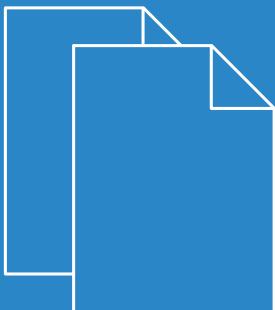


# LCOS SX 3.34

## CLI Reference



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# 1 Operation of CLI Management

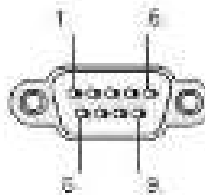
## Initial Configuration

This chapter instructs you how to configure and manage the switch 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

## About Null Console Cable identity



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

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   |

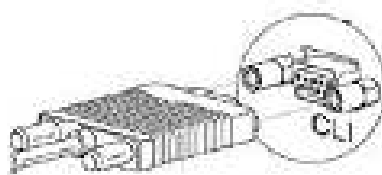


Some models are equipped with a serial RJ45 port instead.

## Connecting to the console port

The 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 (DB-9 DTE)**

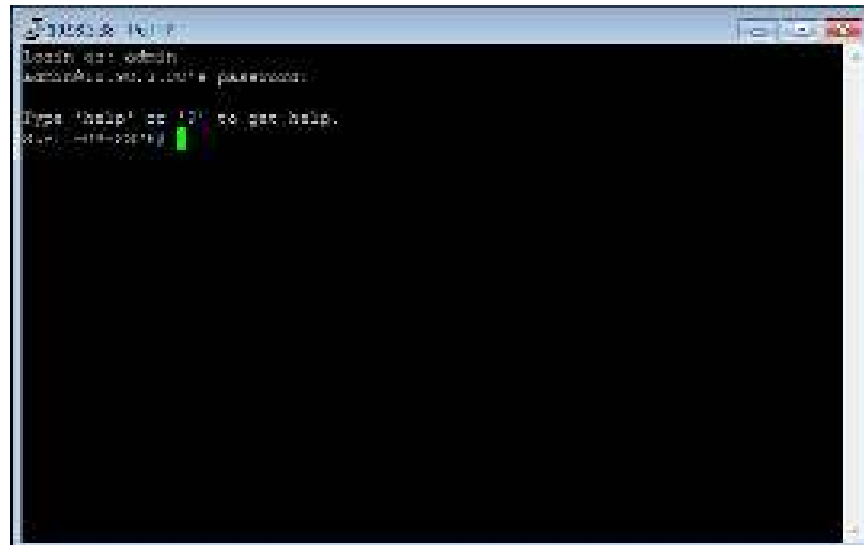


**Figure 3: Console configure**

After the switch has been finished configuration the it interface, you can access It 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.

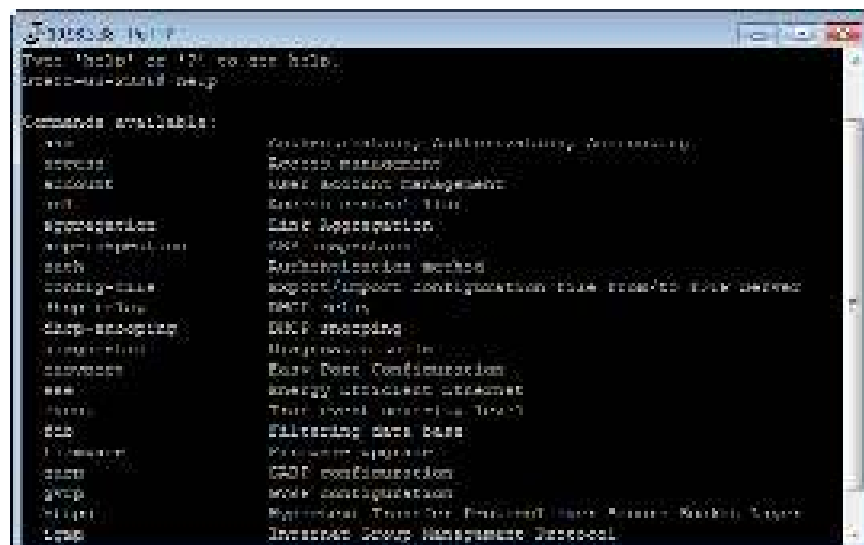
The default username and password is `admin`. For the first time to use, please enter the default username and password, and then click the Enter button. The login process now is completed. In this login menu, you have to input the complete

username and password respectively, the switch will not give you a shortcut to username automatically. This looks inconvenient, but safer.



#### Figure 4: Console configure

 You can type `? or help` to get the switch help includes syntax or all function explaining. The screen shot as below figure displayed.



### Figure 5: Console configure

### Connecting via SSH using PuTTY

The connection to the switch can also be established via SSH connection using tools like PuTTY:

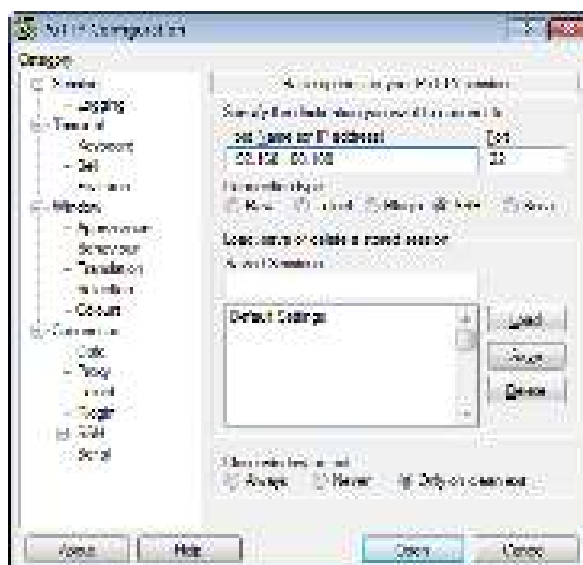


Figure 6: PuTTY configure

### Navigating through CLI structure

After you have established a connection to the CLI, you can navigate through the CLI structure just by entering the name of the required command section. For example, if you want to change AAA parameters, just enter `aaa` at the command line. The prompt will show the current menu in round brackets. Here you can enter the required commands, e.g. `show config`:

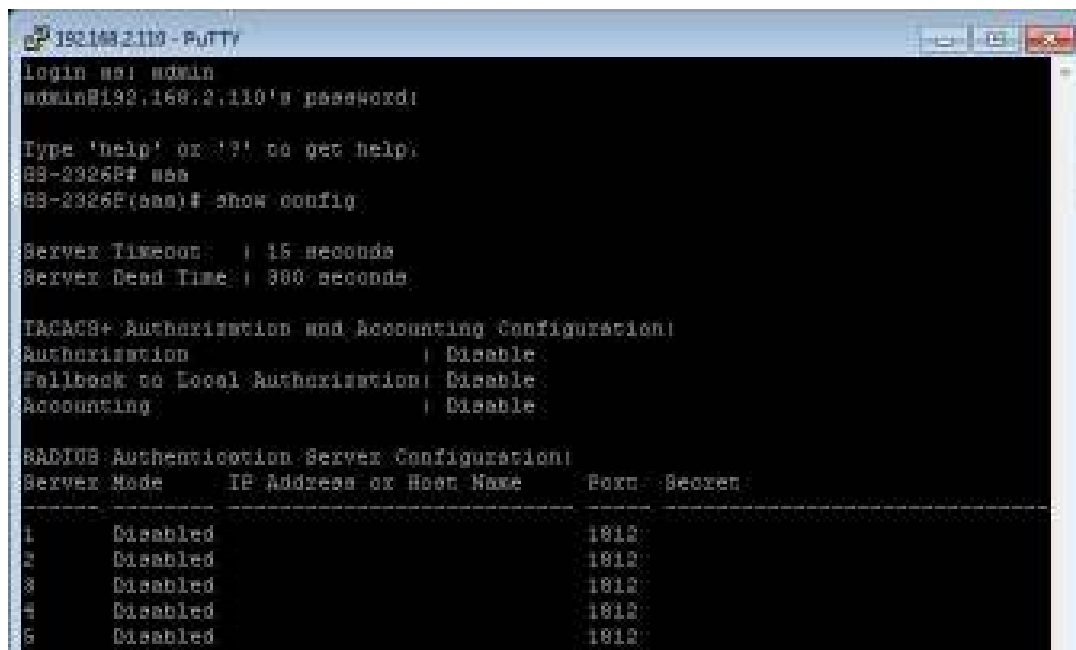


Figure 7: PuTTY configure

## 1 Operation of CLI Management

For some of the commands you will find a 2-level structure of commands, e.g. ACL/ace or QoS/qce. In those cases you will enter the first level command including all required or optional parameters. After the 1st level command has been entered, the prompt will show the menu and the first level command in round brackets. Here you can enter the 2nd level commands including all required parameters. Note that you might want to execute more than one 2nd level commands. After all 2nd level commands have been entered, you will finish this sequence using the `end` command, which will bring you back to the first level menu.

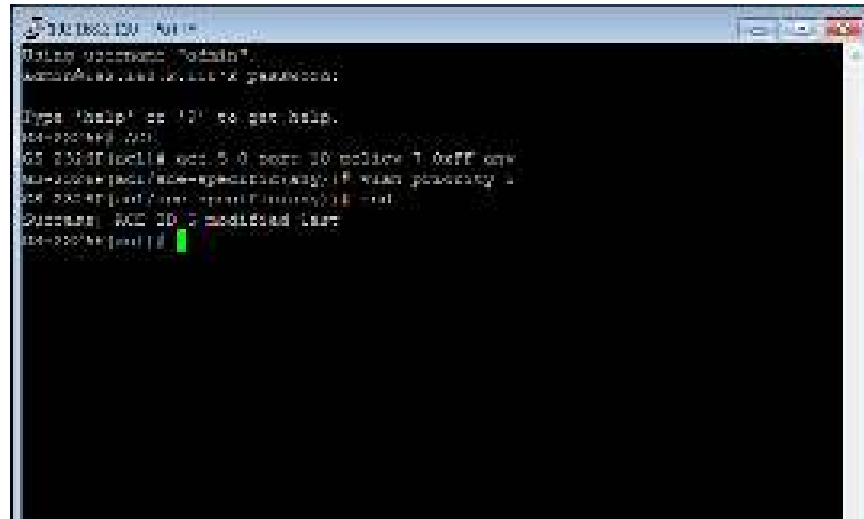


Figure 8: PuTTY configure

## 2 Global Commands

The Global commands is probably the most commonly used in the CLI console. It is used for global configuration at any level of command.

| Command            | Function                                                   |
|--------------------|------------------------------------------------------------|
| 3rd-party-licenses | Shows the license text of used 3rd-party licenses          |
| 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                                                 |
| restore            | Restore running configuration                              |
| save               | Save running configuration                                 |
| startlmc           | Connect this switch with the LANCOM Management Cloud (LMC) |
| trace              | Trace data of some modules                                 |

### 2.1 *3rd-party-licenses*

Using this command shows you the license text of used 3rd-party licenses.

**Syntax:**

```
3rd-party-licenses
```

**Example:**

```
Switch# 3rd-party-licenses
```

### 2.2 *auto-logout*

Using this command you can 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
```

## 2.3 exit

Using this command you can Exit from current mode.

**Syntax:**

```
exit
```

**Example:**

```
Switch(aaa)# exit
Switch#
```

## 2.4 help

This command displays the CLI help. Press the TAB key twice as shortcut for "?" and/or "help".

**Syntax:**

```
help
?
```

**Parameter:****help**

Displays command help (available commands and description).

**?**

Displays parameter help (available commands and description).

**Example:**

```
Switch# help

Commands available:
  aaa             Authentication, Authorization, Accounting
  access          Access management
  account         User account management
  ...             ...
  vlan            VLAN configuration
  voice-vlan      Voice VLAN configuration

Global commands:
  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
  restore         Restore running configuration
  save            Save running configuration

Switch# auto-logout ?
<10-3600>        Time in seconds of inactivity before automatic logout
```

## 2.5 *history*

Using this command you can Show a list of previously run commands.

**Syntax:**

```
history
```

**Example:**

```
Switch# history
Command history:
 0. help
 1. history
 2. 0
 3. history
 4. 3
 5. history
```

## 2.6 *logout*

Using this command you can Disconnect.

**Syntax:**

```
logout
```

**Example:**

```
Switch# logout
Username:
```

## 2.7 *restore*

Using this command you can Restore running configuration.

**Syntax:**

```
restore default [keep-ip]
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.

**Example:**

```
Switch# restore default keep-ip
Switch# restore user
```

## 2.8 *save*

Using this command you can 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
```

## 2.9 *startlmc*

Connect this switch with the LANCOM Management Cloud (LMC). Thw LMC shows a pairing token that you have to use with this command.

**Syntax:**

```
startlmc Pairing Token
```

**Parameter:****Pairing Token**

The pairing token as shown by the LMC.

**Example:**

```
Switch# startlmc
Switch#
```

## 2.10 *trace*

Using this command you can trace data of some modules.

### Syntax:

```
trace #|+|- MODULE
```

### Parameter:

#

Toggles trace function for a module on / off.

+

Activates trace function for a module.

-

Deactivates trace function for a module.

### MODULE

Activate or deactivate trace data for one of the following modules: Device-API, HTTP-Client, LMC-Control-Data, LMC-Control-State, LMC-Monitor-Data, LMC-Monitor-State or LMC-Pairing-State.

### Example:

```
Switch# trace + HTTP
HTTP-Client: ON
Switch#
```

## 3 AAA Commands

This section shows you how 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.

| 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       |

### 3.1 *acc-radius*

Using this command you can configure the RADIUS accounting server parameters.

**Syntax:**

```
acc-radius <index> enable [<ip-hostname>] [<0-65535>] [<Line>]  
acc-radius <index> disable
```

**Parameter:****<index>**

The index of the RADIUS accounting server.

Possible values: 1 to 5.

**enable|disable**

Enables or disables the RADIUS accounting for the given index.

**<ip-hostname>**

The IP address or hostname of the RADIUS accounting server.

**<0-65535>**

The UDP port used for connection to RADIUS accounting server.

Special values: 0 is equivalent to default port (1813).

**<LINE>**

Shared secret for accessing the external server.

Possible values: maximum 29 characters.

**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)#

```

## 3.2 accounting

Using this command you can enable or disable the global RADIUS accounting operation mode.



If no RADIUS accounting server is configured or reachable when enabling the global RADIUS accounting operation mode, the device will show "Server disconnect".

**Syntax:**

```
accounting enable|disable
```

**Parameter:****enable**

Globally enable accounting operation mode.

**disable**

Globally disable accounting operation mode.

**Example:**

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

### 3.3 authorization

Using this command you can enable or disable the TACACS+/RADIUS authorization mode.



Never enable remote authentication if no authentication server is configured or reachable AND *fallback to local authorization* is disabled. If you enable remote authentication with no server available and the fallback setting disabled, the device will decline any further action with the authentication error "Server disconnect!". In this state, remote administration is prohibited and the device can only be re-accessed by performing a hard reset.

**Syntax:**

```
authorization enable|disable
```

**Parameter:****enable**

Globally enable TACACS+/RADIUS authorization operation mode.

**disable**

Globally disable TACACS+/RADIUS authorization operation mode.

**Example:**

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

### 3.4 deadtime

Using this command you can configure the RADIUS server deadtime.

The deadtime is the period during which the switch will not send new requests to a server that has failed to respond to a previous request. This will stop the switch from continually trying to contact a server that it has already determined as dead.

**Syntax:**

```
deadtime <0-3600>
```

**Parameter:****<0-3600>**

Time that a server is considered dead if it doesn't answer a request.

Possible values: 0 to 3600 seconds.

Special values: 0 disables this feature.

**Example:**

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

## 3.5 *fallback-author*

Using this command you can configure the fallback function of RADIUS authorization in case the remote authorization fails.

**Syntax:**

```
fallback-author enable|disable
```

**Parameter:****enable**

Enables fallback function in case remote authorization fails.

**disable**

Disables fallback function.

**Example:**

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

## 3.6 *radius*

Using this command you can configure the RADIUS authentication server parameters.



If no RADIUS authentication server is configured or reachable, the device will show "Server disconnect".

**Syntax:**

```
radius <index> enable [<ip-hostname>] [<0-65535>] [<Line>]
radius <index> disable
```

**Parameter:****<index>**

The index of the RADIUS authentication server.

Possible values: 1 to 5.

**enable|disable**

Enables or disables the RADIUS authentication for the given index.

**<ip-hostname>**

The IP address or hostname of the RADIUS authentication server.

**<0-65535>**

The UDP port used for connection to RADIUS authentication server.

Special values: 0 is equivalent to default port (1813).

**<LINE>**

Shared secret for accessing the external server.

Possible values: maximum 29 characters.

**Example:**

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

## 3.7 show

Using this command you can display the current RADIUS AAA information.

**Syntax:**

```
show config
show statistics <1-5>
```

**Parameter:****config**

Shows AAA configuration.

**statistics**

Shows RADIUS statistics.

**<1-5>**

The index of the RADIUS server you want to show statistics for.

**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)#

```

## 3.8 tacacs+

Using this command you can configure the TACACS+ authentication server parameters.



If no TACACS+ authentication server is configured or reachable, the device will show "Server disconnect".

### Syntax:

```

tacacs+ <index> enable [<ip-hostname>] [<0-65535>] [<Line>]
tacacs+ <index> disable

```

### Parameter:

#### <index>

The index of the TACACS+ authentication server.

Possible values: 1 to 5

#### enable|disable

Enables or disables the TACACS+ authentication for the given index.

#### <ip-hostname>

The IP address or hostname of the TACACS+ authentication server.

**<0-65535>**

The UDP port used for connection to TACACS+ authentication server.

Special values: 0 is equivalent to default port (1813).

**<LINE>**

Shared secret for accessing the external server.

Possible values: maximum 29 characters.

**Example:**

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

## 3.9 *timeout*

Using this command you can configure the server response timeout.

**Syntax:**

```
timeout <3-3600>
```

**Parameter:****<3-3600>**

The Timeout is the maximum time to wait for a reply from a server.

**Example:**

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

## 4 Access Commands

This section shows you how 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.

| 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    |

### 4.1 add

Using this command you can add or modify access management parameters. If the host IP address matches the IP range of an entry and the used protocol matches the permitted protocols of this entry the switch will allow management access.

#### Syntax:

```
add <1-16> ipv4|ipv6 <start-ip> <end-ip> all|snmp|telnet|web
```

#### Parameter:

##### <1-16>

Index of the access management table entry.

##### ipv4

IPv4 format address.

##### ipv6

IPv6 format address.

##### <start-ip>

Indicates the start IP address for the access management entry.

##### <end-ip>

Indicates the end IP address for the access management entry.

##### all

Indicates that the host can access the switch from any interface if the host IP address matches the IP address range provided in the entry.

##### snmp

Indicates that the host can access the switch from SNMP interface if the host IP address matches the IP address range provided in the entry.

##### telnet

Indicates that the host can access the switch from TELNET/SSH interface if the host IP address matches the IP address range provided in the entry.

**web**

Indicates that the host can access the switch from HTTP/HTTPS interface if the host IP address matches the IP address range provided in the entry.

**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)#
```

## 4.2 clear

Using this command you can clear access management statistics.

**Syntax:**

```
clear statistics
```

**Parameter:****statistics**

Clear access management statistics

**Example:**

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

## 4.3 delete

Using this command you can delete an access management entry.

**Syntax:**

```
delete <1-16>
```

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

Index of the entry to be deleted.

**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)#
```

## 4.4 mode

Using this command you can configure the access management mode.

**Syntax:**

```
mode disable|enable
```

**Parameter:****disable**

Disables access management mode.

**enable**

Enables access management mode.

**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)#
```

## 4.5 show

Using this command you can display access configuration and statistics.

**Syntax:**

```
show config|statistics
```

**Parameter:****config**

Shows current access management configuration.

**statistics**

Shows available 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
-----
UDP Port

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
```

## 5 Account Commands

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.

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

### 5.1 add

Using this command you can add or modify user accounts.

#### Syntax:

```
add <1-15> <name> [<password>]
```

#### Parameter:

##### <1-15>

User privilege level, see [Privilege level Commands](#) on page 241.

##### <name>

Up to 32 characters to identify the user name.

If the user name is NOT already existing in the account table, an account will be created with the selected name.

If the user name is already existing in the account table, the selected account will be updated with the given parameters



If you omit the password for an existing account, the password will be removed.

##### <password>

The password for this user name.

#### Example:

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

## 5.2 *delete*

Using this command you can delete a user account.

**Syntax:**

```
delete <name>
```

**Parameter:**

**<name>**

Up to 32 characters to identify the user name

**Example:**

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

## 5.3 *show*

Using this command you can display current user account information.

**Syntax:**

```
show
```

**Example:**

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

## 6 ACL Commands

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.

| 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                       |

### 6.1 ace

Using this command you can add or modify Access Control Entry.

#### Syntax:

```
ace <1-256> <0-256> ((port <port-list> policy <0-255> <0x00-0xFF>) | switch)
(any|arp|etype|icmp|ipv4|tcp|udp)
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

#### Parameter:

##### 1st level

##### <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.

##### port

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

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**policy**

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

**<0-255>**

Policy number.

**<0x00-0xFF>**

Policy number bitmask.

**switch**

Switch ACE keyword, the rule applies to all ports

**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 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# show
ACE ID      : 5                      Rate Limiter : Disabled
Ingress Port : 10                    Port Redirect: Disabled
Mirror      : Disabled
Policy/Bitmask: 7/0xff               Logging      : Disabled
Type        : User                   Shutdown     : Disabled
Frame Type   : Any                   Counter      : 0
Action       : Permit

MAC Parameters                                VLAN Parameters
-----
802.1Q Tagged: Any
VLAN ID      : Any
Tag Priority  : Any

Switch(acl/ace-specific(any))# end
Success! ACE ID 5 added last
```

**6.1.1 action**

Using this command you can configure the forwarding action of the ACE.

**Syntax:**

```
action      deny [port-redirect (<port-list>|disable)] | permit
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****deny**

Deny forwarding.

**permit**

Permit forwarding.

**port-redirect**

Enables redirect function.

**<port-list>**

Port list for redirect of frames.

**disable**

Disables redirect function.

