Managed Switch
Location                  : Minnetonka
Contact                   : David
Device Name                : davidswitch
System Uptime              : 3d 01:49:43
Current Time               : 2011-01-04 02:49:43
BIOS Version               : v1.00
Firmware Version           : v1.28
Hardware-Mechanical Version  : v1.00-v1.00
Series Number              : 010199887766
Host IP Address            : 192.168.6.127
Subnet Mask                : 255.255.255.0
Gateway IP Address         : 0.0.0.0
Host MAC Address           : 00-40-c7-23-26-00
Console Baudrate           : 115200
RAM Size                   : 64
Flash Size                 : 16
CPU Load (100ms, 1s, 10s)    : 14%, 13%, 16%
Bridge FDB Size            : 8192 MAC addresses
Transmit Queue             : 8 queues per port
Maximum Frame Size         : 9600
```

## show: The command lets you Show system information

**Syntax:** **show** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(system)# show
Model Name                : SM24TAT4XA
System Description         : 24-Port 10/100/1000Base-T + 2 (100/1G) SFP PoE+
L2 Plus Managed Switch
Location                  :
Contact                   :
Device Name               : SM24TAT4XA
System Uptime             : 3d 01:45:29
Current Time              : 2011-01-04 02:45:29
BIOS Version              : v1.00
Firmware Version          : v1.28
Hardware-Mechanical Version  : v1.00-v1.00
Series Number             : 010199887766
Host IP Address           : 192.168.6.127
Subnet Mask               : 255.255.255.0
Gateway IP Address         : 0.0.0.0
Host MAC Address          : 00-40-c7-23-26-00
Console Baudrate          : 115200
RAM Size                  : 64
Flash Size                : 16
CPU Load (100ms, 1s, 10s)    : 0%, 21%, 17%
Bridge FDB Size           : 8192 MAC addresses
Transmit Queue            : 8 queues per port
Maximum Frame Size         : 9600
```

**EXAMPLE:**

```
Switch(system)# show
Model Name                : SM24TAT4XA
System Description         : 24-Port 10/100/1000Base-T + 2 (100/1G) SFP PoE+
L2 Plus Managed Switch
Location                  :
Contact                   :
Device Name               : SM24TAT4XA
System Uptime             : 3d 01:45:29
Current Time              : 2011-01-04 02:45:29
BIOS Version              : v1.00
Firmware Version          : v1.28
Hardware-Mechanical Version  : v1.00-v1.00
Series Number             : 010199887766
Host IP Address           : 192.168.6.127
Subnet Mask               : 255.255.255.0
Gateway IP Address         : 0.0.0.0
Host MAC Address          : 00-40-c7-23-26-00
Console Baudrate          : 115200
RAM Size                  : 64
Flash Size                : 16
CPU Load (100ms, 1s, 10s)    : 0%, 21%, 17%
Bridge FDB Size           : 8192 MAC addresses
Transmit Queue            : 8 queues per port
Maximum Frame Size         : 9600
```

# Chapter 46 Thermal Protection Commands of CLI

## Thermal

The section describes the user to inspect and configure the current setting for controlling thermal protection. Thermal protection is used to protect the chip from getting overheated.

When the temperature exceeds the configured thermal protection temperature, ports will be turned off in order to decrease the power consumption. It is possible to arrange the ports with different priorities. Each priority can be given a temperature at which the corresponding ports shall be turned off.

**Table 45: Thermal Protection Commands**

| Command | Function |
|---|---|
| port-priority | Configure the port priority |
| priority-temp | Configure the temperature at which the ports shall be shut down |
| show | Show thermal protection information |

## port-priority: The command lets you Configure the port priority

**Syntax:** **port-priority** <port-list> <0-3>

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**<0-3>:** Port priority

**EXAMPLE:**

```
Switch(thermal)# port-priority 1 3
Switch(thermal)# show
Priority  Temperature
--------  -----------
0         255 C
1         255 C
2         255 C
3         255 C

Port Priority Chip Temperature Port status
---- -------- --------------- ------------------------------------------
1    3                60 C Port link operating normally
2    0                59 C Port link operating normally
3    0                59 C Port link operating normally
```

## priority-temp: The command lets you Configure the temperature at which the ports shall be shut down

**Syntax:** **priority-temp** <0-3> <0-255>

**Parameter :** **<0-3>:** Port priority

**<0-255>:** The temperature at which the ports with the corresponding priority will be turned off

**EXAMPLE:**

```
Switch(thermal)# priority-temp 1 99
Switch(thermal)# show
Priority  Temperature
--------  -----------
0         255 C
1         99 C
2         255 C
3         255 C

Port Priority Chip Temperature Port status
---- -------- --------------- ------------------------------------------
1    3                59 C Port link operating normally
2    0                59 C Port link operating normally
3    0                59 C Port link operating normally
```

## show:

The command lets you Show thermal protection information

**Syntax:** **show** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(thermal)# show
Priority  Temperature
--------  -----------
0         255 C
1         255 C
2         255 C
3         255 C

Port Priority Chip Temperature Port status
---- -------- --------------- ------------------------------------------
1    0                59 C Port link operating normally
2    0                59 C Port link operating normally
3    0                59 C Port link operating normally
4    0                59 C Port link operating normally
```

# Chapter 47 System time Commands of CLI

**Time**

This page configure the switch Time. Time configure is including Time Configuration and NTP Configuration

The switch provides manual and automatic ways to set the system time via NTP. Manual setting is simple and you just input “Year”, “Month”, “Day”, “Hour”, “Minute” and “Second” within the valid value range indicated in each item.

**Table 46: Time Commands**

| Command | Function |
|---|---|
| clock-source | Enable/Diable applicant administrative control |
| daylight | Set the GARP join timer configuration |
| delete | Set the GARP leave all timer configuration |
| manual | Set the GARP leave timer configuration |
| ntp | Configure NTP server |
| show | Show the GARP configuration |
| time-zone | Configure system time zone |

## clock-source: The command lets you configure the clock source

**Syntax:** **clock-source** local/ ntp

**Parameter :** **local:** Local settings

**ntp:** Use NTP to synchronize system clock

**EXAMPLE:**