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# action deny port-redirect disable
Switch(acl/ace-specific(any))# end
```

## 6.1.2 arp-opcode

Using this command you can configure the ARP opcode of the ACE.

**Syntax:**

```
arp-opcode  any|arp|other|rarp
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****any**

Don't care

**arp**

Frame must have ARP/RARP opcode set to ARP

**other**

Frame has unknown ARP/RARP opcode

**rarp**

Frame must have ARP/RARP opcode set to RARP

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# arp-opcode arp
Switch(acl/ace-specific(any))# end
```

### 6.1.3 arp-flags

Using this command you can configure the ARP flags of the ACE..

#### Syntax:

```
arp-flags (arp-smac|ethernet|ip|length|rarp-dmac|request-reply) (<0-1>|any)
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

#### Parameter:

##### arp-smac

Specify whether frames can hit the action according to their sender hardware address field (SHA) settings

##### ethernet

Specify whether frames can hit the action according to their ARP/RARP protocol address space (PRO) settings

##### ip

Specify whether frames can hit the action according to their ARP/RARP hardware address space (HRD) settings

##### length

Specify whether frames can hit the action according to their ARP/RARP hardware address length (HLN) and protocol address length (PLN) settings

##### rarp-dmac

Specify whether frames can hit the action according to their target hardware address field (THA) settings

##### request-reply

Specify the available ARP/RARP opcode (OP) flag for this ACE

#### <0-1>

[arp-smac] 0: ARP frames where SHA is not equal to the SMAC address

[arp-smac] 1: ARP frames where SHA is equal to the SMAC address

[ethernet] 0: ARP/RARP frames where the PRO is not equal to IP (0x800)

[ethernet] 1: ARP/RARP frames where the PRO is equal to IP(0x800)

[ip] 0: ARP/RARP frames where the HLD is not equal to Ethernet(1)

[ip] 1: ARP/RARP frames where the HLD is equal to Ethernet(1)

[length] 0: ARP/RARP frames where the HLN is not equal to Ethernet(0x06) or the (PLN) is not equal to IPv4(0x04)

[length] 1: ARP/RARP frames where the HLN is equal to Ethernet (0x06) and the (PLN) is equal to IPv4(0x04)

[rarp-dmac] 0: RARP frames where THA is not equal to the DMAC address

[rarp-dmac] 1: RARP frames where THA is equal to the DMAC address

[request-reply] 0: Frame must have ARP Reply or RARP Reply OP flag

[request-reply] 1: Frame must have ARP Request or RARP Request OP flag set

##### any

Don't care

#### Example:

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# arp-flags ethernet 1
Switch(acl/ace-specific(any))# end
```

## 6.1.4 *dip*

Using this command you can configure the destination IP address of the ACE.

### Syntax:

```
dip any | (<ip-address> [<1-32>])
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

### Parameter:

#### <ip-address>

A frame that hits this ACE matches this destination IP address value

#### <1-32>

Network prefix

#### any

Don't care

### Example:

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# dip any
Switch(acl/ace-specific(any))# end
```

## 6.1.5 *dmac*

Using this command you can configure the destination MAC address of the ACE.

### Syntax:

```
dmac any | broadcast | multicast | unicast
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

### Parameter:

#### any

Don't care

#### broadcast

Frame must be broadcast

#### multicast

Frame must be multicast

#### unicast

Frame must be unicast

### Example:

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# dmac broadcast
Switch(acl/ace-specific(any))# end
```

### 6.1.6 *dport*

Using this command you can configure the destination UDP/TCP port range of the ACE.

**Syntax:**

```
dport <dport-range>|any
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****<dport-range>**

Destination UDP/TCP port range, format: 1,3-5

**any**

Don't care

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# dport 1-5
Switch(acl/ace-specific(any))# end
```

### 6.1.7 *end*

Using this command you can complete the current command sequence.

**Syntax:**

```
end <cr>
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

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

No additional parameters required.

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# end
```

### 6.1.8 *etype*

Using this command you can configure the ethernet type of the ACE.

**Syntax:**

```
etype <0x0600-0xffff>|any
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****<0x0600-0xffff>**

A frame that hits this ACE matches this EtherType value

**any**

Any but excluding 0x0800(IPv4) 0x0806(ARP) and 0x86DD(IPv6)

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# etype any
Switch(acl/ace-specific(any))# end
```

## 6.1.9 *icmp-code*

Using this command you can configure the ICMP code of the ACE.

**Syntax:**

```
icmp-code <0-255>|any
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****<0-255>**

A frame that hits this ACE matches this ICMP code value

**any**

Don't care

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# icmp-code 55
Switch(acl/ace-specific(any))# end
```

## 6.1.10 *icmp-type*

Using this command you can configure the ICMP type of the ACE.

**Syntax:**

```
icmp-type <0-255>|any
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****<0-255>**

A frame that hits this ACE matches this ICMP type value

**any**

Don't care

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# icmp-type 5
Switch(acl/ace-specific(any))# end
```

**6.1.11 ip-flags**

Using this command you can configure the IP flags of the ACE.

**Syntax:**

```
ip-flags (fragment|options|ttl) (<0-1>|any)
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****fragment**

Specify the fragment offset settings for this ACE

**<0-1>**

[fragment] 0: IPv4 frames where the MF bit is unset and the FRAG OFFSET field is equal zero

[fragment] 1: IPv4 frames where the MF bit is set or the FRAG OFFSET field is greater than zero

[options] 0: IPv4 frames where the options flag is unset

[options] 1: IPv4 frames where the options flag is set

[ttl] 0: IPv4 frames with a Time-to-Live field is equal to zero

[ttl] 1: IPv4 frames with a Time-to-Live field greater than zero

**any**

Don't care

**options**

Specify the IP options flag setting for this ACE

**ttl**

Specify the Time-to-Live settings for this ACE

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# ip-flags ttl 0
Switch(acl/ace-specific(any))# end
```

**6.1.12 ip-protocol**

Using this command you can configure the IP protocol of the ACE.

**Syntax:**

```
ip-protocol <0-255>|any
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****<0-255>**

A frame that hits this ACE matches this IP protocol value

**any**

Don't care

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# ip-protocol 77
Switch(acl/ace-specific(any))# end
```

### 6.1.13 logging

Using this command you can configure the logging operation of the ACE.

**Syntax:**

```
logging <port-list> enable|disable
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****disable**

Frames matching the ACE are not logged

**enable**

Frames matching the ACE are stored in the system log

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# logging enable
Switch(acl/ace-specific(any))# end
```

### 6.1.14 mirror

Using this command you can configure the mirror operation of the ACE.

**Syntax:**

```
mirror <port-list> disable|enable
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****disable**

Frames matching the ACE are not mirrored

**enable**

Frames matching the ACE are mirrored

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# mirror disable
Switch(acl/ace-specific(any))# end
```

## 6.1.15 *rate*

Using this command you can configure the rate limit of the ACE.

**Syntax:**

```
rate <1-16>|disable
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:**

**<1-16>**

Rate limiter ID

**disable**

Rate limit is disabled for the ACE

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# rate disable
Switch(acl/ace-specific(any))# end
```

## 6.1.16 *show*

Using this command you can show the current ACE settings.

**Syntax:**

```
show <cr>
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:**

**<cr>**

No parameters required.

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# show
Switch(acl/ace-specific(any))# end
```

## 6.1.17 *shutdown*

Using this command you can configure the port shut down operation for the ACE.

**Syntax:**

```
shutdown      disable|enable
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****disable**

Port shut down is disabled for the ACE

**enable**

If a frame matches the ACE, the ingress port will be disabled

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# shutdown enable
Switch(acl/ace-specific(any))# end
```

## 6.1.18 sip

Using this command you can configure the source IP address of the ACE.

**Syntax:**

```
sip          any|(<ip-address> [<1-32>])
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

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

A frame that hits this ACE matches this destination IP address value

**<1-32>**

Network prefix

**any**

Don't care

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# sip any
Switch(acl/ace-specific(any))# end
```

## 6.1.19 smac

Using this command you can configure the source MAC address for the ACE.

**Syntax:**

```
smac        <mac-address>|any
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****<mac-address>**

A frame that hits this ACE matches this source MAC address value

**any**

Don't care

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# mac-address any
Switch(acl/ace-specific(any))# end
```

**6.1.20 sport**

Using this command you can configure the source UDP/TCP port for the ACE.

**Syntax:**

```
sport <sport-range>|any
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****<sport-range>**

Source UDP/TCP port range

**any**

Don't care

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# sport any
Switch(acl/ace-specific(any))# end
```

**6.1.21 tcp-flags**

Using this command you can configure the TCP flags for the ACE.

**Syntax:**

```
tcp-flags ack|fin|psh|rst|syn|urg (<0-1>|any)
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****ack**

Specify the TCP "Acknowledgment field significant" (ACK) value for this ACE

**fin**

Specify the TCP "No more data from sender" (FIN) value for this ACE

**psh**

Specify the TCP "Push Function" (PSH) value for this ACE

**rst**

Specify the TCP "Reset the connection" (RST) value for this ACE

**syn**

Specify the TCP "Synchronize sequence numbers" (SYN) value for this ACE

**urg**

Specify the TCP "Urgent Pointer field significant" (URG) value for this ACE

**<0-1>**

0: TCP frames where the ack|fin|psh|rst|syn|urg field is unset

1: TCP frames where the ack|fin|psh|rst|syn|urg field is set

**any**

Don't care

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# tcp-flags ack 1
Switch(acl/ace-specific(any))# end
```

## 6.1.22 *vlan*

Using this command you can configure VLAN parameters of the ACE.

**Syntax:**

```
vlan (priority (any|<0-7>)) | (tagged any|disable|enable) | (vid any|<1-4094>)
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****priority****any**

Don't care

**<0-7>**

A frame that hits this ACE matches this tag priority

Specify the tag priority for this ACE

**tagged**

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 ACE

**any**

No VLAN ID filter is specified. (VLAN ID filter status is don't-care.)

**<1-4094>**

A frame that hits this ACE matches this VLAN ID value

**Example:**

```
Switch(acl)# ace 5 0 port 10 policy 7 0xFF any
Switch(acl/ace-specific(any))# vlan priority 5
Switch(acl/ace-specific(any))# end
```

## 6.2 action

Using this command you can configure ACL port default action.

**Syntax:**

```
action <port-list> deny [port-redirect (<port-list>|disable)]
action <port-list> permit
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**deny**

Deny forwarding

**permit**

Permit forwarding

**port-redirect**

port redirect keyword

**<port-list>**

Port list for copy of frames

**disable**

Disables port copy

**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  |          |           |          |          |          |         |

## 6.3 clear

Clear all ACL counters.

### Syntax:

```
clear
```

### Example:

```
Switch(acl)# clear
Switch(acl)#
```

## 6.4 delete

Using this command you can 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
```

## 6.5 logging

Using this command you can configure ACL port default logging operation.

**Syntax:**

```
logging <port-list> enable|disable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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)#
```

## 6.6 mirror

Configure ACL port default mirror operation.

**Syntax:**

```
mirror <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Frames received on the port are not mirrored

**enable**

Frames received on the port are mirrored

**Example:**

```
Switch(acl)# mirror 5 enable
Switch(acl)#
```

## 6.7 move

Using this command you can 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)#
```

## 6.8 *policy*

Using this command you can set acl port policy on switch.

**Syntax:**

```
policy <port-list> <0-255>
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<0-255>**

Policy number

**Example:**

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

## 6.9 *port-rate*

Using this command you can set acl port-rate on switch.

**Syntax:**

```
port-rate <port-list> (<1-16>|disable)
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<1-16>**

Rate limiter ID

**disable**

Disables rate limit

**Example:**

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

## 6.10 *rate-limiter*

Using this command you can set the access control rule with rate limiter on switch.

**Syntax:**

```
rate-limiter <1-16> kbps <0-10000>
rate-limiter <1-16> pps <0-3276700>
```

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

Rate limiter ID

**kbps**

Kbits per second

**<0-10000>**

Rate in 100Kbps (the value 1 correlates to 100 kbps).

**pps**

Packets per second

**<0-3276700>**

Rate in pps (the value 1 corrolates to 1 pps).

**Example:**

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

## 6.11 *show*

Using this command you can show all access control entry setting or information of the switch.

**Syntax:**

```
show acl-config [<1-256>]
show acl-status|port|rate-limiter
```

**Parameter:****acl-config**

Shows ACL configuration

**<1-256>**

Shows detail ACE configuration by ACE ID

**acl-status**

Shows ACL status

**port**

Shows ACL port configuration

**rate-limiter**

Shows 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
```

## 6.12 shutdown

Configure ACL port default shut down operation.

**Syntax:**`shutdown <port-list> disable|enable`**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Port shut down is disabled.

**enable**

If a frame is received on the port, the port will be disabled.

**Example:**

```
Switch(acl)# shutdown 5 disable
Switch(acl)#
```

## 6.13 *state*

Configure ACL port state.

**Syntax:**

```
state <port-list>
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables ACL port state

**enable**

Enables ACL port state

**Example:**

```
Switch(acl)# state 5 enable
Switch(acl)#
```

## 7 Aggregation Commands

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.

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

### 7.1 delete

Using this command you can delete a selected link aggregation group.

**Syntax:**

```
delete group <group-id>
```

**Parameter:****group**

Delete instruction for groups.

**group-id**

Group ID you want to delete.

**Example:**

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

### 7.2 group

Using this command you can define a selected link aggregation group.

**Syntax:**

```
group <1-13> <port-list>
```

**Parameter:****<1-13>**

The Aggregation group id.

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**Example:**

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

## 7.3 mode

Using this command you can enable or disable the link aggregation for different criteria.

enable or disable

**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**

Disables field in traffic distribution

**enable**

Enables field in traffic distribution

**Example:**

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

Group ID  Name  Type  Configured Ports  Aggregated Ports
-----  -
```

```

2          LLAG2   Static  5-7          None
Switch(aggregation)#

```

## 7.4 show

Using this command you can show the current link aggregation configuration.

### Syntax:

```
show
```

### 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)#

```

## 8 Arp-inspection Commands

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

| Command           | Function                                             |
|-------------------|------------------------------------------------------|
| add               | Add ARP inspection static entry                      |
| delete            | Delete ARP inspection static entry                   |
| delete-static     | Delete ARP inspection static gateway entry           |
| dos-icmp          | IP-DoS ICMP mode                                     |
| dos-port1         | IP-DoS server port 1                                 |
| dos-port2         | IP-DoS server port 2                                 |
| dos-port3         | IP-DoS server port 3                                 |
| dos-port4         | IP-DoS server port 4                                 |
| dos-tcp           | IP-DoS TCP mode                                      |
| dos-udp           | IP-DoS UDP mode                                      |
| mode              | Configure ARP inspection mode                        |
| port-mode         | Configure ARP inspection port mode                   |
| reopen            | Reopen blocked ARP entry                             |
| show              | Show ARP inspection information                      |
| spoofing-action   | Spoofing per port action                             |
| spoofing-limit    | Spoofing per port limit per min                      |
| spoofing-mode     | Globally spoofing mode                               |
| spoofing-portmode | Spoofing per port mode                               |
| static-gateway    | Set static gateway entry                             |
| static-mode       | Globally static gateway mode                         |
| translate         | Translate ARP inspection dynamic entries into static |

### 8.1 *add*

Using this command you can add a static entry in ARP inspection table.

#### Syntax:

```
add <port-list> <1-4094> <ip-address> <mac-address>
```

#### Parameter:

##### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<1-4094>**

VLAN ID, possible values 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)#
```

## 8.2 delete

Using this command you can delete a static entry in ARP inspection table.

**Syntax:**

```
delete <port-list> <1-4094> <ip-address> <mac-address>
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<1-4094>**

VLAN ID, possible values 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)# delete 1 5 192.168.1.2 0a-1b-2c-3d-4e-5f
Switch(arp-inspection)#
```

## 8.3 delete-static

Using this command you can delete a static gateway entry in ARP inspection table.

**Syntax:**

```
delete-static <ip-address> <mac-address> <port> both|drop|none|shutdown|trap
```

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

IP address allowed for doing ARP request

**<mac-address>**

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

**<port>**

Port, possible value depending on distinct hardware model.

**<1-4094>**

VLAN ID, possible values from 1 to 4094.

**both**

Send a SNMP trap and shutdown the port.

**drop**

Drop ARP Packet and send a SNMP trap.

**none**

Do nothing.

**shutdown**

Shutdown the port.

**trap**

Send a SNMP trap.

**Example:**

```
Switch(arp-inspection)# delete-static 10.1.1.1 0a-1b-2c-3d-4e-5f 5 both
Switch(arp-inspection)#
```

## 8.4 dos-icmp

Using this command you enable or disable the IP-DoS ICMP mode.

**Syntax:**

```
dos-icmp disable|enable
```

**Parameter:****disable**

Disable IP-DoS ICMP mode.

**enable**

Enable IP-DoS ICMP mode.

**Example:**

```
Switch(arp-inspection)# dos-icmp enable
Switch(arp-inspection)#
```

## 8.5 *dos-port1*

Using this command you set or disable the port for IP-DoS server port 1.

### Syntax:

```
dos-port1 disable|<Port>
```

### Parameter:

#### disable

Disable IP-DoS server port 1.

#### <Port>

Port, possible value depending on distinct hardware model.

### Example:

```
Switch(arp-inspection)# dos-port1 disable  
Switch(arp-inspection)#
```

## 8.6 *dos-port2*

Using this command you set or disable the port for IP-DoS server port 2.

### Syntax:

```
dos-port2 disable|<Port>
```

### Parameter:

#### disable

Disable IP-DoS server port 2.

#### <Port>

Port, possible value depending on distinct hardware model.

### Example:

```
Switch(arp-inspection)# dos-port2 disable  
Switch(arp-inspection)#
```

## 8.7 *dos-port3*

Using this command you set or disable the port for IP-DoS server port 3.

### Syntax:

```
dos-port3 disable|<Port>
```

**Parameter:****disable**

Disable IP-DoS server port 3.

**<Port>**

Port, possible value depending on distinct hardware model.

**Example:**

```
Switch(arp-inspection) # dos-port3 disable
Switch(arp-inspection) #
```

## 8.8 *dos-port4*

Using this command you set or disable the port for IP-DoS server port 4.

**Syntax:**

```
dos-port4 disable|<Port>
```

**Parameter:****disable**

Disable IP-DoS server port 4.

**<Port>**

Port, possible value depending on distinct hardware model.

**Example:**

```
Switch(arp-inspection) # dos-port4 disable
Switch(arp-inspection) #
```

## 8.9 *dos-tcp*

Using this command you enable or disable the IP-DoS TCP mode.

**Syntax:**

```
dos-tcp disable|enable
```

**Parameter:****disable**

Disable IP-DoS TCP mode.

**enable**

Enable IP-DoS TCP mode.

**Example:**

```
Switch(arp-inspection) # dos-tcp enable
Switch(arp-inspection) #
```

## 8.10 *dos-udp*

Using this command you enable or disable the IP-DoS UDP mode.

**Syntax:**

```
dos-udp disable|enable
```

**Parameter:****disable**

Disable IP-DoS UDP mode.

**enable**

Enable IP-DoS UDP mode.

**Example:**

```
Switch(arp-inspection) # dos-udp enable
Switch(arp-inspection) #
```

## 8.11 *mode*

Using this command you can configure the ARP inspection mode.

**Syntax:**

```
mode disable|enable
```

**Parameter:****disable**

Globally disable ARP inspection mode.

**enable**

Globally enable ARP inspection mode.

**Example:**

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

## 8.12 *port-mode*

Using this command you can configure the ARP inspection port mode.

**Syntax:**

```
port-mode <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables ARP inspection port mode

**enable**

Enables ARP inspection port mode

**Example:**

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

## 8.13 *reopen*

Using this command you can reopen either a ARP spoofing blocked port or a ARP static gateway.

**Syntax:**

```
reopen spoofing <port-list> | static-gateway <1-4>
```

**Parameter:****spoofing**

Reopen ARP Spoofing blocked port..

**<port-list>**

Port list, depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**static-gateway <1-4>**

Reopen ARP Static Gateway blocked entry 1 to 4 .

**Example:**

```
Switch(arp-inspection)# reopen spoofing 5
Switch(arp-inspection)#
```

## 8.14 *show*

Using this command you can show the current ARP inspection configuration.

### Syntax:

```
show config|dos-config|spoofing-config|static-config|status
```

### Parameter:

#### **config**

Shows ARP inspection configuration

#### **dos-config**

Show ARP IP-DoS configuration

#### **spoofing-config**

Show ARP spoofing configuration

#### **static-config**

Show ARP static gateway configuration

#### **status**

Shows 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)#
```

## 8.15 *spoofing-action*

Using this command you can define the spoofing action per port.

### Syntax:

```
spoofing-action <port-list> both|drop|none|shutdown|trap
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### both

Send a SNMP trap and shutdown the port.

#### drop

Drop ARP Packet and send a SNMP trap.

#### none

Do nothing.

#### shutdown

Shutdown the port.

#### trap

Send a SNMP trap.

### Example:

```
Switch(arp-inspection) # spoofing-action 1 none  
Switch(arp-inspection) #
```

## 8.16 *spoofing-limit*

Using this command you can define the limit per minute of spoofing per port.

### Syntax:

```
spoofing-limit <port-list> <1-100>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### <1-100>

Range; Default: 1

**Example:**

```
Switch(arp-inspection) # spoofing-limit 5 2
Switch(arp-inspection) #
```

## 8.17 *spoofing-mode*

Using this command you can set the ARP spoofing prevention mode globally for all ports.

**Syntax:**

```
spoofing-mode disable|enable
```

**Parameter:****disable**

Globally disable port ARP spoofing prevention mode.

**enable**

Globally enable port ARP spoofing prevention mode.

**Example:**

```
Switch(arp-inspection) # spoofing-mode enable
Switch(arp-inspection) #
```

## 8.18 *spoofing-portmode*

Using this command you can configure the ARP spoofing mode per port.

**Syntax:**

```
spoofing-portmode <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables ARP spoofing port mode

**enable**

Enables ARP spoofing port mode

**Example:**

```
Switch(arp-inspection) # spoofing-portmode 1 enable
Switch(arp-inspection) #
```

## 8.19 *static-gateway*

Using this command you can set a static gateway entry in ARP inspection table.

### Syntax:

```
static-gateway <ip-address> <mac-address> <port> both|drop|none|shutdown|trap
```

### Parameter:

#### <ip-address>

IP address allowed for doing ARP request

#### <mac-address>

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

#### <port>

Port, possible value depending on distinct hardware model.

#### <1-4094>

VLAN ID, possible values from 1 to 4094.

#### both

Send a SNMP trap and shutdown the port.

#### drop

Drop ARP Packet and send a SNMP trap.

#### none

Do nothing.

#### shutdown

Shutdown the port.

#### trap

Send a SNMP trap.

### Example:

```
Switch(arp-inspection)# static-gateway 10.1.1.1 0a-1b-2c-3d-4e-5f 1 drop
Switch(arp-inspection)#
```

## 8.20 *mode*

Using this command you can configure the static gateway mode.

### Syntax:

```
mode disable|enable
```

**Parameter:****disable**

Globally disable static gateway mode.

**enable**

Globally enable static gateway mode.

**Example:**

```
Switch(arp-inspection)# static-mode enable
Switch(arp-inspection)#
```

## 8.21 *translate*

Using this command you can translate dynamic ARP inspection entries into static entries.

**Syntax:**

```
translate
```

**Example:**

```
Switch(arp-inspection)# translate
ARP Inspection:
    Translate 0 dynamic entries into static entries.
Switch(arp-inspection)#
```

## 9 Auth Method Commands

The section describes how to configure the local authentication method.

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

### 9.1 *fallback*

Using this command you can 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**

Disables local authentication if remote authentication fails

**enable**

Enables local authentication if remote authentication fails

**Example:**

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

### 9.2 *method*

Using this command you can configure the local authentication method.

**Syntax:**

```
method (console|ssh|telnet|web) (local|none|radius|tacacs+)
```

**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)#
```

## 9.3 show

Using this command you can show the current authentication method configuration.

**Syntax:**

```
show
```

**Example:**

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

## 10 Cold-Reboot Commands

This section describes how to restart switch for any maintenance needs.

| Command     | Function               |
|-------------|------------------------|
| cold-reboot | Cold reboot the system |

### 10.1 *cold-reboot*

Using this command you can cold reboot the system.

**Syntax:**

```
cold-reboot
```

**Example:**

```
Switch# cold-reboot
```

## 11 Config-file Commands

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

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

### 11.1 *export*

Using this command you can export the current device configuration to a TFTP server.

**Syntax:**

```
export <ip-address> [<filename>]
```

**Parameter:**

**<ip-address>**

The TFTP server ip address

**<filename>**

Configuration file name.

**Example:**

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

### 11.2 *import*

Using this command you can import a device configuration from a TFTP server.

**Syntax:**

```
import <ip-address> <filename> [check]
```

**Parameter:**

**<ip-address>**

The TFTP server ip address

**<filename>**

Configuration file name.

## 11 Config-file Commands

**check**

Check configuration file only, do not start import.

**Example:**

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

## 12 Debug Commands

Debug utilities.

| Command               | Function                  |
|-----------------------|---------------------------|
| cli-sessions          | Show CLI sessions         |
| erase persistent-logs | Delete boot and event log |
| memory                | Show memory usage         |
| net                   | Show network stack info   |
| show-bootlog          | Show bootlog              |
| show-eventlog         | Show eventlog             |
| state-monitor         | State monitor             |
| threads               | Show internal threads     |
| wake-up               | Wake up thread            |

### 12.1 *cli-sessions*

Using this command you can see the open sessions for the command line interface.

**Syntax:**

```
cli-sessions
```

**Example:**

```
Switch(debug)# cli-sessions
CLI Sessions:

Open CLI Sessions:
0x8074aef0: admin      15 - local
Switch(debug)#
```

### 12.2 *erase persistent-logs*

Using this command you can delete the boot and event log of the switch.

**Syntax:**

```
erase persistent-logs
```

### 12.3 *memory*

Using this command you can see the memory usage of the switch.

**Syntax:***memory***Example:**

```
Switch(debug)# memory
Memory Info:

Heap:
Total:          108875392 Bytes (106323KB)
Free:           104191196 Bytes (101749KB)
Largest Free Block: 102058476 Bytes (99666KB)
Switch(debug)#
```

## 12.4 net

Using this command you can see information about the network stack of the switch.

**Syntax:***net arp|show***Parameter:****arp**

The parameter shows the ARP table.

**show**

The parameter gives a short overview.

**Example:**

```
Switch(debug)# net show
ARP-Table: 1 entries
Switch(debug)#
```

## 12.5 show-bootlog

Using this command you can see the boot log of the switch.

**Syntax:***show-bootlog***Example:**

```
Switch(debug)# show-bootlog
Category | Level | Time | Message
-----
Event/Boot | Info | 2018-07-23 11:00:02 | Switch just made a warm boot. Firmware Version: v3.32.0012
Event/Boot | Info | 2018-07-23 11:03:47 | reboot requested by cli
Switch(debug)#
```

## 12.6 *show-eventlog*

Using this command you can see the event log of the switch.

### Syntax:

```
show-eventlog
```

### Example:

```
Switch(debug)# show-eventlog
Category   | Level   | Time                               | Message
-----
Event/Boot | Info    | 2018-07-23 11:00:02 | Switch just made a warm boot. Firmware Version:
v3.32.0012
Event      | Info    | 2018-07-23 11:00:02 | Configuration changed, but not flashed yet
Event      | Info    | 2018-07-23 11:03:31 | CLI: config save by admin IDs of changed
sections:
Event/Boot | Info    | 2018-07-23 11:03:47 | reboot requested by cli
Switch(debug)#
```

## 12.7 *state-monitor*

Using this command you can see information about the states of all threads.

### Syntax:

```
state-monitor clear|show
```

### Parameter:

#### clear

The parameter clears all thread-states.

#### show

The parameter gives an overview of all thread-states.

### Example:

```
Switch(debug)# state-monitor show
State Monitor:

No module states recorded
Switch(debug)#
```

## 12.8 *threads*

Using this command you can see information about all internal threads.

### Syntax:

```
threads
```

**Example:**

```
Switch(debug)#threads
Threads Info:
ID   State   SetPrio  CurPrio  Name                               Stack Base  Size  Used
--   -
2    Sleep    6        6        Network alarm support             0x8175a3c0 4096  1464
3    Sleep    7        7        Network support                   0x81759150 4304   436
...
Switch(debug)#
```

## 12.9 *wake-up*

Using this command you can wake up sleeping threads.

**Syntax:**

```
wake-up control-service|worker
```

**Parameter:****control-service**

The parameter wakes the thread of the control service.

**worker**

The parameter wakes the worker thread.

**Example:**

```
Switch(debug)# wake-up worker
Release worker thread
Switch(debug)#
```

## 13 DHCP Relay Commands

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

| Command      | Function                                      |
|--------------|-----------------------------------------------|
| clear        | Clear DHCP relay statistics                   |
| del          | Delete Entry                                  |
| mode         | Configure DHCP relay mode                     |
| relay-option | Configure DHCP relay agent information option |
| server       | Configure DHCP relay server                   |
| show         | Show DHCP relay information                   |
| vlan         | Configure DHCP relay GIADDR                   |

### 13.1 *clear*

Using this command you can clear the DHCP relay statistics.

**Syntax:**

```
clear statistics
```

**Parameter:**

**statistics**

The parameter let you to clear DHCP relay statistics.

**Example:**

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

### 13.2 *del*

Using this command you can delete DHCP relay GIADDR information.

**Syntax:**

```
del idx <1-6>
```

**Parameter:**

**idx**

Delete DHCP relay GIADDR information

&lt;1-6&gt;

DHCP relay GIADDR index.

**Example:**

```
Switch(dhcp-relay)# del idx 1
No Idx = 1 entry
Switch(dhcp-relay)#
```

## 13.3 mode

Using this command you can configure the DHCP relay mode.



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.

**Syntax:**

```
mode disable|enable
```

**Parameter:****disable**

Disables DHCP relay mode.

**enable**

Enables DHCP snooping mode.

**Example:**

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

## 13.4 relay-option

Using this command you can configure the DHCP relay agent option.



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.

**Syntax:**

```
relay-option disable
relay-option enable [drop|keep|replace]
```

**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.

**drop**

Drop the packet when receive a DHCP message that already contains relay information.

**keep**

Keep the original relay information when receive a DHCP message that already contains it.

**replace**

Replace the original relay information when receive a DHCP message that already contains it.

**Example:**

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

## 13.5 server

Using this command you can configure the DHCP relay server.

**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)#
```

## 13.6 show

Using this command you can show the current DHCP relay configuration.

**Syntax:**

```
show config|statistics
```

## 13 DHCP Relay Commands

**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)#
```

## 13.7 vlan

Using this command you can configure DHCP relay GIADDR.

**Syntax:**

```
vlan <1-4094> <ip-address>
```

**Parameter:****<1-4094>**

VLAN ID

**<ip-address>**

The parameter lets you to set the DHCP GIADDR address.

**Example:**

```
Switch(dhcp-relay)# vlan 1 10.1.1.1
Switch(dhcp-relay)#
```

## 14 DHCP Snooping Commands

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.

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

### 14.1 *clear*

Using this command you can clear the DHCP snooping statistics.

**Syntax:**

```
clear statistics <port-list>
```

**Parameter:**

**statistics**

The parameter let you to clear DHCP snooping statistics.

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**Example:**

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

### 14.2 *mode*

Using this command you can configure the DHCP snooping mode.



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

**Syntax:**

```
mode disable|enable
```

**Parameter:****disable**

Disables DHCP snooping mode.

**enable**

Enables DHCP snooping mode.

**Example:**

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

## 14.3 *port-mode*

Using this command you can configure the DHCP relay port mode.

**Syntax:**

```
port-mode <port-list> trusted|untrusted
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**trusted**

Configures the port as trusted source of the DHCP message

**untrusted**

Configures the port as untrusted source 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)#
```

## 14.4 show

Using this command you can show the current DHCP snooping configuration.

### Syntax:

```
show config
show statistics <port-id>
```

### Parameter:

#### config

Shows DHCP snooping configuration.

#### statistics

Shows DHCP snooping statistics.

#### <port-id>

ID of the port the statistics shall be displayed for.

### 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 |

14 DHCP Snooping Commands

|                         |   |                     |   |
|-------------------------|---|---------------------|---|
| 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) # |   |                     |   |

## 15 Diagnostic Commands

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.

| 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. |
| verify  | Run cable diagnostics.                                                                                           |

### 15.1 *ping*

Using this command you can the ICMP protocol's ECHO\_REQUEST datagram to request an ICMP ECHO\_RESPONSE from a host or gateway.

#### Syntax:

```
ping <ip-hostname> [<2-1452>] [<1-60>] [<0-30>]
```

#### Parameter:

##### <ip-hostname>

IPv4 Hostname or IP address.

##### <2-1452>

Size of ICMP echo packet.

##### <1-60>

Count of ICMP echo packet.

##### <0-30>

Interval 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)#
```

## 15.2 *ping6*

Using this command you can the ICMP protocol's ECHO\_REQUEST datagram to request an ICMP ECHO\_RESPONSE from a host or gateway.

### Syntax:

```
ping6 <ipv6-address> [<2-1452>] [<1-60>] [<0-30>]
```

### Parameter:

#### <ipv6-address>

IPv6 Hostname or IP address.

#### <2-1452>

Size of ICMP echo packet.

#### <1-60>

Count of ICMP echo packet.

#### <0-30>

Interval 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)#
```

## 15.3 *veriphy*

Using this command you can verify the physical cable connection for each port.

### Syntax:

```
veriphy <port-list>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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) # |    |     |    |     |    |     |    |     |

## 16 Easyport Commands

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.

| 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. |

### 16.1 ip-cam

Using this command you can configure IP-Cam parameters.

 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.

#### Syntax:

```
ip-cam <port-list>
```

#### Parameter:

##### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### 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)#
```

### 16.1.1 *access-vlan*

Using this command you can configure access VLAN for IP Camera.

**Syntax:**

```
access-vlan <1-4094>
```

**Parameter:**

**<1-4094>**

Access VLAN ID, possible values from 1 to 4094..

**Example:**

```
Switch(easyport)# ip-cam 22
Switch(easyport/ip-cam)# access-vlan 8
Switch(easyport/ip-cam)#
```

### 16.1.2 *admin-edge*

Using this command you can configure spanning tree admin-edge for IP Camera.

**Syntax:**

```
admin-edge disable|enable
```

**Parameter:**

**disable**

Disables spanning tree admin edge.

**enable**

Enables spanning tree admin edge.

**Example:**

```
Switch(easyport)# ip-cam 22
Switch(easyport/ip-cam)# admin-edge enable
Switch(easyport/ip-cam)#
```

### 16.1.3 *bpdu-guard*

Using this command you can configure spanning tree BPDU guard for IP Camera..

**Syntax:**

```
bpdu-guard disable|enable
```

**Parameter:**

**disable**

Disables spanning tree BPDU guard.

**enable**

Enables spanning tree BPDU guard.

**Example:**

```
Switch(easyport) # ip-cam 22
Switch(easyport/ip-cam) # bpdu-guard enable

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

**16.1.4 end**

Using this command you can finish IP camera settings and return.

**Syntax:**

```
end
```

**Example:**

```
Switch(easyport) # ip-cam 22
Switch(easyport/ip-cam) # end

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

**16.1.5 psec-action**

Using this command you can configure port security action for IP Camera.

**Syntax:**

```
psec-action both|none|shutdown|trap
```

**Parameter:****both**

Send a SNMP trap and shutdown the port.

**none**

Do nothing.

**shutdown**

Shutdown the port.

**trap**

Send a SNMP trap.

**Example:**

```
Switch(easyport) # ip-cam 22
Switch(easyport/ip-cam) # psec-action both

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

**16.1.6 psec-limit**

Using this command you can configure port security maximum for IP Camera.

**Syntax:**

```
psec-limit <1-50>
```

**Parameter:****<1-50>**

Max. number of MAC addresses.

**Example:**

```
Switch(easyport)# ip-cam 22
Switch(easyport/ip-cam)# psec-limit 40
Switch(easyport/ip-cam)#
```

## 16.1.7 *psec-mode*

Using this command you can configure port security mode for IP Camera.

**Syntax:**

```
psec-mode <1-50>
```

**Parameter:****disable**

Disables port security.

**enable**

Enables port security.

**Example:**

```
Switch(easyport)# ip-cam 22
Switch(easyport/ip-cam)# psec-mode enable
Switch(easyport/ip-cam)#
```

## 16.1.8 *show*

Using this command you can display current IP camera settings.

**Syntax:**

```
show
```

**Example:**

```
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
```

## 16.1.9 *traffic-class*

Using this command you can configure traffic class for IP Camera.

**Syntax:**

```
traffic-class      <0-7>
```

**Parameter:**

**<0-7>**

0:Low, 7:High.

**Example:**

```
Switch(easyport)# ip-cam 22
Switch(easyport/ip-cam)# traffic-class 7

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

### 16.1.10 *vlan-mode*

Using this command you can configure VLAN mode for IP Camera.

**Syntax:**

```
vlan-mode          access|hybrid|trunk
```

**Parameter:****access**

Untag all frames.

**hybrid**

Tag all frames except VLAN ID same as PVID.

**trunk**

Tag all frames.

**Example:**

```
Switch(easyport)# ip-cam 22
Switch(easyport/ip-cam)# vlan-mode trunk

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

## 16.2 *ip-phone*

Using this command you can configure IP-Phone parameters.

**Syntax:**

```
ip-phone           <port-list>
```

**Parameter:**

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**Example:**

```

Switch(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)#

```

**16.2.1 access-vlan**

Using this command you can configure access VLAN for IP Phone.

**Syntax:**

```
access-vlan <1-4094>
```

**Parameter:****<1-4094>**

Access VLAN ID, possible values from 1 to 4094..

**Example:**

```

Switch(easyport)# ip-phone 22
Switch(easyport/ip-phone)# access-vlan 8

Switch(easyport/ip-phone)#

```

**16.2.2 admin-edge**

Using this command you can configure spanning tree admin-edge for IP Phone.

**Syntax:**

```
admin-edge disable|enable
```

**Parameter:****disable**

Disables spanning tree admin edge.

**enable**

Enables spanning tree admin edge.

**Example:**

```
Switch(easyport)# ip-phone 22
Switch(easyport/ip-phone)# admin-edge enable

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

### 16.2.3 *bpduguard*

Using this command you can configure spanning tree BPDU guard for IP Phone..

**Syntax:**

*bpduguard*            *disable|enable*

**Parameter:****disable**

Disables spanning tree BPDU guard.

**enable**

Enables spanning tree BPDU guard.

**Example:**

```
Switch(easyport)# ip-phone 22
Switch(easyport/ip-phone)# bpduguard enable

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

### 16.2.4 *end*

Using this command you can finish IP Phone settings and return.

**Syntax:**

*end*

**Example:**

```
Switch(easyport)# ip-phone 22
Switch(easyport/ip-phone)# end

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

### 16.2.5 *psec-action*

Using this command you can configure port security action for IP Phone.

**Syntax:**

*psec-action*            *both|none|shutdown|trap*

**Parameter:****both**

Send a SNMP trap and shutdown the port.

**none**

Do nothing.

**shutdown**

Shutdown the port.

**trap**

Send a SNMP trap.

**Example:**

```
Switch(easyport)# ip-phone 22
Switch(easyport/ip-phone)# psec-action both
Switch(easyport/ip-phone)#
```

## 16.2.6 *psec-limit*

Using this command you can configure configure port security maximum for IP Phone.

**Syntax:**

```
psec-limit <1-50>
```

**Parameter:****<1-50>**

Max. number of MAC addresses.

**Example:**

```
Switch(easyport)# ip-phone 22
Switch(easyport/ip-phone)# psec-limit 40
Switch(easyport/ip-phone)#
```

## 16.2.7 *psec-mode*

Using this command you can configure configure port security mode for IP Phone.

**Syntax:**

```
psec-mode <1-50>
```

**Parameter:****disable**

Disables port security.

**enable**

Enables port security.

**Example:**

```
Switch(easyport)# ip-phone 22
Switch(easyport/ip-phone)# psec-mode enable
Switch(easyport/ip-phone)#
```

## 16.2.8 *show*

Using this command you can display current IP Phone settings.

**Syntax:**

```
show
```

**Example:**

```
Switch(easyport/ip-phone)# show
Role           : IP-PHONE
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
```

## 16.2.9 *traffic-class*

Using this command you can configure traffic class for IP Phone.

**Syntax:**

```
traffic-class <0-7>
```

**Parameter:**

**<0-7>**

0:Low, 7:High.

**Example:**

```
Switch(easyport)# ip-phone 22
Switch(easyport/ip-phone)# traffic-class 7
Switch(easyport/ip-phone)#
```

## 16.2.10 *vlan-mode*

Using this command you can configure VLAN mode for IP Phone.

**Syntax:**

```
vlan-mode access|hybrid|trunk
```

**Parameter:****access**

Untag all frames.

**hybrid**

Tag all frames except VLAN ID same as PVID.

**trunk**

Tag all frames.

**Example:**

```
Switch(easyport)# ip-phone 22
Switch(easyport/ip-phone)# vlan-mode trunk

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

## 16.3 *wifi-ap*

Using this command you can configure wireless access point parameters.

**Syntax:**

```
wifi-ap <port-list>
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**Example:**

```
witch(easyport)# wifi-ap 22
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)#
```

### 16.3.1 *access-vlan*

Using this command you can configure access VLAN for WiFi AP.

**Syntax:**

```
access-vlan <1-4094>
```

**Parameter:****<1-4094>**

Access VLAN ID, possible values from 1 to 4094..

**Example:**

```
Switch(easyport)# wifi-ap 22
Switch(easyport/wifi-ap)# access-vlan 8

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

### 16.3.2 *admin-edge*

Using this command you can configure spanning tree admin-edge for WiFi AP.

**Syntax:**

```
admin-edge          disable|enable
```

**Parameter:****disable**

Disables spanning tree admin edge.

**enable**

Enables spanning tree admin edge.

**Example:**

```
Switch(easyport)# wifi-ap 22
Switch(easyport/wifi-ap)# admin-edge enable

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

### 16.3.3 *bpdu-guard*

Using this command you can configure spanning tree BPDU guard for WiFi AP.

**Syntax:**

```
bpdu-guard          disable|enable
```

**Parameter:****disable**

Disables spanning tree BPDU guard.

**enable**

Enables spanning tree BPDU guard.

**Example:**

```
Switch(easyport)# wifi-ap 22
Switch(easyport/wifi-ap)# bpdu-guard enable

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

### 16.3.4 *end*

Using this command you can finish WiFi AP settings and return.

**Syntax:**

```
end
```

**Example:**

```
Switch(easyport)# wifi-ap 22
Switch(easyport/wifi-ap)# end

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

### 16.3.5 *psec-action*

Using this command you can configure port security action for WiFi AP.

**Syntax:**

```
psec-action both|none|shutdown|trap
```

**Parameter:****both**

Send a SNMP trap and shutdown the port.

**none**

Do nothing.

**shutdown**

Shutdown the port.

**trap**

Send a SNMP trap.

**Example:**

```
Switch(easyport)# wifi-ap 22
Switch(easyport/wifi-ap)# psec-action both

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

### 16.3.6 *psec-limit*

Using this command you can configure port security maximum for WiFi AP.

**Syntax:**

```
psec-limit <1-50>
```

**Parameter:****<1-50>**

Max. number of MAC addresses.

**Example:**

```
Switch(easyport)# wifi-ap 22
Switch(easyport/wifi-ap)# psec-limit 40

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

### 16.3.7 *psec-mode*

Using this command you can configure port security mode for WiFi AP.

**Syntax:**

```
psec-mode <1-50>
```

**Parameter:****disable**

Disables port security.

**enable**

Enables port security.

**Example:**

```
Switch(easyport)# wifi-ap 22
Switch(easyport/wifi-ap)# psec-mode enable
Switch(easyport/wifi-ap)#
```

### 16.3.8 *show*

Using this command you can display current WiFi AP settings.

**Syntax:**

```
show
```

**Example:**

```
Switch(easyport/wifi-ap)# show
Role                : IP-PHONE
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
```

### 16.3.9 *traffic-class*

Using this command you can configure traffic class for WiFi AP.

**Syntax:**

```
traffic-class <0-7>
```

**Parameter:****<0-7>**

0:Low, 7:High.

**Example:**

```
Switch(easyport)# wifi-ap 22
Switch(easyport/wifi-ap)# traffic-class 7
```

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

### 16.3.10 *vlan-mode*

Using this command you can configure VLAN mode for WiFi AP.

**Syntax:**

```
vlan-mode access|hybrid|trunk
```

**Parameter:**

**access**

Untag all frames.

**hybrid**

Tag all frames except VLAN ID same as PVID.

**trunk**

Tag all frames.

**Example:**

```
Switch(easyport) # wifi-ap 22
Switch(easyport/wifi-ap) # vlan-mode trunk
Switch(easyport/wifi-ap) #
```

## 17 EEE Commands

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.

| Command      | Function                   |
|--------------|----------------------------|
| mode         | Configure EEE mode         |
| show         | Show EEE information       |
| urgent-queue | Configure EEE urgent queue |

### 17.1 mode

Using this command you can configure EEE parameters.

#### Syntax:

```
mode <port-list> disable|enable
```

#### Parameter:

##### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

##### disable

Disables Energy Efficient Ethernet.

##### enable

Enables 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

```

## 17.2 *show*

Using this command you can show the current EEE configuration.