```
Switch(time)# clock-source ntp
Switch(time)# show daylight
Clock Source         : NTP Server
Local Time           : 2011-01-01 07:19:44 (YYYY-MM-DD HH:MM:SS)
Time Zone Offset      : 0 (min)
Daylight Savings      : Disabled
```

## daylight: The command lets you indicates the Daylight Savings operation

**Syntax:** **daylight** disable

enable <1-1440> By-dates <YYYY:MM:DD> <HH:MM> <YYYY:MM:DD> <HH:MM>

enable <1-1440> Recurring <DAY> <WORD> <MONTH> <HH:MM> <DAY> <WORD> <MONTH> <HH:MM>

**Parameter :** **disable**: Disable Daylight Savings operation

**enable:** Enable Daylight Savings operation

**<1-1440>:** Minute. Time Set Offset.

**By-dates:** Manually enter day and time that DST starts and ends

**<YYYY:MM:DD>**: Day that DST starts

**<HH:MM>:** Time that DST starts

**<YYYY:MM:DD>:** Day that DST ends

**<HH:MM>:** Time that DST ends

**Recurring:** DST occurs on the same date every year

**<DAY>:** Sun, Mon, Tue, Wed, Thu, Fri, Sat at which DST begins every year

**<WORD>:** first, 2, 3, 4, last at which DST begins every year

**<MONTH>:** Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec at which DST begins every year

**<HH:MM>**: The time at which DST begins every year

**<DAY>:** Sun, Mon, Tue, Wed, Thu, Fri, Sat at which DST ends every year

**<WORD>:** first, 2, 3, 4, last at which DST ends every year

**<MONTH>:** Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec at which DST ends every year

**<HH:MM>**: The time at which DST ends every year

**EXAMPLE:**

```
Switch(time)# daylight enable 1440 by-dates 2012:03:01 10:00 2012:04:01 09:00
Switch(time)# show daylight
Clock Source        : NTP Server
Local Time          : 2011-01-01 07:23:21 (YYYY-MM-DD HH:MM:SS)
Time Zone Offset     : 0 (min)
Daylight Savings     : Enabled
Time Set Offset      : 1440 (min)
Daylight Savings Type : By dates
From                : 2012-03-01 10:00 (YYYY-MM-DD HH:MM)
To                  : 2012-04-01 09:00 (YYYY-MM-DD HH:MM)


Switch(time)# daylight enable 1000 recurring wed 2 jan 11:00 sun 3 may 12:00
Switch(time)# show daylight
Clock Source        : NTP Server
Local Time          : 2011-01-01 07:28:43 (YYYY-MM-DD HH:MM:SS)
Time Zone Offset     : 0 (min)
Daylight Savings     : Enabled
Time Set Offset      : 1000 (min)
Daylight Savings Type : Recurring
From                : Day:Wed Week:2    Month:Jan Time:11:00
To                  : Day:Sun Week:3    Month:May Time:12:00
```

## delete: The command lets you delete NTP server

**Syntax:** **delete** <1-5>

**Parameter :** **<1-5>:** NTP server index

**EXAMPLE:**

```
Switch(time)# delete 1
```

## manual: The command lets you configure system time manually

**Syntax:** **manual** <YYYY:MM:DD> <HH:MM:SS>

**Parameter :** **<YYYY:MM:DD>**: Date of system, example: 2011:06:25

**<HH:MM:SS>**: Time, example: 23:10:55

**EXAMPLE:**

```
Switch(time)# manual 2011:12:12 10:00:00
Switch(time)# show daylight
Clock Source        : Local Settings
Local Time          : 2011-12-12 10:00:07 (YYYY-MM-DD HH:MM:SS)
Time Zone Offset     : 0 (min)
Daylight Savings     : Enabled
Time Set Offset      : 1000 (min)
Daylight Savings Type : Recurring
From                : Day:Wed Week:2    Month:Jan Time:11:00
To                  : Day:Sun Week:3    Month:May Time:12:00
```

## ntp: The command lets you configure NTP server

**Syntax:** **ntp** <1-5> <ipv6-address>/<ip-hostname>

**Parameter :** **<1-5>:** NTP server index

**<ipv6-address>:** NTP server IPv6 address

IPv6 address is in 128-bit records represented as eight fields of up to four hexadecimal digits with a colon separates each field (:). For example, 'fe80::215:c5ff:fe03:4dc7'. The symbol '::' is a special syntax that can be used as a shorthand way of representing multiple 16-bit groups of contiguous zeros; but it can only appear once. It also used a following legally IPv4 address. For example, '::192.1.2.34'

**<ip-hostname>:** NTP server IP address or hostname

**EXAMPLE:**

```
Switch(time)# ntp 1 64.90.182.55
Switch(time)# show ntp
Index   Server IP host address or a host name string
-----   ------------------------------------------------
1       64.90.182.55
```

## show: The command lets you show time information

**Syntax:** **show** daylight/ ntp

**Parameter :** **daylight**: Show time information

**ntp:** Show NTP information

**EXAMPLE:**

```
Switch(time)# show daylight
Clock Source         : Local Settings
Local Time           : 2011-01-01 07:17:29 (YYYY-MM-DD HH:MM:SS)
Time Zone Offset     : 0 (min)
Daylight Savings     : Disabled


Switch(time)# show ntp
Index   Server IP host address or a host name string
-----   ------------------------------------------------
1
2
3
4
5
```

## time-zone: The command lets you configure system time zone

**Syntax:** **time-zone** <HH:MM>

**Parameter :** **<HH:MM>:** The time difference between GMT and local time, the

possible value is from GMT-12:00 to GMT+12:00

**EXAMPLE:**

```
Switch(time)# time-zone 01:00
Switch(time)# show daylight
Clock Source         : NTP Server
Local Time           : 2011-12-12 11:14:24 (YYYY-MM-DD HH:MM:SS)
Time Zone Offset     : 60 (min)
Daylight Savings     : Enabled
Time Set Offset      : 1000 (min)
Daylight Savings Type : Recurring
From                 : Day:Wed Week:2    Month:Jan Time:11:00
To                   : Day:Sun Week:3    Month:May Time:12:00
```

# Chapter 48 UPnP Commands of CLI

**UPnP**

UPnP is an acronym for Universal Plug and Play. The goals of UPnP are to allow devices to connect seamlessly and to simplify the implementation of networks in the home (data sharing, communications, and entertainment) and in corporate environments for simplified installation of computer components.

**Table 47: UPnP Commands**

| Command | Function |
|---|---|
| duration | Configure the advertising duration |
| mode | Configure UPnP mode |
| show | Show UPnP configuration |
| ttl | Configure the TTL value of the IP header in SSDP message |

## duration:

The command lets you Configure the advertising duration

**Syntax:** **duration** <100-86400>

**Parameter :** **<100-86400>:** UPnP duration range

**EXAMPLE:**

```
Switch(upnp)# duration 86400
Switch(upnp)# show
UPnP Mode              : Disabled
UPnP TTL               : 4
UPnP Advertising Duration : 86400
```

## mode:

The command lets you Configure UPnP mode

**Syntax:** **mode** disable/ enable

**Parameter :** **disable:** Disable UPnP

**enable:** Enable UPnP

**EXAMPLE:**

```
Switch(upnp)# mode enable
Switch(upnp)# show
UPnP Mode              : Enabled
UPnP TTL               : 4
UPnP Advertising Duration : 86400
```

**show:** The command lets you Show UPnP configuration

**Syntax:** **show** <cr>

**Parameter :** **<cr>** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(upnp)# show
UPnP Mode              : Enabled
UPnP TTL               : 4
UPnP Advertising Duration : 86400
```

**ttl:** The command lets you Configure the TTL value of the IP header in SSDP message

**Syntax:** **ttl** <1-255>

**Parameter :** **<1-255>:** UPnP TTL value

**EXAMPLE:**

```
Switch(upnp)# ttl 255
Switch(upnp)# show
UPnP Mode              : Enabled
UPnP TTL               : 255
UPnP Advertising Duration : 86400
```

# Chapter 49 VCL Commands of CLI

**VCL**

VLAN Control List indicates two types of VLAN, which are MAC address-based VLAN and Protocol -based VLAN.
MAC address-based VLAN decides the VLAN for forwarding an untagged frame based on the source MAC address of the frame.
MAC-based VLANs group VLAN members by MAC address. With MAC-based VLAN configured, the device adds a VLAN tag to an untagged frame according to its source MAC address. MAC-based VLANs are mostly used in conjunction with security technologies such as 802.1X to provide secure, flexible network access for terminal devices.
Protocol -based VLAN supports Protocol including Ethernet LLC and SNAP Protocol.

**Table 48: vcl Commands**

| Command | Function |
|---|---|
| delete | Delete command |
| mac-vlan | Configure MAC-based VLAN membership |
| protocol-vlan | Configure protocol-based VLAN |
| show | Show VCL status command |

## delete: The command lets you Delete command

**Syntax:** **delete** mac-vlan <mac-address>

**delete** protocol-vlan protocol Ethernet <0x0600-0xffff>

llc <0x00-0xff> <0x00-0xff>

snap <oui-address> <0x0000-0xffff>

**delete** protocol-vlan vlan <WORD>

**Parameter :** **mac-vlan**: Delete MAC-based VLAN entry

**<mac-address>**: MAC address, format 0a-1b-2c-3d-4e-5f

**protocol-vlan**: Delete protocol-based VLAN entry

**protocol**: Delete protocol-based VLAN ethertype protocol to group mapping

**Ethernet:** Delete protocol-based VLAN Ethernet-II protocol to group mapping

**<0x0600-0xffff>:** Ether type

**llc:** Delete protocol-based VLAN LLC protocol to group mapping

**<0x00-0xff>**: DSAP value

**<0x00-0xff>**: SSAP value

**snap:** Delete protocol-based VLAN SNAP protocol to group mapping

**<oui-address>**: OUI address, format : 00-40-c7

**<0x0000-0xffff>**: Protocol ID is the Ethernet type field value for the protocol running on top of SNAP

**vlan:** Delete protocol-based VLAN group to VLAN mapping

**<WORD>:** Up to 16 characters to describe protocol-based VLAN group name

**EXAMPLE:**

```
Switch(vcl)# delete mac-vlan 00-00-00-00-00-11

Switch(vcl)# delete protocol-vlan vlan david
```

**NOTE:** You need to set MAC VLAN or Protocol VLAN first, then you could delete and clear the configuration.

## mac-vlan:

The command lets you Configure MAC-based VLAN membership

**Syntax:** **mac-vlan** <mac-address> <1-4094> <port-list>

**Parameter :** **<mac-address>:** MAC address, format 0a-1b-2c-3d-4e-5f

**<1-4094>:** VLAN ID, available value is from 1 to 4094

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**EXAMPLE:**

```
Switch(vcl)# mac-vlan 0a-1b-2c-3d-4e-5f 4094 2
Switch(vcl)# show mac-config
MAC Address       VID   Ports
----------------  ----  -----
0a-1b-2c-3d-4e-5f  4094  2
```