### Syntax:

```
show
```

### Example:

```

Switch(eee)# show
Port  Mode      Urgent Queues
----  -
1     Disabled  none
2     Disabled  none
3     Disabled  none

```

## 17.3 *urgent-queue*

Using this command you can configure EEE urgent queue parameters.

### Syntax:

```
urgent-queue <port-list> <queue-list> disable|enable
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### <queue-list>

Queue list, format : 1,3-5.

#### disable

Queue will postpone the transmission until 3000 bytes are ready to be transmitted.

#### enable

Queues set will activate transmission 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

```

## 18 Event Commands

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.

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

### 18.1 *group*

Using this command you can configure the trap event severity level.

**Syntax:**

```
group <group-name> <0-7>
```

**Parameter:****<group-name>**

Trap event group name

- > ACL
- > ACL\_Log
- > Access\_Mgmt
- > Auth\_Failed
- > Cold\_Start
- > Config\_Info
- > Firmware\_Upgrade
- > Import\_Export
- > LACP
- > Link\_Status
- > Login
- > Logout
- > Loop\_Protect
- > Mgmt\_IP\_Change
- > Module\_Change
- > NAS
- > Password\_Change
- > Poe\_Auto\_Check
- > Port\_Security
- > VLAN
- > Warm\_Start

**<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)#
```

## 18.2 show

Using this command you can show the current trap event severity configuration.

**Syntax:**

```
show
```

**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
```

18 Event Commands

|                |         |
|----------------|---------|
| Warm_Start     | Warning |
| Switch(event)# |         |

## 19 Fdb Commands

Filtering Data Base (Fdb) 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

| Command    | Function                                |
|------------|-----------------------------------------|
| age-time   | Configure ageing 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      |

### 19.1 *age-time*

Using this command you can configure the age-time of MAC address.

#### Syntax:

```
age-time disable|<10-1000000>
```

#### Parameter:

##### disable

Disables automatic aging.

##### <10-1000000>

Aging time in seconds.

#### Example:

```
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)#

```

## 19.2 *delete*

Using this command you can delete a static MAC address entry.

### Syntax:

```
delete static-mac <mac-address> <1-4094>
```

### Parameter:

#### static mac

Deletes a static MAC entry.

#### <mac-address>

MAC address in the format 0a-1b-2c-3d-4e-5f.

#### <1-4094>

VLAN ID, available values 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)#

```

## 19.3 *flush*

Using this command you can flush all MAC addresses which have been learned dynamically.

### Syntax:

```
flush
```

### Example:

```

Switch(fdb)# flush
Switch(fdb)#

```

## 19.4 *learning*

Using this command you can configure the MAC address learning mode.

### Syntax:

```
learning <port-list> auto|disable|secure
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### auto

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

#### disable

Disables MAC address learning mode.

#### 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)#
```

## 19.5 *static-mac*

Using this command you can configure a static MAC address entry.

### Syntax:

```
static-mac <mac-address> <1-4094> <port-list>|block
```

### Parameter:

#### <mac-address>

MAC address in the format 0a-1b-2c-3d-4e-5f.

#### <1-4094>

VLAN ID, available values from 1 to 4094.

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**block**

Blocks 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)#
```

## 19.6 show

Using this command you can show the current MAC address table.

**Syntax:**

```
show configuration|static-mac
show mac-table [mac-address <mac-address>]
                [port <port-list>]
                [vid <1-4094>]
```

**Parameter:****configuration**

Shows MAC address table configuration.

**static-mac**

Shows static MAC address.

**mac-table**

Shows MAC address table.

**mac-address**

Shows MAC address table for specific MAC address.

**<mac-address>**

MAC address in the format 0a-1b-2c-3d-4e-5f.

**port**

Shows MAC address table for specific ports.

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**vid**

Shows MAC address table for specific VLAN.

**<1-4094>**

VLAN ID, available values from 1 to 4094.

**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)#
```

## 20 Firmware Commands

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

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

### 20.1 *show*

Using this command you can show the active and alternate firmware image version information.

**Syntax:**

```
show
```

**Example:**

```
Switch(firmware)# show
Active Image
-----
Image       : managed
Version    : GS-2326P (standalone) v2.50
Date       : 2014-01-17T14:33:34+08:00

Alternate Image
-----
Image       : managed.bk
Version    : GS-2326P (standalone) v1.65
Date       : 2013-01-14T14:11:35+08:00

Switch(firmware)#
```

### 20.2 *swap*

Using this command you can swap the active firmware image into alternate firmware image and vice versa.

**Syntax:**

```
swap
```

**Example:**

```
Switch(firmware)# swap
Alternate image activated, now rebooting.
Switch(firmware)#

Using username "admin".
admin@192.168.2.110's password:
```

```

Type 'help' or '?' to get help.
Switch# firmware
Switch(firmware)# show
Active Image
-----
Image      : managed
Version    : GS-2326P (standalone) v1.65
Date       : 2013-01-14T14:11:35+08:00

Alternate Image
-----
Image      : managed.bk
Version    : GS-2326P (standalone) v2.50
Date       : 2014-01-17T14:33:34+08:00

Switch(firmware)#

```

## 20.3 upgrade

Using this command you can upgrade the system firmware to active or alternate division.



While the firmware is being updated, the device access via web interface is disabled. 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 work afterwards.

### Syntax:

```

upgrade <ipv6-address> <filename>
upgrade <ip-hostname> <filename>

```

### 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 IPv4 address or hostname.

#### <filename>

Firmware image file name

### Example:

```

Switch(firmware)# upgrade 192.168.1.100 managed.bk
Switch(firmware)# show
Active Image
-----
Image      : managed.bk
Version    : GS-2326P (standalone) v1.65
Date       : 2013-01-14T14:11:35+08:00

Alternate Image
-----
Image      : managed
Version    : GS-2326P (standalone) v2.50
Date       : 2014-01-17T14:33:34+08:00

```

## 20 Firmware Commands

```
Switch(firmware)#
```

## 21 GARP Commands

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.

| 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                    |

### 21.1 *applicant*

Using this command you can enable or disable the applicant administrative control.

#### Syntax:

```
applicant <port-list> non-participant|normal-participant
```

#### Parameter:

##### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

##### non-participant

Set applicant administrative control to non-participant

##### normal-participant

Set applicant administrative control to normal-participant.

#### Example:

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

## 21.2 *join-time*

Using this command you can set the GARP join time.



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

### Syntax:

```
join-time <port-list> <time-value>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### <time-value>

Join time in seconds. Possible values from 200 to 1000.

### Example:

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

## 21.3 *leave-all*

Using this command you can set the GARP leave all time.



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

### Syntax:

```
leave-all <port-list> <timer-value>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### <timer-value>

Leave all time in seconds. Possible values from 10000 to 50000.

### Example:

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

## 21.4 *leave-time*

Using this command you can set GARP leave time.



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

### Syntax:

```
leave-time <port-list> <timer-value>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### <timer-value>

Leave all time in seconds. Possible values from 600 to 3000.

### Example:

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

## 21.5 *show*

Using this command you can display the current GARP configuration and statistics.



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

### Syntax:

```
show config
show statistic <port-list>
```

### Parameter:

#### config

Shows current GARP configuration.

#### statistic

Shows the basic GARP port statistics.

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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)#
Switch(garp)#
```

## 22 GVRP Commands

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.

| 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                 |

### 22.1 clear

Using this command you can clear the basic GVRP port statistics.



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

#### Syntax:

```
clear <port-list>
```

#### Parameter:

##### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### Example:

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

### 22.2 control

Using this command you can enable or disable the GVRP mode globally.

**Syntax:**

```
control disable|enable
```

**Parameter:****disable**

Disables GVRP function globally.

**enable**

Enables GVRP function globally.

**Example:**

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

## 22.3 mode

Using this command you can enable or disable the GVRP function per port.

**Syntax:**

```
mode <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables GVRP function on the selected ports.

**enable**

Enables GVRP function on the selected ports.

**Example:**

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

## 22.4 rrole

Using this command you can enable or disable the GVRP restricted role per port.

**Syntax:**

```
rrole <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables GVRP restricted role on the selected ports.

**enable**

Enables GVRP restricted role on the selected ports.

**Example:**

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

## 22.5 show

Using this command you can display the current GVRP information.

**Syntax:**

```
show config
show statistics <port-list>
```

**Parameter:****config**

Shows the current GVRP configuration.

**statistics**

Shows the basic GVRP port statistics.

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**Example:**

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

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

22 GVRP Commands

|                |   |   |
|----------------|---|---|
| 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) # |   |   |

## 23 HTTPs Commands

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.

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

### 23.1 *mode*

Using this command you can enable or disable HTTPS operation.

**Syntax:**

```
mode disable|enable
```

**Parameter:**

**disable**

Disables HTTPS operation.

**enable**

Enables HTTPS operation.

**Example:**

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

### 23.2 *redirect*

Using this command you can enable or disable HTTPS redirect mode.

**Syntax:**

```
redirect disable|enable
```

**Parameter:**

**disable**

Disables redirect HTTPS mode.

**enable**

Enables redirect HTTPS mode.

**Example:**

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

## 23.3 *show*

Using this command you can display the current HTTPs configuration.

**Syntax:**

```
show
```

**Example:**

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

## 24 IGMP Commands

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.

| 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                |

### 24.1 *compatibility*

Using this command you can configure the IGMP compatibility.

**Syntax:**

```
compatibility <vlan-list> Forced-IGMPv1|Forced-IGMPv2|Forced-IGMPv3|IGMP-Auto
```

**Parameter:****<vlan-list>**

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (1,3-5).

**Forced-IGMPv1**

Enables IGMPv1 of IGMP operating on hosts and routers.

**Forced-IGMPv2**

Enables IGMPv2 of IGMP operating on hosts and routers.

**Forced-IGMPv3**

Enables IGMPv3 of IGMP operating on hosts and routers.

**IGMP-Auto**

Enables 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)#
```

## 24.2 delete

Using this command you can delete IGMP filtering groups.



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'".

**Syntax:**

```
delete <port-list> <ipmc-address>
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<ipmc-address>**

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)#
```

## 24.3 *fast-leave*

Using this command you can configure the fast-leave mode for each port.



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.

### Syntax:

```
fast-leave <port-list> disable|enable
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### disable

Disables fast-leave mode for the selected ports.

#### enable

Enables fast-leave mode for the selected ports.

### Example:

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

## 24.4 *filtering*

Using this command you can configure IGMP filtering group for each port.



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'".

### Syntax:

```
filtering <port-list> <ipmc-address>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### <ipmc-address>

IPMC address of the 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)#
```

## 24.5 *flooding*

Using this command you can enable or disable the IGMP flooding mode.

### Syntax:

```
flooding enable|disable
```

### Parameter:

#### disable

Disables the IGMP flooding mode.

#### enable

Enables the IGMP flooding mode.

### 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)#
```

## 24.6 *lmqi*

Using this command you can define Last Member Query Interval for each VLAN.

### Syntax:

```
lmqi <vlan-list> <0-31744>
```

### Parameter:

#### <vlan-list>

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (1,3-5).

#### <0-31744>

Range:0~31744 tenths of sec, Default:100 tenths of sec

**Example:**

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

## 24.7 proxy

Using this command you can enable or disable the IGMP proxy mode.

**Syntax:**

```
proxy enable|disable
```

**Parameter:****enable**

Enables IGMP proxy mode.

**disable**

Disables IGMP proxy mode.

**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)#
```

## 24.8 qi

Using this command you can define Query Interval for each VLAN.

**Syntax:**

```
qi <vlan-list> <1-31744>
```

**Parameter:****<vlan-list>**

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (1,3-5).

**<1-31744>**

Range:1~31744 sec, default:125 sec

**Example:**

```
Switch(igmp)# qi 5 360
Switch(igmp)#
```

## 24.9 *qri*

Using this command you can define Query Response Intervall for each VLAN.

**Syntax:**

```
qri <vlan-list> <0-31744>
```

**Parameter:****<vlan-list>**

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (1,3-5).

**<0-31744>**

Range:0~31744 tenths of sec, default:100 tenths of sec

**Example:**

```
Switch(igmp)# qri 5 360
Switch(igmp)#
```

## 24.10 *querier*

Using this command you can enable or disable IGMP Querier mode for each VLAN.

**Syntax:**

```
querier <vlan-list> disable|enable
```

**Parameter:****<vlan-list>**

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (1,3-5).

**disable**

Disables IGMP Querier mode for the selected VLAN.

**enable**

Enables IGMP Querier mode for the selected VLAN.

**Example:**

```
Switch(igmp)# querier 5 enable
Switch(igmp)#
```

## 24.11 *router*

Using this command you can enable or disable IGMP Router Port mode for each port.

**Syntax:**

```
router <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables IGMP Router Port mode for each port.

**enable**

Enables IGMP Router Port mode for each port.

**Example:**

```
Switch(igmp)# router 5 enable
Switch(igmp)#
```

## 24.12 *rv*

Using this command you can define Robustness Variable for each VLAN.

**Syntax:**

```
rv <vlan-list> <1-255>
```

**Parameter:****<vlan-list>**

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (1,3-5).

<1-255>

Range:1~255, default:2

**Example:**

```
Switch(igmp)# rv 5 100
Switch(igmp)#
```

## 24.13 show

Using this command you can display the IGMP Snooping information.

**Syntax:**

```
show config
show groups|ssm|status|version [<1-4094>]
```

**Parameter:**

**config**

Shows IGMP snooping configuration.

**groups**

Shows IGMP group table.

**ssm**

Shows IGMPv3 information table.

**status**

Shows IGMP snooping status.

**version**

Shows current IGMP working querier/host version.

<1-4094>

VLAN ID, possible values from 1 to 4094.

**Example:**

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

IGMP Flooding Control : Disabled
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
10    Disabled  No              Disabled    Unlimited
11    Disabled  No              Disabled    Unlimited
12    Disabled  No              Disabled    Unlimited
```

```

13 Disabled No Disabled Unlimited
14 Disabled No Disabled Unlimited
15 Disabled No Disabled Unlimited
--More--, q to quit

```

## 24.14 *snooping*

Using this command you can enable or disable IGMP Snooping mode.

### Syntax:

```
snooping disable|enable
```

### Parameter:

#### disable

Disables the global IGMP snooping mode.

#### enable

Enables the global IGMP snooping mode.

### Example:

```

Switch(igmp)# snooping enable
Switch(igmp)#

```

## 24.15 *ssm-range*

Using this command you can define the IGMP SSM range.

### Syntax:

```
ssm-range <ipmc-address> <4-32>
```

### Parameter:

#### <ipmc-address>

IGMP SSM range address.

#### <4-32>

IGMP SSM range value.

### Example:

```

Switch(igmp)# ssm-range 224.0.0.1 16
Switch(igmp)#

```

## 24.16 *state*

Using this command you can enable or disable IGMP Snooping mode for each VLAN.

**Syntax:**

```
state <vlan-list> disable|enable
```

**Parameter:****<vlan-list>**

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (1,3-5).

**disable**

Disables IGMP snooping for selected VLAN.

**enable**

Enables IGMP snooping for selected VLAN.

**Example:**

```
Switch(igmp)# state 5 enable
Switch(igmp)#
```

## 24.17 *throttling*

Using this command you can define the throttling value for each port.

**Syntax:**

```
throttling <port-list> <0-10>
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<0-10>**

Port group limit number, range:0~10, 0: unlimited

**Example:**

```
Switch(igmp)# throttling 5 8
Switch(igmp)#
```

## 24.18 *uri*

Using this command you can define Unsolicited Report Interval for each VLAN.

### Syntax:

```
uri <vlan-list> <0-31744>
```

### Parameter:

#### <vlan-list>

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (1,3-5).

#### <0-31744>

Range:0~31744 sec, default:1 sec

### Example:

```
Switch(igmp)# uri 5 3600
Switch(igmp)#
```

## 25 IP Commands

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.

| 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        |

### 25.1 *dhcp*

Using this command you can configure the DHCP client.

#### Syntax:

```
dhcp disable|enable|renew
```

#### Parameter:

##### disable

Disables DHCP client.

##### enable

Enables DHCP client.

##### renew

Forces DHCP client to renew IP address.

#### Example:

```
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

```

## 25.2 *dns-proxy*

Using this command you can configure the DNS proxy.

### Syntax:

```
dns-proxy disable|enable
```

### Parameter:

#### **disable**

Disables DNS proxy mode.

#### **enable**

Enables DNS proxy mode.

### 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        |         |

## 25.3 *mgmt-vlan*

Using this command you can define the management VLAN ID.

### Syntax:

```
mgmt-vlan <1-4094>
```

### Parameter:

#### **<1-4094>**

Management VLAN ID, possible values from 1 to 4094

### Example:

```

Switch(ip)# mgmt-vlan 2
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        |         |

```

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

```

## 25.4 *name-server*

Using this command you can define the 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       |                |

## 25.5 *setup*

Using this command you can define the devices IP address.



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

### 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       |                |

## 25.6 *show*

Using this command you can show the current IP information.

**Syntax:**

*show*

**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       |                |

## 26 IP-Source-Guard Commands

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.

| 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 |

### 26.1 *add*

Using this command you can add or modify IP source guard static entry.

#### Syntax:

```
add <port-list> <1-4094> <ip-address> <mac-address>
```

#### Parameter:

##### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

##### <1-4094>

VLAN ID, possible values from 1 to 4094.

##### <ip-address>

IP address allowed for doing IP source guard.

##### <mac-address>

MAC address, format 0a-1b-2c-3d-4e-5f.

#### Example:

```
Switch(ip-source-guard)# add 5 2 192.168.2.100 0a-1b-2c-3d-4e-5f
Switch(ip-source-guard)# show binding-table
Type      Port  VLAN  IP Address      MAC Address
-----
Static    5     2     192.168.2.100  0a-1b-2c-3d-4e-5f
```

## 26.2 *delete*

Using this command you can delete statis IP source guard entries.

### Syntax:

```
delete <port-list> <1-4094> <ip-address> <mac-address>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### <1-4094>

VLAN ID, possible values from 1 to 4094.

#### <ip-address>

IP address.

#### <mac-address>

MAC address, format 0a-1b-2c-3d-4e-5f.

### Example:

```
Switch(ip-source-guard)# delete 5 2 192.168.2.100 0a-1b-2c-3d-4e-5f
Switch(ip-source-guard)# show binding-table
Type      Port  VLAN  IP Address      MAC Address
-----
<none>
```

## 26.3 *limit*

Using this command you can define IP source guard port limitation for dynamic entries.

### Syntax:

```
limit <port-list> <0-2>|unlimited
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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, it means 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
```

## 26.4 mode

Using this command you can enable or disable the 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

```

## 26.5 port-mode

Using this command you can enable or disable IP source guard port mode for each port.

### Syntax:

```
port-mode <port-list> enable|disable
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### disable

Disables IP source guard port mode.

#### enable

Enables 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

```

## 26.6 *show*

Using this command you can show the current IP source guard information.

### Syntax:

```
show binding-table|config
```

### Parameter:

#### binding-table

Shows IP-MAC binding table.

#### config

Shows 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

```

## 26.7 *translate*

Using this command you can translate dynamic IP source guard entries into static entries.

### Syntax:

```
translate
```

### Example:

```

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

```

## 27 IPv6 Commands

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.

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

### 27.1 *autoconfig*

Using this command you can configure the IPv6 autoconfig mode.

**Syntax:**

```
autoconfig disable|enable|renew
```

**Parameter:**

**disable**

Disables IPv6 autoconfig mode.

**enable**

Enables IPv6 autoconfig mode.

**renew**

Forces renewal of IPv6 address.

**Example:**

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

### 27.2 *setup*

Using this command you can define the devices IPv6 address.

**Syntax:**

```
setup setup <ipv6-address> [<1-128>] [<ipv6-gateway>]
```

**Parameter:****<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`.

**<1-128>**

IPv6 prefix

**<ipv6-gateway>**

Gateway 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 (":").

**Example:**

```
Switch(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
```

## 27.3 show

Using this command you can show the current IPv6 information.

**Syntax:**

```
show config|current
```

**Parameter:****config**

Shows IPv6 configuration.

**current**

Shows current IPv6 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           : ::
```

## 28 LACP Commands

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.

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

### 28.1 clear

Using this command you can clear the link aggregation entries.

#### Syntax:

```
clear statistics
```

#### Parameter:

##### statistics

Clears 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
```

### 28.2 key

Using this command you can configure the LACP key for each port.

#### Syntax:

```
key <port-list> <1-65535>|auto
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<1-65535>**

LACP key

**auto**

The Auto setting will set the key as appropriate by the physical 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
```

## 28.3 mode

Using this command you can configure the LACP mode for each port.

**Syntax:**

```
mode <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables LACP protocol for the selected port(s).

**enable**

Enables LACP protocol for the selected port(s).

**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
```

## 28.4 *role*

Using this command you can configure the LACP role for each port.

### Syntax:

```
role <port-list> active|passive
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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
```

## 28.5 *show*

Using this command you can show LACP information.

### Syntax:

```
show config|statistics|status
```

### Parameter:

#### config

Shows LACP configuration.

#### statistics

Shows LACP statistics.

#### status

Shows LACP status.

### Example:

```
Switch(lacp)# show config
Port  Mode      Key  Role
----  -
```

## 28 LACP Commands

```

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  -        -        -                  -

```

## 29 LLDP Commands

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.

| 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                               |

### 29.1 *cdp-aware*

Using this command you can configure CDP (Cisco Discovery Protocol) aware mode.

#### Syntax:

```
cdp-aware <port-list> disable|enable
```

#### Parameter:

##### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

##### disable

Disables CDP awareness

##### enable

Enables 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 | Mode     | Port<br>Description | System<br>Name | System<br>Description | System<br>Capability | Management<br>Address | CDP<br>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         |

## 29.2 *clear*

Using this command you can clear LLDP statistics.