## protocol-vlan:

The command lets you Configure protocol-based VLAN

**Syntax:** **protocol-vlan** <port-list> disable/ enable

**Parameter :** **protocol**: protocol-based VLAN ethertype protocol to group mapping

**Ethernet:** protocol-based VLAN Ethernet-II protocol to group mapping

**<0x0600-0xffff>:** Ether type

**llc:** protocol-based VLAN LLC protocol to group mapping

**<0x00-0xff>**: DSAP value

**<0x00-0xff>**: SSAP value

**snap:** protocol-based VLAN SNAP protocol to group mapping

**<oui-address>**: OUI address, format : 00-40-c7

**<0x0000-0xffff>**: Protocol ID is the Ethernet type field value for the protocol running on top of SNAP

**vlan:** protocol-based VLAN group to VLAN mapping

**<WORD>:** Up to 16 characters to describe protocol-based VLAN group name

**EXAMPLE:**

```
Switch(vcl)# protocol-vlan protocol Ethernet 0XFFFF david
Switch(vcl)# show protocol-vlan
Protocol Type  Protocol (Value)        Group Name
-------------  ----------------------  ---------------
Ethernet      ETYPE:0xffff            david


Switch(vcl)# protocol-vlan protocol snap 00-10-cc 0xeeee kevin
Switch(vcl)# show protocol-vlan
Protocol Type  Protocol (Value)        Group Name
-------------  ----------------------  ---------------
SNAP          OUI-00:10:cc; PID:0xeeee  kevin
Ethernet      ETYPE:0xffff            david


Switch(vcl)# protocol-vlan vlan jack 3000 1
Switch(vcl)# show protocol-vlan
Protocol Type  Protocol (Value)        Group Name
-------------  ----------------------  ---------------
SNAP          OUI-00:10:cc; PID:0xeeee  kevin
Ethernet      ETYPE:0xffff            david

Group Name       VID   Ports
---------------  ----  -----
jack            3000  1
```

**show:** The command lets you Show VCL status command

**Syntax:** **show** mac-config

mac-status combined/ nas/ static

protocol-vlan

**Parameter :** **mac-config:** Show MAC-based VLAN entry

**mac-status:** Show MAC-based VLAN status

**combined:** Show all the combined VCL MAC-based VLAN database

**nas:** Show the VCL MAC-based VLAN configured by NAS

**static:** Show the VCL MAC-based VLAN entries configured by the administrator

**protocol-vlan:** Show protocol-based VLAN configuration

**EXAMPLE:**

```
Switch(vcl)# show mac-config
MAC Address       VID   Ports
----------------  ----  -----
00-00-00-00-00-00  3    5,6
00-00-00-00-00-11  1    1,2
00-00-00-00-00-22  2    3,4
00-00-00-00-00-33  1    2,3


Switch(vcl)# show mac-status combined
MAC Address       VID   Ports
----------------  ----  ----------------------
0a-1b-2c-3d-4e-5f  4094  2


Switch(vcl)# show protocol-vlan
Protocol Type  Protocol (Value)        Group Name
-------------  ----------------------  ---------------
SNAP          OUI-00:10:cc; PID:0xeeee  kevin
Ethernet       ETYPE:0xffff            david

Group Name       VID   Ports
---------------  ----  -----
jack            3000  1
```

# Chapter 50 VLAN Commands of CLI

**VLAN**

To assign a specific VLAN for management purpose. The management VLAN is used to establish an IP connection to the switch from a workstation connected to a port in the VLAN. This connection supports a VSM, SNMP, and Telnet session. By default, the active management VLAN is VLAN 1. Only one management VLAN can be active at a time.

**Table 49: VLAN Commands**

| Command | Function |
|---|---|
| delete | Delete VLAN group |
| egress-rule | Configure egress-rule of switch ports |
| forbidden | Configure forbidden VLAN group |
| frame-type | Configure frame type of switch ports |
| ingress-filtering | Configure ingress filtering of switch ports |
| port-type | Configure port type of switch ports |
| pvid | Configure port VLAN ID |
| show | Show VLAN information |
| tag-group | Configure tag-based VLAN group |
| tpid | Configure the TPID used for Custom S-ports. This is a global setting for all the Custom S-ports |

## delete: The command lets you Delete VLAN group

**Syntax:** **delete** forbidden/ group <1-4094>

**Parameter :** **forbidden:** Delete VLAN forbidden group

**group**: Delete tag-based VLAN group

**<1-4094>**: VLAN ID, available value is from 1 to 4094

**EXAMPLE:**

```
Switch(vlan)# delete forbidden 1
Switch(vlan)# delete group 1
```

## egress-rule: The command lets you Configure egress-rule of switch ports

**Syntax:** **egress-rule** <port-list> access/ hybrid/ trunk

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**access**: Untag all frames

**hybrid**: Tag all frames except VLAN ID same as PVID

**trunk**: Tag all frames

**EXAMPLE:**

```
Switch(vlan)# egress-rule 1 access
Switch(vlan)# egress-rule 2 hybrid
Switch(vlan)# egress-rule 3 trunk
Switch(vlan)# show port-config
TPID for Custom S-port : 0x88a8

Port  PVID  Frame Type  Ingress Filter  Egress Rule  Port Type
----  ----  ----------  --------------  -----------  -------------
1     1     All         Disabled        Access       UnAware
2     1     All         Disabled        Hybrid       UnAware
3     1     All         Disabled        Trunk        UnAware
```

## forbidden:

The command lets you Configure forbidden VLAN group

**Syntax:** **forbidden** <1-4094> <WORD> <port-list>

**Parameter :** **<1-4094>:** VLAN ID, available value is from 1 to 4094

**<WORD>:** Up to 33 characters describing VLAN name

**<port-list>:** available value is from switch physic port density, format: 1,3-5

**EXAMPLE:**

```
Switch(vlan)# forbidden 1 david 2-5
Switch(vlan)# show forbidden
VID   VLAN Name                       Ports
----  ------------------------------  ----------------
1     david                           2-5
```