### Syntax:

```
clear
```

### Example:

```
Switch(lldp)# clear
Switch(lldp)# show statistics
LLDP global counters
Neighbor entries was last changed at 2014-01-01 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
Port      Rx      Tx      Rx      Rx      Rx TLV  Rx TLV  Rx TLV
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
```

## 29.3 *delay*

Using this command you can 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
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 |

## 29.4 hold

Using this command you can 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 | Mode     | Port Description | System Name | System Description | System Capability | Management Address | CDP 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      |

## 29.5 interval

Using this command you can 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 | Mode     | Port Description | System Name | System Description | System Capability | Management Address | CDP 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      |

|   |          |         |         |         |         |         |          |
|---|----------|---------|---------|---------|---------|---------|----------|
| 1 | Disabled | Enabled | Enabled | Enabled | Enabled | Enabled | Disabled |
| 2 | Disabled | Enabled | Enabled | Enabled | Enabled | Enabled | Disabled |
| 3 | Disabled | Enabled | Enabled | Enabled | Enabled | Enabled | Disabled |

## 29.6 mode

Using this command you can configure the LLDP mode.

### Syntax:

```
mode <port-list> disable|enable|rx-only|tx-only
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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.

#### rx-only

The switch will not send out LLDP information, but LLDP information from neighbour units is analyzed.

#### tx-only

The switch will drop LLDP information received from neighbours, but will send out LLDP information.

### Example:

```
Switch(lldp)# mode 1 enable
Switch(lldp)# show config
Interval      : 30
Hold          : 4
Tx Delay      : 2
Reinit Delay: 2
```

| Port | Mode     | Port Description | System Name | System Description | System Capability | Management Address | CDP 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      |

## 29.7 option-tiv

Using this command you can configure LLDP Optional TLVs.

### Syntax:

```
option-tiv <port-list> (mgmt-addr|port-desc|sys-cap|sys-desc|sys-name) (disable|enable)
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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**

Disables TLV

**enable**

Enables 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 | Mode     | Port Description | System Name | System Description | System Capability | Management Address | CDP 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      |

## 29.8 reinit

Using this command you can 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
```

## 29.9 show

Using this command you can show current LLDP information.

**Syntax:**

```
show config|eee|statistics
show info <port-list>
```

**Parameter:****config**

Shows LLDP configuration

**eee**

Shows LLDP neighbours EEE information

**statistics**

Shows LLDP statistics

**info**

Shows LLDP neighbor device information

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**Example:**

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

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

Switch(lldp)# show statistics
LLDP global counters
Neighbor entries was last changed at 2014-01-01 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
```

| Port | Mode     | Description | System Name | System Description | System Capability | Management Address | CDP awareness |
|------|----------|-------------|-------------|--------------------|-------------------|--------------------|---------------|
| 1    | Disabled | Enabled     | Enabled     | Enabled            | Enabled           | Enabled            | Disabled      |
| 2    | Disabled | Enabled     | Enabled     | Enabled            | Enabled           | Enabled            | Disabled      |

| 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    |

## 30 LLDP Media Commands

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 section allows you to configure the LLDP-MED. This function applies to VoIP devices which support LLDP-MED.

| 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                  |

### 30.1 *civic*

Using this command you can configure LLDP-MED civic address location function.

#### Syntax:

```
civic additional-code <LINE>
civic additional-info <LINE>
civic apartment <LINE>
civic block <LINE>
civic city <LINE>
civic ...
civic zip_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

**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     :

```

## 30.2 coordinate

Using this command you can 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 digits00

**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-mlw**

North American Datum 1983, CRS Code 4269, Prime Meridian

Name: Greenwich; The associated vertical datum is Mean Lower Low Water (MLLW).

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

Name: Greenwich; The associated vertical datum is the North American Vertical Datum of 1988 (NAVD88).

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 degrees with max. 4 digits

**north**

North of the equator

**south**

South of the equator

**longitude**

Longitude

**<coordinate-value>**

0 to 180 degrees with max. 4 digits

**east**

East of the prime meridian

**west**

West of the prime meridian

**Example:**

```
Switch(lldpmed)# coordinate altitude 10 floor
Switch(lldpmed)# coordinate datum nad83-mlw
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
```

### 30.3 delete

Using this command you can 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
-----
-----
```

### 30.4 ecs

Using this command you can 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
```

## 30.5 *fast*

Using this command you can configure LLDP-MED fast start repeat count function.

### Syntax:

```
fast <1-10>
```

### 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:

```
Switch(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
```

## 30.6 *policy*

Using this command you can configure LLDP-MED policy.

### Syntax:

```
policy tagged|untagged <1-4094> <0-7> <0-63> <classification>
```

### Parameter:

#### tagged

The device is using tagged frames

#### untagged

The device is using untagged frames

#### <1-4094>

VLAN ID, possible values 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 behaviour for the specified application type as defined in IETF RFC 2474

**classification****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. 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**

Video 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   |

## 30.7 port-policy

Using this command you can configure LLDP-MED port policy function.

**Syntax:**

```
port-policy <port-list> <0-31> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<0-31>**

Policy ID, available value is from 0 to 31

**disable**

Disables the policy to a given port

**enable**

Enables 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
```

## 30.8 show

Using this command you can display LLDP-MED information.

**Syntax:**

```
show config|policy|port-policy
show info <port-list>
```

**Parameter:****config**

Shows LLDP-MED configuration

**policy**

Shows LLDP-MED policy configuration

**port-policy**

Shows LLDP-MED port policy configuration

**info**

Shows LLDP-MED neighbor device information

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**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

```

## 31 LANCOM Management Cloud (LMC) Configuration Commands

Commands to configure LANCOM Management Cloud (LMC).

| Command                 | Function                                              |
|-------------------------|-------------------------------------------------------|
| Configuration-via-DHCP  | Allow configuration of LMC-Servers via DHCP option 43 |
| DHCP-Client-Auto-Renew  | Auto renew DHCP Lease on LMC connection failure       |
| Delete-Certificate      | Delete LMC certificate                                |
| LMC-Domain              | LMC-Domain configuration                              |
| LMC-Rollout-Location-ID | Location information for LMC rollout                  |
| LMC-Rollout-Project-ID  | Project information for LMC rollout                   |
| LMC-Rollout-Role        | Role information for LMC rollout                      |
| Operating               | Enable or disable LMC operation                       |
| show                    | Show LMC configuration                                |

### 31.1 Configuration-via-DHCP

Using this command you can allow the configuration of LMC-Servers via DHCP option 43.

**Syntax:**

```
Configuration-via-DHCP no|yes
```

**Parameter:**

**no**

Always use the static LMC configuration.

**yes**

Use configuration via DHCP option 43 if present.

**Example:**

```
Switch(LMC)# configuration-via-DHCP yes
Switch(LMC)#
```

### 31.2 DHCP-Client-Auto-Renew

Using this command you can automatically renew the DHCP lease if the connection to the LMC fails.

**Syntax:**

```
DHCP-Client-Auto-Renew no|yes
```

**Parameter:****no**

No renewal of the DHCP lease on connection failure to the LMC.

**yes**

Automatic renewal of the DHCP lease on connection failure to the LMC.

**Example:**

```
Switch(LMC) # DHCP-Client-Auto-Renew yes
Switch(LMC) #
```

### 31.3 *Delete-Certificate*

Using this command you can delete the certificate used for the connection to the LMC.

**Syntax:***Delete-Certificate***Example:**

```
Switch(LMC) # delete-Certificate
done
Switch(LMC) #
```

### 31.4 *LMC-Domain*

Using this command you can set the hostname of the LMC.

**Syntax:***LMC-Domain* <LINE>**Parameter:**

&lt;LINE&gt;

LMC domain.

**Example:**

```
Switch(LMC) # LMC-Domain cloud.lancom.de
Switch(LMC) #
```

### 31.5 *LMC-Rollout-Location-ID*

Using this command you can set the Location ID of this switch in the LMC.

**Syntax:**

```
LMC-Rollout-Location-ID <LINE>
```

**Parameter:**

<LINE>

LMC Rollout Location ID (max. 36 characters).

**Example:**

```
Switch(LMC) # LMC-Rollout-Location-ID Aachen
Switch(LMC) #
```

## 31.6 LMC-Rollout-Project-ID

Using this command you can set the project ID of this switch in the LMC.

**Syntax:**

```
LMC-Rollout-Project-ID <LINE>
```

**Parameter:**

<LINE>

LMC Rollout Project ID (max. 36 characters).

**Example:**

```
Switch(LMC) # LMC-Rollout-Project-ID 12345
Switch(LMC) #
```

## 31.7 LMC-Rollout-Role

Using this command you can set the role of this switch in the LMC.

**Syntax:**

```
LMC-Rollout-Role <LINE>
```

**Parameter:**

<LINE>

LMC Rollout role (max. 36 characters).

**Example:**

```
Switch(LMC) # LMC-Rollout-Role switch
Switch(LMC) #
```

## 31.8 *Operating*

Using this command you can enable the LMC client.

### Syntax:

```
Operating no|try|yes
```

### Parameter:

#### no

Disable the LMC client.

#### try

Disable the LMC client after 24 hours, if the device is not claimed by a project of the LMC.

#### yes

Enable the LMC client.

### Example:

```
Switch(LMC) # operating try
Switch(LMC) #
```

## 31.9 *show*

Using this command you either see the configuration parameters of LMC on this switch or the status of the connection to the LMC.

### Syntax:

```
show [transport-status]
```

### Parameter:

#### transport-status

Shows the status of the connection to the LMC

### Example:

```
Switch(LMC) # show transport-status
LMC Transport Status:
Service-Name      HTTP-Requests      Request-Errors      TX-Bytes
RX-Bytes
Control-Service   0                  0                  0
0
Monitor-Service   0                  0                  0
0

Switch(LMC) # show
LMC Configuration:
Operating          : try
Configuration-Via-DHCP : no
DHCP-Client-Auto-Renew : no
LMC-Domain         : cloud.lancom.de
LMC-Rollout-Project-ID : 12345
```

## 31 LANCOM Management Cloud (LMC) Configuration Commands

```
LMC-Rollout-Location-ID      : Aachen
LMC-Rollout-Role             : switch

LMC Status:
Zero-Touch-Support           : no
Pairing-Token-Present        : no
LMC-Client-Status            : Trying
Management-Status            : Not-Authenticated-With-LMC,No-Cloud-Management
Control-Status               : Disabled
Monitoring-Status            : Disabled
Configuration-Source          : Static Configuration
Active-LMC-Domain            : cloud.lancom.de
Active-LMC-Rollout-Project-ID : 12345
Active-LMC-Rollout-Location-ID : Aachen
Active-LMC-Rollout-Role      : switch
Config-Modified              : no
Device-Id                    : not present
Round-Trip-Time              : 0 ms

Switch (LMC) #
```

## 32 Loop protection Commands

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.

| 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      |

### 32.1 *interval*

Using this command you can 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
```

### 32.2 *mode*

Using this command you can configure loop protection mode globally.

**Syntax:**

```
mode disable|enable
```

**Parameter:****disable**

Disables loop protection mode globally.

**enable**

Enables loop protection mode globally.

**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  |

## 32.3 port-action

Using this command you can configure loop protection port action.

**Syntax:**

```
port-action <port-list> both|log|shutdown
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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
```

## 32 Loop protection Commands

```

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

```

## 32.4 port-mode

Using this command you can configure loop protection port mode for each port.

### Syntax:

```
port-mode <port-list> disable|enable
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### disable

Disables loop protection mode for the selected port(s).

#### enable

Enables loop protection mode for the selected port(s).

### 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

```

## 32.5 port-transmit

Using this command you can configure loop protection port transmit mode for each port.

**Syntax:**

```
port-transmit <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Passively looking for looped PDU's on the selected port(s).

**enable**

Actively generating loop protection PDU's on the selected port(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  |

## 32.6 show

The command display loop protection information.

**Syntax:**

```
show config|status
```

**Parameter:****config**

Shows loop protection configuration.

**status**

Shows 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 | - | - |

## 32.7 shutdown

Using this command you can 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
```

## 33 Large Scale Rollout Configuration Commands

Commands to configure Large Scale Rollout (LSR).

| Command         | Function                                 |
|-----------------|------------------------------------------|
| debug           | Debug Large Scale Rollout                |
| del_certificate | Delete certificate file                  |
| download        | Download certificate file to TFTP server |
| initial-time    | Large Scale Rollout initial time         |
| mode            | Configure Large Scale Rollout mode       |
| password        | Large Scale Rollout login password       |
| project-id      | Large Scale Rollout Project ID           |
| server          | Large Scale Rollout Server               |
| show            | Show Large Scale Rollout information     |
| upload          | Upload Certificate file from TFTP server |
| use_certificate | Configure Use Certificate mode           |
| username        | Large Scale Rollout login username       |

### 33.1 *debug*

Using this command you can debug Large Scale Rollout (LSR).

#### Syntax:

```
debug disable|enable|var
```

#### Parameter:

##### disable

The parameter disables the debugging of LSR.

##### enable

The parameter enables the debugging of LSR.

##### var

Shows the variables of LSR and their current values.

#### Example:

```
Switch(lsr)# debug enable
Switch(lsr)## debug var
_init_time: 21
_reboot_countdown: 0
_conf_reboot_countdown: 0
Switch(lsr)#
```

## 33.2 *del\_certificate*

Using this command you can delete the certificate file of Large Scale Rollout (LSR).

**Syntax:**

```
del_certificate
```

**Example:**

```
Switch(lsr)# del_certificate
Switch(lsr)#
```

## 33.3 *download*

Using this command you can download the certificate file of Large Scale Rollout (LSR) to a TFTP server.

**Syntax:**

```
download <ip-address> <WORD>
```

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

The IP address of the TFTP server.

**<WORD>**

The certificate filename.

**Example:**

```
Switch(lsr)# download 10.10.2.5 cert_file
Switch(lsr)#
```

## 33.4 *initial-time*

Using this command you can set the initial time (seconds) of Large Scale Rollout (LSR).

**Syntax:**

```
initial-time <10-3600>
```

**Example:**

```
Switch(lsr)# initial-time 300
Switch(lsr)#
```

## 33.5 *mode*

Using this command you can enable or disable the Large Scale Rollout (LSR) mode.

**Syntax:**

```
mode disable|enable
```

**Parameter:**

**disable**

The parameter disables the LSR mode.

**enable**

The parameter enables the LSR mode.

**Example:**

```
Switch(lsr)# mode enable
Switch(lsr)#
```

## 33.6 *password*

Using this command you can set the password of the Large Scale Rollout (LSR) user.

**Syntax:**

```
password <LINE>
```

**Parameter:**

**<LINE>**

Up to 255 characters for the password of the LSR user.

**Example:**

```
Switch(lsr)# password TestLSR123
Switch(lsr)#
```

## 33.7 *project-id*

Using this command you can set the project ID of the Large Scale Rollout (LSR).

**Syntax:**

```
project-id <LINE>
```

**Parameter:****<LINE>**

Up to 255 characters for the project ID of the LSR.

**Example:**

```
Switch(lsr)# project-id Test12
Switch(lsr)#
```

## 33.8 server

Using this command you can set the server for Large Scale Rollout (LSR).

**Syntax:**

```
server <IP address or host name>
```

**Parameter:****<IP address or host name>**

The IP address or host name of the LSR server.

**Example:**

```
Switch(lsr)# server lsr.intern
Switch(lsr)#
```

## 33.9 show

Using this command you can information about the configuration of Large Scale Rollout (LSR).

**Syntax:**

```
show [config]
```

**Parameter:****config**

Shows the current defaults and configuration of LSR.

**Example:**

```
Switch(lsr)# show
Configured                               Current
-----
LSR Mode                               : Disabled
LSR Server Address                     : test.intern      test.intern
LSR User Name                           : user            user
LSR User Password                       : TestLSR123       TestLSR123
LSR Project ID                         : Test            Test
LSR Initial Time                       : 60              60
Certificate file                       : 0 Bytes
```

```
Use Certificate      : Disabled
Switch(lsr)#
```

## 33.10 *upload*

Using this command you can upload a certificate file from a TFTP server.

### Syntax:

```
upload <ip-address> <WORD>
```

### Parameter:

#### <ip-address>

The IP address of the TFTP server.

#### <WORD>

The certificate filename.

### Example:

```
Switch(lsr)# upload 10.10.2.5 cert_file
Switch(lsr)#
```

## 33.11 *use\_certificate*

Using this command you can configure to use a certificate for Large Scale Rollout (LSR).

### Syntax:

```
use_certificate disable|enable
```

### Parameter:

#### disable

The parameter disables the usage of a certificate for LSR.

#### enable

The parameter enables the usage of a certificate for LSR.

### Example:

```
Switch(lsr)# use_certificate enable
Switch(lsr)#
```

## 33.12 *username*

Using this command you can configure the user for Large Scale Rollout (LSR).

**Syntax:**

```
username <LINE>
```

**Parameter:**

**<LINE>**

Up to 255 characters for the username of the LSR user.

**Example:**

```
Switch(lsr)# username lsr_user
Switch(lsr)#
```

## 34 Port Mirroring Commands

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.

| Command       | Function                        |
|---------------|---------------------------------|
| analyzer-port | Configure analyzer port         |
| port-mode     | Configure port mode             |
| show          | Show port mirroring information |

### 34.1 *analyzer-port*

Using this command you can configure the analyzer port on the switch.

**Syntax:**

```
analyzer-port <port>|disable
```

**Parameter:**

**disable**

Disables port mirroring

**<port>**

Defines this port as analyzer port and enables port mirroring, possible values depending on distinct hardware model.

**Example:**

```
Switch(mirror)# analyzer-port 1
Switch(mirror)# show

Analyzer Port: 1

Port  Mode
----  -
1     Disabled
2     Disabled
```

### 34.2 *port-mode*

Using this command you can configure port mirroring mode for each port.

**Syntax:**

```
port-mode <port-list> disable|enable|rx-only|tx-only
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

The parameter means you to disable DHCP relay mode.

**enable**

The parameter means you to enable DHCP snooping mode.

**rx-only**

Enables Rx mirroring on the selected port(s).

**tx-only**

Enables Tx mirroring on the selected port(s).

**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
```

## 34.3 show

Using this command you can show port mirroring information.

**Syntax:**

```
show
```

**Example:**

```
Switch(mirror)# show

Analyzer Port: Disabled

Port  Mode
----  -
1     Disabled
2     Disabled
3     Disabled
4     Disabled
```

## 35 MLD Commands

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.

| 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           |

### 35.1 *compatibility*

Using this command you can 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, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (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
```

## 35.2 delete

Using this command you can delete the MLD filtering group.

**Syntax:**

```
delete <port-list> <ipv6-address>
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<ipv6-address>**

IP Multicast Group to delete.

**Example:**

```
Switch(mld)# delete 1 fe80::202:b3ff:fe1e:8329
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Enabled
MLd Proxy : Disabled
```

## 35.3 fast-leave

Using this command you can configure Fast Leave for each port.

**Syntax:**

```
fast-leave <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables fast leave on the selected port(s).

**enable**

Enables fast leave on the selected port(s)

**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
```

## 35.4 filtering

Using this command you can set the IP Multicast Group that will be filtered.

**Syntax:**

```
filtering <port-list> <ipv6-address>
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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 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.

**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                      |

## 35.5 flooding

Using this command you can set MLD Flooding Mode.

### Syntax:

```
flooding disable|enable
```

### Parameter:

#### disable

Disables unregistered IPMCv6 traffic flooding.

#### enable

Enables unregistered IPMCv6 traffic flooding.

### Example:

```
Switch(mld)# flooding disable
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Disabled
MLd Proxy : Disabled
```

## 35.6 lmqi

Using this command you can set the per-VLAN Last Member Query Interval.

### Syntax:

```
lmqi <vlan-list> <0-31744>
```

### Parameter:

#### <vlan-list>

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (1,3-5).

#### <0-31744>

Range:0~31744 tenths of sec, default:100 tenths of sec.

**Example:**

```
Switch(mld)# lmqi 1 31744
```

## 35.7 proxy

Using this command you can set MLD Proxy Mode.

**Syntax:**

```
proxy disable|enable
```

**Parameter:****disable**

Disables MLD proxy.

**enable**

Enables MLD proxy.

**Example:**

```
Switch(mld)# proxy enable
Switch(mld)# show config
MLD Snooping : Disabled
MLd Flooding Control : Disabled
MLd Proxy : Enabled
```

## 35.8 qi

Using this command you can set the per-VLAN Query Interval.

**Syntax:**

```
qi <vlan-list> <1-31744>
```

**Parameter:****<vlan-list>**

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (1,3-5).

**<1-31744>**

Range:1~31744 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

```

## 35.9 *qri*

Using this command you can set the per-VLAN Query Response Interval.

### Syntax:

```
qri <vlan-list> <0-31744>
```

### Parameter:

#### <vlan-list>

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (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

```

## 35.10 *querier*

Using this command you can Enable/Disable the per-VLAN MLD Querier.

### Syntax:

```
querier <vlan-list> disable|enable
```

**Parameter:****<vlan-list>**

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (1,3-5).

**disable**

Disables the per-VLAN MLD querier.

**enable**

Enables 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
```

## 35.11 router

Using this command you can set Router Port.

**Syntax:**

```
router <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables router port

**enable**

Enables 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               |

## 35.12 *rv*

Using this command you can set the per-VLAN Robustness Variable.

### Syntax:

```
rv <vlan-list> <2-255>
```

### Parameter:

#### <vlan-list>

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (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
```

## 35.13 *show*

Using this command you can show MLD Information.

### Syntax:

```
show config
show groups|ssm|status|version [<1-4094>]
```

### Parameter:

#### config

Shows MLD Configuration

**groups**

Entries in the MLD Group table

**ssm**

Entries in the MLDv2 information table

**status**

Shows MLD status

**version**

Shows MLD working querier/host version currently

**<1-4094>**

VLAN ID, possible values 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 |

## 35.14 *snooping*

Using this command you can set MLD Snooping Mode.

**Syntax:**

```
snooping disable|enable
```

**Parameter:****disable**

Disables the global MLD snooping

**enable**

Enables the global MLD snooping

**Example:**

```
Switch(mld)# snooping enable
Switch(mld)# show config
MLD Snooping : Enabled
MLd Flooding Control : Disabled
MLd Proxy : Enabled
```

## 35.15 *ssm-range*

Using this command you can 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
```

## 35.16 *state*

Using this command you can Enable/Disable the per-VLAN MLD Snooping.

**Syntax:**

```
state <vlan-list> disable|enable
```

**Parameter:****<vlan-list>**

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (1,3-5).

**disable**

Disables the per-VLAN MLD snooping

**enable**

Enables 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

```

## 35.17 throttling

Using this command you can set per-port Throttling.

### Syntax:

```
throttling <port-list> <0-10>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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

```

## 35.18 uri

Using this command you can set the per-VLAN Unsolicited Report Interval.