## frame-type:

The command lets you Configure frame type of switch ports

**Syntax:** **frame-type** <port-list> all/ tagged/ untagged

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**all**: Accept all frames

**tagged**: Accept tagged frames only

**untagged**: Accept untagged frames only

**EXAMPLE:**

```
Switch(vlan)# frame-type 1 tagged
Switch(vlan)# frame-type 2 untagged
Switch(vlan)# show port-config
TPID for Custom S-port : 0x88a8

Port  PVID  Frame Type  Ingress Filter  Egress Rule  Port Type
----  ----  ----------  --------------  -----------  ------------
1     1     Tagged      Disabled        Access       UnAware
2     1     Untagged    Disabled        Hybrid       UnAware
3     1     All         Disabled        Trunk        UnAware
```

## ingress-filtering:

The command lets you Configure ingress filtering of switch ports

**Syntax:** **ingress-filtering** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** Disable ingress filtering

**enable:** Enable ingress filtering. If ingress port is not a member of the classified VLAN of the frame, the frame is discarded

**EXAMPLE:**

```
Switch(vlan)# ingress-filtering 1 enable
Switch(vlan)# show port-config
TPID for Custom S-port : 0x88a8

Port  PVID  Frame Type  Ingress Filter  Egress Rule  Port Type
----  ----  ----------  --------------  -----------  ------------
1     1     Tagged      Enabled         Access       UnAware
2     1     Untagged    Disabled        Hybrid       UnAware
3     1     All         Disabled        Trunk        UnAware
```

## port-type:

The command lets you Configure port type of switch ports

**Syntax:** **port-type** <port-list> c-port/ s-custom-port/ s-port/ unaware

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**c-port:** Customer port

**s-custom-port:** Custom Service port

**s-port:** Service port

**unaware:** VLAN unaware port

**EXAMPLE:**

```
Switch(vlan)# port-type 2 c-port
Switch(vlan)# port-type 3 s-port
Switch(vlan)# port-type 4 s-custom-port
Switch(vlan)# show port-config
TPID for Custom S-port : 0x88a8

Port  PVID  Frame Type  Ingress Filter  Egress Rule  Port Type
----  ----  ----------  --------------  -----------  ------------
1     1     Tagged      Enabled         Access       UnAware
2     1     Untagged    Disabled        Hybrid       C-Port
3     1     All         Disabled        Trunk        S-Port
4     1     All         Disabled        Hybrid       S-Custom-Port
```

## pvid: The command lets you Configure port VLAN ID

**Syntax:** **pvid** <port-list> <1-4094>

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**<1-4094>:** VLAN ID, available value is from 1 to 4094

**EXAMPLE:**

```
Switch(vlan)# pvid 1 4000
Switch(vlan)# show port-config
TPID for Custom S-port : 0x88a8

Port  PVID  Frame Type  Ingress Filter  Egress Rule  Port Type
----  ----  ----------  --------------  -----------  ------------
1     4000  All         Disabled        Hybrid       UnAware
2     1     All         Disabled        Hybrid       UnAware
3     1     All         Disabled        Hybrid       UnAware
```

## show: The command lets you Show VLAN information

**Syntax:** **show** forbidden/ port-config

**show** port-status combined/ gvrp/ … / voice

**show** vlan combined/ gvrp/ … / voice

**Parameter :** **forbidden**: Show VLAN forbidden group

**port-config:** Show VLAN port configuration

**port-status**: Show VLAN port status

**combined**: VLAN port status for combined VLAN Users

**gvrp**: VLAN port status for GVRP

**mstp**: VLAN port status for MSTP

**mvr**: VLAN port status for MVR

**nas**: VLAN port status for NAS

**static**: Static VLAN port status

**voice**: VLAN port status for Voice VLAN

**vlan**: Show VLAN group

**combined**: Show all the combined VLAN database

**gvrp**: Show the VLANs configured by GVRP

**mstp**: Show the VLANs configured by MSTP

**mvr**: Show the VLANs configured by MVR

**nas:** Show the VLANs configured by NAS

**static**: Show the VLAN entries configured by the administrator

**vcl**: Show the VLANs configured by VCL

**voice**: Show the VLANs configured by Voice VLAN

**EXAMPLE:**

```
Switch(vlan)# show port-config
TPID for Custom S-port : 0x88a8

Port  PVID  Frame Type  Ingress Filter  Egress Rule  Port Type
----  ----  ----------  --------------  -----------  -------------
1     1     All         Disabled        Hybrid       UnAware
2     1     All         Disabled        Hybrid       UnAware
3     1     All         Disabled        Hybrid       UnAware


Switch(vlan)# show port-status combined
Port  PVID  Frame Type  Ingress Filter Tx Tag      UVID  Port Type    Conflict
----  ----  ----------  -------------- -----------  ----  -------------
--------
1     1     All         Disabled       Untag This   1     UnAware      No
2     1     All         Disabled       Untag This   1     UnAware      No
3     1     All         Disabled       Untag This   1     UnAware      No


Switch(vlan)# show vlan combined
VID   VLAN Name                        User        Ports
----  --------------------------------  ----------  -----------------
1     default                         Combined    1-26
```

**tag-group:** The command lets you Configure tag-based VLAN group

**Syntax:** **tag-group** <1-4094> <WORD> <port-list>

**Parameter :** **<1-4094>:** VLAN ID, available value is from 1 to 4094

**<WORD>**: Up to 33 characters describing VLAN name

**<port-list>:** available value is from switch physic port density, format:

1,3-5

**EXAMPLE:**

```
Switch(vlan)# tag-group 3000 david 2
Switch(vlan)# show vlan
VID   VLAN Name                       User       Ports
----  -------------------------------  ----------  -----------------
1    default                         Static     1-26
3000  david                           Static     2
```