### Syntax:

```
uri <vlan-list> <0-31744>
```

**Parameter:****<vlan-list>**

VLAN list, possible values from 1 to 4094. Individual VLANs are separated by comma, VLAN ranges are joined by hyphen (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
```

## 36 MVR Commands

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.

| Command                | Function                                       |
|------------------------|------------------------------------------------|
| <b>immediate-leave</b> | Configure MVR port state about immediate leave |
| <b>mode</b>            | Configure MVR mode                             |
| <b>port-mode</b>       | Configure MVR port mode                        |
| <b>port-type</b>       | Configure MVR port type                        |
| <b>show</b>            | Show command                                   |

### 36.1 *allow*

The IP Multicast Group that will be allowed.

#### Syntax:

```
allow <port-list> <ipmc-address> <ipmc-address>
```

#### Parameter:

##### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

##### <ipmc-address>

Add new entry to the group allow table, group allow start address

##### <ipmc-address>

Add new entry to the group allow table, group allow end address

#### Example:

```
Switch(mvr) # allow 5 224.0.0.2 224.0.0.5
Switch(mvr) #
```

### 36.2 *delete*

Delete MVR allow group.

**Syntax:**

```
delete <port-list> <ipmc-address> <ipmc-address>
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<ipmc-address>**

Delete MVR allow group, group allow start address

**<ipmc-address>**

Delete MVR allow group, group allow end address

**Example:**

```
Switch(mvr)# delete 5 224.0.0.2 224.0.0.5
Switch(mvr)#
```

## 36.3 *immediate-leave*

Using this command you can configure MVR port state about immediate leave.

**Syntax:**

```
immediate-leave <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables immediate leave on the specific port

**enable**

Enables immediate leave on the specific port

**Example:**

```
Switch(mvr)# immediate-leave 1 enable
Switch(mvr)# show config
MVR Mode      : Disabled
Multicast 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
```

## 36.4 *mode*

Using this command you can configure MVR mode.

### Syntax:

```
mode disable|enable <1-4094>
```

### Parameter:

#### disable

Disables MVR

#### enable

Enables 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
Multicast VLAN ID : 1
```

## 36.5 *port-mode*

Using this command you can configure MVR port mode.

### Syntax:

```
port-mode <port-list> disable|enable
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### disable

Disables MVR on the specific port

#### enable

Enables MVR on the specific port

### Example:

```
Switch(mvr)# port-mode 1 enable
Switch(mvr)# show config
MVR Mode      : Disabled
Multicast VLAN ID : 1

Port  Port Mode  Port Type  Immediate Leave
```

| Port | Port Mode | Port Type | Immediate Leave |
|------|-----------|-----------|-----------------|
| 1    | Enabled   | Receive   | Enabled         |
| 2    | Disabled  | Receive   | Disabled        |
| 3    | Disabled  | Receive   | Disabled        |
| 4    | Disabled  | Receive   | Disabled        |

## 36.6 *port-type*

Using this command you can configure MVR port type.

### Syntax:

```
port-type <port-list> receiver|source
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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
Multicast 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        |

## 36.7 *show*

Using this command you can show command.

### Syntax:

```
show allow|config|group|statistics
```

### Parameter:

#### allow

Shows MVR allow group information

**config**

Shows MVR configuration

**group**

Shows MVR group information

**statistics**

Shows 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
```

## 37 NAS Commands

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.

| 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                                                                                           |

### 37.1 *agetime*

Using this command you can 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

```

## 37.2 clear

Using this command you can clear NAS statistics.

### Syntax:

```
clear <port-list>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

### Example:

```
Switch(nas)# clear 1
```

## 37.3 eapol-timeout

Using this command you can 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

```

## 37.4 *guest-vlan*

Using this command you can configure the Guest VLAN mode.

### Syntax:

```

guest-vlan disable
guest-vlan enable <1-4094> <1-255> allow_if_eapol_seen (disable|enable)

```

### Parameter:

#### disable

Disables Guest VLAN

#### enable

Enables 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 response 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

```

## 37.5 hold-time

Using this command you can configure the time in seconds before a MAC-address that failed authentication gets a new authentication chance.

### Syntax:

```
hold-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
```

## 37.6 mode

Using this command you can 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

```

## 37.7 port-guest-vlan

Using this command you can configure the Guest VLAN mode of switch ports.

### Syntax:

```
port-guest-vlan <port-list> disable|enable
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### disable

Disables Guest VLAN

#### enable

Enables 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   |

## 37.8 port-radius-qos

Using this command you can configure the RADIUS-assigned QoS mode of switch ports.

### Syntax:

```
port-radius-qos <port-list> disable|enable
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### disable

Disables RADIUS-assigned QoS

**enable**

Enables 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   |

## 37.9 port-radius-vlan

Using this command you can configure the RADIUS-assigned VLAN mode of switch ports.

**Syntax:**

```
port-radius-vlan <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables RADIUS-assigned VLAN

**enable**

Enables 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   |

## 37.10 port-state

Using this command you can configure the NAS port state.

**Syntax:**

```
port-state <port-list> force-auth|force-unauth|mac-based|multi|port-based|single
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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   |

## 37.11 *radius-qos*

Using this command you can configure the RADIUS-assigned QoS mode.

**Syntax:**

```
radius-qos disable|enable
```

**Parameter:****disable**

Disables RADIUS-assigned QoS

**enable**

Enables 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
```

## 37.12 radius-vlan

Using this command you can configure the RADIUS-assigned VLAN mode.

**Syntax:**

```
radius-vlan disable|enable
```

**Parameter:****disable**

Disables RADIUS-assigned VLAN

**enable**

Enables 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
```

## 37.13 reauth-period

Using this command you can 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
```

## 37.14 *reauthentication*

Using this command you can configure the NAS reauthentication mode.

**Syntax:**

```
reauthentication disable|enable
```

**Parameter:****disable**

Disables NAS reauthentication

**enable**

Enables 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
```

## 37.15 *restart*

Using this command you can restart NAS authentication process.

### Syntax:

```
restart <port-list> reauthenticate|reinitialize
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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
```

## 37.16 *show*

Show NAS information.

### Syntax:

```
show config|port-config|status  
show statistics <port-list>
```

### Parameter:

#### config

Shows NAS configuration

#### port-config

Shows NAS port configuration

#### statistics

Shows NAS statistics

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### status

Shows 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 - -
```

## 38 PoE Commands

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.



This feature only applies in some models with Power over Ethernet (PoE) feature. The models without PoE are not available to use this command.

| 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                 |

### 38.1 *delay-mode*

Using this command you can configure PoE Power Delay mode.

#### Syntax:

```
delay-mode <port-list> disable|enable
```

#### Parameter:

##### <port-list>

available value is from 1 to 24 format:1,3-5

##### disable

Disables PoE Power Delay

##### enable

Enables PoE Power Delay

#### Example:

```
Switch(poe)# delay-mode 3 enable
Switch(poe)#
```

## 38.2 *delay-time*

Using this command you can configure PoE Power Delay Time.

**Syntax:**

```
delay-time <port-list>
```

**Parameter:****<port-list>**

available value is from 1 to 24 format:1,3-5

**<0-300>**

Delay Time : 0 ~ 300(sec)

**Example:**

```
Switch(poe)# delay-time 5 60
Switch(poe)#
```

## 38.3 *detection*

Using this command you can configure PoE port capacitor detection.

**Syntax:**

```
detection <port-list> 4-point|both|legacy
```

**Parameter:****<port-list>**

available value is from 1 to 24 format:1,3-5

**4-point**

IEEE 802.3af 4-point detection only

**both**

IEEE 802.3af 4-point detection followed by legacy

**legacy**

Legacy capacitive detection only

**Example:**

```
Switch(poe)# detection 5 legacy
Switch(poe)#
```

## 38.4 *failure-action*

Using this command you can configure PoE Auto Check Failure Action.

### Syntax:

```
failure-action <port-list> nothing|reboot-Remote-PD
```

### Parameter:

#### <port-list>

available value is from 1 to 24 format:1,3-5

#### nothing

Failure Action : Nothing

#### reboot-Remote-PD

Failure Action : Reboot Remote PD

### Example:

```
Switch(poe) # failure-action 5 reboot-Remote-PD
Switch(poe) #
```

## 38.5 *hour*

Using this command you can configure PoE Schedule Hour.

### Syntax:

```
hour <port-list> <0-23> (All|Sun) (disable|enable)
```

### Parameter:

#### <port-list>

available value is from 1 to 24 format:1,3-5

#### <0-23>

Hour : 0 ~ 23

#### All

Select all week

#### Sun

Sunday

#### disable

Disables PoE Schedule

#### enable

Enables PoE Schedule

**Example:**

```
Switch(poe)# hour 5 20 All enable
Switch(poe)#
```

## 38.6 *interval-time*

Using this command you can configure PoE Auto Check Interval Time.

**Syntax:**

```
interval-time <port-list> <10-120>
```

**Parameter:****<port-list>**

available value is from 1 to 24 format:1,3-5

**<10-120>**

Interval Time : 10 ~ 120(sec)

**Example:**

```
Switch(poe)# interval-time 5 60
Switch(poe)#
```

## 38.7 *max-power*

Using this command you can configure PoE maximum power per port.

**Syntax:**

```
max-power <port-list> <port-power>
```

**Parameter:****<port-list>:**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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           |

## 38.8 *mode*

Using this command you can configure PoE mode.

### Syntax:

```
mode <port-list> disable|enable
```

### Parameter:

#### <port-list>:

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### disable

Disables PoE operation.

#### enable

Enables 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
```

## 38.9 *ping-check*

Using this command you can enable or disable POE Ping Check.

### Syntax:

```
ping-check disable|enable
```

### Parameter:

#### disable

Disables POE Ping Check

#### enable

Enables POE Ping Check

**Example:**

```
Switch(poe)# ping-check enable
Switch(poe)#
```

## 38.10 *ping-ip-addr*

Using this command you can configure PoE Ping IP Address.

**Syntax:**

```
ping-ip-addr <port-list> <ip-address>
```

**Parameter:****<port-list>**

available value is from 1 to 24 format:1,3-5

**<ip-address>**

Set PoE Ping IP Address

**Example:**

```
Switch(poe)# ping-ip-addr 5 192.168.2.200
Switch(poe)#
```

## 38.11 *ping-retry-time*

Using this command you can configure PoE Auto Check Retry Time.

**Syntax:**

```
ping-retry-time <port-list>
```

**Parameter:****<port-list>**

available value is from 1 to 24 format:1,3-5

**<1-5>**

Retry Time : 1 ~ 5

**Example:**

```
Switch(poe)# ping-retry-time 5 3
Switch(poe)#
```

## 38.12 *priority*

Using this command you can configure PoE priority.

### Syntax:

```
priority <port-list> critical|high|low
```

### Parameter:

#### <port-list>:

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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           |

## 38.13 *reboot-time*

Using this command you can configure PoE Auto Check Reboot Time.

### Syntax:

```
reboot-time <3-120>
```

### Parameter:

#### <port-list>

available value is from 1 to 24 format:1,3-5

#### <3-120>

Reboot Time : 3 ~ 120(sec)

**Example:**

```
Switch(poe)# reboot-time 5 60
Switch(poe)#
```

## 38.14 *reset-port*

Using this command you can reset PoE port.

**Syntax:**

```
reset-port <port-list>
```

**Parameter:**

**<port-list>:**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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
```

## 38.15 *retry-time*

Using this command you can configure the retry time of PoE port.

**Syntax:**

```
retry-time disable|<retry-period>
```

**Parameter:**

**disable**

Disables 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
```

## 38.16 *schedule-mode*

Using this command you can configure PoE Schedule mode.

### Syntax:

```
schedule-mode <port-list> disable|enable
```

### Parameter:

#### <port-list>

available value is from 1 to 24 format:1,3-5

#### disable

Disables PoE Schedule

#### enable

Enables PoE Schedule

### Example:

```
Switch(poe)# schedule-mode 5 enable
Switch(poe)#
```

## 38.17 *select-all*

Using this command you can configure PoE Schedule Select All.

### Syntax:

```
select-all <port-list>
```

### Parameter:

#### <port-list>

available value is from 1 to 24 format:1,3-5

#### disable

Disables PoE Schedule Select All

#### enable

Enables PoE Schedule Select All

### Example:

```
Switch(poe)# select-all 5 enable
Switch(poe)#
```

## 38.18 *show*

Using this command you can show the current PoE configuration and statistics.

### Syntax:

```
show config|status
```

### Parameter:

#### config

Shows PoE configuration.

#### status

Shows 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
```

## 39 Port configuration Commands

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

| 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        |

### 39.1 *clear*

Using this command you can clear port counter.

#### Syntax:

```
clear <port-list>
```

#### Parameter:

##### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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          0
-----
2/Rx      0                0          0          0          0
2/Tx      0                0          0          0          0
```

|      |   |   |   |   |   |
|------|---|---|---|---|---|
| 3/Rx | 0 | 0 | 0 | 0 | 0 |
| 3/Tx | 0 | 0 | 0 | 0 | 0 |

## 39.2 *description*

Using this command you can define a specific description for each port.

### Syntax:

```
description <port-list> <desc>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### <desc>

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       -          -
-----
```

## 39.3 *excessive-collision*

Using this command you can configure excessive collision operation for each port.

### Syntax:

```
excessive-collision <port-list> discard|restart
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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
-----
```

## 39.4 flow-control

Using this command you can configure flow operation for each port.

**Syntax:**

```
flow-control <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables flow control operation on the selected port(s).

**enable**

Enables flow control operation on the selected port(s).

**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
-----
```

## 39.5 *max-frame*

Using this command you can configure maximum receive frame size for each port.

### Syntax:

```
max-frame <port-list> <1518-10056>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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       -          -
```

## 39.6 *power-saving*

Using this command you can configure power saving operation.

### Syntax:

```
power-saving <port-list> actiphy|disable|dynamic|enable
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### actiphy

Enables ActiPHY power control on the selected port(s).

**disable**

Disables power saving on the selected port(s).

**dynamic**

Enables dynamic power control on the selected port(s).

**enable**

Enables power saving on the selected port(s).

**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
-----
```

## 39.7 show

Using this command you can show port information.

**Syntax:**

```
show configuration
show detail-counter <port>
show sfp <sfp-port>
show simple-counter
show status [<port-list>]
```

**Parameter:****configuration**

Shows port configuration

**detail-counter**

Shows detailed traffic statistics for specific switch port

**<port>**

Port number

**sfp**

Shows sfp information

**<sfp-port>**

SFP port number

**simple-counter**

Shows general traffic statistics for all switch ports

**status**

Shows port status

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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     |          |   |

## 39.8 speed-duplex

Using this command you can configure speed duplex operation.

**Syntax:**

```
speed-duplex <port-list> 10-full|10-half|...|disable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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

**auto**

Enables auto speed duplex configuration

**disable**

Disables the switch port operation

**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 - -
-----
```

## 40 Port security Commands

This section shows you how 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.

| 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                                                  |

### 40.1 *action*

Using this command you can configure the action involved with exceeding the limit.

**Syntax:**

```
action <port-list> both|none|shutdown|trap
```

**Parameter:**

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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            |

## 40.2 *aging*

Using this command you can configure the aging mode and period.

### Syntax:

```
aging disable
aging enable <10-10000000>
```

### Parameter:

#### disable

Disables aging.

#### enable

Enables 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
```

## 40.3 *limit*

Using this command you can configure the max. number of MAC addresses that can be learned on the port.

### Syntax:

```
limit <port-list> <1-1024>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### <1-1024>

Max. number of MAC addresses on selected port (s).

**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
```

## 40.4 mode

Using this command you can 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
```

## 40.5 port-mode

Using this command you can configure the port mode.

**Syntax:**

```
port-mode <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables port security on selected port(s).

**enable**

Enables port security on selected port(s).

**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            |

## 40.6 reopen

Using this command you can reopen one or more ports whose limit is exceeded and shut down.

**Syntax:**

```
reopen <port-list>
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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            |

## 40.7 show

Using this command you can show port security status.

**Syntax:**

```
show config|switch-status
show port-status <port>
```

**Parameter:****config**

Shows port security configuration

**port-status**

Shows MAC addresses learned by port security

**<port>**

Port number, possible values depending on distinct hardware model.

**switch-status**

Shows 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
```

## 41 Privilege level Commands

This section 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.

| Command | Function                          |
|---------|-----------------------------------|
| group   | Configure a privilege level group |
| show    | Show privilege configuration      |

### 41.1 *group*

Using this command you can assign a privilege group to a certain privilege level.

#### Syntax:

```
group <group-name> <1-15>
```

#### Parameter:

##### <group-name>

Privilege group name

- > Account
- > Aggregation
- > Diagnostics
- > EEE
- > Easyport
- > GARP
- > GVRP
- > IP
- > IPMC\_Snooping
- > LACP
- > LLDP
- > LLDP\_MED
- > Loop\_Protect
- > MAC\_Table
- > MVR
- > Maintenance
- > Mirroring
- > PoE
- > Ports
- > Private\_VLANs
- > QoS
- > SFlow

## 41 Privilege level Commands

- > SMTP
- > SNMP
- > Security
- > Single\_IP
- > Spanning\_Tree
- > System
- > Trap\_Event
- > UPnP
- > VCL
- > VLANs
- > Voice\_VLAN

&lt;1-15&gt;

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              |

## 41.2 show

Using this command you can show the current privilege group configuration.

**Syntax:***show***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 |

## 42 Private VLAN Commands

In a private VLAN, communication between ports in that private VLAN is not permitted. A VLAN can be configured as a private VLAN.

| Command      | Function                      |
|--------------|-------------------------------|
| delete       | Delete private VLAN group     |
| port-isolate | Configure port isolation      |
| private-vlan | Configure private VLAN group  |
| show         | Show private VLAN information |

### 42.1 *delete*

Using this command you can delete private VLAN group.

**Syntax:**

```
delete private-vlan <1-X>
```

**Parameter:**

**<1-X>**

Private VLAN ID, possible values depending on distinct hardware model.

**Example:**

```
Switch(pvlan)# delete private-vlan 12
```

### 42.2 *port-isolate*

Using this command you can configure port isolation.

**Syntax:**

```
port-isolate <port-list> disable|enable
```

**Parameter:**

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables port isolation

**enable**

Enables port isolation

**Example:**

```
Switch(pvlan)# port-isolate 1 enable
Switch(pvlan)# show port-isolate
Port    Isolation
----    -
1       Enabled
2       Disabled
3       Disabled
4       Disabled
```

## 42.3 *private-vlan*

Using this command you can configure private VLAN group.

**Syntax:**

```
private-vlan <1-X> <port-list>
```

**Parameter:****<1-X>**

Private VLAN ID, possible values depending on distinct hardware model.

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**Example:**

```
Switch(pvlan)# private-vlan 2 10
Switch(pvlan)# show private-vlan
PVLAN ID  Ports
-----
1         1-26
2         10
```

## 42.4 *show*

Using this command you can show private VLAN information.

**Syntax:**

```
show port-isolate|private-vlan
```

**Parameter:****port-isolate**

Shows port isolation information

**private-vlan**

Shows private VLAN membership information



The default Private VLAN includes all port members on the switch. Use 26-port switch as example.

**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          1-26
```

## 43 QoS Commands

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.

| 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                                                                                                                                                                                                                                                                                           |

## 43.1 *delete*

Using this command you can delete QCE.

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

### Syntax:

```
delete <1-256>
```

### Parameter:

**<1-256>**

QCE ID must be exist

### Example:

```
Switch(qos)# delete 1
```

## 43.2 *dscp-classification*

Using this command you can configure DSCP ingress classification.

### Syntax:

```
dscp-classification map <class-list> <dpl-list> <0-63>  
dscp-classification 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

#### <dpl-list>

Drop precedence level list, available value is from 0 to 1

#### <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**

Disables DSCP ingress classification

**enable**

Enables 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
```

## 43.3 *dscp-map*

Using this command you can configure DSCP mapping table.

**Syntax:**

```
dscp-map <dscp-list> <0-7> <0-1>
```

**Parameter:****<dscp-list>**

DSCP list, format : 1,3,5-7

**<0-7>**

QoS classenable The parameter let you enable GVRP function on port.

**<0-1>**

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 |

## 43.4 *dscp-remap*

Using this command you can configure DSCP egress remap table.

### Syntax:

```
dscp-remap <dscp-list> <dpl-list> <0-63>
```

### Parameter:

#### <dscp-list>

DSCP list, format : 1,3,5-7

#### <dpl-list>

Drop precedence level list, available value is from 0 to 1

#### <0-63>

Egress remapped DSCP

### Example:

```
Switch(qos)# dscp-remap 3 44
Switch(qos)# show dscp-translation
```

| DSCP | Ingress<br>Translation | Ingress<br>Classify | Egress<br>Remap |
|------|------------------------|---------------------|-----------------|
| 0    | 0                      | Disabled            | 0               |
| 1    | 1                      | Enabled             | 1               |
| 2    | 2                      | Disabled            | 2               |
| 3    | 3                      | Disabled            | 44              |
| 4    | 4                      | Disabled            | 4               |

## 43.5 *dscp-translation*

Using this command you can 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
```

## 43.6 dscp-trust

Using this command you can configure trusted DSCP value which is used for QoS classification.

**Syntax:**

```
dscp-trust <dscp-list> disable|enable
```

**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
```

## 43.7 port-classify

Using this command you can configure QoS ingress port classification.

**Syntax:**

```
port-classify class <port-list> <0-7>
port-classify dei <port-list> <0-1>
port-classify dpl <port-list> <0-1>
port-classify dscp <port-list> disable|enable
```

```
port-classify map <port-list> <0-7> <0-1> <0-7> <0-1>
port-classify pcp <port-list> <0-7>
port-classify tag <port-list> disable|enable
```

**Parameter:****class**

Configure the default QoS class

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<0-1>**

DP level for frames not classified in any other way

**dscp**

Configure DSCP based classification mode

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables DSCP based classification

**enable**

Enables 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>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<0-7>**

Priority Code Point

**<0-1>**

Drop Eligible Indicator

**<0-7>**

QoS class

**<0-1>**

Drop precedence level

**pcp**

Configure the default PCP for untagged frames

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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
```

## 43.8 port-dscp

Using this command you can do QoS port DSCP configuration.

### Syntax:

```
port-dscp classification <port-list> all|disable|selected|zero
port-dscp egress-remark <port-list> (disable|enable) (remap_dp_aware|remap_dp_unaware)
port-dscp translation <port-list> disable|enable
```

**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>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**all**

Classify all DSCP

**disable**

Disables 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>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables DSCP egress rewrite

**enable**

Enables DSCP egress rewrite with the value received from analyzer

**remap\_dp\_aware**

Rewrite DSCP in egress frame with remapped DSCP where remap is DP aware and DP = 1

**remap\_dp\_unaware**

Rewrite DSCP in egress frame with remapped DSCP where remap is DP unaware or DP = 0

**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>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables DSCP ingress translation

**enable**

Enables 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      |

## 43.9 port-policer

Using this command you can do Port policer.

**Syntax:**

```
port-policer flow-control|mode <port-list> disable|enable
port-policer rate <port-list> Kbps|Kfps|Mbps|fps <rate-range>
```

**Parameter:****flow-control**

Configure the port policer flow control mode

**mode**

Configure the port policer mode

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables port policer flow control

**enable**

Enables port policer flow control

**rate**

Configure the port policer rate

**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)

**<rate-range>**

**<100-10000000>**

Rate for Kbps

**<1-10000>**

Rate for Kfps

**<1-10000>**

Rate for Mbps

**<100-10000000>**

Rate for fps

**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
```

## 43.10 *port-scheduler*

Using this command you can do QoS egress port schedulers.