**tpid:** The command lets you Configure the TPID used for Custom S-ports. This is a global setting for all the Custom S-ports

**Syntax:** **tpid**

**Parameter :** **<0x0600-0xffff>:** Configure TPID value, available value is from 0x600 to 0xffff

**EXAMPLE:**

```
Switch(vlan)# tpid 0xffff
Switch(vlan)# show port-config
TPID for Custom S-port : 0xffff

Port  PVID  Frame Type  Ingress Filter  Egress Rule  Port Type
----  ----  ----------  --------------  -----------  -------------
1     1     All         Disabled        Hybrid       UnAware
2     1     All         Disabled        Hybrid       UnAware
3     1     All         Disabled        Hybrid       UnAware
```

# Chapter 51 Voice VLAN Commands of CLI

## Voice VLAN

Voice VLAN is VLAN configured specially for voice traffic. By adding the ports with voice devices attached to voice VLAN, we can perform QoS-related configuration for voice data, ensuring the transmission priority of voice traffic and voice quality.

The Voice VLAN feature enables voice traffic forwarding on the Voice VLAN, then the switch can classify and schedule network traffic. It is recommended that there be two VLANs on a port - one for voice, one for data. Before connecting the IP device to the switch, the IP phone should configure the voice VLAN ID correctly.

**Table 50: Voice VLAN Commands**

| Command | Function |
|---|---|
| config | Configure Voice VLAN |
| delete | Delete commands |
| discovery | Configure Voice VLAN discovery protocol |
| oui | Create Voice VLAN OUI entry. Modify OUI table will restart auto detect OUI process |
| port-mode | Configure Voice VLAN port mode |
| security | Configure Voice VLAN port security mode |
| show | Show Voice VLAN information |

### config: The command lets you Configure Voice VLAN

**Syntax:** **config** disable

**config** enable <1-4094> <10-1000000> <0-7>

**Parameter :** **disable:** Disable Voice VLAN mode operation

**enable:** Enable Voice VLAN mode operation

**<1-4094>:** VLAN ID, available value is from 1 to 4094

**<10-1000000>:** Voice VLAN secure aging time, available value is from 10 to 1000000

**<0-7>:** Voice VLAN traffic class, all traffic on the Voice VLAN will apply this class, available value is from 0(Low) to 7(High)

**EXAMPLE:**

```
Switch(voice-vlan)# config enable 2 8888 7
Switch(voice-vlan)# show config
Voice VLAN Mode             : Enabled
Voice VLAN VLAN ID          : 2
Voice VLAN Age Time(seconds)  : 8888
Voice VLAN Traffic Class     : 7

Port  Mode     Security  Discovery Protocol
----  --------  --------  ------------------
1    Disabled  Disabled  OUI
2    Disabled  Disabled  OUI
3    Disabled  Disabled  OUI
```

## delete: The command lets you to Delete command

**Syntax:** **delete** oui <oui-address>

**Parameter :** **oui:** Delete Voice VLAN OUI entry. Modify OUI table will restart auto detect OUI process

**<oui-address>:** OUI address, format : 0a-1b-2c

**EXAMPLE:**

```
Switch(voice-vlan)# delete oui 0a-1b-2c
```

## discovery: The command lets you Configure Voice VLAN discovery protocol

**Syntax:** **discovery** <port-list> both/ lldp/ oui

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**both:** Both OUI and LLDP

**lldp:** Detect telephony device by LLDP

**oui:** Detect telephony device by OUI address

**EXAMPLE:**

```
Switch(voice-vlan)# discovery 2 both
Switch(voice-vlan)# discovery 3 lldp
Switch(voice-vlan)# show config
Voice VLAN Mode             : Enabled
Voice VLAN VLAN ID          : 2
Voice VLAN Age Time(seconds)  : 8888
Voice VLAN Traffic Class     : 7

Port  Mode     Security  Discovery Protocol
----  -------- --------  ------------------
1    Disabled  Disabled  OUI
2    Disabled  Disabled  Both
3    Disabled  Disabled  LLDP
```

## oui:

The command lets you Create Voice VLAN OUI entry. Modify OUI table will restart auto detect OUI process

**Syntax:** **oui** <oui-address> <LINE>

**Parameter :** **<oui-address>:** OUI address, format : 0a-1b-2c

**<LINE>:** Up to 32 characters describing OUI address

**EXAMPLE:**

```
Switch(voice-vlan)# oui 0a-1b-2c david
Switch(voice-vlan)# show oui
No  Telephony OUI  Description
--  -------------  ---------------
1   00-01-E3      Siemens AG phones
2   00-03-6B      Cisco phones
3   00-0F-E2      H3C phones
4   00-60-B9      Philips and NEC AG phones
5   00-D0-1E      Pingtel phones
6   00-E0-75      Polycom phones
7   00-E0-BB      3Com phones
8   0A-1B-2C      david
```

## port-mode:

The command lets you Configure Voice VLAN port mode

**Syntax:** **port-mode** <port-list> auto/ disable/ force

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**auto**: Enable auto detect mode. It detects whether there is VoIP phone attached on the specific port and configure the Voice VLAN members automatically

**disable**: Disjoin from Voice VLAN

**force**: Forced join to Voice VLAN

**EXAMPLE:**

```
Switch(voice-vlan)# port-mode 1 auto
Switch(voice-vlan)# port-mode 2 force
Switch(voice-vlan)# show config
Voice VLAN Mode             : Enabled
Voice VLAN VLAN ID          : 2
Voice VLAN Age Time(seconds)  : 8888
Voice VLAN Traffic Class     : 7

Port  Mode     Security  Discovery Protocol
----  --------  --------  ------------------
1    Auto     Disabled  OUI
2    Forced   Disabled  OUI
3    Disabled  Disabled  OUI
```