### Syntax:

```
port-scheduler mode <port-list> strict|weighted
port-scheduler weight <port-list> <0-5> <1-100>
```

### Parameter:

#### mode

Configure the port scheduler mode

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### strict

Strict priority scheduler mode

#### weighted

Weighted scheduler mode

#### weight

Configure the port scheduler weight

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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
Switch(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%)
```

## 43.11 *port-shaper*

Using this command you can do Port shaper .

### Syntax:

```
port-shaper mode <port-list> disable|enable
port-shaper rate <port-list> <100-10000000>
```

### Parameter:

#### mode

Configure the port shaper mode

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### disable

Disable

#### enable

Enable

#### rate

Configure the port shaper rate

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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
```

## 43.12 *qce*

Using this command you can add or modify QoS control entry.

### Syntax:

```
qce <1-256> <0-256> <port-list> any|etype|ipv4|ipv6|llc|snap
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

### 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>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### <port-list>

Port member for QCE

#### any

Any frame type 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

### 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

```

### 43.12.1 *class*

Using this command you can configure action of QoS class for this QCE.

#### Syntax:

```
class default|<0-7>
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

#### Parameter:

##### class

Action of QoS class for this QCE

##### default

Basic classification

##### <0-7>

QoS class value

#### Example:

```

Switch(qos)# qce 13 23 25 etype
Switch(qos/qce-etype)# class 7
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

```

### 43.12.2 *classified-dscp*

Using this command you can configure action of DSCP for this QCE.

#### Syntax:

```
classified-dscp default|<0-63>
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****default**

Basic classification

**<0-63>**

DSCP value

**Example:**

```

Switch(qos)# qce 13 23 25 etype
Switch(qos/qce-etype)# classified-dscp 63
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

```

**43.12.3 dei**

Using this command you can configure whether frames can hit the action according to DEI.

**Syntax:**

```
dei any|<0-1>
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****any**

Don't care

**<0-1>**

Drop Eligible Indicator value

**Example:**

```

Switch(qos)# qce 13 23 25 etype
Switch(qos/qce-etype)# dei 1
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
```

### 43.12.4 *dmac*

Using this command you can configure destination MAC address for this QCE.

#### Syntax:

```
dmac any|broadcast|multicast|unicast
```

 The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

#### Parameter:

##### any

Don't care

##### broadcast

Frame must be broadcast

##### multicast

Frame must be multicast

##### unicast

Frame must be unicast

#### Example:

```
Switch(qos)# qce 13 23 25 etype
Switch(qos/qce-etype)# dmac unicast
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
```

### 43.12.5 *dp*

Using this command you can configure the action of drop precedence level for this QCE.

#### Syntax:

```
dp default|<0-1>
```

 The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****default**

Basic classification

**<0-1>**

Drop precedence level

**Example:**

```
Switch(qos)# qce 13 23 25 etype
Switch(qos/qce-etype)# dp 3
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
```

**43.12.6 end**

Using this command you can finish QCE settings and return to QoS mode.

**Syntax:***end*

The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Example:**

```
Switch(qos)# qce 13 23 25 etype
Switch(qos/qce-etype)# dscp any
Switch(qos/qce-etype)# end
Switch(qos)#
```

**43.12.7 pcp**

Using this command you can configure whether frames can hit the action according to PCP.

**Syntax:***pcp* 0-1|0-3|2-3|4-5|4-7|6-7|any|<0-7>

The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****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

**Example:**

```
Switch(qos)# qce 13 23 25 etype
Switch(qos/qce-etype)# pcp 5
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
```

**43.12.8 show**

Using this command you can display current QCE configuration.

**Syntax:***show*

The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Example:**

```
Switch(qos)# qce 13 23 25 etype
Switch(qos/qce-etype)# dscp any
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
-----
Ether Type   : Any

Action Parameters
-----
Class        : 7
DP           : 3
DSCP         : 63

```

### 43.12.9 *smac*

Using this command you can configure source MAC address for this QCE.

#### Syntax:

```
smac <oui-address>|any
```

 The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

#### Parameter:

##### <oui-address>

A frame that hits this QCE matches this source OUI address value

##### any

Don't care

#### Example:

```

Switch(qos)# qce 13 23 25 etype
Switch(qos/qce-etype)# smac any
Switch(qos/qce-etype)# show
QCE ID       : 13
Frame Type   : Ethernet          Port       : 25,29

VLAN Parameters
-----
Tag          : Tagged
VID          : 21-25
PCP          : 5
DEI          : 1

MAC Parameters
-----
SMAC         : Any
DMAC Type    : Unicast

Ethernet Parameters
-----
Ether Type   : Any

Action Parameters
-----
Class        : 7
DP           : 3
DSCP         : 63

```

### 43.12.10 *tag*

Using this command you can configure whether frames can hit the action according to the 802.1Q tagged.

#### Syntax:

```
tag any|disable|enable
```

 The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

#### Parameter:

##### any

Don't care.

**disable**

Untagged frame only.

**enable**

Tagged frame only.

**Example:**

```
Switch(qos)# qce 13 23 25 etype
Switch(qos/qce-etype)# tag enable
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
```

## 43.12.11 vid

Using this command you can configure the VLAN ID filter for this QCE.

**Syntax:**

```
vid          any|<vlan-range>
```



The availability of 2nd level parameters depends on the frame-type you select (any, ipv4, etc.).

**Parameter:****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)# 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
```

## 43.13 *queue-shaper*

Using this command you can do Queue shaper.

### Syntax:

```
queue-shaper excess|mode <port-list> <queue-list> disable|enable
queue-shaper rate <port-list> <queue-list> <100-1000000>
```

### Parameter:

#### excess

Configure the port queue excess bandwidth mode

#### mode

Configure the port queue shaper mode

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### <queue-list>

Queue list, available value is from 0 to 7

#### disable

Disables use of excess bandwidth

#### enable

Enables use of excess bandwidth

#### rate

Configure the port queue shaper rate

#### <100-1000000>

Rate in kilo bits per second (Kbps)

### 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
```

## 43.14 *show*

Using this command you can show QoS information .

### Syntax:

```
show (class-map|dscp-map|dscp-translation|port-classify|port-dscp|
      port-policer|port-shaper|scheduler-mode|storm|tag-remarking)

show (port-map|queue-shaper|remarking-map|scheduler-weight) <port-list>

show qce <1-256>
show qcl-status (combined|conflicts|static|voice-vlan)
```

### Parameter:

#### **class-map**

Shows QoS class and DP level to DSCP mapping

#### **dscp-map**

Shows DSCP to QoS class and DP level mapping

#### **dscp-translation**

Shows DSCP ingress and egress translation

#### **port-classify**

Shows QoS ingress port classification

#### **port-dscp**

Shows port DSCP configuration

#### **port-policer**

Shows port policer configuration

#### **port-shaper**

Shows port shaper configuration

#### **scheduler-mode**

Shows port scheduler mode configuration

#### **storm**

Shows storm control configuration

#### **tag-remarking**

Shows port tag remarking configuration

#### **port-map**

Shows port classification (PCP, DEI) to (QoS class, DP level) mapping table

#### **queue-shaper**

Shows port queue shaper configuration

#### **remarking-map**

Shows port tag remarking mapping table

#### **scheduler-weight**

Shows port scheduler weight configuration

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**qce**

Shows QCL control list

**<1-256>**

QCE ID

**qcl-status**

Shows QCL status

**combined**

Shows the combined status

**conflicts**

Shows all conflict status

**static**

Shows the static user configured status

**voice-vlan**

Shows the status by Voice VLAN

**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

```

## 43.15 storm

Using this command you can configure storm rate control.

### Syntax:

```
storm (broadcast|multicast|unicast) (disable|enable)
```

### Parameter:

#### broadcast

Broadcast frame storm control

#### unicast

Unicast frame storm control

**unknown**

Unknown frame storm control

**disable**

Disables port storm control

**enable**

Enables port storm control

**Example:**

```
Switch(qos)# show storm
Frame Type   State      Rate
-----
Unicast      Disabled    1 pps
Multicast    Disabled    1 pps
Broadcast    Disabled    1 pps
```

## 43.16 tag-remarking

Using this command you can do QoS egress port tag remarking.

**Syntax:**

```
tag-remarking dei <port-list> <0-1>
tag-remarking map <port-list> <class-list> <dpl-list> <0-7> <0-1>
tag-remarking mode <port-list> classified|default|mapped
tag-remarking pcp <port-list> <0-7>
```

**Parameter:****dei**

Configure the default DEI. This value is used when port tag remarking mode is set to 'default'.

**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

**mode**

Configure the port tag remarking mode

**pcp**

Configure the default PCP. This value is used when port tag remarking mode is set to 'default'

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<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

**classified**

Use classified PCP/DEI values

**default**

Use default PCP/DEI values

**mapped**

Use mapped versions of QoS class and DP level

**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
```

## 44 Reboot Commands

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.

| Command | Function          |
|---------|-------------------|
| reboot  | Reboot the system |

### 44.1 *reboot*

Using this command you can reboot the system.

**Syntax:**

```
reboot
```

**Example:**

```
Switch# reboot
```

## 45 SFlow Commands

The sFlow Collector configuration for the switch can be monitored and modified here. Up to 1 Collector is supported. This section allows for configuring sFlow collector IP type, sFlow collector IP Address, Port Number, for each sFlow Collector.

| Command   | Function                      |
|-----------|-------------------------------|
| collector | sFlow Collector Configuration |
| sampler   | sFlow sampler Configuration   |
| show      | Show sFlow                    |

### 45.1 *collector*

Using this command you can 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 is not set.

##### <200-1500>

Set the receiver 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
```

## 45.2 *sampler*

Using this command you can sFlow sampler Configuration .

### Syntax:

```
sampler <port-list> ALL|RX|TX|none <0-4095> <14-200> <0-3600>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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
```

# 45.3 show

Using this command you can show sFlow.

**Syntax:**

```
show collector|sampler
```

**Parameter:**

**collector**

Shows sFlow collector

**sampler**

Shows 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
```

## 46 Single IP Commands

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.

| Command | Function                       |
|---------|--------------------------------|
| connect | Connect to slave switch        |
| connect | Configure single ip group name |
| mode    | Configure single ip mode       |
| show    | Show single ip information     |

### 46.1 *connect*

Using this command you can connect to slave switch.

**Syntax:**

```
connect <1-16>
```

**Parameter:**

**<1-16>**

Slave switch index

**Example:**

```
Switch(sip)# connect 1
```

### 46.2 *group-name*

Using this command you can configure single IP group name.

**Syntax:**

```
group-name <name>
```

**Parameter:****<name>**

Up to 64 characters describing group name

**Example:**

```
Switch(sip)# group-name david
Switch(sip)# show config
Mode           : Disabled
Group Name     : david
```

## 46.3 *mode*

Using this command you can configure single IP mode.

**Syntax:**

```
mode disable|master|slave
```

**Parameter:****disable**

Disables 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
```

## 46.4 *show*

Using this command you can show single IP information.

**Syntax:**

```
show config|info
```

**Parameter:****config**

Shows single ip configuration.

**info**

Shows single ip group information.

**Example:**

```
Switch(sip)# show config
Mode           : Disabled
Group Name     : VirtualStack

Switch(sip)# show info
Index  Model Name      MAC Address
-----

```

## 47 SMTP Commands

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.

| Command      | Function                       |
|--------------|--------------------------------|
| delete       | Delete commands                |
| level        | Delete commands                |
| 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 |

### 47.1 delete

Using this command you can delete command.

#### Syntax:

```
delete mail-address <1-6>  
delete 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 Address 1  :
Email Address 2  :
Email Address 3  :
Email Address 4  :
Email Address 5  :
Email Address 6  :
```

## 47.2 level

Using this command you can 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 Address 1  :
Email Address 2  :
Email Address 3  :
Email Address 4  :
Email Address 5  :
Email Address 6  :
```

## 47.3 mail-address

Using this command you can 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 Address 1  :
Email Address 2  :
Email Address 3  :
Email Address 4  :
Email Address 5  :
Email Address 6  : david@tech.com.tw
```

## 47.4 return-path

Using this command you can 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 Address 1  :
```

```
Email Adress 2 :
Email Adress 3 :
Email Adress 4 :
Email Adress 5 :
Email Adress 6 : david@tech.com.tw
```

## 47.5 sender

Using this command you can 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
```

## 47.6 server

Using this command you can configure email server.

### Syntax:

```
server <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 Address 1 :  
Email Address 2 :  
Email Address 3 :  
Email Address 4 :  
Email Address 5 :  
Email Address 6 : jack@davidtech.com.tw
```

## 47.7 show

Using this command you can show email configuration.

### Syntax:

```
show
```

### Example:

```
Switch(smtp)# show  
Mail Server      :  
User Name        :  
Password         :  
Severity level   : Info  
Sender           :  
Return Path      :  
Email Address 1  :  
Email Address 2  :  
Email Address 3  :  
Email Address 4  :  
Email Address 5  :  
Email Address 6  :
```

## 47.8 username

Using this command you can configure email user name.

### Syntax:

```
username <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
```

## 48 SNMP Commands

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.

| 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         |
| newcommunity | Configure SNMP New Get Community |
| setcommunity | Configure SNMP Set Community     |
| show         | Show SNMP command                |
| trap         | Configure SNMP trap              |
| user         | Configure SNMP users             |
| view         | Configure SNMP views             |

### 48.1 access

Using this command you can configure SNMP access.

#### Syntax:

```
access <groupname> <any|usmno> (AuthNoPriv|AuthPriv|NoAuthNoPriv) <read-view-name> <write-view-name>
access <groupname> <v1|v2c> NoAuthNoPriv <read-view-name> <write-view-name>
```

#### Parameter:

**<groupname>**

max 32 chars.

**any**

Security Model.

**usm**

Security Model.

**v1**

Security Model.

**v2c**

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.

**<read-view-name>**

The scope for a specified instance can read, None is reserved for Empty.

**<write-view-name>**

The scope for a specified instance can write, None is reserved for Empty.

**Example:**

```
Switch(snm) # access g usm noAuthNoPriv v v
Switch(snm) # show access
```

SNMPv3 Accesses Table:

| Idx | Group Name | Model | SecurityLevel  | Read View Name | Write View Name |
|-----|------------|-------|----------------|----------------|-----------------|
| 1   | g          | usm   | NoAuth, NoPriv | v              | v               |

## 48.2 community

Using this command you can configure SNMP community.

**Syntax:**

```
community <community> <username> <ip-address> <ip-mask>
```

**Parameter:****<community>**

max 32 chars.

**<username>**

max 32 chars.

**<ip-address>**

SNMP access source ip.

**<ip-mask>**

SNMP access source address mask.

**Example:**

```
Switch(snmplib)# community david pm 192.168.6.127 255.255.255.0
Switch(snmplib)# 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
```

## 48.3 delete

Using this command you can delete command.

**Syntax:**

```
delete access <1-14>
delete community <1-4>
delete group <1-14>
delete trap <1-6>
delete user <1-10>
delete view <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(sntp)# delete access 14
```

## 48.4 *engine-id*

Using this command you can set SNMP Engine ID.

**Syntax:**

```
engine-id <HEX>
```

**Parameter:****<HEX>**

the format may not be all zeros or all 'ff',and is restricted to 5–32 octet string.

**Example:**

```
Switch(sntp)# engine-id ffffffff
```

## 48.5 *getcommunity*

Using this command you can configure SNMP Get Community.

**Syntax:**

```
getcommunity disable
getcommunity enable <community>
```

**Parameter:****disable**

Disables SNMP Get Community.

**enable**

Enables SNMP Get Community.

**<community>**

max 32 chars, default : public.

**Example:**

```
Switch(sntp)# getcommunity enable rose
Switch(sntp)# show snmp

SNMP Configuration
-----
```

```
Get Community Mode : Enable
Get Community      : rose
Set Community Mode : Enable
Set Community      : private
```

```
Idx Get Community
--- -----
1   rose
2
3
4
5
```

## 48.6 group

Using this command you can configure SNMP groups.

### Syntax:

```
group <username> usm|v1|v2c <groupname>
```

### Parameter:

#### <username>

max 32 chars

#### usm

Security Model.

#### v1

Security Model

#### v2c

Security Model

#### <groupname>

max 32 chars

### Example:

```
Switch(snmplib)# group pm v1 ccc
Switch(snmplib)# show group

SNMPv3 Groups Table:
Idx Model Security Name          Group Name
--- -----
1   v1    pm                    ccc

Number of entries: 1

Switch(snmplib)# group pm v2c aaa
Switch(snmplib)# show group

SNMPv3 Groups Table:
Idx Model Security Name          Group Name
--- -----
1   v2c    pm                    aaa
```

## 48.7 mode

Using this command you can Enable/Disable SNMP mode.

### Syntax:

```
mode disable|enable
```

### Parameter:

#### disable

Disable SNMP mode.

#### enable

Enables SNMP mode.

### Example:

```
Switch(snmp)# mode enable
Switch(snmp)# show mode

SNMPv3 State Show
SNMP State      : Enabled
SNMPv3 Engine ID : 80001455030040c7232600
```

## 48.8 newcommunity

Using this command you can configure SNMP Get Community.

### Syntax:

```
newcommunity <index> <community>
```

### Parameter:

#### <index>

Community index : 1 to 5

#### <community>

max 32 chars, default : public.

### Example:

```
Switch(snmp)# newcommunity 1 rose
Switch(snmp)# show snmp

SNMP Configuration
-----
Get Community Mode : Enable
Get Community      : public
Set Community Mode : Enable
Set Community      : private

Idx Get Community
--- -----
```

```
1  rose
2
3
4
5
```

## 48.9 *setcommunity*

Using this command you can configure SNMP Set Community.

### Syntax:

```
setcommunity disable
setcommunity enable <community>
```

### Parameter:

#### disable

Disables SNMP Set Community.

#### enable

Enables SNMP Set Community.

#### <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
```

## 48.10 *show*

Using this command you can show SNMP command.

### Syntax:

```
show access|community|group|mode|snmp|trap|user|view
```

### Parameter:

#### access

Shows snmpv3 access entry.

#### community

Shows snmpv3 community entry.

**group**

Shows snmpv3 groups entry

**mode**

Shows snmp configuration.

**snmp**

Shows snmp community configuration.

**trap**

Shows snmp trap entry.

**user**

Shows snmpv3 users entry.

**view**

Shows snmpv3 views entry.

**Example:**

```
Switch(snm) # show access

SNMPv3 Accesses Table:
Idx   Group Name   Model SecurityLevel   Read View Name   Write View Name
-----
Number of entries: 0

Switch(snm) # 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
```

## 48.11 trap

Using this command you can configure SNMP trap.

**Syntax:**

```
trap <1-6> v2 ipv4|ipv6 <ip-address> <1-65535> <0-7> <community>
trap <1-6> v3 ipv4|ipv6 <ip-address> <1-65535> <0-7> <secname> NoAuthNoPriv
trap <1-6> v3 ipv4|ipv6 <ip-address> <1-65535> <0-7> <secname> AuthNoPriv MD5|SHA <auth-pwd>
trap <1-6> v3 ipv4|ipv6 <ip-address> <1-65535> <0-7> <secname> AuthPriv SHA|MD5 <auth-pwd> DES <priv-pwd>
```

**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 IP 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

**<community>**

Community.

**<secname>**

Security name

**NoAuthNoPriv**

Security\_Level

**AuthNoPriv**

Security\_Level

**AuthPriv**

Security\_Level

**MD5**

Authentication Protocol

**SHA**

Authentication Protocol

**<auth-pwd>**

SHA Authentication Password is restricted to 8–40

MD5 Authentication Password is restricted to 8–32

**DES**

Privacy Protocol

**<priv-pwd>**

MD5 Authentication Password is restricted to 8–32

**Example:**

```
Switch(sntp)# trap 2 v3 ipv4 192.168.2.110 2 5 asvsd AuthNoPriv SHA 123456789
Switch(sntp)# trap 2 v2 ipv4 192.168.6.127 65535 7 aaa
Switch(sntp)# show trap
SNMPv3 Trap Host Configuration:
```

| No | Ver | Server IP     | Port  | Community Security Name | Severity Level | Auth. Protocol | Priv. Protocol |
|----|-----|---------------|-------|-------------------------|----------------|----------------|----------------|
| 1  |     |               |       |                         |                |                |                |
| 2  | v2c | 192.168.6.127 | 65535 | aaa                     | Debug          |                |                |
| 3  |     |               |       |                         |                |                |                |
| 4  |     |               |       |                         |                |                |                |
| 5  |     |               |       |                         |                |                |                |
| 6  |     |               |       |                         |                |                |                |

## 48.12 user

Using this command you can configure SNMP users.

**Syntax:**

```
user <username> NoAuthNoPriv
user <username> AuthNoPriv MD5|SHA <auth-pwd>
user <username> AuthPriv SHA|MD5 <auth-pwd> DES <priv-pwd>
```

**Parameter:**

**<username>**

max 32 chars.

**NoAuthNoPriv**

Security\_Level.

**AuthNoPriv**

Security\_Level.

**AuthPriv**

Security\_Level.

**MD5**

Authentication Protocol.

**SHA**

Authentication Protocol.

**<auth-pwd>**

SHA Authentication Password is restricted to 8–40

MD5 Authentication Password is restricted to 8–32

**DES**

Privacy Protocol

**<priv-pwd>**

MD5 Authentication Password is restricted to 8–32

**Example:**

```
Switch(snmplib)# user wade authnoPriv md5 12345678
Switch(snmplib)# show user

SNMPv3 Users Table:
Index User Name                               Security Level Auth Priv
-----
1      wade                                   AuthNoPriv     MD5   None
Number of entries: 1
```

## 48.13 view

Using this command you can configure SNMP views.

**Syntax:**

```
view <viewname> excluded|included <oid-subtree>
```

**Parameter:****<viewname>**

max 32 chars.

**excluded**

view\_type.

**included**

view\_type.

**<oid-subtree>**

The OID defining the root of the subtree.

**Example:**

```
Switch(snmplib)# view viewdavid included .1.3.6.1.2
Switch(snmplib)# show view

SNMPv3 Views Table:
Idx View Name                               View Type OID Subtree
---
1      viewdavid                             included .1.3.6.1.2
```

## 49 SSH Commands

This section shows you how 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.

| Command | Function               |
|---------|------------------------|
| mode    | Configure the SSH mode |
| show    | Show SSH configuration |

### 49.1 *mode*

Using this command you can configure the SSH mode.

**Syntax:**

```
mode disable|enable
```

**Parameter:**

**disable**

Disables SSH mode operation.

**enable**

Enables SSH mode operation.

**Example:**

```
Switch(ssh)# mode enable
Switch(ssh)# show
SSH Mode : Enabled
```

### 49.2 *show*

Using this command you can show SSH configuration.

**Syntax:**

```
show
```

**Example:**

```
Switch(ssh)# show
SSH Mode : Enabled
```

## 50 STP Commands

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.

| 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 |

## 50.1 *cname*

Using this command you can Set MSTP Configuration name.

### Syntax:

```
cname <name> [<0-65535>]
```

### Parameter:

#### <name>

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
```

## 50.2 *fwdDelay*

Using this command you can 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
Switch(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
```

## 50.3 *maxage*

Using this command you can 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
```

## 50.4 *maxhops*

Using this command you can Set MaxHops.

**Syntax:**

```
maxhops <6-40>
```

**Parameter:**

**<6-40>**

STP BPDUs 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
```

## 50.5 *statistics*

Using this command you can 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.
-----
-----
```

## 50.6 *txhold*

Using this command you can 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
```

## 50.7 *version*

Using this command you can 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
```

## 50.8 *bpdufilter*

Using this command you can Set edge port BPDU Filtering what you set on the switch.

**Syntax:**

```
bpdufilter disable|enable
```

**Parameter:****disable**

Disables BPDU Filtering for Edge ports.

**enable**

Enables 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
```

## 50.9 *bpduguard*

Using this command you can Set edge port BPDU Guard.

### Syntax:

```
bpduguard disable|enable
```

### Parameter:

#### disable

Disables BPDU Guard for Edge ports.

#### enable

Enables 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
```

## 50.10 *migrate-check*

Using this command you can Set the STP mCheck (Migration Check) variable for ports.

### Syntax:

```
migrate-check <port-list>
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

### Example:

```
Switch(stp)# migrate-check 1
```

## 50.11 *msti-vlan*

Using this command you can Map Vlan ID(s) to an MSTI.

### Syntax:

```
msti-vlan add <0-7> <1-4094>
msti-vlan del <0-7>
```

### 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
```

## 50.12 *p-autoEdge*

Using this command you can Set the STP autoEdge port parameter.

### Syntax:

```
p-autoEdge aggregations|<port-list> disable|enable
```

### Parameter:

#### aggregations

available value is for aggregated port.

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables MSTP autoEdges

**enable**

Enables 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     |

```
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     |
| 1    | Disabled | Disabled  | Disabled | Disabled  | Disabled | Disabled  | Auto        |
| 2    | Disabled | Disabled  | Enabled  | Disabled  | Disabled | Disabled  | Auto        |
| 3    | Disabled | Disabled  | Enabled  | Disabled  | Disabled | Disabled  | Auto        |

## 50.13 p-bpduguard

Using this command you can Set the bpduGuard port parameter.

**Syntax:**

```
p-bpduguard aggregations|<port-list> disable|enable
```

**Parameter:****aggregations**

available value is for aggregated port.

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables BPDU Guard

**enable**

Enables BPDU Guard

**Example:**

```
Switch(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     |

```
Switch(stp)# p-bpduGuard 1 enable
Switch(stp)# show pconf
```

| 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     |

```
Switch(stp)# p-bpduGuard 1 enable
Switch(stp)# show pconf
```

| 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        |

## 50.14 *p-cost*

Using this command you can 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>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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      |

```
Switch(stp)# p-cost 1 1
Switch(stp)# show p-config 1
```

| 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

```

## 50.15 *p-edge*

Using this command you can Set the STP adminEdge port parameter.

### Syntax:

```
p-edge aggregations [<port-list>] disable|enable
```

### Parameter:

#### aggregations

available value is for aggregated port.

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

#### disable

Disables MSTP protocol

#### enable

Enables 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

```

## 50.16 *p-mode*

Using this command you can 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>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables MSTP protocol

**enable**

Enables MSTP protocol

**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        |

## 50.17 p-p2p

Using this command you can Set the STP point2point port.

**Syntax:**

```
p-p2p aggregations|<port-list> auto|disable|enable
```

**Parameter:****aggregations**

available value is for aggregated port.

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**auto**

Automatic MSTP point2point detection

**disable**

Disables MSTP point2point

**enable**

Enables 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        |

```
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        |
| 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        |
| 1    | Disabled | Disabled  | Disabled | Disabled  | Disabled | Enabled   | Auto        |
| 2    | Disabled | Disabled  | Enabled  | Disabled  | Disabled | Disabled  | Disabled    |
| 3    | Disabled | Disabled  | Enabled  | Disabled  | Disabled | Disabled  | Auto        |

## 50.18 *p-priority*

Using this command you can 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>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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      |

```
Switch(stp)# show p-config 3
```

| 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

```

## 50.19 *priority*

Using this command you can Set the bridge instance priority.

### Syntax:

```
priority <0-7> <0-61440>
```

### Parameter:

#### <0-7>

STP bridge instance no (0-7, CIST=0, MSTI1=1, ...)

#### <0-61440>

STP bridge priority (0/4096/8192/12288/.../57344/61440)

### Example:

```

Switch(stp)# priority 0 61440
Switch(stp)# show priority
MSTI# Bridge Priority
-----
CIST 61440

```

## 50.20 *r-role*

Using this command you can Set the MSTP restrictedRole port parameter.

### Syntax:

```
r-role aggregations|<port-list> disable|enable
```

### Parameter:

#### aggregations

available value is for aggregated port.

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables MSTP restricted role

**enable**

Enables 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        |

```
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        |
| 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        |
| 1    | Disabled | Disabled  | Disabled | Disabled  | Disabled | Enabled   | Auto        |
| 2    | Disabled | Disabled  | Enabled  | Enabled   | Disabled | Disabled  | Disabled    |

## 50.21 r-tcn

Using this command you can Set the MSTP restrictedTcn port parameter.

**Syntax:**

```
r-tcn aggregations|<port-list> disable|enable
```

**Parameter:****aggregations**

available value is for aggregated port.

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables MSTP restricted TCN

**enable**

Enables 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    |

## 50.22 *recovery*

Using this command you can 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
```

## 50.23 *show*

Using this command you can Show Region config, MSTI vlan mapping, instance parameters and port parameters.

**Syntax:**

```
show CName|statistics|instance|msti-vlan|pconf|priority
show status|p-config <0-7>
```

**Parameter:**

**CName**

Shows MSTP Configuration name

**statistics**

Shows STP port statistics

**instance**

Shows instance status

**msti-vlan**

Shows MSTP MSTI VLAN mapping configuration

**pconf**

Shows STP Port configuration

**priority**

Shows the bridge instance priority

**status**

Shows STP Bridge status

**p-config**

Shows the STP port instance configuration

**<0-7>**

STP bridge instance no (0-7, CIST=0, MSTI1=1, ...)

**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        |

## 51 Syslog Commands

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.

| Command | Function                           |
|---------|------------------------------------|
| clear   | Clear syslog entry                 |
| level   | Configure syslog level             |
| mode    | Configure syslog mode              |
| server  | Configure syslog server IP address |
| show    | Show syslog information            |

### 51.1 *clear*

clear.

**Syntax:**

```
clear
```

**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>
```

### 51.2 *level*

Using this command you can 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
```

## 51.3 mode

Using this command you can Configure syslog mode.

**Syntax:**

```
mode disable|enable
```

**Parameter:****disable**

Disable syslog mode.

**enable**

Enables syslog mode

**Example:**

```
Switch(syslog)# mode enable
Switch(syslog)# show config
Server Mode      : Enabled
Server Address 1 :
Server Address 2 :
Syslog Level     : Debug
```

## 51.4 *server*

Using this command you can 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
```

## 51.5 *show*

Using this command you can Show syslog information.

**Syntax:**

```
show config
show log [<0-7>]
```

**Parameter:**

**config**

Shows syslog configuration.

**<log-id>**

Log ID

**log**

Shows syslog entry

**<0-7>**

Shows syslog entry that match the level

**Example:**

```
Switch(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    : 2014-01-01 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>
```

## 52 System Commands

After you login, the switch shows you the system information. This section 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.

| Command  | Function                  |
|----------|---------------------------|
| contact  | Configure system contact  |
| location | Configure system location |
| name     | Configure device name     |
| show     | Show system information   |

### 52.1 *contact*

Using this command you can Configure system contact.

**Syntax:**

```
contact <LINE>
```

**Parameter:**

<LINE>

Up to 255 characters describing system contact information.

**Example:**

```
GS-2326P(system)# contact LANCOM Systems GmbH +49 (0)2405 49936-0
GS-2326P(system)#
```

### 52.2 *location*

Using this command you can Configure system location.

**Syntax:**

```
location <LINE>
```

**Parameter:**

<LINE>

Up to 255 characters describing system location.

**Example:**

```
GS-2326P(system)# location Wuerselen, Germany
GS-2326P(system)#
```

## 52.3 name

Using this command you can Configure device name .

**Syntax:**

```
name <devicename>
```

**Parameter:**

**<devicename>**

Up to 255 characters describing device name.

**Example:**

```
Switch(system)# name MyDevice
Switch(system)#
```

## 52.4 show

Using this command you can Show system information .

**Syntax:**

```
show
```

**Example:**

```
MyDevice(system)# show
Model Name           : LANCOM GS-2326P
System Description    : 26-Port Layer-2 PoE+ Managed Gigabit Ethernet Switch with 2x
SFP
Location             : Wuerselen, Germany
Contact              : LANCOM Systems GmbH +49 (0)2405 49936-0
Device Name          : MyDevice
System Uptime        : 23:31:31
Current Time         : 2014-01-01 23:31:31
BIOS Version         : v1.00
Firmware Version     : v2.50
Hardware-Mechanical Version : v1.01-v1.01
Serial Number        : 275032000216
Host IP Address       : 192.168.2.110
Subnet Mask          : 255.255.255.0
Gateway IP Address   : 192.168.2.100
Host MAC Address     : 00-a0-57-1c-71-01
Console Baudrate     : 115200
RAM Size             : 64
Flash Size           : 16
CPU Load (100ms, 1s, 10s) : 25%, 24%, 24%
Bridge FDB Size      : 8192 MAC addresses
Transmit Queue       : 8 queues per port
Maximum Frame Size   : 9600
```

## 53 Thermal Commands

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.

| 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                             |

### 53.1 *port-priority*

Using this command you can Configure the port priority.

**Syntax:**

```
port-priority <port-list> <0-3>
```

**Parameter:**

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<0-3>**

<0-3>:

**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
```

## 53.2 *priority-temp*

Using this command you can 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
```

## 53.3 *show*

Using this command you can Show thermal protection information.

### Syntax:

```
show
```

### 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
```

## 54 Time Commands

This section allows configuration of the switch time. Time menu includes time 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.

| 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                           |
| request-interval | Configure NTP Request Interval                 |
| show             | Show the GARP configuration                    |
| time-zone        | Configure system time zone                     |
| tries-number     | Configure NTP number of tries                  |

### 54.1 *clock-source*

Using this command you can 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        : 2014-01-01 07:19:44 (YYYY-MM-DD HH:MM:SS)
Time Zone Offset  : 0 (min)
Daylight Savings  : Disabled
```

## 54.2 *daylight*

Using this command you can indicate the Daylight Savings operation.

### Syntax:

```
daylight disable
daylight enable <1-1440> By-dates <YYYY:MM:DD> <HH:MM> <YYYY:MM:DD> <HH:MM>
daylight enable <1-1440> Recurring <DAY> <WORD> <MONTH> <HH:MM> <DAY> <WORD> <MONTH> <HH:MM>
```

### Parameter:

#### disable

Disables Daylight Savings operation.

#### enable

Enables 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

#### <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 2015:03:01 10:00 2015:04:01 09:00
Switch(time)# show daylight
Clock Source      : NTP Server
Local Time        : 2014-01-01 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              : 2015-03-01 10:00 (YYYY-MM-DD HH:MM)
To                : 2015-04-01 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        : 2014-01-01 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
```

## 54.3 delete

Using this command you can delete NTP server.

**Syntax:**

```
delete <1-5>
```

**Parameter:**

**<1-5>**

NTP server index.

**Example:**

```
Switch(time)# delete 1
```

## 54.4 *manual*

Using this command you can configure system time manually.

### Syntax:

```
manual <YYYY:MM:DD> <HH:MM:SS>
```

### Parameter:

#### <YYYY:MM:DD>

Date of system, example: 2014:01:12.

#### <HH:MM:SS>:

Time, example: 23:10:55.

### Example:

```
Switch(time)# manual 2014:01:12 10:00:00
Switch(time)# show daylight
Clock Source      : Local Settings
Local Time        : 2014-01-12 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
```

## 54.5 *ntp*

Using this command you can 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 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>

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
```

## 54.6 *request-interval*

Using this command you can configure the request interval of the NTP server.

**Syntax:**

```
request-interval <sec>
```

**Parameter:**

**<sec>**

60 ~ 999999999(sec)

**Example:**

```
Switch(time)# request-interval 86400
Switch(time)#
```

## 54.7 *show*

Using this command you can show time information.

**Syntax:**

```
show daylight|ntp
```

**Parameter:****daylight**

Shows time information.

**ntp**

Shows NTP information.

**Example:**

```
Switch(time)# show daylight
Clock Source      : Local Settings
Local Time        : 2014-01-01 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
```

## 54.8 *time-zone*

Using this command you can configure system time zone.

### Syntax:

```
time-zone -<HH:MM>| [+> <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       : 2014-01-12 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
```

## 54.9 *tries-number*

Using this command you can configure the number of tries to request the time from the NTP server.

### Syntax:

```
tries-number <Number of tries>
```

### Parameter:

#### <Number of tries>

0 ~ 999999999

### Example:

```
Switch(time)# tries-number 5
Switch(time)#
```

## 55 UPnP Commands

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.

| 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 |

### 55.1 *duration*

Using this command you can 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
```

### 55.2 *mode*

Using this command you can Configure UPnP mode.

**Syntax:**

```
mode disable|enable
```

**Parameter:**

**disable**

Disables UPnP.

**enable**

Enables UPnP

**Example:**

```
Switch(upnp)# mode enable
Switch(upnp)# show
UPnP Mode           : Enabled
UPnP TTL             : 4
UPnP Advertising Duration : 86400
```

## 55.3 show

Using this command you can Show UPnP configuration.

**Syntax:**

```
show
```

**Example:**

```
Switch(upnp)# show
UPnP Mode           : Enabled
UPnP TTL             : 4
UPnP Advertising Duration : 86400
```

## 55.4 ttl

Using this command you can 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
```

## 56 VCL Commands

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.

| Command       | Function                            |
|---------------|-------------------------------------|
| delete        | Delete command                      |
| mac-vlan      | Configure MAC-based VLAN membership |
| protocol-vlan | Configure protocol-based VLAN       |
| show          | Show VCL status command             |

### 56.1 delete

Using this command you can Delete command.



You need to set MAC VLAN or Protocol VLAN first, then you could delete and clear the configuration.

#### Syntax:

```
delete mac-vlan <mac-address>
delete protocol-vlan protocol ethernet <0x0600-0xffff>
delete protocol-vlan protocol llc <0x00-0xff> <0x00-0xff>
delete protocol-vlan protocol 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
```

## 56.2 *mac-vlan*

Using this command you can 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, possible values from 1 to 4094.

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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
```

## 56.3 protocol-vlan

Using this command you can Configure protocol-based VLAN.

**Syntax:**

```
protocol-vlan protocol ethernet <0x0600-0xffff> <vgroup>
protocol-vlan protocol llc <0x00-0xff> <0x00-0xff> <vgroup>
protocol-vlan protocol snap <oui-address> <0x0000-0xffff>
protocol-vlan vlan <vgroup> <l-4094> <port-list>
```

**Parameter:****protocol**

Protocol-based VLAN ethertype protocol to group mapping

**ethernet**

Protocol-based VLAN Ethernet-II protocol to group mapping

**<0x0600-0xffff>**

Ether type

**<vgroup>**

Up to 16 characters to describe protocol-based VLAN group name

**llc**

Protocol-based VLAN LLC protocol to group mapping

**<0x00-0xff>**

DSAP value

**<0x00-0xff>**

SSAP value

**<vgroup>**

Up to 16 characters to describe protocol-based VLAN group name

**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

**<vgroup>**

Up to 16 characters to describe protocol-based VLAN group name

**<1-4094>**

VLAN ID, possible values from 1 to 4094.

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**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
```

## 56.4 show

Using this command you can Show VCL status command.

**Syntax:**

```
show mac-config
show mac-status static
show protocol-vlan
```

**Parameter:****mac-config**

Shows MAC-based VLAN entry

**mac-status**

Shows MAC-based VLAN status

**static**

Shows the VCL MAC-based VLAN entries configured by the administrator

**protocol-vlan**

Shows 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 protocol-vlan
Protocol Type    Protocol (Value)      Group Name
-----
SNAP             OUI-00:10:cc; PID:0xeeee  kevin
Ethernet         ETYP:0xffff           david

Group Name      VID  Ports
-----
jack            3000 1
```

## 57 VLAN Commands

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.

| 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 |

### 57.1 *delete*

Using this command you can 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, possible values from 1 to 4094.

#### Example:

```
Switch(vlan)# delete forbidden 1
Switch(vlan)# delete group 1
```

## 57.2 egress-rule

Using this command you can Configure egress-rule of switch ports.

### Syntax:

```
egress-rule <port-list> access|hybrid|trunk
```

### Parameter:

#### <port-list>

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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 : 0x88a
```

| 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   |

## 57.3 forbidden

Using this command you can Configure forbidden VLAN group.

### Syntax:

```
forbidden <1-4094> <WORD> <port-list>
```

### Parameter:

#### <1-4094>

VLAN ID, possible values from 1 to 4094.

#### <WORD>

Up to 33 characters describing VLAN name

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**Example:**

```
Switch(vlan)# forbidden 1 david 2-5
Switch(vlan)# show forbidden
VID    VLAN Name                Ports
----    -
1      david                    2-5
```

## 57.4 frame-type

Using this command you can Configure frame type of switch ports.

**Syntax:**

```
frame-type <port-list> all|tagged|untagged
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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
```

## 57.5 ingress-filtering

Using this command you can Configure ingress filtering of switch ports.

**Syntax:**

```
ingress-filtering <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disables ingress filtering

**enable**

Enables 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   |

## 57.6 port-type

Using this command you can Configure port type of switch ports.

**Syntax:**

```
port-type <port-list> c-port|s-custom-port|s-port|unaware
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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 |

## 57.7 pvid

Using this command you can Configure port VLAN ID.

**Syntax:**

```
pvid <port-list> <1-4094>
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**<1-4094>**

VLAN ID, possible values 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   |

## 57.8 show

Using this command you can Show VLAN information.

**Syntax:**

```
show forbidden|port-config
show port-status (combined|gvrp|mstp|mvr|nas|static|voice)
show vlan [combined|gvrp|mstp|mvr|nas|static|vcl|voice]
```

**Parameter:****forbidden**

Shows VLAN forbidden group

**port-config**

Shows 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**

Shows VLAN group

**combined**

Shows all the combined VLAN database

**gvrp**

Shows the VLANs configured by GVRP

**mstp**

Shows the VLANs configured by MSTP

**mvr**

Shows the VLANs configured by MVR

**nas**

Shows the VLANs configured by NAS

**static**

Shows the VLAN entries configured by the administrator

**vcl**

Shows the VLANs configured by VCL

**voice**

Shows 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  |

## 57.9 tag-group

Using this command you can Configure tag-based VLAN group.

**Syntax:**

```
tag-group <1-4094> <name> <port-list>
```

**Parameter:****<1-4094>**

VLAN ID, possible values from 1 to 4094.

**<name>**

Up to 33 characters describing VLAN name

**<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (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     |

## 57.10 *tpid*

Using this command you can Configure the TPID used for Custom S-ports. This is a global setting for all the Custom S-ports.

**Syntax:**

```
tpid <0x0600-0xffff>
```

**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   |

## 58 Voice VLAN Commands

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.

| 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                                                        |

### 58.1 config

Using this command you can Configure Voice VLAN.

#### Syntax:

```
config disable  
config enable <1-4094> <10-1000000> <0-7>
```

#### Parameter:

##### disable

Disable Voice VLAN mode operation.

##### enable

Enables Voice VLAN mode operation.

##### <1-4094>

VLAN ID, possible values 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
```

## 58.2 delete

Using this command you can 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
```

## 58.3 discovery

Using this command you can Configure Voice VLAN discovery protocol.

**Syntax:**

```
discovery <port-list> both|lldp|oui
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**both**

Both OUI and LLDP.

**lldp**

Detect telephony device by LLDP.

**oui**

Delete Voice VLAN OUI entry. Modify OUI table will restart auto detect OUI process.

**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
```

## 58.4 oui

Using this command you can Create Voice VLAN OUI entry. Modify OUI table will restart auto detect OUI process.

**Syntax:**

```
oui <oui-address> [<description>]
```

**Parameter:****<oui-address>**

OUI address, format : 0a-1b-2c.

**<description>**

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
```

## 58.5 port-mode

Using this command you can Configure Voice VLAN port mode.

**Syntax:**

```
port-mode <port-list> auto|disable|force
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**auto**

Enables 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                |

## 58.6 security

Using this command you can Configure Voice VLAN port security mode.

**Syntax:**

```
security <port-list> disable|enable
```

**Parameter:****<port-list>**

Port list, possible values depending on distinct hardware model. Individual ports are separated by comma, port ranges are joined by hyphen (1,3-5).

**disable**

Disjoin from Voice VLAN

**enable**

Enables 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
```

## 58.7 show

Using this command you can Show Voice VLAN information.

**Syntax:**

```
show config|oui
```

**Parameter:****config**

Shows Voice VLAN configuration.

**oui**

Shows 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
```