## security:

The command lets you Configure Voice VLAN port security mode

**Syntax:** **security** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** Disjoin from Voice VLAN

**enable:** Enable Voice VLAN security mode. When the function is enabled, all non-telephone MAC address in Voice VLAN will be blocked 10 seconds

**EXAMPLE:**

```
Switch(voice-vlan)# security 1 enable
Switch(voice-vlan)# show config
Voice VLAN Mode             : Enabled
Voice VLAN VLAN ID          : 2
Voice VLAN Age Time(seconds)  : 8888
Voice VLAN Traffic Class     : 7

Port  Mode     Security  Discovery Protocol
----  --------  --------  ------------------
1    Disabled   Enabled   OUI
2    Disabled   Disabled  OUI
3    Disabled   Disabled  OUI
```

## show:

The command lets you Show Voice VLAN information

**Syntax:** **show** config/ oui

**Parameter :** **config:** Show Voice VLAN configuration

**oui:** Show OUI address

**EXAMPLE:**

```
Switch(voice-vlan)# show config
Voice VLAN Mode             : Disabled
Voice VLAN VLAN ID          : 1000
Voice VLAN Age Time(seconds)  : 86400
Voice VLAN Traffic Class     : 7

Port  Mode     Security  Discovery Protocol
----  --------  --------  ------------------
1    Disabled  Disabled  OUI
2    Disabled  Disabled  OUI
3    Disabled  Disabled  OUI


Switch(voice-vlan)# show oui
No  Telephony OUI  Description
--  -------------  ---------------
1   00-01-E3      Siemens AG phones
2   00-03-6B      Cisco phones
3   00-0F-E2      H3C phones
4   00-60-B9      Philips and NEC AG phones
5   00-D0-1E      Pingtel phones
6   00-E0-75      Polycom phones
7   00-E0-BB      3Com phones
```

# Chapter 52 EEE Commands of CLI

**EEE**

The section which allows the user to inspect and configure the current EEE port settings.

EEE is a power saving option that reduces the power usage when there is very low traffic utilization (or no traffic).

EEE works by powering down circuits when there is no traffic. When a port gets data to be transmitted all circuits are powered up. The time it takes to power up the circuits is named wakeup time. The default wakeup time is 17 us for 1Gbit links and 30 us for other link speeds. EEE devices must agree upon the value of the wakeup time in order to make sure that both the receiving and transmitting device has all circuits powered up when traffic is transmitted. The devices can exchange information about the devices wakeup time using the LLDP protocol.

For maximizing the power saving, the circuit isn't started at once transmit data are ready for a port, but is instead queued until 3000 bytes of data are ready to be transmitted. For not introducing a large delay in case that data less then 3000 bytes shall be transmitted, data are always transmitted after 48 us, giving a maximum latency of 48 us + the wakeup time.

If desired it is possible to minimize the latency for specific frames, by mapping the frames to a specific queue (done with QOS), and then mark the queue as an urgent queue. When an urgent queue gets data to be transmitted, the circuits will be powered up at once and the latency will be reduced to the wakeup time.

**Table 51: EEE Commands**

| Command | Function |
|---|---|
| mode | Configure EEE mode |
| show | Show EEE information |
| urgent-queue | Configure EEE urgent queue |

## mode: The command lets you Configure EEE mode

**Syntax:** **mode** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**disable:** Disable Energy Efficient Ethernet

**enable:** Enable Energy Efficient Ethernet

**EXAMPLE:**

```
Switch(eee)# mode 2 enable
Switch(eee)# show
Port  Mode     Urgent Queues
----  -------- -------------
1     Disabled  none
2     Enabled   none
3     Disabled  none
```

## show: The command lets you Show EEE information

**Syntax:** **show** <cr>

**Parameter :** **<cr>:** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(eee)# show
Port  Mode     Urgent Queues
----  -------- -------------
1     Disabled  none
2     Disabled  none
3     Disabled  none
```

## urgent-queue: The command lets you Configure EEE urgent queue

**Syntax:** **urgent-queue** <port-list> <queue-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**<queue-list>**: Queue list, format : 1,3-5

**disable:** Queue will postpone the transmsion until 3000 bytes are ready to be transmitted

**enable:** Queues set will activate transmition of frames as soon as any data is available

**EXAMPLE:**

```
Switch(eee)# urgent-queue 1 4 enable
Switch(eee)# show
Port  Mode     Urgent Queues
----  -------- -------------
1     Disabled  4
2     Enabled   none
3     Disabled  none
```

# Chapter 53 Global Commands of CLI

## Global

The Global commands is probably the most commonly used in the CLI console. It is used for global configuration at any level of command.

**Table 53: Global Commands**

| Command | Function |
|---|---|
| auto-logout | Configure time of inactivity before automatic logout |
| exit | Exit from current mode |
| help | Show available commands |
| history | Show a list of previously run commands |
| logout | Disconnect |
| quit | Disconnect |
| restore | Restore running configuration |
| save | Save running configuration |

## auto-logout:

The command lets you Configure time of inactivity before automatic logout

**Syntax:** **auto-logout** <10-3600>

**Parameter :** **<10-3600>:** Time in seconds of inactivity before automatic logout

**EXAMPLE:**

```
Switch# auto-logout 3600
```

## exit:

The command lets you Exit from current mode

**Syntax:** **exit**

**Parameter :** **<cr>:** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch(aaa)# exit
Switch#
```

## help: This command lets you Show available commands

**Syntax:** **help**

**Parameter :** **<cr>:** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch# help

Commands available:
  aaa                Authentication, Authorization, Accounting
  access              Access management
  account             User account management
  acl                Access control list
  aggregation          Link Aggregation
  arp-inspection       ARP inspection
  auth               Authentication method
```

## history: This command lets you Show a list of previously run commands

**Syntax:** **history**

**Parameter :** **<cr>:** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch# history

Command history:
  0. help
  1. history
  2. 0
  3. history
  4. 3
  5. history
```

## logout: This command lets you Disconnect

**Syntax:** **logout**

**Parameter :** **<cr>:** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch# logout
Username:
```

## quit: This command lets you Disconnect

**Syntax:** **quit**

**Parameter :** **<cr>:** means it without any parameter needs to type.

**EXAMPLE:**

```
Switch# quit
Username:
```

## restore: This command lets you Restore running configuration

**Syntax:** **restore** default keep-ip/ <cr>

**restore** user

**Parameter :** **default:** Restore configuration as factory default

**user:** Restore configuration as user configuration

**keep-ip:** Restore configuration as factory default unless ip address

**<cr>**

**EXAMPLE:**

```
Switch# restore default keep-ip

Switch# restore user
```

## save: This command lets you Save running configuration

**Syntax:** **save** start/ user

**Parameter :** **start:** Save running configuration as start configuration

**user:** Save running configuration as user configuration

**EXAMPLE:**

```
Switch# save start

Switch# save user
```

# Chapter 54 PoE Commands of CLI

**PoE**

PoE is an acronym for Power Over Ethernet.
Power Over Ethernet is used to transmit electrical power, to remote devices over standard Ethernet cable. It could for example be used for powering IP telephones, wireless LAN access points and other equipment, where it would be difficult or expensive to connect the equipment to main power supply.

**NOTE:** This feature only applies in some models with Power over Ethernet (PoE) feature. The models without PoE are not available to use this command.

**Table 52:PoE Commands**

| Command | Function |
|---|---|
| max-power | Configure PoE maximum power per port |
| mode | Configure PoE mode |
| priority | Configure PoE priority |
| reset-port | Reset PoE port |
| retry-time | Configure the retry time of PoE port |
| show | Show PoE information |

## max-power:

The command lets you Configure PoE maximum power per port

**Syntax:** **max-power** <port-list> <port-power>

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**<port-power>**: The Maximum Power value contains a numerical value that indicates the maximum power in watts that can be delivered to a remote device. The maximum allowed value is 30 W

**EXAMPLE:**

```
Switch(poe)# max-power 1 30
Switch(poe)# max-power 2 28
Switch(poe)# show config
Primary Power Supply [W]    : 250
Retry Time (seconds)        : 60

Port  Mode     Priority  Max. Power [W]
----  -------- --------  --------------
1     Enabled  Low       30.0
2     Enabled  Low       28.0
3     Enabled  Low       15.4
```

## mode: The command lets you Configure PoE mode

**Syntax:** **mode** <port-list> disable/ enable

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5
**disable:** Disable PoE operation

**enable:** Enable PoE operation

**EXAMPLE:**

```
Switch(poe)# mode 1 disable
Switch(poe)# show config
Primary Power Supply [W]    : 250
Retry Time (seconds)        : 60

Port  Mode     Priority  Max. Power [W]
----  -------- --------  --------------
1     Disabled Low       30.0
2     Enabled  Low       28.0
3     Enabled  Low       15.4
```

## priority: The command lets you Configure PoE priority

**Syntax:** **priority** <port-list> critical/ high/ low

**Parameter :** **<port-list>:** available value is from switch physic port density, format: 1,3-5

**critical**: Set priority to critical

**high**: Set priority to high

**low**: Set priority to low

**EXAMPLE:**

```
Switch(poe)# priority 1 critical
Switch(poe)# priority 2 high
Switch(poe)# priority 3 low
Switch(poe)# show config
Primary Power Supply [W]    : 250
Retry Time (seconds)        : 60

Port  Mode     Priority  Max. Power [W]
----  -------- --------  --------------
1     Disabled Critical  30.0
2     Enabled  High      28.0
3     Enabled  Low       15.4
```

## reset-port:

The command lets you Reset PoE port

**Syntax:** **reset-port** <port-list>

**Parameter :** **<port-list>** available value is from switch physic port density, format: 1,3-5

**EXAMPLE:**

```
Switch(poe)# reset-port 1
Switch(poe)# show config
Primary Power Supply [W]    : 250
Retry Time (seconds)        : 60

Port  Mode     Priority  Max. Power [W]
----  -------- --------  --------------
1     Disabled Critical  30.0
2     Enabled  High      28.0
3     Enabled  Low       15.4
```

## retry-time:

The command lets you Configure the retry time of PoE port

**Syntax:** **retry-time** disable <retry-period>

**Parameter :** **disable:** Disable to try to turn on a overloaded PoE port

**<retry-period>:** The period (in seconds) for trying to turn on a overloaded port. Available values are 5,10,20,30,40, 50,60

**EXAMPLE:**

```
Switch(poe)# retry-time 40
Switch(poe)# show config
Primary Power Supply [W]    : 250
Retry Time (seconds)        : 40
```

## show:

The command Show PoE information

**Syntax:** **show** config/ status

**Parameter :** **config:** Show PoE configuration

**status:** Show PoE status

**EXAMPLE:**

```
Switch(poe)# show config
Primary Power Supply [W]    : 250
Retry Time (seconds)        : 60

Port  Mode     Priority  Max. Power [W]
----  -------- --------  --------------
1     Enabled  Low       15.4
2     Enabled  Low       15.4
3     Enabled  Low       15.4


Switch(poe)# show status
      PD    Power     Power     Power    Current
Port  Class Requested Allocated Used     Used     Priority Port Status
----- ----- --------- --------- -------- -------- --------
---------------------
1     0     0.0   [W] 0.0   [W] 0.0  [W] 0   [mA] Low      No PD detected
2     0     0.0   [W] 0.0   [W] 0.0  [W] 0   [mA] Low      No PD detected
3     0     0.0   [W] 0.0   [W] 0.0  [W] 0   [mA] Low      No PD detected
```

10900 Red Circle Drive
Minnetonka, MN 55344
Tel.: +1.952.941.7600
techsupport@transition.com